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June 15, 2006

Mr. Amir Gholami
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

Site: Caltrans Former Hegenberger Maintenance Station, 555 Hegenberger Road, Oakland, California

Subject: Low-Risk Case Closure Summary Report

Dear Mr. Gholami:

Please find enclosed the above referenced report. The report was prepared in accordance with the Alameda County *Low Risk Guidelines Document* provided by your office.

If you have any questions concerning the contents of the report, please give me a call at (925) 371-5900.

Sincerely,
GEOCON CONSULTANTS, INC.

John Love, PG
Sr. Project Geologist

2006 JUN 16 AM 7:30

2356 Research Drive ■ Livermore, CA 94550-3848 ■ Telephone (925) 371-5900 ■ Fax (925) 371-5915

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LOW-RISK CASE CLOSURE SUMMARY REPORT

FORMER HEGENBERGER MAINTENANCE STATION 555 HEGENBERGER ROAD OAKLAND, CALIFORNIA

PREPARED FOR:

CALIFORNIA DEPARTMENT OF TRANSPORTATION
DISTRICT 4
OFFICE OF ENVIRONMENTAL ENGINEERING
111 GRAND AVENUE
OAKLAND, CALIFORNIA

PREPARED BY:

GEOCON CONSULTANTS, INC.
2356 RESEARCH DRIVE
LIVERMORE, CALIFORNIA

CALTRANS CONTRACT NO. 04A1862
TASK ORDER NO. 31

GEOCON PROJECT NO. E8220-06-31

JUNE 2006

GEOCON
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ENVIRONMENTAL ■ GEOTECHNICAL ■ MATERIALS

June 29, 2006

Mr. Amir Gholami
Alameda County Environmental Health
1131 Harbor Parkway
Alameda, CA 94502

Subject: Low-Risk Case Closure Report

Site: Former Caltrans Hegenberger Maintenance Station, 555 Hegenberger Road, Oakland, California

Dear Mr. Gholami:

Please find enclosed one copy of the above referenced report. The report was prepared on behalf of Caltrans for the purpose of acquiring case closure from the Alameda County Environmental Health Department.

If you have any questions concerning the contents of the report please give me a call at (925) 371-5900.

Sincerely,
GEOCON CONSULTANTS, INC.

John Love, PG
Sr. Project Geologist

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Project No. E8220-06-31
June 22, 2006

Mr. Bahram Sazegar
California Department of Transportation
District 4
111 Grand Avenue, 14th Floor
Post Office Box 23660
Oakland, California 94623-0660

Subject: LOW RISK CASE CLOSURE SUMMARY REPORT
FORMER HEGENBERGER MAINTENANCE STATION
555 HEGENBERGER ROAD, OAKLAND, CALIFORNIA
CONTRACT NO. 04A1862, TASK ORDER NO. 31

Dear Mr. Sazegar:

In accordance with California Department of Transportation (Caltrans) Contract No. 04A1862 and Task Order No. 31, Geocon has performed environmental engineering services associated with the Former Caltrans Hegenberger Maintenance Station located at 555 Hegenberger Road in Oakland, California.

The scope of services contained in this report consisted of compiling data presented in reports prepared by Geocon and other consultants for the purpose assessing subsurface soil and groundwater quality conditions with current regulatory guidelines required for case closure as a low risk soil and groundwater site.

The contents of this report were prepared using data produced by others. To that extent, Geocon is not responsible for the accuracy of the data presented in reports prepared by others. The contents of this report do not necessarily reflect the official views or policies of the State of California or the Federal Highway Administration. This report does not constitute a standard, specification, or regulation.

If there are any questions concerning the contents of this report, or if Geocon may be of further service, please contact the undersigned at your convenience
Sincerely,

GEOCON CONSULTANTS, INC.

John Love, PG
Sr. Project Geologist

Richard Day, CEG, CHG
Regional Manager

RSD:RWD:rjk

Expires 11-30-06

(3) Addressee
(1) Amir Gholami, Alameda County Department of Environmental Health

TABLE OF CONTENTS

FIGURES

TABLE OF CONTENTS (continued)

TABLES

APPENDICES

LOW-RISK CASE CLOSURE SUMMARY REPORT

1.0 INTRODUCTION

This Low Risk Case Closure Summary Report for the California Department of Transportation (Caltrans) Former Hegenberger Maintenance Station was prepared under Caltrans Contract No. 4A1862 and Task Order (TO) No. 31. The report was prepared to summarize soil and groundwater sample results obtained during previous source removal and characterization studies for the purpose of obtaining case closure from the Alameda County Department of Environmental Health (DEH) and the Regional Water Quality Control Board – San Francisco Bay Region (RWQCB).

1.1 Site Description

The subject site is located at 555 Hegenberger Road in Oakland, California, approximately ½ mile south of the Oakland Coliseum near the northeast corner of the intersection of Interstate 880 and Hegenberger Road as shown on Figure 1, Vicinity Map. The site was formerly used by Caltrans to store and service maintenance vehicles and equipment. The site currently exists as a General Motors Corporation (GMC) Truck Center that uses the former Caltrans site to park and store vehicles.

The Caltrans site structures shown on Figure 2, which were removed from the site between 1994 and 1996, included two 2,000-gallon diesel and two 6,500-gallon steel gasoline underground storage tanks (USTs), product pipelines, vapor return lines, fuel dispenser island, and vehicle maintenance building. The former Caltrans site now exists as a flat lot paved with asphalt.

1.2 Background

In July 1993, Clayton Environmental Consultants (Clayton) conducted a limited environmental assessment of the GMC property located west of the Caltrans site. The purpose of the investigation was to assess whether petroleum hydrocarbon compounds associated with the Caltrans USTs had impacted soil and groundwater beneath the GMC site located immediately west of the Caltrans facility. Clayton advanced four soil borings (BH-1 through BH-4) along the GMC / Caltrans property boundary as shown on Figure 2. Results of the investigation indicated that total petroleum hydrocarbons as gasoline (TPHg) and as diesel (TPHd), and oil and grease (O&G) were present in soil and groundwater beneath the GMC site as a result of the Caltrans USTs.

In September 1994, the USTs, associated piping, and fuel dispensers were removed from the Caltrans site, and approximately 393 tons of petroleum hydrocarbon-impacted soil were removed and disposed offsite. Confirmation soil samples collected from the UST excavation indicated that petroleum hydrocarbons had impacted soil beneath and around the former USTs.

In September and October 1995, six temporary borings (BH-1 through BH-6) were advanced, and five monitoring wells (MW-1 through MW-5) were constructed at the site (see Figure 2) to assess the vertical and lateral extent of impacts to soil and groundwater beneath the Caltrans site. Results of the investigation indicated that a limited amount of soil in the immediate vicinities of the former USTs and pump island were impacted by petroleum hydrocarbons from the former fuel system; the O&G previously reported at the site may be naturally occurring organic matter; the maximum TPHg and benzene concentrations in groundwater beneath the site were 1.3 mg/l and 0.66 mg/l, respectively; and additional investigation would be necessary to define the lateral extent of dissolved hydrocarbons in groundwater north, west and east of the former UST excavation.

In December 2001, four soil borings (BH-6 through BH-9) were advanced at the Caltrans and GMC sites to assess the lateral extent of the petroleum hydrocarbon plume in groundwater (see Figure 2). One boring (BH-6) was drilled through the center of the former UST excavation; one boring (BH-7) was placed near the former fuel dispenser island; and two borings (BH-8 and BH-9) were positioned in the down gradient groundwater flow direction on the GMC site. Results of the December 2001 investigation indicated that low concentrations of petroleum hydrocarbons were present down gradient of monitoring wells MW-3 and MW-4 and the lateral extent of the plume beneath the area was adequately defined.

Groundwater monitoring at the Former Caltrans Hegenberger Maintenance Station has been conducted on an annual basis since 2001.

2.0 SITE LITHOLOGY AND HYDROGEOLOGIC CONDITIONS

Subsurface soil and groundwater conditions were obtained from boring logs included in site investigation reports prepared by Geocon Consultants, Inc.

2.1 Site Lithology

The site lithology consists of unconsolidated alluvium and near-shore to wetlands deposits consisting of predominantly fine sands, black bay mud, and silts inter-fingered with lesser amounts of clay and silt mixed sands and gravels.

Soils encountered during past drilling operations at the site consisted of three feet of fill material (sub-angular clayey gravel) overlying moist, black, low permeability silty clay and clay deposits that extend to depths of approximately 13 feet below ground surface (bgs) and that overly stratigraphic units of saturated, olive-brown, silty sands, clayey sands, and clayey gravels to the maximum depth drilled of 20 feet bgs. Generalized east-west and north-south geologic cross-sections are presented as Figures 3 and 4. Copies of boring logs and well completion diagrams are included in Appendix A.

2.2 Site Hydrogeology

The groundwater flow direction in the vicinity of the site appears to flow in a radial direction centered somewhere near monitoring well MW-1 (see Figures 3 and 4) at gradients ranging from 0.042 to 0.006 foot per foot (ft/ft). However, based on the contaminant concentrations reported in groundwater samples collected from the five monitoring wells, the predominant flow direction(s) impacting the distribution of contaminants in groundwater beneath the area appears to be towards the southwest to north directions.

During the installation of monitoring wells MW-1 through MW-5 in September 1995, water was first encountered while drilling at 13 to 18 feet bgs. After construction and development, static water level measurements were measured between 6.42 and 6.88 feet bgs, indicating confined or semi-confined groundwater conditions. Inspection of the well logs (Appendix A) indicate the top of the water bearing zone coincides with the base of a 13 ft. thick layer of stiff, moist, black clay with medium plasticity that acts as the confining bed. Historic depth to groundwater data are presented in Table 2.

3.0 SOIL AND GROUNDWATER QUALITY CONDITIONS

Soil and groundwater sample results were compiled from previous investigations conducted by Clayton (1993), GHH Engineering, Inc. (November and December 1994), and Geocon (January 1996, July 2002, and June 2005).

3.1 Excavation Soil Sample Results

In September 1994, the USTs, associated piping, and fuel dispensers were removed from the Caltrans site. Approximately 393 tons of petroleum impacted soil were removed from the site and disposed at the Vasco Road Class II Landfill during the UST removal activities.

Eight confirmation soil samples (TE-1 through TE-8) were collected from the over-excavated UST pit, and two soil samples (PI-1 and PI-2) were collected beneath the former fuel dispenser island (see Figure 2). Results of the soil samples indicated that TPHg was present in several sample locations at concentrations as high as 480 milligrams per kilogram (mg/kg), TPHd was present at concentrations as high as 380 mg/kg, O&G was present as high as 1,900 mg/kg, and BTEX compounds were reported as high as 7.6 mg/kg (ethylbenzene) with the highest benzene concentration being report at 2.0 mg/kg. Composite stockpile soil samples collected from over-excavated soil were reported to contain TPHg, TPHd, and O&G at concentrations ranging from non-detect to 330 mg/kg (O&G) and BTEX compounds as high as 1.010 mg/kg (benzene). The confirmation soil sample and composite stockpile sample results are presented in Table 1.

3.2 Temporary Boring and Monitoring Well Borehole Soil Sample Results

In July 1993, Clayton conducted a limited environmental assessment of the GMC property located west of the Caltrans site. The purpose of the investigation was to assess whether petroleum hydrocarbon compounds associated with the Caltrans USTs had impacted soil and groundwater beneath the GMC site located immediately west of the Caltrans facility. Clayton advanced four soil borings (BH-1 through BH-4) along the GMC / Caltrans property boundary as shown on Figure 2. Results of the investigation indicated that TPHg and TPHd, and O&G were present in soil at concentrations as high as 480 mg/kg, and TPHg and TPHd were present in groundwater at concentrations as high as 0.78 milligrams per liter (mg/l) and 47 mg/l, respectively. None of the soil or groundwater samples were analyzed for benzene, toluene, ethylbenzene, or xylenes (BTEX).

In September and October 1995, six temporary borings (BH1 through BH6) were advanced, and five monitoring wells (MW-1 through MW-5) were constructed at the site (see Figure 2). Results of the investigation indicated that soil beneath the site remained largely unaffected by the petroleum hydrocarbon release from the former Caltrans fuel system. The only TPHg and TPHd concentrations detected above the reporting limits were in borings BH6 and MW-5. TPHg was reported at a

concentration of 1.6 mg/kg in the 5-foot soil sample collected from the MW5 borehole, and TPHd was reported at concentrations of 24 mg/kg and 16 mg/kg in the 6- and 11-foot soil samples collected from boring BH6 advanced beneath the former fuel dispenser island. Likewise, BTEX compounds were reported in three boreholes at concentrations ranging from 0.006 mg/kg (ethylbenzene) to 0.88 mg/kg (xylenes), with the only benzene concentrations (0.012 mg/kg and 0.030 mg/kg) being reported in the 8- and 20-foot soil samples collected from the MW3 borehole.

Analytical laboratory results of soil samples collected during the 1995 investigation are presented in Table 1, and groundwater sample results collected from MW-1 through MW-5 are presented in Table 2.

3.3 Temporary Boring Grab Groundwater Sample Results

A total of six grab groundwater samples have been collected in conjunction with the former Caltrans USTs. Grab groundwater samples were collected from temporary borings BH1 and BH3 during the 1993 GMC site investigation conducted by Clayton, and four additional grab groundwater samples (one from each boring) were collected from borings B-6 to B-9 during the 2001 investigation conducted by Geocon.

Temporary borings BH1 and BH3 were advanced in 1993 along the west margin of the former UST excavation on the GMC site, approximately one year before the Caltrans tanks were removed (see Figure 2). The grab groundwater samples were analyzed for TPHg and TPHd (BTEX analysis was not performed during this investigation). The highest TPHg concentration reported during the 1993 investigation was 0.78 mg/l in the BH1 grab groundwater sample, and the highest TPHd concentration (47 mg/l) was in the BH3 grab groundwater sample.

The grab groundwater samples collected from borings BH-6 though BH-9 in 2001 were analyzed for TPHg, TPHd, BTEX, MTBE, and VOCs. TPHg and TPHd were reported in all grab groundwater samples analyzed for these constituents at concentrations ranging from 0.06 mg/l (TPHg) to 0.3 mg/l (TPHd). Toluene and xylenes were reported in the BH8 and BH-9 grab groundwater samples at concentrations ranging 0.0007 mg/l to 0.0015 mg/l. Benzene and MTBE were reported as non-detect in all four grab groundwater samples.

Volatile organic compounds (VOCs) 1,1,2-trichloroethane (0.010 mg/l), 1,1-dichloroethane (0.099 mg/l), and 1,1-dichloroethene (0.054 mg/l) were reported in the BH7 grab groundwater sample collected along the east property margin near Hegenberger Road; however, these compounds were not detected in any other boring location, and these analytes were attributed to an unknown offsite source.

Grab groundwater sample results from the 1995 and 2001 investigations are presented in Table 3.

3.4 Monitoring Well Groundwater Sample Results

Monitoring wells MW-1 through MW-5 were constructed in September 1995. The wells were sampled on a quarterly basis from October 1995 until November 1996, and then once in February 1998. The wells were not sampled again until March 2001, at which time annual sampling of the wells began and continued until May 2005.

Groundwater samples have been collected 12 times from monitoring wells MW-1 through MW-5 since October 1995. Groundwater samples were initially sampled for TPHg, TPHd, TPHmo, O&G, BTEX and MTBE; however, TPHmo, O&G and MTBE have since been dropped from the analyte list because they were not detected at concentrations which the DEH felt warranted additional testing. VOCs were added to the suite of analyses in December 2001; however they were eliminated from the requested analyte list in 2002 because they were not detected at concentrations of concern to the DEH.

Groundwater sample results from the five wells are presented in Table 2, and isoconcentration maps for TPHg and benzene reported for the years 1995 (initial), 2001 (interim), and 2005 (recent) are presented as Figures 7 through 12.

The lateral extent of TPHg and benzene in groundwater increased at the site between 1995 and 2001, however, sometime between 1998 and 2001 the plume size appears to have stabilized.

TPHg and benzene concentration charts for MW-1 through MW-5 are provided in Appendix B. As the charts indicate, TPHg concentrations in monitoring wells MW-1, and MW-3 through MW-5 have decreased since 2001, while concentrations in monitoring well MW-2 show an apparent increasing trend during the same time period. An additional time versus TPHg concentration graph is provided for MW-2 which indicates that while TPHg concentrations have increased in this well since 2001, the slope of the time/concentration line is nearly flat (indicating a near stable concentration trend) when concentrations since 1995 are plotted. An accurate time versus concentration trend is difficult to plot for TPHg concentrations in MW-2 because the reported TPHg concentrations are usually just above or just below the method detection limits. Additionally, the benzene concentrations in MW-2 show a decreasing trend whether data collected prior to 2001 is omitted or not.

4.0 SENSITIVE RECEPTORS

The nearest surface waters are a drainage canals located approximately 1,800 feet west and southwest of the site (see Figure 1). The canals both drain into San Leandro Bay located approximately one mile northwest of the site. Based on the site's proximity to the canals, petroleum hydrocarbons originating from the Caltrans site do not pose a threat to aquatic biota associated with San Leandro Bay or its tributaries.

Based on the site history presented in the report prepared by GHH Engineering, Inc., entitled *Initial Site Assessment, Caltrans Oakland Facility, 555 Hegenberger, Oakland, California*, dated November 1994, there should not be any utilities buried deeper than first encountered groundwater (13 feet bgs) which could provide a preferential pathway for subsurface contaminant migration.

5.0 COMPARISON OF CONTAMINANT CONCENTRATIONS AND CITY OF OAKLAND ENVIRONMENTAL RISK-BASED SCREENING LEVELS

Tier 1 Risk-Based Screening Levels (RBSLs) developed by the City of Oakland Public Works Agency, Environmental Services Division (PWA), and Tier 3 Site Specific Target Levels (SSTLs) developed using PWA software, were compared with contaminant concentrations in soil and groundwater beneath the Caltrans site. The applied RBSLs and SSTLs were based on viable exposure pathways associated with present and potential future property uses of the Caltrans site. Tier 1 RBSLs and Tier 3 SSTLs are presented in Appendix C, along with the input parameters used to develop each.

Since shallow-depth groundwater beneath the site is not used for drinking water purposes, the only exposure pathways applicable for the site are vapor intrusion from groundwater and soil to indoor and outdoor air, and direct exposure to soil (workers contacting excavated soil). Additionally, although RBSL and SSTL comparisons were made for both residential and commercial sites, the appropriate classification of the Caltrans site is that of a commercial property underlain by low permeable soils (clays and silts).

Geocon completed the City of Oakland Risk-Based Corrective Action (RBCA) Eligibility Checklist (provided in Appendix C) to determine if the site was eligible for comparison with the Tier 1 or Tier 2 RBSLs, or whether comparison with Tier 3 SSTLs was necessary. Results of the checklist indicate that establishment of Tier 3 SSTLs was necessary for the Caltrans South Oakland site because groundwater is less than 10 feet bgs, and inhalation of volatilized contaminants of concern (COCs) from groundwater to indoor air or outdoor air is a pathway of concern but groundwater ingestion is not.

Tier 3 SSTLS were calculated for the site using the City of Oakland software available on the PWA website. Based on the site lithology, Geocon used the clayey silts input default parameters, and site specific depth to groundwater and depth to subsurface soil data to calculate Tier 3 SSTLs.

Since the Tier 3 SSTLs are typically less stringent than the Tier 1 RBSLs, comparison of COC concentrations in soil and groundwater beneath the site with both the Tier 1 RBSLs and Tier 3 SSTLs are presented to further justify the site's qualification for low risk closure.

The COCs at the site include BTEX and MTBE.

5.1 Volatilization of Contaminants in Groundwater to Indoor and Outdoor Air

A comparison of COC concentrations in groundwater beneath the site with the Tier 1 RBSLs established by the City of Oakland for BTEX and MTBE volatilization from groundwater to indoor and outdoor air are shown in Tables 4 and 4A, and Tier 3 SSTL comparisons are provided in Tables 5 and 5A. For comparison purposes, the maximum reported concentrations at the site were used, as were the most recent concentrations reported during the groundwater sample event conducted in May 2005. The contaminant concentrations were compared with the RBSLs and SSTLs established for both residential and commercial sites.

The maximum reported contaminant concentrations at the site do not exceed the Tier 3 SSTLs.

The only exceedance noted in the comparison of groundwater concentrations with the Tier 1 RBSLs was benzene. The highest benzene concentration of 3.070 mg/l exceeded the Tier 1 residential and commercial carcinogenic RBSLs of 0.11 mg/kg and 1.8 mg/kg, respectively (see Table 4). No other Tier 1 RBSLs were exceeded.

5.1.1 Calculated TPHg and Benzene Half-Life Concentrations in Groundwater

After the USTs and contaminated soil surrounding the tanks were removed in 1995, TPHg and benzene concentrations in monitoring wells MW-1 through MW-5 generally increased until sometime between 1995 and 2001, at which time contaminant concentrations began to decrease in all wells. This conclusion is supported by TPHg concentration trends plotted on charts for monitoring wells MW-1 through MW-5 provided in Appendix B. The TPHg concentration plot for MW-2 shows a slight increasing trend over time; however, this is a result of low to non-detect concentrations historically reported at the location.

Both arithmatic and semi-logarithmic graphs were plotted for TPHg concentrations reported in MW-1 through MW-5 from December 2001 to May 2005. With the exception of MW-2, all wells show clear decreasing TPHg concentration trends since 2001, indicating that contaminant concentrations are attenuating with time. The apparent increasing TPHg concentrations in MW-2 are likely due to its proximity to the former UST excavation, shifting groundwater flow directions, and low concentrations (TPHg detections in MW-2 are generally just above the reporting limit). If TPHg concentrations in MW-2 are plotted from October 1995 to May 2005, the TPHg concentration trend line is nearly flat, indicating that TPHg concentrations in MW-2 have generally increased from 2001 to May 2005; however, they have remained within historical levels over the last 10 years. The potential that TPHg concentrations in MW-2 will decrease within a reasonable time frame is supported by declining benzene concentrations reported in this same well.

Arithmatic and semi-logarithmic graphs were also plotted for benzene concentrations reported in MW-1 through MW-5 from October 1995 to May 2005. Graphs were also prepared for benzene concentrations reported in MW-2 from December 2001 to May 2005 to compare with the TPHg graphs prepared for this same well (see Appendix B). The benzene concentrations in monitoring wells MW-1 through MW-5 show a decreasing concentration trend over the last 10 years.

Based on the contaminant trend slopes of each well, the half-life for TPHg and benzene concentrations in MW1 through MW5 can be calculated using the following formula:

$$t_{0.5} = \ln(0.5) / \text{slope}.$$

Where:

$t_{0.5}$ = half-life of MTBE [days]

ln (0.5) = natural log of 0.5 (equals -0.693)
slope = first order degradation constant [day $^{-1}$]

The TPHg degradation constants (trendline slope) for wells MW-1, and MW-3 through MW-5 range from -0.0003 to -0.0006. This equates to a TPHg half-life ranging from 1,155 days (3.16 years) to 2,310 days (6.33 years). The benzene degradation trendline slope for wells MW-1 through MW-5 range from -0.0038 to -0.0005. This equates to a benzene half-life ranging from 182 days (0.50 years) to 1,386 days (3.80 years).

This graphical method used to determine site-specific degradation rate and half-life is consistent with the approach presented in "*Regression Techniques and Analytical Solutions to Demonstrate Intrinsic Bioremediation. In: Intrinsic Bioremediation*" (Buscheck and Alcantar, 1995).

5.2 Volatilization of Contaminants in Soil to Indoor and Outdoor Air

A comparison of COC concentrations in soil beneath the site with the Tier 1 RBSLs established by the City of Oakland for BTEX and MTBE volatilization from soil to indoor and outdoor air are shown in Tables 6 and 6A, and Tier 3 SSTL comparisons are provided in Tables 7 and 7A. For comparison purposes, the maximum reported concentrations at the site were used to compare with the RBSLs and SSTLs established for both residential and commercial sites.

The maximum reported contaminant concentrations at the site do not exceed the Tier 3 SSTLs.

The only exceedances noted in the comparison of the maximum soil concentrations with the Tier 1 RBSLs was benzene. The highest benzene concentration of 2.0 mg/kg exceeded the Tier 1 residential and commercial carcinogenic RBSLs of 0.062 mg/kg and 1.1 mg/kg for volatilization to indoor air, as well as the residential and commercial RBSLs for volatilization to outdoor air of 0.19 mg/kg and 0.73 mg/kg (see Tables 6 and 6A). No other Tier 1RBSLs were exceeded.

5.3 Direct Exposure to Contaminants in Soil

Should soil excavation take place at some point in the future as the result of redevelopment or modification to the Caltrans site, workers could potentially come into direct contact with petroleum-impacted soils. Contaminant concentrations in soil used to compare with the Tier 1 RBSLs and Tier 3 SSTLs for direct exposure are the maximum reported concentrations at the site. The RBSLs and SSTLs used to simulate the direct exposure pathway are those values listed under the surficial soil exposure route in the City of Oakland RBSL and SSTL tables provided in Appendix C.

The maximum reported contaminant concentrations in soil at the site do not exceed the Tier 1 RBSLs or the Tier 3 SSTLs.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of previous investigations and quarterly groundwater monitoring the following is concluded:

- Source removal was conducted in September 1994 when the USTs and contaminated soil surrounding the USTs were removed from the site.

- After several investigations, and quarterly groundwater monitoring events, the lateral and vertical extent of soil and groundwater contamination was adequately characterized. Impacts to soil are primarily restricted to the immediate vicinity of the former USTs.

  The lateral extent of the petroleum hydrocarbon plume has changed through time, as shown in Figures 7 through 12; however, the plume appears to have stabilized over the last several years and contaminant concentrations are attenuating with time. Contaminant concentrations appear to have peaked sometime between 1998 and 2001, and have generally been decreasing ever since.

- Groundwater flow direction maps prepared for 1995 and 2005 (Figures 5 and 6) indicates groundwater beneath the study area flows in a radial direction centered near MW1; however, the distribution of contaminants in groundwater beneath the area indicates the predominant flow direction(s) range from northwest to southwest.

- A comparison of soil and groundwater contaminant concentrations with City of Oakland SSTLs indicates that no Tier 3 SSTL (which the site is classified under according to City of Oakland RBCA criteria) was exceeded under the residential or commercial land use scenarios. To further support case closure contaminant concentrations were also compared to Tier 1 RBSLs. The only compound which exceeds the Tier 1 RBSLs was benzene.

Based on the information presented in this report, the lateral extent of the plume has stabilized, and current COC concentrations do not pose an unacceptable risk to the environment or human health. Therefore, Geocon recommends the DEH consider this site for case closure as a low risk groundwater site.

7.0 LIMITATIONS

This report has been prepared exclusively for Caltrans. The information contained herein is only valid as of the date of the report, and will require an update to reflect additional information obtained.

