RO-371

GETTLER-RYAN INC.

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Alameda County
APR 09 2003
Environmental Health

TRANSMITTAL

TO: Ms. Eva Chu
Alameda County Health Care Services
1131 Harbor Bay Parkway
Alameda, CA 94502

FROM: Jed Douglas

DATE: 4/4/03
PROJECT NO. 140106.5
SUBJECT: ConocoPhillips Service Station No. 7004 Case Closure Request

WE ARE SENDING YOU:

COPIES	DATED	DESCRIPTION
1	4/4/03	Transmittal of Well Survey Results, Site Information Summary
		Risk-Based Corrective Action and Request for Closure.

THESE ARE TRANSMITTED as checked below:

- ☐ For review and comment
- ☒ As Requested
- ☒ For Approval
- ☐ Approved as submitted
- ☐ Approved as noted
- ☐ Returned for corrections
- ☐ For your files
- ☒ For your use
- ☐ As noted below

COMMENTS:

This report and attachments contain well location and construction details obtained from water well driller's reports filed with DWR. California Water Code Section 13753 states that these reports are confidential and not for public use or inspection. Therefore, this report or its attachments should not be placed in files accessible to the general public.

Signed: _____

COPIES TO: Mr. David DeWitt – ConocoPhillips
2000 Crow Canyon Place, Suite 400, San Ramon, CA 94583

Mr. Chuck Headlee – RWQCB, San Francisco Bay Region
1515 Clay Street, Suite 1400, Oakland, CA 94612

Mr. Mike Bakaldin – San Leandro Environmental Services Division
835 East 14th Street, San Leandro, CA 94577

GETTLER-RYAN INC.

April 4, 2003

Ms. Eva Chu
Alameda County Health Care Services
1131 Harbor Bay Parkway
Alameda, CA 94502

Subject: **Transmittal of Well Survey Results, Site Information Summary, Risk-Based Corrective Action and Request For Closure for the Former Tosco (76) Service Station No. 7004, located at 15599 Hesperian Boulevard, San Leandro, California**

Dear Ms. Chu:

This document was prepared by Gettler-Ryan Inc. (GR) at the request of ConocoPhillips, and transmits the Well Survey Results, Site Information Summary (SIS) and Risk-Based Corrective Action (RBCA) evaluation for the above referenced facility, and based on the discussion and findings, also requests low-risk case closure status from the Alameda County Health Care Services (ACHCS).

The site is a former Tosco (76) Service Station which was demolished in May of 2000. At that time all subsurface tanks and piping and aboveground components were removed. The site is currently a paved parking lot within a Target department store complex, and is situated adjacent to a former auto parts store, which is currently vacant. The site is located at the northwest corner of Hesperian Boulevard and Lewelling Boulevard, in San Leandro, California (Figure 1). There are six groundwater monitoring wells and one groundwater recovery well at the site (Figure 2). The site is situated on relatively flat terrain, and San Lorenzo Creek is located approximately 800 feet to the southwest. San Lorenzo Creek flows toward the southwest and ultimately drains into San Francisco Bay.

Well Survey

In May of 2001, GR contacted the Alameda County Public Works Agency and requested a ½-mile radius well search be performed. The results of the search indicated that 3 domestic water wells are present within 2,500 feet of the site. Of the three identified wells, two are located in potentially downgradient directions. These two wells (well No.'s 1 and 2 on Figure 3) are located 1,650 and 2,300 feet from the site, respectively. The third well is located approximately 2,275 feet east-southeast of the site, in the upgradient direction. Based on the distance from the site, it is unlikely that groundwater from beneath the site has impacted the identified wells.

The City of Oakland and the surrounding areas of San Leandro and San Lorenzo receive their municipal drinking water supply via aqueduct from the Pardee or Comanchee Reservoirs in Northern California.

This report and attachments contain well location and construction details obtained from water well driller's reports filed with DWR. California Water Code Section 13753 states that these reports are confidential and not for public use or inspection. Therefore, this report or its attachments should not be placed in files accessible to the general public.

Hydrology

San Lorenzo Creek is located approximately 800 feet southwest of the site. The next closest surface water is Estudillo Canal, located approximately 2,300 feet to the northwest. Both of these water bodies flow generally to the west/southwest, and ultimately empty into San Francisco Bay. Historical groundwater monitoring data indicate that groundwater flow direction beneath the site has been predominantly toward the west-southwest (Figure 4) at an average gradient of 0.003 to 0.02 feet/feet. Groundwater levels beneath the site has remained at approximately the same elevation since 1993, at approximately 15 feet below ground surface (bgs), with seasonal fluctuations of up to 3 feet.

Previous Environmental Work

1990 - Removal of three gasoline USTs, and associated product piping. Overexcavation and offsite disposal of 1,600 cubic yards of hydrocarbon impacted soil. Removal and offsite disposal of 5,000 gallons of groundwater from the UST pit.

1991 - Installation of three 2-inch diameter groundwater monitoring wells (MW-1 through MW-3). Initiation of quarterly monitoring and sampling. Installation of three additional 2-inch diameter groundwater monitoring wells (MW-4 through MW-6).

1992 - Installation of one 6-inch diameter groundwater recovery well (RW-1). An aquifer pump test was performed.

1996 - Installation of Oxygen Releasing Compound (ORC) in monitoring well MW-5. Monitoring and sampling schedule reduced to semi-annual.
1999 - Removal of ORC from well MW-5.

2000 - Removal of two gasoline USTs and associated product piping. Installation of 360 pounds of ORC slurry in the bottom of the UST pit. Demolition of all above ground structures.

2001 - Well Search performed. Continuation of semi-annual groundwater monitoring and sampling.

2001 – Submitted closure request to the ACHCS

2002 – Installed five onsite Geoprobe borings, collected soil and grab groundwater samples.

2002 – Semi-annual groundwater sampling schedule changed to monthly sampling.

Current Site Conditions

The extent of soil impact at the site is delineated. During removal of gasoline USTs and product piping conducted in 2000, confirmation samples collected and analyzed by the laboratory indicate that elevated concentrations of Total Petroleum Hydrocarbons as gasoline (TPHg) remained in only one sample location from the sidewall of the former UST pit (350 parts per million (ppm)). Benzene and Methyl tert-Butyl Ether (MtBE) were not detected in any of the confirmation soil samples from the former UST pit sidewall. Soil samples collected in the vicinity of the former product lines and dispensers revealed that no hydrocarbon impact was detected in the soil. Hydrocarbons detected in soil during the 1990 UST removal and subsequent monitoring well installations were found in what is now the saturated zone. Much of this impacted soil was overexcavated during the 1990 UST removal event. Soil sampling conducted during the Geoprobe sampling event of 2002 revealed that petroleum hydrocarbons were not present in any of the soil samples analyzed. Based on the lack of residual hydrocarbons in site soils, mass calculations for hydrocarbons remaining in soil were not prepared.

Groundwater analytical results from the most recent monthly sampling event indicate that benzene is either below detection limits or below 1.0 ppb in the six monitoring wells and the one recovery well at the site. TPHg was detected in well (MW-3) at a concentration of 6,600 parts per billion (ppb), and in RW-1 at 1,800 ppb. MtBE was detected in three of the monitoring wells, at concentrations ranging from 8.4 to 200 ppb. Concentrations of MtBE in the wells fluctuate, and have shown a general decline in concentrations. Petroleum hydrocarbons have not been detected in well MW-6 since January of 1997, therefore, concentration charts were not prepared for this well. Wells MW-2 through MW-5 and RW-1 show an overall declining trend in MtBE concentrations (Charts 1 through 5).

Isoconcentration maps were prepared for TPHg and MtBE based on the October 2002 monthly monitoring results and the grab groundwater samples collected in September of 2002 (Figures 5 and 6). These figures show that the hydrocarbon plume is primarily restricted to groundwater beneath the site. Mass calculations for TPHg and MtBE remaining in groundwater were prepared based on the isoconcentration maps. Results of the calculations indicate that a total of approximately 23.05 pounds of TPHg and 0.62 pounds of MtBE remain in groundwater beneath the site. The calculations for hydrocarbon mass are presented in Appendix A.

Risk-Based Corrective Action Evaluation

Tier 1 of the RBCA process involves comparison of the site constituent concentrations to generic Risk-Based Screening Levels (RBSL) to evaluate whether further evaluation and/or active remediation is warranted. RBSL values are derived from standard exposure equations and reasonable maximum exposure (RME) estimates per U.S. EPA guidelines. RBSL concentrations are designed to be protective of human health even if exposure occurs directly within the onsite area of impacted soil or groundwater, and inherently provides conservative estimates of potential threats to human health and the environment. According to the RBCA process, if Tier 1 limits are not exceeded, the user may proceed directly to compliance monitoring and/or no further action. However, if these defined screening levels are exceeded, the affected media may be addressed by:

1. remediating to the generic Tier 1 limits, if practical
2. conducting Tier 2 evaluation to develop site-specific remediation goals, if required by the results of the evaluation
3. implementing an interim remedial action to abate risk "hot spots"

GR compared the site-specific soil and groundwater analytical data to the California Regional Water Quality Control Board – San Francisco Bay Region's Tier 1 limits and determined that the Tier 1 limits were exceeded. Therefore, GR utilized the Groundwater Services Inc. RBCA Toolkit for Chemical Releases (version 1.3a) to perform a Tier 2 evaluation for the site.

Tier 2 analysis evaluates baseline risks both on and offsite, utilizing site specific soil, groundwater and air parameters. Additionally, Tier 2 analyses allow the use of transport models in calculating risks and cleanup standards related to offsite receptors, and utilizes Site Specific Target Levels (SSTLs). A SSTL is a chemical of concern (COC) concentration limit (clean-up level) in the source medium derived by multiplying the risk-based exposure limit at the point of exposure by the natural attenuation factor for the exposure pathway.

Site Parameters

Complete exposure pathways are those that could pose a reasonable potential for contaminant contact with human or environmental receptors. Under Tier 2 RBCA, both onsite and offsite receptors apply. For the purpose of this Tier 2 evaluation, a residential exposure pathway with a risk factor of 1.0^{-6} was evaluated for the site. Groundwater beneath and in the site vicinity is not used for drinking water purposes, however, groundwater ingestion and subsurface soil leaching to groundwater (ingestion) exposure pathways were evaluated as a worst case scenario. The following risk pathways were evaluated:

- Subsurface soil and groundwater volatilization to indoor and outdoor air inhalation
- Ingestion and dermal contact from groundwater, surficial and subsurface soils
- Construction worker exposure to soil and air
- Surface water impact to aquatic life in San Lorenzo Creek

Where available, site specific physical data were used in this RBCA evaluation. Analyses of soil physical parameters are included in Appendix B. Site specific parameters included:

- Affected soil area (2,500 ft^2)
- Depth to top of affected soil (3 ft)
- Soil type (silt)
- Soil moisture content (27.3%)
- Soil bulk density (1.52 g/cc)
- Total porosity (42.1%)
- Soil pH (7.65)
- Groundwater pH (7.2)
- Soil hydraulic conductivity (1.33E-6 cm/s)
- Length of affected soil parallel to wind (60 ft)
- Length of affected soil parallel to groundwater flow (80 ft)
- Groundwater gradient (0.002 ft/ft)
- Thickness of affected subsurface soils (10 ft)
- Groundwater plume width (100 ft)

Additionally, the following groundwater plume/surface water interface parameters were estimated with conservative values:

- Plume width (100 ft)
- Plume thickness (6.5 ft)
- Surface water flowrate (1.0 ft^3/s)

The depth of groundwater is estimated to be approximately 13 feet below ground surface (GR Second Quarter Event of April 22, 2002, Groundwater Monitoring and Sampling Report). Based on the site being entirely paved, GR estimated the net rainfall infiltration at 5 cm/year. Where appropriate and consistent with site conditions, ASTM default values were used. The COCs were evaluated with a conservative 95% Upper Control Limit (UCL) on the mean concentration, as well as the California adjusted oral slope factor for benzene (0.1) for this RBCA analysis.

TPHg was evaluated by inputting the TPHg values from a water sample collected from well MW-3 (collected November 25, 2002) into seven hydrocarbon chain fractions as reported by the laboratory. The laboratory data is attached in Appendix B. The results of the TPHg fraction analysis indicated that the value for the most toxic fraction (C8-C10 aromatic) was approximately 33% of the total TPHg. Therefore, GR input remaining TPHg data from soil and groundwater into the aromatic fraction C08-C10 (Total Petroleum Hydrocarbon Criteria Working Group Series, Volume 5, June 1999) at a conservative amount of 50% of the total TPHg.

Results of RBCA Analysis

Based on information from previous site investigations and current groundwater monitoring and sampling data, the Tier 2 RBCA program evaluated the complete exposure pathways identified at the site (Appendix C, Tier 2 Baseline Risk Summary Table). The RBCA program findings for the identified pathways are:

- outdoor and indoor air exposures with cumulative risk factors of 5.8^{-10} and 5.0^{-7};
- groundwater ingestion with a cumulative risk factor of 9.3^{-7}; and
- surface water exposure and aquatic life protection with a cumulative risk factor of 5.7^{-116}

Using the residential risk factor of 1.0^{-6} and site conditions, the SSTLs for BTEX, MtBE and TPHg were determined to be below established Tier 2 SSTLs (Appendix C, SSTL Values) for all pathways. Pertinent input and output data including site specific parameters used in the analysis are presented in Appendix C.

Summary

The attached Site Information Summary form contains information about the site, results of initial site assessment and remediation, impacted groundwater plume trends, summary tables of historical soil and groundwater sample data, boring logs and figures showing the locations of pertinent site features and sample locations. The SIS and attachments are included in Appendix D.

The following conditions have been found at the site:

1. Hydrocarbon source soils were removed in 1990 during UST replacement and subsequent overexcavation of 1,600 cubic yards of impacted soil.
2. Petroleum hydrocarbons are no longer stored or dispensed from the site, therefore, existing concentrations of dissolved hydrocarbons are expected to naturally attenuate.
3. Free product has not been detected in any monitoring well to date.
4. The groundwater beneath the City of San Leandro is not used as a municipal drinking water supply. This precludes the impacted shallow aquifer from affecting human health in the site vicinity.
5. The site has been adequately characterized. Historical groundwater data collected between May 1991 and January 2003 indicate that the hydrocarbon plume is stable and has been predominantly restricted to groundwater beneath the site. Concentrations of TPHg are restricted to a small area around wells MW-3 and RW-1. Concentrations of benzene have either been below detection limits or below California Department of Health Services (DHS) primary Maximum Contaminant Level (MCL) of 1.0 ppb in all wells for the last nine sampling events. Concentrations of MtBE detected in downgradient well MW-4 have been below the DHS primary MCL of 13 ppb since January 2002. Additionally, in spite of a recent increase, concentrations of MtBE in downgradient well MW-5 have shown a downward trend since July 1999.

6. The groundwater plume is well defined in all directions including the downgradient flow direction. Mass calculations indicate that very low quantities of TPHg (23.05 lbs) and MtBE (0.62 lbs) remain in groundwater beneath the site. Residual dissolved hydrocarbons should naturally attenuate with time.
7. The nearest sensitive receptors in the downgradient groundwater direction are San Lorenzo Creek, located 800 feet southwest of the site, and two domestic water wells located approximately 1,650 feet south-southwest and 2,300 feet west-northwest of the site. Based on the distance of these receptors from the site, it does not appear that groundwater from beneath the site would impact any of the identified receptors.
8. The building at the site is currently vacant, although future commercial use is probable. Potential exposure pathways at the site include indoor and outdoor air inhalation routes. The RBCA evaluation concluded that there is no present or future risk to people using the building, even if a residential development scenario were to be considered.

Conclusions And Recommendations

GR performed the RBCA evaluation for the assessment and response to petroleum hydrocarbons in the subsurface soil and groundwater beneath the subject site. A Tier 2 evaluation was performed utilizing available site specific data. The results of these analyses confirm that current site conditions do not exceed the calculated Tier 2 SSTLs specific to the site (Appendix C). Since a service station is no longer present at the site, it is anticipated that residual dissolved concentrations of petroleum hydrocarbons will continue to attenuate over time, thereby also lowering the associated risk over time. The Tier 2 evaluation verifies that there are no risks associated with the current or future uses of the building presently at the site.

According to the RBCA decision making process, further work would not be warranted to protect against human and aquatic exposures. The Tier 2 evaluation determined that no additional investigation or remediation is required at the site. Based on the RBCA program findings and the existing site conditions presented in this report, the previous remediation effort and the determination that the impacted groundwater is localized and stable at the site, and that the groundwater beneath and in the vicinity of the site is not used for drinking water purposes, it is GR's opinion that the site should be considered for low-risk case closure.

If you have any questions or comments regarding this request, please feel free to call us at 707-789-3255.

Sincerely,
Gettler-Ryan Inc.

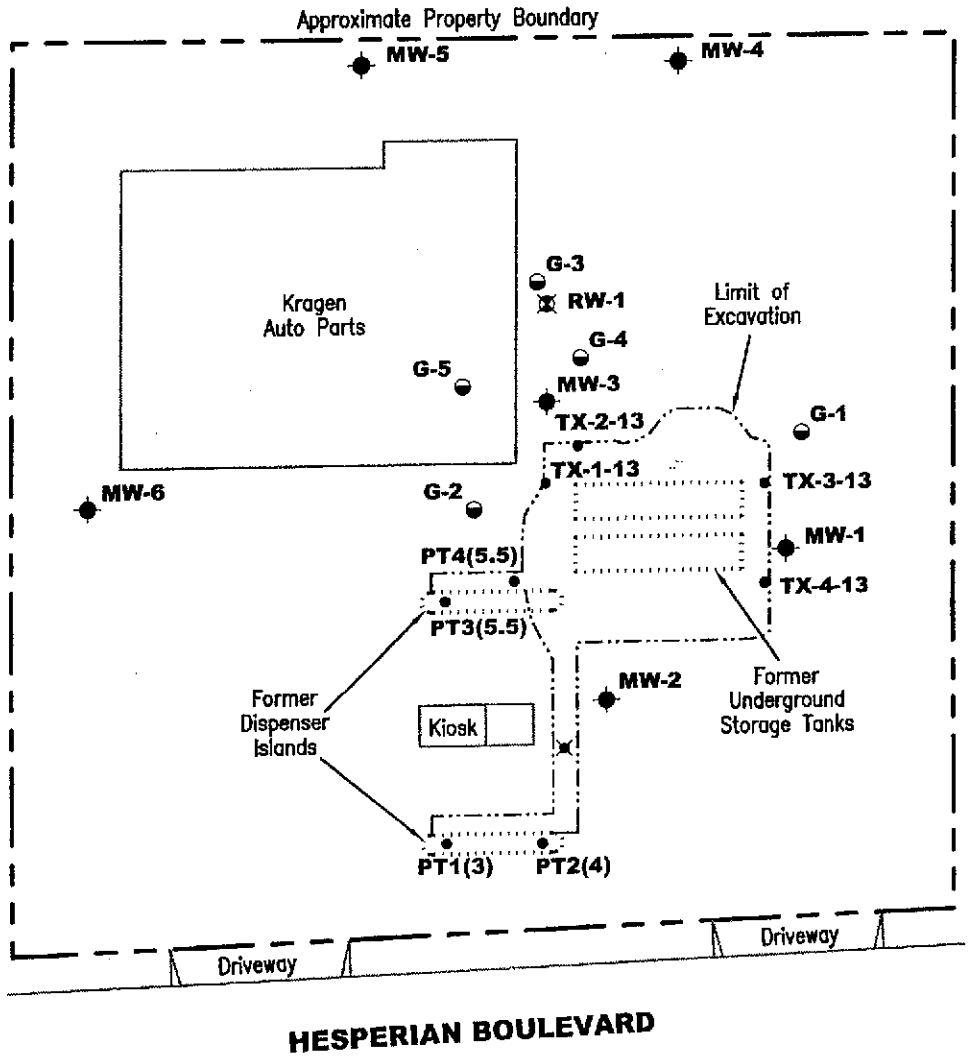
Jed A. Douglas
Senior Geologist

Douglas J. Lee
Senior Geologist
R.G. No. 6882

Attachments: Figure 1 - Site Vicinity Map
Figure 2 - Site Plan
Figure 3 - Well Search Map
Figure 4 - Historical Groundwater Flow Directions
Figure 5 - TPHg Isoconcentration Map
Figure 6 - MtBE Isoconcentration Map
Table 1 - Well Search Results
Charts 1 through 5 - Groundwater Concentrations and Elevation vs. Time
Appendix A - Hydrocarbon Mass Calculations in Groundwater
Appendix B - Laboratory Analytical Data
Appendix C - Risk-Based Corrective Action
Appendix D - Site Information Summary

cc: David DeWitt – ConocoPhillips, 2000 Crow Canyon Place, Suite 400
San Ramon, CA 94583

FIGURES, TABLES, CHARTS



EXPLANATION

- Groundwater monitoring well
- Aquifer testing well
- Soil sample location
- Sample attempted pea gravel too deep to reach native soil
- Geoprobe boring

N

0 40

Scale in Feet

Source: Figure modified from drawing provided by MPDS Services Inc..

FIGURE 2

SITE PLAN
Former Tosco (76) Service Station No. 7004
15599 Hesperian Boulevard
San Leandro, California

GETTLER - RYAN INC.
6747 Sierra Ct., Suite J
Dublin, CA 94568
(925) 551-7555

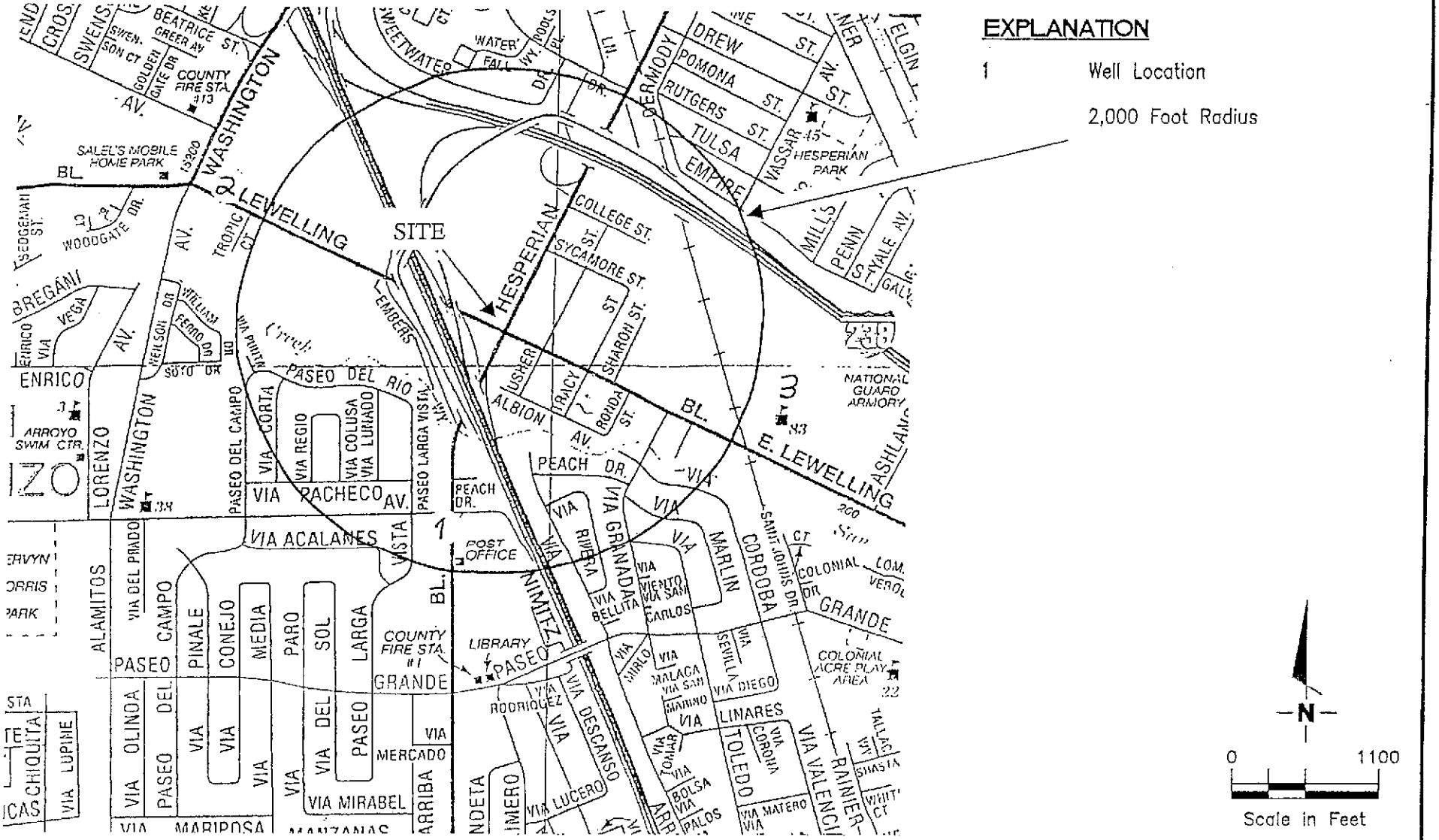
PROJECT NUMBER 140106.06

REVIEWED BY

DATE 10/02

REVISED DATE

FILE NAME: P:\ENVIRO\TOSCO\7004\A00-7004.DWG | Layout Tab: Boring Rpt 10-02



Gettler - Ryan Inc.

1364 North McDowell Boulevard Suite B2
Petaluma, CA 94954 (707) 789-3255

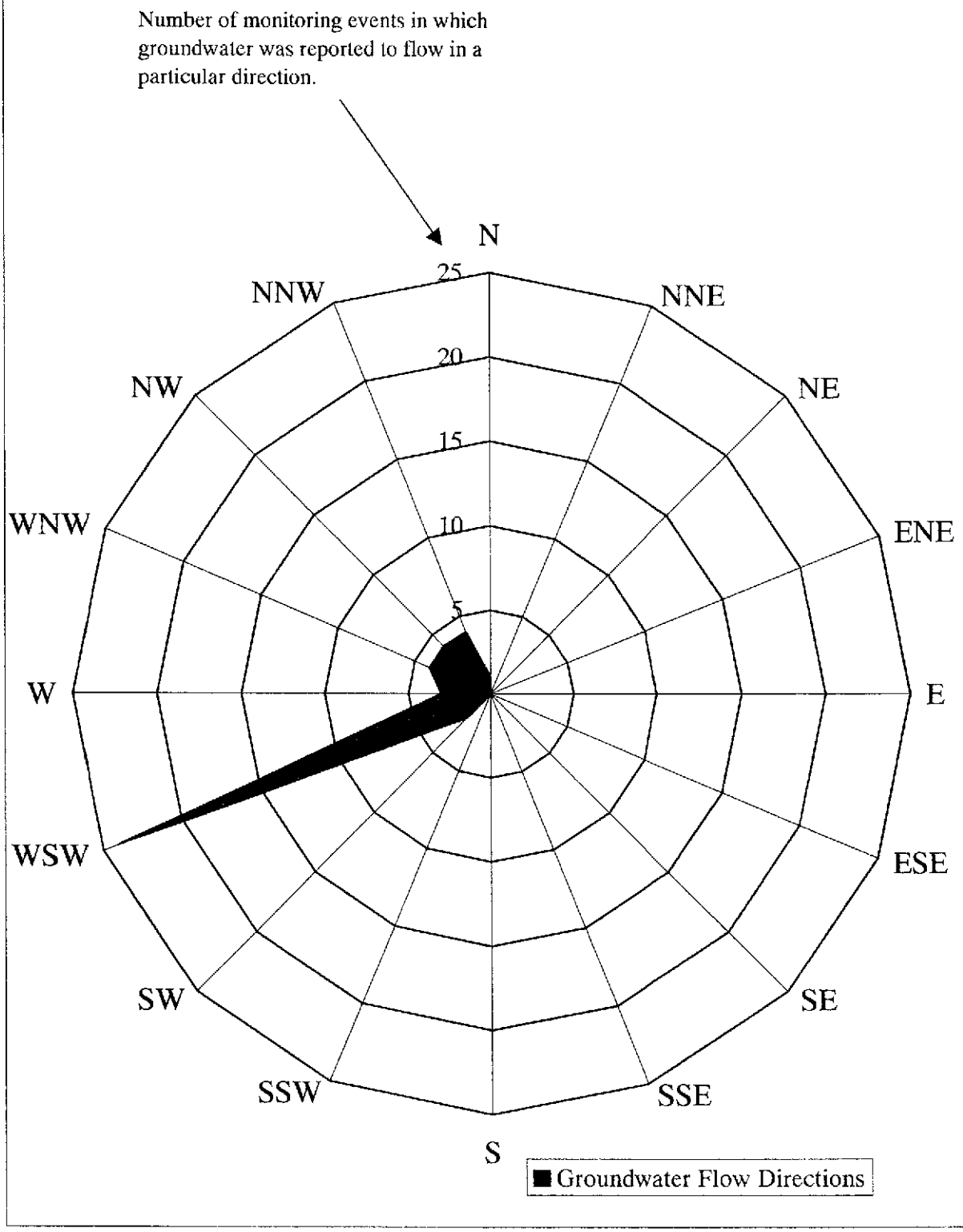
WELL SEARCH MAP
Former Tosco Service Station No. 7004
15599 Hesperian Boulevard
San Leandro, California

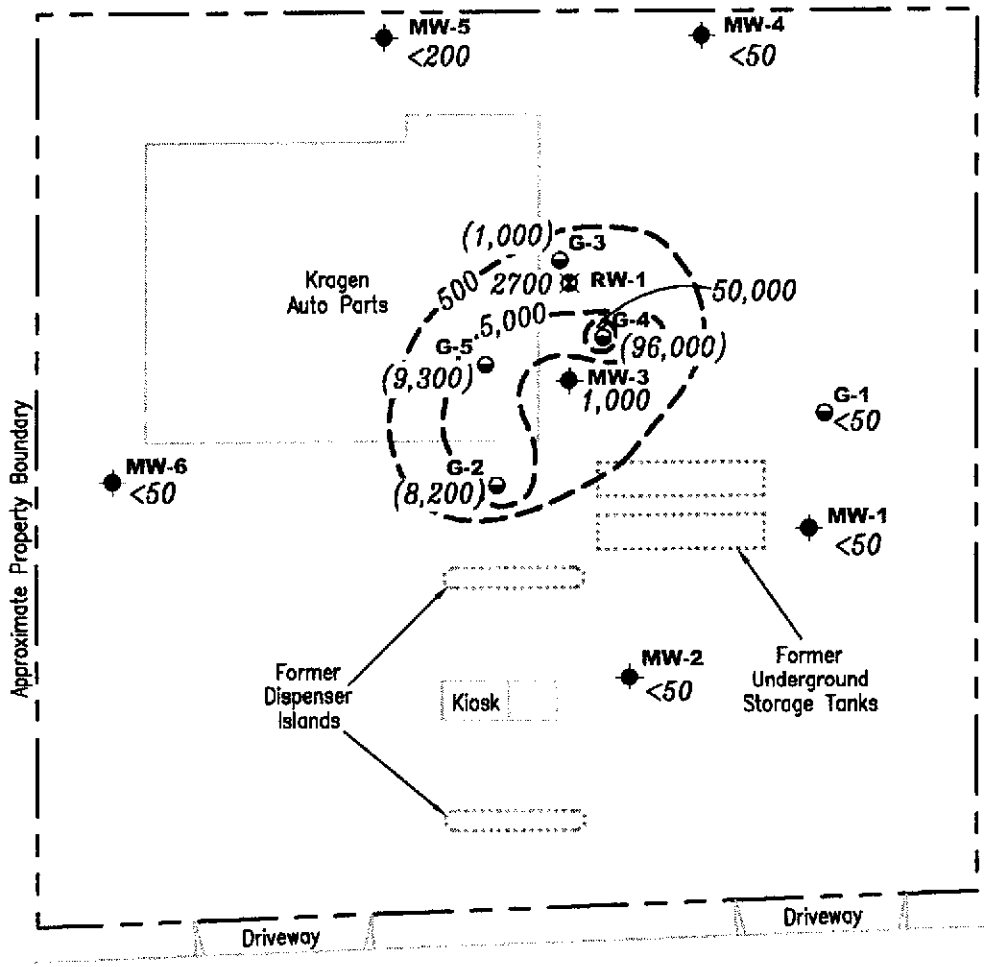
FIGURE
3

JOB NUMBER	REVIEWED BY	DATE	REVISED DATE
140106.04		05/01	

FILE NAME: E:\Enviro\Well Search Map.dwg | Layout Tab: Site Plan

Figure 4
Historical Groundwater Flow Directions
for Former Tosco (76) Service Station No. 7004





EXPLANATION

- Groundwater monitoring well
- Aquifer testing well
- Geoprobe boring
- (500) TPH–G (Total Petroleum Hydrocarbons as Gasoline) concentrations in ppb (sampled on 9/20/02)
- 500 TPH–G (Total Petroleum Hydrocarbons as Gasoline) concentrations in ppb (sampled on 10/25/02)
- 500 TPH–G isoconcentration contour

N

0 40

Scale in Feet

Source: Figure modified from drawing provided by MPDS Services Inc..