This report is not a comprehensive site characterization and should not be construed as such. The findings as presented in this report are predicated on the results of the limited sampling and laboratory testing performed. In addition, the information obtained is not intended to address potential impacts related to sources other than those specified herein. Therefore, the report should be deemed conclusive with respect to only the information obtained. We make no warranty, express or implied, with respect to the content of this report or any subsequent reports, correspondence or consultation. Geocon strived to perform the services summarized herein in accordance with the local standard of care in the geographic region at the time the services were rendered

8.0 REFERENCES

City of Oakland Public Works Agency, January 2000, Oakland Urban Land Redevelopment Program: Guidance Document

Clayton Environmental Consultants, September 1993, Untitled Correspondence (and Figure) to Alameda County Health Agency

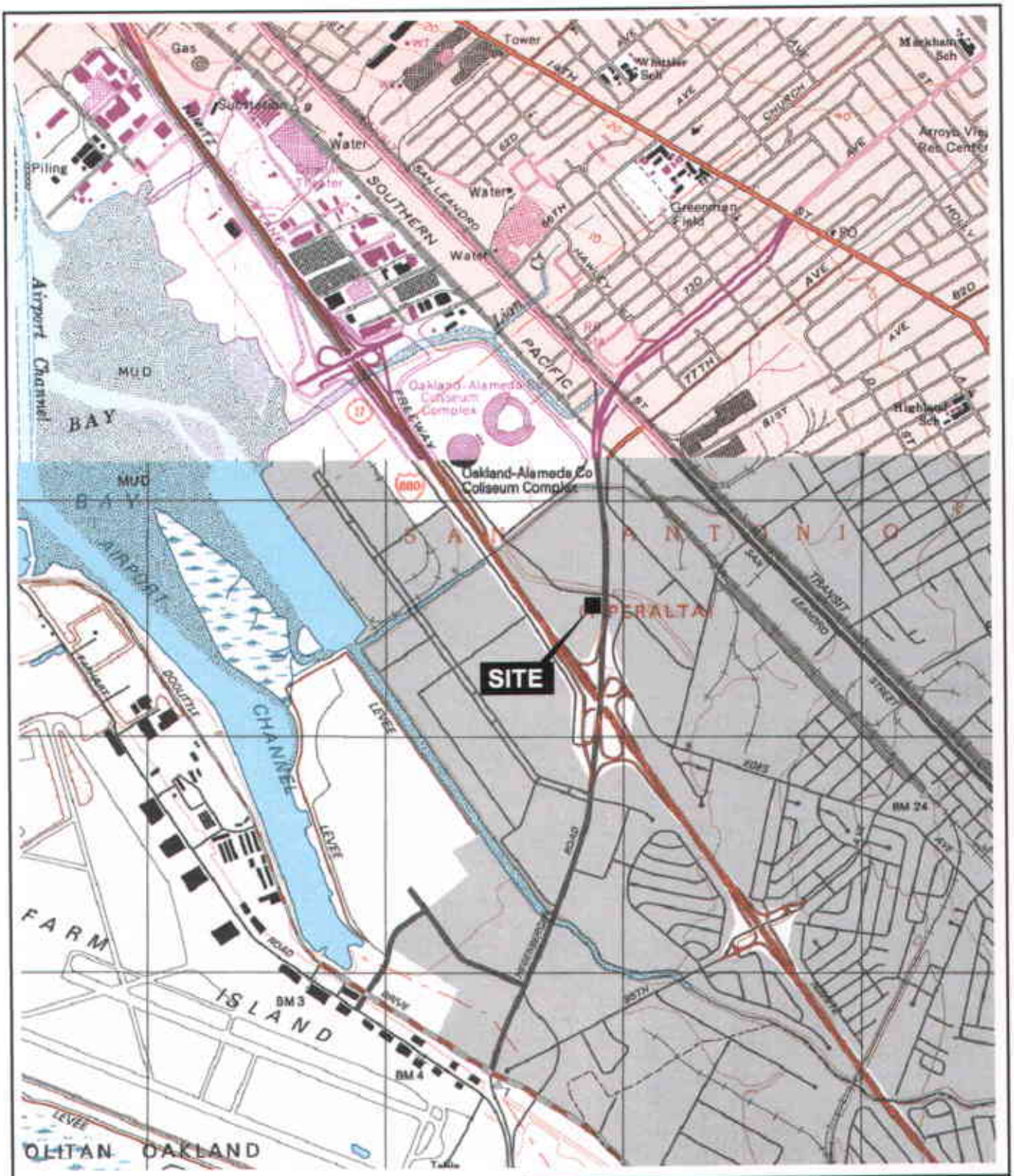
Geocon Environmental Consultants, Inc., January 1996, Site Investigation Report For Hegenberger Maintenance Station, Oakland, California

Geocon Environmental Consultants, Inc., July 2002, Limited Soil and Groundwater Investigation and Fourth Quarter 2001 Semi-Annual Groundwater Monitoring and Sampling Report, Former Hegenberger Maintenance Station, Oakland, California

Geocon Environmental Consultants, Inc., June 2005, 2005 Annual Groundwater Monitoring Report, Former Hegenberger Maintenance Station,555 Hegenberger Road, Oakland, California

GHH Engineering, Inc, November 1994, Initial Site Assessment, Caltrans Oakland Facility, 555 Hegenberger, Oakland, California

GHH Engineering, Inc, December 1994, Tank Removal Report, Caltrans Oakland, Oakland, California



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Hegenberger Maintenance Station

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VICINITY MAP

GEOCON Proj. No. E8220-06-31 | June 2006 | Figure 1

LEGEND:
- Groundwater Monitoring Well Location
- Soil Boring Location (GEOCON, 2001)
- Soil Sample Location (GEOCON, 1995)
- Soil Sample Location (GHH Engineering, 1994)
- Soil Boring Location (Clayton, 1993)

Coliseum Way

FORMER CALTRANS MAINTENANCE STATION

Hegenberger Road

GMC Truck Dealer

BH-9

2,000-Gal. Diesel UST (removed)

MW-3

MW-2

6,500-Gal. Gasoline USTs (removed)

BH-8

Demolished Building

2,000-Gal. Diesel UST (removed)

MW-4

MW-1

Product Piping (removed)

Former Pump Island

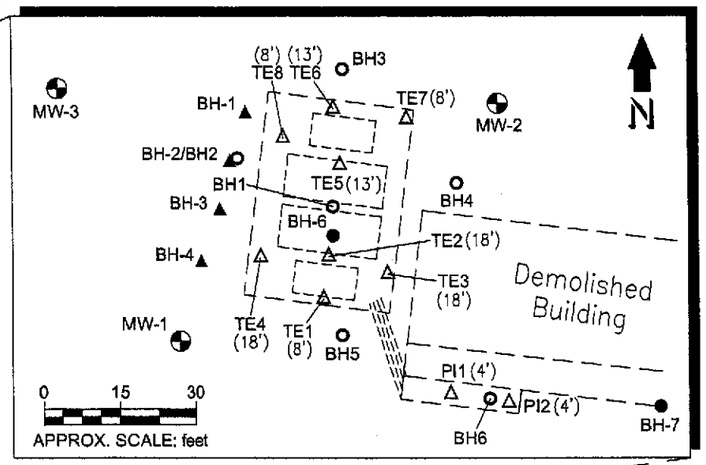
MW-5

Demolished Building

N

0 30 60

APPROX. SCALE: feet



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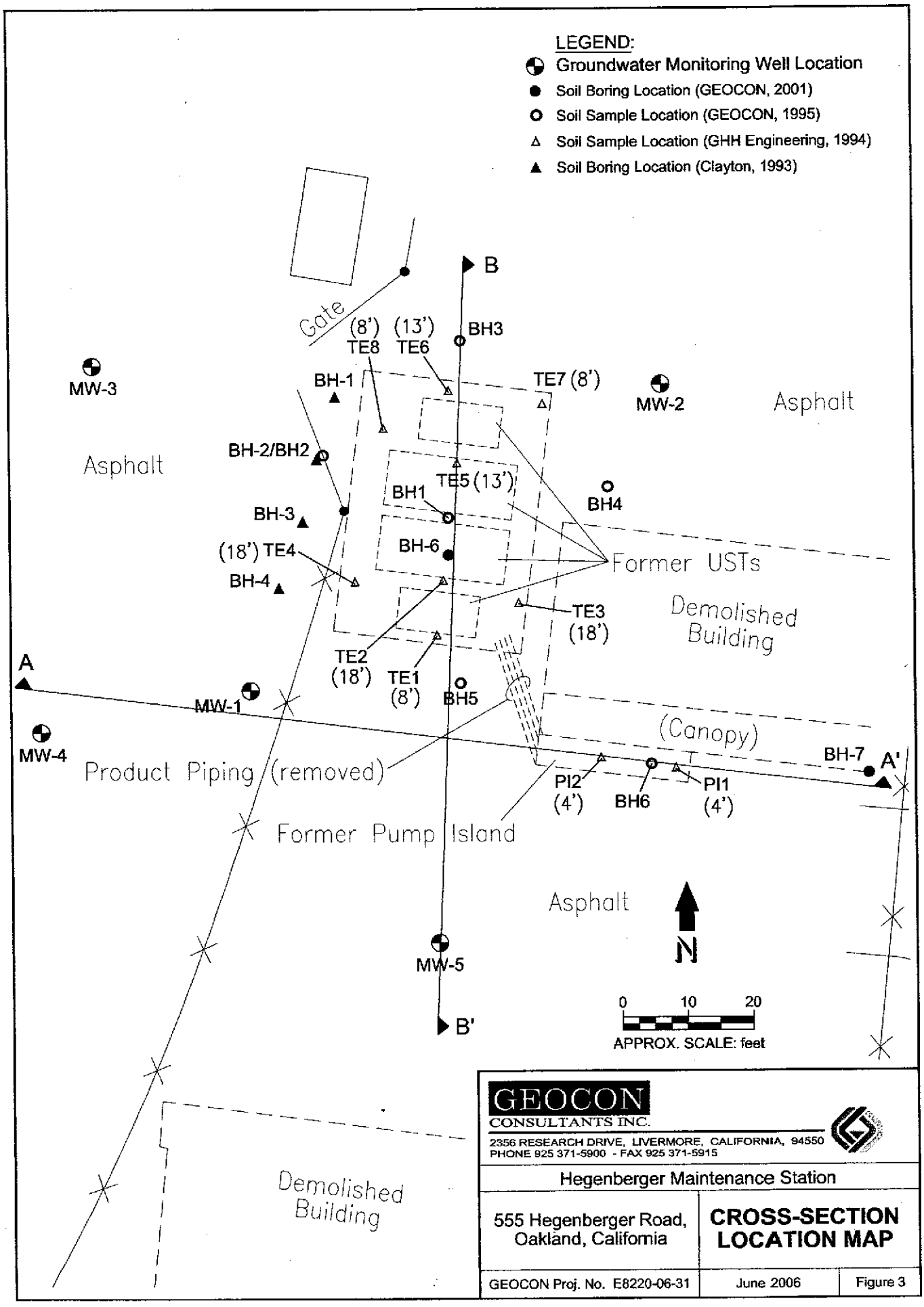
Hegenberger Maintenance Station

555 Hegenberger Road, Oakland, California

SITE PLAN

GEOCON Proj. No. E8220-06-31 | June 2006 | Figure 2

HEGENBERGER



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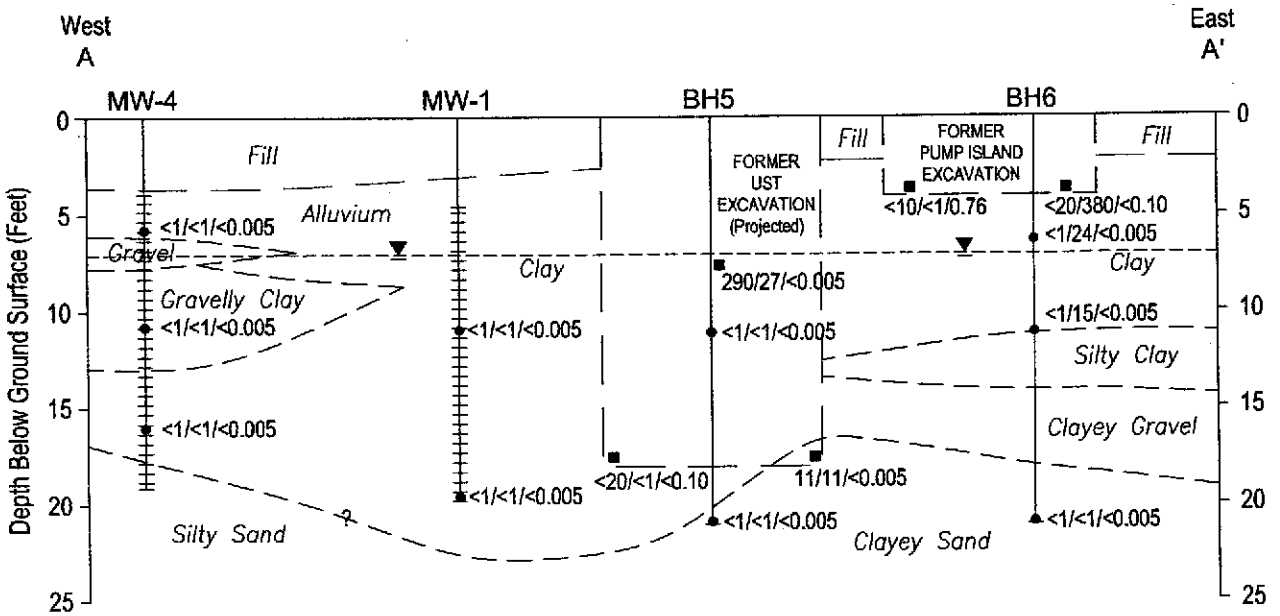
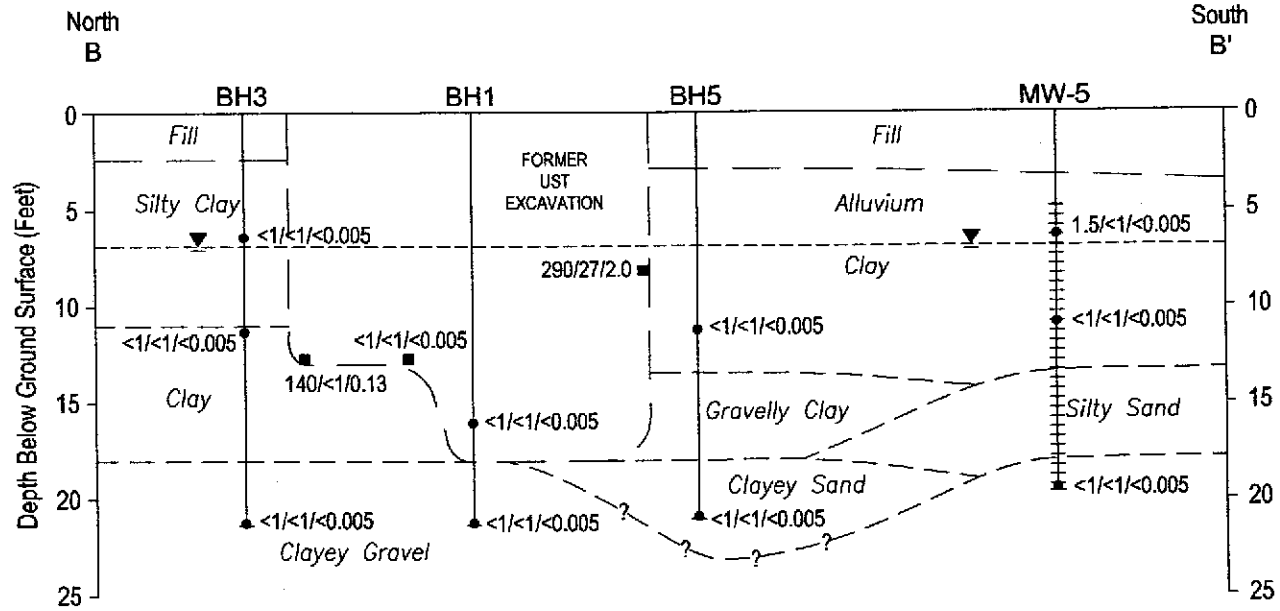
Hegenberger Maintenance Station

555 Hegenberger Road, Oakland, California

CROSS-SECTION LOCATION MAP

GEOCON Proj. No. E8220-06-31 | June 2006 | Figure 3





Scale:
1"=20' horiontal
1"=10' vertical

BH1 Boring Location

Sample Location

Excavation Soil Sample Location

140/<1/0.13 TPHg/TPHd/Benzene Concentration (mg/kg)

Approximate depth to groundwater (10/11/95)

Approximate Geologic Contact

Approximate Stratigraphic Contact

TPHg Total Petroleum Hydrocarbons as Gasoline

TPHd Total Petroleum Hydrocarbons as Diesel

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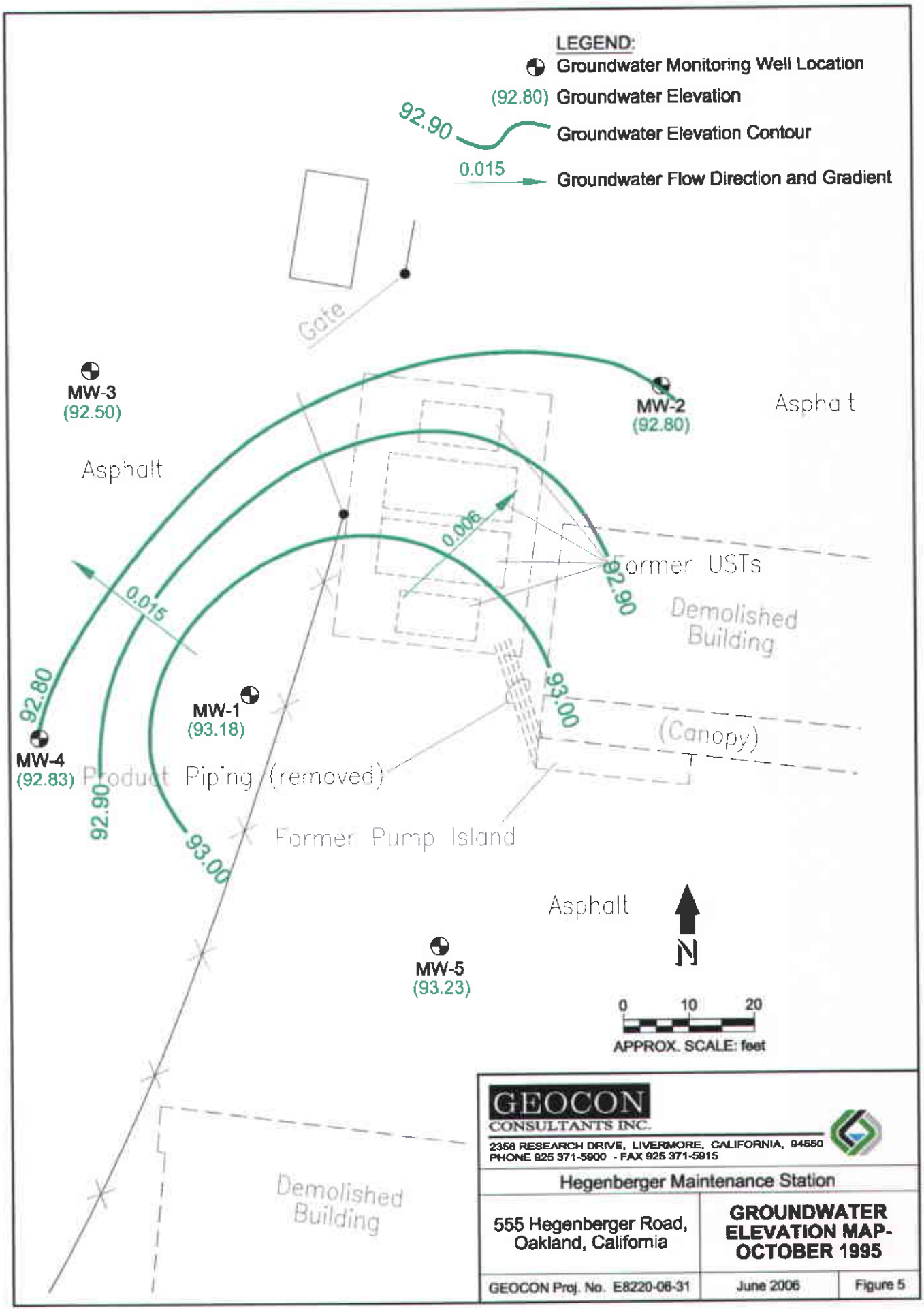
CROSS-SECTIONS A-A' and B-B'

GEOCON Proj. No. E8220-06-31 | June 2006 | Figure 4


LEGEND:
Groundwater Monitoring Well Location
(92.80) Groundwater Elevation
92.90 Groundwater Elevation Contour
0.015 Groundwater Flow Direction and Gradient
Gate
MW-3
(92.50)
MW-2
(92.80)
Asphalt
Asphalt
Asphalt
0.006
0.015
Former USTs
92.90
Demolished Building
92.80
MW-1
(93.18)
93.00
(Canopy)
MW-4
(92.83)
Product Piping (removed)
92.90
93.00
Former Pump Island
Asphalt
N
MW-5
(93.23)
0 10 20
APPROX. SCALE: feet
Demolished Building
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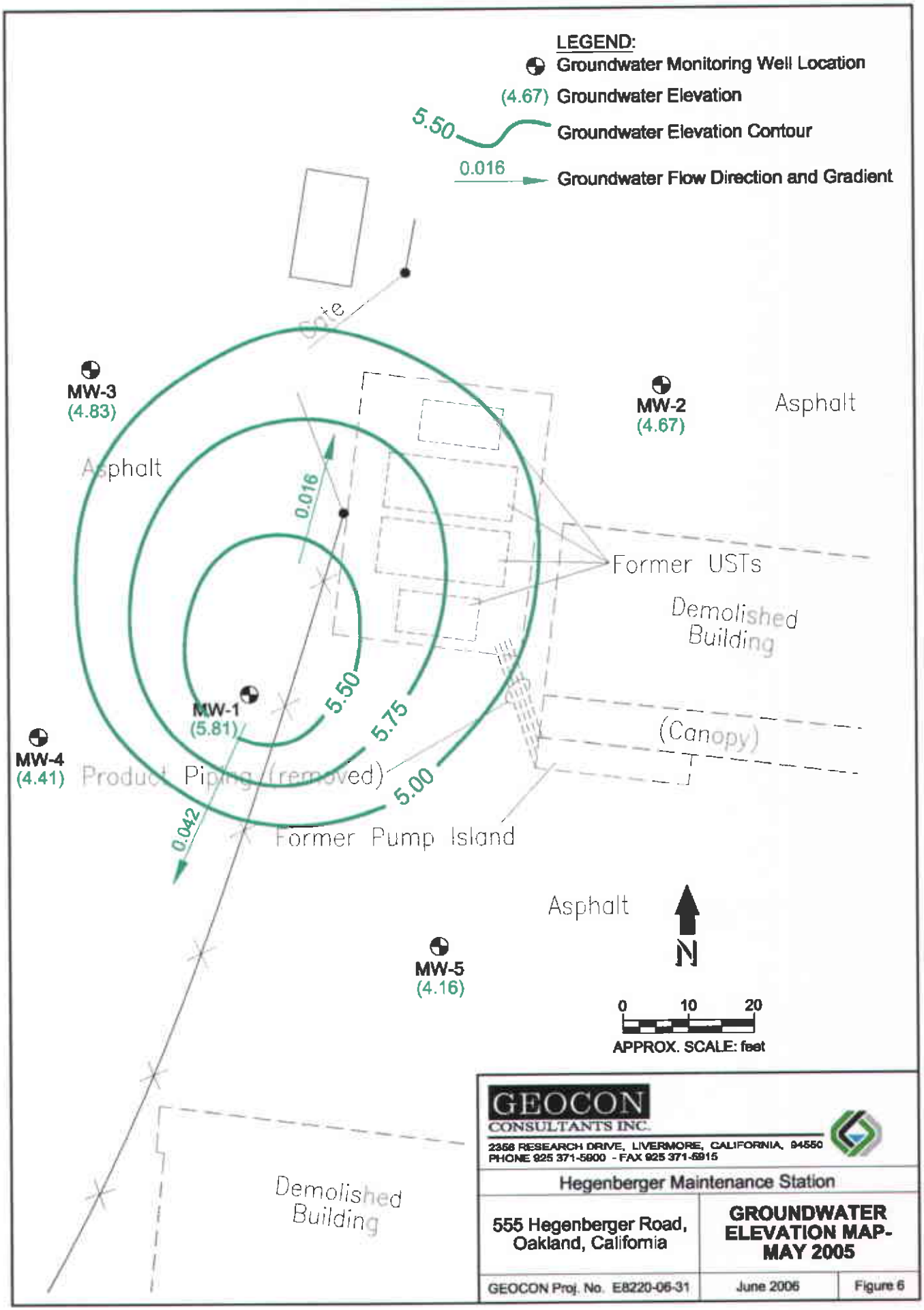
Hegenberger Maintenance Station
555 Hegenberger Road, Oakland, California
GROUNDWATER ELEVATION MAP- OCTOBER 1995
GEOCON Proj. No. E8220-06-31
June 2006
Figure 5



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Hegenberger Maintenance Station

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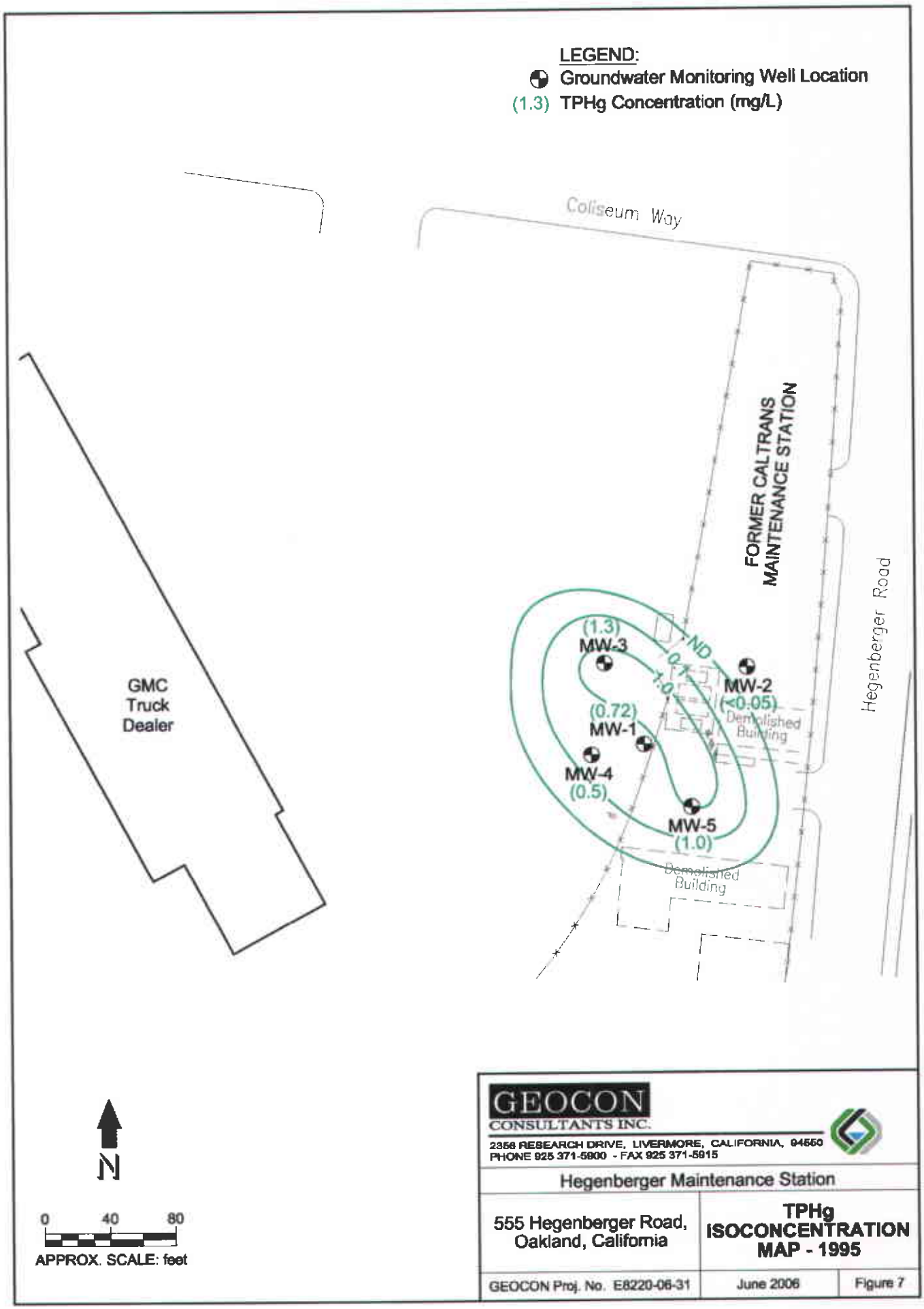
GROUNDWATER ELEVATION MAP- MAY 2005

GEOCON Proj. No. E8220-06-31 | June 2006 | Figure 6



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Hegenberger Maintenance Station

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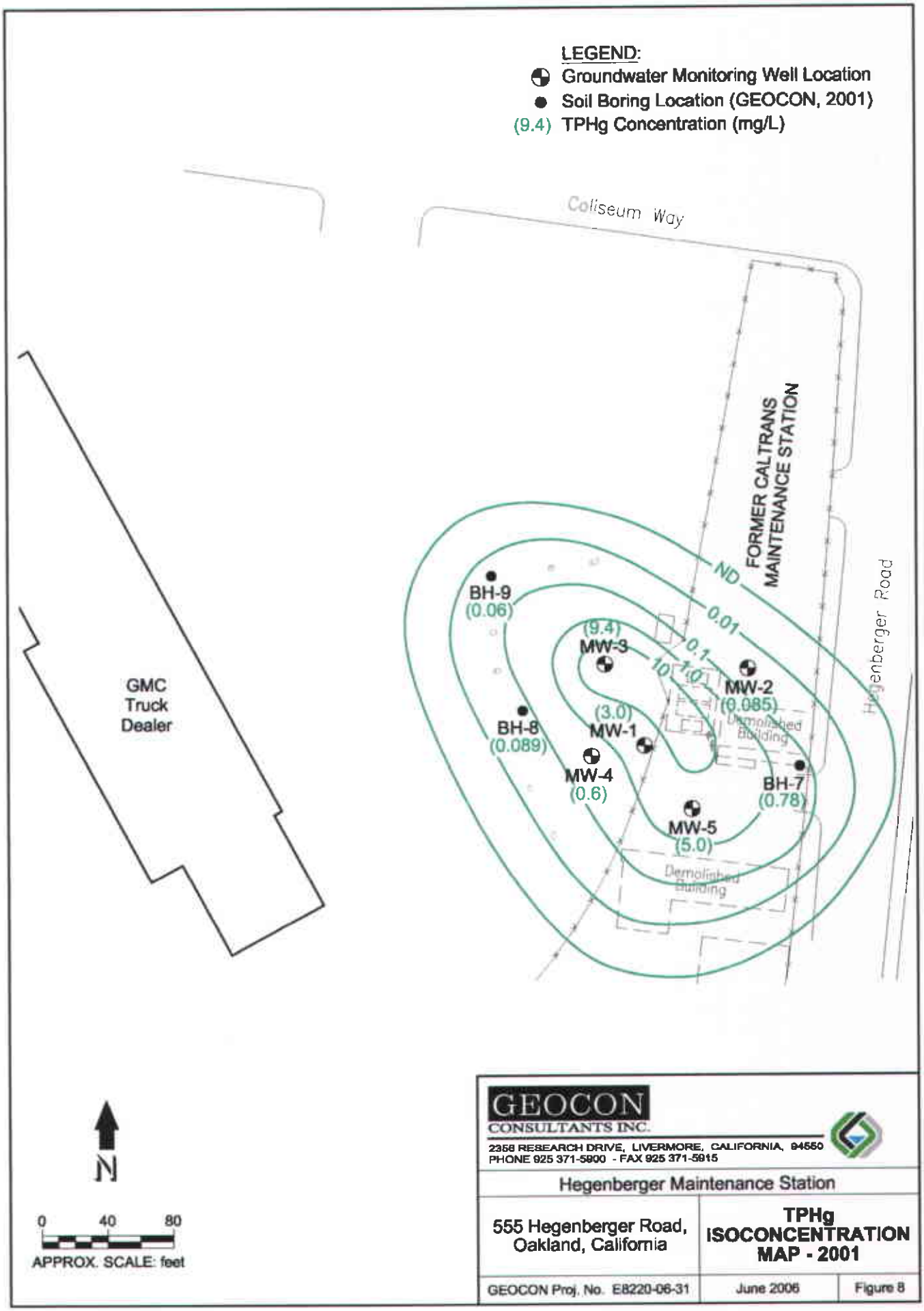
TPHg ISOCONCENTRATION MAP - 1995

GEOCON Proj. No. E8220-06-31 | June 2006 | Figure 7



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Hegenberger Maintenance Station

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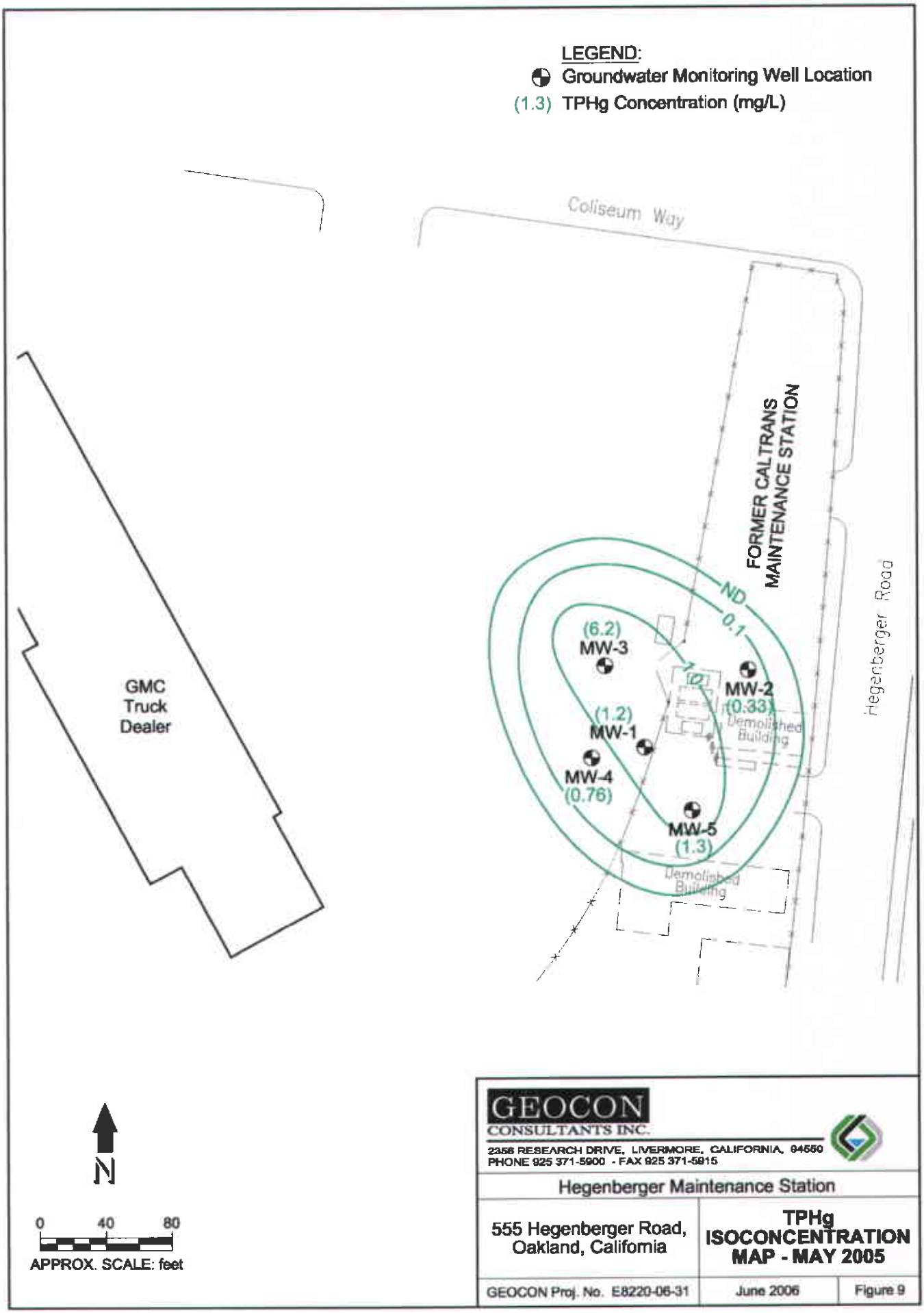
TPHg ISOCONCENTRATION MAP - 2001

GEOCON Proj. No. E8220-06-31 | June 2006 | Figure 8



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Hegenberger Maintenance Station

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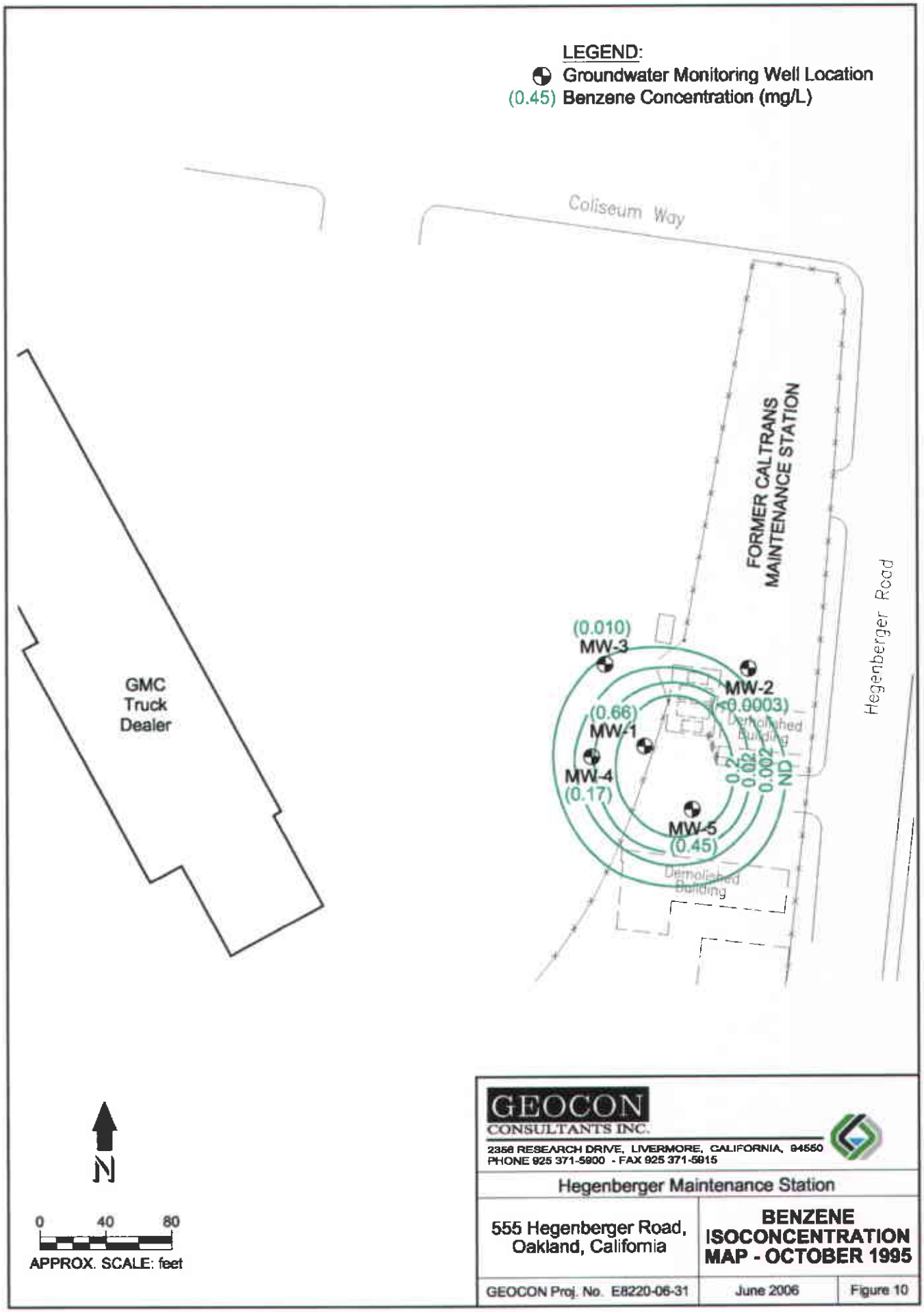
TPHg ISOCONCENTRATION MAP - MAY 2005

GEOCON Proj. No. E8220-06-31 | June 2006 | Figure 9



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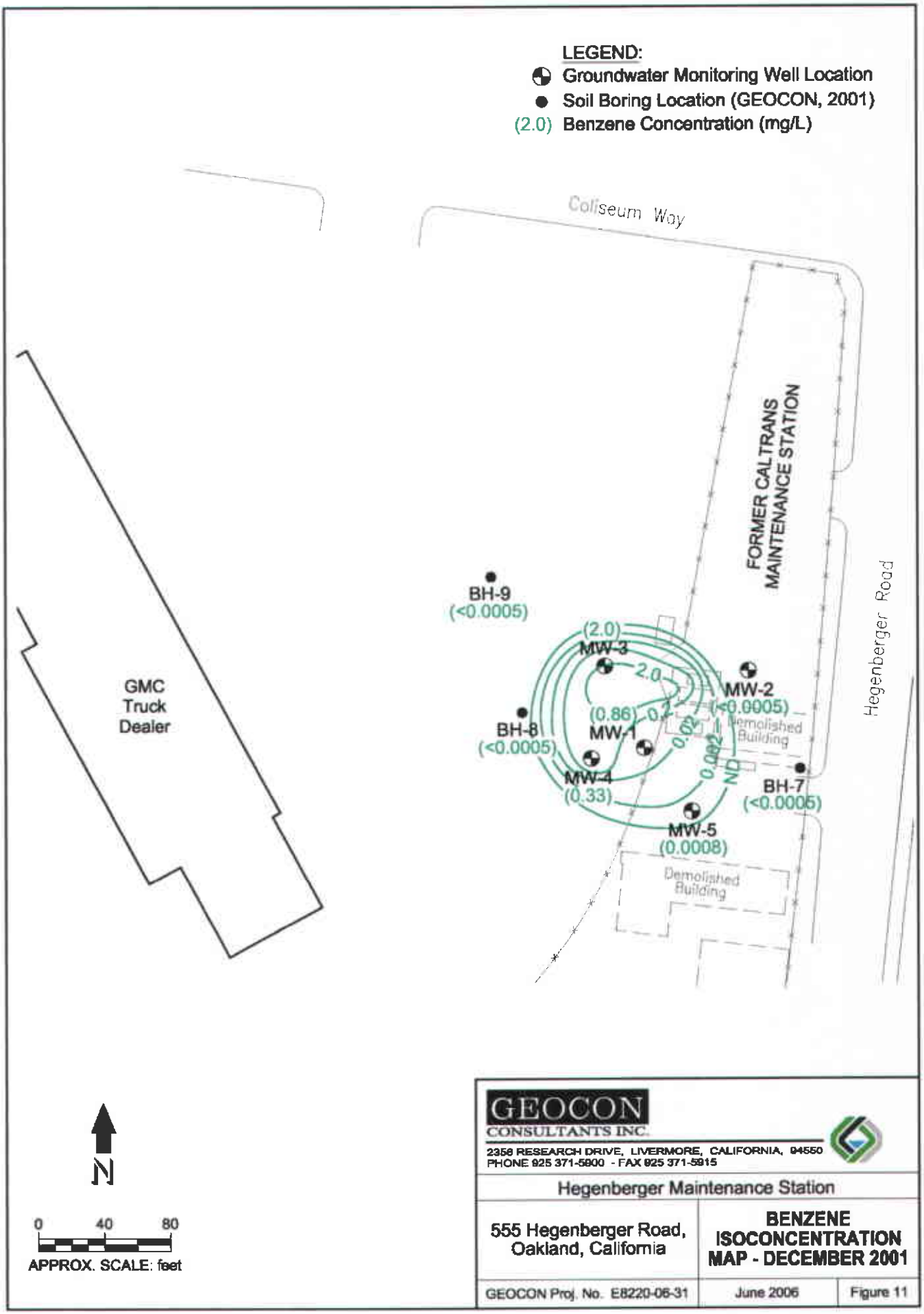
BENZENE ISOCONCENTRATION MAP - OCTOBER 1995

GEOCON Proj. No. E8220-06-31 | June 2006 | Figure 10



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Hegenberger Maintenance Station

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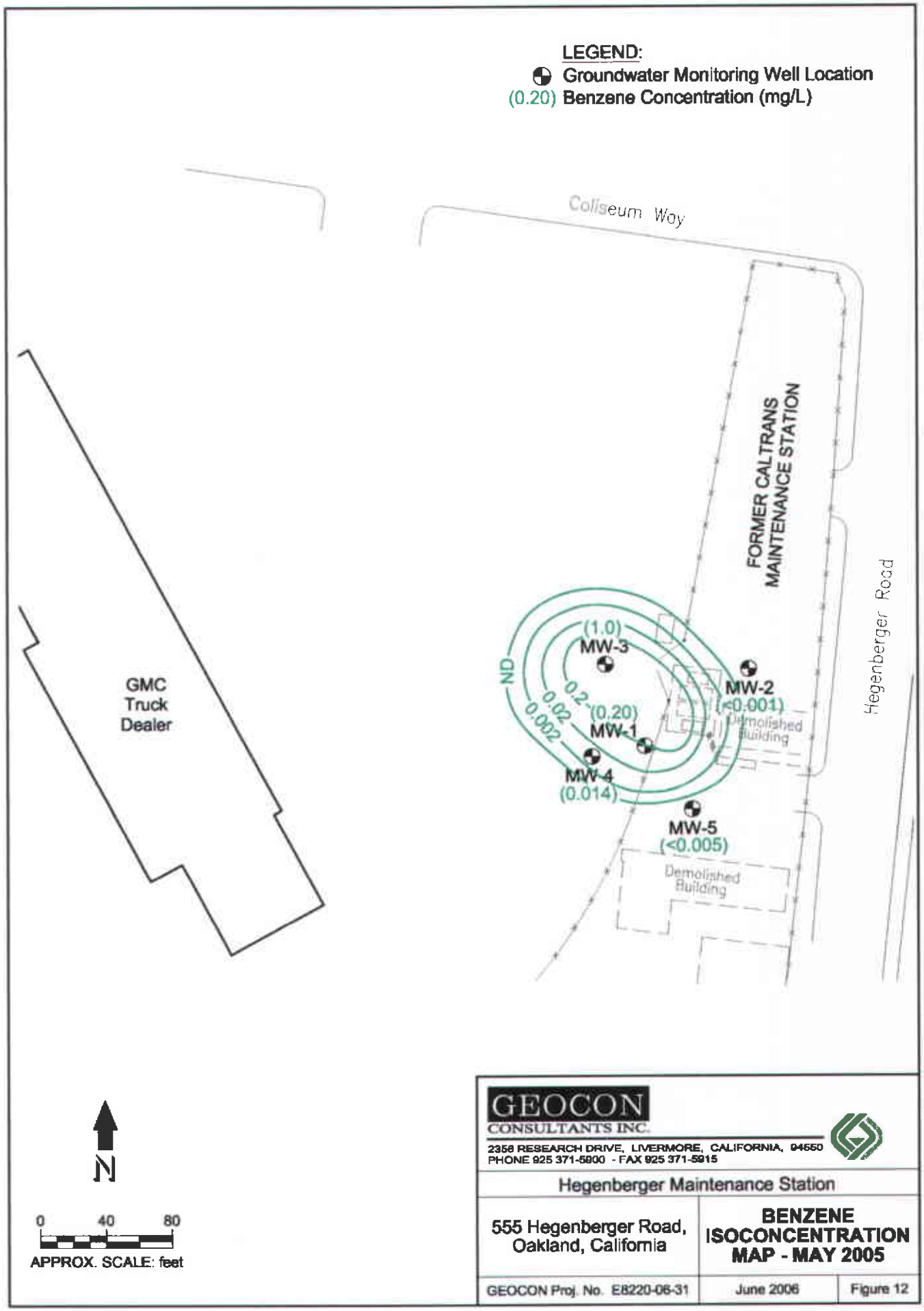
BENZENE ISOCONCENTRATION MAP - DECEMBER 2001

GEOCON Proj. No. E8220-06-31 | June 2006 | Figure 11



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Hegenberger Maintenance Station

555 Hegenberger Road, Oakland, California

BENZENE ISOCONCENTRATION MAP - MAY 2005

GEOCON Proj. No. E8220-06-31 | June 2006 | Figure 12

Table 1
Soil Sample Results
Caltrans Former Hegenberger Maintenance Station
Oakland, California

Sample Location	Date	Depth	TPHg (mg/kg)	TPHd (mg/kg)	O&G (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Lead (mg/kg)	Organic Lead (mg/kg)	Other VOCs (mg/kg)
BH-1	July-93	6	340	280	480	--	--	--	--	--	--	--
BH-1	July-93	10.5	20	8	<50	--	--	--	--	--	--	--
BH-1	July-93	15.5	0.5	10	140	--	--	--	--	--	--	--
BH-3	July-93	5.5	6.3	44	0.18	--	--	--	--	--	--	--
BH-4	July-93	5.5	51	17	70	--	--	--	--	--	--	--
PI1	September-94	4	<20	380	2,200	<0.10	<0.10	0.18	<0.10	13	--	--
PI2	September-94	4	<10	<1.0	190	0.076	<0.05	<0.05	<0.05	13	--	--
TE1	September-94	8	290	27	1,900	2.0	<0.5	0.74	1.2	18	--	--
TE2	September-94	18	<1.0	<1.0	200	<0.005	<0.005	<0.005	<0.005	12	--	--
TE3	September-94	18	11	11	580	0.03	0.014	0.02	0.022	8.8	--	--
TE4	September-94	18	<20	<1.0	70	<0.10	<0.10	<0.10	<0.10	7.6	--	--
TE5	September-94	13	<1.0	<1.0	80	<0.005	<0.005	<0.005	<0.005	9.5	--	--
TE6	September-94	13	140	<1.0	1,200	0.13	<0.10	0.51	0.3	11	--	--
TE7	September-94	8	400	<1.0	530	0.83	<0.5	0.62	1.2	14	--	--
TE8	September-94	8	480	<1.0	100	1.8	0.51	7.6	8.7	8.9	--	--
PI-1	September-94	4	<20	380	--	<0.10	<0.10	0.18	<0.10	13	--	--
PI-2	September-94	4	<10	<1.0	--	0.076	<0.05	<0.05	<0.05	13	--	--
BH1	September-95	16	<1.0	<1.0	<50	<0.005	<0.005	0.006	0.021	--	<5.0	--
BH1	September-95	21	<1.0	<1.0	<50	<0.005	<0.005	<0.005	<0.005	--	<5.0	--
BH2	September-95	11	<1.0	<1.0	<50	<0.005	<0.005	<0.005	<0.005	--	<5.0	--
BH2	September-95	21	<1.0	<1.0	<50	<0.005	<0.005	<0.005	<0.005	--	<5.0	--
BH3	September-95	6	<1.0	<1.0	80	<0.005	<0.005	<0.005	<0.005	--	--	--
BH3	September-95	11	<1.0	<1.0	<50	<0.005	<0.005	<0.005	<0.005	--	<5.0	--
BH3	September-95	21	<1.0	<1.0	<50	<0.005	<0.005	<0.005	<0.005	--	<5.0	--
BH4	September-95	11	<1.0	<1.0	55	<0.005	<0.005	<0.005	<0.005	--	<5.0	--
BH4	September-95	21	<1.0	<1.0	<50	<0.005	<0.005	<0.005	<0.005	--	<5.0	--
BH5	September-95	11	<1.0	<1.0	<50	<0.005	<0.005	<0.005	<0.005	--	<5.0	--
BH5	September-95	21	<1.0	<1.0	<50	<0.005	<0.005	<0.005	<0.005	--	<5.0	--
BH6	September-95	6	<1.0	24	80	<0.005	<0.005	<0.005	<0.005	--	--	--
BH6	September-95	11	<1.0	16	65	<0.005	<0.005	<0.005	<0.005	--	<5.0	--
BH6	September-95	21	<1.0	<1.0	<50	<0.005	<0.005	<0.005	<0.005	--	<5.0	--
MW-1	September-95	11	<1.0	<1.0	<50	<0.005	<0.005	<0.005	<0.005	--	<5.0	--
MW-1	September-95	19.5	<1.0	<1.0	<50	<0.005	<0.005	<0.005	<0.005	--	<5.0	--
MW-2	September-95	6	<1.0	<1.0	75	<0.005	<0.005	<0.005	<0.005	--	<5.0	--
MW-2	September-95	21	<1.0	<1.0	<50	<0.005	<0.005	<0.005	<0.005	--	<5.0	--
MW-3	September-95	7.5	<1.0	<1.0	<50	0.012	<0.005	<0.005	<0.005	--	--	--
MW-3	September-95	11	<1.0	<1.0	<50	<0.005	<0.005	<0.005	<0.005	--	<5.0	--

Table 1
Soil Sample Results
Caltrans Former Hegenberger Maintenance Station
Oakland, California

Sample Location	Date	Depth	TPHg (mg/kg)	TPHd (mg/kg)	O&G (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Lead (mg/kg)	Organic Lead (mg/kg)	Other VOCs (mg/kg)
MW-3	September-95	21	<1.0	<1.0	<50	**0.03**	**0.028**	**0.03**	**0.058**	--	<5.0	--
MW-4	September-95	5.5	<1.0	<1.0	<50	<0.005	<0.005	<0.005	<0.005	--	--	--
MW-4	September-95	11	<1.0	<1.0	**75**	<0.005	<0.005	<0.005	<0.005	--	<5.0	--
MW-4	September-95	16	<1.0	<1.0	**75**	<0.005	<0.005	<0.005	<0.005	--	<5.0	--
MW-5	September-95	6	**1.6**	<1.0	**60**	<0.005	**0.02**	**0.028**	**0.088**	--	--	--
MW-5	September-95	11	<1.0	<1.0	**65**	<0.005	<0.005	<0.005	<0.005	--	<5.0	--
MW-5	September-95	19.5	<1.0	<1.0	<50	<0.005	<0.005	<0.005	<0.005	--	<5.0	--
BH-6	December-01	11	<1.0	**1**	NA	<0.005	<0.005	<0.005	<0.005	--	--	<0.005
BH-9	December-01	6.5	<1.0	**1.7**	NA	<0.005	<0.005	<0.005	<0.005	--	--	<0.005

Notes:
Bold type indicates compound detected above reporting limit
TPHg = Total Petroleum Hydrocarbons as gasoline following EPA Test Method 8015B
TPHd = Total Petroleum Hydrocarbons as diesel following EPA Test Method 8015B
BTEX = benzene, toluene, ethylbenzene, and total xylenes following EPA Test Method 8020 (8260)
MTBE = methyl tertiary butylether following EPA Test Method 8020/8260B
mg/kg = milligrams per liter
ug/kg = micrograms per liter
-- = Analysis not performed
ND = Not detected at a concentration greater than the laboratory reporting limit.
< = less than indicated reporting limit

Table 2
Historical Depth to Water and Groundwater Sample Results
Caltrans Former Hegenberger Maintenance Station
Oakland, California