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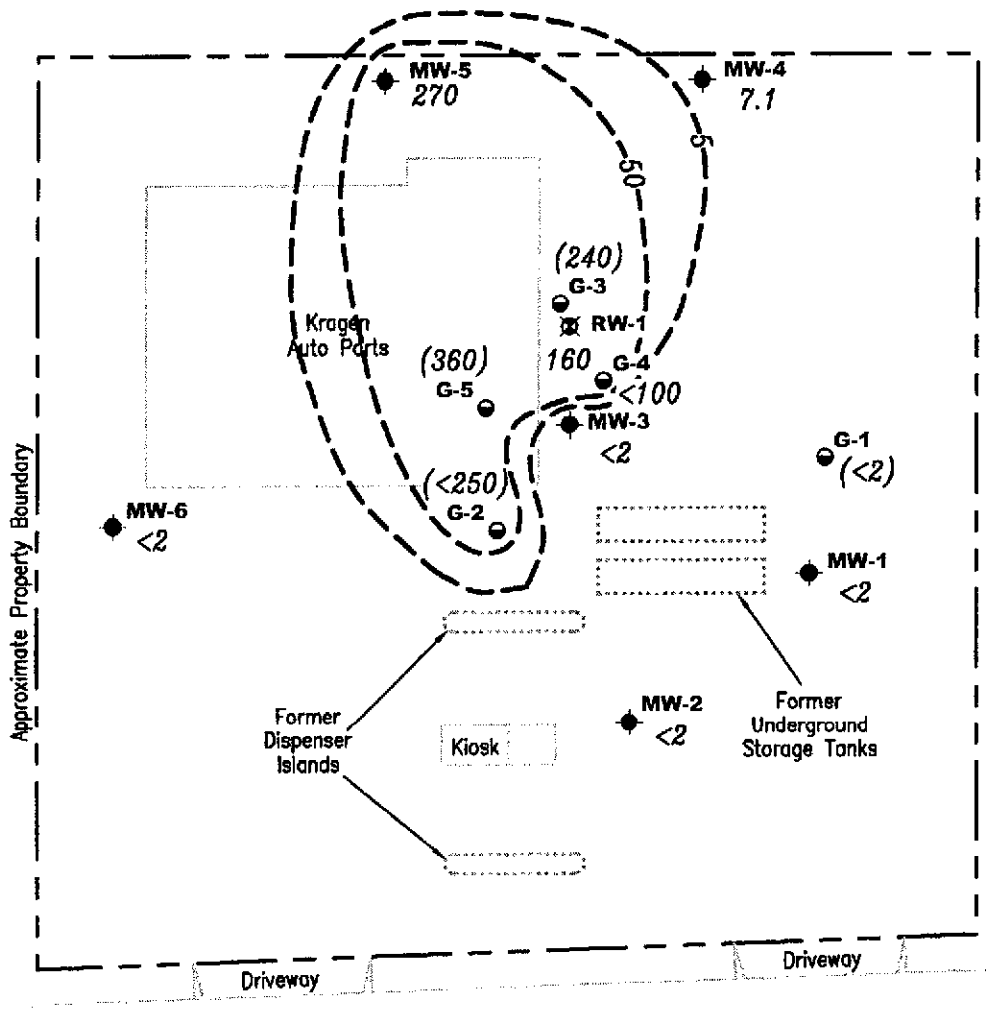
6747 Sierra Ct., Suite J
Dublin, CA 94568 (925) 551–7555

TPH–G ISOCONCENTRATION MAP
Former Tosco (76) Service Station No. 7004
15599 Hesperian Boulevard
San Leandro, California

FIGURE 5

PROJECT NUMBER	REVIEWED BY	DATE	REVISED DATE
140106.07		September 20 & October 25, 2002	

FILE NAME: P:\ENVIRO\TOSCO\7004\A00-7004.DWG | Layout Tab: Closure Rpt 2-03



EXPLANATION

- Groundwater monitoring well
- Aquifer testing well
- Geoprobe boring
- (200) MTBE concentration in ppb (sampled on 9-20-02)
- 200 MTBE concentration in ppb (sampled on 10-25-02)
- 200 MTBE isoconcentration contour

N

0 40

Scale in Feet

Source: Figure modified from drawing provided by MPDS Services Inc..

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MTBE ISOCONCENTRATION MAP
Former Tosco (76) Service Station No. 7004
15599 Hesperian Boulevard
San Leandro, California

FIGURE
6

PROJECT NUMBER	REVIEWED BY	DATE	REVISED DATE
140106.07		September 20 & October 25, 2003	

FILE NAME: P:\ENVIRO\TOSCO\7004\A00-7004.DWG | Layout Tab: Mtbe4 2-03

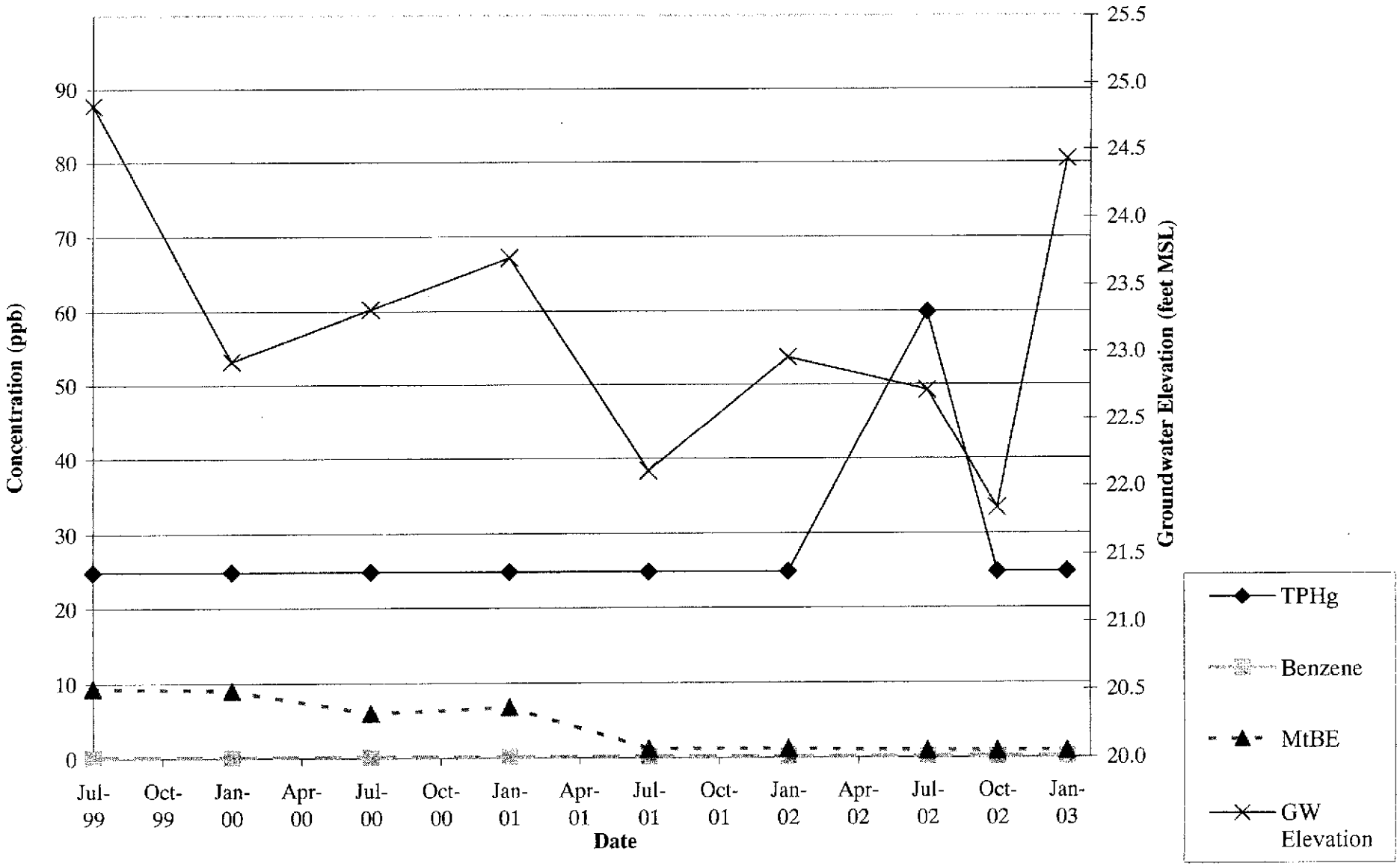
Table 1 Well Search Data
Former Tosco Service Station No. 7004
15599 Hesperian Boulevard
San Leandro, California

Map ID	Well Owner	Well Location	Well Use	Maximum Pumping Rate (gpm)	Year Installed	Depth (feet)	Screen Interval From (feet)	Screen Interval To (feet)	Well Diameter (inches)	DTW (feet)
1	Greenwood Corporation	15803 Hesperian Boulevard	Dom	230	Dec-31	511	-	-	12	-
2	F. Goyette Machine	624 Lewelling Boulevard	Dom	-	Jul-37	75	-	-	8	-
3	San Lorenzo Unified School District	50 East Lewelling Boulevard	Dom	8	Sep-91	194	-	-	6	67

Explanation

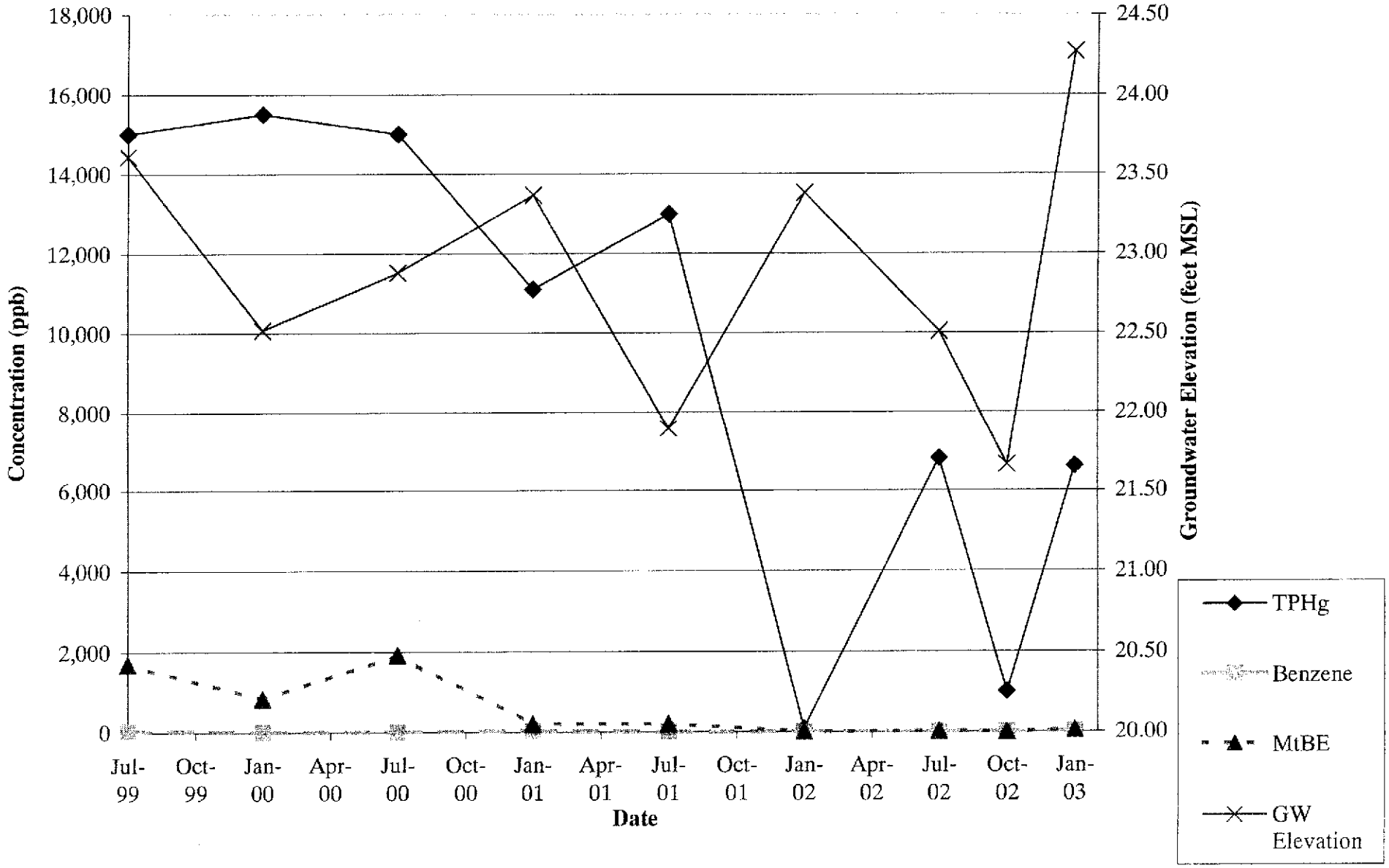
DTW = depth to water
gpm = gallons per minute
Dom = Domestic
- = information not available
Township/Range/Sections: 3S/2W-3W/1G-24J
Well Search Performed by: Alameda County Public Works Agency

Chart 1 - Former Tosco 76 Service Station No. 7004
Groundwater Concentrations and Elevation vs. Time
MW-2



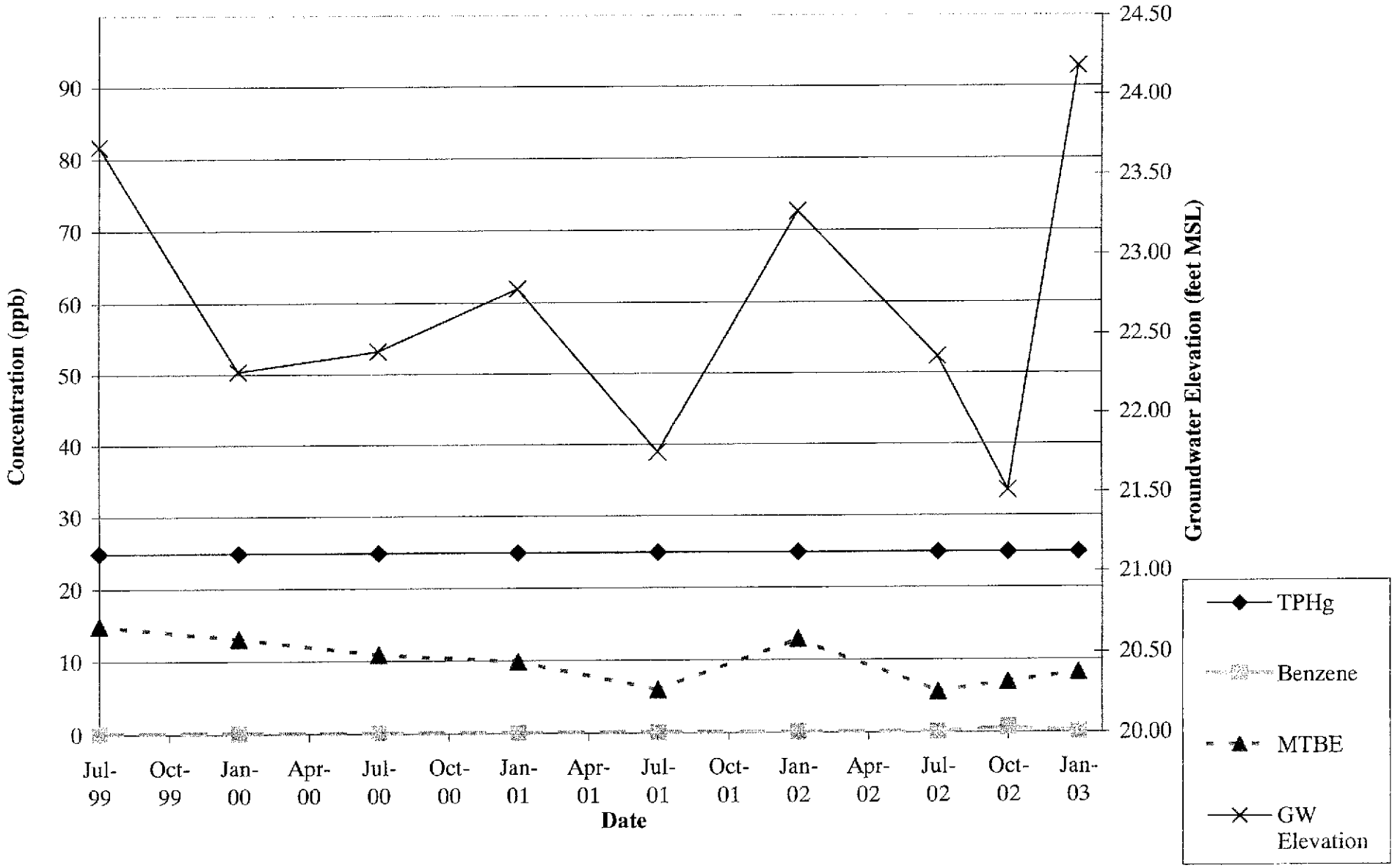
140106

Chart 2 - Former Tosco 76 Service Station No. 7004
Groundwater Concentrations and Elevation vs. Time
MW-3



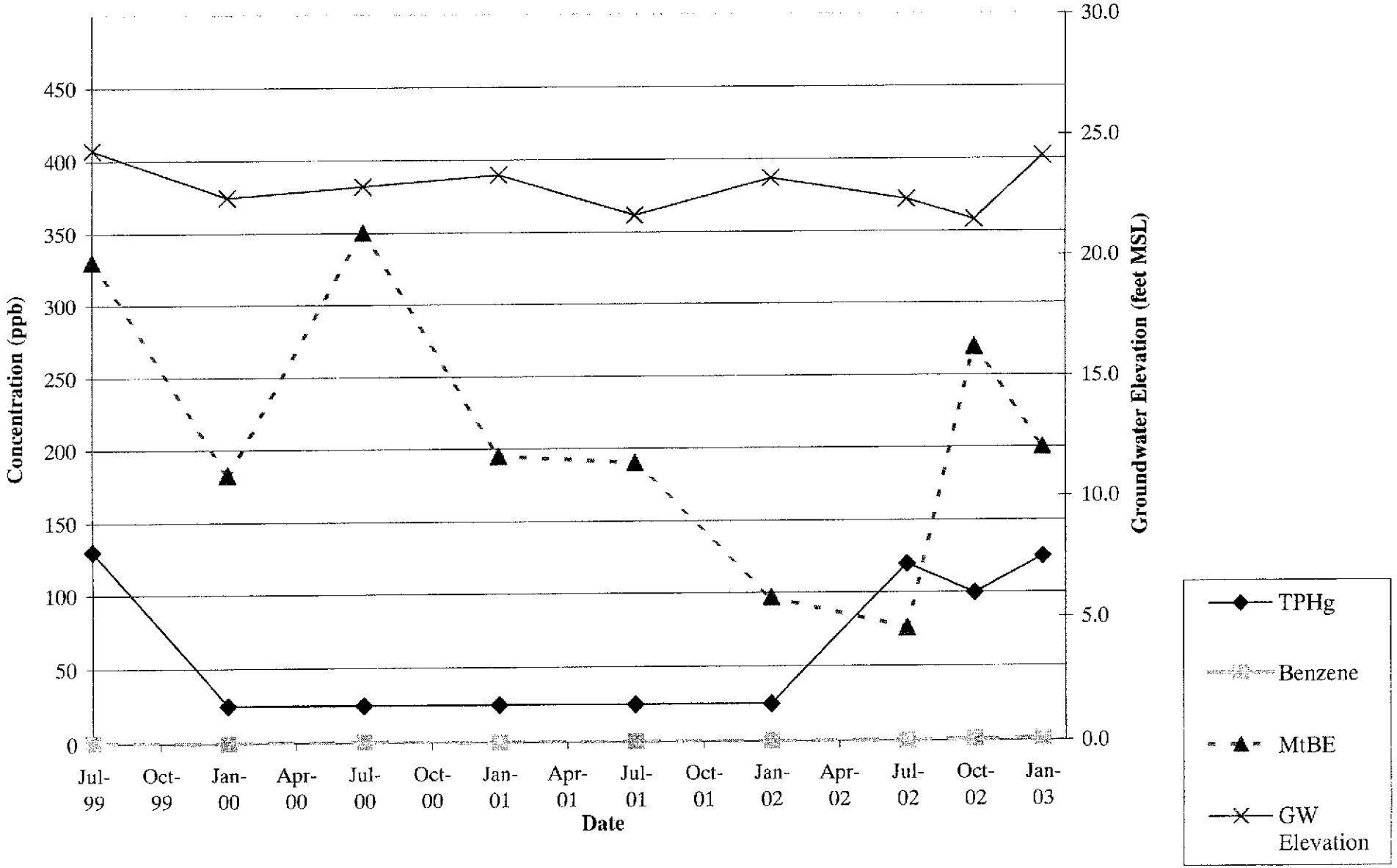
140106

Chart 3 - Former Tosco 76 Service Station No. 7004
Groundwater Concentrations and Elevation vs. Time
MW-4



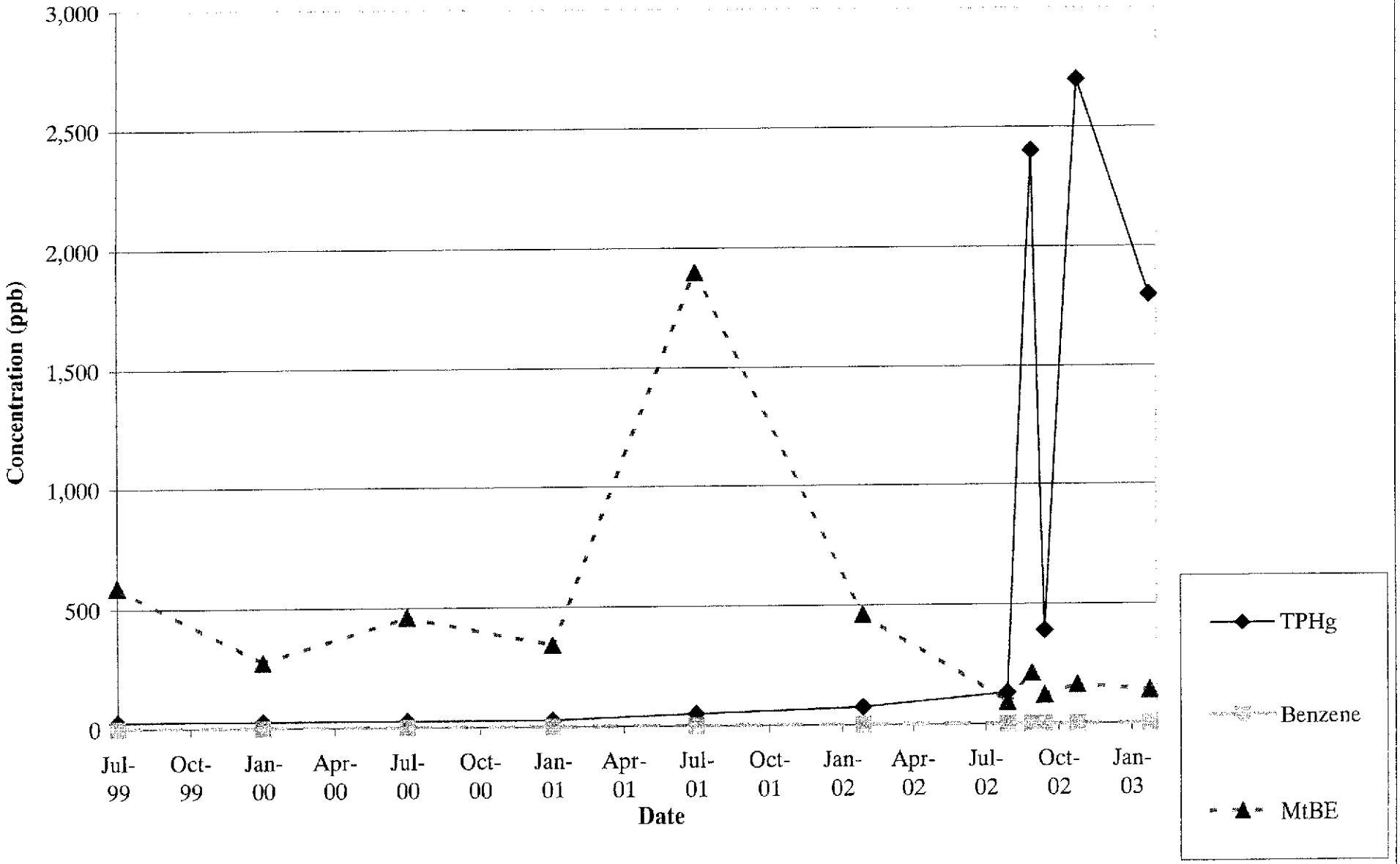
140106

Chart 4 - Former Tosco 76 Service Station No. 7004
Groundwater Concentrations and Elevation vs. Time
MW-5



140106

Chart 5 - Former Tosco 76 Service Station No. 7004
Groundwater Concentrations and Elevation vs. Time
RW-1



140106.04

APPENDIX A

HYDROCARBON MASS CALCULATIONS IN GROUNDWATER

Hydrocarbon Mass Calculations in Groundwater
for Former Tosco (76) Service Station No. 7004

Assumptions:

1. Mass of impacted groundwater is equal to the mass of soil times the porosity of the soil. For TPHg and MTBE, an area approximately equal to the lowest iso-concentration contour is used, times the thickness of impacted groundwater equal to 12.5 feet (depth to water (~15') to bottom of deepest well (~27.5')).
2. Porosity of soil in saturated zone is approximately 40%.

TPHg

Volume of impacted groundwater = 75' x 50' x 12.5' = 47,000 ft^3

Weight of impacted groundwater = 47,000 ft^3 x 0.40 x 62.4 lbs/ft^3 = 1.17 x 10^6 lbs water

Average TPHg concentration = (1,000+1,000+2,700+96,000+9,300+8,200)/6 = 19,700 ppb = 19.7 ppm

Mass of TPHg = Weight of impacted groundwater times the percent of hydrocarbon constituent present in the groundwater.

Mass of TPHg = (1.17 x 10^6 lbs x 19.7 lbs TPHg)/1x 10^6 lbs H_2O = **23.05 lbs TPHg in water**

MTBE

Volume of impacted groundwater = 80' x 120' x 12.5' = 120,000 ft^3

Weight of impacted groundwater = 120,000 ft^3 x 0.40 x 62.4 lbs/ft^3 = 2.99 x 10^6 lbs water

Average MtBE concentration = (160+360+240+7.1+270)/5 = 207.5 ppb = 0.208 ppm

Mass of MtBE = Weight of impacted groundwater times the percent of hydrocarbon constituent present in the groundwater.

Mass of MtBE = (2.99 x 10^6 lbs x 0.208 lbs MTBE)/1x 10^6 lbs H_2O = **0.62 lbs MTBE in water**

APPENDIX B

LABORATORY ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY RECORDS

PTS Laboratories
Geotechnical Services
8100 Secura Way • Santa Fe Springs • CA 90670
Phone (562) 907-3607 • Fax (562) 907-3610

October 15, 2002

Mr. David Vossler
Gettler Ryan
1364 N. McDonell Blvd. St. B-2
Petaluma, CA 94934

Re: TOSCO #7004
PTS File: 32448

Dear Mr. Vossler:

Enclosed are final data for your TOSCO #7004 Project # 140106.06. All analyses were performed by applicable ASTM, EPA or API methodology. Samples will be retained for 30 days before disposal unless other arrangements are made.

We appreciate the opportunity to be of service and trust these data will prove beneficial in the development of this project. Please feel free to call me at (562) 907-3607 should you have any questions or require additional information.

Sincerely,

PTS Laboratories, Inc.

Larry Kunkel
District Manager

LK/vk

encl.

PHYSICAL PROPERTIES DATA

(METHODOLOGY: ASTM D2216, ASTM D2937, API RP40, EPA 9045, WALKLEY BLACK, ASTM D5084)

PROJECT NAME: TOSCO #7004
PROJECT NO: 140106.06

SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENT. (1)	MOISTURE CONTENT (% wt)	BULK DENSITY (g/cc)	TOTAL POROSITY, % Vb	SOIL Ph	TOTAL ORGANIC CARBON mg/kg	25.0 PSI CONFINING STRESS	
								NATIVE STATE EFFECTIVE PERMEABILITY TO WATER (4,5) (millidarcy)	NATIVE STATE EFFECTIVE HYDRAULIC CONDUCTIVITY (4,5) (cm/s)
G-5 (S11)	11.0	V	27.3	1.52	42.1	7.65	2650	1.32	1.33E-06

(1) Sample Orientation: H = horizontal; V = vertical (2) Total Porosity = no pore fluids in place; all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids (3) Water = 0.9981 g/cc; Hydrocarbon = 0.7500 g/cc (4) Native State = As received with pore fluids in place (5) Permeability to water and conductivity measured at saturated conditions Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories, Inc.

Gettler Ryan
PTS File No: 32448

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/4464M)

PROJECT NAME: Tosco #7004
PROJECT NO: 140106.06

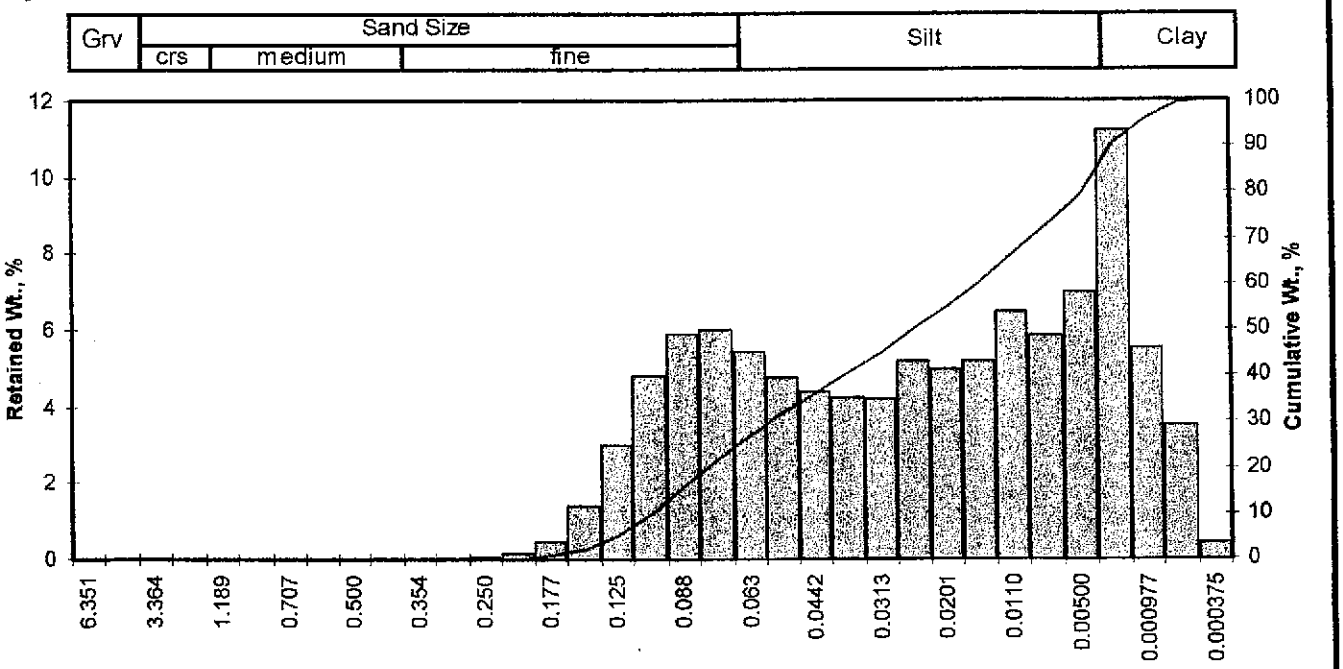
Sample ID	Depth, ft.	Grain Size Description (1)	Median Grain Size, mm	Particle Size Distribution, wt. percent						Silt & Clay
				Gravel	Sand Size			Silt	Clay	
					Coarse	Medium	Fine			
G-5 (S11)	11.00	Silt	0.025	0.00	0.00	0.00	21.74	57.62	20.64	78.26

(1) based on Mean from Trask

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	Gettler Ryan	**PTS File No:**	32448
Project:	Tosco #7004	**Sample ID:**	G-5 (S11)
Project No:	140106	**Depth, ft:**	11.00



Opening		Phi of	U.S.	Sample Weight,	Increment Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.00	0.00	0.00
0.0234	0.595	0.75	30	0.00	0.00	0.00
0.0197	0.500	1.00	35	0.00	0.00	0.00
0.0166	0.420	1.25	40	0.00	0.00	0.00
0.0139	0.354	1.50	45	0.00	0.00	0.00
0.0117	0.297	1.75	50	0.00	0.00	0.00
0.0098	0.250	2.00	60	0.03	0.03	0.03
0.0083	0.210	2.25	70	0.15	0.15	0.18
0.0070	0.177	2.50	80	0.48	0.48	0.66
0.0059	0.149	2.75	100	1.39	1.39	2.05
0.0049	0.125	3.00	120	3.00	3.00	5.05
0.0041	0.105	3.25	140	4.80	4.80	9.85
0.0035	0.088	3.50	170	5.89	5.89	15.74
0.0029	0.074	3.75	200	6.00	6.00	21.74
0.0025	0.063	4.00	230	5.42	5.42	27.16
0.0021	0.053	4.25	270	4.76	4.76	31.92
0.00174	0.0442	4.50	325	4.38	4.38	36.30
0.00146	0.0372	4.75	400	4.26	4.26	40.56
0.00123	0.0313	5.00	450	4.18	4.18	44.74
0.000986	0.0250	5.32	500	5.17	5.17	49.91
0.000790	0.0201	5.64	635	4.97	4.97	54.89
0.000615	0.0156	6.00		5.19	5.19	60.08
0.000435	0.0110	6.50		6.45	6.45	66.53
0.000308	0.00781	7.00		5.87	5.87	72.40
0.000197	0.00500	7.65		6.96	6.96	79.36
0.000077	0.00195	9.00		11.20	11.20	90.56
0.000038	0.000977	10.00		5.54	5.54	96.10
0.000019	0.000488	11.00		3.51	3.51	99.61
0.000015	0.000375	11.38		0.39	0.39	100.00
TOTALS				100.00	100.00	100.00

Cumulative Weight Percent greater than			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	3.00	0.0049	0.125
10	3.26	0.0041	0.105
16	3.51	0.0035	0.088
25	3.90	0.0026	0.067
40	4.72	0.0015	0.038
50	5.33	0.0010	0.025
60	5.99	0.0006	0.016
75	7.24	0.0003	0.007
84	8.21	0.0001	0.003
90	8.93	0.0001	0.002
95	9.80	0.0000	0.001

Measure	Trask	Inman	Folk-Ward
Median, phi	5.33	5.33	5.33
Median, in.	0.0010	0.0010	0.0010
Median, mm	0.025	0.025	0.025
Mean, phi	4.76	5.86	5.68
Mean, in.	0.0014	0.0007	0.0008
Mean, mm	0.037	0.017	0.019
Sorting	3.183	2.348	2.205
Skewness	0.844	0.227	0.271
Kurtosis	0.294	0.449	0.835
Grain Size Description (ASTM-USCS Scale)		Silt (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	0.00
Fine Sand	200	21.74
Silt	>0.005 mm	57.62
Clay	<0.005 mm	20.64
	Total	100

Phone: (562) 907-3607 Fax: (562) 907-3610

DATE PTS FILE # 32448 **CHAIN OF CUSTODY RECORD** PAGE 1 OF 1

PTS Laboratories, Inc.
8100 Secura Way
Santa Fe Springs, CA 90670
Ph: (310) 907-3607 • Fax: (310) 907-3610

COMPANY: Getter - Ryan	PROJECT MANAGER: Dave Vossler
PROJECT NAME: Tosco # 7004	FAX NUMBER: ~~707~~ - ~~789~~ - 3218
PROJECT NUMBER: 140 106.06	PHONE NUMBER: 707-789-3255
SITE LOCATION: 15599 Hesperian, San Leandro CA	ADDRESS
SAMPLER SIGNATURE:	

ANALYSIS REQUEST

SAMPLE ID NUMBER	DATE	TIME	DEPTH, FT	PHYSICAL PROPERTIES PACKAGE, API RP40	MOISTURE CONTENT, ASTM D2216	POROSITY, API RP40	GRAIN DENSITY, API RP40	BULK DENSITY, ~~API RP40~~ ASTM D2937	AIR PERMEABILITY, API RP40	SPECIFIC RETENTION/YEILD ASTM D425	CATION EXCHANGE CAPACITY, EPA 9080	SOIL pH, EPA 9045	GRAIN SIZE: DRY, 400 MESH	GRAIN SIZE: WET/DRY, 20 MICRON	GRAIN SIZE: LASER; 1 MICRON + Sieve	HYDRAULIC CONDUCTIVITY, EPA 9100, API RP40	TOC: ~~EPA 9060~~ Walkley - Black	Permeability V-ASTM 5084	NUMBER OF SAMPLES	COMMENTS
					X															
G-5 (S11)	9/20/02	1300	11		X	X		X				X			X	X	X	X		not Hydraulic conduct

PO#

SPECIAL HANDLING
24 HOURS 5 DAYS
72 HOURS NORMAL
OTHER

SAMPLE CONDITIONS
RECEIVED ON ICE YES/NO
SEALED YES/NO
OTHER YES/NO

1. RELINQUISHED BY	2. RECEIVED BY: FEDEX	3. RELINQUISHED BY: FEDEX	4. RECEIVED BY
COMPANY: GRI	COMPANY	COMPANY	COMPANY: PTS LABS
DATE: 10/3/02 TIME: 1600	DATE TIME	DATE TIME	DATE: 04 OCT 02 TIME: 0900

PHYSICAL PROPERTIES DATA

(METHODOLOGY: ASTM D2216, ASTM D2937, API RP40, EPA 9045, WALKLEY BLACK, ASTM D5084)

PROJECT NAME: TOSCO #7004
PROJECT NO: 140106.06

SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENT. (1)	MOISTURE CONTENT (% wt)	BULK DENSITY (g/cc)	TOTAL POROSITY, % Vb	SOIL Ph	TOTAL ORGANIC CARBON mg/kg	25.0 PSI CONFINING STRESS	
								NATIVE STATE EFFECTIVE PERMEABILITY TO WATER (4,5) (millidarcy)	NATIVE STATE EFFECTIVE HYDRAULIC CONDUCTIVITY (4,5) (cm/s)
G-5 (S11)	11.0	V	27.3	1.52	42.1	7.65	2650	1.32	1.33E-06

(1) Sample Orientation: H = horizontal; V = vertical (2) Total Porosity = no pore fluids in place; all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids (3) Water = 0.9981 g/cc; Hydrocarbon = 0.7500 g/cc (4) Native State = As received with pore fluids in place (5) Permeability to water and conductivity measured at saturated conditions Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories, Inc.