Well	Date	TOC Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)	TPHg (mg/l)	TPHd (mg/l)	TPHmo (mg/l)	O&G (mg/l)	Benzene (mg/l)	Toluene (mg/l)	Ethylbenzene (mg/l)	Xylenes (mg/l)	MTBE (mg/l)	Other VOCs (mg/l)
MW-1	10/11/1995	99.73	6.55	93.18	0.72	< 0.05	<0.050	<5	0.66	0.013	0.0047	0.0028	—	—
	1/17/1996	99.73	5.64	94.09	4.4	< 0.05	<0.050	—	1.00	0.03	0.021	0.017	—	—
	4/16/1996	99.73	5.46	94.27	6.05	7.45	—	—	0.914	0.0347	0.0344	0.0158	—	—
	8/26/1996	99.73	5.91	93.82	3.8	0.43	—	—	0.780	0.023	0.021	0.020	—	—
	11/14/1996	99.73	6.16	93.57	2.6	0.27	—	—	0.500	0.018	0.014	0.0089	—	—
	2/18/1998	99.73	3.82	95.91	3.1	0.90	—	—	0.240	0.018	0.0078	0.011	0.020	—
	3/30/2001	99.73	6.19	93.54	3.6	0.48	—	—	0.150	0.013	0.0007	0.0108	<0.0005	<0.005
***	12/26/2001	10.26	4.08	6.18	3.0	1.10	—	—	0.086	0.011	0.0034	0.0105	0.005	Isopropylbenzene=0.0079 n-butylbenzene=0.0051 n-proplybenzene=0.0053
	9/30/2002	10.26	5.79	4.47	0.59	< 0.05	—	—	0.012	0.0027	<0.0005	0.0016	<0.0005	—
	2/20/2003	10.26	4.49	5.77	2.65	—	—	—	0.0369	0.0106	0.007	0.0181	<0.005	—
	1/12/2004	10.26	4.41	5.85	1.61	—	—	—	0.0056	0.0018	0.0016	0.0014	—	—
	5/12/2005	10.26	4.45	5.81	1.2	—	—	—	0.020	<0.005	<0.005	<0.005	—	—
MW-2	10/11/1995	99.68	6.88	92.80	< 0.05	< 0.05	<0.050	<5	<0.0003	<0.0003	<0.0003	<0.0005	—	—
	1/17/1996	99.68	5.32	94.36	4.9	< 0.05	<0.050	—	2.10	<0.0015	<0.015	<0.015	—	—
	4/16/1996	99.68	5.81	93.87	< 0.05	< 0.05	—	—	0.0010	<0.0005	<0.0005	<0.0005	—	—
	8/26/1996	99.68	5.98	93.70	< 0.05	< 0.05	—	—	<0.0005	<0.0005	<0.0005	<0.0005	—	—
	11/14/1996	99.68	6.72	92.96	< 0.05	0.056	—	—	<0.0005	<0.0005	<0.0005	<0.0005	—	—
	2/18/1998	99.68	5.01	94.67	< 0.05	0.260	—	—	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	—
	3/30/2001	99.68	6.54	93.14	< 0.20	0.37	—	—	0.0027	0.0008	<0.0005	0.0008	<0.0005	<0.005
***	12/26/2001	10.22	5.53	4.69	0.085	0.14	—	—	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.005
	9/30/2002	10.22	6.48	3.74	< 0.05	< 0.05	—	—	<0.0005	<0.005	<0.0005	<0.0015	<0.0005	—
	2/20/2003	10.22	5.98	4.24	0.11	—	—	—	0.0066	<0.0005	<0.0005	<0.001	<0.0005	—
	1/12/2004	10.22	5.69	4.53	0.067	—	—	—	<0.0005	<0.0005	<0.0005	<0.001	—	—
	5/12/2005	10.22	5.55	4.67	0.33	—	—	—	<0.001	<0.001	<0.001	<0.001	—	—
MW-3	10/11/1995	98.92	6.42	92.50	1.3	< 0.05	<0.050	<5	0.0010	<0.0003	<0.0003	<0.0003	—	—
	1/17/1996	98.92	5.82	93.10	0.171	< 0.05	<0.050	—	0.064	<0.0003	0.001	<0.0003	—	—
	4/16/1996	98.92	5.85	93.07	6.74	0.565	—	—	2.770	0.031	0.0139	0.0219	—	—
	8/26/1996	98.92	5.72	93.20	0.7	0.70	—	—	0.180	0.0042	0.001	0.0046	—	—
	11/14/1996	98.92	6.28	92.64	0.3	0.12	—	—	0.0062	0.0012	0.0007	0.0014	—	—
	2/18/1998	98.92	4.65	94.27	11	2.5	—	—	3.070	0.05	0.054	0.019	0.025	—
	3/30/2001	98.92	5.62	93.30	9.9	0.49	—	—	2.00	0.048	0.039	0.039	<0.0005	Isopropylbenzene = 0.092 n-Butylbenzene = 0.036 n-Propylbenzene = 0.250 sec-Butylbenzene = 0.013
***	12/26/2001	9.46	4.66	4.80	9.4	1.70	—	—	1.50	0.046	0.033	0.028	0.012	Isopropylbenzene=0.085 n-Butylbenzene=0.039 n-propylbenzene=0.250
	9/30/2002	9.46	5.84	3.62	2.02	0.57	—	—	0.775	0.0172	0.001	0.0094	<0.0005	—
	2/20/2003	9.46	5.55	3.91	4.01	—	—	—	1.120	<0.050	<0.050	<0.10	<0.050	—
	1/12/2004	9.46	4.77	4.69	3.32	—	—	—	0.632	0.0269	<0.025	<0.050	—	—
	5/12/2005	9.46	4.63	4.83	5.2	—	—	—	1.00	0.030	0.020	0.010	—	—

Well	Date	TOC Elevation (feet)	Depth to Water (feet)	Groundwater Elevation (feet amsl)	TPHg (mg/l)	TPHd (mg/l)	TPHmo (mg/l)	O&G (mg/l)	Benzene (mg/l)	Toluene (mg/l)	Ethylbenzene (mg/l)	Xylenes (mg/l)	MTBE (mg/l)	Other VOCs (mg/l)

MW-4	10/11/1995	99.46	6.63	92.83	**0.5**	< 0.05	<0.050	<5	**0.017**	**0.0011**	<0.0003	**0.0005**	---	---
	1/17/1996	99.46	5.77	93.69	**0.46**	< 0.05	<0.050	---	**0.072**	**0.0041**	<0.0003	**0.0017**	---	---
	4/16/1996	99.46	5.89	93.57	**2.20**	< 0.05	---	---	**0.851**	**0.0077**	**0.0014**	**0.0057**	---	---
	8/26/1996	99.46	6.14	93.32	**0.30**	**0.11**	---	---	**0.055**	**0.0049**	**0.0012**	<0.0005	---	---
	11/14/1996	99.46	6.72	92.74	**0.20**	**0.20**	---	---	**0.0034**	<0.0005		<0.0005	---	---
	2/18/1998	99.46	5.02	94.44	**1.60**	**0.28**	---	---	**0.320**	**0.0091**	**0.001**	**0.0006**	**0.0017**	---
	3/30/2001	99.46	6.21	93.25	**2.7**	**0.35**	---	---	**0.320**	**0.016**	**0.0053**	**0.0136**	<0.0005	**Isopropylbenzene = 0.0064**
	*** 12/26/2001	10.00	5.37	4.63	**0.6**	**0.20**	---	---	**0.033**	**0.003**	<0.0005	**0.0017**	**0.0008**	<0.005
	9/30/2002	10.00	6.40	3.60	**0.067**	< 0.05	---	---	<0.0005	<0.0005	<0.0005	<0.0015	<0.0005	---
	2/20/2003	10.00	5.83	4.17	**0.57**	---	---	---	**0.107**	<0.010	<0.010	<0.0020	<0.010	---
	1/12/2004	10.00	5.41	4.59	**0.70**	---	---	---	**0.122**	**0.0135**	**0.0006**	**0.0088**	---	---
	5/12/2005	10.00	5.59	4.41	**0.76**	---	---	---	**0.014**	**0.0057**	<0.005	<0.005	---	---
MW-5	10/11/1995	99.91	6.68	93.23	**1.0**	< 0.05	<0.050	<5	**0.045**	**0.015**	**0.0019**	**0.0061**	---	---
	1/17/1996	99.91	5.74	94.17	< 0.05	< 0.05	<0.050	---	**0.002**	<0.0003	<0.0003	<0.0003	---	---
	4/16/1996	99.91	5.85	94.06	**1.74**	**0.855**	---	---	**0.157**	**0.0201**	**0.0039**	**0.0224**	---	---
	8/26/1996	99.91	5.99	93.92	**0.90**	**0.27**	---	---	**0.055**	**0.0064**	**0.0009**	**0.0037**	---	---
	11/14/1996	99.91	6.70	93.21	**0.70**	**0.32**	---	---	**0.031**	**0.0057**	**0.0007**	**0.0036**	---	---
	2/18/1998	99.91	5.74	94.17	**1.20**	**0.58**	---	---	**0.014**	**0.0052**	**0.0008**	**0.0055**	**0.0095**	---
	3/30/2001	99.91	6.73	93.18	**1.5**	**0.48**	---	---	**0.0072**	**0.0065**	<0.0005	**0.0107**	<0.0005	**n-Propylbenzene =0.0051**
	*** 12/26/2001	10.34	5.23	5.11	**5.0**	**7.20**	---	---	**0.0008**	**0.0105**	**0.0036**	**0.0105**	**0.0036**	**Isopropylbenzene=0.006**
	9/30/2002	10.34	6.18	4.16	**0.56**	**0.43**	---	---	**0.0018**	**0.0052**	<0.0005	**0.0065**	<0.0005	---
	2/20/2003	10.34	5.80	4.54	**1.04**	---	---	---	<0.0025	**0.0086**	<0.0025	**0.0113**	<0.0025	---
	1/12/2004	10.34	5.60	4.74	**1.82**	---	---	---	**0.0042**	**0.008**	**0.0006**	**0.0128**	---	---
	5/12/2005	10.34	6.18	4.16	**1.3**	---	---	---	<0.005	<0.005	<0.005	<0.005	---	---

Notes:

Bold type indicates compound present at concentration above reporting limit.

TOC = Top of well casing.

feet amsl = Feet above mean sea level

TPHg = Total Petroleum Hydrocarbons as gasoline

TPHd = Total Petroleum Hydrocarbons as diesel

TPHmo = Total Petroleum Hydrocarbons as motor oil

O&G = Oil and Grease

BTEX = benzene, toluene, ethylbenzene, and total xylenes following EPA Test Method 8020 (8260)

MTBE = Methyl tertiary butyl ether and tertiary amyl methylether[TAME]) following EPA Test Method 8020/8260B

mg/l = milligrams per liter

--- = Analysis not performed

< = less than indicated reporting limit

***= Change of base for elevation above mean sea level to the California State Coordinate System, Zone III

Table 3
Grab Groundwater Sample Results
Caltrans Former Hegenberger Maintenance Station
Oakland, California

Boring ID	Date	TPHg (mg/l)	TPHd (mg/l)	Benzene (mg/l)	Toluene (mg/l)	Ethylbenzene (mg/l)	Xylenes (mg/l)	MTBE (mg/l)	Other VOCs (mg/l)
BH1	7/23/1993	**0.78**	**1.3**	--	--	--	--	--	--
BH3	7/23/1993	--	**47**	--	--	--	--	--	--
BH-6	12/26/2001	**0.065**	**0.17**	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
BH-7	12/26/2001	**0.078**	**0.098***	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	**1,1,2-Trichloroethane = 0.010** **1,1-Dichloroethane = 0.099** **1,1-Dichloroethene = 0.054**
BH-8	12/26/2001	**0.089**	---	<0.0005	**0.0007**	<0.0005	**0.0015**	<0.0005	<0.0005
BH-9	12/26/2001	**0.06**	**0.3**	<0.0005	<0.0005	<0.0005	**0.0008**	<0.0005	<0.0005

Notes:
Bold type indicates compound detcted above reporting limit
TPHg = total Petroleum Hydrocarbons as gasoline
TPHd = total Petroleum Hydrocarbons as diesel
BTEX = benzene, toluene, ethylbenzene, and total xylenes following EPA Test Method 8020
MTBE = methyl tertiary butylether following EPA Test Method 8260B
mg/l = milligrams per liter
--- = analysis not performed
< = less than indicated reporting limit

Table 4
Tier 1 RBSL Comparison Table
Groundwater to Indoor Air
Caltrans Former Hegenberger Maintenance Station
Oakland, California

	Residential		Commercial		Actual Concentrations	
Contaminant	Carcinogenic (mg/l)	Hazard (mg/l)	Carcinogenic (mg/l)	Hazard (mg/l)	*Maximum Concentration (mg/l)	**Most Current Concentration (mg/l)
Benzene	0.11	3.7	1.8	112	3.070	1.0
Toluene	NV	210	NV	>SOL	0.05	0.030
Ethylbenzene	>SOL	>SOL	>SOL	>SOL	0.054	0.020
Xylenes	>SOL	>SOL	>SOL	>SOL	0.039	0.010
MTBE	NV	24,000	NV	>SOL	0.025	<0.050

Table 4A
Tier 1 RBSL Comparison Table
Groundwater to Outdoor Air
Caltrans Former Hegenberger Maintenance Station
Oakland, California

	Residential		Commercial		Actual Concentrations	
Contaminant	Carcinogenic (mg/l)	Hazard (mg/l)	Carcinogenic (mg/l)	Hazard (mg/l)	*Maximum Concentration (mg/l)	**Most Current Concentration (mg/l)
Benzene	5.6	222	21	1,300	3.070	1.0
Toluene	NV	>SOL	NV	>SOL	0.05	0.030
Ethylbenzene	>SOL	>SOL	>SOL	>SOL	0.054	0.020
Xylenes	>SOL	>SOL	>SOL	>SOL	0	0.010
MTBE	NV	>SOL	NV	>SOL	0.025	<0.050

Notes-
* Maximum concentration reported at site in either grab or monitoring well groundwater sample
** Groundwater data from May 2005 groundwater sample event
>SOL - RBSL exceeds solubility of chemical in water
mg/l - milligrams per liter
NV - No value. Compound not a known carcinogen.

Table 5
Tier 3 SSTL Comparison Table
Groundwater to Indoor Air
Caltrans Former Hegenberger Maintenance Station
Oakland, California

Contaminant	Residential		Commercial		Actual Concentrations	
	Carcinogenic (ug/l)	Hazard (ug/l)	Carcinogenic (ug/l)	Hazard (ug/l)	*Maximum Concentration (ug/l)	**Most Current Concentration (mg/l)
Benzene	5.9	20	93	570	3.070	1.0
Toluene	NV	>SOL	NV	>SOL	0.05	0.030
Ethylbenzene	NV	>SOL	NV	>SOL	0.054	0.020
Xylenes	NV	>SOL	NV	>SOL	0.039	0.010
MTBE	NV	40,000	NV	>SOL	0.025	<0.050

Table 5A
Tier 3 SSTL Comparison Table
Groundwater to Outdoor Air
Caltrans Former Hegenberger Maintenance Station
Oakland, California

Contaminant	Residential		Commercial		Actual Concentrations	
	Carcinogenic (ug/l)	Hazard (ug/l)	Carcinogenic (ug/l)	Hazard (ug/l)	*Maximum Concentration (ug/l)	**Most Current Concentration (mg/l)
Benzene	>SOL	>SOL	>SOL	>SOL	3.070	1.0
Toluene	NV	>SOL	NV	>SOL	0.05	0.030
Ethylbenzene	NV	>SOL	NV	>SOL	0.054	0.020
Xylenes	NV	>SOL	NV	>SOL	0.039	0.010
MTBE	NV	>SOL	NV	>SOL	0.025	<0.050

Notes-
* Maximum concentration reported at site in either grab or monitoring well groundwater sample
** Groundwater data from May 2005 groundwater sample event
>SOL - RBSL exceeds solubility of chemical in water.
mg/l - milligrams per liter
NV - No value. Compound not a known carcinogen.

Table 6
Tier 1 RBSL Comparison Table
Soil to Indoor Air
Caltrans Former Hegenberger Maintenance Station
Oakland, California

	Residential		Commercial / Industrial		
Contaminant	Carcinogenic (mg/kg)	Hazard (mg/kg)	Carcinogenic (mg/kg)	Hazard (mg/kg)	*Maximum Concentration (mg/kg)
Benzene	0.062	2.3	1.1	66	2
Toluene	NV	360	NV	SAT	0.51
Ethylbenzene	NV	SAT	NV	SAT	7.6
Xylenes	NV	SAT	NV	SAT	8.7
MTBE	NV	SAT	NV	SAT	Not Analyzed

Table 6A
Tier 1 RBSL Comparison Table
Soil to Outdoor Air
Caltrans Former Hegenberger Maintenance Station
Oakland, California

	Residential		Commercial / Industrial		
Contaminant	Carcinogenic (mg/kg)	Hazard (mg/kg)	Carcinogenic (mg/kg)	Hazard (mg/kg)	*Maximum Concentration (mg/kg)
Benzene	0.19	7.6	0.73	44	2
Toluene	NV	SAT	NV	SAT	0.51
Ethylbenzene	NV	SAT	NV	SAT	7.6
Xylenes	NV	SAT	NV	SAT	8.7
MTBE	NV	44,000	NV	SAT	Not Analyzed

Notes-
UCL - Upper confidence limit.
mg/kg - milligrams per kilogram
SAT - RBSL exceeds saturated soil concentration of compound
NV - No value. Compound not a known carcinogen.

Table 7
Tier 3 SSTL Comparison Table
Soil to Indoor Air
Caltrans Former Hegenberger Maintenance Station
Oakland, California

	Residential		Commercial / Industrial		
Contaminant	Carcinogenic (mg/kg)	Hazard (mg/kg)	Carcinogenic (mg/kg)	Hazard (mg/kg)	*Maximum Concentration (mg/kg)
Benzene	2.1	6.9	33	200	2
Toluene	NV	1,000	NV	SAT	0.51
Ethylbenzene	NV	SAT	NV	SAT	7.6
Xylenes	NV	SAT	NV	SAT	8.7
MTBE	NV	16,000	NV	SAT	Not Analyzed

Table 7A
Tier 3 SSTL Comparison Table
Soil to Outdoor Air
Caltrans Former Hegenberger Maintenance Station
Oakland, California

	Residential		Commercial / Industrial		
Contaminant	Carcinogenic (mg/kg)	Hazard (mg/kg)	Carcinogenic (mg/kg)	Hazard (mg/kg)	*Maximum Concentration (mg/kg)
Benzene	250	990	950	SAT	2
Toluene	NV	SAT	NV	SAT	0.51
Ethylbenzene	NV	SAT	NV	SAT	7.6
Xylenes	NV	SAT	NV	SAT	8.7
MTBE	NV	SAT	NV	SAT	Not Analyzed

Notes-
UCL - Upper confidence limit.
mg/kg - milligrams per kilogram
SAT - RBSL exceeds saturated soil concentration of compound
NV - No value. Compound not a known carcinogen.

Table 8
Tier 1 RBSL Comparison Table
Direct Exposure to Soil
Caltrans Former Hegenberger Maintenance Station
Oakland, California

Contaminant	Residential		Commercial		*Maximum Concentration (mg/kg)
	Carcinogenic (mg/kg)	Hazard (mg/kg)	Carcinogenic (mg/kg)	Hazard (mg/kg)	
Benzene	2.7	81	8,500	510	2
Toluene	NV	9,000	NV	56,000	0.51
Ethylbenzene	NV	5,100	NV	33,000	7.6
Xylenes	NV	54,000	NV	300,000	8.7
MTBE	NV	260	NV	1,700	Not Analyzed

Table 9
Tier 3 SSTL Comparison Table
Direct Exposure to Soil
Caltrans Former Hegenberger Maintenance Station
Oakland, California

Contaminant	Residential		Commercial		*Maximum Concentration (mg/kg)
	Carcinogenic (mg/kg)	Hazard (mg/kg)	Carcinogenic (mg/kg)	Hazard (mg/kg)	
Benzene	19	63	49	300	2
Toluene	NV	7,100	NV	34,000	0.51
Ethylbenzene	NV	3,900	NV	18,000	7.6
Xylenes	NV	53,000	NV	260,000	8.7
MTBE	NV	200	NV	930	Not Analyzed

Notes-
UCL - Upper confidence limit.
mg/kg - milligrams per kilogram
NV - No value. Compound not a known carcinogen.

PROJECT NO. S8100-06-34

BORING/WELL NO. BH 1

DATE DRILLED 9/26/95 WATER LEVEL (ATD) 17.0'

EQUIPMENT MOBILE B-57 HSA DRILLER HAZMAT

DEPTH IN FEET	PENETRAT. RESIST. BLWS/FT.	SAMPLE NO.	LITHOLOGY	SOIL DESCRIPTION	WELL CONSTRUCTION	PID HEADSPACE (PPM)
1				3" ASPHALT		
				Sandy Gravel base material		
				FILL		
2				Stiff, moist, yellow-brown, Gravelly CLAY (CL)		
3						
4						
5						
6						
7						
8						
9						
10		BH1-10 1140		-No sample		-
11						
12						
13				-Becomes gray, strong odor		
14						
15	30	BH1-15 1145		Stiff, very moist, gray, Silty CLAY, trace gravel (CL)		2
16						
17						
18				Dense, wet, brown, fine grained, rounded, poorly graded GRAVEL (GP)		
19				ALLUVIUM		
20	75	BH1-20 1155		Very dense, wet, brown, Clayey, fine to coarse GRAVEL (fine to coarse gravel with clay matrix) (GC)		<1
21						
22				BORING TERMINATED AT 21.5 FEET		
23						
24						

Figure A-1, log of Boring BH 1

HBGR

CASING ELEVATION:	QUANTITY OF FILTER MATERIAL:
DIAMETER & TYPE OF CASING:	WELL SEAL & INTERVAL:
CASING INTERVAL:	WELL SEAL QUANTITY:
WELL SCREEN:	ANNULUS SEAL/INTERVAL: Cement Bent. 0-21.5 ft.
SCREEN INTERVAL:	ADDITIVES:
WELL COVER:	WELL DEPTH:
FILTERPACK/INTERVAL:	ENGINEER/GEOLOGIST: IAN MOORHEAD

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. S8100-06-34

BORING/WELL NO. BH 2

DATE DRILLED 9/26/95 WATER LEVEL (ATD) 8.0'

EQUIPMENT MOBILE B-57 HSA DRILLER HAZMAT

DEPTH IN FEET	PENETRAT. RESIST. BLWS/FT.	SAMPLE NO.	LITHOLOGY	SOIL DESCRIPTION	WELL CONSTRUCTION	PID HEADSPACE (PPM)
1				3" ASPHALT		
				Sandy GRAVEL base material		
2				**ALLUVIUM** Stiff, moist, black, clay, medium to high plasticity (CL) Oil staining - strong odor		
3						
4						
5	95	BH2-5 1515				1252
6						
7				Very dense, wet, black, Clayey, fine to coarse GRAVEL (GC) ▼ Strong odor		
8						
9						
10	29	BH2-10 1520				88
11				Stiff, wet, dark brown to black, CLAY, medium to high plasticity (CL)		
12						
13						
14						
15	34	BH2-15 1525		Medium dense, wet, olive-brown, Clayey, fine grained SAND (SC) Very weak odor		19.5
16						
17						
18						
19				Medium dense, saturated, olive brown, Silty SAND, trace gravel (SM)		
20	27	BH2-20 1530				1.0
21						
22				BORING TERMINATED AT 21.5 FEET		
23						
24						

Figure A-2, log of Boring BH 2

HBGR

CASING ELEVATION:	QUANTITY OF FILTER MATERIAL:
DIAMETER & TYPE OF CASING:	WELL SEAL & INTERVAL:
CASING INTERVAL:	WELL SEAL QUANTITY:
WELL SCREEN:	ANNULUS SEAL/INTERVAL: Cement Bent. 0-21.5 ft.
SCREEN INTERVAL:	ADDITIVES:
WELL COVER:	WELL DEPTH:
FILTERPACK/INTERVAL:	ENGINEER/GEOLOGIST: IAN MOORHEAD

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. S8100-06-34

BORING/WELL NO. BH 3

DATE DRILLED 9/26/95 WATER LEVEL (ATD) 9.0'

EQUIPMENT MOBILE B-57 HSA DRILLER HAZMAT

DEPTH IN FEET	PENETRAT. RESIST. BLWS/FT.	SAMPLE NO.	LITHOLOGY	SOIL DESCRIPTION	WELL CONSTRUCTION	FID HEADSPACE (PPM)
1				3" ASPHALT		
				Sandy GRAVEL base material		
2				ALLUVIUM Stiff, moist, black, Silty CLAY, strong odor, trace gravel (CL) Oil staining - Strong odor		
3						
4						
5	16	BH3-5 1335				400
6						
7						
8				-Higher gravel content (10-20%)		
9				▼ -Becomes wet		
10	22	BH3-10 1340				74
11				Stiff, wet, gray to olive brown, mottled, CLAY, moderate odor (CL)		
12						
13						
14						
15	17	BH3-15 1345				26
16				-Very weak odor		
17						
18						
19				Loose, saturated, brown, Clayey, fine to coarse GRAVEL (gravel with clay matrix) (GC)		
20	8	BH3-20 1350				8
21						
22				BORING TERMINATED AT 21.5 FEET		
23						
24						

Figure A-3, log of Boring BH 3

HBGR

CASING ELEVATION:	QUANTITY OF FILTER MATERIAL:
DIAMETER & TYPE OF CASING:	WELL SEAL & INTERVAL:
CASING INTERVAL:	WELL SEAL QUANTITY:
WELL SCREEN:	ANNULUS SEAL/INTERVAL: Cement Bent. 0-21.5 ft.
SCREEN INTERVAL:	ADDITIVES:
WELL COVER:	WELL DEPTH:
FILTERPACK/INTERVAL:	ENGINEER/GEOLOGIST: IAN MOORHEAD

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. S8100-06-34

BORING/WELL NO. BH 4

DATE DRILLED 9/26/95 WATER LEVEL (ATD) 10.0'

EQUIPMENT MOBILE B-57 HSA DRILLER HAZMAT

DEPTH IN FEET	PENETRAT. RESIST. BLWS/FT.	SAMPLE NO.	LITHOLOGY	SOIL DESCRIPTION	WELL CONSTRUCTION	PID HEADSPACE (PPM)
1–3				3" ASPHALT FILL Coarse angular GRAVEL, with sand matrix (GP)		
4–9	8	BH4-5 1420		ALLUVIUM Stiff, moist, black, CLAY, trace silt, trace gravel, medium to high plasticity (CL) Strong odor		22
10–12	22	BH4-10 1425		-Becomes wet -Weak odor		1.0
13–17	43	BH4-15 1430		Dense, wet, yellow-brown, Clayey, fine to coarse GRAVEL (fine to coarse gravel with clay matrix) (GC)		<1
18–21	63	BH4-20 1435		Very dense, saturated, brown, poorly graded, fine to coarse GRAVEL, trace silt, clay (GP) (>50% fine gravel)		<1
22–24				BORING TERMINATED AT 21.5 FEET		

Figure A-4, log of Boring BH 4

NBGR

CASING ELEVATION:	QUANTITY OF FILTER MATERIAL:
DIAMETER & TYPE OF CASING:	WELL SEAL & INTERVAL:
CASING INTERVAL:	WELL SEAL QUANTITY:
WELL SCREEN:	ANNULUS SEAL/INTERVAL: Cement Bent. 0-21.5 ft.
SCREEN INTERVAL:	ADDITIVES:
WELL COVER:	WELL DEPTH:
FILTERPACK/INTERVAL:	ENGINEER/GEOLOGIST: IAN MOORHEAD

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. S8100-06-34

BORING/WELL NO. BH 5

DATE DRILLED 9/26/95 WATER LEVEL (ATD) 18.0'

EQUIPMENT MOBILE B-57 HSA DRILLER HAZMAT

DEPTH IN FEET	PENETRAT. RESIST. BLWS/FT.	SAMPLE NO.	LITHOLOGY	SOIL DESCRIPTION	WELL CONSTRUCTION	PID HEADSPACE (PPM)
1				3" ASPHALT		
				Sandy GRAVEL base material		
2				**ALLUVIUM** Stiff, moist, black, CLAY, trace gravel, strong odor (CL)		
3						
4						
5	24	BH5-5 1045				513
6				-Becomes black and gray, mottled		
7				-Higher gravel content (10%)		
8						
9				Stiff, very moist, gray, CLAY, moderate odor (CL)		
10	21	BH5-10 1050				22
11						
12						
13						
14				Stiff, very moist, yellow-brown, fine to coarse Gravelly CLAY (CL)		
15	55	BH5-15 1058				2.5
16						
17						
18				Dense, wet, yellow-brown, Clayey, fine to coarse SAND (>50% fine sand) trace gravel (SC)		
19						
20	49	BH5-20 1105				<1
21						
22				BORING TERMINATED AT 21.5 FEET		
23						
24						

Figure A-5, log of Boring BH 5

HBGR

CASING ELEVATION:	QUANTITY OF FILTER MATERIAL:
DIAMETER & TYPE OF CASING:	WELL SEAL & INTERVAL:
CASING INTERVAL:	WELL SEAL QUANTITY:
WELL SCREEN:	ANNULUS SEAL/INTERVAL: Cement Bent. 0-21.5 ft.
SCREEN INTERVAL:	ADDITIVES:
WELL COVER:	WELL DEPTH:
FILTERPACK/INTERVAL:	ENGINEER/GEOLOGIST: IAN MOORHEAD

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. SB100-06-34

BORING/WELL NO. BH 6

DATE DRILLED 9/26/95 WATER LEVEL (ATD) 8.0'

EQUIPMENT MOBILE B-57 HSA DRILLER HAZMAT

DEPTH IN FEET	PENETRAT. RESIST. BLWS/FT.	SAMPLE NO.	LITHOLOGY	SOIL DESCRIPTION	WELL CONSTRUCTION	PID HEADSPACE (PPM)
1				3" ASPHALT		
				Sandy GRAVEL base material		
2				FILL SOIL Stiff, moist, black, gravelly CLAY, medium high plasticity, strong odor (CL)		
3						
4						
5	11	BH6-5 0938		ALLUVIUM Stiff, moist, black, CLAY, medium high plasticity (CL) -Oil staining, strong odor		6
6						
7						
8				-Becomes wet		
9						
10	31	BH6-10 0945				4
11				Stiff, saturated, gray, Silty CLAY, trace gravel, strong odor (CL)		
12						
13						
14						
15	60	BH6-15 1000		Stiff, saturated, dark yellow-brown, Clayey, fine to coarse GRAVEL (gravel with clay matrix) weak odor (GC)		<1
16						
17						
18				Very dense, saturated, brown, Clayey, fine to coarse SAND, trace gravel (fine to coarse SAND with clay matrix) (SC)		
19						
20	65	BH6-20 1005				<1
21						
22				BORING TERMINATED AT 21.5 FEET		
23						
24						

Figure A-6, log of Boring BH 6

HBGR

CASING ELEVATION:	QUANTITY OF FILTER MATERIAL:
DIAMETER & TYPE OF CASING:	WELL SEAL & INTERVAL:
CASING INTERVAL:	WELL SEAL QUANTITY:
WELL SCREEN:	ANNULUS SEAL/INTERVAL: Cement Bent. 0-21.5 ft.
SCREEN INTERVAL:	ADDITIVES:
WELL COVER:	WELL DEPTH:
FILTERPACK/INTERVAL:	ENGINEER/GEOLOGIST: IAN MOORHEAD

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. E8100-06-13

BORING NO. BH6

DATE DRILLED 12/26/01 WATER LEVEL (ATD) 4.75'

EQUIPMENT GEOPROBE DRILLER VIRONEX

DEPTH IN FEET	PENETRAT. RESIST. BLOWS/FT.	SAMPLE NO.	LITHOLOGY	SOIL DESCRIPTION	SOIL (USCS)	HEADSPACE (PPM)
1				**3 INCHES ASPHALT**	GP	
				Gravel backfill		
2						
3						
4				Soft, wet, brown (10YR 4/3) Silty SAND with gravel	SM	0
5				Saturated gravel backfill	GP	
6						
7						
8						0
9				Saturated, crushed asphalt		
10				BORING TERMINATED AT 10 FEET		

BORING LOCATED IN FORMER UST PIT
COLLECTED GRAB GROUNDWATER SAMPLE

Figure A1, Log of Boring BH6, page 1 of 1

ENV_NO_WELL HEGEN.GPJ 01/07/02

BORING ELEVATION: NA

ENGINEER/GEOLOGIST: MATT HANKO

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. E8100-06-13

BORING NO. BH7

DATE DRILLED 12/26/01 WATER LEVEL (ATD) 12'

EQUIPMENT GEOPROBE DRILLER VIRONEX

DEPTH IN FEET	PENETRAT. RESIST. BLOWS/FT.	SAMPLE NO.	LITHOLOGY	SOIL DESCRIPTION	SOIL (USCS)	HEADSPACE (PPM)
1				**1 FOOT ASPHALT/BASE**		
1				Very soft, slightly moist, dark brown (10YR 3/2), Sandy SILT	ML	
2						
3						
4						
5						0
6				Firm, moist, black (10YR 2/1) Clayey SILT, highly organic	OH	
7						
8						
9						
10						
11		BH7-11		Soft, moist, dark yellowish brown (10YR 4/6), Sandy SILT	ML	
12				▽ Loose, saturated, dark yellowish brown (10YR 4/6), coarse Silty SAND	SM	
13						
14						
15				Interlayers of saturated coarse SAND with gravel and stiff Silty CLAY	SP/CL	0
16						
17						
18						
19						
20				BORING TERMINATED AT 20 FEET		
				COLLECTED GRAB GROUNDWATER SAMPLE		

Figure A2, Log of Boring BH7, page 1 of 1

ENV_NO_WELL HEGEN.GPJ 01/07/02

BORING ELEVATION: NA

ENGINEER/GEOLOGIST: **MATT HANKO**

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. E8100-06-13

BORING NO. BH8

DATE DRILLED 12/26/01 WATER LEVEL (ATD) 11.5'

EQUIPMENT GEOPROBE DRILLER VIRONEX

DEPTH IN FEET	PENETRAT. RESIST. BLOWS/FT.	SAMPLE NO.	LITHOLOGY	SOIL DESCRIPTION	SOIL (USCS)	HEADSPACE (PPM)
1				**1 FOOT ASPHALT/BASE**		
1				Very stiff, slightly moist, brown (10YR 4/3), Sandy CLAY with coarse sand	CL	
2						
3				Firm slightly moist, gray (10YR 4/1), Sandy SILT	ML	
4						
5		NO REC				
6						
7				Loose, wet, dark gray (10YR 4/1), Silty SAND	SM	0
8				Firm, moist, black (10YR 2/1), Silty CLAY	CL	
9						
10						
11				▽		
12				Very firm, slightly moist, light olive brown (2.5Y 5/4), Silty CLAY	CL	
13						
14						
15				BORING TERMINATED AT 15 FEET		
				COLLECTED GRAB GROUNDWATER SAMPLE		

Figure A3, Log of Boring BH8, page 1 of 1

ENV_NO_WELL HEGEN.GPJ 01/07/02

BORING ELEVATION: NA

ENGINEER/GEOLOGIST: MATT HANKO

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. E8100-06-13

BORING NO. BH9

DATE DRILLED 12/26/01 WATER LEVEL (ATD) 7.5'

EQUIPMENT GEOPROBE DRILLER VIRONEX

DEPTH IN FEET	PENETRAT. RESIST. BLOWS/FT.	SAMPLE NO.	LITHOLOGY	SOIL DESCRIPTION	SOIL (USCS)	HEADSPACE (PPM)
1				**1 FOOT ASPHALT/BASE**		
1				Firm, slightly moist, dark brown (10YR 3/3), Silty CLAY	CL	
2						
3						
4				Soft, moist, gray (10YR 5/1), Clayey SILT	ML	
5						
6						
7		BH9-6.5		▽ Loose, saturated, dark gray (10YR 4/1), fine Silty SAND	SM	
8				Firm, moist, very dark brown (10YR 2/2), Silty CLAY	CL	
9						
10				Loose, saturated, dark gray (10YR 4/1), coarse SAND	SP	
11				Firm, moist, dark gray (10YR 4/1), Silty CLAY	CL	
12						
13						
14						
15				BORING TERMINATED AT 15 FEET		
				COLLECTED GRAB GROUNDWATER SAMPLE		

Figure A4, Log of Boring BH9, page 1 of 1

ENV_NO_WELL HEGEN.GPJ 01/07/02

BORING ELEVATION: **NA**

ENGINEER/GEOLOGIST: **MATT HANKO**

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. S8100-06-34

BORING/WELL NO. MW 1

DATE DRILLED 9/27/95 WATER LEVEL (ATD) 13.0'

EQUIPMENT MOBILE B-57 DRILLER HAZMAT

DEPTH IN FEET	PENETRAT. RESIST. BLWS/FT.	SAMPLE NO.	SOIL DESCRIPTION	WELL CONSTRUCTION	PID HEADSPACE (PPM)
1			3" ASPHALT		
2			FILL SOIL Sandy GRAVEL base material		
3			Medium dense, moist, brown, Clayey, fine to coarse GRAVEL (GC)		
4			ALLUVIUM Stiff, moist, black, CLAY, 10% gravel, medium plasticity, oil staining, strong odor (CL)		
5	40	MW1-5 1015			1356
6					
7					
8					
9					
10	13	MW1-10 1025			22
11			-Becomes very moist, rootlets, very weak odor		
12					
13			▼		
14			Stiff, wet, olive brown, brown mottled CLAY, medium to high plasticity, trace weathered gravel clasts (CL)		
15	18	MW1-15 1035			<1
16					
17					
18					
19	21				<1
20		MW1-20 1050	BORING TERMINATED AT 20 FEET		
21					
22					
23					
24					

Figure A-7, log of Boring MW 1

HBGR

CASING ELEVATION:	QUANTITY OF FILTER MATERIAL: 8 - 100lb Bags
DIAMETER & TYPE OF CASING: 4" Dia. PVC	WELL SEAL & INTERVAL: Bentonite Chips 2-4.0 ft.
CASING INTERVAL: 0 - 4.5 ft.	WELL SEAL QUANTITY: 1.0 - 50lb Bag
WELL SCREEN: 0.02"	ANNULUS SEAL/INTERVAL: Cement Bent. 0-2.0 ft.
SCREEN INTERVAL: 4.5 to 19.5 ft.	ADDITIVES: None
WELL COVER: 12" Traffic Rated Cover	WELL DEPTH: 19.5 ft.
FILTERPACK/INTERVAL: #3 Sand 4.0 to 19.5 ft.	ENGINEER/GEOLOGIST: IAN MOORHEAD

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. S8100-06-34

BORING/WELL NO. MW 2

DATE DRILLED 9/27/95 WATER LEVEL (ATD) 13.5'

EQUIPMENT MOBILE B-57 DRILLER HAZMAT

DEPTH IN FEET	PENETRAT. RESIST. BLWS/FT.	SAMPLE NO.	LITHOLOGY	SOIL DESCRIPTION	WELL CONSTRUCTION	PID HEADSPACE (PPM)
1				3" ASPHALT		
2				Sandy GRAVEL base material		
3				ALLUVIUM Stiff, moist, black, CLAY, trace of fine to coarse GRAVEL, strong odor (CL)		
4						
5	13	MW2-5 1600				8
6						
7						
8				-Becomes dark gray		
9						
10	15	MW2-10 1605				-
11				-No recovery		
12						
13				▼		
14				Dense, wet, olive brown and orange brown, Silty SAND, very weak odor (SM)		
15	35	MW2-15 1615				1
16						
17						
18				Dense, saturated, brown, medium coarse SAND trace silt (SP)		
19	32	MW2-20 1625				<1
20				BORING TERMINATED AT 20 FEET		
21						
22						
23						
24						

Figure A-8, log of Boring MW 2

HBGR

CASING ELEVATION:	QUANTITY OF FILTER MATERIAL: 6.5 - 100lb Bags
DIAMETER & TYPE OF CASING: 4" Dia. PVC	WELL SEAL & INTERVAL: Bentonite Chips 2-4.0 ft.
CASING INTERVAL: 0 - 5.0 ft.	WELL SEAL QUANTITY: 1.0 - 50lb Bag
WELL SCREEN: 0.02"	ANNULUS SEAL/INTERVAL: Cement Bent. 0-2.0 ft.
SCREEN INTERVAL: 5 to 20 ft.	ADDITIVES: None
WELL COVER: 12" Traffic Rated Cover	WELL DEPTH: 20 ft.
FILTERPACK/INTERVAL: #3 Sand 4.0 to 20 ft.	ENGINEER/GEOLOGIST: IAN MOORHEAD

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. S8100-06-34

BORING/WELL NO. MW 3

DATE DRILLED 9/27/95 WATER LEVEL (ATD) 13.0'

EQUIPMENT MOBILE B-57 DRILLER HAZMAT

DEPTH IN FEET	PENETRAT. RESIST. BLWS/FT.	SAMPLE NO.	LITHOLOGY	SOIL DESCRIPTION	WELL CONSTRUCTION	PID HEADSPACE (PPM)
1				3" ASPHALT		
				Sandy GRAVEL base material		
2				**ALLUVIUM** Stiff, moist, black CLAY, medium plasticity, moderate odor (CL)		
3						
4						
5	40	MW3-5 1400				
6				-No recovery		
7		MW3-8 1406		-Trace fine to coarse gravel		6
8						
9						
10	16	MW3-10 1414				5.5
11				-Weak odor		
12						
13				▼		
14				Medium dense, wet, light olive brown, Silty SAND (SM)		
15	12	MW3-15 1425				<1
16						
17						
18				Medium dense, saturated, gray, fine grained SAND, trace silt (SP)		
19						
20	18	MW3-20 1430				<1
21						
22				BORING TERMINATED 21.5 FEET		
23						
24						

Figure A-9, log of Boring MW 3

HBGR

CASING ELEVATION:	QUANTITY OF FILTER MATERIAL: 7 - 100lb Bags
DIAMETER & TYPE OF CASING: 4" Dia. PVC	WELL SEAL & INTERVAL: Bentonite Chips 2-4.0 ft.
CASING INTERVAL: 0 - 4.5 ft.	WELL SEAL QUANTITY: 1.0 - 50lb Bag
WELL SCREEN: 0.02"	ANNULUS SEAL/INTERVAL: Cement Bent. 0-2.0 ft.
SCREEN INTERVAL: 4.5 to 19.5 ft.	ADDITIVES: None
WELL COVER: 12" Traffic Rated Cover	WELL DEPTH: 19.5 ft.
FILTERPACK/INTERVAL: #3 Sand 4.0 to 19.5 ft.	ENGINEER/GEOLOGIST: IAN MOORHEAD

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. S8100-06-34

BORING/WELL NO. MW 4

DATE DRILLED 9/27/95 WATER LEVEL (ATD) 13.0'

EQUIPMENT MOBILE B-57 DRILLER HAZMAT

DEPTH IN FEET	PENETRAT. RESIST. BLWS/FT.	SAMPLE NO.	SOIL DESCRIPTION	PID HEADSPACE (PPM)
1–4			3" ASPHALT **FILL SOIL** Medium dense, moist, brown, Clayey, fine to coarse subangular gravel	
5	50/6"	MW4-5 0805	**ALLUVIUM** Stiff, very moist, orange-brown and gray, mottled CLAY, medium-high plasticity (CL)	<1
6–8			Dense, wet, gray-black, Clayey, fine to coarse GRAVEL, strong odor (gravel with clay matrix) (GC)	
9–12	23	MW4-10 0816	Stiff, wet, black, gravelly CLAY, strong odor (CL)	26
13–17	25	MW4-15 0824	Stiff, wet dark olive-brown CLAY, medium to high plasticity, trace of gravel, pinhole structures, very weak odor (CL)	<1
18–20		MW4-20 0832	Medium dense, saturated, brown, Silty SAND, trace clay (SM)	-
21	14		-Very poor recovery (slough)	
22–24			BORING TERMINATED AT 21.5 FEET	

WELL CONSTRUCTION

Figure A-10, log of Boring MW 4

HBGR

CASING ELEVATION:	QUANTITY OF FILTER MATERIAL: 7 - 100lb Bags
DIAMETER & TYPE OF CASING: 4" Dia. PVC	WELL SEAL & INTERVAL: Bentonite Chips 2-3.5 ft.
CASING INTERVAL: 0 - 4.0 ft.	WELL SEAL QUANTITY: 1.0 - 50lb Bag
WELL SCREEN: 0.02"	ANNULUS SEAL/INTERVAL: Cement Bent. 0-2.0 ft.
SCREEN INTERVAL: 4.0 to 19.0 ft.	ADDITIVES: None
WELL COVER: 12" Traffic Rated Cover	WELL DEPTH: 19.0 ft.
FILTERPACK/INTERVAL: #3 Sand 3.5 to 19.0 ft.	ENGINEER/GEOLOGIST: IAN MOORHEAD

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

PROJECT NO. S8100-06-34

BORING/WELL NO. MW 5

DATE DRILLED 9/27/95 WATER LEVEL (ATD) 18.0'

EQUIPMENT MOBILE B-57 DRILLER HAZMAT

DEPTH IN FEET	PENETRAT. RESIST. BLWS/FT.	SAMPLE NO.	SOIL DESCRIPTION	PID HEADSPACE (PPM)
1			2" ASPHALT	
2			FILL Sandy GRAVEL base material	
3			Stiff, moist, black, fine to coarse gravelly CLAY, strong odor (CL)	
4			ALLUVIUM Stiff, moist, black, CLAY, medium high plasticity, trace gravel, strong odor (CL)	
5	12	MW5-5 0915		-
6				
7				
8				
9				
10	12	MW5-10 0918	-Becomes olive-brown, higher gravel content (10%) very weak odor	<1
11				
12				
13				
14			Medium dense, very moist, olive brown and yellow brown, Silty SAND (SM)	
15	27	MW5-15 0925		<1
16				
17				
18				
19	27	MW5-20 0933	Medium dense, wet, brown, Clayey, Sandy GRAVEL (Sandy gravel with clay matrix) (GC)	
20				<1
21			BORING TERMINATED AT 20 FEET	
22				
23				
24				

WELL CONSTRUCTION

Figure A-11, log of Boring MW 5

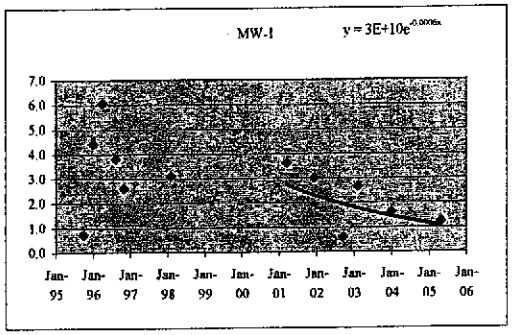
HBGR

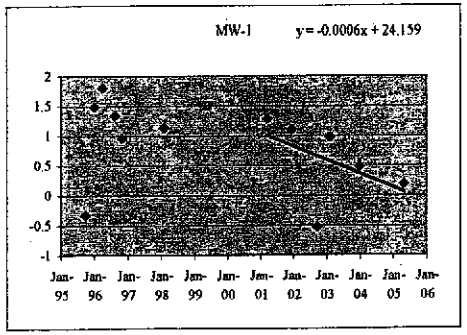
CASING ELEVATION:	QUANTITY OF FILTER MATERIAL: 6-3/4 - 100lb Bags
DIAMETER & TYPE OF CASING: 4" Dia. PVC	WELL SEAL & INTERVAL: Bentonite Chips 2-4.0 ft.
CASING INTERVAL: 0 - 5.0 ft.	WELL SEAL QUANTITY: 1.0 - 50lb Bag
WELL SCREEN: 0.02"	ANNULUS SEAL/INTERVAL: Cement Bent. 0-2.0 ft.
SCREEN INTERVAL: 5.0 to 20.0 ft.	ADDITIVES: None
WELL COVER: 12" Traffic Rated Cover	WELL DEPTH: 20.0 ft.
FILTERPACK/INTERVAL: #3 Sand 4.0 to 20.0 ft.	ENGINEER/GEOLOGIST: IAN MOORHEAD

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

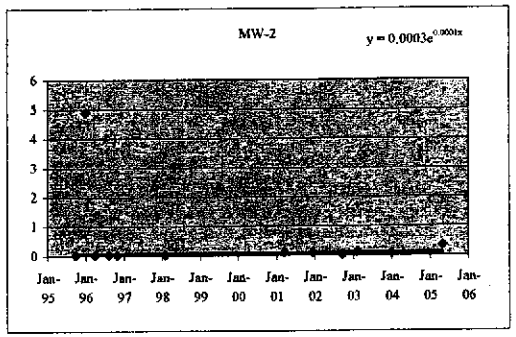
Well	Date	TPHg (mg/l)	TPHg (mg/l)	ln(TPHg) (mg/l)
MW-1	10/11/1995	**0.72**	0.72	-0.328504067
	1/17/1996	**4.4**	4.4	1.481604541
	4/16/1996	**6.05**	6.05	1.800058272
	8/26/1996	**3.8**	3.8	1.335001067
	11/14/1996	**2.6**	2.6	0.955511445
	2/18/1998	**3.1**	3.1	1.131402111
	3/30/2001	**3.6**	3.6	1.280933845
	12/26/2001	**3.0**	3.0	1.098612289
	9/30/2002	**0.59**	0.59	-0.527632742
	2/20/2003	**2.65**	2.65	0.97455964
	1/12/2004	**1.61**	1.61	0.476234179
	5/12/2005	**1.2**	1.2	0.182321557

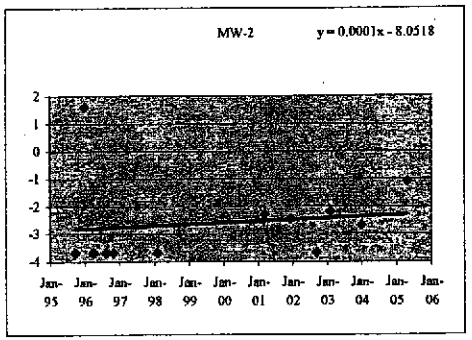
half-life = 1155 days = 3.16 years



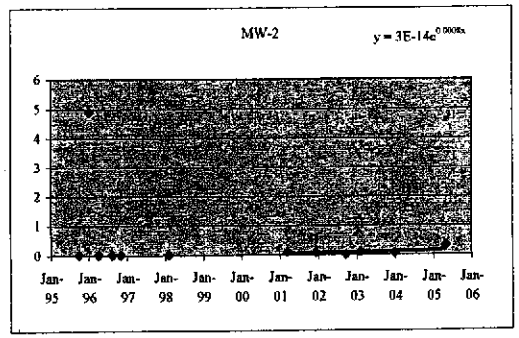


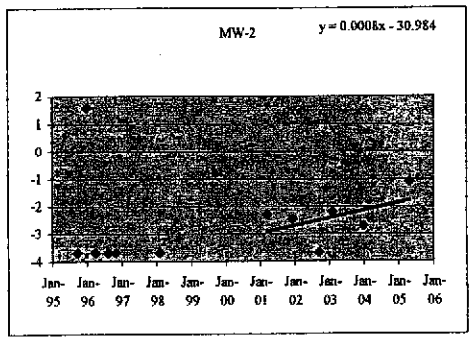
Well	Date	TPHg (mg/l)	TPHg (mg/l)	ln(TPHg) (mg/l)
MW-2	10/11/1995	< 0.05	0.025	-3.688879454
	1/17/1996	**4.9**	4.9	1.589235205
	4/16/1996	< 0.05	0.025	-3.688879454
	8/26/1996	< 0.05	0.025	-3.688879454
	11/14/1996	< 0.05	0.025	-3.688879454
	2/18/1998	< 0.05	0.025	-3.688879454
	3/30/2001	< 0.20	0.1	-2.302585093
	12/26/2001	**0.085**	0.085	-2.465104022
	9/30/2002	< 0.05	0.025	-3.688879454
	2/20/2003	**0.11**	0.11	-2.207274913
	1/12/2004	**0.067**	0.067	-2.70306266
	5/12/2005	**0.33**	0.33	-1.108662625





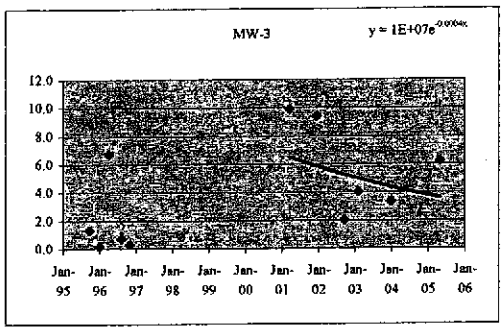
Well	Date	TPHg (mg/l)	TPHg (mg/l)	ln(TPHg) (mg/l)
MW-2	10/11/1995	< 0.05	0.025	-3.688879454
	1/17/1996	**4.9**	4.9	1.589235205
	4/16/1996	< 0.05	0.025	-3.688879454
	8/26/1996	< 0.05	0.025	-3.688879454
	11/14/1996	< 0.05	0.025	-3.688879454
	2/18/1998	< 0.05	0.025	-3.688879454
	3/30/2001	< 0.20	0.1	-2.302585093
	12/26/2001	**0.085**	0.085	-2.465104022
	9/30/2002	< 0.05	0.025	-3.688879454
	2/20/2003	**0.11**	0.11	-2.207274913
	1/12/2004	**0.067**	0.067	-2.70306266
	5/12/2005	**0.33**	0.33	-1.108662625

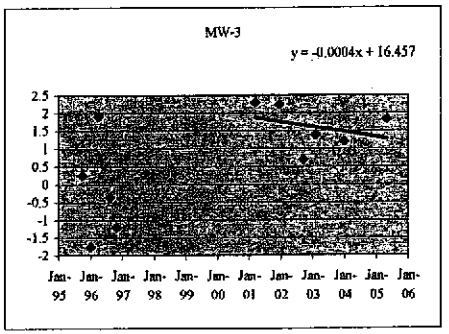




half-life = 1733 days = 4.74 years

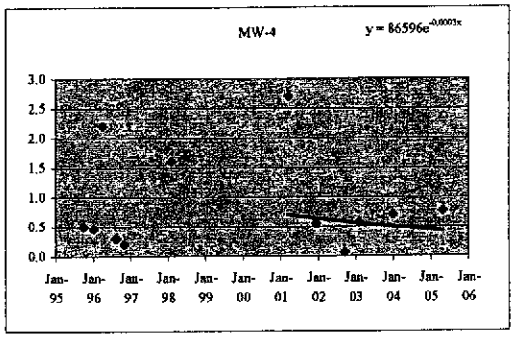
MW-3	10/11/1995	1.3	1.3	0.262364264
	1/17/1996	0.171	0.2	-1.766091722
	4/16/1996	6.74	6.74	1.908059925
	8/26/1996	0.7	0.7	-0.356674944
	11/14/1996	0.3	0.3	-1.203972804
	2/18/1998	11	11	2.397895273
	3/30/2001	9.9	9.9	2.292534757
	12/26/2001	9.4	9.4	2.240709689
	9/30/2002	2.02	2.02	0.703097511
	2/20/2003	4.01	4.01	1.388791241
	1/12/2004	3.32	3.32	1.199964783
	5/12/2005	6.2	6.2	1.824549292