Gettler Ryan
PTS File No: 32448

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D422/4464M)

PROJECT NAME: Tosco #7004
PROJECT NO: 140106.06

Sample ID	Depth, ft.	Grain Size Description (1)	Median Grain Size, mm	Particle Size Distribution, wt. percent						Silt & Clay
				Gravel	Sand Size			Silt	Clay	
					Coarse	Medium	Fine			
G-5 (S11)	11.00	Silt	0.025	0.00	0.00	0.00	21.74	57.62	20.64	78.26

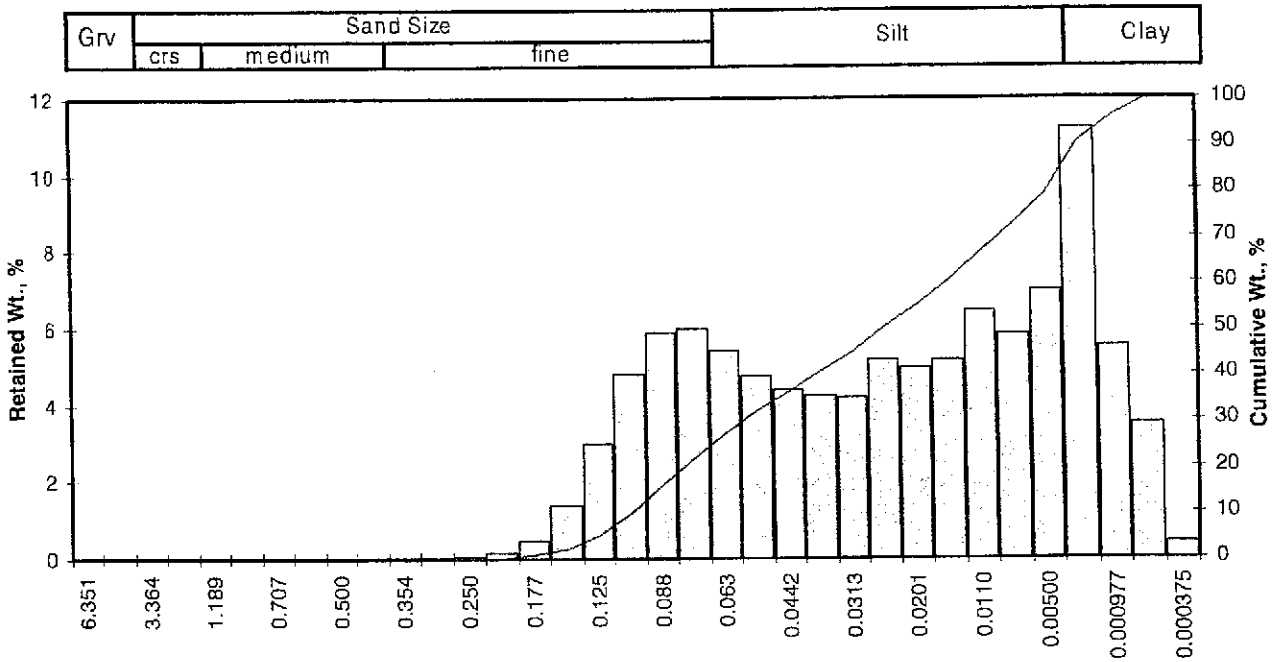
(1) based on Mean from Trask

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client: Gettler Ryan
Project: Tosco #7004
Project No: 140106

PTS File No: 32448
Sample ID: G-5 (S11)
Depth, ft: 11.00



Particle Size, mm

Opening		Phi of	U.S.	Sample	Increment	Cumulative
Inches	Millimeters	Screen	No.	Weight, grams	Weight, percent	Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.00	0.00	0.00
0.0331	0.841	0.25	20	0.00	0.00	0.00
0.0278	0.707	0.50	25	0.00	0.00	0.00
0.0234	0.595	0.75	30	0.00	0.00	0.00
0.0197	0.500	1.00	35	0.00	0.00	0.00
0.0166	0.420	1.25	40	0.00	0.00	0.00
0.0139	0.354	1.50	45	0.00	0.00	0.00
0.0117	0.297	1.75	50	0.00	0.00	0.00
0.0098	0.250	2.00	60	0.03	0.03	0.03
0.0083	0.210	2.25	70	0.15	0.15	0.18
0.0070	0.177	2.50	80	0.48	0.48	0.66
0.0059	0.149	2.75	100	1.39	1.39	2.05
0.0049	0.125	3.00	120	3.00	3.00	5.05
0.0041	0.105	3.25	140	4.80	4.80	9.85
0.0035	0.088	3.50	170	5.89	5.89	15.74
0.0029	0.074	3.75	200	6.00	6.00	21.74
0.0025	0.063	4.00	230	5.42	5.42	27.16
0.0021	0.053	4.25	270	4.76	4.76	31.92
0.00174	0.0442	4.50	325	4.38	4.38	36.30
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0.000790	0.0201	5.64	635	4.97	4.97	54.89
0.000615	0.0156	6.00		5.19	5.19	60.08
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0.000308	0.00781	7.00		5.87	5.87	72.40
0.000197	0.00500	7.65		6.96	6.96	79.36
0.000077	0.00195	9.00		11.20	11.20	90.56
0.000038	0.000977	10.00		5.54	5.54	96.10
0.000019	0.000488	11.00		3.51	3.51	99.61
0.000015	0.000375	11.38		0.39	0.39	100.00
TOTALS				100.00	100.00	100.00

Cumulative Weight Percent greater than

Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5	3.00	0.0049	0.125
10	3.26	0.0041	0.105
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75	7.24	0.0003	0.007
84	8.21	0.0001	0.003
90	8.93	0.0001	0.002
95	9.80	0.0000	0.001

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Mean, in.	0.0014	0.0007	0.0008
Mean, mm	0.037	0.017	0.019
Sorting	3.183	2.348	2.205
Skewness	0.844	0.227	0.271
Kurtosis	0.294	0.449	0.835
Grain Size Description (ASTM-USCS Scale)		Silt (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	0.00
Fine Sand	200	21.74
Silt	>0.005 mm	57.62
Clay	<0.005 mm	20.64
	Total	100

Phone: (562) 907-3607
Fax: (562) 907-3610

Submission#: 2002-10-0137

October 15, 2002

SEVERN TRENT LABORATORY

STL San Francisco
1220 Quarry Ln
Pleasanton CA 94566

Tel.: (925) 484-1919
Fax: (925) 484-1096
www.stl-inc.com
www.chromalab.com

CA DHS ELAP#:2496

Gettler Ryan
6747 Sierra Court Suite J
Dublin, CA 94568
Attn.: Deanna Harding

Project#: 140106.06
Project: Tosco #7004
Site: 15599 Hesperian Blvd.
San Leandro, CA

Dear Ms. Harding,

Attached is our report for your samples received on 10/04/2002 15:30
This report has been reviewed and approved for release. Reproduction of this report is permitted only in its entirety.

Please note that any unused portion of the samples will be discarded after 11/18/2002 unless you have requested otherwise.
We appreciate the opportunity to be of service to you. If you have any questions, please call me at (925) 484-1919.
You can also contact me via email. My email address is: tgranicher@chromalab.com

Sincerely,

Tod Granicher
Project Manager

CofC - RBCA - MTCA - VPH Package

5-7
7-8

Always have Angela Cerimele named on CofC.

Submission #: 2002-10-0137

SEVERN TRENT LABORATORY

Gas/BTEX Fuel Oxygenates by 8260B

Gettler Ryan

Attn.: Deanna Harding
6747 Sierra Court Suite J
Dublin, CA 94568
Phone: (925) 551-7444 Fax: (925) 551-7899

STL San Francisco
1220 Quarry Lane
Pleasanton, CA 94566

Tel: (925) 484-1919
Fax: (925) 484-1096
www.stl-inc.com
www.chromalab.com

CA DHS ELAP# 2496

Project: 140106.06
Tosco #7004

Received: 10/04/2002 15:30

Site: 15599 Hesperian Blvd.
San Leandro, CA

Samples Reported

Sample Name	Date Sampled	Matrix	Lab #
MW-3	10/04/2002 14:00	Water	1

Submission #: 2002-10-0137

Gas/BTEX Fuel Oxygenates by 8260B

Gettler Ryan

Attn.: Deanna Harding
6747 Sierra Court Suite J
Dublin, CA 94568
Phone: (925) 551-7444 Fax: (925) 551-7899

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www.chromalab.com

CA DHS ELAP# 2496

Prep(s): 5030B
Test(s): 8260FAB
Sample ID: **MW-3**
Lab ID: 2002-10-0137 - 1
Sampled: 10/04/2002 14:00
Extracted: 10/10/2002 18:02
Matrix: Water
QC Batch#: 2002/10/10-01.62
Analysis Flag: o (See Legend and Note Section)

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Gasoline	6500	500	ug/L	10.00	10/10/2002 18:02	
Benzene	ND	5.0	ug/L	10.00	10/10/2002 18:02	
Toluene	ND	5.0	ug/L	10.00	10/10/2002 18:02	
Ethylbenzene	1100	5.0	ug/L	10.00	10/10/2002 18:02	
Total xylenes	ND	10	ug/L	10.00	10/10/2002 18:02	
tert-Butyl alcohol (TBA)	ND	1000	ug/L	10.00	10/10/2002 18:02	
Methyl tert-butyl ether (MTBE)	ND	20	ug/L	10.00	10/10/2002 18:02	
Di-isopropyl Ether (DIPE)	ND	20	ug/L	10.00	10/10/2002 18:02	
Ethyl tert-butyl ether (ETBE)	ND	20	ug/L	10.00	10/10/2002 18:02	
tert-Amyl methyl ether (TAME)	ND	20	ug/L	10.00	10/10/2002 18:02	
1,2-DCA	ND	20	ug/L	10.00	10/10/2002 18:02	
EDB	ND	20	ug/L	10.00	10/10/2002 18:02	
Ethanol	ND	5000	ug/L	10.00	10/10/2002 18:02	
Surrogates(s)						
1,2-Dichloroethane-d4	87.6	76-114	%	10.00	10/10/2002 18:02	
Toluene-d8	98.9	88-110	%	10.00	10/10/2002 18:02	

Submission #: 2002-10-0137

Gas/BTEX Fuel Oxygenates by 8260B

Gettler Ryan

Attn.: Deanna Harding
6747 Sierra Court Suite J
Dublin, CA 94568
Phone: (925) 551-7444 Fax: (925) 551-7899

Project: 140106.06
Tosco #7004

Received: 10/04/2002 15:30

Site: 15599 Hesperian Blvd.
San Leandro, CA

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CA DHS ELAP# 2496

Batch QC Report

Prep(s): 5030B
Method Blank
MB: 2002/10/10-01.62-053

Water

Test(s): 8260FAB
QC Batch # 2002/10/10-01.62
Date Extracted: 10/10/2002 12:35

Compound	Conc.	RL	Unit	Analyzed	Flag
Gasoline	ND	50	ug/L	10/10/2002 12:35	
Benzene	ND	0.5	ug/L	10/10/2002 12:35	
Toluene	ND	0.5	ug/L	10/10/2002 12:35	
Ethylbenzene	ND	0.5	ug/L	10/10/2002 12:35	
Total xylenes	ND	1.0	ug/L	10/10/2002 12:35	
tert-Butyl alcohol (TBA)	ND	100	ug/L	10/10/2002 12:35	
Methyl tert-butyl ether (MTBE)	ND	2.0	ug/L	10/10/2002 12:35	
Di-isopropyl Ether (DIPE)	ND	2.0	ug/L	10/10/2002 12:35	
Ethyl tert-butyl ether (ETBE)	ND	2.0	ug/L	10/10/2002 12:35	
tert-Amyl methyl ether (TAME)	ND	2.0	ug/L	10/10/2002 12:35	
1,2-DCA	ND	2.0	ug/L	10/10/2002 12:35	
EDB	ND	2.0	ug/L	10/10/2002 12:35	
Ethanol	ND	500	ug/L	10/10/2002 12:35	
Surrogates(s)					
1,2-Dichloroethane-d4	84.4	76-114	%	10/10/2002 12:35	
Toluene-d8	98.8	88-110	%	10/10/2002 12:35	

Submission #: 2002-10-0137

Gas/BTEX Fuel Oxygenates by 8260B

Gettler Ryan

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Project: 140106.06
Tosco #7004

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CA DHS ELAP# 2496

Batch QC Report

Prep(s): 5030B

Test(s): 8260B

Laboratory Control Spike **Water** **QC Batch # 2002/10/10-01.62**

LCS 2002/10/10-01.62-051 Extracted: 10/10/2002 Analyzed: 10/10/2002 11:51
LCSD 2002/10/10-01.62-013 Extracted: 10/10/2002 Analyzed: 10/10/2002 12:13

Compound	Conc. ug/L		Exp.Conc.	Recovery		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD	%	Rec.	RPD	LCS	LCSD
Methyl tert-butyl ether (MTBE)	25.5	25.5	25.0	102.0	102.0	0.0	65-165	20		
Benzene	23.4	23.7	25.0	93.6	94.8	1.3	69-129	20		
Toluene	25.3	25.0	25.0	101.2	100.0	1.2	70-130	20		
Surrogates(s)										
1,2-Dichloroethane-d4	506	508	500	101.2	101.6		76-114			
Toluene-d8	500	486	500	100.0	97.2		88-110			

Submission #: 2002-10-0137

Gas/BTEX Fuel Oxygenates by 8260B

Gettler Ryan

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Project: 140106.06
Tosco #7004

Received: 10/04/2002 15:30

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Tel: (925) 484-1919
Fax: (925) 484-1096
www.sti-inc.com
www.chromalab.com

CA DHS ELAP# 2496

Legend and Notes

Analysis Flag

o

Reporting limits were raised due to high level of analyte present in the sample.

Sequoia Analytical

1455 McDowell Blvd. North Ste D
Petaluma, CA 94954
(707) 792-1865
FAX (707) 792-0342
www.sequoialabs.com

13 December, 2002

Dave Vossler
Gettler - Ryan Inc.
1364 North Mc Dowell Blvd., Suite B2
Petaluma, CA 94954-1116

RE: TOSCO/PHILLIPS
Sequoia Work Order: P211636

Enclosed are the results of analyses for samples received by the laboratory on 11/26/02 14:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Angelee Cari

Angelee Cari
Project Manager

CA ELAP Certificate #2374

Gettler - Ryan Inc. 1364 North Mc Dowell Blvd., Suite B2 Petaluma CA, 94954-1116	Project: TOSCO/PHILLIPS Project Number: Tosco 7004, San Leandro Project Manager: Dave Vossler	P211636 **Reported:** 12/13/02 17:28

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-3	P211636-01	Water	11/25/02 13:00	11/26/02 14:00

Gettler - Ryan Inc. 1364 North Mc Dowell Blvd., Suite B2 Petaluma CA, 94954-1116	Project: TOSCO/PHILLIPS Project Number: Tosco 7004, San Leandro Project Manager: Dave Vossler	P211636 **Reported:** 12/13/02 17:28

Volatile Petroleum Hydrocarbons by WDOE TPH Policy Method

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-3 (P211636-01) Water **Sampled:** 11/25/02 13:00 **Received:** 11/26/02 14:00									
C5-C6 Aliphatics	ND	500	ug/l	10	2L06002	12/06/02	12/06/02	WA MTCA-VPH	
C6-C8 Aliphatics	**891**	500	"	"	"	"	"	"	
C8-C10 Aliphatics	ND	500	"	"	"	"	"	"	
C10-C12 Aliphatics	**1100**	500	"	"	"	"	"	"	
C8-C10 Aromatics	**1880**	500	"	"	"	"	"	"	
C10-C12 Aromatics	**1730**	500	"	"	"	"	"	"	
C12-C13 Aromatics	ND	500	"	"	"	"	"	"	
Total VPH (TVPH)	**5600**	500	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)		*180 %*	*60-140*		"	"	"	"	*S-04*
Surrogate: 4-BFB (PID)		*136 %*	*62-120*		"	"	"	"	*S-04*

Gettler - Ryan Inc.	Project: TOSCO/PHILLIPS	P211636
1364 North Mc Dowell Blvd., Suite B2	Project Number: Tosco 7004, San Leandro	**Reported:**
Petaluma CA, 94954-1116	Project Manager: Dave Vossler	12/13/02 17:28

BTEX, MTBE, Naphthalene, and n-Hexane by WA VPH

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-3 (P211636-01) Water **Sampled: 11/25/02 13:00** **Received: 11/26/02 14:00**									
Methyl tert-butyl ether	ND	100	ug/l	20	2L03032	12/03/02	12/03/02	EPA 8260B	
Benzene	ND	20.0	"	"	"	"	"	"	
Toluene	ND	20.0	"	"	"	"	"	"	
Ethylbenzene	**804**	20.0	"	"	"	"	"	"	
m,p-Xylene	ND	40.0	"	"	"	"	"	"	
o-Xylene	ND	20.0	"	"	"	"	"	"	
Naphthalene	**248**	20.0	"	"	"	"	"	"	
n-Hexane	ND	40.0	"	"	"	"	"	"	
Surrogate: 1,2-DCA-d4		*99.5 %*		*73-137*	"	"	"	"	
Surrogate: Toluene-d8		*99.5 %*		*75-124*	"	"	"	"	
Surrogate: 4-BFB		*100 %*		*77-120*	"	"	"	"	

Volatile Petroleum Hydrocarbons by WDOE TPH Policy Method - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2L06002 - EPA 5030B (P/T)										
Blank (2L06002-BLK1)				Prepared & Analyzed: 12/06/02						
C5-C6 Aliphatics	ND	50.0	ug/l							
C6-C8 Aliphatics	ND	50.0	"							
C8-C10 Aliphatics	ND	50.0	"							
C10-C12 Aliphatics	ND	50.0	"							
C8-C10 Aromatics	ND	50.0	"							
C10-C12 Aromatics	ND	50.0	"							
C12-C13 Aromatics	ND	50.0	"							
Total VPH (TVPH)	ND	50.0	"							
Surrogate: 4-BFB (FID)	*41.8*		"	*48.0*		*87.1*	*60-140*			
Surrogate: 4-BFB (PID)	*42.9*		"	*48.0*		*89.4*	*62-120*			
Laboratory Control Sample (2L06002-BS1)				Prepared & Analyzed: 12/06/02						
Total VPH (TVPH)	199	50.0	ug/l	200		99.5	70-130			
Surrogate: 4-BFB (FID)	*43.3*		"	*48.0*		*90.2*	*60-140*			
Surrogate: 4-BFB (PID)	*44.7*		"	*48.0*		*93.1*	*62-120*			
Laboratory Control Sample Dup (2L06002-BSD1)				Prepared & Analyzed: 12/06/02						
Total VPH (TVPH)	206	50.0	ug/l	200		103	70-130	3.46	25	
Surrogate: 4-BFB (FID)	*44.3*		"	*48.0*		*92.3*	*60-140*			
Surrogate: 4-BFB (PID)	*44.5*		"	*48.0*		*92.7*	*62-120*			
Matrix Spike (2L06002-MS1)		**Source: B2L0116-03**		Prepared & Analyzed: 12/06/02						
Total VPH (TVPH)	217	50.0	ug/l	200	0.00	108	70-130			
Surrogate: 4-BFB (FID)	*42.8*		"	*48.0*		*89.2*	*60-140*			
Surrogate: 4-BFB (PID)	*43.5*		"	*48.0*		*90.6*	*62-120*			
Matrix Spike Dup (2L06002-MSD1)		**Source: B2L0116-03**		Prepared & Analyzed: 12/06/02						
Total VPH (TVPH)	209	50.0	ug/l	200	0.00	104	70-130	3.76	25	
Surrogate: 4-BFB (FID)	*43.6*		"	*48.0*		*90.8*	*60-140*			
Surrogate: 4-BFB (PID)	*43.3*		"	*48.0*		*90.2*	*62-120*			

Gettler - Ryan Inc.	Project: TOSCO/PHILLIPS	P211636
1364 North Mc Dowell Blvd., Suite B2	Project Number: Tosco 7004, San Leandro	**Reported:**
Petaluma CA, 94954-1116	Project Manager: Dave Vossler	12/13/02 17:28

BTEX, MTBE, Naphthalene, and n-Hexane by WA VPH - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2L03032 - EPA 5030B										
Blank (2L03032-BLK1)				Prepared & Analyzed: 12/03/02						
Methyl tert-butyl ether	ND	5.00	ug/l							
Benzene	ND	1.00	"							
Toluene	ND	1.00	"							
Ethylbenzene	ND	1.00	"							
m,p-Xylene	ND	2.00	"							
o-Xylene	ND	1.00	"							
Naphthalene	ND	1.00	"							
n-Hexane	ND	2.00	"							
Surrogate: 1,2-DCA-d4	*19.5*		"	*20.0*		*97.5*	*73-137*			
Surrogate: Toluene-d8	*19.7*		"	*20.0*		*98.5*	*75-124*			
Surrogate: 4-BFB	*20.1*		"	*20.0*		*100*	*77-120*			
Laboratory Control Sample (2L03032-BS1)				Prepared & Analyzed: 12/03/02						
Benzene	9.66	1.00	ug/l	10.0		96.6	80-120			
Toluene	9.83	1.00	"	10.0		98.3	80-120			
Surrogate: 1,2-DCA-d4	*20.2*		"	*20.0*		*101*	*73-137*			
Surrogate: Toluene-d8	*20.1*		"	*20.0*		*100*	*75-124*			
Surrogate: 4-BFB	*20.2*		"	*20.0*		*101*	*77-120*			
Laboratory Control Sample Dup (2L03032-BSD1)				Prepared & Analyzed: 12/03/02						
Benzene	9.40	1.00	ug/l	10.0		94.0	80-120	2.73	20	
Toluene	9.44	1.00	"	10.0		94.4	80-120	4.05	20	
Surrogate: 1,2-DCA-d4	*19.8*		"	*20.0*		*99.0*	*73-137*			
Surrogate: Toluene-d8	*19.9*		"	*20.0*		*99.5*	*75-124*			
Surrogate: 4-BFB	*20.5*		"	*20.0*		*102*	*77-120*			
Matrix Spike (2L03032-MS1)	**Source: P211636-01**			Prepared & Analyzed: 12/03/02						
Benzene	197	20.0	ug/l	200	ND	98.5	75-125			
Toluene	198	20.0	"	200	ND	99.0	72-125			
Surrogate: 1,2-DCA-d4	*19.2*		"	*20.0*		*96.0*	*73-137*			
Surrogate: Toluene-d8	*19.8*		"	*20.0*		*99.0*	*75-124*			
Surrogate: 4-BFB	*20.0*		"	*20.0*		*100*	*77-120*			

Gettler - Ryan Inc.	Project: TOSCO/PHILLIPS	P211636
1364 North Mc Dowell Blvd., Suite B2	Project Number: Tosco 7004, San Leandro	Reported:
Petaluma CA, 94954-1116	Project Manager: Dave Vossler	12/13/02 17:28

BTEX, MTBE, Naphthalene, and n-Hexane by WA VPH - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2L03032 - EPA 5030B										
Matrix Spike Dup (2L03032-MSD1)	**Source: P211636-01**			Prepared & Analyzed: 12/03/02						
Benzene	189	20.0	ug/l	200	ND	94.5	75-125	4.15	20	
Toluene	192	20.0	"	200	ND	96.0	72-125	3.08	20	
Surrogate: 1,2-DCA-d4	*19.4*		"	*20.0*		*97.0*	*73-137*			
Surrogate: Toluene-d8	*19.9*		"	*20.0*		*99.5*	*75-124*			
Surrogate: 4-BFB	*20.5*		"	*20.0*		*102*	*77-120*			

Notes and Definitions

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

№ 007656

TOSCO

☐ 885 Jarvis Drive • Morgan Hill, CA 95037 • (408) 776-9600 • FAX (408) 782-6308
☐ 819 Striker Ave., Suite 8 • Sacramento, CA 95834 • (916) 921-9600 • FAX (916) 921-0100
☐ 404 N. Wiget Lane • Walnut Creek, CA 94598 • (925) 988-9600 • FAX (925) 988-9673
☒ 1455 McDowell Blvd. North, Suite D • Petaluma, CA 94954 • (707) 792-1865 • FAX (707) 792-0342
☐ 1551 Industrial Road • San Carlos, CA 94070 • (650) 232-9600 • FAX (650) 232-9612

Consultant Company: Gettler-Ryan Inc. 140806.06	Tosco Engineer: David B. DeWitt
Address: 1364 North McDowell Blvd, Suite B2	Site #: 7004, GID T0600101145
City: Petaluma State: CA Zip Code: 94954	Site Address: 15579 Hesperian BLVD.
Telephone: 707-789-3255 Fax #: 707-789-3218	City, State: San Leandro, CA
Report To: Dave Vooster Sampler: Andrew Smith	QC Data: ☒ Level D (Standard) ☐ Level C ☐ Level B ☐ Level A

Turnaround Time: ☒ 10 Work Days ☐ 5 Work Days ☐ 3 Work Days ☐ 2 Work Days ☐ 1 Work Day ☐ 2-8 Hours

☐ Drinking Water ☐ Waste Water ☒ Other

Project Coding:

Analyses Requested

Client Sample I.D.	Date/Time Sampled	Matrix Desc.	# of Cont.	Cont. Type	Sequoia's Sample #	TPHg/BTEX/MTBE	TPH Diesel (8015)	TOG (418.1)	Oxygenates (6) 8260	Oxygenates (6)+EDB 1,2 DCA (8260)	MTCA VPH Ranges (w/ MTCA - VPH)	MTCA - VPH (8260B)	Comments
1. MW-3AS	11/25/02 / 1300	H2O	6	VOAS	211636-01						X	X	Attention: MS. Angelee Cari, Per Dave Vooster
2.													
3.													
4.													
5.													
6.													
7.													
8.													
9.													
10.													

COOLER CUSTODY SEALS INTACT ☐
NOT INTACT ☐
COOLER TEMPERATURE 3.1 °F

Relinquished By:	Date: 11/26/02	Time: 1245	Received By: Michael Gorin	Date: 11/26/02	Time: 1245
Relinquished By: Michael Gorin	Date: 11/26/02	Time: 1245	Received By:	Date: 11-26	Time: 1245
Relinquished By:	Date: 11-26	Time:	Received By:	Date: 11/26	Time: 1442

Were Samples Received in Good Condition? ☐ Yes ☐ No Samples on Ice? ☐ Yes ☐ No Method of Shipment _____ Page ____ of ____

To be completed upon receipt of report:

1) Were the analyses requested on the Chain of Custody reported? ☐ Yes ☐ No If no, what analyses are still needed? _____

2) Was the report issued within the requested turnaround time? ☐ Yes ☐ No If no, what was the turnaround time? _____

Approved by: _____ Signature: _____ Company: _____ Date: _____

Pink - Client
Yellow - Sequoia
White - Sequoia

APPENDIX C

RISK-BASED CORRECTIVE ACTION

Main Screen

RBCA Tool Kit for Chemical Releases
Version 1.3a © 2000

1. Project Information

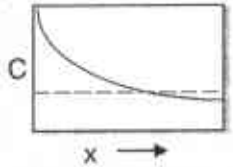
Site Name:	Former Tosco Station No. 7004		
Location:	15599 Hesperian Blvd., San Leandro, CA		
Compl. By:	J. Douglas		
Date:	28-Mar-03	Job ID:	140106.5

2. Which Type of RBCA Analysis?

○ **Tier 1**

Generic Values
On-Site
Exposure

◉ **Tier 2**



Site-Specific Values
On- or Off-Site Exposure

3. Calculation Options

Affects which input data are required

☑ ***Baseline Risks (Forward mode)***

☑ ***RBCA Cleanup Standards (Backward mode)***

4. RBCA Evaluation Process

Prepare Input Data

Data Complete? (■= yes, ■= no)

- ■□ Exposure Pathways
- ■□ Constituents of Concern (COCs)
- ■□ Transport Models
- ■□ Soil Parameters
- ■□ GW Parameters
- ■□ Air Parameters

Review Output

- Exposure Flowchart
- COC Chem. Parameters
- Input Data Summary
- User-Spec. COC Data...
- Transient Domenico Analysis...
- Baseline Risks...
- Cleanup Standards...