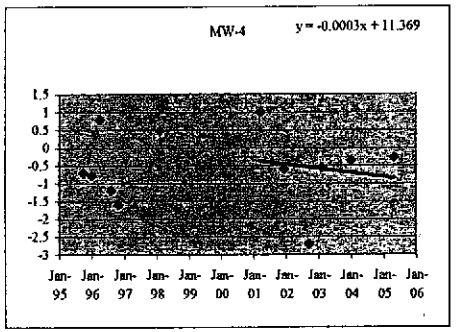




half-life = 2310 days = 6.33 years

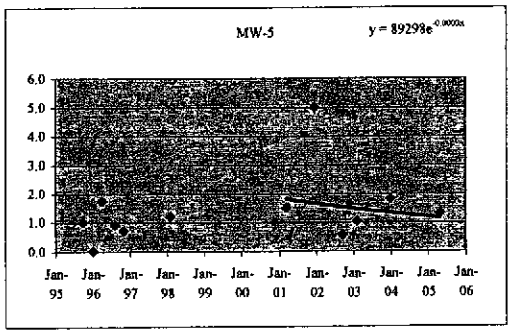
MW-4	10/11/1995	0.5	0.5	-0.693147181
	1/17/1996	0.46	0.46	-0.778705069
	4/16/1996	2.20	2.20	0.78845736
	8/26/1996	0.30	0.30	-1.203972804
	11/14/1996	0.20	0.20	-1.609437912
	2/18/1998	1.60	1.60	0.470003629
	3/30/2001	2.7	2.7	0.993251773
	12/26/2001	0.6	0.6	-0.597837001
	9/30/2002	0.067	0.067	-2.70306266
	2/20/2003	0.57	0.57	-0.562118918
	1/12/2004	0.70	0.70	-0.356674944
	5/12/2005	0.76	0.76	-0.274436846

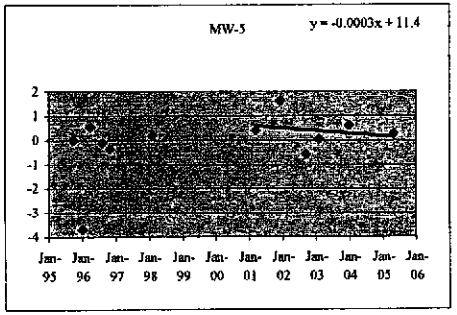




half-life = 2310 days = 6.33 years

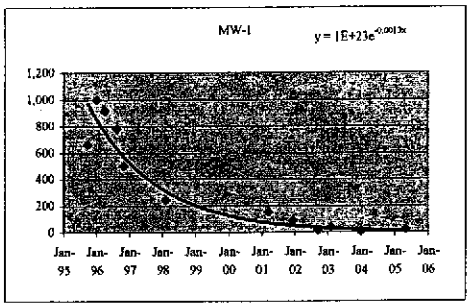
MW-5	10/11/1995	1.0	1.0	0
	1/17/1996	< 0.05	0.025	-3.688879454
	4/16/1996	1.74	1.74	0.553885113
	8/26/1996	0.90	0.90	-0.105360516
	11/14/1996	0.70	0.70	-0.356674944
	2/18/1998	1.20	1.20	0.182321557
	3/30/2001	1.5	1.5	0.405465108
	12/26/2001	5.0	5.0	1.609437912
	9/30/2002	0.56	0.56	-0.579818495
	2/20/2003	1.04	1.04	0.039220713
	1/12/2004	1.82	1.82	0.598836501
	5/12/2005	1.3	1.3	0.262364264

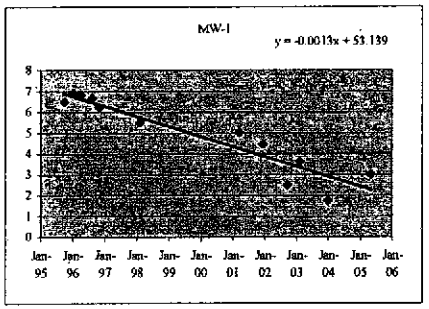




Well	Date	Benzene (ug/l)	Benzene (ug/l)	ln(Benzene) (ug/l)
MW-1	10/11/1995	**0.66**	660	6.492239835
	1/17/1996	**1.00**	1,000	6.907755279
	4/16/1996	**0.914**	914	6.817830571
	8/26/1996	**0.780**	780	6.65929392
	11/14/1996	**0.500**	500	6.214608098
	2/18/1998	**0.240**	240	5.480638923
	3/30/2001	**0.150**	150	5.010635294
	12/26/2001	**0.086**	86	4.454347296
	9/30/2002	**0.012**	12	2.48490665
	2/20/2003	**0.0369**	36.9	3.608211551
	1/12/2004	**0.0056**	5.6	1.722766598
	5/12/2005	**0.020**	20	2.995732274

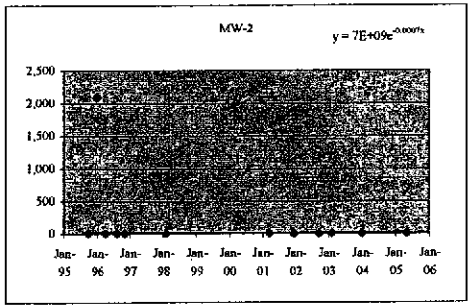
half-life = 533 days = 1.46 years

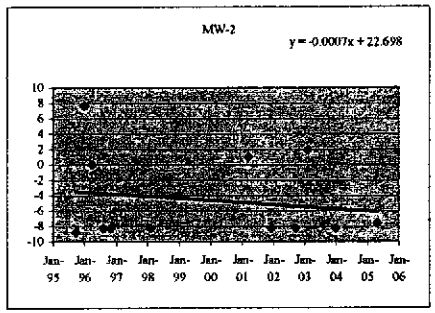




Well	Date	Benzene (ug/l)	Benzene (ug/l)	ln(Benzene) (ug/l)
MW-2	10/11/1995	<0.0003	0.00015	-8.804875264
	1/17/1996	**2.10**	2,100	7.649692624
	4/16/1996	**0.0010**	1	0
	8/26/1996	<0.0005	0.00025	-8.29404964
	11/14/1996	<0.0005	0.00025	-8.29404964
	2/18/1998	<0.0005	0.00025	-8.29404964
	3/30/2001	**0.0027**	2.7	0.993251773
	12/26/2001	<0.0005	0.00025	-8.29404964
	9/30/2002	<0.0005	0.00025	-8.29404964
	2/20/2003	**0.0066**	6.6	1.887069649
	1/12/2004	<0.0005	0.00025	-8.29404964
	5/12/2005	<0.001	0.00050	-7.60090246

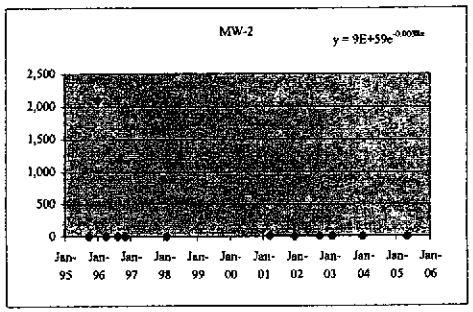
half-life = 990 days = 2.71 years

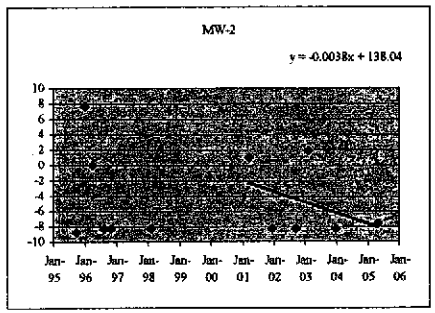




Well	Date	Benzene (ug/l)	Benzene (ug/l)	ln(Benzene) (ug/l)
MW-2	10/11/1995	<0.0003	0.00015	-8.804875264
	1/17/1996	**2.10**	2,100	7.649692624
	4/16/1996	**0.0010**	1	0
	8/26/1996	<0.0005	0.00025	-8.29404964
	11/14/1996	<0.0005	0.00025	-8.29404964
	2/18/1998	<0.0005	0.00025	-8.29404964
	3/30/2001	**0.0027**	2.7	0.993251773
	12/26/2001	<0.0005	0.00025	-8.29404964
	9/30/2002	<0.0005	0.00025	-8.29404964
	2/20/2003	**0.0066**	6.6	1.887069649
	1/12/2004	<0.0005	0.00025	-8.29404964
	5/12/2005	<0.001	0.00050	-7.60090246

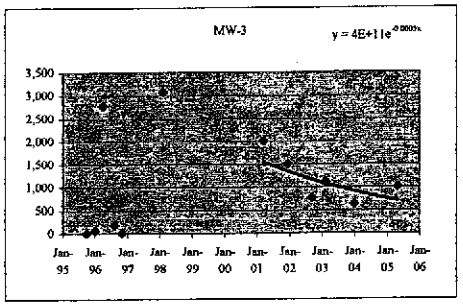
half-life = 182 days = 0.50 years

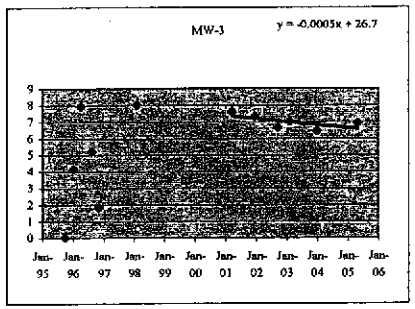




Well	Date	Benzene (ug/l)	Benzene (ug/l)	ln(Benzene) (ug/l)
MW-3	10/11/1995	**0.0010**	1	0
	1/17/1996	**0.064**	64	4.158883083
	4/16/1996	**2.770**	2,770	7.926602599
	8/26/1996	**0.180**	180	5.192956851
	11/14/1996	**0.0062**	6	1.824549292
	2/18/1998	**3.070**	3,070	8.029432841
	3/30/2001	**2.00**	2,000	7.60090246
	12/26/2001	**1.50**	1,500	7.313220387
	9/30/2002	**0.775**	775	6.652863029
	2/20/2003	**1.120**	1,120	7.021083964
	1/12/2004	**0.632**	632	6.448889394
	5/12/2005	**1.00**	1,000	6.907755279

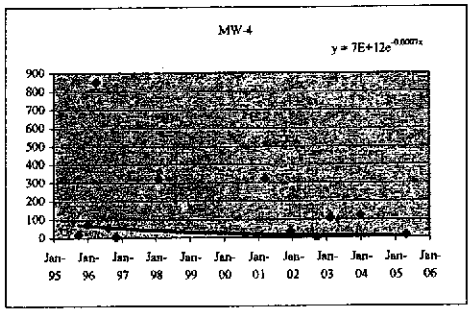
half-life = 1386 days = 3.80 years

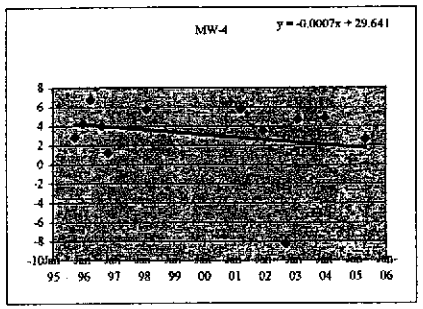




MW-4	10/11/1995	**0.017**	17	2.833213344
	1/17/1996	**0.072**	72	4.276666119
	4/16/1996	**0.851**	851	6.746412129
	8/26/1996	**0.055**	55	4.007333185
	11/14/1996	**0.0034**	3.4	1.223775432
	2/18/1998	**0.320**	320	5.768320996
	3/30/2001	**0.320**	320	5.768320996
	12/26/2001	**0.033**	33	3.496507561
	9/30/2002	<0.0005	0.00025	-8.29404964
	2/20/2003	**0.107**	107	4.672828834
	1/12/2004	**0.122**	122	4.804021045
	5/12/2005	**0.014**	14	2.63905733

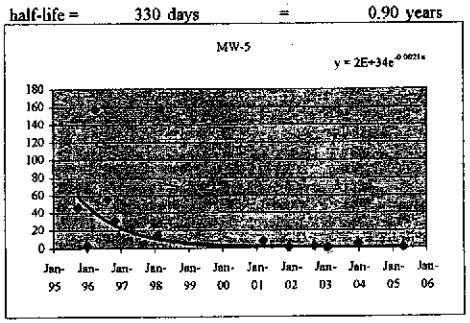
half-life = 990 days = 2.71 years

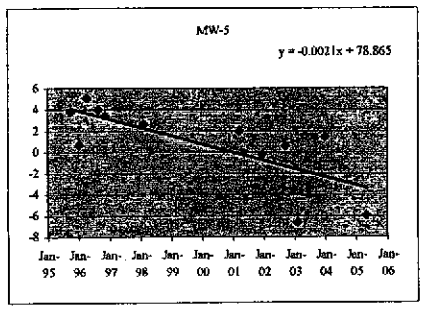




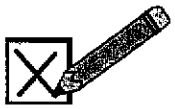
MW-5	10/11/1995	**0.045**	45	3.80666249
	1/17/1996	**0.002**	2	0.693147181
	4/16/1996	**0.157**	157	5.056245805
	8/26/1996	**0.055**	55	4.007333185
	11/14/1996	**0.031**	31	3.433987204
	2/18/1998	**0.014**	14	2.63905733
	3/30/2001	**0.0072**	7.2	1.974081026
	12/26/2001	**0.0008**	0.8	-0.223143551
	9/30/2002	**0.0018**	1.8	0.587786665
	2/20/2003	<0.0025	0.00125	-6.684611728
	1/12/2004	**0.0042**	4.2	1.435084525
	5/12/2005	<0.005	0.0025	-5.991464547

half-life = 330 days = 0.90 years





Oakland RBCA Eligibility Checklist



The Oakland Tier 1 RBSLs and Tier 2 SSTLs are intended to address human health concerns at the majority of sites in Oakland where commonly-found contaminants are present. Complicated sites—especially those with continuing releases, ecological concerns or unusual subsurface conditions—will likely require a Tier 3 analysis. The following checklist is designed to assist you in determining your site's eligibility for the Oakland RBCA levels.

CRITERIA	YES	NO
1. Is there a continuing, *primary* source of a chemical of concern, such as a leaking container, tank or pipe? (This does *not* include residual sources.)	☐	☑
2. Is there any mobile or potentially-mobile free product?	☐	☑
3. Are there more than five chemicals of concern at the site at a concentration greater than the lowest applicable Oakland RBCA level?	☐	☑
4. Are there any preferential vapor migration pathways—such as gravel channels or utility corridors—that are potential conduits for the migration, on-site or off-site, of a volatilized chemical of concern?	☐	☑
5. Do both of the following conditions exist? (a) Groundwater is at depths less than 300 cm (10 feet) (b) Inhalation of volatilized chemicals of concern from groundwater in indoor or outdoor air is a pathway of concern but groundwater ingestion is *not**	☑	☐
6. Are there any existing on-site or off-site structures intended for future use where exposure to indoor air vapors from either soil or groundwater is of concern *and* one of the following three conditions is present? (a) A slab-on-grade foundation that is less than 15 cm (6 inches) thick (b) An enclosed, below-grade space (e.g., a basement) that has floors or walls less than 15 cm (6 inches) thick (c) A crawl space that is not ventilated	☐	☑
7. Are there any immediate, acute health risks to humans associated with contamination at the site, including explosive levels of a chemical?	☐	☑
8. Are there any complete exposure pathways to nearby ecological receptors, such as endangered species, wildlife refuge areas, wetlands, surface water bodies or other protected areas?	☐	☑

*If groundwater ingestion *is* a pathway of concern, the associated Oakland RBCA levels will be more stringent than those for any groundwater-related inhalation scenario, rendering depth to groundwater irrelevant in the risk analysis.

If you answer "no" to all questions, your site is eligible for the Oakland RBCA levels. If you answer "yes" to any of the questions, your site is *not* eligible for the Oakland RBCA levels at this time.

Tier 1 Default Inputs

		Residential		Commercial/ Industrial
Input Parameters	**Units**	**Child**	**Adult**	**Worker**
Soil-Specific Parameters				
Capillary fringe thickness	cm	=adult residential	5	=adult residential
Capillary fringe air content	cm^3/cm^3		0.038	
Capillary fringe water content	cm^3/cm^3		0.342	
Fraction organic carbon (FOC*)	g oc/g soil		0.01	
Groundwater Darcy velocity	cm/yr		6	
Groundwater mixing zone thickness	cm		1524	
Infiltration rate through the vadose zone	cm/yr		3	
Soil bulk density	g/cm^3		1.70	
Soil to skin adherence factor	mg/cm^2	0.5	0.5	0.5
Total soil porosity	cm^3/cm^3	=adult residential	0.38	=adult residential
Vadose zone air content	cm^3/cm^3		0.26	
Vadose zone water content	cm^3/cm^3		0.12	
Vadose zone thickness	cm		295	
Structural and Climatic Parameters				
Areal fraction of cracks in building foundation	cm^2/cm^2	=adult residential	0.001	0.001
Foundation air content	cm^3/cm^3		0.26	=adult residential
Foundation water content	cm^3/cm^3		0.12	
Foundation thickness	cm		15	15
Lower depth of surficial soil zone	cm		100.0	=adult residential
Depth to subsurface soil sources	cm		100	
Depth to groundwater	cm		300	
Width of source area parallel to wind or groundwater flow direction	cm		1500	
Outdoor air mixing zone height	cm		200	
Particulate emission rate	g/cm^2-s		1.38E-11	1.38E-11
Wind speed above ground surface in outdoor air mixing zone	cm/s		322	=adult residential

Tier 1 Default Inputs

Input Parameters	Units	Residential		Commercial/ Industrial
		Child	Adult	Worker
Exposure Parameters				
Averaging time for carcinogens	yr	=adult residential	70	=adult residential
Averaging time for non-carcinogens	yr	6	24	25
Averaging time for vapor flux	s	=adult residential	9.46E+08	7.88E+08
Body weight	kg	15	70	70
Building air volume/floor area	cm^3/cm^2	=adult residential	229	305
Exposure duration	yr	6	24	25
Exposure frequency	d/yr	350	350	250
Exposure frequency to water used for recreation	d/yr	120	120	0
Exposure time to indoor air	hr/d	24	24	9
Exposure time to outdoor air	hr/d	16	16	9
Exposure time to water used for recreation	hr/d	2	1.0	0
Groundwater ingestion rate	L/d	1	2	1
Indoor air exchange rate	1/s	=adult residential	5.60E-04	1.40E-03
Indoor inhalation rate	m^3/d	10	15	20
Ingestion rate of water used for recreation	L/hr	0.05	0.05	0
Outdoor inhalation rate	m^3/d	10	20	20
Skin surface area exposed to soil	cm^2	2000	5000	5000
Skin surface area exposed to water used for recreation	cm^2	8000	20000	0
Soil ingestion rate	mg/d	200	100	50
TARGET RISK LEVELS				
Individual Excess Lifetime Cancer Risk	unitless	=adult residential	1.0E-06	1.0E-06
Hazard quotient	unitless		1.0	1.0

Oakland Tier 1 RBSLs

Medium	Exposure Pathway	Land Use	Type of Risk	Acenaphthene	Acenaphthylene	Acetone	Anthracene	Arsenic	Barium	Benz(a)anthracene	Benzene	Benzo(a)pyrene
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic					3.2E-01		2.5E-01	2.7E+00	2.5E-02
			Hazard	3.1E+03	3.1E+03	4.8E+03	1.6E+04	2.0E+01	5.2E+03		8.1E+01	
		Commercial/ Industrial	Carcinogenic					1.5E+00		7.9E-01	8.5E+00	7.9E-02
			Hazard	2.0E+04	2.0E+04	3.0E+04	1.0E+05	2.5E+02	9.4E+04		5.1E+02	
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic							SAT	6.9E-02	SAT
			Hazard	SAT	SAT	1.5E+03	SAT				2.3E+00	
		Commercial/ Industrial	Carcinogenic							SAT	1.1E+00	SAT
			Hazard	SAT	SAT	4.4E+04	SAT				6.6E+01	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic							SAT	1.9E-01	SAT
			Hazard	SAT	SAT	5.0E+03	SAT				7.6E+00	
		Commercial/ Industrial	Carcinogenic							SAT	7.3E-01	SAT
			Hazard	SAT	SAT	2.9E+04	SAT				4.4E+01	
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic					*4.4E+00*	*1.2E+02*	6.8E-01	*2.1E-03*	*6.2E+00*
			Hazard	2.0E+02	1.4E+02	3.6E-01	SAT	*4.4E+00*	*1.2E+02*		*2.1E-03*	*6.2E+00*
		Commercial/ Industrial	Carcinogenic					*4.4E+00*	*1.2E+02*	2.9E+00	*2.1E-03*	*6.2E+00*
			Hazard	SAT	SAT	2.4E+00	SAT	*4.4E+00*	*1.2E+02*		*2.1E-03*	*6.2E+00*
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic							>SOL	1.1E-01	>SOL
			Hazard	>SOL	>SOL	2.0E+04	>SOL				3.7E+00	
		Commercial/ Industrial	Carcinogenic							>SOL	1.8E+00	>SOL
			Hazard	>SOL	>SOL	5.8E+05	>SOL				1.1E+02	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic							>SOL	5.6E+00	>SOL
			Hazard	>SOL	>SOL	2.1E+05	>SOL				2.2E+02	
		Commercial/ Industrial	Carcinogenic							>SOL	2.1E+01	>SOL
			Hazard	>SOL	>SOL	>SOL	>SOL				1.3E+03	
	Ingestion of Groundwater	Residential	Carcinogenic					*5.0E-02*	*1.0E+00*	5.6E-05	*1.0E-03*	*2.0E-04*
			Hazard	9.4E-01	9.4E-01	1.6E+00	>SOL	*5.0E-02*	*1.0E+00*		*1.0E-03*	*2.0E-04*
		Commercial/ Industrial	Carcinogenic					*5.0E-02*	*1.0E+00*	2.4E-04	*1.0E-03*	*2.0E-04*
			Hazard	>SOL	>SOL	1.0E+01	>SOL	*5.0E-02*	*1.0E+00*		*1.0E-03*	*2.0E-04*
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic					2.0E-03		1.6E-05	6.3E-03	1.1E-06
			Hazard	1.1E+00	1.7E+00	4.2E+01	>SOL	1.2E-01	2.8E+01		1.8E-01	

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Medium	Exposure Pathway	Land Use	Type of Risk	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Beryllium	Bis(2-ethylhexyl)phthalate	Butyl benzyl phthalate	Cadmium	Carbon Disulfide
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	2.5E-01		2.5E-01	4.5E+03	3.6E+01		2.1E+03	
			Hazard		2.1E+02		3.7E+02	1.0E+03	1.0E+04	3.7E+01	1.2E+03
		Commercial/ Industrial	Carcinogenic	7.9E-01		7.9E-01	1.7E+04	1.1E+02		7.9E+03	
			Hazard		1.4E+03		6.8E+03	6.8E+03	6.8E+04	6.8E+02	6.4E+03
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	SAT		SAT		SAT			
			Hazard		SAT			SAT			1.1E+00
		Commercial/ Industrial	Carcinogenic	SAT		SAT		SAT			
			Hazard		SAT			SAT			3.3E+01
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	SAT		SAT		SAT			
			Hazard		SAT			SAT			3.8E+00
		Commercial/ Industrial	Carcinogenic	SAT		SAT		SAT			
			Hazard		SAT			SAT			2.2E+01
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	2.1E+00		2.1E+00	9.6E+00	3.7E+03		*1.1E+00*	
			Hazard		SAT		9.6E+00	SAT	SAT	*1.1E+00*	2.9E+00
		Commercial/ Industrial	Carcinogenic	8.9E+00		8.9E+00	9.6E+00	1.6E+04		*1.1E+00*	
			Hazard		SAT		9.6E+00	SAT	SAT	*1.1E+00*	1.9E+01
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	>SOL		>SOL		>SOL			
			Hazard		>SOL			>SOL			2.1E+00
		Commercial/ Industrial	Carcinogenic	>SOL		>SOL		>SOL			
			Hazard		>SOL			>SOL			6.2E+01
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	>SOL		>SOL		>SOL			
			Hazard		>SOL			>SOL			1.7E+02
		Commercial/ Industrial	Carcinogenic	>SOL		>SOL		>SOL			
			Hazard		>SOL			>SOL			9.6E+02
	Ingestion of Groundwater	Residential	Carcinogenic	5.6E-05		5.6E-05	4.0E-03	8.0E-03		*5.0E-03*	
			Hazard		>SOL		4.0E-03	3.1E-01	>SOL	*5.0E-03*	1.6E+00
		Commercial/ Industrial	Carcinogenic	2.4E-04		2.4E-04	4.0E-03	3.4E-02		*5.0E-03*	
			Hazard		>SOL		4.0E-03	>SOL	>SOL	*5.0E-03*	1.0E+01
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	1.1E-05		1.2E-05		5.1E-02			
			Hazard		>SOL		2.0E+00	>SOL	>SOL	2.0E-01	9.4E+00

*Italicized concentrations based on California MCLs
SAT = RBSL exceeds saturated soil concentration of chemical
>SOL = RBSL exceeds solubility of chemical in water

Oakland Tier 1 RBSLs

Medium	Exposure Pathway	Land Use	Type of Risk	Carbon Tetrachloride	Chloro-benzene*	Chloroform	Chromium (III)	Chromium (VI)	Chrysene	Copper	Cresol(-m)	Cresol(-o)
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	1.8E+00		9.1E+00		1.3E+00	2.5E+00			
			Hazard	3.3E+01	7.9E+02	4.8E+02	7.4E+04	3.7E+02		2.8E+03	2.6E+03	2.6E+03
		Commercial/ Industrial	Carcinogenic	5.6E+00		2.9E+01		8.7E+00	7.9E+00			
			Hazard	2.1E+02	4.7E+03	3.0E+03	1.4E+06	6.8E+03		5.0E+04	1.7E+04	1.7E+04
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	2.7E-02		3.3E-01			SAT			
			Hazard	4.6E-01	6.2E-01	1.2E+01					SAT	SAT
		Commercial/ Industrial	Carcinogenic	4.3E-01		5.2E+00			SAT			
			Hazard	1.3E+01	1.8E+01	3.5E+02					SAT	SAT
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	7.6E-02		9.2E-01			SAT			
			Hazard	1.5E+00	2.1E+00	4.1E+01					SAT	SAT
		Commercial/ Industrial	Carcinogenic	2.9E-01		3.5E+00			SAT			
			Hazard	8.8E+00	1.2E+01	2.4E+02					SAT	SAT
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	*3.0E-03*	*6.6E-02*	*1.5E-01*		2.9E+00	SAT	*2.8E-01*		
			Hazard	*3.0E-03*	*6.6E-02*	*1.5E-01*	8.5E+07	2.9E+00		*2.8E-01*	2.2E+00	2.3E+00
		Commercial/ Industrial	Carcinogenic	*3.0E-03*	*6.6E-02*	*1.5E-01*		2.9E+00	SAT	*2.8E-01*		
			Hazard	*3.0E-03*	*6.6E-02*	*1.5E-01*	5.6E+08	2.9E+00		*2.8E-01*	1.5E+01	1.5E+01
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	1.6E-02		7.5E-01			>SOL			
			Hazard	2.7E-01	2.4E+00	2.8E+01					>SOL	>SOL
		Commercial/ Industrial	Carcinogenic	2.6E-01		1.2E+01			>SOL			
			Hazard	7.8E+00	6.9E+01	8.0E+02					>SOL	>SOL
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	1.1E+00		3.4E+01			>SOL			
			Hazard	2.2E+01	2.0E+02	1.5E+03					>SOL	>SOL
		Commercial/ Industrial	Carcinogenic	4.2E+00		1.3E+02			>SOL			
			Hazard	1.3E+02	>SOL	>SOL					>SOL	>SOL
	Ingestion of Groundwater	Residential	Carcinogenic	*5.0E-04*	*7.0E-02*	*1.0E-01*		5.0E-02	5.6E-04	*1.3E+00*		
			Hazard	*5.0E-04*	*7.0E-02*	*1.0E-01*	1.6E+01	5.0E-02		*1.3E+00*	7.8E-01	7.8E-01
		Commercial/ Industrial	Carcinogenic	*5.0E-04*	*7.0E-02*	*1.0E-01*		5.0E-02	>SOL	*1.3E+00*		
			Hazard	*5.0E-04*	*7.0E-02*	*1.0E-01*	1.0E+02	5.0E-02		*1.3E+00*	5.1E+00	5.1E+00
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	4.1E-03		3.9E-02		6.8E-03	1.6E-04			
			Hazard	7.1E-02	1.2E+00	1.9E+00	3.8E+02	1.9E+00		1.5E+01	6.7E+00	6.4E+00