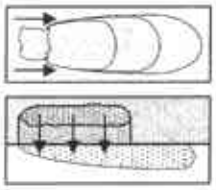
5. Commands and Options

New Site	Load Data...	Save Data As...	Quit
Print Sheet	Set Units	Custom Chem. Data...	*Help*

Exposure Pathway Identification

Site Name: Former Tosco Station No. 7004
Location: 15599 Hesperian Blvd., San Leandro, CA
Compl. By: J. Douglas
Job ID: 140106.5 Date: 28-Mar-03

1. Groundwater Exposure



Groundwater Ingestion/ Surface Water Impact

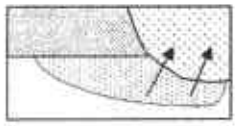
Receptor	Res.	Res.	S.W.
Type:	On-site	Off-site1	Off-site2

Source Media:

Distance to GW receptors

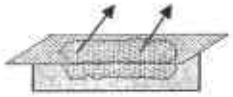
		On-site	Off-site1	Off-site2	
☑	Affected Groundwater	0	1650	700	(ft)
☑	Affected Soils Leaching to Groundwater	0	1650	700	(ft)

GW Discharge to Surface Water Exposure



- ☑ Swimming
- ☑ Fish Consumption
- ☑ Aquatic Life Protection
- ■ □ Enter ALP Criteria

2. Surface Soil Exposure

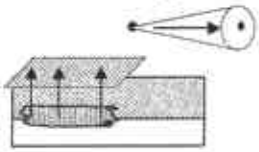


Direct Ingestion and Dermal Contact

Receptor	None	No off-site receptors
Type:	On-site	

☐

3. Air Exposure

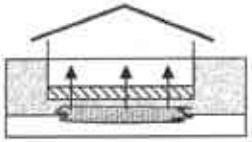


Volatilization and Particulates to Outdoor Air Inhalation

Receptor	Res.	None	None
Type:	On-site	Off-site1	Off-site2
	0		(ft)

Construction worker ☐

- ☑ Affected Soils--Volatilization to Ambient Outdoor Air
- ☑ Affected Groundwater--Volatilization to Ambient Outdoor Air
- ☐ Affected Surface Soils--Particulates to Ambient Outdoor Air



Volatilization to Indoor Air Inhalation

Receptor	Res.	No off-site receptors
Type:	On-site	

- ☑ Affected Soils--Volatilization to Enclosed Space
- ☑ Affected Groundwater--Volatilization to Enclosed Space

4. Commands and Options

Main Screen | Print Sheet | Set Units | Help

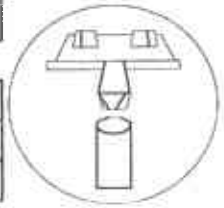
■ □ Exposure Factors & Target Risks | Exposure Flowchart

Exposure Factors and Target Risk Limits

Site Name: Former Tosco Station No. 7004
Location: 15599 Hesperian Blvd., San Leandro, CA
Compl. By: J. Douglas
Job ID: 140106.5 Date: 28-Mar-03

1. Exposure Parameters

		Residential			Commercial	
Age Adjustment?		Adult	(Age 0-6)	(Age 0-16)	Chronic	Construc
Averaging time, carcinogens (yr)		70				
Averaging time, non-carcinogens (yr)		30			25	1
Body weight (kg)		70	15	35	70	
Exposure duration (yr)		30	6	16	25	1
Exposure frequency (days/yr)		350			250	180
Dermal exposure frequency (days/yr)		350			250	
Skin surface area, soil contact (cm^2)	☐	5800		2023	5800	5800
Soil dermal adherence factor ($mg/cm^2/day$)		1				
Water ingestion rate (L/day)		2			1	
Soil ingestion rate (mg/day)	☐	100	200		50	100
Swimming exposure time (hr/event)		3				
Swimming event frequency (events/yr)		12	12	12		
Swimming water ingestion rate (L/hr)	☐	0.05	0.5			
Skin surface area, swimming (cm^2)	☐	23000		8100		
Fish consumption rate (kg/day)		0.025				
Contaminated fish fraction (unitless)		1				



2. Risk Goal Calculation Options

- ○ Individual Constituent Risk Goals Only
- ◉ Individual and Cumulative Risk Goals

3. Target Health Risk Limits

	Individual	Cumulative
Target Risk (Class A/B carcins.)	1.0E-6	1.0E-5
Target Risk (Class C carcinogens)	1.0E-5	
Target Hazard Quotient	1.0E+0	
Target Hazard Index		1.0E+0

4. Commands and Options

Return to Exposure Pathways

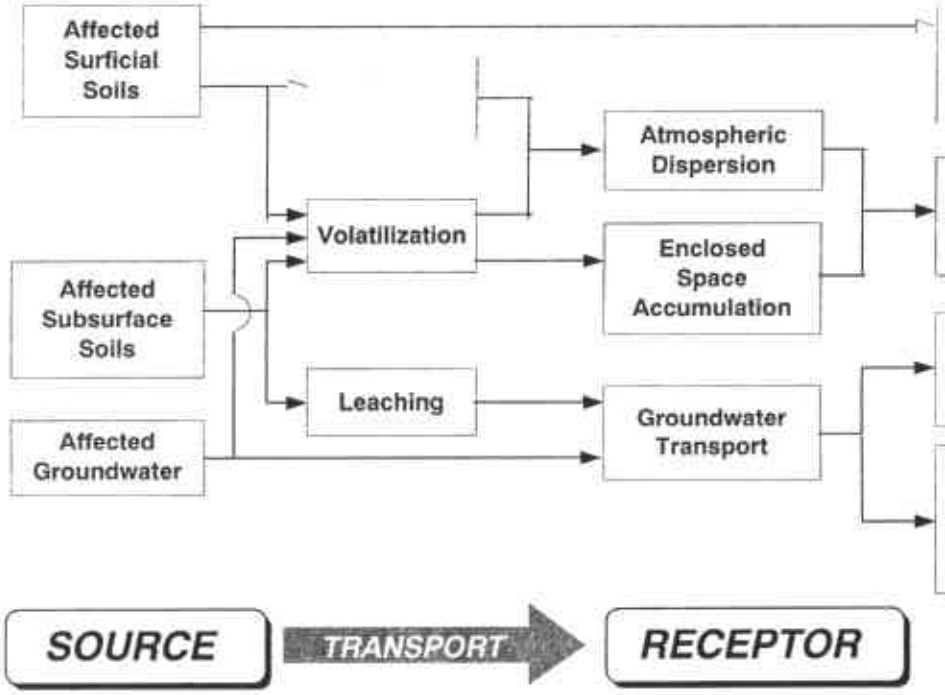
Use Default Values

Print Sheet

Help

Exposure Pathway Flowchart

Site Name: Former Tosco Station No. 7004 Job ID: 140106.5
Location: 15599 Hesperian Blvd., San Leandro, CA Date: 28-Mar-03
Compl. By: J. Douglas



Receptors	On-site	Off-site1	Off-site2
	None	NA	NA
Outdoor Air:	*Residential*	*None*	*None*
Indoor Air:	*Residential*	*NA*	*NA*
	Residential	*Residential*	*Surf. Water*
	NA	*NA*	*Swimming* *Fishing* *Aquatic Life*

SOURCE → TRANSPORT → RECEPTOR

Commands and Options

Return | Print Sheet | Help

Site Name: Former Tosco Station No. 7004 | Job ID: 140106.5
Location: 15599 Hesperian Blvd., San Leandro, CA | Date: 28-Mar-03
Compl. By: J. Douglas

Commands and Options

Main Screen | Print Sheet | Help

Source Media Constituents of Concern (COCs)

☐ Apply Raoult's Law ?

Selected COCs

COC Select: | Sort List: ?

Add/Insert | Top | MoveUp
Delete | Bottom | MoveDown

Representative COC Concentration ?

Selected COCs	Groundwater Source Zone (Enter Directly / ■ Enter Site Data) (mg/L)	note	Soil Source Zone (Enter Directly / ■ Enter Site Data) (mg/kg)	note
Benzene*	7.9E-4		8.2E-3	
Toluene	9.2E-4		8.2E-3	
Ethylbenzene	4.9E-3		1.8E-2	
Xylene (mixed isomers)	3.0E-3		1.5E-2	
Methyl t-Butyl ether	1.7E-2		9.5E-3	
TPH - Aliph >C05-C06	3.4E-2		5.0E-1	
TPH - Aliph >C06-C08	4.1E-2		5.0E-1	
TPH - Aliph >C08-C10	3.4E-2		5.0E-1	
TPH - Aliph >C10-C12	4.2E-2		5.0E-1	
TPH - Arom >C08-C10	2.1E-1		2.9E+0	
TPH - Arom >C10-C12	4.5E-2		5.0E-1	
TPH - Arom >C12-C16	3.4E-2		5.0E-1	

* = Chemical with user-specified data

RBCA SITE ASSESSMENT | **Baseline Risk Summary-All Pathways**

Site Name: Former Tosco Station No. 7004
Site Location: 15599 Hesperian Blvd., San Leandro, CA

Completed By: J. Douglas
Date Completed: 28-Mar-03

TIER 2 BASELINE RISK SUMMARY TABLE

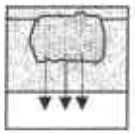
	BASELINE CARCINOGENIC RISK					BASELINE TOXIC EFFECTS				
	Individual COC Risk		Cumulative COC Risk		Risk	Hazard Quotient		Hazard Index		Toxicity
EXPOSURE PATHWAY	Maximum Value	Target Risk	Total Value	Target Risk	Limit(s) Exceeded?	Maximum Value	Applicable Limit	Total Value	Applicable Limit	Limit(s) Exceeded?
OUTDOOR AIR EXPOSURE PATHWAYS										
Complete:	5.8E-10	1.0E-6	5.8E-10	1.0E-5	☐	1.9E-4	1.0E+0	2.9E-4	1.0E+0	☐
INDOOR AIR EXPOSURE PATHWAYS										
Complete:	5.0E-7	1.0E-6	5.0E-7	1.0E-5	☐	5.7E-2	1.0E+0	1.2E-1	1.0E+0	☐
SOIL EXPOSURE PATHWAYS										
Complete:	NA	NA	NA	NA	☐	NA	NA	NA	NA	☐
GROUNDWATER EXPOSURE PATHWAYS										
Complete:	9.3E-7	1.0E-6	9.3E-7	1.0E-5	☐	1.4E-1	1.0E+0	2.7E-1	1.0E+0	☐
SURFACE WATER EXPOSURE PATHWAYS										
Complete:	5.7E-116	1.0E-6	5.7E-116	1.0E-5	☐	2.0E-111	1.0E+0	5.8E-111	1.0E+0	☐

CRITICAL EXPOSURE PATHWAY (Maximum Values From Complete Pathways)										
	9.3E-7	***1.0E-6***	***9.3E-7***	***1.0E-5***	☐	***1.4E-1***	***1.0E+0***	***2.7E-1***	***1.0E+0***	☐
	Groundwater		***Groundwater***			***Groundwater***		***Groundwater***		

Transport Modeling Options

Site Name: Former Tosco Station No. 7004 Job ID: 140106.5
Location: 15599 Hesperian Blvd., San Leandro, CA Date: 28-Mar-03
Compl. By: J. Douglas

1. Vertical Transport, Surface Soil Column



Outdoor Air Volatilization Factors

- ○ Surface soil volatilization model only
- ○ Combination surface soil/Johnson & Ettinger models
  Thickness of surface soil zone [3] *(ft)*
- ○ User-specified VF from other model [Enter VF Values]

Indoor Air Volatilization Factors

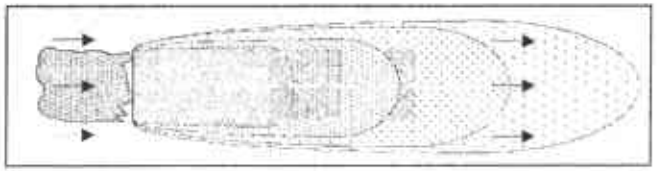
- ◉ Johnson & Ettinger model
- ○ User-specified VF from other model [Enter VF Values]

Soil-to-Groundwater Leaching Factor

- ◉ ASTM Model
  - ☑ Apply Soil Attenuation Model (SAM)
  - ☑ Allow first-order biodecay [■ □ Enter Decay Rates]
- ○ User-specified LF from other model [Enter LF Values]

	Off-site 1	Off-site 2	
○	1.00E-0	1.00E-0	(-)
○			

3. Groundwater Dilution Attenuation Factor



Calculate DAF using Domenico Model

- ○ Domenico equation with dispersion only (no biodegradation)
- ◉ Domenico equation first-order decay [■ □ Enter Decay Rates]
- ○ Modified Domenico equation using electron acceptor superposition

— or —

User-Specified DAF Values

- ○ DAF values from other model or site data

4. Commands and Options

[Main Screen] [Print Sheet] [*Help*]

Site Name: Former Tosco Station No. 7004 Job ID: 140106.5
Location: 15599 Hesperian Blvd., San Leandro, CA Date: 28-Mar-03
Compl. By: J. Douglas

Commands and Options

Return | Print Sheet | Paste Default Values | Help

Constituent Half-Life Values

Constituent	Saturated Zone Half-Life (day)	Saturated Zone First-Order Decay Coeffecient (1/day)	Unsaturated Zone Half-Life (day)	Unsaturated Zone First-Order Decay Coeffecient (1/day)
Benzene*	7.2E+2	9.6E-4	7.2E+2	9.6E-4
Toluene	2.8E+1	2.5E-2	2.8E+1	2.5E-2
Ethylbenzene	2.3E+2	3.0E-3	2.3E+2	3.0E-3
Xylene (mixed isomers)	3.6E+2	1.9E-3	3.6E+2	1.9E-3
Methyl t-Butyl ether	1.8E+2	3.9E-3	1.8E+2	3.9E-3
TPH - Aliph >C05-C06	3.6E+2	1.9E-3	3.6E+2	1.9E-3
TPH - Aliph >C06-C08	3.6E+2	1.9E-3	3.6E+2	1.9E-3
TPH - Aliph >C08-C10	3.6E+2	1.9E-3	3.6E+2	1.9E-3
TPH - Aliph >C10-C12	3.6E+2	1.9E-3	3.6E+2	1.9E-3
TPH - Arom >C08-C10	3.6E+2	1.9E-3	3.6E+2	1.9E-3
TPH - Arom >C10-C12	3.6E+2	1.9E-3	3.6E+2	1.9E-3
TPH - Arom >C12-C16	3.6E+2	1.9E-3	3.6E+2	1.9E-3

Site-Specific Soil Parameters

Site Name: Former Tosco Station No. 7004 | Job ID: 140106.5
Location: 15599 Hesperian Blvd., San Leandro, CA | Date: 28-Mar-03
Compl. By: J. Douglas

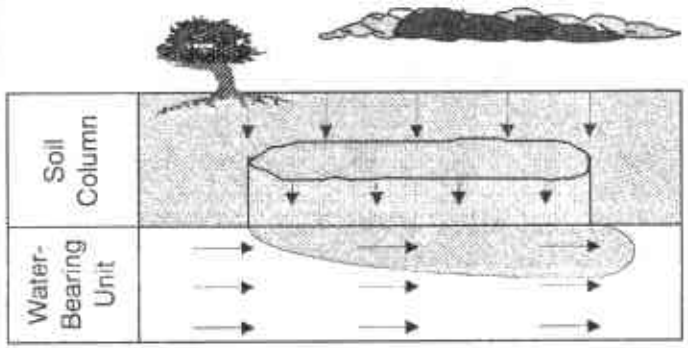
1. Soil Source Zone Characteristics

Hydrogeology

	General Case	Construction	
Depth to water-bearing unit	13		(ft)
Capillary zone thickness	0.56		(ft)
Soil column thickness	12.44		(ft)

Affected Soil Zone

Depth to top of affected soils	3		(ft)
Depth to base of affected soils	13		(ft)
Affected soil area	2500	2500	(ft^2)
Length of affected soil parallel to assumed wind direction	60	60	(ft)
Length of affected soil parallel to assumed GW flow direction	80		(ft)



2. Surface Soil Column

	Vadose Zone	Capillary Fringe	
			or
Calculate			
Total porosity	0.421		(-)
Volumetric water content	0.273	0.4	(-)
Volumetric air content	0.148	0.021	(-)
Dry bulk density	1.52		(kg/L)
Vertical hydraulic conductivity	1.1E-1		(cm/d)
Vapor permeability	1.1E-14		(ft^2)
Capillary zone thickness	5.6E-1		(ft)

Net Rainfall Infiltration

Net infiltration estimate	5	(cm/yr)
or		or

Partitioning Parameters

Fraction organic carbon	0.01	(-)
Soil/water pH	7.65	(-)

3. Commands and Options

Main Screen | Use Default Values | Print Sheet
Set Units | | Help

Site-Specific Groundwater Parameters

Site Name: Former Tosco Station No. 7004 | Job ID: 140106.5
Location: 15599 Hesperian Blvd., San Leandro, CA | Date: 28-Mar-03
Compl. By: J. Douglas

1. Water-Bearing Unit

Hydrogeology

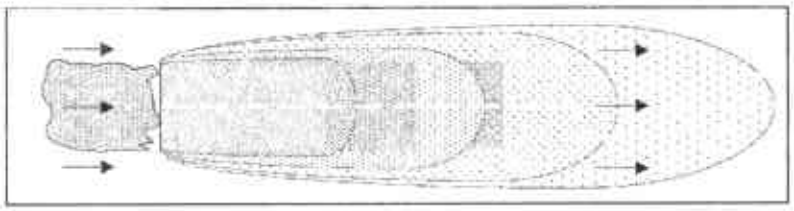
Groundwater Darcy velocity	2.2E-4	(cm/d)
Groundwater seepage velocity	6.5E-4	(cm/d)
or Enter Directly	or	
Hydraulic conductivity	1.1E-1	(cm/d)
Hydraulic gradient	2.0E-3	(-)
Effective porosity	0.34	(-)

Sorption

Fraction organic carbon--saturated zone	0.01	(-)
Groundwater pH	7.20	(-)

2. Groundwater Source Zone

Groundwater plume width at source	100	(ft)
Plume (mixing zone) thickness at source	6.56167979	(ft)
or Calculate	or	



3. Groundwater Dispersion

Model: ASTM Default

	GW Ingestion		Soil Leaching to GW		
	Off-site 1	Off-site 2	Off-site 1	Off-site 2	
Distance to GW receptors	1650	700	1650	700	(ft)
or Enter Directly	or		or		
Longitudinal dispersivity	165	70	165	70	(ft)
Transverse dispersivity	54.45	23.1	54.45	23.1	(ft)
Vertical dispersivity	8.25	3.5	8.25	3.5	(ft)

4. Groundwater Discharge to Surface Water

	Off-site 2	
Distance to GW/SW disharge point	700	(ft)
Plume width at GW/SW discharge	100	(ft)
Plume thickness at GW/SW discharge	6.5	(ft)
Surface water flowrate at GW/SW discharge	1.0E+0	(ft^3/s)

5. Commands and Options

Main Screen | Use Default Values | Print Sheet
Set Units | | Help

Site-Specific Air Parameters

Site Name: Former Tosco Station No. 7004 Job ID: 140106.5
Location: 15599 Hesperian Blvd., San Leandro, CA Date: 28-Mar-03
Compl. By: J. Douglas

1. Outdoor Air Pathway

N/A or

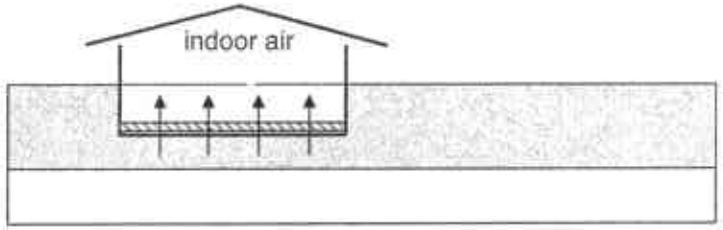
Air Source Zone

Air mixing zone height	6.56167979	(ft)
Ambient air velocity in mixing zone	7.381889764	(ft/s)

2. Indoor Air Pathway

Building Parameters

	Residential	
Building volume/area ratio	6.56168	(ft)
Foundation area	753.474	(ft^2)
Foundation perimeter	111.549	(ft)
Building air exchange rate	1.4E-4	(1/s)
Depth to bottom of foundation slab	0.49213	(ft)
Convective air flow through cracks	0.0E+0	(ft^3/s)
Foundation thickness	0.492125984	(ft)
Foundation crack fraction	0.01	(-)
Volumetric water content of cracks	0.12	(-)
Volumetric air content of cracks	0.26	(-)
Indoor/Outdoor differential pressure	0	(g/cm/s^2)



3. Commands and Options

Main Screen | Use Default Values | Print Sheet
Set Units | | Help

RBCA SITE ASSESSMENT

Site Name: Former Tosco Station No. 7004 Completed By: J. Douglas

Site Location: 15599 Hesperian Blvd., San Leandı Date Completed: 28-Mar-03

TIER 2 GROUNDWATER CONCENTRATION DATA SUMMARY

CONSTITUENTS DETECTED		Analytical Method			Detected Concentrations		
CAS No.	Name	Typical Detection Limit (mg/L)	No. of Samples	No. of Detects	Maximum Conc. (mg/L)	Mean Conc. (mg/L)	UCL on Mean Conc. (mg/L)
71-43-2	Benzene*	5.0E-04	44	44	2.5E-01	5.4E-04	7.9E-04
108-88-3	Toluene	5.0E-04	44	44	2.5E-01	6.2E-04	9.2E-04
100-41-4	Ethylbenzene	5.0E-04	44	44	4.3E+00	2.2E-03	4.9E-03
1330-20-7	Xylene (mixed isomers)	5.0E-04	44	44	2.5E-01	2.1E-03	3.0E-03
1634-04-4	Methyl t-Butyl ether	2.5E-03	44	44	3.8E-01	9.2E-03	1.7E-02
0-00-0	TPH - Aliph >C05-C06	5.0E-01	20	20	2.5E-01	2.8E-02	3.4E-02
0-00-0	TPH - Aliph >C06-C08	5.0E-01	20	20	8.9E-01	3.0E-02	4.1E-02
0-00-0	TPH - Aliph >C08-C10	5.0E-01	20	20	2.5E-01	2.8E-02	3.4E-02
0-00-0	TPH - Aliph >C10-C12	5.0E-01	20	20	1.1E+00	3.0E-02	4.2E-02
0-00-0	TPH - Arom >C08-C10	5.0E-01	44	44	9.3E+00	1.2E-01	2.1E-01
0-00-0	TPH - Arom >C10-C12	5.0E-01	20	20	1.7E+00	3.1E-02	4.5E-02
0-00-0	TPH - Arom >C12-C16	5.0E-01	20	20	2.5E-01	2.8E-02	3.4E-02

* = Chemical with user-specified data

Commands and Options

Return | Print Sheet | *Help*

Site Name: Former Tosco Station No. 7004 Job ID: 140106.5
Location: 15599 Hesperian Blvd., San Leandro, CA Date: 28-Mar-03
Compl. By: J. Douglas

Groundwater Source Zone Concentration Calculator

UCL Percentile: 95%

Paste Defaults | Mean Option

Constituent	Detection Limit (mg/L)	No. of Samples	No. of Detects	Estimated Distribution of Data	Max. Conc. (mg/L)	Mean Conc. (mg/L)	UCL on Mean (mg/L)
Benzene*	5.0E-4	44	44	Lognormal	2.5E-1	5.4E-4	7.9E-4
Toluene	5.0E-4	44	44	Lognormal	2.5E-1	6.2E-4	9.2E-4
Ethylbenzene	5.0E-4	44	44	Lognormal	4.3E+0	2.2E-3	4.9E-3
Xylene (mixed isomers)	5.0E-4	44	44	Lognormal	2.5E-1	2.1E-3	3.0E-3
Methyl t-Butyl ether	2.5E-3	44	44	Lognormal	3.8E-1	9.2E-3	1.7E-2
TPH - Aliph >C05-C06	5.0E-1	20	20	Lognormal	2.5E-1	2.8E-2	3.4E-2
TPH - Aliph >C06-C08	5.0E-1	20	20	Lognormal	8.9E-1	3.0E-2	4.1E-2
TPH - Aliph >C08-C10	5.0E-1	20	20	Lognormal	2.5E-1	2.8E-2	3.4E-2
TPH - Aliph >C10-C12	5.0E-1	20	20	Lognormal	1.1E+0	3.0E-2	4.2E-2
TPH - Arom >C08-C10	5.0E-1	44	44	Lognormal	9.3E+0	1.2E-1	2.1E-1
TPH - Arom >C10-C12	5.0E-1	20	20	Lognormal	1.7E+0	3.1E-2	4.5E-2
TPH - Arom >C12-C16	5.0E-1	20	20	Lognormal	2.5E-1	2.8E-2	3.4E-2

* = Chemical with user-specified data

Enter Analytical Data from Groundwater Source Zone (up to 50 Data Points)

Analytical Data

	1	2	3	4	5	6	7	8	9	10	11	12	13
ID	MW-1	MW-1	MW-1	MW-1	MW-1	MW-1	MW-2	MW-2	MW-2	MW-2	MW-2	MW-2	MW-3
Date	25-Oct-02	14-Sep-02	29-Aug-02	27-Nov-02	19-Dec-02	24-Jan-03	25-Oct-02	14-Sep-02	29-Aug-02	27-Nov-02	19-Dec-02	24-Jan-03	26-Nov-02
	(mg/L)	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*
	9.10E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	1.00E-2
	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	1.00E-2
	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	8.04E-1
	5.00E-3	5.00E-3	5.00E-3	5.00E-3	5.00E-3	5.00E-3	5.00E-3	5.00E-3	5.00E-3	5.00E-3	5.00E-3	5.00E-3	1.00E-2
	1.00E-3	1.00E-3	1.00E-3	1.00E-3	1.00E-3	1.00E-3	1.00E-3	1.00E-3	1.00E-3	1.00E-3	1.00E-3	1.00E-3	5.00E-2
	2.50E-2	2.50E-2	2.50E-2			2.50E-2	2.50E-2	2.50E-2	2.50E-2			2.50E-2	2.50E-1
	2.50E-2	2.50E-2	2.50E-2			2.50E-2	2.50E-2	2.50E-2	2.50E-2			2.50E-2	8.91E-1
	2.50E-2	2.50E-2	2.50E-2			2.50E-2	2.50E-2	2.50E-2	2.50E-2			2.50E-2	2.50E-1
	2.50E-2	2.50E-2	2.50E-2			2.50E-2	2.50E-2	2.50E-2	2.50E-2			2.50E-2	1.10E+0
	2.50E-2	2.50E-2	2.50E-2	2.50E-2	2.50E-2	2.50E-2	2.50E-2	2.50E-2	2.50E-2	2.50E-2	2.50E-2	2.50E-2	1.88E+0
	2.50E-2	2.50E-2	2.50E-2			2.50E-2	2.50E-2	2.50E-2	2.50E-2			2.50E-2	1.73E+0
	2.50E-2	2.50E-2	2.50E-2			2.50E-2	2.50E-2	2.50E-2	2.50E-2			2.50E-2	2.50E-1

Analytical Data

14	15	16	17	18	19	20	21	22	23	24	25	26	27
MW-3	MW-3	MW-3	MW-3	MW-3	MW-3	MW-4	MW-4	MW-4	MW-4	MW-4	MW-4	MW-5	MW-5
25-Oct-02	14-Sep-02	29-Aug-02	27-Nov-02	19-Dec-02	24-Jan-03	25-Oct-02	14-Sep-02	29-Aug-02	27-Nov-02	19-Dec-02	24-Jan-03	25-Oct-02	14-Sep-02
(mg/L)	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*
2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	8.20E-2	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	1.00E-3	2.50E-4
2.50E-4	2.50E-4	1.25E-2	5.00E-3	5.00E-3	1.25E-2	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	1.00E-3	2.50E-4
1.10E-1	2.00E-2	1.20E+0	1.20E+0	8.10E-1	9.30E-1	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	1.00E-3	2.50E-4
5.00E-4	5.00E-4	2.50E-2	1.00E-2	1.00E-2	2.50E-2	5.00E-4	5.00E-4	5.00E-4	5.00E-4	5.00E-4	5.00E-4	2.00E-3	5.00E-4
1.00E-3	1.00E-3	5.00E-2	2.00E-2	2.00E-2	5.00E-2	7.10E-3	4.80E-3	8.50E-3	7.30E-3	8.10E-3	8.40E-3	2.70E-1	9.10E-2
						2.50E-2	2.50E-2	2.50E-2	2.50E-2		2.50E-2		
						2.50E-2	2.50E-2	2.50E-2	2.50E-2		2.50E-2		
						2.50E-2	2.50E-2	2.50E-2	2.50E-2		2.50E-2		
						2.50E-2	2.50E-2	2.50E-2	2.50E-2		2.50E-2		
5.00E-1	9.00E-2	3.60E+0	7.60E+0	6.40E+0	6.60E+0	2.50E-2	2.50E-2	2.50E-2	2.50E-2	2.50E-2	2.50E-2	1.00E-1	6.50E-2
						2.50E-2	2.50E-2	2.50E-2	2.50E-2		2.50E-2		
						2.50E-2	2.50E-2	2.50E-2	2.50E-2		2.50E-2		

Analytical Data

28	29	30	31	32	33	34	35	36	37	38	39	40	41
MW-5	MW-5	MW-5	MW-5	MW-6	MW-6	MW-6	MW-6	MW-6	MW-6	RW-1	RW-1	RW-1	RW-1
29-Aug-02	27-Nov-02	19-Dec-02	24-Jan-03	25-Oct-02	14-Sep-02	29-Aug-02	27-Nov-02	19-Dec-02	24-Jan-03	25-Oct-02	14-Sep-02	29-Aug-02	27-Nov-02
(mg/L)	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*
2.50E-3	1.25E-3	1.25E-3	1.25E-3	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	9.60E-4	2.50E-4	1.00E-3	9.10E-4
2.50E-3	1.25E-3	1.25E-3	1.25E-3	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	1.10E-3	2.50E-4	1.00E-3	8.20E-4
2.50E-3	1.25E-3	1.25E-3	1.25E-3	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	2.50E-4	5.10E-2	2.50E-4	4.70E-2	3.10E-2
5.00E-3	2.50E-3	2.50E-3	2.50E-3	5.00E-4	5.00E-4	5.00E-4	5.00E-4	5.00E-4	5.00E-4	5.00E-4	5.00E-4	2.00E-3	5.00E-4
3.80E-1	3.30E-1	3.20E-1	2.00E-1	1.00E-3	1.00E-3	1.00E-3	1.00E-3	1.00E-3	2.50E-4	1.60E-1	1.20E-1	2.10E-1	1.70E-1
				2.50E-2	2.50E-2	2.50E-2	2.50E-2	2.50E-2	2.50E-2				
				2.50E-2	2.50E-2	2.50E-2	2.50E-2	2.50E-2	2.50E-2				
				2.50E-2	2.50E-2	2.50E-2	2.50E-2	2.50E-2	2.50E-2				
				2.50E-2	2.50E-2	2.50E-2	2.50E-2	2.50E-2	2.50E-2				
2.50E-1	1.25E-1	2.90E-1	1.25E-1	2.50E-2	2.50E-2	2.50E-2	2.50E-2	2.50E-2	2.50E-2	1.35E+0	1.95E-1	1.20E+0	1.80E+0
				2.50E-2	2.50E-2	2.50E-2	2.50E-2	2.50E-2	2.50E-2				
				2.50E-2	2.50E-2	2.50E-2	2.50E-2	2.50E-2	2.50E-2				

42	43	44	45	46	47	48	49	50
RW-1	RW-1	G-5W	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6
19-Dec-02	24-Jan-03	20-Sep-02						
(mg/L)	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*
2.50E-3	8.80E-4	2.50E-1						
2.50E-3	6.90E-4	2.50E-1						
5.00E-2	2.90E-2	4.30E+0						
5.00E-3	5.00E-4	2.50E-1						
2.00E-1	1.40E-1	3.60E-1						
2.90E+0	1.80E+0	9.30E+0						

Commands and Options

Return | Print Sheet | Help

Site Name: Former Tosco Station No. 7004 Job ID: 140106.5
Location: 15599 Hesperian Blvd., San Leandro, CA Date: 28-Mar-03
Compl. By: J. Douglas

Soil Source Zone Concentration Calculator

UCL Percentile: 95%

Paste Defaults | Mean Option

Constituent	Detection Limit (mg/kg)	No. of Samples	No. of Detects	Estimated Distribution of Data	Max. Conc. (mg/kg)	Mean Conc. (mg/kg)	UCL on Mean (mg/kg)
Benzene*	5.0E-3	21	21	Lognormal	2.5E-1	5.4E-3	8.2E-3
Toluene	5.0E-3	21	21	Lognormal	2.5E-1	5.4E-3	8.2E-3
Ethylbenzene	5.0E-3	21	21	Lognormal	4.8E+0	9.2E-3	1.8E-2
Xylene (mixed isomers)	5.0E-3	21	21	Lognormal	8.1E-1	8.4E-3	1.5E-2
Methyl t-Butyl ether	5.0E-1	21	21	Lognormal	2.5E-1	6.0E-3	9.5E-3
TPH - Aliph >C05-C06	1.0E+0	15	15	Normal	5.0E-1	5.0E-1	5.0E-1
TPH - Aliph >C06-C08	1.0E+0	15	15	Normal	5.0E-1	5.0E-1	5.0E-1
TPH - Aliph >C08-C10	1.0E+0	15	15	Normal	5.0E-1	5.0E-1	5.0E-1
TPH - Aliph >C10-C12	1.0E+0	15	15	Normal	5.0E-1	5.0E-1	5.0E-1
TPH - Arom >C08-C10	1.0E+0	21	21	Lognormal	1.8E+2	1.4E+0	2.9E+0
TPH - Arom >C10-C12	1.0E+0	15	15	Normal	5.0E-1	5.0E-1	5.0E-1
TPH - Arom >C12-C16	1.0E+0	15	15	Normal	5.0E-1	5.0E-1	5.0E-1

* = Chemical with user-specified data

RBCA SITE ASSESSMENT

Site Name: Former Tosco Station No. 7004 Completed By: J. Douglas

Site Location: 15599 Hesperian Blvd., San Leandı Date Completed: 28-Mar-03

TIER 2 SOIL CONCENTRATION DATA SUMMARY

CONSTITUENTS DETECTED		Analytical Method			Detected Concentrations		
CAS No.	Name	Typical Detection Limit (mg/kg)	No. of Samples	No. of Detects	Maximum Conc. (mg/kg)	Mean Conc. (mg/kg)	UCL on Mean Conc. (mg/kg)
71-43-2	Benzene*	5.0E-03	21	21	2.5E-01	5.4E-03	8.2E-03
108-88-3	Toluene	5.0E-03	21	21	2.5E-01	5.4E-03	8.2E-03
100-41-4	Ethylbenzene	5.0E-03	21	21	4.8E+00	9.2E-03	1.8E-02
1330-20-7	Xylene (mixed isomers)	5.0E-03	21	21	8.1E-01	8.4E-03	1.5E-02
1634-04-4	Methyl t-Butyl ether	5.0E-01	21	21	2.5E-01	6.0E-03	9.5E-03
0-00-0	TPH - Aliph >C05-C06	1.0E+00	15	15	5.0E-01	5.0E-01	5.0E-01
0-00-0	TPH - Aliph >C06-C08	1.0E+00	15	15	5.0E-01	5.0E-01	5.0E-01
0-00-0	TPH - Aliph >C08-C10	1.0E+00	15	15	5.0E-01	5.0E-01	5.0E-01
0-00-0	TPH - Aliph >C10-C12	1.0E+00	15	15	5.0E-01	5.0E-01	5.0E-01
0-00-0	TPH - Arom >C08-C10	1.0E+00	21	21	1.8E+02	1.4E+00	2.9E+00
0-00-0	TPH - Arom >C10-C12	1.0E+00	15	15	5.0E-01	5.0E-01	5.0E-01
0-00-0	TPH - Arom >C12-C16	1.0E+00	15	15	5.0E-01	5.0E-01	5.0E-01