*Italicized concentrations based on California MCLs
SAT = RBSL exceeds saturated soil concentration of chemical
>SOL = RBSL exceeds solubility of chemical in water

Medium	Exposure Pathway	Land Use	Type of Risk	Cresol(-p)	Cyanide	Dibenz(a,h)-anthracene	Dichloro ethane (1,1-)	Dichloro ethane (1,2-) (EDC)	Dichloro ethylene (1,1-)	Dichloro ethylene (cis 1,2-)	Dichloro ethene (trans 1,2)
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic			7.4E-02	4.7E+01	3.9E+00	4.9E-01		
			Hazard	2.6E+02	3.0E+03		4.9E+03	1.4E+02	4.3E+02	4.8E+02	9.5E+02
		Commercial/ Industrial	Carcinogenic			2.3E-01	1.5E+02	1.2E+01	1.5E+00		
			Hazard	1.7E+03	5.5E+04		3.1E+04	8.8E+02	2.7E+03	3.0E+03	6.1E+03
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			SAT	8.6E-01	1.7E-01	9.4E-03		
			Hazard	SAT			1.3E+02	6.8E+00	3.0E+00	1.4E+01	1.9E+01
		Commercial/ Industrial	Carcinogenic			SAT	1.4E+01	2.7E+00	1.5E-01		
			Hazard	SAT			SAT	2.0E+02	8.7E+01	4.1E+02	5.4E+02
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			SAT	2.4E+00	4.8E-01	2.6E-02		
			Hazard	SAT			4.5E+02	2.3E+01	9.9E+00	4.7E+01	6.2E+01
		Commercial/ Industrial	Carcinogenic			SAT	9.1E+00	1.8E+00	1.0E-01		
			Hazard	SAT			SAT	1.3E+02	5.8E+01	2.8E+02	3.6E+02
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic		6.0E+00	1.9E+00	6.4E-03	*3.8E-04*	*1.5E-02*	*8.2E-03*	*2.0E-02*
			Hazard	2.1E-01	6.0E+00		6.4E-03	*3.8E-04*	*1.5E-02*	*8.2E-03*	*2.0E-02*
		Commercial/ Industrial	Carcinogenic		6.0E+00	8.0E+00	6.4E-03	*3.8E-04*	*1.5E-02*	*8.2E-03*	*2.0E-02*
			Hazard	1.4E+00	6.0E+00		6.4E-03	*3.8E-04*	*1.5E-02*	*8.2E-03*	*2.0E-02*
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			>SOL	2.3E+00	7.2E-01	1.4E-02		
			Hazard	>SOL			3.6E+02	2.9E+01	4.3E+00	3.5E+01	3.2E+01
		Commercial/ Industrial	Carcinogenic			>SOL	3.6E+01	1.1E+01	2.2E-01		
			Hazard	>SOL			>SOL	8.3E+02	1.2E+02	1.0E+03	9.4E+02
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			>SOL	1.1E+02	1.8E+01	9.3E-01		
			Hazard	>SOL			>SOL	8.6E+02	3.5E+02	1.6E+03	2.0E+03
		Commercial/ Industrial	Carcinogenic			>SOL	4.0E+02	6.9E+01	3.5E+00		
			Hazard	>SOL			>SOL	5.0E+03	2.0E+03	>SOL	>SOL
	Ingestion of Groundwater	Residential	Carcinogenic		2.0E-01	1.6E-05	5.0E-03	*5.0E-04*	*6.0E-03*	*6.0E-03*	*1.0E-02*
			Hazard	7.8E-02	2.0E-01		5.0E-03	*5.0E-04*	*6.0E-03*	*6.0E-03*	*1.0E-02*
		Commercial/ Industrial	Carcinogenic		2.0E-01	7.0E-05	5.0E-03	*5.0E-04*	*6.0E-03*	*6.0E-03*	*1.0E-02*
			Hazard	5.1E-01	2.0E-01		5.0E-03	*5.0E-04*	*6.0E-03*	*6.0E-03*	*1.0E-02*
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic			1.4E-06	2.1E-01	2.4E-02	1.3E-03		
			Hazard	5.9E-01	7.0E+00		1.9E+01	7.2E-01	1.2E+00	1.8E+00	3.5E+00

*Italicized concentrations based on California MCLs
SAT = RBSL exceeds saturated soil concentration of chemical
>SOL = RBSL exceeds solubility of chemical in water

Medium	Exposure Pathway	Land Use	Type of Risk	Dimethyl-benz(a)-anthracene (7,12)	Dimethyl-phenol (2,4)	di-n-Butyl-phthalate	di-n-octyl-phthalate	Dinitro-toluene (2,4)	Dioxane (1,4)	Ethyl-benzene	Ethylene Dibromide	Flouran-thene
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic					9.7E-01	1.0E+01		8.4E-02	
			Hazard	1.6E+03	1.0E+03	5.2E+03	1.0E+03			5.1E+03	2.7E+00	2.1E+03
		Commercial/ Industrial	Carcinogenic					3.0E+00	3.1E+01		2.6E-01	
			Hazard	1.0E+04	6.7E+03	3.4E+04	6.8E+03			3.3E+04	1.7E+01	1.4E+04
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic					SAT	SAT		2.8E-01	
			Hazard		SAT	SAT	SAT			SAT	7.8E-01	SAT
		Commercial/ Industrial	Carcinogenic					SAT	SAT		4.5E+00	
			Hazard		SAT	SAT	SAT			SAT	2.3E+01	SAT
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic					SAT	SAT		7.9E-01	
			Hazard		SAT	SAT	SAT			SAT	2.6E+00	SAT
		Commercial/ Industrial	Carcinogenic					SAT	SAT		3.0E+00	
			Hazard		SAT	SAT	SAT			SAT	1.5E+01	SAT
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic					6.7E-04	1.8E-03	*8.0E+00*	*7.8E-05*	
			Hazard	SAT	2.0E+00	3.9E+06	SAT			*8.0E+00*	*7.8E-05*	SAT
		Commercial/ Industrial	Carcinogenic					2.9E-03	SAT	*8.0E+00*	*7.8E-05*	
			Hazard	SAT	1.3E+01	SAT	SAT			*8.0E+00*	*7.8E-05*	SAT
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic					>SOL	>SOL		5.7E-01	
			Hazard		>SOL	>SOL	>SOL			>SOL	1.6E+00	>SOL
		Commercial/ Industrial	Carcinogenic					>SOL	>SOL		9.0E+00	
			Hazard		>SOL	>SOL	>SOL			>SOL	4.6E+01	>SOL
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic					>SOL	>SOL		8.7E+00	
			Hazard		>SOL	>SOL	>SOL			>SOL	2.9E+01	>SOL
		Commercial/ Industrial	Carcinogenic					>SOL	>SOL		3.3E+01	
			Hazard		>SOL	>SOL	>SOL			>SOL	1.7E+02	>SOL
	Ingestion of Groundwater	Residential	Carcinogenic					2.2E-04	2.5E-03	*7.0E-01*	*5.0E-05*	
			Hazard	>SOL	3.1E-01	1.6E+00	>SOL			*7.0E-01*	*5.0E-05*	>SOL
		Commercial/ Industrial	Carcinogenic					9.2E-04	1.1E-02	*7.0E-01*	*5.0E-05*	
			Hazard	>SOL	2.0E+00	1.0E+01	>SOL			*7.0E-01*	*5.0E-05*	>SOL
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic					6.4E-03	>SOL		5.9E-04	
			Hazard	>SOL	2.7E+00	7.3E+00	2.1E-03			3.6E+00	1.7E-02	>SOL

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Medium	Exposure Pathway	Land Use	Type of Risk	Fluorene	Indeno (1,2,3-CD) pyrene	Mercury	Methanol	Methyl ethyl ketone	Methylene Chloride	Methyl napthalene (2-)	MTBE	Naphthalene
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic		2.5E-01				2.1E+01			
			Hazard	2.1E+03		4.7E+00	2.4E+04	2.6E+04	3.1E+03	2.0E+03	2.6E+02	2.0E+03
		Commercial/ Industrial	Carcinogenic		7.9E-01				6.6E+01			
			Hazard	1.4E+04		3.0E+01	1.5E+05	1.6E+05	2.0E+04	1.3E+04	1.7E+03	1.3E+04
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic		SAT				1.3E+00			
			Hazard	SAT		1.2E+01	4.5E+04	6.9E+03	7.4E+02	SAT	4.4E+03	SAT
		Commercial/ Industrial	Carcinogenic		SAT				2.0E+01			
			Hazard	SAT			SAT	SAT	SAT	SAT	SAT	SAT
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic		SAT				3.5E+00			
			Hazard	SAT		4.0E+01	SAT	2.3E+04	2.5E+03	SAT	SAT	SAT
		Commercial/ Industrial	Carcinogenic		SAT				1.3E+01			
			Hazard	SAT		2.3E+02	SAT	SAT	SAT	SAT	SAT	SAT
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic		SAT	*3.2E-01*			3.1E-03		*7.6E-03*	*1.2E+00*
			Hazard	2.6E+02		*3.2E-01*	1.7E+00	3.3E+00	3.1E-03	1.6E+02	*7.6E-03*	*1.2E+00*
		Commercial/ Industrial	Carcinogenic		SAT	*3.2E-01*			3.1E-03		*7.6E-03*	*1.2E+00*
			Hazard	SAT		*3.2E-01*	1.1E+01	2.2E+01	3.1E-03	1.1E+03	*7.6E-03*	*1.2E+00*
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic		>SOL				6.7E+00			
			Hazard	>SOL		2.6E-01	6.5E+05	6.0E+04	4.0E+03	>SOL	2.4E+04	>SOL
		Commercial/ Industrial	Carcinogenic		>SOL				1.1E+02			
			Hazard	>SOL		7.6E+00	>SOL	>SOL	>SOL	>SOL	>SOL	>SOL
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic		>SOL				2.3E+02			
			Hazard	>SOL		1.6E+01	>SOL	>SOL	>SOL	>SOL	>SOL	>SOL
		Commercial/ Industrial	Carcinogenic		>SOL				8.7E+02			
			Hazard	>SOL		9.5E+01	>SOL	>SOL	>SOL	>SOL	>SOL	>SOL
	Ingestion of Groundwater	Residential	Carcinogenic		>SOL	*2.0E-03*			5.0E-03		*1.3E-02*	*2.0E-02*
			Hazard	6.3E-01		*2.0E-03*	7.8E+00	9.4E+00	5.0E-03	6.3E-01	*1.3E-02*	*2.0E-02*
		Commercial/ Industrial	Carcinogenic		>SOL	*2.0E-03*			5.0E-03		*1.3E-02*	*2.0E-02*
			Hazard	>SOL		*2.0E-03*	5.1E+01	6.1E+01	5.0E-03	4.1E+00	*1.3E-02*	*2.0E-02*
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic		7.0E-06				1.3E-01			
			Hazard	3.1E-01		3.6E-02	2.2E+02	1.5E+02	1.6E+01	6.1E-01	1.5E+00	1.5E+00

*Italicized concentrations based on California MCLs
SAT = RBSL exceeds saturated soil concentration of chemical
>SOL = RBSL exceeds solubility of chemical in water

Oakland Tier 1 RBSLs

Medium	Exposure Pathway	Land Use	Type of Risk	Nickel	Nitro benzene	PCBs	Phenanthrene	Phenol	Pyrene	Pyridine	Selenium	Silver	Styrene
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	3.4E+04	5.5E+02	5.0E-02				2.8E+02			
			Hazard	1.5E+03		1.2E+00	1.6E+04	3.1E+04	1.6E+03		3.7E+02	3.7E+02	9.8E+03
		Commercial/ Industrial	Carcinogenic	1.3E+05	1.7E+03	1.8E-01				8.9E+02			
			Hazard	2.7E+04		1.0E+01	1.0E+05	2.0E+05	1.0E+04		6.8E+03	6.8E+03	6.3E+04
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic		SAT	6.9E+01				2.9E+03			
			Hazard			SAT	SAT	SAT	SAT				SAT
		Commercial/ Industrial	Carcinogenic		SAT	1.1E+03				4.6E+04			
			Hazard			SAT	SAT	SAT	SAT				SAT
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic		SAT	1.9E+02				8.1E+03			
			Hazard			SAT	SAT	SAT	SAT				SAT
		Commercial/ Industrial	Carcinogenic		SAT	7.3E+02				3.1E+04			
			Hazard			SAT	SAT	SAT	SAT				SAT
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	*2.0E+01*	2.9E-01	*4.7E+00*				1.2E-01	*7.7E-01*	*2.5E+00*	*2.4E+00*
			Hazard	*2.0E+01*		*4.7E+00*	SAT	1.0E+01	SAT		*7.7E-01*	*2.5E+00*	*2.4E+00*
		Commercial/ Industrial	Carcinogenic	*2.0E+01*	1.2E+00	*4.7E+00*				5.3E-01	*7.7E-01*	*2.5E+00*	*2.4E+00*
			Hazard	*2.0E+01*		*4.7E+00*	SAT	6.7E+01	SAT		*7.7E-01*	*2.5E+00*	*2.4E+00*
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic		>SOL	2.3E-02				4.8E+03			
			Hazard			>SOL	>SOL	>SOL	>SOL				>SOL
		Commercial/ Industrial	Carcinogenic		>SOL	3.6E-01				7.7E+04			
			Hazard			>SOL	>SOL	>SOL	>SOL				>SOL
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic		>SOL	3.2E-01				4.1E+04			
			Hazard			>SOL	>SOL	>SOL	>SOL				>SOL
		Commercial/ Industrial	Carcinogenic		>SOL	>SOL				1.5E+05			
			Hazard			>SOL	>SOL	>SOL	>SOL				>SOL
	Ingestion of Groundwater	Residential	Carcinogenic	*1.0E-01*	1.3E-01	*5.0E-04*				6.7E-02	*5.0E-02*	*1.0E-01*	*1.0E-01*
			Hazard	*1.0E-01*		*5.0E-04*	>SOL	9.4E+00	>SOL		*5.0E-02*	*1.0E-01*	*1.0E-01*
		Commercial/ Industrial	Carcinogenic	*1.0E-01*	5.7E-01	*5.0E-04*				2.9E-01	*5.0E-02*	*1.0E-01*	*1.0E-01*
			Hazard	*1.0E-01*		*5.0E-04*	>SOL	6.1E+01	>SOL		*5.0E-02*	*1.0E-01*	*1.0E-01*
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic		2.8E+00	1.6E-06				2.6E+00			
			Hazard	7.9E+00		4.4E-05	>SOL	1.5E+02	>SOL		2.0E+00	2.1E+00	9.3E+00

*Italicized concentrations based on California MCLs
SAT = RBSL exceeds saturated soil concentration of chemical
>SOL = RBSL exceeds solubility of chemical in water

Oakland Tier 1 RBSLs

Medium	Exposure Pathway	Land Use	Type of Risk	Tetrachloro-ethane (1,1,2,2-)	Tetrachloro-ethylene (PCE)	Tetraethyl Lead	Toluene	Trichloro-ethane (1,1,1-)	Trichloro-ethane (1,1,2-)	Trichloro-ethylene (TCE)	Vanadium	Vinyl Chloride
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	1.0E+00	5.7E+00				3.8E+00	1.9E+01		5.0E-01
			Hazard	1.2E+03	4.8E+02	5.2E-03	9.0E+03	1.8E+03	1.9E+02	2.9E+02	5.2E+02	
		Commercial/ Industrial	Carcinogenic	3.1E+00	1.8E+01				1.2E+01	5.9E+01		1.6E+00
			Hazard	7.9E+03	3.0E+03	3.4E-02	5.6E+04	1.2E+04	1.2E+03	1.8E+03	9.5E+03	
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	7.4E-01	3.0E-01				5.4E-01	1.1E+00		1.3E-03
			Hazard	1.0E+03	1.2E+01		3.6E+02	2.6E+02	3.1E+01	1.3E+01		
		Commercial/ Industrial	Carcinogenic	1.2E+01	4.8E+00				8.7E+00	1.7E+01		2.1E-02
			Hazard	SAT	SAT		SAT	SAT	8.9E+02	3.6E+02		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	2.1E+00	8.4E-01				1.5E+00	3.0E+00		3.7E-03
			Hazard	SAT	4.1E+01		SAT	8.7E+02	1.0E+02	4.2E+01		
		Commercial/ Industrial	Carcinogenic	7.8E+00	3.2E+00				5.8E+00	1.1E+01		1.4E-02
			Hazard	SAT	2.4E+02		SAT	SAT	5.9E+02	2.4E+02		
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	3.0E-03	*2.6E-02*	*2.4E+00*	*8.8E-01*	*7.8E-01*	*8.8E-03*	*2.7E-02*		*6.5E-04*
			Hazard	3.0E-03	*2.6E-02*	*2.4E+00*	*8.8E-01*	*7.8E-01*	*8.8E-03*	*2.7E-02*	3.3E+02	*6.5E-04*
		Commercial/ Industrial	Carcinogenic	3.0E-03	*2.6E-02*	*2.4E+00*	*8.8E-01*	*7.8E-01*	*8.8E-03*	*2.7E-02*		*6.5E-04*
			Hazard	3.0E-03	*2.6E-02*	*2.4E+00*	*8.8E-01*	*7.8E-01*	*8.8E-03*	*2.7E-02*	2.2E+03	*6.5E-04*
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	7.5E-01	2.0E-01				9.9E-01	6.9E-01		3.7E-03
			Hazard	1.0E+03	8.4E+00		2.1E+02	2.4E+02	5.6E+01	8.1E+00		
		Commercial/ Industrial	Carcinogenic	1.2E+01	3.3E+00				1.6E+01	1.1E+01		5.9E-02
			Hazard	>SOL	>SOL		>SOL	>SOL	1.6E+03	2.3E+02		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	1.1E+01	1.3E+01				2.2E+01	4.1E+01		2.5E-01
			Hazard	>SOL	>SOL		>SOL	>SOL	1.5E+03	5.7E+02		
		Commercial/ Industrial	Carcinogenic	4.1E+01	5.1E+01				8.4E+01	1.5E+02		9.6E-01
			Hazard	>SOL	>SOL		>SOL	>SOL	>SOL	>SOL		
	Ingestion of Groundwater	Residential	Carcinogenic	1.0E-03	*5.0E-03*	*1.5E-02*	*1.5E-01*	*2.0E-01*	*5.0E-03*	*5.0E-03*		*5.0E-04*
			Hazard	1.0E-03	*5.0E-03*	*1.5E-02*	*1.5E-01*	*2.0E-01*	*5.0E-03*	*5.0E-03*	1.1E-01	*5.0E-04*
		Commercial/ Industrial	Carcinogenic	1.0E-03	*5.0E-03*	*1.5E-02*	*1.5E-01*	*2.0E-01*	*5.0E-03*	*5.0E-03*		*5.0E-04*
			Hazard	1.0E-03	*5.0E-03*	*1.5E-02*	*1.5E-01*	*2.0E-01*	*5.0E-03*	*5.0E-03*	7.2E-01	*5.0E-04*
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	4.5E-03	6.0E-03				1.8E-02	4.6E-03		2.6E-03
			Hazard	4.9E+00	5.3E-01	6.7E-06	1.1E+01	4.3E+00	7.8E-01	7.2E-02	2.8E+00	

*Italicized concentrations based on California MCLs
SAT = RBSL exceeds saturated soil concentration of chemical
>SOL = RBSL exceeds solubility of chemical in water

Oakland Tier 1 RBSLs

Medium	Exposure Pathway	Land Use	Type of Risk	o-Xylenes	Zinc
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic		
			Hazard	5.4E+04	2.2E+04
		Commercial/ Industrial	Carcinogenic		
			Hazard	3.0E+05	4.1E+05
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic		
			Hazard	SAT	
		Commercial/ Industrial	Carcinogenic		
			Hazard	SAT	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic		
			Hazard	SAT	
		Commercial/ Industrial	Carcinogenic		
			Hazard	SAT	
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	*1.3E+01*	
			Hazard	*1.3E+01*	8.8E+02
		Commercial/ Industrial	Carcinogenic	*1.3E+01*	
			Hazard	*1.3E+01*	5.8E+03
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic		
			Hazard	>SOL	
		Commercial/ Industrial	Carcinogenic		
			Hazard	>SOL	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic		
			Hazard	>SOL	
		Commercial/ Industrial	Carcinogenic		
			Hazard	>SOL	
	Ingestion of Groundwater	Residential	Carcinogenic	*1.8E+00*	
			Hazard	*1.8E+00*	4.7E+00
		Commercial/ Industrial	Carcinogenic	*1.8E+00*	
			Hazard	*1.8E+00*	3.1E+01
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic		
			Hazard	6.6E+01	1.2E+02

*Italicized concentrations based on California MCLs
SAT = RBSL exceeds saturated soil concentration of chemical
>SOL = RBSL exceeds solubility of chemical in water

Tier 3
Clayey Silts Default Parameters (modified)

Input Parameters	Units	Residential		Commercial/ Industrial
		Child	Adult	Worker
Soil-Specific Parameters				
Capillary fringe thickness	cm	=adult residential	152	=adult residential
Capillary fringe air content	cm^3/cm^3		0.010	
Capillary fringe water content	cm^3/cm^3		0.49	
Fraction organic carbon (FOC*)	g oc/g soil		0.02	
Groundwater Darcy velocity	cm/yr		6	
Groundwater mixing zone thickness	cm		1524	
Infiltration rate through the vadose zone	cm/yr		3	
Soil bulk density	g/cm^3		1.33	
Soil to skin adherence factor	mg/cm^2	1	1	1
Total soil porosity	cm^3/cm^3	=adult residential	0.5	=adult residential
Vadose zone air content	cm^3/cm^3		0.1	
Vadose zone water content	cm^3/cm^3		0.4	
Vadose zone thickness	cm		244	
Structural and Climatic Parameters				
Areal fraction of cracks in building foundation	cm^2/cm^2	=adult residential	0.001	0.001
Foundation air content	cm^3/cm^3		0.26	=adult residential
Foundation water content	cm^3/cm^3		0.12	
Foundation thickness	cm		15	15
Lower depth of surficial soil zone	cm		100.0	=adult residential
Depth to subsurface soil sources	cm		152	
Depth to groundwater	cm		396	
Width of source area parallel to wind or groundwater flow direction	cm		1500	
Outdoor air mixing zone height	cm		200	
Particulate emission rate	g/cm^2-s		1.38E-11	1.38E-11
Wind speed above ground surface in outdoor air mixing zone	cm/s		322	=adult residential

Tier 3
Clayey Silts Default Parameters (modified)

		Residential		Commercial/ Industrial
Input Parameters	**Units**	**Child**	**Adult**	**Worker**
Exposure Parameters				
Averaging time for carcinogens	yr	=adult residential	70	=adult residential
Averaging time for non-carcinogens	yr	6	24	25
Averaging time for vapor flux	s	=adult residential	9.46E+08	7.88E+08
Body weight	kg	15	70	70
Building air volume/floor area	cm^3/cm^2	=adult residential	229	305
Exposure duration	yr	6	24	25
Exposure frequency	d/yr	350	350	250
Exposure frequency to water used for recreation	d/yr	120	120	0
Exposure time to indoor air	hr/d	24	24	9
Exposure time to outdoor air	hr/d	16	16	9
Exposure time to water used for recreation	hr/d	2	1.0	0
Groundwater ingestion rate	L/d	1	2	1
Indoor air exchange rate	1/s	=adult residential	5.60E-04	1.40E-03
Indoor inhalation rate	m^3/d	10	15	20
Ingestion rate of water used for recreation	L/hr	0.05	0.05	0
Outdoor inhalation rate	m^3/d	10	20	20
Skin surface area exposed to soil	cm^2	2000	5000	5000
Skin surface area exposed to water used for recreation	cm^2	8000	20000	0
Soil ingestion rate	mg/d	200	100	50
TARGET RISK LEVELS				
Individual Excess Lifetime Cancer Risk	unitless	=adult residential	1.0E-05	1.0E-05
Hazard quotient	unitless		1.0	1.0

Oakland Tier 3 SSTLs

Medium	Exposure Pathway	Land Use	Type of Risk	Acenaphthene	Acenaphthylene	Acetone	Anthracene	Arsenic	Barium	Benz(a)anthracene	Benzene	Benzo(a)pyrene
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic					2.6E+00		1.7E+00	1.9E+01	1.7E-01
			Hazard	2.3E+03	2.3E+03	3.7E+03	1.2E+04	1.8E+01	5.0E+03		6.3E+01	
		Commercial/ Industrial	Carcinogenic					9.5E+00		4.3E+00	4.9E+01	4.3E-01
			Hazard	1.1E+04	1.1E+04	1.8E+04	5.6E+04	1.5E+02	7.1E+04		3.0E+02	
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic							SAT	2.1E+00	SAT
			Hazard	SAT	SAT	6.5E+03	SAT				6.9E+00	
		Commercial/ Industrial	Carcinogenic							SAT	3.3E+01	SAT
			Hazard	SAT	SAT	1.9E+05	SAT				2.0E+02	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic							SAT	2.5E+02	SAT
			Hazard	SAT	SAT	1.9E+05	SAT				9.9E+02	
		Commercial/ Industrial	Carcinogenic							SAT	9.5E+02	SAT
			Hazard	SAT	SAT	SAT	SAT				SAT	
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic					*4.4E+00*	*1.3E+02*	1.4E+01	*4.5E-03*	*1.2E+01*
			Hazard	4.0E+02	2.7E+02	1.5E+00	SAT	*4.4E+00*	*1.3E+02*		*4.5E-03*	*1.2E+01*
		Commercial/ Industrial	Carcinogenic					*4.4E+00*	*1.3E+02*	5.8E+01	*4.5E-03*	*1.2E+01*
			Hazard	SAT	SAT	9.7E+00	SAT	*4.4E+00*	*1.3E+02*		*4.5E-03*	*1.2E+01*
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic							>SOL	5.9E+00	>SOL
			Hazard	>SOL	>SOL	2.2E+04	>SOL				2.0E+01	
		Commercial/ Industrial	Carcinogenic							>SOL	9.3E+01	>SOL
			Hazard	>SOL	>SOL	6.4E+05	>SOL				5.7E+02	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic							>SOL	>SOL	>SOL
			Hazard	>SOL	>SOL	>SOL	>SOL				>SOL	
		Commercial/ Industrial	Carcinogenic							>SOL	>SOL	>SOL
			Hazard	>SOL	>SOL	>SOL	>SOL				>SOL	
	Ingestion of Groundwater	Residential	Carcinogenic					*5.0E-02*	*1.0E+00*	5.6E-04	*1.0E-03*	*2.0E-04*
			Hazard	9.4E-01	9.4E-01	1.6E+00	>SOL	*5.0E-02*	*1.0E+00*		*1.0E-03*	*2.0E-04*
		Commercial/ Industrial	Carcinogenic					*5.0E-02*	*1.0E+00*	2.4E-03	*1.0E-03*	*2.0E-04*
			Hazard	>SOL	>SOL	1.0E+01	>SOL	*5.0E-02*	*1.0E+00*		*1.0E-03*	*2.0E-04*
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic					2.0E-02		1.6E-04	6.3E-02	1.1E-05
			Hazard	1.1E+00	1.7E+00	4.2E+01	>SOL	1.2E-01	2.8E+01		1.8E-01	