* = Chemical with user-specified data

Enter Analytical Data from

Soil Source Zone

(up to 50 Data Points)

Analytical Data

	1	2	3	4	5	6	7	8	9	10	11	12	13
ID	TX-1-13	TX-2-13	TX-3-13	TX-4-13	PT1-3	PT2-4	PT3-4.5	PT4-5.5	G-1-10	G-1-14	G-2-5	G-2-10	G-2-14
Date	26-May-00	26-May-00	26-May-00	26-May-00	24-May-00	24-May-00	24-May-00	24-May-00	20-Sep-02	20-Sep-02	20-Sep-02	20-Sep-02	20-Sep-02
	(mg/kg)	***(mg/kg)***	***(mg/kg)***	***(mg/kg)***	***(mg/kg)***	***(mg/kg)***	***(mg/kg)***	***(mg/kg)***	***(mg/kg)***	***(mg/kg)***	***(mg/kg)***	***(mg/kg)***	***(mg/kg)***
	2.50E-3	2.50E-3	2.50E-3	2.50E-3	2.50E-3	2.50E-3	2.50E-3	2.50E-3	5.00E-3	2.50E-2	5.00E-3	5.00E-3	2.50E-2
	2.50E-3	2.50E-3	2.50E-3	2.50E-3	2.50E-3	2.50E-3	2.50E-3	2.50E-3	5.00E-3	2.50E-2	5.00E-3	5.00E-3	2.50E-2
	2.50E-3	1.40E-2	4.80E+0	1.60E-2	2.50E-3	2.50E-3	2.50E-3	2.50E-3	5.00E-3	2.50E-2	5.00E-3	5.00E-3	2.50E-2
	2.50E-3	1.50E-2	8.10E-1	1.30E-2	2.50E-3	2.50E-3	2.50E-3	2.50E-3	5.00E-3	2.50E-2	5.00E-3	5.00E-3	2.50E-2
	2.50E-3	2.50E-3	2.50E-3	2.50E-3	2.50E-3	2.50E-3	2.50E-3	2.50E-3	5.00E-3	2.50E-2	5.00E-3	5.00E-3	2.50E-2
	5.00E-1				5.00E-1	5.00E-1	5.00E-1	5.00E-1	5.00E-1		5.00E-1	5.00E-1	
	5.00E-1				5.00E-1	5.00E-1	5.00E-1	5.00E-1	5.00E-1		5.00E-1	5.00E-1	
	5.00E-1				5.00E-1	5.00E-1	5.00E-1	5.00E-1	5.00E-1		5.00E-1	5.00E-1	
	5.00E-1				5.00E-1	5.00E-1	5.00E-1	5.00E-1	5.00E-1		5.00E-1	5.00E-1	
	5.00E-1	5.50E-1	1.75E+2	2.05E+0	5.00E-1	5.00E-1	5.00E-1	5.00E-1	5.00E-1	5.00E+1	5.00E-1	5.00E-1	5.00E+1
	5.00E-1				5.00E-1	5.00E-1	5.00E-1	5.00E-1	5.00E-1		5.00E-1	5.00E-1	
	5.00E-1				5.00E-1	5.00E-1	5.00E-1	5.00E-1	5.00E-1		5.00E-1	5.00E-1	

								Analytical Data					
14	15	16	17	18	19	20	21	22	23	24	25	26	27
G-3-5	G-3-10	G-3-13.5	G-4-10	G-4-13	G-5-5	G-5-10	G-5-13						
20-Sep-02	20-Sep-02	20-Sep-02	20-Sep-02	20-Sep-02	20-Sep-02	20-Sep-02	20-Sep-02						
(mg/kg)	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*	*(mg/kg)*
5.00E-3	5.00E-3	5.00E-3	5.00E-3	5.00E-3	5.00E-3	5.00E-3	2.50E-1						
5.00E-3	5.00E-3	5.00E-3	5.00E-3	5.00E-3	5.00E-3	5.00E-3	2.50E-1						
5.00E-3	5.00E-3	5.00E-3	5.00E-3	5.00E-3	5.00E-3	5.00E-3	2.50E-1						
5.00E-3	5.00E-3	5.00E-3	5.00E-3	5.00E-3	5.00E-3	5.00E-3	2.50E-1						
5.00E-3	5.00E-3	5.10E-2	5.00E-3	5.00E-3	5.00E-3	5.00E-3	2.50E-1						
5.00E-1	5.00E-1	5.00E-1	5.00E-1	5.00E-1	5.00E-1	5.00E-1							
5.00E-1	5.00E-1	5.00E-1	5.00E-1	5.00E-1	5.00E-1	5.00E-1							
5.00E-1	5.00E-1	5.00E-1	5.00E-1	5.00E-1	5.00E-1	5.00E-1							
5.00E-1	5.00E-1	5.00E-1	5.00E-1	5.00E-1	5.00E-1	5.00E-1							
5.00E-1	5.00E-1	5.00E-1	5.00E-1	5.00E-1	5.00E-1	5.00E-1	5.00E+1						
5.00E-1	5.00E-1	5.00E-1	5.00E-1	5.00E-1	5.00E-1	5.00E-1							
5.00E-1	5.00E-1	5.00E-1	5.00E-1	5.00E-1	5.00E-1	5.00E-1							

CHEMICAL DATA FOR SELECTED COCs

Physical Property Data

Constituent	CAS Number	type	Molecular Weight (g/mole) MW	ref	Diffusion Coefficients in air (cm2/s) Dair	ref	Diffusion Coefficients in water (cm2/s) Dwat	ref	log (Koc) or log(Kd) (@ 20 - 25 C) log(L/kg)	partition	ref	Henry's Law Constant (@ 20 - 25 C) (atm-m3) mol	(unitless)	ref	Vapor Pressure (@ 20 - 25 C) (mm Hg)	ref	Solubility (@ 20 - 25 C) (mg/L)	ref	acid pKa	base pKb	ref
Benzene*	71-43-2	A	78.1	PS	8.80E-02	PS	9.80E-06	PS	1.77	Koc	PS	5.55E-03	2.29E-01	PS	9.52E+01	PS	1.75E+03	PS	-	-	-
Toluene	108-88-3	A	92.4	5	8.50E-02	A	9.40E-06	A	2.13	Koc	A	6.30E-03	2.60E-01	A	3.00E+01	4	5.15E+02	29	-	-	-
Ethylbenzene	100-41-4	A	106.2	PS	7.50E-02	PS	7.80E-06	PS	2.56	Koc	PS	7.88E-03	3.25E-01	PS	1.00E+01	PS	1.69E+02	PS	-	-	-
Xylene (mixed isomers)	1330-20-7	A	106.2	5	7.20E-02	A	8.50E-06	A	2.38	Koc	A	7.03E-03	2.90E-01	A	7.00E+00	4	1.98E-02	5	-	-	-
Methyl t-Butyl ether	1634-04-4	O	88.146	5	7.92E-02	6	9.41E-05	7	1.08	Koc	A	5.77E-04	2.38E-02	-	2.49E+02	-	4.80E-04	A	-	-	-
TPH - Aliph >C05-C06	0-00-0	T	81	T	1.00E-01	T	1.00E-05	T	2.90	Koc	T	7.88E-01	3.25E+01	T	2.66E+02	-	3.60E-01	T	-	-	-
TPH - Aliph >C06-C08	0-00-0	T	100	T	1.00E-01	T	1.00E-05	T	3.60	Koc	T	1.17E+00	4.81E+01	T	4.79E+01	-	5.40E+00	T	-	-	-
TPH - Aliph >C08-C10	0-00-0	T	130	T	1.00E-01	T	1.00E-05	T	4.50	Koc	T	1.90E+00	7.85E+01	T	4.79E+00	-	4.30E-01	T	-	-	-
TPH - Aliph >C10-C12	0-00-0	T	160	T	1.00E-01	T	1.00E-05	T	5.40	Koc	T	2.96E+00	1.22E+02	T	4.79E-01	-	3.40E-02	T	-	-	-
TPH - Arom >C08-C10	0-00-0	T	120	T	1.00E-01	T	1.00E-05	T	3.20	Koc	T	1.16E-02	4.80E-01	T	4.79E+00	-	6.50E+01	T	-	-	-
TPH - Arom >C10-C12	0-00-0	T	130	T	1.00E-01	T	1.00E-05	T	3.40	Koc	T	3.28E-03	1.35E-01	T	4.79E-01	-	2.50E+01	T	-	-	-
TPH - Arom >C12-C16	0-00-0	T	150	T	1.00E-01	T	1.00E-05	T	3.70	Koc	T	1.24E-03	5.12E-02	T	3.65E-02	-	5.80E+00	T	-	-	-

* = Chemical with user-specified data

Site Name: Former Tosco Station No. 7004 Completed By: J. Douglas Job ID: 140106.5

Site Location: 15599 Hesperian Blvd., San Leandro, CA Date Completed: 28-Mar-03

CHEMICAL DATA FOR SELECTED COCs

Toxicity Data

	Reference Dose (mg/kg/day)				Reference Conc. (mg/m3)		Slope Factors 1/(mg/kg/day)				Unit Risk Factor 1/(µg/m3)			
Constituent	Oral RfD_oral	ref	Dermal (mg/kg/day) RfD_dermal	ref	Inhalation RfC_inhal	ref	Oral SF_oral	ref	Dermal 1/(mg/kg/day) SF_dermal	ref	Inhalation URF_inhal	ref	EPA Weight of Evidence	Is Constituent Carcinogenic ?
Benzene*	3.00E-03	R	-	-	5.95E-03	R	1.00E-01	PS	2.99E-02	TX	8.29E-06	PS	A	TRUE
Toluene	2.00E-01	A,R	1.60E-01	TX	4.00E-01	A,R	-	-	-	-	-	-	D	FALSE
Ethylbenzene	1.00E-01	PS	9.70E-02	TX	1.00E+00	PS	-	-	-	-	-	-	D	FALSE
Xylene (mixed isomers)	2.00E+00	A,R	1.84E-00	TX	7.00E+00	A	-	-	-	-	-	-	D	FALSE
Methyl t-Butyl ether	1.00E-02	31	8.00E-03	TX	3.00E+00	R	-	-	-	-	-	-	-	FALSE
TPH - Aliph >C05-C06	5.00E+00	T	-	-	1.84E+01	T	-	-	-	-	-	-	D	FALSE
TPH - Aliph >C06-C08	5.00E+00	T	-	-	1.84E+01	T	-	-	-	-	-	-	D	FALSE
TPH - Aliph >C08-C10	1.00E-01	T	-	-	1.00E+00	T	-	-	-	-	-	-	D	FALSE
TPH - Aliph >C10-C12	1.00E-01	T	-	-	1.00E+00	T	-	-	-	-	-	-	D	FALSE
TPH - Arom >C08-C10	4.00E-02	T	-	-	2.00E-01	T	-	-	-	-	-	-	D	FALSE
TPH - Arom >C10-C12	4.00E-02	T	-	-	2.00E-01	T	-	-	-	-	-	-	D	FALSE
TPH - Arom >C12-C16	4.00E-02	T	-	-	2.00E-01	T	-	-	-	-	-	-	D	FALSE

* = Chemical with user-specifiec

Site Name: Former Tosco Static

Site Location: 15599 Hesperi

Miscellaneous Chemical Data

Constituent	Maximum Contaminent Level MCL (mg/L)	ref	Time-Weighted Average Workplace Criteria TWA (mg/m3)	ref	Aquatic Life Prot. Criteria AQL (mg/L)	ref	Biocon-centration Factor (L-wat/kg-fish)
Benzene*	1.00E-03	-	3.25E+00	-	-	-	12.6
Toluene	1.00E+00	56 FR 3526 (30 Jan 91)	1.47E+02	ACGIH	-	-	70
Ethylbenzene	7.00E-01	56 FR 3526 (30 Jan 91)	4.35E+02	PS	-	-	1
Xylene (mixed isomers)	1.00E+01	56 FR 3526 (30 Jan 91)	4.34E+02	ACGIH	-	-	1
Methyl t-Butyl ether	-	-	6.00E+01	NIOSH	-	-	1
TPH - Aliph >C05-C06	-	-	-	-	-	-	1
TPH - Aliph >C06-C08	-	-	-	-	-	-	1
TPH - Aliph >C08-C10	-	-	-	-	-	-	1
TPH - Aliph >C10-C12	-	-	-	-	-	-	1
TPH - Arom >C08-C10	-	-	-	-	-	-	1
TPH - Arom >C10-C12	-	-	-	-	-	-	1
TPH - Arom >C12-C16	-	-	-	-	-	-	1

* = Chemical with user-specifiec

Site Name: Former Tosco Static

Site Location: 15599 Hesperi

CHEMICAL DATA FOR SELECTED COCs

Miscellaneous Chemical Data

Constituent	Dermal Relative Absorp. Factor (unitless)	Water Dermal Permeability Data: Dermal Permeability Coeff. (cm/hr)	Lag time for Dermal Exposure (hr)	Critical Exposure Time (hr)	Relative Contr of Derm Perm Coeff (unitless)	Water/Skin Derm Adsorp Factor (cm/event)	ref	Detection Limits: Groundwater (mg/L)	ref	Soil (mg/kg)	ref	Half Life (First-Order Decay) (days): Saturated	Unsaturated	ref
Benzene*	0.5	0.021	0.26	0.63	0.013	7.3E-2	D	0.002	S	0.005	S	720	720	H
Toluene	0.5	0.045	0.32	0.77	0.054	1.6E-1	D	0.002	S	0.005	S	28	28	H
Ethylbenzene	0.5	0.074	0.39	1.3	0.14	2.7E-1	D	0.002	S	0.005	S	228	228	H
Xylene (mixed isomers)	0.5	0.08	0.39	1.4	0.16	2.9E-1	D	0.005	S	0.005	S	360	360	H
Methyl t-Butyl ether	0.5	-	-	-	-	-	-	-	-	-	-	360	180	H
TPH - Aliph >C05-C06	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH - Aliph >C06-C08	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH - Aliph >C08-C10	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH - Aliph >C10-C12	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH - Arom >C08-C10	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH - Arom >C10-C12	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH - Arom >C12-C16	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-

* = Chemical with user-specifiec

Site Name: Former Tosco Static

Site Location: 15599 Hesperi

RBCA SITE ASSESSMENT

Input Parameter Summary

Site Name: Former Tosco Station No. 7004
Site Location: 15599 Hesperian Blvd., San Leandro, CA

Completed By: J. Douglas
Date Completed: 28-Mar-03

Job ID: 140106.5

Exposure Parameters		Residential			Commercial/Industrial	
		Adult	(1-6yrs)	(1-16 yrs)	Chronic	Construc.
AT_c	Averaging time for carcinogens (yr)	70				
AT_n	Averaging time for non-carcinogens (yr)	30			25	1
BW	Body weight (kg)	70	15	35	70	
ED	Exposure duration (yr)	30	6	16	25	1
τ	Averaging time for vapor flux (yr)	30			25	1
EF	Exposure frequency (days/yr)	350			250	180
EF_D	Exposure frequency for dermal exposure	350			250	
IR_w	Ingestion rate of water (L/day)	2			1	
IR_s	Ingestion rate of soil (mg/day)	100	200		50	100
SA	Skin surface area (dermal) (cm^2)	5800		2023	5800	5800
M	Soil to skin adherence factor	1				
ET_{swim}	Swimming exposure time (hr/event)	3				
EV_{swim}	Swimming event frequency (events/yr)	12	12	12		
IR_{swim}	Water ingestion while swimming (L/hr)	0.05	0.5			
SA_{swim}	Skin surface area for swimming (cm^2)	23000		8100		
IR_{fish}	Ingestion rate of fish (kg/yr)	0.025				
H_{fish}	Contaminated fish fraction (unitless)	1				

Complete Exposure Pathways and Receptors	On-site	Off-site 1	Off-site 2
Groundwater:			
Groundwater Ingestion	Residential	Residential	Surf. Water
Soil Leaching to Groundwater Ingestion	Residential	Residential	Surf. Water
Applicable Surface Water Exposure Routes:			
Swimming			Yes
Fish Consumption			Yes
Aquatic Life Protection			Yes
Soil:			
Direct Ingestion and Dermal Contact	None		
Outdoor Air:			
Particulates from Surface Soils	None	None	None
Volatilization from Soils	Residential	None	None
Volatilization from Groundwater	Residential	None	None
Indoor Air:			
Volatilization from Subsurface Soils	Residential	NA	NA
Volatilization from Groundwater	Residential	NA	NA

Receptor Distance from Source Media	On-site	Off-site 1	Off-site 2	(Units)
Groundwater receptor	0	1650	700	(ft)
Soil leaching to groundwater receptor	0	1650	700	(ft)
Outdoor air inhalation receptor	0	NA	NA	(ft)

Target Health Risk Values		Individual	Cumulative
TR_{ca}	Target Risk (class A&B carcinogens)	1.0E-6	1.0E-5
TR_c	Target Risk (class C carcinogens)	1.0E-5	
THQ	Target Hazard Quotient (non-carcinogenic risk)	1.0E+0	1.0E+0

Modeling Options	
RBCA tier	Tier 2
Outdoor air volatilization model	Surface & subsurface models
Indoor air volatilization model	Johnson & Ettinger model
Soil leaching model	ASTM leaching model
Use soil attenuation model (SAM) for leachate?	Yes
Air dilution factor	NA
Groundwater dilution-attenuation factor	Domenico model w/ biodeg

NOTE: NA = Not applicable

Surface Parameters		General	Construction	(Units)
A	Source zone area	2.5E+3	NA	(ft^2)
W	Length of source-zone area parallel to wind	5.0E+1	NA	(ft)
W_{gw}	Length of source-zone area parallel to GW flow	8.0E+1		(ft)
U_{air}	Ambient air velocity in mixing zone	7.4E+0		(ft/s)
δ_{air}	Air mixing zone height	6.6E+0		(ft)
P_a	Areal particulate emission rate	NA		(g/cm^2/s)
L_{ss}	Thickness of affected surface soils	3.0E+0		(ft)

Surface Soil Column Parameters		Value			(Units)
h_{cap}	Capillary zone thickness	5.6E-1			(ft)
h_v	Vadose zone thickness	1.2E+1			(ft)
ρ_b	Soil bulk density	1.5E+0			(g/cm^3)
f_{oc}	Fraction organic carbon	1.0E-2			(-)
θ_T	Soil total porosity	4.2E-1			(-)
K_{vs}	Vertical hydraulic conductivity	1.1E+1			(cm/d)
k_v	Vapor permeability	1.1E-14			(ft^2)
L_{gw}	Depth to groundwater	1.3E+1			(ft)
L_s	Depth to top of affected soils	3.0E+0			(ft)
L_{base}	Depth to base of affected soils	1.3E+1			(ft)
L_{subs}	Thickness of affected soils	1.0E+1			(ft)
pH	Soil/groundwater pH	7.7E+0			(-)
		capillary	vadose	foundation	
θ_w	Volumetric water content	0.4	0.273	0.12	(-)
θ_a	Volumetric air content	0.021	0.148	0.26	(-)

Building Parameters		Residential	Commercial	(Units)
L_b	Building volume/area ratio	6.56E+0	NA	(ft)
A_b	Foundation area	7.53E+2	NA	(ft^2)
X_{crk}	Foundation perimeter	1.12E+2	NA	(ft)
ER	Building air exchange rate	1.40E-4	NA	(1/s)
L_{crk}	Foundation thickness	4.92E-1	NA	(ft)
Z_{crk}	Depth to bottom of foundation slab	4.92E-1	NA	(ft)
η	Foundation crack fraction	1.00E-2	NA	(-)
dP	Indoor/outdoor differential pressure	0.00E+0	NA	(g/cm/s^2)
U_s	Convective air flow through slab	0.00E+0	NA	(ft^3/s)

Groundwater Parameters		Value	(Units)
δ_{gw}	Groundwater mixing zone depth	6.6E+0	(ft)
I_f	Net groundwater infiltration rate	5.0E+0	(cm/yr)
U_{gw}	Groundwater Darcy velocity	2.2E-4	(cm/d)
V_{gw}	Groundwater seepage velocity	6.5E-4	(cm/d)
K_s	Saturated hydraulic conductivity	1.1E-1	(cm/d)
i	Groundwater gradient	2.0E-3	(-)
S_w	Width of groundwater source zone	1.0E+2	(ft)
S_d	Depth of groundwater source zone	6.6E+0	(ft)
θ_{eff}	Effective porosity in water-bearing unit	3.4E-1	(-)
f_{oc-sat}	Fraction organic carbon in water-bearing unit	1.0E-2	(-)
pH_{sat}	Groundwater pH	7.2E+0	(-)
	Biodegradation considered?	1st Order	

Transport Parameters		Off-site 1	Off-site 2	Off-site 1	Off-site 2	(Units)
Lateral Groundwater Transport		Groundwater Ingestion		Soil Leaching to GW		
α_x	Longitudinal dispersivity	1.7E+2	7.0E+1	1.7E+2	7.0E+1	(ft)
α_y	Transverse dispersivity	5.4E+1	2.3E+1	5.4E+1	2.3E+1	(ft)
α_z	Vertical dispersivity	8.3E+0	3.5E+0	8.3E+0	3.5E+0	(ft)
Lateral Outdoor Air Transport		Soil to Outdoor Air Inhal.		GW to Outdoor Air Inhal.		
σ_y	Transverse dispersion coefficient	NA	NA	NA	NA	(ft)
σ_z	Vertical dispersion coefficient	NA	NA	NA	NA	(ft)
ADF	Air dispersion factor	NA	NA	NA	NA	(-)

Surface Water Parameters		Off-site 2	(Units)
Q_{sw}	Surface water flowrate	1	(ft^3/s)
W_{pl}	Width of GW plume at SW discharge	100	(ft)
δ_{pl}	Thickness of GW plume at SW discharge	6.5	(ft)
DF_{sw}	Groundwater-to-surface water dilution factor	1.8E-7	(-)

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ☐ (CHECKED IF PATHWAY IS ACTIVE)

SURFACE SOILS (3 - 3 ft):
VAPOR INHALATION

Constituents of Concern	1) Source Medium	2) NAF Value (m^3/kg) Receptor				3) Exposure Medium Outdoor Air: POE Conc. (mg/m^3) (1) / (2)			
	Soil Conc. (mg/kg)	On-site (0 ft)		Off-site 1 (0 ft)	Off-site 2 (0 ft)	On-site (0 ft)		Off-site 1 (0 ft)	Off-site 2 (0 ft)
		Residential	Construction Worker	None	None	Residential	Construction Worker	None	None
Benzene*	8.2E-3								
Toluene	8.2E-3								
Ethylbenzene	1.8E-2								
Xylene (mixed isomers)	1.5E-2								
Methyl t-Butyl ether	9.5E-3								
TPH - Aliph >C05-C06	5.0E-1								
TPH - Aliph >C06-C08	5.0E-1								
TPH - Aliph >C08-C10	5.0E-1								
TPH - Aliph >C10-C12	5.0E-1								
TPH - Arom >C08-C10	2.9E+0								
TPH - Arom >C10-C12	5.0E-1								
TPH - Arom >C12-C16	5.0E-1								

NOTE: NAF = Natural attenuation factor POE = Point of exposure

Site Name: Former Tosco Station No. 7004
Site Location: 15599 Hesperian Blvd., San Leandro, CA
Completed By: J. Douglas

Date Completed: 28-Mar-03
Job ID: 140106.5

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS

SURFACE SOILS (3 - 3 ft):

VAPOR INHALATION (cont'd)

Constituents of Concern	4) Exposure Multiplier (EFxED)/(ATx365) (unitless)				5) Average Inhalation Exposure Concentration (mg/m^3) (3) X (4)			
	On-site (0 ft)		Off-site 1 (0 ft)	Off-site 2 (0 ft)	On-site (0 ft)		Off-site 1 (0 ft)	Off-site 2 (0 ft)
	Residential	Construction Worker	None	None	Residential	Construction Worker	None	None
Benzene*								
Toluene								
Ethylbenzene								
Xylene (mixed isomers)								
Methyl t-Butyl ether								
TPH - Aliph >C05-C06								
TPH - Aliph >C06-C08								
TPH - Aliph >C08-C10								
TPH - Aliph >C10-C12								
TPH - Arom >C08-C10								
TPH - Arom >C10-C12								
TPH - Arom >C12-C16								

* = Chemical with user-specified data

NOTE: AT = Averaging time (days) EF = Exposure frequency (days/yr) ED = Exposure duration (yr)

Site Name: Former Tosco Station No. 7004
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RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAY IS ACTIVE)

SUBSURFACE SOILS (3 - 13 ft):
VAPOR INHALATION

Constituents of Concern	1) Source Medium	2) NAF Value (m^3/kg) Receptor			3) Exposure Medium Outdoor Air: POE Conc. (mg/m^3) (1) / (2)		
	Soil Conc. (mg/kg)	On-site (0 ft) Residential	Off-site 1 (0 ft) None	Off-site 2 (0 ft) None	On-site (0 ft) Residential	Off-site 1 (0 ft) None	Off-site 2 (0 ft) None
Benzene*	8.2E-3	5.0E+4			1.6E-7		
Toluene	8.2E-3	5.0E+4			1.6E-7		
Ethylbenzene	1.8E-2	5.0E+4			3.6E-7		
Xylene (mixed isomers)	1.5E-2	5.0E+4			2.9E-7		
Methyl t-Butyl ether	9.5E-3	5.0E+4			1.9E-7		
TPH - Aliph >C05-C06	5.0E-1	5.0E+4			1.0E-5		
TPH - Aliph >C06-C08	5.0E-1	5.0E+4			1.0E-5		
TPH - Aliph >C08-C10	5.0E-1	5.0E+4			1.0E-5		
TPH - Aliph >C10-C12	5.0E-1	5.0E+4			1.0E-5		
TPH - Arom >C08-C10	2.9E+0	7.7E+4			3.7E-5		
TPH - Arom >C10-C12	5.0E-1	4.3E+5			1.2E-6		
TPH - Arom >C12-C16	5.0E-1	2.2E+6			2.2E-7		

NOTE: NAF = Natural attenuation factor POE = Point of exposure

Site Name: Former Tosco Station No. 7004
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RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS

SUBSURFACE SOILS (3 - 13 ft):

VAPOR INHALATION (cont'd)

Constituents of Concern	4) Exposure Multiplier (EFxED)/(ATx365) (unitless)			5) Average Inhalation Exposure Concentration (mg/m^3) (3) X (4)		
	On-site (0 ft)	Off-site 1 (0 ft)	Off-site 2 (0 ft)	On-site (0 ft)	Off-site 1 (0 ft)	Off-site 2 (0 ft)
	Residential	None	None	Residential	None	None
Benzene*	4.1E-1			6.7E-8		
Toluene	9.6E-1			1.6E-7		
Ethylbenzene	9.6E-1			3.4E-7		
Xylene (mixed isomers)	9.6E-1			2.8E-7		
Methyl t-Butyl ether	9.6E-1			1.8E-7		
TPH - Aliph >C05-C06	9.6E-1			9.5E-6		
TPH - Aliph >C06-C08	9.6E-1			9.5E-6		
TPH - Aliph >C08-C10	9.6E-1			9.5E-6		
TPH - Aliph >C10-C12	9.6E-1			9.5E-6		
TPH - Arom >C08-C10	9.6E-1			3.6E-5		
TPH - Arom >C10-C12	9.6E-1			1.1E-6		
TPH - Arom >C12-C16	9.6E-1			2.1E-7		

NOTE: AT = Averaging time (days) EF = Exposure frequency (days/yr) ED = Exposure duration (yr)

Site Name: Former Tosco Station No. 7004
Site Location: 15599 Hesperian Blvd., San Leandro, CA
Completed By: J. Douglas

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RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAY IS ACTIVE)

GROUNDWATER: VAPOR INHALATION

Exposure Concentration

Constituents of Concern	1) Source Medium	2) NAF Value (m^3/L) Receptor			3) Exposure Medium Outdoor Air: POE Conc. (mg/m^3) (1) / (2)		
	Groundwater Conc. (mg/L)	On-site (0 ft) Residential	Off-site 1 (0 ft) None	Off-site 2 (0 ft) None	On-site (0 ft) Residential	Off-site 1 (0 ft) None	Off-site 2 (0 ft) None
Benzene*	7.9E-4	1.2E+5			6.9E-9		
Toluene	9.2E-4	1.1E+5			8.0E-9		
Ethylbenzene	4.9E-3	1.3E+5			3.8E-8		
Xylene (mixed isomers)	3.0E-3	1.3E+5			2.4E-8		
Methyl t-Butyl ether	1.7E-2	2.3E+5			7.3E-8		
TPH - Aliph >C05-C06	3.4E-2	5.2E+3			6.6E-6		
TPH - Aliph >C06-C08	4.1E-2	3.6E+3			1.1E-5		
TPH - Aliph >C08-C10	3.4E-2	2.2E+3			1.5E-5		
TPH - Aliph >C10-C12	4.2E-2	1.4E+3			2.9E-5		
TPH - Arom >C08-C10	2.1E-1	8.7E+4			2.4E-6		
TPH - Arom >C10-C12	4.5E-2	1.3E+5			3.4E-7		
TPH - Arom >C12-C16	3.4E-2	2.0E+5			1.7E-7		

NOTE: NAF = Natural attenuation factor POE = Point of exposure

Site Name: Former Tosco Station No. 7004
Site Location: 15599 Hesperian Blvd., San Leandro, CA
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RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS

GROUNDWATER: VAPOR INHALATION (cont'd)

Constituents of Concern	4) Exposure Multiplier (EFxED)/(ATx365) (unitless)			5) Average Inhalation Exposure Concentration (mg/m^3) (3) X (4)		
	On-site (0 ft) Residential	Off-site 1 (0 ft) None	Off-site 2 (0 ft) None	On-site (0 ft) Residential	Off-site 1 (0 ft) None	Off-site 2 (0 ft) None
Benzene*	4.1E-1			2.8E-9		
Toluene	9.6E-1			7.7E-9		
Ethylbenzene	9.6E-1			3.7E-8		
Xylene (mixed isomers)	9.6E-1			2.3E-8		
Methyl t-Butyl ether	9.6E-1			7.0E-8		
TPH - Aliph >C05-C06	9.6E-1			6.3E-6		
TPH - Aliph >C06-C08	9.6E-1			1.1E-5		
TPH - Aliph >C08-C10	9.6E-1			1.5E-5		
TPH - Aliph >C10-C12	9.6E-1			2.8E-5		
TPH - Arom >C08-C10	9.6E-1			2.3E-6		
TPH - Arom >C10-C12	9.6E-1			3.3E-7		
TPH - Arom >C12-C16	9.6E-1			1.6E-7		

NOTE: AT = Averaging time (days) EF = Exposure frequency (days/yr) ED = Exposure duration (yr)

Site Name: Former Tosco Station No. 7004
Site Location: 15599 Hesperian Blvd., San Leandro, CA
Completed By: J. Douglas

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RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS

TOTAL PATHWAY EXPOSURE (mg/m^3)

(Sum average expsosure concentrations from soil and groundwater routes.)

Constituents of Concern	On-site (0 ft) Residential	On-site (0 ft) Construction Worker	Off-site 1 (0 ft) None	Off-site 2 (0 ft) None
Benzene*	7.0E-8			
Toluene	1.6E-7			
Ethylbenzene	3.8E-7			
Xylene (mixed isomers)	3.0E-7			
Methyl t-Butyl ether	2.5E-7			
TPH - Aliph >C05-C06	1.6E-5			
TPH - Aliph >C06-C08	2.0E-5			
TPH - Aliph >C08-C10	2.4E-5			
TPH - Aliph >C10-C12	3.7E-5			
TPH - Arom >C08-C10	3.8E-5			
TPH - Arom >C10-C12	1.4E-6			
TPH - Arom >C12-C16	3.8E-7			

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RBCA SITE ASSESSMENT

TIER 2 PATHWAY RISK CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAYS ARE ACTIVE)**

CARCINOGENIC RISK

Constituents of Concern	(1) EPA Carcinogenic Classification	(2) Total Carcinogenic Exposure (mg/m^3) On-site (0 ft) Residential	(2) Total Carcinogenic Exposure (mg/m^3) On-site (0 ft) Construction Worker	(2) Total Carcinogenic Exposure (mg/m^3) Off-site 1 (0 ft)	(2) Total Carcinogenic Exposure (mg/m^3) Off-site 2 (0 ft)	(3) Inhalation Unit Risk Factor (µg/m^3)^-1	(4) Individual COC Risk (2) x (3) x 1000 On-site (0 ft) Residential	(4) Individual COC Risk (2) x (3) x 1000 On-site (0 ft) Construction Worker	(4) Individual COC Risk (2) x (3) x 1000 Off-site 1 (0 ft)	(4) Individual COC Risk (2) x (3) x 1000 Off-site 2 (0 ft)
				None	None				None	None
Benzene*	A	7.0E-8				8.3E-6	5.8E-10			
Toluene	D									
Ethylbenzene	D									
Xylene (mixed isomers)	D									
Methyl t-Butyl ether	-									
TPH - Aliph >C05-C06	D									
TPH - Aliph >C06-C08	D									
TPH - Aliph >C08-C10	D									
TPH - Aliph >C10-C12	D									
TPH - Arom >C08-C10	D									
TPH - Arom >C10-C12	D									
TPH - Arom >C12-C16	D									

Total Pathway Carcinogenic Risk = **5.8E-10**

Site Name: Former Tosco Station No. 7004
Site Location: 15599 Hesperian Blvd., San Leandro, CA

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RBCA SITE ASSESSMENT

TIER 2 PATHWAY RISK CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAYS ARE ACTIVE)**

TOXIC EFFECTS

Constituents of Concern	(5) Total Toxicant Exposure (mg/m^3)				(6) Inhalation Reference Conc. (mg/m^3)	(7) Individual COC Hazard Quotient (5) / (6)			
	On-site (0 ft)		Off-site 1 (0 ft)	Off-site 2 (0 ft)		On-site (0 ft)		Off-site 1 (0 ft)	Off-site 2 (0 ft)
	Residential	Construction Worker	None	None		Residential	Construction Worker	None	None
Benzene*	1.6E-7				6.0E-3	2.7E-5			
Toluene	1.6E-7				4.0E-1	4.1E-7			
Ethylbenzene	3.8E-7				1.0E+0	3.8E-7			
Xylene (mixed isomers)	3.0E-7				7.0E+0	4.3E-8			
Methyl t-Butyl ether	2.5E-7				3.0E+0	8.4E-8			
TPH - Aliph >C05-C06	1.6E-5				1.8E+1	8.6E-7			
TPH - Aliph >C06-C08	2.0E-5				1.8E+1	1.1E-6			
TPH - Aliph >C08-C10	2.4E-5				1.0E+0	2.4E-5			
TPH - Aliph >C10-C12	3.7E-5				1.0E+0	3.7E-5			
TPH - Arom >C08-C10	3.8E-5				2.0E-1	1.9E-4			
TPH - Arom >C10-C12	1.4E-6				2.0E-1	7.2E-6			
TPH - Arom >C12-C16	3.8E-7				2.0E-1	1.9E-6			
Total Pathway Hazard Index =						**2.9E-4**			

Site Name: Former Tosco Station No. 7004
Site Location: 15599 Hesperian Blvd., San Leandro, CA

Completed By: J. Douglas
Date Completed: 28-Mar-03

Job ID: 140106.5

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

INDOOR AIR EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAY IS ACTIVE)

SOILS (3 - 13 ft): VAPOR INTRUSION INTO ON-SITE BUILDINGS

Constituents of Concern	1) Source Medium Soil Conc. (mg/kg)	2) NAF Value (m^3/kg) Receptor	3) Exposure Medium Indoor Air: POE Conc. (mg/m^3) (1) / (2)	4) Exposure Multiplier (EFxED)/(ATx365) (unitless)	5) Average Inhalation Exposure Concentration (mg/m^3) (3) X (4)
	Residential	Residential	Residential	Residential	Residential
Benzene*	8.2E-3	5.7E+1	1.4E-4	4.1E-1	5.9E-5
Toluene	8.2E-3	5.7E+1	1.4E-4	9.6E-1	1.4E-4
Ethylbenzene	1.8E-2	1.3E+2	1.4E-4	9.6E-1	1.4E-4
Xylene (mixed isomers)	1.5E-2	1.0E+2	1.5E-4	9.6E-1	1.4E-4
Methyl t-Butyl ether	9.5E-3	1.2E+2	8.1E-5	9.6E-1	7.8E-5
TPH - Aliph >C05-C06	5.0E-1	5.7E+1	8.7E-3	9.6E-1	8.4E-3
TPH - Aliph >C06-C08	5.0E-1	5.7E+1	8.7E-3	9.6E-1	8.4E-3
TPH - Aliph >C08-C10	5.0E-1	5.7E+1	8.7E-3	9.6E-1	8.4E-3
TPH - Aliph >C10-C12	5.0E-1	1.7E+2	3.0E-3	9.6E-1	2.9E-3
TPH - Arom >C08-C10	2.9E+0	2.7E+2	1.1E-2	9.6E-1	1.0E-2
TPH - Arom >C10-C12	5.0E-1	1.5E+3	3.3E-4	9.6E-1	3.2E-4
TPH - Arom >C12-C16	5.0E-1	7.8E+3	6.4E-5	9.6E-1	6.1E-5

* = Chemical with user-specified data

NOTE: AT = Averaging time (days) EF = Exposure frequency (days/yr) ED = Exposure duration (yr) NAF = Natural attenuation factor POE = Point of exposure

Site Name: Former Tosco Station No. 7004
Site Location: 15599 Hesperian Blvd., San Leandro, CA
Completed By: J. Douglas

Date Completed: 28-Mar-03
Job ID: 140106.5

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

INDOOR AIR EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAY IS ACTIVE)

GROUNDWATER: VAPOR INTRUSION INTO ON-SITE BUILDINGS

Exposure Concentration

Constituents of Concern	1) Source Medium Groundwater Conc. (mg/L)	2) NAF Value (m^3/L) Receptor Residential	3) Exposure Medium Indoor Air: POE Conc. (mg/m^3) (1) / (2) Residential	4) Exposure Multiplier (EFxED)/(ATx365) (unitless) Residential	5) Average Inhalation Exposure Concentration (mg/m^3) (3) X (4) Residential
Benzene*	7.9E-4	2.4E+2	3.2E-6	4.1E-1	1.3E-6
Toluene	9.2E-4	2.4E+2	3.8E-6	9.6E-1	3.6E-6
Ethylbenzene	4.9E-3	2.6E+2	1.9E-5	9.6E-1	1.8E-5
Xylene (mixed isomers)	3.0E-3	2.6E+2	1.1E-5	9.6E-1	1.1E-5
Methyl t-Butyl ether	1.7E-2	7.2E+2	2.3E-5	9.6E-1	2.2E-5
TPH - Aliph >C05-C06	3.4E-2	1.0E+1	3.4E-3	9.6E-1	3.3E-3
TPH - Aliph >C06-C08	4.1E-2	6.9E+0	5.9E-3	9.6E-1	5.7E-3
TPH - Aliph >C08-C10	3.4E-2	4.3E+0	8.0E-3	9.6E-1	7.7E-3
TPH - Aliph >C10-C12	4.2E-2	2.8E+0	1.5E-2	9.6E-1	1.5E-2
TPH - Arom >C08-C10	2.1E-1	1.8E+2	1.2E-3	9.6E-1	1.1E-3
TPH - Arom >C10-C12	4.5E-2	2.9E+2	1.6E-4	9.6E-1	1.5E-4
TPH - Arom >C12-C16	3.4E-2	4.9E+2	7.0E-5	9.6E-1	6.7E-5

NOTE: AT = Averaging time (days) EF = Exposure frequency (days/yr) ED = Exposure duration (yr) NAF = Natural attenuation factor POE = Point of exposure

Site Name: Former Tosco Station No. 7004
Site Location: 15599 Hesperian Blvd., San Leandro, CA
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RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

INDOOR AIR EXPOSURE PATHWAYS

Constituents of Concern	TOTAL PATHWAY EXPOSURE (mg/m^3) *(Sum average expsosure concentrations from soil and groundwater routes.)* Residential
Benzene*	6.0E-5
Toluene	1.4E-4
Ethylbenzene	1.5E-4
Xylene (mixed isomers)	1.5E-4
Methyl t-Butyl ether	1.0E-4
TPH - Aliph >C05-C06	1.2E-2
TPH - Aliph >C06-C08	1.4E-2
TPH - Aliph >C08-C10	1.6E-2
TPH - Aliph >C10-C12	1.7E-2
TPH - Arom >C08-C10	1.1E-2
TPH - Arom >C10-C12	4.7E-4
TPH - Arom >C12-C16	1.3E-4

Site Name: Former Tosco Station No. 7004 Date Completed: 28-Mar-03
Site Location: 15599 Hesperian Blvd., San Leandr Job ID: 140106.5
Completed By: J. Douglas

RBCA SITE ASSESSMENT

TIER 2 PATHWAY RISK CALCULATION

INDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAYS ARE ACTIVE)**

Constituents of Concern	(1) EPA Carcinogenic Classification	CARCINOGENIC RISK (2) Total Carcinogenic Exposure (mg/m^3) Residential	(3) Inhalation Unit Risk Factor (ug/m^3)^-1	(4) Individual COC Risk (2) x (3) x 1000 Residential
Benzene*	A	6.0E-5	8.3E-6	5.0E-7
Toluene	D			
Ethylbenzene	D			
Xylene (mixed isomers)	D			
Methyl t-Butyl ether	-			
TPH - Aliph >C05-C06	D			
TPH - Aliph >C06-C08	D			
TPH - Aliph >C08-C10	D			
TPH - Aliph >C10-C12	D			
TPH - Arom >C08-C10	D			
TPH - Arom >C10-C12	D			
TPH - Arom >C12-C16	D			

Total Pathway Carcinogenic Risk = **5.0E-7**

Site Name: Former Tosco Station No. 7004
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Date Completed: 28-Mar-03
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RBCA SITE ASSESSMENT

TIER 2 PATHWAY RISK CALCULATION

INDOOR AIR EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAYS ARE ACTIVE)

Constituents of Concern	TOXIC EFFECTS (5) Total Toxicant Exposure (mg/m^3) Residential	(6) Inhalation Reference Concentration (mg/m^3)	(7) Individual COC Hazard Quotient (5) / (6) Residential
Benzene*	1.4E-4	6.0E-3	2.4E-2
Toluene	1.4E-4	4.0E-1	3.5E-4
Ethylbenzene	1.5E-4	1.0E+0	1.5E-4
Xylene (mixed isomers)	1.5E-4	7.0E+0	2.2E-5
Methyl t-Butyl ether	1.0E-4	3.0E+0	3.3E-5
TPH - Aliph >C05-C06	1.2E-2	1.8E+1	6.3E-4
TPH - Aliph >C06-C08	1.4E-2	1.8E+1	7.6E-4
TPH - Aliph >C08-C10	1.6E-2	1.0E+0	1.6E-2
TPH - Aliph >C10-C12	1.7E-2	1.0E+0	1.7E-2
TPH - Arom >C08-C10	1.1E-2	2.0E-1	5.7E-2
TPH - Arom >C10-C12	4.7E-4	2.0E-1	2.3E-3
TPH - Arom >C12-C16	1.3E-4	2.0E-1	6.4E-4

Total Pathway Hazard Index = **1.2E-1**

Site Name: Former Tosco Station No. 7004
Site Location: 15599 Hesperian Blvd., San Leandro, CA
Completed By: J. Douglas

Date Completed: 28-Mar-03
Job ID: 140106.5

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

GROUNDWATER EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAY IS ACTIVE)

SOILS (3 - 13 ft): LEACHING TO GROUNDWATER INGESTION

Constituents of Concern	1) Source Medium	2) NAF Value (L/kg) Receptor			3) Exposure Medium Groundwater: POE Conc. (mg/L) (1)/(2)		
	Soil Conc. (mg/kg)	On-site (0 ft) Residential	Off-site 1 (1650 ft) Residential	Off-site 2 (700 ft) Surf. Water	On-site (0 ft) Residential	Off-site 1 (1650 ft) Residential	Off-site 2 (700 ft) Surf. Water
Benzene*	8.2E-3	1.2E+11	1.2E+111		6.7E-14	6.7E-114	
Toluene	8.2E-3	NA	NA				
Ethylbenzene	1.8E-2	1.8E+172	1.8E+272		9.8E-175	9.9E-275	
Xylene (mixed isomers)	1.5E-2	1.5E+74	1.5E+174		9.6E-77	9.6E-177	
Methyl t-Butyl ether	9.5E-3	3.8E+16	3.8E+116		2.5E-19	2.5E-119	
TPH - Aliph >C05-C06	5.0E-1	NA	NA				
TPH - Aliph >C06-C08	5.0E-1	NA	NA				
TPH - Aliph >C08-C10	5.0E-1	NA	NA				
TPH - Aliph >C10-C12	5.0E-1	NA	NA				
TPH - Arom >C08-C10	2.9E+0	NA	NA				
TPH - Arom >C10-C12	5.0E-1	NA	NA				
TPH - Arom >C12-C16	5.0E-1	NA	NA				

* = Chemical with user-specified data

NOTE: NAF = Natural attenuation factor POE = Point of exposure

Site Name: Former Tosco Station No. 7004
Site Location: 15599 Hesperian Blvd., San Leandro, CA
Completed By: J. Douglas

Date Completed: 28-Mar-03
Job ID: 140106.5

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

GROUNDWATER EXPOSURE PATHWAYS

SOILS (3 - 13 ft): LEACHING TO GROUNDWATER INGESTION (cont'd)

Constituents of Concern	4) Exposure Multiplier (IRxEFxED)/(BWxAT) (L/kg-day)			5) Average Daily Intake Rate (mg/kg/day) (3) x (4)		
	On-site (0 ft) Residential	Off-site 1 (1650 ft) Residential	Off-site 2 (700 ft) Surf. Water	On-site (0 ft) Residential	Off-site 1 (1650 ft) Residential	Off-site 2 (700 ft) Surf. Water
Benzene*	1.2E-2	1.2E-2		7.8E-16	7.8E-116	
Toluene	2.7E-2	2.7E-2				
Ethylbenzene	2.7E-2	2.7E-2		2.7E-176	2.7E-276	
Xylene (mixed isomers)	2.7E-2	2.7E-2		2.6E-78	2.6E-178	
Methyl t-Butyl ether	2.7E-2	2.7E-2		6.8E-21	6.8E-121	
TPH - Aliph >C05-C06	2.7E-2	2.7E-2				
TPH - Aliph >C06-C08	2.7E-2	2.7E-2				
TPH - Aliph >C08-C10	2.7E-2	2.7E-2				
TPH - Aliph >C10-C12	2.7E-2	2.7E-2				
TPH - Arom >C08-C10	2.7E-2	2.7E-2				
TPH - Arom >C10-C12	2.7E-2	2.7E-2				
TPH - Arom >C12-C16	2.7E-2	2.7E-2				

* = Chemical with user-specified data

NOTE: AT = Averaging time (days) ED = Exposure duration (yr) IR = Ingestion rate (mg/day)
BW = Body weight (kg) EF = Exposure frequency (days/yr)

Site Name: Former Tosco Station No. 7004
Site Location: 15599 Hesperian Blvd., San Leandro, CA
Completed By: J. Douglas
Date Completed: 28-Mar-03
Job ID: 140106.5

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

GROUNDWATER EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAY IS ACTIVE)

GROUNDWATER: INGESTION

Constituents of Concern	1) Source Medium: Groundwater Conc. (mg/L)	2) NAF Value (unitless) Receptor: On-site (0 ft) Residential	Off-site 1 (1650 ft) Residential	Off-site 2 (700 ft) Surf. Water	3) Exposure Medium Groundwater: POE Conc. (mg/L) (1)/(2): On-site (0 ft) Residential	Off-site 1 (1650 ft) Residential	Off-site 2 (700 ft) Surf. Water
Benzene*	7.9E-4	1.0E+0	1.0E+100		7.9E-4	7.9E-104	
Toluene	9.2E-4	1.0E+0	1.0E+100		9.2E-4	9.2E-104	
Ethylbenzene	4.9E-3	1.0E+0	1.0E+100		4.9E-3	4.9E-103	
Xylene (mixed isomers)	3.0E-3	1.0E+0	1.0E+100		3.0E-3	3.0E-103	
Methyl t-Butyl ether	1.7E-2	1.0E+0	1.0E+100		1.7E-2	1.7E-102	
TPH - Aliph >C05-C06	3.4E-2	1.0E+0	1.0E+100		3.4E-2	3.4E-102	
TPH - Aliph >C06-C08	4.1E-2	1.0E+0	1.0E+100		4.1E-2	4.1E-102	
TPH - Aliph >C08-C10	3.4E-2	1.0E+0	1.0E+100		3.4E-2	3.4E-102	
TPH - Aliph >C10-C12	4.2E-2	1.0E+0	1.0E+100		4.2E-2	4.2E-102	
TPH - Arom >C08-C10	2.1E-1	1.0E+0	1.0E+100		2.1E-1	2.1E-101	
TPH - Arom >C10-C12	4.5E-2	1.0E+0	1.0E+100		4.5E-2	4.5E-102	
TPH - Arom >C12-C16	3.4E-2	1.0E+0	1.0E+100		3.4E-2	3.4E-102	

NOTE: NAF = Natural attenuation factor POE = Point of exposure

Site Name: Former Tosco Station No. 7004
Site Location: 15599 Hesperian Blvd., San Leandro, CA
Completed By: J. Douglas

Date Completed: 28-Mar-03
Job ID: 140106.5

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

GROUNDWATER EXPOSURE PATHWAYS

GROUNDWATER INGESTION (cont'd)

Constituents of Concern	4) Exposure Multiplier (IRxEFxED)/(BWxAT) (L/kg/day)			5) Average Daily Intake Rate (mg/kg/day) (3) x (4)		
	On-site (0 ft) Residential	Off-site 1 (1650 ft) Residential	Off-site 2 (700 ft) Surf. Water	On-site (0 ft) Residential	Off-site 1 (1650 ft) Residential	Off-site 2 (700 ft) Surf. Water
Benzene*	1.2E-2	1.2E-2		9.3E-6	9.3E-106	
Toluene	2.7E-2	2.7E-2		2.5E-5	2.5E-105	
Ethylbenzene	2.7E-2	2.7E-2		1.3E-4	1.3E-104	
Xylene (mixed isomers)	2.7E-2	2.7E-2		8.3E-5	8.3E-105	
Methyl t-Butyl ether	2.7E-2	2.7E-2		4.6E-4	4.6E-104	
TPH - Aliph >C05-C06	2.7E-2	2.7E-2		9.4E-4	9.4E-104	
TPH - Aliph >C06-C08	2.7E-2	2.7E-2		1.1E-3	1.1E-103	
TPH - Aliph >C08-C10	2.7E-2	2.7E-2		9.4E-4	9.4E-104	
TPH - Aliph >C10-C12	2.7E-2	2.7E-2		1.1E-3	1.1E-103	
TPH - Arom >C08-C10	2.7E-2	2.7E-2		5.7E-3	5.7E-103	
TPH - Arom >C10-C12	2.7E-2	2.7E-2		1.2E-3	1.2E-103	
TPH - Arom >C12-C16	2.7E-2	2.7E-2		9.4E-4	9.4E-104	

* = Chemical with user-specified data

NOTE: AT = Averaging time (days) ED = Exposure duration (yr) IR = Ingestion rate (mg/day)
BW = Body weight (kg) EF = Exposure frequency (days/yr)

Site Name: Former Tosco Station No. 7004 Completed By: J. Douglas Job ID: 140106.5
Site Location: 15599 Hesperian Blvd., San Leandro, CA Date Completed: 28-Mar-03

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

GROUNDWATER EXPOSURE PATHWAYS

MAXIMUM PATHWAY INTAKE (mg/kg/day)
(Maximum intake of active pathways soil leaching & groundwater routes.)

Constituents of Concern	On-site (0 ft) Residential	Off-site 1 Residential	Off-site 2 Surf. Water
Benzene*	9.3E-6	9.3E-106	
Toluene	2.5E-5	2.5E-105	
Ethylbenzene	1.3E-4	1.3E-104	
Xylene (mixed isomers)	8.3E-5	8.3E-105	
Methyl t-Butyl ether	4.6E-4	4.6E-104	
TPH - Aliph >C05-C06	9.4E-4	9.4E-104	
TPH - Aliph >C06-C08	1.1E-3	1.1E-103	
TPH - Aliph >C08-C10	9.4E-4	9.4E-104	
TPH - Aliph >C10-C12	1.1E-3	1.1E-103	
TPH - Arom >C08-C10	5.7E-3	5.7E-103	
TPH - Arom >C10-C12	1.2E-3	1.2E-103	
TPH - Arom >C12-C16	9.4E-4	9.4E-104	

* = Chemical with user-specified data

Site Name: Former Tosco Station No. 7004
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RBCA SITE ASSESSMENT

TIER 2 PATHWAY RISK CALCULATION

GROUNDWATER EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAYS ARE ACTIVE)**

CARCINOGENIC RISK

Constituents of Concern	(1) EPA Carcinogenic Classification	(2) Maximum Carcinogenic Intake Rate (mg/kg/day)			(3) Oral Slope Factor (mg/kg-day)^-1	(4) Individual COC Risk (2) x (3)		
		On-site (0 ft) Residential	Off-site 1 Residential	Off-site 2 Surf. Water		On-site (0 ft) Residential	Off-site 1 Residential	Off-site 2 Surf. Water
Benzene*	A	9.3E-6	9.3E-106		1.0E-1	9.3E-7	9.3E-107	
Toluene	D							
Ethylbenzene	D							
Xylene (mixed isomers)	D							
Methyl t-Butyl ether	-							
TPH - Aliph >C05-C06	D							
TPH - Aliph >C06-C08	D							
TPH - Aliph >C08-C10	D							
TPH - Aliph >C10-C12	D							
TPH - Arom >C08-C10	D							
TPH - Arom >C10-C12	D							
TPH - Arom >C12-C16	D							
Total Pathway Carcinogenic Risk =						**9.3E-7**	**9.3E-107**	

Site Name: Former Tosco Station No. 7004
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RBCA SITE ASSESSMENT

TIER 2 PATHWAY RISK CALCULATION

GROUNDWATER EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAYS ARE ACTIVE)**

	TOXIC EFFECTS						
	(5) Maximum Toxicant Intake Rate (mg/kg/day)			(6) Oral Reference Dose (mg/kg/day)	(7) Individual COC Hazard Quotient (5) / (6)		
Constituents of Concern	On-site (0 ft) Residential	Off-site 1 Residential	Off-site 2 Surf. Water		On-site (0 ft) Residential	Off-site 1 Residential	Off-site 2 Surf. Water
Benzene*	2.2E-5	2.2E-105		3.0E-3	7.2E-3	7.2E-103	
Toluene	2.5E-5	2.5E-105		2.0E-1	1.3E-4	1.3E-104	
Ethylbenzene	1.3E-4	1.3E-104		1.0E-1	1.3E-3	1.3E-103	
Xylene (mixed isomers)	8.3E-5	8.3E-105		2.0E+0	4.1E-5	4.1E-105	
Methyl t-Butyl ether	4.6E-4	4.6E-104		1.0E-2	4.6E-2	4.6E-102	
TPH - Aliph >C05-C06	9.4E-4	9.4E-104		5.0E+0	1.9E-4	1.9E-104	
TPH - Aliph >C06-C08	1.1E-3	1.1E-103		5.0E+0	2.2E-4	2.2E-104	
TPH - Aliph >C08-C10	9.4E-4	9.4E-104		1.0E-1	9.4E-3	9.4E-103	
TPH - Aliph >C10-C12	1.1E-3	1.1E-103		1.0E-1	1.1E-2	1.1E-102	
TPH - Arom >C08-C10	5.7E-3	5.7E-103		4.0E-2	1.4E-1	1.4E-101	
TPH - Arom >C10-C12	1.2E-3	1.2E-103		4.0E-2	3.1E-2	3.1E-102	
TPH - Arom >C12-C16	9.4E-4	9.4E-104		4.0E-2	2.3E-2	2.3E-102	
Total Pathway Hazard Index =					**2.7E-1**	**2.7E-101**	

Site Name: Former Tosco Station No. 7004
Site Location: 15599 Hesperian Blvd., San Leandro, CA
Completed By: J. Douglas

Date Completed: 28-Mar-03
Job ID: 140106.5

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

SURFACE WATER EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAY IS ACTIVE)**

SOILS (3 - 13 ft): LEACHING TO GW/ DISCHARGE TO SURFACE WATER / DERMAL CONTACT & INGESTION VIA SWIMMING

Constituents of Concern	1) Source Medium Soil Conc. (mg/kg)	2) NAF Value (L/kg) Receptor Off-site 2 (700 ft) Surface Water	3) Exposure Medium Surface Water: POE Conc. (mg/L) (1)/(2) Off-site 2 (700 ft) Surface Water
Benzene*	8.2E-3	2.3E+118	3.6E-121
Toluene	8.2E-3	NA	
Ethylbenzene	1.8E-2	3.4E+279	5.4E-282
Xylene (mixed isomers)	1.5E-2	2.8E+181	5.2E-184
Methyl t-Butyl ether	9.5E-3	7.0E+123	1.3E-126
TPH - Aliph >C05-C06	5.0E-1	NA	
TPH - Aliph >C06-C08	5.0E-1	NA	
TPH - Aliph >C08-C10	5.0E-1	NA	
TPH - Aliph >C10-C12	5.0E-1	NA	
TPH - Arom >C08-C10	2.9E+0	NA	
TPH - Arom >C10-C12	5.0E-1	NA	
TPH - Arom >C12-C16	5.0E-1	NA	

NOTE: NAF = Natural attenuation factor POE = Point of exposure

Site Name: Former Tosco Station No. 7004
Site Location: 15599 Hesperian Blvd., San Leandro, CA
Completed By: J. Douglas

Date Completed: 28-Mar-03
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RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

SURFACE WATER EXPOSURE PATHWAYS

SOILS (3 - 13 ft): LEACHING TO GW/ DISCHARGE TO SURFACE WATER / DERMAL CONTACT & INGESTION VIA SWIMMING (cont'd)

Constituents of Concern	4) Exposure Multiplier [(IRxET+SAxZ)xEVxED]/(BWxAT) (L/kg/day)	5) Average Daily Intake Rate (mg/kg/day) (3) x (4)
	Off-site 2 (700 ft) Surface Water	Off-site 2 (700 ft) Surface Water
Benzene*	3.7E-4	1.3E-124
Toluene		
Ethylbenzene	3.0E-3	1.6E-284
Xylene (mixed isomers)	3.2E-3	1.7E-186
Methyl t-Butyl ether	7.0E-5	9.5E-131
TPH - Aliph >C05-C06		
TPH - Aliph >C06-C08		
TPH - Aliph >C08-C10		
TPH - Aliph >C10-C12		
TPH - Arom >C08-C10		
TPH - Arom >C10-C12		
TPH - Arom >C12-C16		

AT = Averaging time (days)	ED = Exposure duration (yr)	EV = Event frequency (yr^-1)	SA = Skin exposure area (cm^2/day)
BW = Body weight (kg)	ET = Exposure time (hr)	IR = Ingestion rate (L/hr)	Z = Water/skin dermal adsorp. factor (cm)

Site Name: Former Tosco Station No. 7004 Completed By: J. Douglas Job ID: 140106.5

Site Location: 15599 Hesperian Blvd., San Leandro, (Date Completed: 28-Mar-03

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

SURFACE WATER EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAY IS ACTIVE)

SOILS (3 - 13 ft): LEACHING TO GW/ DISCHARGE TO SURFACE WATER/ FISH CONSUMPTION

Constituents of Concern	Exposure Concentration 1) Source Medium Soil Conc. (mg/kg)	2) NAF Value (L/kg) Receptor Off-site 2 (700 ft) Surface Water	3) Exposure Medium Surface Water: POE Conc. (mg/L) (1)/(2) Off-site 2 (700 ft) Surface Water
Benzene*	8.2E-3	2.3E+118	3.6E-121
Toluene	8.2E-3	NA	
Ethylbenzene	1.8E-2	3.4E+279	5.4E-282
Xylene (mixed isomers)	1.5E-2	2.8E+181	5.2E-184
Methyl t-Butyl ether	9.5E-3	7.0E+123	1.3E-126
TPH - Aliph >C05-C06	5.0E-1	NA	
TPH - Aliph >C06-C08	5.0E-1	NA	
TPH - Aliph >C08-C10	5.0E-1	NA	
TPH - Aliph >C10-C12	5.0E-1	NA	
TPH - Arom >C08-C10	2.9E+0	NA	
TPH - Arom >C10-C12	5.0E-1	NA	
TPH - Arom >C12-C16	5.0E-1	NA	

NOTE: NAF = Natural attenuation factor POE = Point of exposure

Site Name: Former Tosco Station No. 7004
Site Location: 15599 Hesperian Blvd., San Leandro, CA
Completed By: J. Douglas

Date Completed: 28-Mar-03
Job ID: 140106.5

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

SURFACE WATER EXPOSURE PATHWAYS

SOILS (3 - 13 ft): LEACHING TO GW/ DISCHARGE TO SURFACE WATER/ FISH CONSUMPTION (cont'd)

Constituents of Concern	4) Exposure Multiplier (IRxFIxBCFxED)/(BWxAT) (L/kg/day) Off-site 2 (700 ft) Surface Water	5) Average Daily Intake Rate (mg/kg/day) (3) x (4) Off-site 2 (700 ft) Surface Water
Benzene*	5.3E-6	1.9E-126
Toluene		
Ethylbenzene	9.8E-7	5.2E-288
Xylene (mixed isomers)	9.8E-7	5.1E-190
Methyl t-Butyl ether	9.8E-7	1.3E-132
TPH - Aliph >C05-C06		
TPH - Aliph >C06-C08		
TPH - Aliph >C08-C10		
TPH - Aliph >C10-C12		
TPH - Arom >C08-C10		
TPH - Arom >C10-C12		
TPH - Arom >C12-C16		

AT = Averaging time (days)	BDF = Bioconc. Factor (-)	FI = Affected fish fraction (-)
BW = Body weight (kg)	ED = Exposure duration (yr)	IR = Ingestion rate (kg/yr)

Site Name: Former Tosco Station No. 7004 Completed By: J. Douglas Job ID: 140106.5

Site Location: 15599 Hesperian Blvd., San Lea Date Completed: 28-Mar-03

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

SURFACE WATER EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAY IS ACTIVE)

GROUNDWATER: DISCHARGE TO SURFACE WATER / DERMAL CONTACT & INGESTION VIA SWIMMING

Constituents of Concern	1) Source Medium: Groundwater Conc. (mg/L)	2) NAF Value (unitless) Receptor: Off-site 2 (700 ft) Surface Water	3) Exposure Medium Surface Water: POE Conc. (mg/L) (1)/(2): Off-site 2 (700 ft) Surface Water
Benzene*	7.9E-4	1.8E+107	4.3E-111
Toluene	9.2E-4	1.8E+107	5.0E-111
Ethylbenzene	4.9E-3	1.8E+107	2.7E-110
Xylene (mixed isomers)	3.0E-3	1.8E+107	1.6E-110
Methyl t-Butyl ether	1.7E-2	1.8E+107	9.2E-110
TPH - Aliph >C05-C06	3.4E-2	1.8E+107	1.9E-109
TPH - Aliph >C06-C08	4.1E-2	1.8E+107	2.2E-109
TPH - Aliph >C08-C10	3.4E-2	1.8E+107	1.9E-109
TPH - Aliph >C10-C12	4.2E-2	1.8E+107	2.3E-109
TPH - Arom >C08-C10	2.1E-1	1.8E+107	1.1E-108
TPH - Arom >C10-C12	4.5E-2	1.8E+107	2.4E-109
TPH - Arom >C12-C16	3.4E-2	1.8E+107	1.9E-109

NOTE: NAF = Natural attenuation factor POE = Point of exposure

Site Name: Former Tosco Station No. 7004
Site Location: 15599 Hesperian Blvd., San Leandro, CA
Completed By: J. Douglas

Date Completed: 28-Mar-03
Job ID: 140106.5

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

SURFACE WATER EXPOSURE PATHWAYS

GROUNDWATER: DISCHARGE TO SURFACE WATER / DERMAL CONTACT & INGESTION VIA SWIMMING (cont'd)

Constituents of Concern	4) Exposure Multiplier ((IRxET+SAxZ)xEVxED)/(BWxAT) (L/kg/day) Off-site 2 (700 ft) Surface Water	5) Average Daily Intake Rate (mg/kg/day) (3) x (4) Off-site 2 (700 ft) Surface Water
Benzene*	3.7E-4	1.6E-114
Toluene	1.8E-3	9.0E-114
Ethylbenzene	3.0E-3	7.8E-113
Xylene (mixed isomers)	3.2E-3	5.2E-113
Methyl t-Butyl ether	7.0E-5	6.5E-114
TPH - Aliph >C05-C06	7.0E-5	1.3E-113
TPH - Aliph >C06-C08	7.0E-5	1.6E-113
TPH - Aliph >C08-C10	7.0E-5	1.3E-113
TPH - Aliph >C10-C12	7.0E-5	1.6E-113
TPH - Arom >C08-C10	7.0E-5	7.9E-113
TPH - Arom >C10-C12	7.0E-5	1.7E-113
TPH - Arom >C12-C16	7.0E-5	1.3E-113

AT = Averaging time (days)	ED = Exposure duration (yr)	EV = Event frequency (yr^-1)	SA = Skin exposure area (cm^2/day)
BW = Body weight (kg)	ET = Exposure time (hr)	IR = Ingestion rate (L/hr)	Z = Water/skin dermal adsorp. factor (cm)

Site Name: Former Tosco Station No. 7004 Completed By: J. Douglas Job ID: 140106.5

Site Location: 15599 Hesperian Blvd., San Leanc Date Completed: 28-Mar-03

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

SURFACE WATER EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAY IS ACTIVE)

GROUNDWATER: DISCHARGE TO SURFACE WATER / FISH CONSUMPTION

Constituents of Concern	1) Source Medium: Groundwater Conc. (mg/L)	2) NAF Value (unitless) Receptor: Off-site 2 (700 ft) Surface Water	3) Exposure Medium Surface Water: POE Conc. (mg/L) (1)/(2): Off-site 2 (700 ft) Surface Water
Benzene*	7.9E-4	1.8E+107	4.3E-111
Toluene	9.2E-4	1.8E+107	5.0E-111
Ethylbenzene	4.9E-3	1.8E+107	2.7E-110
Xylene (mixed isomers)	3.0E-3	1.8E+107	1.6E-110
Methyl t-Butyl ether	1.7E-2	1.8E+107	9.2E-110
TPH - Aliph >C05-C06	3.4E-2	1.8E+107	1.9E-109
TPH - Aliph >C06-C08	4.1E-2	1.8E+107	2.2E-109
TPH - Aliph >C08-C10	3.4E-2	1.8E+107	1.9E-109
TPH - Aliph >C10-C12	4.2E-2	1.8E+107	2.3E-109
TPH - Arom >C08-C10	2.1E-1	1.8E+107	1.1E-108
TPH - Arom >C10-C12	4.5E-2	1.8E+107	2.4E-109
TPH - Arom >C12-C16	3.4E-2	1.8E+107	1.9E-109

NOTE: NAF = Natural attenuation factor POE = Point of exposure

Site Name: Former Tosco Station No. 7004
Site Location: 15599 Hesperian Blvd., San Leandro, CA
Completed By: J. Douglas

Date Completed: 28-Mar-03
Job ID: 140106.5

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

SURFACE WATER EXPOSURE PATHWAYS

GROUNDWATER: DISCHARGE TO SURFACE WATER / FISH CONSUMPTION (cont'd)

Constituents of Concern	4) Exposure Multiplier (IRxFIxBCFxED)/(BWxAT) (L/kg/day) Off-site 2 (700 ft) Surface Water	5) Average Daily Intake Rate (mg/kg/day) (3) x (4) Off-site 2 (700 ft) Surface Water	MAXIMUM PATHWAY INTAKE (mg/kg/day) *(Maximum intake of active pathways soil leaching & groundwater routes.)* Off-site 2 Surface Water
Benzene*	5.3E-6	2.3E-116	1.6E-114
Toluene	6.8E-5	3.4E-115	9.3E-114
Ethylbenzene	9.8E-7	2.6E-116	7.8E-113
Xylene (mixed isomers)	9.8E-7	1.6E-116	5.2E-113
Methyl t-Butyl ether	9.8E-7	9.0E-116	6.5E-114
TPH - Aliph >C05-C06	9.8E-7	1.8E-115	1.3E-113
TPH - Aliph >C06-C08	9.8E-7	2.2E-115	1.6E-113
TPH - Aliph >C08-C10	9.8E-7	1.8E-115	1.3E-113
TPH - Aliph >C10-C12	9.8E-7	2.2E-115	1.6E-113
TPH - Arom >C08-C10	9.8E-7	1.1E-114	8.0E-113
TPH - Arom >C10-C12	9.8E-7	2.4E-115	1.7E-113
TPH - Arom >C12-C16	9.8E-7	1.8E-115	1.3E-113

AT = Averaging time (days)	BDF = Bioconcentration factor (-)	FI = Affected fish fraction (-)
BW = Body weight (kg)	ED = Exposure duration (yr)	IR = Ingestion rate (kg/yr)

Site Name: Former Tosco Station No. 7004
Site Location: 15599 Hesperian Blvd., San Leandro, CA

Completed By: J. Douglas
Date Completed: 28-Mar-03

Job ID: 140106.5

RBCA SITE ASSESSMENT

TIER 2 PATHWAY RISK CALCULATION

SURFACE WATER EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAYS ARE ACTIVE)**

CARCINOGENIC RISK

Constituents of Concern	(1) EPA Carcinogenic Classification	(2) Maximum Carcinogenic Intake Rate (mg/kg/day) (a) via Ingestion — Off-site 2 Surface Water	(2) Maximum Carcinogenic Intake Rate (mg/kg/day) (b) via Dermal Contact — Off-site 2 Surface Water	(3) Slope Factor (mg/kg/day)^-1 (a) Oral	(3) Slope Factor (mg/kg/day)^-1 (b) Dermal	(4) Individual COC Risk (2a)x(3a) + (2b)x(3b) Off-site 2 Surface Water
Benzene*	A	1.3E-115	1.5E-114	1.0E-1	3.0E-2	5.7E-116
Toluene	D					
Ethylbenzene	D					
Xylene (mixed isomers)	D					
Methyl t-Butyl ether	-					
TPH - Aliph >C05-C06	D					
TPH - Aliph >C06-C08	D					
TPH - Aliph >C08-C10	D					
TPH - Aliph >C10-C12	D					
TPH - Arom >C08-C10	D					
TPH - Arom >C10-C12	D					
TPH - Arom >C12-C16	D					

* No dermal slope factor available--oral slope factor used.