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Medium	Exposure Pathway	Land Use	Type of Risk	Benzo(b)-fluoranthene	Benzo(g,h,i)-perylene	Benzo(k)-fluoranthene	Beryllium	Bis(2-ethylhexyl)-phthalate	Butyl benzyl phthalate	Cadmium	Carbon Disulfide
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	1.7E+00		1.7E+00	4.5E+04	2.4E+02		2.1E+04	
			Hazard		1.6E+02		3.6E+02	7.8E+02	7.8E+03	3.6E+01	1.4E+03
		Commercial/ Industrial	Carcinogenic	4.3E+00		4.3E+00	1.7E+05	6.2E+02		7.9E+04	
			Hazard		7.4E+02		5.1E+03	3.7E+03	3.7E+04	5.1E+02	6.5E+03
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	SAT		SAT		SAT			
			Hazard		SAT			SAT			3.2E+00
		Commercial/ Industrial	Carcinogenic	SAT		SAT		SAT			
			Hazard		SAT			SAT			9.4E+01
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	SAT		SAT		SAT			
			Hazard		SAT			SAT			4.8E+02
		Commercial/ Industrial	Carcinogenic	SAT		SAT		SAT			
			Hazard		SAT			SAT			SAT
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	SAT		SAT	9.6E+00	7.3E+04		*1.1E+00*	
			Hazard		SAT		9.6E+00	SAT	SAT	*1.1E+00*	6.0E+00
		Commercial/ Industrial	Carcinogenic	SAT		SAT	9.6E+00	SAT		*1.1E+00*	
			Hazard		SAT		9.6E+00	SAT	SAT	*1.1E+00*	3.9E+01
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	>SOL		>SOL		>SOL			
			Hazard		>SOL			>SOL			2.6E+01
		Commercial/ Industrial	Carcinogenic	>SOL		>SOL		>SOL			
			Hazard		>SOL			>SOL			7.7E+02
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	>SOL		>SOL		>SOL			
			Hazard		>SOL			>SOL			>SOL
		Commercial/ Industrial	Carcinogenic	>SOL		>SOL		>SOL			
			Hazard		>SOL			>SOL			>SOL
	Ingestion of Groundwater	Residential	Carcinogenic	5.6E-04		5.6E-04	4.0E-03	8.0E-02		*5.0E-03*	
			Hazard		>SOL		4.0E-03	3.1E-01	>SOL	*5.0E-03*	1.6E+00
		Commercial/ Industrial	Carcinogenic	>SOL		>SOL	4.0E-03	>SOL		*5.0E-03*	
			Hazard		>SOL		4.0E-03	>SOL	>SOL	*5.0E-03*	1.0E+01
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	1.1E-04		1.2E-04		>SOL			
			Hazard		>SOL		2.0E+00	>SOL	>SOL	2.0E-01	9.4E+00

*Italicized concentrations based on California MCLs
SAT = RBSL exceeds saturated soil concentration of chemical
>SOL = RBSL exceeds solubility of chemical in water

Medium	Exposure Pathway	Land Use	Type of Risk	Carbon Tetrachloride	Chloro-benzene	Chloroform	Chromium (III)	Chromium (VI)	Chrysene	Copper	Cresol(-m)	Cresol(-o)
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	1.2E+01		6.2E+01		1.2E+01	1.7E+01			
			Hazard	2.6E+01	6.6E+02	3.7E+02	7.1E+04	3.6E+02		2.6E+03	1.9E+03	1.9E+03
		Commercial/ Industrial	Carcinogenic	3.3E+01		1.6E+02		6.6E+01	4.3E+01			
			Hazard	1.2E+02	3.1E+03	1.8E+03	1.0E+06	5.1E+03		3.8E+04	9.2E+03	9.2E+03
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	7.4E-01		1.0E+01			SAT			
			Hazard	1.2E+00	2.1E+00	3.8E+01					SAT	SAT
		Commercial/ Industrial	Carcinogenic	1.2E+01		1.6E+02			SAT			
			Hazard	3.6E+01	6.1E+01	1.1E+03					SAT	SAT
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	9.2E+01		1.2E+03			SAT			
			Hazard	1.8E+02	3.1E+02	5.5E+03					SAT	SAT
		Commercial/ Industrial	Carcinogenic	3.5E+02		4.7E+03			SAT			
			Hazard	1.1E+03	SAT	SAT					SAT	SAT
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	*5.9E-03*	*1.6E-01*	*3.4E-01*		2.9E+00	SAT	*1.2E+00*		
			Hazard	*5.9E-03*	*1.6E-01*	*3.4E-01*	8.5E+07	2.9E+00		*1.2E+00*	4.8E+00	5.0E+00
		Commercial/ Industrial	Carcinogenic	*5.9E-03*	*1.6E-01*	*3.4E-01*		2.9E+00	SAT	*1.2E+00*		
			Hazard	*5.9E-03*	*1.6E-01*	*3.4E-01*	5.6E+08	2.9E+00		*1.2E+00*	3.2E+01	3.3E+01
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	3.3E+00		3.3E+01			>SOL			
			Hazard	5.6E+00	5.5E+01	1.2E+02					>SOL	>SOL
		Commercial/ Industrial	Carcinogenic	5.3E+01		5.2E+02			>SOL			
			Hazard	1.6E+02	>SOL	3.5E+03					>SOL	>SOL
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	>SOL		>SOL			>SOL			
			Hazard	>SOL	>SOL	>SOL					>SOL	>SOL
		Commercial/ Industrial	Carcinogenic	>SOL		>SOL			>SOL			
			Hazard	>SOL	>SOL	>SOL					>SOL	>SOL
	Ingestion of Groundwater	Residential	Carcinogenic	*5.0E-04*	*7.0E-02*	*1.0E-01*		5.0E-02	>SOL	*1.3E+00*		
			Hazard	*5.0E-04*	*7.0E-02*	*1.0E-01*	1.6E+01	5.0E-02		*1.3E+00*	7.8E-01	7.8E-01
		Commercial/ Industrial	Carcinogenic	*5.0E-04*	*7.0E-02*	*1.0E-01*		5.0E-02	>SOL	*1.3E+00*		
			Hazard	*5.0E-04*	*7.0E-02*	*1.0E-01*	1.0E+02	5.0E-02		*1.3E+00*	5.1E+00	5.1E+00
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	4.1E-02		3.9E-01		6.8E-02	>SOL			
			Hazard	7.1E-02	1.2E+00	1.9E+00	3.8E+02	1.9E+00		1.5E+01	6.7E+00	6.4E+00

*Italicized concentrations based on California MCLs
SAT = RBSL exceeds saturated soil concentration of chemical
>SOL = RBSL exceeds solubility of chemical in water

Medium	Exposure Pathway	Land Use	Type of Risk	Cresol(-p)	Cyanide	Dibenz(a,h) anthracene	Dichloro ethane (1,1-)	Dichloro ethane (1,2-) (EDC)	Dichloro ethylene (1,1-)	Dichloro ethylene (cis 1,2-)	Dichloro ethene (trans 1,2)
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic			4.9E-01	3.3E+02	2.7E+01	3.3E+00		
			Hazard	1.9E+02	2.8E+03		3.8E+03	1.1E+02	3.3E+02	3.7E+02	7.4E+02
		Commercial/ Industrial	Carcinogenic			1.3E+00	8.7E+02	7.1E+01	8.5E+00		
			Hazard	9.2E+02	4.1E+04		1.8E+04	5.1E+02	1.6E+03	1.8E+03	3.5E+03
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			SAT	2.7E+01	5.9E+00	2.5E-01		
			Hazard	SAT			4.2E+02	2.3E+01	8.0E+00	4.5E+01	5.5E+01
		Commercial/ Industrial	Carcinogenic			SAT	4.3E+02	9.4E+01	4.0E+00		
			Hazard	SAT			SAT	6.8E+02	2.3E+02	1.3E+03	1.6E+03
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			SAT	3.2E+03	6.3E+02	3.1E+01		
			Hazard	SAT			SAT	3.0E+03	1.2E+03	SAT	7.9E+03
		Commercial/ Industrial	Carcinogenic			SAT	SAT	2.4E+03	1.2E+02		
			Hazard	SAT			SAT	SAT	SAT	SAT	SAT
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic		6.2E+00	3.8E+01	1.4E-02	*9.9E-04*	*2.8E-02*	*1.9E-02*	*4.2E-02*
			Hazard	4.6E-01	6.2E+00		1.4E-02	*9.9E-04*	*2.8E-02*	*1.9E-02*	*4.2E-02*
		Commercial/ Industrial	Carcinogenic		6.2E+00	1.6E+02	1.4E-02	*9.9E-04*	*2.8E-02*	*1.9E-02*	*4.2E-02*
			Hazard	3.0E+00	6.2E+00		1.4E-02	*9.9E-04*	*2.8E-02*	*1.9E-02*	*4.2E-02*
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			>SOL	1.0E+02	1.6E+01	2.4E+00		
			Hazard	>SOL			1.6E+03	6.5E+01	7.5E+01	1.2E+02	1.8E+02
		Commercial/ Industrial	Carcinogenic			>SOL	1.6E+03	2.6E+02	3.8E+01		
			Hazard	>SOL			>SOL	1.9E+03	2.2E+03	>SOL	5.3E+03
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			>SOL	>SOL	4.1E+03	9.6E+02		
			Hazard	>SOL			>SOL	>SOL	>SOL	>SOL	>SOL
		Commercial/ Industrial	Carcinogenic			>SOL	>SOL	>SOL	>SOL		
			Hazard	>SOL			>SOL	>SOL	>SOL	>SOL	>SOL
	Ingestion of Groundwater	Residential	Carcinogenic		2.0E-01	1.6E-04	5.0E-03	*5.0E-04*	*6.0E-03*	*6.0E-03*	*1.0E-02*
			Hazard	7.8E-02	2.0E-01		5.0E-03	*5.0E-04*	*6.0E-03*	*6.0E-03*	*1.0E-02*
		Commercial/ Industrial	Carcinogenic		2.0E-01	7.0E-04	5.0E-03	*5.0E-04*	*6.0E-03*	*6.0E-03*	*1.0E-02*
			Hazard	5.1E-01	2.0E-01		5.0E-03	*5.0E-04*	*6.0E-03*	*6.0E-03*	*1.0E-02*
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic			1.4E-05	2.1E+00	2.4E-01	1.3E-02		
			Hazard	5.9E-01	7.0E+00		1.9E+01	7.2E-01	1.2E+00	1.8E+00	3.5E+00

*Italicized concentrations based on California MCLs
SAT = RBSL exceeds saturated soil concentration of chemical
>SOL = RBSL exceeds solubility of chemical in water

Medium	Exposure Pathway	Land Use	Type of Risk	Dimethyl-benza(a)anthracene (7,12)	Dimethyl-phenol (2,4)	di-n-Butyl-phthalate	di-n-octyl-phthalate	Dinitro-toluene (2,4)	Dioxane (1,4)	Ethyl-benzene	Ethylene Dibromide	Flouran-thene
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic					6.3E+00	7.0E+01		5.5E-01	
			Hazard	1.2E+03	7.7E+02	3.9E+03	7.8E+02			3.9E+03	2.2E+00	1.6E+03
		Commercial/ Industrial	Carcinogenic					1.7E+01	1.8E+02		1.4E+00	
			Hazard	5.6E+03	3.7E+03	1.9E+04	3.7E+03			1.8E+04	1.0E+01	7.4E+03
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic					SAT	SAT		8.0E+00	
			Hazard		SAT	SAT	SAT			SAT	2.2E+00	SAT
		Commercial/ Industrial	Carcinogenic					SAT	SAT		1.3E+02	
			Hazard		SAT	SAT	SAT			SAT	6.5E+01	SAT
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic					SAT	SAT		6.9E+02	
			Hazard		SAT	SAT	SAT			SAT	2.3E+02	SAT
		Commercial/ Industrial	Carcinogenic					SAT	SAT		2.6E+03	
			Hazard		SAT	SAT	SAT			SAT	1.3E+03	SAT
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic					1.5E-02	SAT	*1.6E+01*	*1.8E-04*	
			Hazard	SAT	4.3E+00	7.9E+06	SAT			*1.6E+01*	*1.8E-04*	SAT
		Commercial/ Industrial	Carcinogenic					6.2E-02	SAT	*1.6E+01*	*1.8E-04*	
			Hazard	SAT	2.8E+01	SAT	SAT			*1.6E+01*	*1.8E-04*	SAT
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic					>SOL	>SOL		9.4E+00	
			Hazard		>SOL	>SOL	>SOL			>SOL	2.6E+00	>SOL
		Commercial/ Industrial	Carcinogenic					>SOL	>SOL		1.5E+02	
			Hazard		>SOL	>SOL	>SOL			>SOL	7.6E+01	>SOL
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic					>SOL	>SOL		1.7E+03	
			Hazard		>SOL	>SOL	>SOL			>SOL	5.5E+02	>SOL
		Commercial/ Industrial	Carcinogenic					>SOL	>SOL		>SOL	
			Hazard		>SOL	>SOL	>SOL			>SOL	3.2E+03	>SOL
	Ingestion of Groundwater	Residential	Carcinogenic					2.2E-03	>SOL	*7.0E-01*	*5.0E-05*	
			Hazard	>SOL	3.1E-01	1.6E+00	>SOL			*7.0E-01*	*5.0E-05*	>SOL
		Commercial/ Industrial	Carcinogenic					9.2E-03	>SOL	*7.0E-01*	*5.0E-05*	
			Hazard	>SOL	2.0E+00	1.0E+01	>SOL			*7.0E-01*	*5.0E-05*	>SOL
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic					6.4E-02	>SOL		5.9E-03	
			Hazard	>SOL	2.7E+00	7.3E+00	2.1E-03			3.6E+00	1.7E-02	>SOL

*Italicized concentrations based on California MCLs
SAT = RBSL exceeds saturated soil concentration of chemical
>SOL = RBSL exceeds solubility of chemical in water

Medium	Exposure Pathway	Land Use	Type of Risk	*Fluorene	Indeno (1,2,3-CD) pyrene	Mercury	*Methanol	Methyl ethyl ketone	Methylene Chloride	Methyl naphthalene (2-)	MTBE	*Naphthalene
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic		1.7E+00				1.4E+02			
			Hazard	1.6E+03		3.9E+00	1.9E+04	2.2E+04	2.3E+03	1.6E+03	2.0E+02	1.6E+03
		Commercial/ Industrial	Carcinogenic		4.3E+00				3.7E+02			
			Hazard	7.4E+03		1.8E+01	8.9E+04	1.0E+05	1.1E+04	7.4E+03	9.3E+02	7.4E+03
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic		SAT				4.6E+01			
			Hazard	SAT		1.7E+01	1.9E+05	2.5E+04	2.7E+03	SAT	1.6E+04	SAT
		Commercial/ Industrial	Carcinogenic		SAT				7.3E+02			
			Hazard	SAT			SAT	SAT	SAT	SAT	SAT	SAT
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic		SAT				5.3E+03			
			Hazard	SAT		2.5E+03	SAT	SAT	SAT	SAT	SAT	SAT
		Commercial/ Industrial	Carcinogenic		SAT				SAT			
			Hazard	SAT		1.4E+04	SAT	SAT	SAT	SAT	SAT	SAT
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic		SAT	*3.2E-01*			8.2E-03		*2.1E-02*	*2.4E+00*
			Hazard	5.2E+02		*3.2E-01*	7.1E+00	1.1E+01	8.2E-03	3.2E+02	*2.1E-02*	*2.4E+00*
		Commercial/ Industrial	Carcinogenic		SAT	*3.2E-01*			8.2E-03		*2.1E-02*	*2.4E+00*
			Hazard	SAT		*3.2E-01*	4.7E+01	7.3E+01	8.2E-03	2.1E+03	*2.1E-02*	*2.4E+00*
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic		>SOL				2.0E+02			
			Hazard	>SOL		1.5E+00	6.5E+05	6.8E+04	1.2E+04	>SOL	4.0E+04	>SOL
		Commercial/ Industrial	Carcinogenic		>SOL				3.2E+03			
			Hazard	>SOL		4.3E+01	>SOL	>SOL	>SOL	>SOL	>SOL	>SOL
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic		>SOL				>SOL			
			Hazard	>SOL		6.3E+02	>SOL	>SOL	>SOL	>SOL	>SOL	>SOL
		Commercial/ Industrial	Carcinogenic		>SOL				>SOL			
			Hazard	>SOL		3.7E+03	>SOL	>SOL	>SOL	>SOL	>SOL	>SOL
	Ingestion of Groundwater	Residential	Carcinogenic		>SOL	*2.0E-03*			5.0E-03		*1.3E-02*	*2.0E-02*
			Hazard	6.3E-01		*2.0E-03*	7.8E+00	9.4E+00	5.0E-03	6.3E-01	*1.3E-02*	*2.0E-02*
		Commercial/ Industrial	Carcinogenic		>SOL	*2.0E-03*			5.0E-03		*1.3E-02*	*2.0E-02*
			Hazard	>SOL		*2.0E-03*	5.1E+01	6.1E+01	5.0E-03	4.1E+00	*1.3E-02*	*2.0E-02*
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic		>SOL				1.3E+00			
			Hazard	3.1E-01		3.6E-02	2.2E+02	1.5E+02	1.6E+01	6.1E-01	1.5E+00	1.5E+00

*Italicized concentrations based on California MCLs
SAT = RBSL exceeds saturated soil concentration of chemical
>SOL = RBSL exceeds solubility of chemical in water

Medium	Exposure Pathway	Land Use	Type of Risk	Nickel	Nitro-benzene	PCBs	Phenan-threne	Phenol	Pyrene	Pyridine	Selenium	Silver	Styrene
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	3.4E+05	3.7E+03	3.6E-01				2.0E+03			
			Hazard	1.4E+03		9.8E-01	1.2E+04	2.3E+04	1.2E+03		3.6E+02	3.6E+02	7.7E+03
		Commercial/ Industrial	Carcinogenic	1.3E+06	9.9E+03	1.1E+00				5.1E+03			
			Hazard	2.0E+04		5.8E+00	5.6E+04	1.1E+05	5.6E+03		5.1E+03	5.1E+03	3.7E+04
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic		SAT	1.7E+03				6.7E+04			
			Hazard			SAT	SAT	SAT	SAT				SAT
		Commercial/ Industrial	Carcinogenic		SAT	SAT				1.1E+06			
			Hazard			SAT	SAT	SAT	SAT				SAT
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic		SAT	SAT				6.0E+05			
			Hazard			SAT	SAT	SAT	SAT				SAT
		Commercial/ Industrial	Carcinogenic		SAT	SAT				SAT			
			Hazard			SAT	SAT	SAT	SAT				SAT
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	*2.0E+01*	6.5E+00	*9.4E+00*				2.8E+00	*8.0E-01*	*2.6E+00*	*4.8E+00*
			Hazard	*2.0E+01*		*9.4E+00*	SAT	2.5E+01	SAT		*8.0E-01*	*2.6E+00*	*4.8E+00*
		Commercial/ Industrial	Carcinogenic	*2.0E+01*	2.8E+01	*9.4E+00*				1.2E+01	*8.0E-01*	*2.6E+00*	*4.8E+00*
			Hazard	*2.0E+01*		*9.4E+00*	SAT	1.6E+02	SAT		*8.0E-01*	*2.6E+00*	*4.8E+00*
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic		>SOL	3.6E-01				4.9E+04			
			Hazard			>SOL	>SOL	>SOL	>SOL				>SOL
		Commercial/ Industrial	Carcinogenic		>SOL	>SOL				7.9E+05			
			Hazard			>SOL	>SOL	>SOL	>SOL				>SOL
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic		>SOL	>SOL				9.3E+05			
			Hazard			>SOL	>SOL	>SOL	>SOL				>SOL
		Commercial/ Industrial	Carcinogenic		>SOL	>SOL				>SOL			
			Hazard			>SOL	>SOL	>SOL	>SOL				>SOL
	Ingestion of Groundwater	Residential	Carcinogenic	*1.0E-01*	1.3E+00	*5.0E-04*				6.7E-01	*5.0E-02*	*1.0E-01*	*1.0E-01*
			Hazard	*1.0E-01*		*5.0E-04*	>SOL	9.4E+00	>SOL		*5.0E-02*	*1.0E-01*	*1.0E-01*
		Commercial/ Industrial	Carcinogenic	*1.0E-01*	5.7E+00	*5.0E-04*				2.9E+00	*5.0E-02*	*1.0E-01*	*1.0E-01*
			Hazard	*1.0E-01*		*5.0E-04*	>SOL	6.1E+01	>SOL		*5.0E-02*	*1.0E-01*	*1.0E-01*
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic		2.8E+01	1.6E-05				2.6E+01			
			Hazard	7.9E+00		4.4E-05	>SOL	1.5E+02	>SOL		2.0E+00	2.1E+00	9.3E+00

*Italicized concentrations based on California MCLs
SAT = RBSL exceeds saturated soil concentration of chemical
>SOL = RBSL exceeds solubility of chemical in water

Medium	Exposure Pathway	Land Use	Type of Risk	Tetrachloroethane (1,1,2,2-)	Tetrachloroethylene (PCE)	Tetraethyl Lead	Toluene	Trichloroethane (1,1,1-)	Trichloroethane (1,1,2-)	Trichloroethylene (TCE)	Vanadium	Vinyl Chloride
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	7.2E+00	3.8E+01				2.7E+01	1.3E+02		3.5E+00
			Hazard	1.0E+03	3.7E+02	3.9E-03	7.1E+03	1.4E+03	1.5E+02	2.2E+02	5.0E+02	
		Commercial/ Industrial	Carcinogenic	1.9E+01	1.0E+02				7.0E+01	3.3E+02		9.1E+00
			Hazard	4.7E+03	1.8E+03	1.9E-02	3.4E+04	6.5E+03	7.2E+02	1.1E+03	7.2E+03	
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	1.9E+01	8.5E+00				1.6E+01	3.0E+01		3.3E-02
			Hazard	2.7E+03	3.5E+01		1.0E+03	7.4E+02	9.1E+01	3.6E+01		
		Commercial/ Industrial	Carcinogenic	3.1E+02	1.3E+02				2.6E+02	4.8E+02		5.3E-01
			Hazard	SAT	SAT		SAT	SAT	2.7E+03	1.0E+03		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	1.6E+03	SAT				1.7E+03	3.8E+03		4.1E+00
			Hazard	SAT	SAT		SAT	SAT	SAT	SAT		
		Commercial/ Industrial	Carcinogenic	5.9E+03	SAT				SAT	SAT		1.6E+01
			Hazard	SAT	SAT		SAT	SAT	SAT	SAT		
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	6.6E-03	*5.2E-02*	*4.6E+00*	*1.8E+00*	*1.5E+00*	*2.0E-02*	*5.5E-02*		*1.1E-03*
			Hazard	6.6E-03	*5.2E-02*	*4.6E+00*	*1.8E+00*	*1.5E+00*	*2.0E-02*	*5.5E-02*	3.3E+02	*1.1E-03*
		Commercial/ Industrial	Carcinogenic	6.6E-03	*5.2E-02*	*4.6E+00*	*1.8E+00*	*1.5E+00*	*2.0E-02*	*5.5E-02*		*1.1E-03*
			Hazard	6.6E-03	*5.2E-02*	*4.6E+00*	*1.8E+00*	*1.5E+00*	*2.0E-02*	*5.5E-02*	2.2E+03	*1.1E-03*
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	1.2E+01	2.7E+01				2.1E+01	5.5E+01		6.7E-01
			Hazard	1.6E+03	1.1E+02		>SOL	>SOL	1.2E+02	6.5E+01		
		Commercial/ Industrial	Carcinogenic	1.9E+02	>SOL				3.3E+02	8.8E+02		1.1E+01
			Hazard	>SOL	>SOL		>SOL	>SOL	3.4E+03	>SOL		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	2.0E+03	>SOL				>SOL	>SOL		2.7E+02
			Hazard	>SOL	>SOL		>SOL	>SOL	>SOL	>SOL		
		Commercial/ Industrial	Carcinogenic	>SOL	>SOL				>SOL	>SOL		1.0E+03
			Hazard	>SOL	>SOL		>SOL	>SOL	>SOL	>SOL		
	Ingestion of Groundwater	Residential	Carcinogenic	1.0E-03	*5.0E-03*	*1.5E-02*	*1.5E-01*	*2.0E-01*	*5.0E-03*	*5.0E-03*		*5.0E-04*
			Hazard	1.0E-03	*5.0E-03*	*1.5E-02*	*1.5E-01*	*2.0E-01*	*5.0E-03*	*5.0E-03*	1.1E-01	*5.0E-04*
		Commercial/ Industrial	Carcinogenic	1.0E-03	*5.0E-03*	*1.5E-02*	*1.5E-01*	*2.0E-01*	*5.0E-03*	*5.0E-03*		*5.0E-04*
			Hazard	1.0E-03	*5.0E-03*	*1.5E-02*	*1.5E-01*	*2.0E-01*	*5.0E-03*	*5.0E-03*	7.2E-01	*5.0E-04*
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	4.5E-02	6.0E-02				1.8E-01	4.6E-02		2.6E-02
			Hazard	4.9E+00	5.3E-01	6.7E-06	1.1E+01	4.3E+00	7.8E-01	7.2E-02	2.8E+00	

*Italicized concentrations based on California MCLs
SAT = RBSL exceeds saturated soil concentration of chemical
>SOL = RBSL exceeds solubility of chemical in water

Medium	Exposure Pathway	Land Use	Type of Risk	Xylenes	Zinc
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic		
			Hazard	5.3E+04	2.1E+04
		Commercial/ Industrial	Carcinogenic		
			Hazard	2.6E+05	3.1E+05
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic		
			Hazard	SAT	
		Commercial/ Industrial	Carcinogenic		
			Hazard	SAT	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic		
			Hazard	SAT	
		Commercial/ Industrial	Carcinogenic		
			Hazard	SAT	
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	*2.7E+01*	
			Hazard	*2.7E+01*	8.9E+02
		Commercial/ Industrial	Carcinogenic	*2.7E+01*	
			Hazard	*2.7E+01*	5.8E+03
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic		
			Hazard	>SOL	
		Commercial/ Industrial	Carcinogenic		
			Hazard	>SOL	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic		
			Hazard	>SOL	
		Commercial/ Industrial	Carcinogenic		
			Hazard	>SOL	
	Ingestion of Groundwater	Residential	Carcinogenic	*1.8E+00*	
			Hazard	*1.8E+00*	4.7E+00
		Commercial/ Industrial	Carcinogenic	*1.8E+00*	
			Hazard	*1.8E+00*	3.1E+01
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic		
			Hazard	6.6E+01	1.2E+02

*Italicized concentrations based on California MCLs
SAT = RBSL exceeds saturated soil concentration of chemical
>SOL = RBSL exceeds solubility of chemical in water