Total Pathway Carcinogenic Risk = **5.7E-116**

Site Name: Former Tosco Station No. 7004
Site Location: 15599 Hesperian Blvd., San Leandro, CA
Completed By: J. Douglas

Date Completed: 28-Mar-03
Job ID: 140106.5

RBCA SITE ASSESSMENT

TIER 2 PATHWAY RISK CALCULATION

SURFACE WATER EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAYS ARE ACTIVE)

Constituents of Concern	(5) Maximum Toxicant Intake Rate (mg/kg/day) (a) via Ingestion	(5) Maximum Toxicant Intake Rate (mg/kg/day) (b) via Dermal Contact	(6) Reference Dose (mg/kg/day) (a) Oral	(6) Reference Dose (mg/kg/day) (b) Dermal	(7) Individual COC Hazard Quotient (5a)/(6a) + (5b)/(6b)
	TOXIC EFFECTS				
	Off-site 2 Surface Water				Off-site 2 Surface Water
Benzene*	3.0E-115	3.4E-114	3.0E-3	3.0E-3*	1.2E-111
Toluene	3.5E-115	8.6E-114	2.0E-1	1.6E-1	5.6E-113
Ethylbenzene	1.9E-114	7.6E-113	1.0E-1	9.7E-2	8.1E-112
Xylene (mixed isomers)	1.2E-114	5.1E-113	2.0E+0	1.8E+0	2.8E-113
Methyl t-Butyl ether	6.5E-114	NC	1.0E-2	8.0E-3	6.5E-112
TPH - Aliph >C05-C06	1.3E-113	NC	5.0E+0	5.0E+0*	2.6E-114
TPH - Aliph >C06-C08	1.6E-113	NC	5.0E+0	5.0E+0*	3.1E-114
TPH - Aliph >C08-C10	1.3E-113	NC	1.0E-1	1.0E-1*	1.3E-112
TPH - Aliph >C10-C12	1.6E-113	NC	1.0E-1	1.0E-1*	1.6E-112
TPH - Arom >C08-C10	7.9E-113	NC	4.0E-2	4.0E-2*	2.0E-111
TPH - Arom >C10-C12	1.7E-113	NC	4.0E-2	4.0E-2*	4.3E-112
TPH - Arom >C12-C16	1.3E-113	NC	4.0E-2	4.0E-2*	3.3E-112

* No dermal reference dose available--oral reference dose used.

Total Pathway Hazard Index = **5.8E-111**

Site Name: Former Tosco Station No. 7004
Site Location: 15599 Hesperian Blvd., San Leandro, CA
Completed By: J. Douglas

Date Completed: 28-Mar-03
Job ID: 140106.5

RBCA SITE ASSESSMENT | **TPH Criteria SSTL Worksheet**

Site Name: Former Tosco Station No. 7004 | Completed By: J. Douglas | Job ID: 140106.5

Site Location: 15599 Hesperian Blvd., San Leandro, CA | Date Completed: 28-Mar-03

CALCULATION OF SSTL VALUES FOR TPH

		Mass Fractions		Representative Concentrations		Calculated Concentration Limits		Applicable SSTL Values	
CONSTITUENTS OF CONCERN		Soil	Groundwater	Soil	Groundwater	Residual Soil Concentration	Solubility	Soils (3 - 13 ft)	Groundwater
CAS No.	Name	(-)	(-)	(mg/kg)	(mg/L)	(mg/kg)	(mg/L)	(mg/kg)	(mg/L)
0-00-0	TPH - Aliph >C05-C06	8.5E-2	7.8E-2	5.0E-1	3.4E-2	4.1E+2	3.6E+1	>4.1E+2	>3.6E+1
0-00-0	TPH - Aliph >C06-C08	8.5E-2	9.3E-2	5.0E-1	4.1E-2	2.4E+2	5.4E+0	>2.4E+2	>5.4E+0
0-00-0	TPH - Aliph >C08-C10	8.5E-2	7.8E-2	5.0E-1	3.4E-2	1.4E+2	4.3E-1	6.0E+1	>4.3E-1
0-00-0	TPH - Aliph >C10-C12	8.5E-2	9.6E-2	5.0E-1	4.2E-2	8.6E+1	3.4E-2	>8.6E+1	>3.4E-2
0-00-0	TPH - Arom >C08-C10	4.9E-1	4.7E-1	2.9E+0	2.1E-1	1.0E+3	6.5E+1	5.6E+1	1.5E+0
0-00-0	TPH - Arom >C10-C12	8.5E-2	1.0E-1	5.0E-1	4.5E-2	6.3E+2	2.5E+1	3.1E+2	1.5E+0
0-00-0	TPH - Arom >C12-C16	8.5E-2	7.8E-2	5.0E-1	3.4E-2	2.9E+2	5.8E+0	>2.9E+2	1.5E+0
* = Chemical with user-specified data									
	Total	1.0E+0	1.0E+0	5.9E+0	4.4E-1		**Total TPH SSTL value**	9.0E+1	2.1E+0

">" indicates risk-based target concentration greater than constituent residual saturation value. NC = Not calculated.

RBCA SITE ASSESSMENT

Site Name: Former Tosco Station No. 7004
Site Location: 15599 Hesperian Blvd., San Leandro, CA

Completed By: J. Douglas
Date Completed: 28-Mar-03

Job ID: 140106.5

SOIL (3 - 13 ft) SSTL VALUES

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

Groundwater DAF Option: Domenico - First Order (One-directional vert. dispersion)

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

CONSTITUENTS OF CONCERN		Representative Concentration	X Soil Leaching to Groundwater Ingestion / Discharge to Surface Water			X Soil Vol. to Indoor Air	X Soil Volatilization to Outdoor Air				Surface Soil Inhalation, Ingestion,Dermal Contact		Applicable SSTL	SSTL Exceeded ?	Required CRF
			On-site (0 ft)	Off-site 1 (1650 ft)	Off-site 2 (700 ft)	On-site (0 ft)	On-site (0 ft)		Off-site 1 (0 ft)	Off-site 2 (0 ft)	On-site (0 ft)				Only if "yes" left
CAS No.	Name	(mg/kg)	Residential	Residential	Surf. Water	Residential	Residential	Construction Worker	None	None	None	Construction Worker	(mg/kg)	"*" if yes	
71-43-2	Benzene*	8.2E-3	>1.4E+3	>1.4E+3	>1.4E+3	1.7E-2	1.5E+1	NA	NA	NA	NA	NA	1.7E-2	☐	<1
108-88-3	Toluene	8.2E-3	>8.0E+2	>8.0E+2	NC	2.4E+1	>8.0E+2	NA	NA	NA	NA	NA	2.4E+1	☐	<1
100-41-4	Ethylbenzene	1.8E-2	>6.5E+2	>6.5E+2	>6.5E+2	1.3E+2	>6.5E+2	NA	NA	NA	NA	NA	1.3E+2	☐	<1
1330-20-7	Xylene (mixed isomers)	1.5E-2	>5.2E+2	>5.2E+2	>5.2E+2	>5.2E+2	>5.2E+2	NA	NA	NA	NA	NA	>5.2E+2	☐	NA
1634-04-4	Methyl t-Butyl ether	9.5E-3	>1.5E+4	>1.5E+4	NC	3.6E+2	>1.5E+4	NA	NA	NA	NA	NA	3.6E+2	☐	<1
0-00-0	TPH - Aliph >C05-C06	5.0E-1	>4.1E+2	>4.1E+2	NC	>4.1E+2	>4.1E+2	NA	NA	NA	NA	NA	>4.1E+2	☐	NA
0-00-0	TPH - Aliph >C06-C08	5.0E-1	>2.4E+2	>2.4E+2	NC	>2.4E+2	>2.4E+2	NA	NA	NA	NA	NA	>2.4E+2	☐	NA
0-00-0	TPH - Aliph >C08-C10	5.0E-1	>1.4E+2	>1.4E+2	NC	6.0E+1	>1.4E+2	NA	NA	NA	NA	NA	6.0E+1	☐	<1
0-00-0	TPH - Aliph >C10-C12	5.0E-1	>8.6E+1	>8.6E+1	NC	>8.6E+1	>8.6E+1	NA	NA	NA	NA	NA	>8.6E+1	☐	NA
0-00-0	TPH - Arom >C08-C10	2.9E+0	>1.0E+3	>1.0E+3	NC	5.6E+1	>1.0E+3	NA	NA	NA	NA	NA	5.6E+1	☐	<1
0-00-0	TPH - Arom >C10-C12	5.0E-1	>6.3E+2	>6.3E+2	NC	3.1E+2	>6.3E+2	NA	NA	NA	NA	NA	3.1E+2	☐	<1
0-00-0	TPH - Arom >C12-C16	5.0E-1	>2.9E+2	>2.9E+2	NC	>2.9E+2	>2.9E+2	NA	NA	NA	NA	NA	>2.9E+2	☐	NA

* = Chemical with user-specified data

">" indicates risk-based target concentration greater than constituent residual saturation value. NA = Not applicable. NC = Not calculated.

RBCA SITE ASSESSMENT

Site Name: Former Tosco Station No. 7004 | Completed By: J. Douglas | Job ID: 140106.5

Site Location: 15599 Hesperian Blvd., San Leandro, CA | Date Completed: 28-Mar-03

GROUNDWATER SSTL VALUES

Target Risk (Class A & B) 1.0E-6

Target Risk (Class C) 1.0E-5

Target Hazard Quotient 1.0E+0

Groundwater DAF Option: Domenico - First Order (One-directional vert. dispersion)

SSTL Results For Complete Exposure Pathways ("X" if Complete)

CONSTITUENTS OF CONCERN		Representative Concentration	X Groundwater Ingestion / Discharge to Surface Water			X GW Vol. to Indoor Air	X Groundwater Volatilization to Outdoor Air			Applicable SSTL	SSTL Exceeded ?	Required CRF Only if "yes" left
CAS No.	Name	(mg/L)	On-site (0 ft) Residential	Off-site 1 (1650 ft) Residential	Off-site 2 (700 ft) Surf. Water	On-site (0 ft) Residential	On-site (0 ft) Residential	Off-site 1 (0 ft) None	Off-site 2 (0 ft) None	(mg/L)	"■" if yes	
71-43-2	Benzene*	7.9E-4	8.5E-4	>1.8E+3	>1.8E+3	7.2E-2	3.4E+1	NA	NA	8.5E-4	☐	<1
108-88-3	Toluene	9.2E-4	7.3E+0	>5.2E+2	>5.2E+2	1.0E+2	>5.2E+2	NA	NA	7.3E+0	☐	<1
100-41-4	Ethylbenzene	4.9E-3	3.7E+0	>1.7E+2	>1.7E+2	>1.7E+2	>1.7E+2	NA	NA	3.7E+0	☐	<1
1330-20-7	Xylene (mixed isomers)	3.0E-3	7.3E+1	>2.0E+2	>2.0E+2	>2.0E+2	>2.0E+2	NA	NA	7.3E+1	☐	<1
1634-04-4	Methyl t-Butyl ether	1.7E-2	3.7E-1	>4.8E+4	NC	2.3E+3	>4.8E+4	NA	NA	3.7E-1	☐	<1
0-00-0	TPH - Aliph >C05-C06	3.4E-2	>3.6E+1	>3.6E+1	NC	>3.6E+1	>3.6E+1	NA	NA	>3.6E+1	☐	NA
0-00-0	TPH - Aliph >C06-C08	4.1E-2	>5.4E+0	>5.4E+0	NC	>5.4E+0	>5.4E+0	NA	NA	>5.4E+0	☐	NA
0-00-0	TPH - Aliph >C08-C10	3.4E-2	>4.3E-1	>4.3E-1	NC	>4.3E-1	>4.3E-1	NA	NA	>4.3E-1	☐	NA
0-00-0	TPH - Aliph >C10-C12	4.2E-2	>3.4E-2	>3.4E-2	NC	>3.4E-2	>3.4E-2	NA	NA	>3.4E-2	☐	NA
0-00-0	TPH - Arom >C08-C10	2.1E-1	1.5E+0	>6.5E+1	NC	3.7E+1	>6.5E+1	NA	NA	1.5E+0	☐	<1
0-00-0	TPH - Arom >C10-C12	4.5E-2	1.5E+0	>2.5E+1	NC	>2.5E+1	>2.5E+1	NA	NA	1.5E+0	☐	<1
0-00-0	TPH - Arom >C12-C16	3.4E-2	1.5E+0	>5.8E+0	NC	>5.8E+0	>5.8E+0	NA	NA	1.5E+0	☐	<1

* = Chemical with user-specified data

">" indicates risk-based target concentration greater than constituent solubility value. NA = Not applicable. NC = Not calculated.

RBCA SITE ASSESSMENT | **Cumulative Risk Worksheet**

Site Name: Former Tosco Station No. 7004 | Completed By: J. Douglas | Job ID: 140106.5

Site Location: 15599 Hesperian Blvd., San Leandro, CA | Date Completed: 28-Mar-03

CUMULATIVE RISK WORKSHEET

CONSTITUENTS OF CONCERN		Representative Concentration		Proposed CRF		Resultant Target Concentration	
CAS No.	Name	Soil (mg/kg)	Groundwater (mg/L)	Soil	GW	Soil (mg/kg)	Groundwater (mg/L)
71-43-2	Benzene*	8.2E-3	7.9E-4			8.2E-3	7.9E-4
108-88-3	Toluene	8.2E-3	9.2E-4			8.2E-3	9.2E-4
100-41-4	Ethylbenzene	1.8E-2	4.9E-3			1.8E-2	4.9E-3
1330-20-7	Xylene (mixed isomers)	1.5E-2	3.0E-3			1.5E-2	3.0E-3
1634-04-4	Methyl t-Butyl ether	9.5E-3	1.7E-2			9.5E-3	1.7E-2
0-00-0	TPH - Aliph >C05-C06	5.0E-1	3.4E-2			5.0E-1	3.4E-2
0-00-0	TPH - Aliph >C06-C08	5.0E-1	4.1E-2			5.0E-1	4.1E-2
0-00-0	TPH - Aliph >C08-C10	5.0E-1	3.4E-2			5.0E-1	3.4E-2
0-00-0	TPH - Aliph >C10-C12	5.0E-1	4.2E-2			5.0E-1	4.2E-2
0-00-0	TPH - Arom >C08-C10	2.9E+0	2.1E-1			2.9E+0	2.1E-1
0-00-0	TPH - Arom >C10-C12	5.0E-1	4.5E-2			5.0E-1	4.5E-2
0-00-0	TPH - Arom >C12-C16	5.0E-1	3.4E-2			5.0E-1	3.4E-2

Cumulative Values:

RBCA SITE ASSESSMENT | **Cumulative Risk Worksheet**

Site Name: Former Tosco Station No. 7004 Site Name: Former Tosco Station No. 7004 Completed By: J. Douglas Job ID: 140106.5

Site Location: 15599 Hesperian Blvd., San Leandro, Site Location: 15599 Hesperian Blvd., San Leandro, (Date Completed: 28-Mar-03 *2 OF 3*

CUMULATIVE RISK WORKSHEET

Cumulative Target Risk: 1.0E-5 Target Hazard Index: 1.0E+0

ON-SITE RECEPTORS

CONSTITUENTS OF CONCERN		Outdoor Air Exposure: Residential Target Risk: 1.0E-6 / 1.0E-5	Outdoor Air Exposure: Residential Target HQ: 1.0E+0	Indoor Air Exposure: Residential Target Risk: 1.0E-6 / 1.0E-5	Indoor Air Exposure: Residential Target HQ: 1.0E+0	Soil Exposure: None Target Risk: 1.0E-6 / 1.0E-5	Soil Exposure: None Target HQ: 1.0E+0	Groundwater Exposure: Residential Target Risk: 1.0E-6 / 1.0E-5	Groundwater Exposure: Residential Target HQ: 1.0E+0
CAS No.	Name	Carcinogenic Risk	Hazard Quotient	Carcinogenic Risk	Hazard Quotient	Carcinogenic Risk	Hazard Quotient	Carcinogenic Risk	Hazard Quotient
71-43-2	Benzene*	5.8E-10	2.7E-5	5.0E-7	2.4E-2			9.3E-7	7.2E-3
108-88-3	Toluene		4.1E-7		3.5E-4				1.3E-4
100-41-4	Ethylbenzene		3.8E-7		1.5E-4				1.3E-3
1330-20-7	Xylene (mixed isomers)		4.3E-8		2.2E-5				4.1E-5
1634-04-4	Methyl t-Butyl ether		8.4E-8		3.3E-5				4.6E-2
0-00-0	TPH - Aliph >C05-C06		8.6E-7		6.3E-4				1.9E-4
0-00-0	TPH - Aliph >C06-C08		1.1E-6		7.6E-4				2.2E-4
0-00-0	TPH - Aliph >C08-C10		2.4E-5		1.6E-2				9.4E-3
0-00-0	TPH - Aliph >C10-C12		3.7E-5		1.7E-2				1.1E-2
0-00-0	TPH - Arom >C08-C10		1.9E-4		5.7E-2				1.4E-1
0-00-0	TPH - Arom >C10-C12		7.2E-6		2.3E-3				3.1E-2
0-00-0	TPH - Arom >C12-C16		1.9E-6		6.4E-4				2.3E-2
	Cumulative Values:	**5.8E-10**	**2.9E-4**	**5.0E-7**	**1.2E-1**	**0.0E+0**	**0.0E+0**	**9.3E-7**	**2.7E-1**

* indicates risk level exceeding target risk

RBCA SITE ASSESSMENT | **Cumulative Risk Worksheet**

Site Name: Former Tosco Station No. 7004 Site Name: Former Tosco Station No. 7004 Completed By: J. Douglas Job ID: 140106.5

Site Location: 15599 Hesperian Blvd., San Leandro, Site Location: 15599 Hesperian Blvd., San Leandro, C Date Completed: 28-Mar-03 *3 OF 3*

CUMULATIVE RISK WORKSHEET

Cumulative Target Risk: 1.0E-5 Target Hazard Index: 1.0E+0

Groundwater DAF Option: Domenico - First Order

OFF-SITE RECEPTORS

CONSTITUENTS OF CONCERN		Outdoor Air Exposure: None Target Risk: 1.0E-6 / 1.0E-5		Outdoor Air Exposure: None Target HQ: 1.0E+0		Groundwater Exposure: Residential (1650 ft) Target Risk: 1.0E-6 / 1.0E-5		Groundwater Exposure: Residential (1650 ft) Target HQ: 1.0E+0		Groundwater Exposure: Surface Water (700 ft) Target Risk: 1.0E-6 / 1.0E-5		Groundwater Exposure: Surface Water (700 ft) Target HQ: 1.0E-0	
CAS No.	Name	Carcinogenic Risk	Hazard Quotient	Carcinogenic Risk	Hazard Quotient	Carcinogenic Risk	Hazard Quotient	Carcinogenic Risk	Hazard Quotient	Carcinogenic Risk	Hazard Quotient	Carcinogenic Risk	Hazard Quotient
71-43-2	Benzene*					9.3E-107	7.2E-103			5.7E-116	1.2E-111		
108-88-3	Toluene						1.3E-104				5.6E-113		
100-41-4	Ethylbenzene						1.3E-103				8.1E-112		
1330-20-7	Xylene (mixed isomers)						4.1E-105				2.8E-113		
1634-04-4	Methyl t-Butyl ether						4.6E-102				6.5E-112		
0-00-0	TPH - Aliph >C05-C06						1.9E-104				2.6E-114		
0-00-0	TPH - Aliph >C06-C08						2.2E-104				3.1E-114		
0-00-0	TPH - Aliph >C08-C10						9.4E-103				1.3E-112		
0-00-0	TPH - Aliph >C10-C12						1.1E-102				1.6E-112		
0-00-0	TPH - Arom >C08-C10						1.4E-101				2.0E-111		
0-00-0	TPH - Arom >C10-C12						3.1E-102				4.3E-112		
0-00-0	TPH - Arom >C12-C16						2.3E-102				3.3E-112		
	Cumulative Values:	**0.0E+0**	**0.0E+0**	**0.0E+0**	**0.0E+0**	**9.3E-107**	**2.7E-101**			**5.7E-116**	**5.8E-111**		

* indicates risk level exceeding target risk

APPENDIX D

SITE INFORMATION SUMMARY

SITE INFORMATION SUMMARY

I. SITE INFORMATION

Site Facility Name:	Former Tosco (76) Service Station No. 7004
Site Facility Address:	15599 Hesperian Boulevard San Leandro, California
RWQCB LUST Case No.:	URF Filing Date:
Responsible Parties (include address and phone numbers)	David DeWitt 925-277-2384
Tosco Marketing Company	
2000 Crow Canyon Place, Suite 400	
San Ramon, CA 94583	

Tank No.	Size in Gallons	Contents	Closed In -- Place/Removed?	Date
1	12,000	gasoline	removed	Oct-90
2	12,000	gasoline	removed	Oct-90
3	12,000	gasoline	removed	Oct-90
4	12,000	gasoline	removed	May-00
5	12,000	gasoline	removed	May-00

II. INITIAL SITE ASSESSMENT (Information from previous investigations at nearby sites and other available sources may be used for applicable items if necessary)

Cause and Estimated Quantity of Release: unknown		
Nearest Surface Water Bodies (including any unnamed creeks, tributaries, canals, etc.):	Their Geographical Distances From the Site:	
San Lorenzo Creek	800 feet southwest	
Estudillo Canal	2,300 feet northwest	
Nearest Domestic Water Wells (both public and private) within 2,000 feet:	Their Geographical Distances From the Site:	
Greenwood Corporation	1,650 feet South-Southwest	
Goyette Machine	2,300 feet West-Northwest	
San Lorenzo Unified School District	2,275 feet East-Southeast	
Minimum Groundwater Depth: 10.53 feet below TOC	Max. Depth: 18.05 feet	Flow Direction: WSW
Site Ground Surface Elevation and Geology: The site is situated at an elevation of approximately 38 feet above MSL. The site vicinity is underlain by Holocene aged coarse grained alluvium, typically consisting of unconsolidated, moderately sorted, permeable sand and silt, with a thickness ranging from 10 to 50 feet. The site is underlain by clay and gravel fill from approximately 1.5 to 5.5 feet. The fill is underlain by interbedded silt and clay to a depth of 29.5 feet, with two somewhat laterally continuous sand units between 8 to 12 feet (unsaturated) and 15 to 23 feet (saturated).		
Current Site and Surrounding land Use: The site is currently a paved parking area for the adjacent Target shopping center. The surrounding area is composed of commercial retail facilities.		
Preferential Pathways Such as Subsurface Utilities? No Due to the depth to groundwater historically exceeding 10 feet bgs, it is unlikely that subsurface utilities are acting as preferential pathways.		
Number of Soil Borings: 7	Number of Monitoring Wells: 6 plus one recovery well	

III. REMEDIATION

Material	Amount (Include Units)	Action (Treatment or Disposal w/Destination	Date	
Free Product	NA			
Soil	1,600 cubic yards	Disposed at BFI Landfill in Livermore, CA	Dec-91	
Groundwater	5,000 gallons	disposed at Tosco refinery	Oct-90	
Vapor	NA			

COMMENTS

MAXIMUM DOCUMENTED SOIL POLLUTANT CONCENTRATIONS

Pollutant	Location Date(s)		Soil (ppm) Initial	Residual	Pollutant	Location Date(s)		Soil (ppm) Initial	Residual
TPH (Gas)	Apr-91	May-00	4800	350	Xylene	Apr-91	May-00	290	0.83
TPH (Diesel)			NA	NA	Ethylbenzene	Apr-91	May-00	41	4.8
Benzene	Apr-91	May-00	23	ND	Oil & Grease			NA	NA
Toluene	Apr-91	May-00	9.1	ND	Heavy Metals			NA	NA
MTBE		May-00	NA	ND	Motor Oil			NA	NA
Chlorinated Solvents					Other				

GROUNDWATER CONCENTRATIONS (ppb) TRENDS AT SOURCE AREAS & PLUME/SITE BOUNDARIES

Date	Location	TPH-g	TPH-d	Benzene	Toluene	Ethylbenz	Xylene	MTBE	Chlor. vocs	Other	DTW
Jan-99	MW-1	51	NA	ND	ND	ND	ND	4.8	NA	NA	13.68
Oct-02	MW-1	<50	NA	<1.0	<0.50	<0.50	<0.50	<2.0	NA	NA	14.63
Jan-99	MW-2	ND	NA	ND	ND	ND	ND	9.8	NA	NA	14.26
Oct-02	MW-2	<50	NA	<0.50	<0.50	<0.50	<0.50	<2.0	NA	NA	15.23
Jan-99	MW-3	23,000	NA	ND	ND	4,100	460	920	NA	NA	14.17
Oct-02	MW-3	1,000	NA	<0.50	<0.50	110	<1.0	<2.0	NA	NA	15.13
Jan-99	MW-4	ND	NA	ND	ND	ND	ND	23	NA	NA	12.95
Oct-02	MW-4	<50	NA	<1.0	<0.50	<0.50	<1.0	7.1	NA	NA	13.93
Jul-99	MW-5	130	NA	<1.0	ND	ND	ND	330	NA	NA	12.38
Oct-02	MW-5	<200	NA	<2.0	<2.0	<2.0	<4.0	270	NA	NA	15.32
Jan-99	MW-6	ND	NA	ND	ND	ND	ND	ND	NA	NA	14.60
Oct-02	MW-6	<50	NA	<0.50	<0.50	<0.50	<1.0	<2.0	NA	NA	15.46
Jan-99	RW-1	ND	NA	3.0	ND	ND	ND	1,200	NA	NA	14.05
Jul-01	RW-1	2,700	NA	<1.0	1.1	51	<1.0	160	NA	NA	14.95

IV. LIST TECHNICAL REPORTS, CORRESPONDENCE ETC. IN CHRONOLOGICAL ORDER

TITLE/SUBJECT	DATE
Gettler-Ryan Inc., Groundwater Monitoring and Sampling Report, Fourth Quarter Event of October 25, 2002	12/2/02
GR, Limited Phase I Environmental Site Assessment at Former Tosco (76) Service Station #7004	6/8/01
GR, Underground Storage Tank and Product Piping Removal Report	9/8/00
Kaprealian Engineering, Inc., Preliminary Ground Water Investigation at Unocal Service Station #7004	5/31/91
KEI, Continuing Ground Water Investigation at Unocal Service Station #7004	8/16/91
KEI, Stockpiled Soil Sampling for Unocal Service Station #7004	1/9/91

V. ENCLOSE FOLLOWING FIGURES AND TABLES

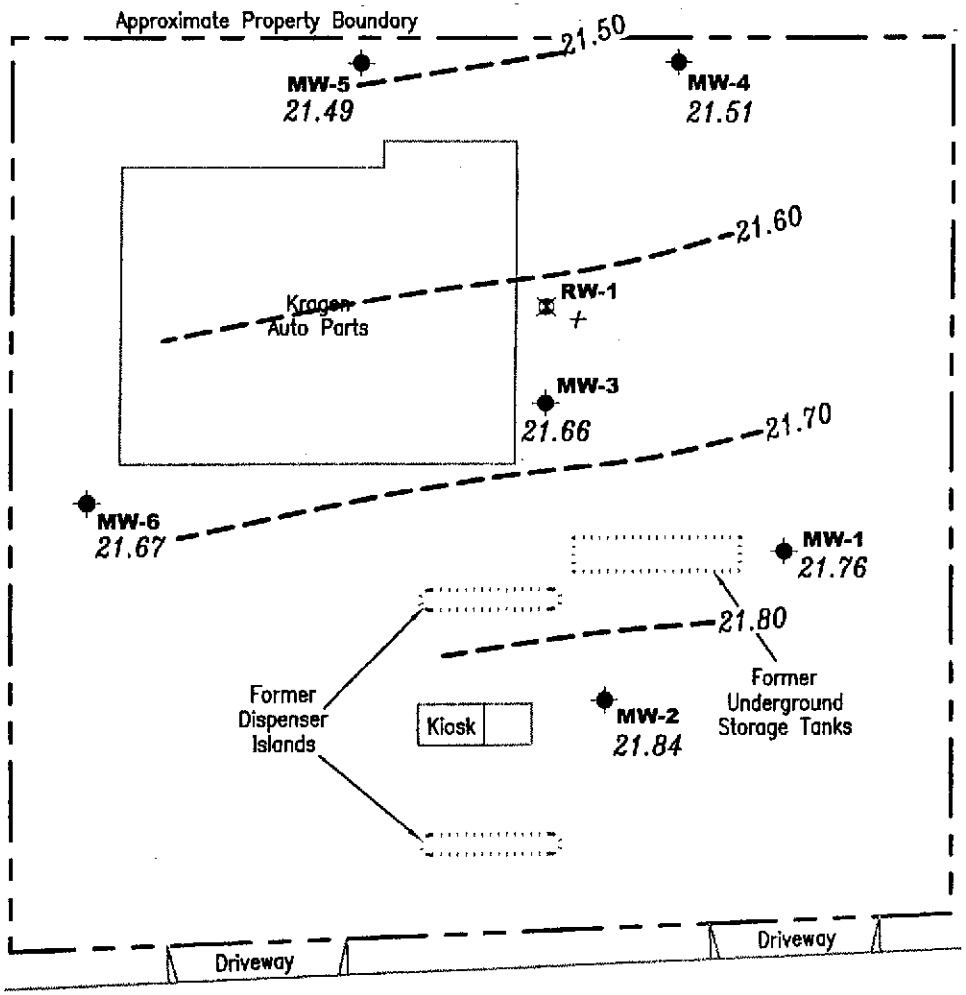
1. Site maps showing locations of existing buildings, former/current UST areas, subsurface utilities, and other pathways, groundwater flow direction, etc.

2. Summary tables of all soil sampling results available, including any tank/excavation pit samples and confirmation samples, with sampling dates, location-identifications and depths (if applicable).

3. Summary tables of all groundwater sampling results available, including depth to water/product measurements, with sampling dates and location-identifications.

4. Figures showing all soil and groundwater sampling locations and monitoring well locations.

Additional Comments:



EXPLANATION

- Groundwater monitoring well
- Aquifer testing well
- 99.99 — Groundwater elevation in feet referenced to Mean Sea Level
- 99.99 — Groundwater elevation contour, dashed where inferred
- \+ — TOC not available

Approximate groundwater flow direction at a gradient of 0.002 to 0.003 Ft./Ft.

N

0 40

Scale in Feet

Source: Figure modified from drawing provided by MPDS Services Inc..

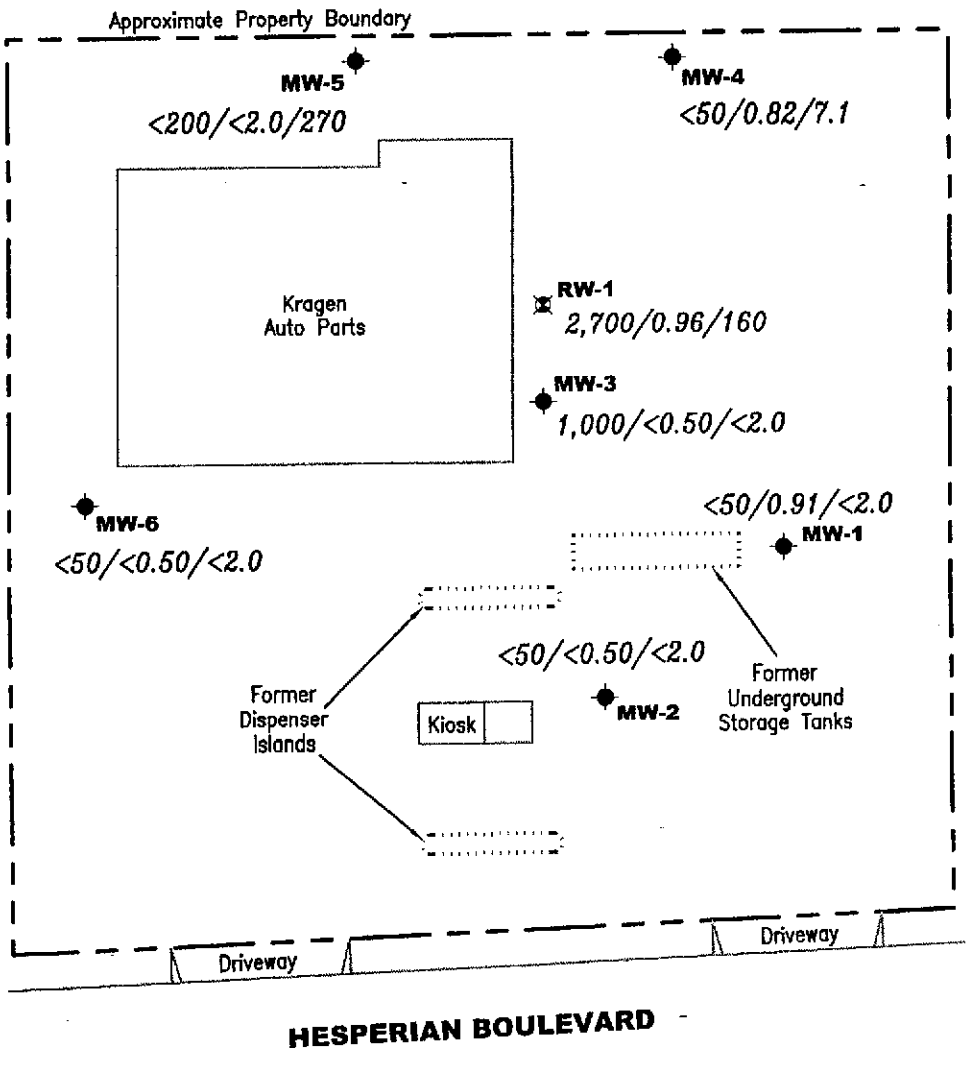
FIGURE 5

POTENTIOMETRIC MAP
Former Tosco (Unocal) Service Station #7004
15599 Hesperian Boulevard
San Leandro, California

GETTLER - RYAN INC.
6747 Sierra Ct., Suite J
Dublin, CA 94568 (925) 551-7555

PROJECT NUMBER 180106 | REVIEWED BY | DATE October 25, 2002 | REVISED DATE

FILE NAME: P:\ENVIRO\TOSCO\7004\Q02-7004.DWG | Layout Tab: Pot4-Oct



EXPLANATION

- ✦ Groundwater monitoring well
- ⊠ Aquifer testing well
- *A/B/C* Total Petroleum Hydrocarbons (TPH) as Gasoline/Benzene/ MTBE concentrations in ppb
- *Note:* Analyses by EPA Method 8260

N

0 40

Scale in Feet

Source: Figure modified from drawing provided by MPDS Services Inc..

FIGURE 6

GETTLER - RYAN INC.
6747 Sierra Ct., Suite J
Dublin, CA 94568
(925) 551-7555

CONCENTRATION MAP
Former Tosco (Unocal) Service Station #7004
15599 Hesperian Boulevard
San Leandro, California

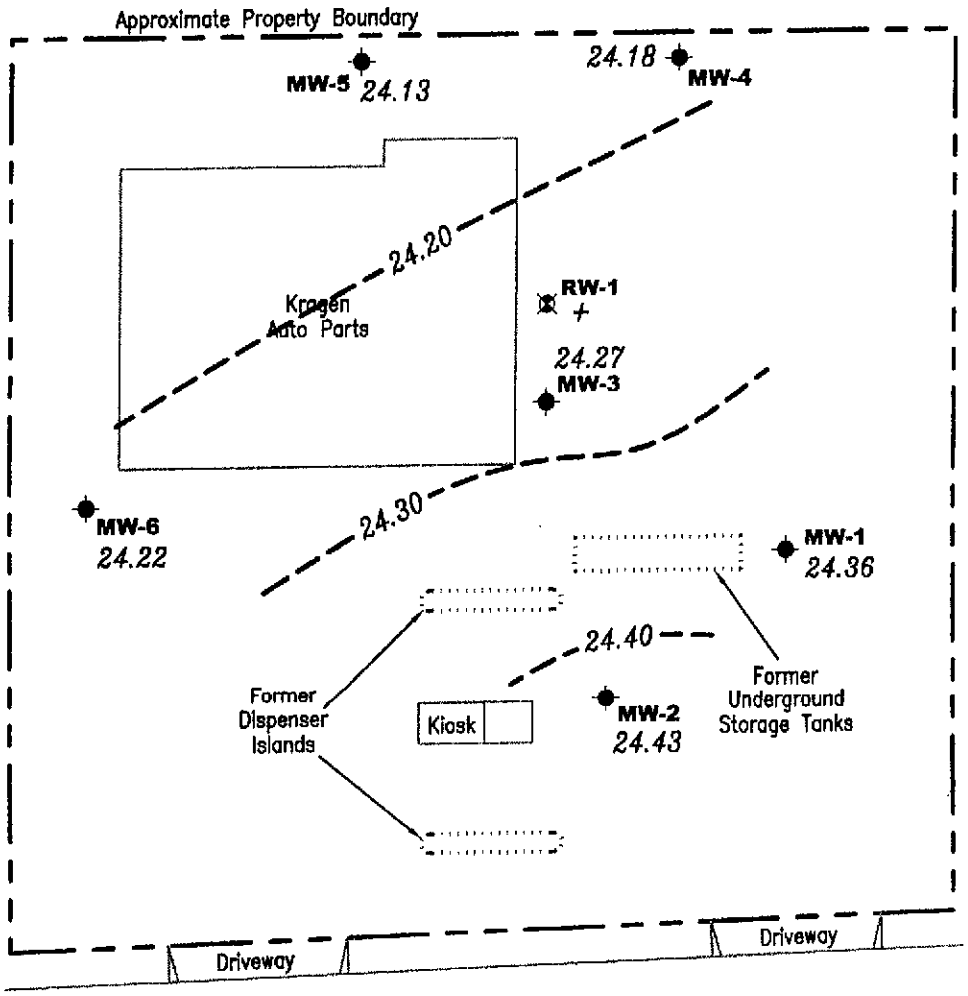
PROJECT NUMBER
180106

REVIEWED BY

DATE
October 25, 2002

REVISED DATE

FILE NAME: P:\ENVIRO\TOSCO\7004\Q02-7004.DWG | Layout Tab: Con4-Oct



EXPLANATION

- Groundwater monitoring well
- Aquifer testing well
- 99.99 — Groundwater elevation in feet referenced to Mean Sea Level
- 99.99 — Groundwater elevation contour, dashed where inferred.
- \+ — TOC not available

Approximate groundwater flow direction at a gradient of 0.002 Ft./Ft.

N

0 40

Scale in Feet

Source: Figure modified from drawing provided by MPDS Services Inc..

FIGURE 5

POTENTIOMETRIC MAP
Former Tosco (Unocal) Service Station #7004
15599 Hesperian Boulevard
San Leandro, California

GETTLER - RYAN INC.
6747 Sierra Ct., Suite J
Dublin, CA 94568 (925) 551-7555

PROJECT NUMBER 180106
REVIEWED BY
DATE January 24, 2003
REVISED DATE

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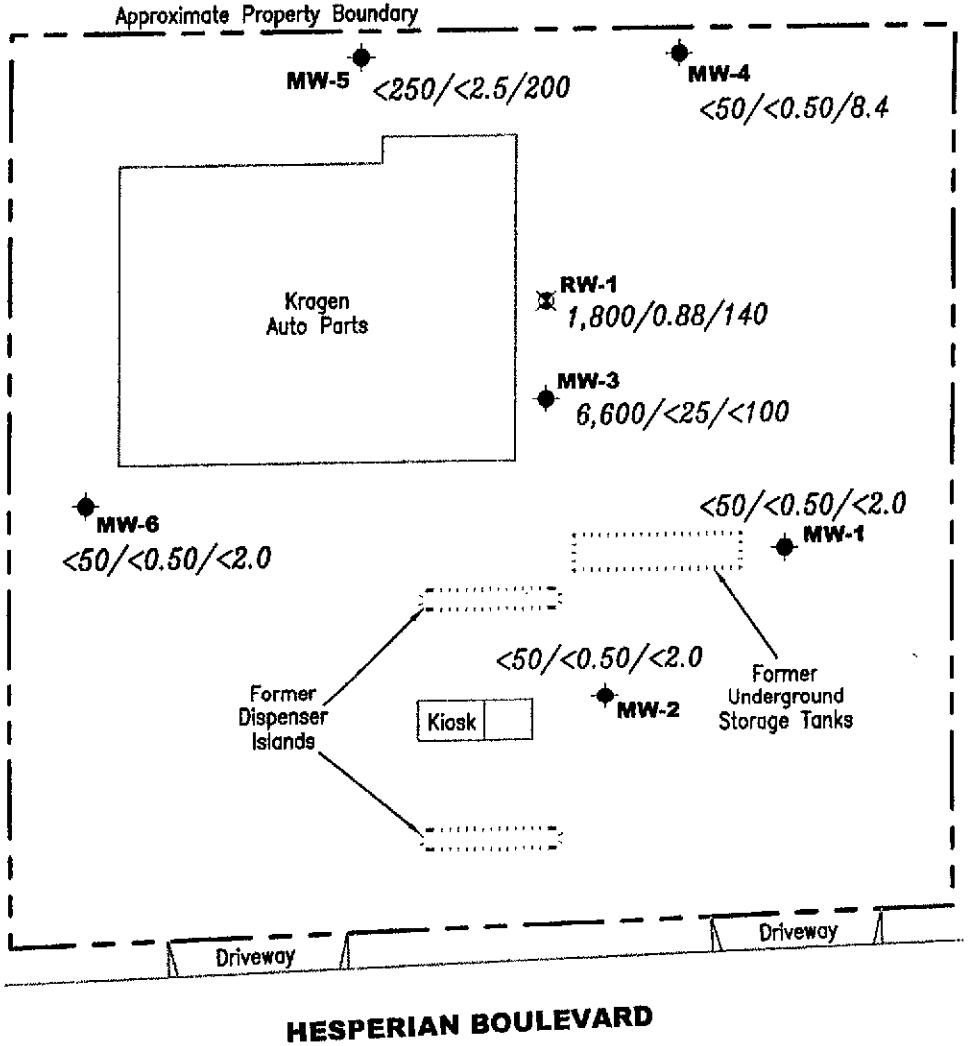

EXPLANATION

- ◆ Groundwater monitoring well
- ⊠ Aquifer testing well
- *A/B/C* Total Petroleum Hydrocarbons (TPH) as Gasoline/Benzene/ MTBE concentrations in ppb
- ***NOTE:*** Analyses by EPA Method 8260

N

0 40

Scale in Feet

Source: Figure modified from drawing provided by MPDS Services Inc..

FIGURE 6

GETTLER - RYAN INC.
6747 Sierra Ct., Suite J
Dublin, CA 94568 (925) 551-7555

CONCENTRATION MAP
Former Tosco (Unocal) Service Station #7004
15599 Hesperian Boulevard
San Leandro, California

PROJECT NUMBER 180106

REVIEWED BY

DATE January 24, 2003

REVISED DATE

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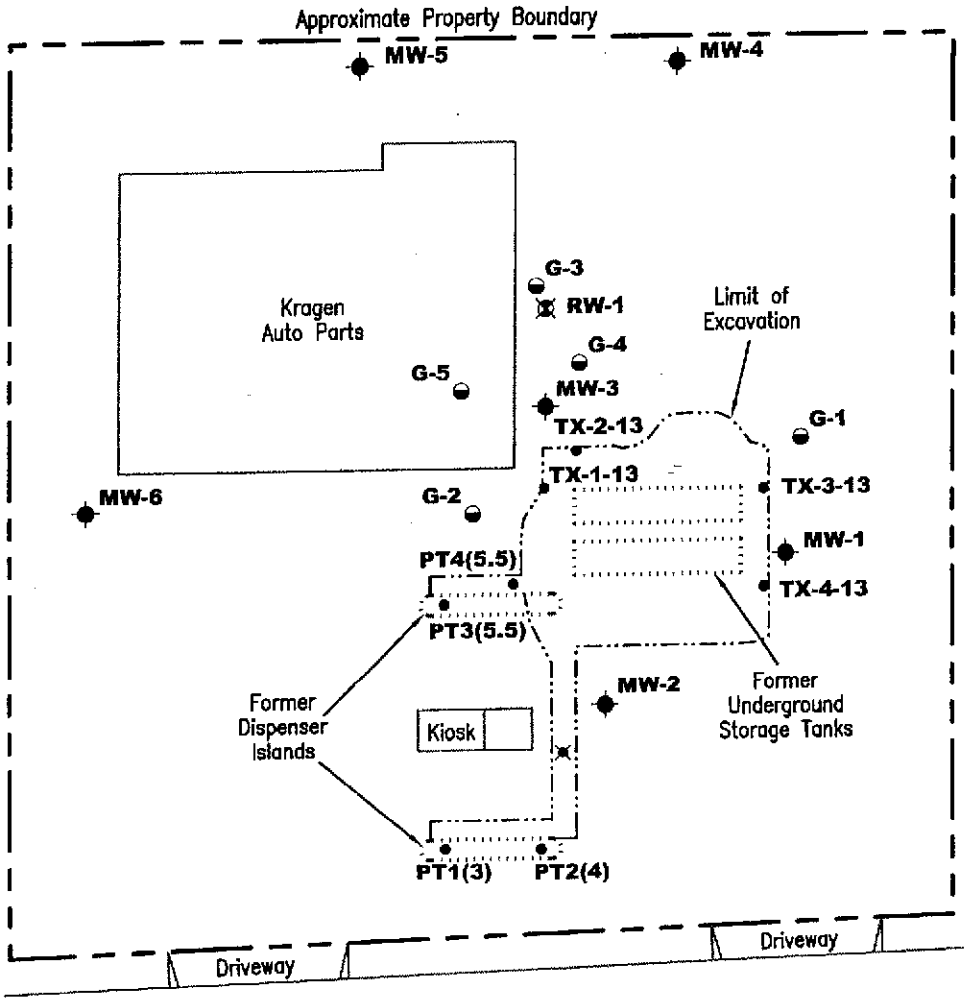

EXPLANATION

- Groundwater monitoring well
- Aquifer testing well
- Soil sample location
- Sample attempted pea gravel too deep to reach native soil
- Geoprobe boring

N

0 40

Scale in Feet

Source: Figure modified from drawing provided by MPDS Services Inc..

FIGURE 2

GETTLER - RYAN INC.
6747 Sierra Ct., Suite J
Dublin, CA 94568
(925) 551-7555

SITE PLAN
Former Tosco (76) Service Station No. 7004
15599 Hesperian Boulevard
San Leandro, California

PROJECT NUMBER 140106.06

REVIEWED BY

DATE 10/02

REVISED DATE

FILE NAME: P:\ENVIRO\TOSCO\7004\A00-7004.DWG | Layout Tab: Boring Rpt 10-02

Table 1

Groundwater Monitoring Data and Analytical Results

Former Tosco (Unocal) Service Station #7004

15599 Hesperian Boulevard

San Leandro, California

WELL ID/ TOC* (ft.)	DATE	DTW (ft.)	S.I. (ft. bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-1	05/04/91	--	10.0-25.0	--	ND	ND	ND	ND	ND	--
	07/23/91	--		--	ND	ND	ND	ND	ND	--
	10/14/91	--		--	ND	ND	ND	ND	ND	--
	01/14/92	--		--	ND	ND	ND	ND	ND	--
	04/14/92	--		--	76[1]	ND	ND	ND	ND	--
	07/09/92	--		--	70[1]	ND	ND	ND	ND	130
	10/28/92	--		--	SAMPLED SEMI-ANNUALLY		--	--	--	--
	01/21/93	--		--	ND	ND	ND	ND	ND	42
36.89	04/20/93	14.89		22.00	--	--	--	--	--	56
	07/22/93	14.34		22.55	ND	ND	ND	ND	ND	77
36.39	10/06/93	14.87		21.52	--	--	--	--	--	--
	01/11/94	15.14		21.25	ND	ND	ND	ND	ND	--
	04/06/94	14.19		22.20	--	--	--	--	--	--
	07/08/94	14.66		21.73	ND	ND	ND	ND	ND	--
	10/06/94	16.71		19.68	--	--	--	--	--	--
	01/05/95	14.68		21.71	ND	ND	ND	ND	ND	--
	04/05/95	11.76		24.63	--	--	--	--	--	--
	07/14/95	12.93		23.46	ND	0.65	2.2	ND	2.3	--
	10/12/95	14.29		22.10	--	--	--	--	--	--
	01/08/96	14.18		22.21	ND	ND	ND	ND	ND	--
	07/08/96	12.74		23.65	ND	ND	ND	ND	ND	ND
	01/03/97	12.89		23.50	87[1]	ND	ND	ND	ND	ND
	07/02/97	13.66		22.73	ND	ND	ND	ND	ND	ND
	01/15/98	13.08		23.31	ND	ND	ND	ND	ND	ND
	07/08/98	11.25		25.14	ND	ND	ND	ND	ND	ND
	01/11/99	13.68		22.71	51[9]	ND	ND	ND	ND	4.8
	07/07/99	12.15		24.24	ND	ND	ND	ND	ND	ND
	01/04/00	13.95		22.44	ND	ND	ND	ND	ND	ND
	07/15/00	13.46		22.93	ND	ND	0.86	ND	ND	ND
	01/19/01	12.96		23.43	ND	ND	ND	ND	ND	ND
	07/31/01	14.36		22.03	ND	ND	ND	ND	ND	ND
	01/28/02	12.89		23.50	<50	<0.50	<0.50	<0.50	<0.50	<2.5

Table 1

Groundwater Monitoring Data and Analytical Results

Former Tosco (Unocal) Service Station #7004

15599 Hesperian Boulevard

San Leandro, California

WELL ID/ TOC*(ft.)	DATE	DTW (ft.)	S.I. (ft. bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-1	04/22/02	12.86	10.0-25.0	23.53	<50	<0.50	<0.50	<0.50	<0.50	<2.5
(cont)	05/24/02[16]	13.16		23.23	<50	<0.50	<0.50	<0.50	<1.0	<0.50
	06/21/02[16]	13.52		22.87	76[15]	<0.50	<0.50	<0.50	<1.0	0.59
	07/29/02[16]	13.76		22.63	54[15]	<0.50	<0.50	<0.50	<1.0	<2.0
	08/29/02[16]	14.10		22.29	<50	<0.50	<0.50	<0.50	<1.0	<2.0
	09/14/02[16]	14.18		22.21	<50	<0.50	<0.50	<0.50	<1.0	<2.0
	10/25/02[16]	14.63		21.76	<50	0.91	<0.50	<0.50	<1.0	<2.0
	11/27/02[16]	**14.34**		**22.05**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**<2.0**
	12/19/02[16]	**13.60**		**22.79**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**<2.0**
	01/24/03[16]	**12.03**		**24.36**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**<2.0**
MW-2	05/04/91	--	10.0-25.0	--	ND	ND	ND	ND	ND	--
	07/23/91	--		--	ND	ND	ND	ND	ND	--
	10/14/91	--		--	ND	ND	ND	ND	ND	--
	01/14/92	--		--	ND	ND	ND	ND	ND	--
	04/14/92	--		--	45[1]	ND	ND	ND	ND	--
	07/09/92	--		--	ND	ND	ND	ND	ND	49
	10/28/92	--		--	SAMPLED SEMI-ANNUALLY		--	--	--	--
	01/21/93	--		--	ND	ND	ND	ND	ND	17
37.35	04/20/93	15.20		22.15	--	--	--	--	--	80
	07/22/93	14.75		22.60	62[1]	ND	ND	ND	ND	42
37.07	10/06/93	15.49		21.58	--	--	--	--	--	--
	01/11/94	15.77		21.30	120[1]	ND	ND	ND	ND	--
	04/06/94	14.83		22.24	--	--	--	--	--	--
	07/08/94	15.28		21.79	140[1]	ND	ND	ND	ND	--
	10/06/94	16.32		20.75	--	--	--	--	--	--
	01/05/95	15.30		21.77	310[1]	ND	ND	ND	ND	--
	04/05/95	12.12		24.95	--	--	--	--	--	--
	07/14/95	13.55		23.52	86[1]	ND	ND	ND	ND	--
	10/12/95	14.88		22.19	--	--	--	--	--	--
	01/08/96	14.81		22.26	91[1]	ND	ND	ND	ND	--

Table 1

Groundwater Monitoring Data and Analytical Results

Former Tosco (Unocal) Service Station #7004

15599 Hesperian Boulevard

San Leandro, California

WELL ID/ TOC* (ft.)	DATE	DTW (ft.)	S.I. (ft. bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-2 (cont)	07/08/96	13.37	10.0-25.0	23.70	100[1]	ND	ND	ND	ND	ND
	01/03/97	13.14		23.93	160[1]	ND	ND	ND	ND	ND
	07/02/97	14.26		22.81	91[1]	ND	ND	ND	ND	ND
	01/15/98	13.31		23.76	ND	ND	ND	ND	ND	ND
	07/08/98	11.57		25.50	ND	ND	ND	ND	ND	ND
	01/11/99	14.26		22.81	ND	ND	ND	ND	ND	9.8
	07/07/99	12.24		24.83	ND	ND	ND	ND	ND	9.4
	01/04/00	14.14		22.93	ND	ND	0.518	ND	ND	9.07
	07/15/00	13.75		23.32	ND	ND	0.51	ND	ND	6.0
	01/19/01	13.37		23.70	ND	ND	ND	ND	ND	6.84
	07/31/01	14.96		22.11	ND	ND	ND	ND	ND	ND
	01/28/02	13.51		23.56	<50	<0.50	<0.50	<0.50	<0.50	<2.5
	04/22/02	13.48		23.59	<50	<0.50	<0.50	<0.50	<0.50	<2.5
	05/24/02[16]	13.78		23.29	<50	<0.50	<0.50	<0.50	<1.0	<0.50
	06/21/02[16]	14.11		22.96	100[15]	<0.50	<0.50	<0.50	<1.0	<0.50
	07/29/02[16]	14.36		22.71	60[15]	<0.50	<0.50	<0.50	<1.0	<2.0
	08/29/02[16]	14.71		22.36	<50	<0.50	<0.50	<0.50	<1.0	<2.0
	09/14/02[16]	14.81		22.26	<50	<0.50	<0.50	<0.50	<1.0	<2.0
	10/25/02[16]	15.23		21.84	<50	<0.50	<0.50	<0.50	<1.0	<2.0
	11/27/02[16]	**14.95**		**22.12**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**<2.0**
	12/19/02[16]	**14.10**		**22.97**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**<2.0**
	01/24/03[16]	**12.64**		**24.43**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**<2.0**
MW-3	05/04/91	--	10.0-25.0	--	34,000	6,100	32	1,200	6,100	--
	07/23/91	--		--	17,000	5,500	26	1,800	2,800	--
	10/14/91	--		--	25,000	6,300	78	2,000	1,400	--
	01/14/92	--		--	13,000	6,600	19	2,600	1,800	--
	04/14/92	--		--	16,000	3,400	19	1,400	1,300	--
	07/09/92	--		--	13,000	3,200	12	1,900	1,100	--

As of 01/24/03

Table 1

Groundwater Monitoring Data and Analytical Results

Former Tosco (Unocal) Service Station #7004

15599 Hesperian Boulevard

San Leandro, California

WELL ID/ TOC*(ft.)	DATE	DTW (ft.)	S.I. (ft. bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-3	10/28/92	--	10.0-25.0	--	15,000	4,400	15	2,400	800	--
(cont)	01/21/93	--		--	12,000	2,800	11	1,600	590	--
37.22	04/20/93	15.13		22.09	18,000	3,700	11	2,300	1,300	410
	07/22/93	13.52		23.70	16,000	4,500	17	3,600	1,900	440
36.79	10/06/93	15.41		21.38	24,000	4,100	ND	3,600	2,000	ND
	01/11/94	15.66		21.13	19,000	3,300	31	3,300	890	--
	04/06/94	14.72		22.07	24,000	3,100	ND	3,300	820	--
	07/08/94	15.20		21.59	18,000	2,200	25	2,500	860	--
	10/06/94	16.23		20.56	20,000	2,100	26	3,000	900	--
	01/05/95	15.12		21.67	20,000	2,100	ND	3,200	3,800	--
	04/05/95	12.03		24.76	18,000	2,100	ND	3,700	690	--
	07/14/95	13.46		23.33	21,000	1,600	ND	3,900	1,500	--
	10/12/95	14.81		21.98	17,000	1,000	ND	3,600	1,000	--[3]
	01/08/96	14.70		22.09	14,000	760	ND	3,100	380	--[4]
	07/08/96	13.29		23.50	16,000	470	45	4,400	1,000	340
	01/03/97	13.09		23.70	14,000	160	ND	2,100	120	620
	07/02/97	13.96		22.83	23,000	110	ND	3,600	1,600	1,200
	01/15/98	13.26		23.53	12,000	33	ND[5]	2,800	120	1,100
	07/08/98	11.64		25.15	20,000	76	ND[5]	4,100	1,400	750
	01/11/99	14.17		22.62	23,000[10]	ND[5]	ND[5]	4,100	460	920
	07/07/99	13.18		23.61	15,000[11]	35	ND[5]	3,400	470	1,700
	01/04/00	14.27		22.52	15,500	ND[5]	ND[5]	3,330	191	827
	07/15/00	13.91		22.88	15,000[12]	ND[5]	ND[5]	3,400	420	3,300
	08/25/00	14.24		22.55	--	--	--	--	--	1,920[13]
	01/19/01	13.42		23.37	11,100[14]	38.4	ND[5]	1,760	38.8	ND[5]
	07/31/01	14.90		21.89	13,000[14]	ND[5]	ND[5]	1,600	63	ND[5]
	01/28/02	13.41		23.38	82	<0.50	<0.50	10	<0.50	<2.5
	04/22/02	13.41		23.38	7,300	39	<25	970	<25	<120
	05/24/02[16]	13.69		23.10	8,500[15]	<5.0	<5.0	1,200	<10	12
	06/21/02[16]	14.04		22.75	11,000	<5.0	<5.0	690	<10	17
	07/29/02[16]	14.28		22.51	6,800	<5.0	<5.0	1,100	<10	<20
	08/29/02[16]	14.62		22.17	7,200[15]	<25	<25	1,200	<50	<100

Table 1

Groundwater Monitoring Data and Analytical Results

Former Tosco (Unocal) Service Station #7004

15599 Hesperian Boulevard

San Leandro, California

WELL ID/ TOC* (ft.)	DATE	DTW (ft.)	S.I. (ft. bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-3	09/14/02[16]	14.72	10.0-25.0	22.07	180	<0.50	<0.50	20	<1.0	<2.0
(cont)	10/25/02[16]	15.13		21.66	1,000	<0.50	<0.50	110	<1.0	<2.0
	11/27/02[16]	14.85		21.94	7,600	<10	<10	1,200	<20	<40
	12/19/02[16]	13.83		22.96	6,400	<10	<10	810	<20	<40
	01/24/03[16]	12.52		24.27	6,600	<25	<25	930	<50	<100
MW-4	07/23/91	--	10.0-26.0	--	ND	ND	ND	ND	ND	--
	10/14/91	--		--	ND	ND	ND	ND	ND	--
	01/14/92	--		--	ND	ND	ND	ND	ND	--
	04/14/92	--		--	ND	ND	ND	ND	ND	--
	07/09/92	--		--	ND	ND	ND	ND	ND	--
	10/28/92	--		--	SAMPLED SEMI-ANNUALLY		--	--	--	--
	01/21/93	--		--	ND	ND	ND	ND	ND	--
35.81	04/20/93	13.84		21.97	--	--	--	--	--	65
	07/22/93	13.52		22.29	ND	ND	ND	ND	ND	54
35.44	10/06/93	14.17		21.27	--	--	--	--	--	--
	01/11/94	14.42		21.02	ND	ND	ND	ND	ND	--
	04/06/94	13.44		22.00	--	--	--	--	--	--
	07/08/94	13.96		21.48	ND	ND	ND	ND	ND	--
	10/06/94	15.00		20.44	--	--	--	--	--	--
	01/05/95	13.83		21.61	ND	ND	ND	ND	ND	--
	04/05/95	11.05		24.39	--	--	--	--	--	--
	07/14/95	12.23		23.21	ND	ND	ND	ND	ND	--
	10/12/95	13.59		21.85	--	--	--	--	--	--
	01/08/96	13.43		22.01	ND	ND	ND	ND	ND	--[4]
	07/08/96	12.04		23.40	ND	ND	ND	ND	ND	ND
	01/03/97	12.38		23.06	80[1]	ND	ND	ND	ND	ND
	07/02/97	13.00		22.44	ND	ND	ND	ND	ND	25
	01/15/98	12.50		22.94	ND	ND	ND	ND	ND	ND
	07/08/98	10.53		24.91	ND	ND	ND	ND	ND	25
	01/11/99	12.95		22.49	ND	ND	ND	ND	ND	23

Table 1

Groundwater Monitoring Data and Analytical Results

Former Tosco (Unocal) Service Station #7004

15599 Hesperian Boulevard

San Leandro, California

WELL ID/ TOC*(ft.)	DATE	DTW (ft.)	S.I. (ft. bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-4 (cont)	07/07/99	11.76	10.0-26.0	23.68	ND	ND	ND	ND	ND	15
	01/04/00	13.17		22.27	ND	ND	ND	ND	ND	13.2
	07/15/00	13.04		22.40	ND	ND	ND	ND	ND	11
	01/19/01	12.65		22.79	ND	ND	ND	ND	ND	9.97
	07/31/01	13.69		21.75	ND	ND	ND	ND	ND	6.0
	01/28/02	12.17		23.27	<50	<0.50	<0.50	<0.50	<0.50	13
	04/22/02	12.18		23.26	<50	<0.50	<0.50	<0.50	<0.50	5.7
	05/24/02[16]	12.45		22.99	<50	<0.50	<0.50	<0.50	<1.0	2.9
	06/21/02[16]	12.48		22.96	54[15]	<0.50	<0.50	<0.50	<1.0	3.6
	07/29/02[16]	13.08		22.36	<50	<0.50	<0.50	<0.50	<1.0	5.7
	08/29/02[16]	13.39		22.05	<50	<0.50	<0.50	<0.50	<1.0	8.5
	09/14/02[16]	13.49		21.95	<50	<0.50	<0.50	<0.50	<1.0	4.8
	10/25/02[16]	13.93		21.51	<50	0.82	<0.50	<0.50	<1.0	7.1
	11/27/02[16]	**13.62**		**21.82**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**7.3**
	12/19/02[16]	**12.56**		**22.88**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**8.1**
	01/24/03[16]	**11.26**		**24.18**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**8.4**
MW-5	07/23/91	--	10.0-26.0	--	260	1.2	0.39	10	0.71	--
	10/14/91	--		--	140	0.72	ND	1.3	0.89	--
	01/14/92	--		--	60[1]	ND	ND	ND	ND	--
	04/14/92	--		--	86[1]	ND	ND	ND	ND	--
	07/09/92	--		--	ND	ND	ND	ND	ND	71
	10/28/92	--		--	ND	ND	ND	ND	ND	45
	01/21/93	--		--	100[1]	ND	ND	ND	ND	160
37.01	04/20/93	14.87		22.14	99[1]	ND	ND	ND	ND	120
	07/22/93	14.82		22.19	59[2]	ND	ND	2.6	ND	42
36.81	10/06/93	15.61		21.20	150	1.1	ND	3.1	0.85	57
	01/11/94	15.84		20.97	160	ND	0.79	0.54	ND	--
	04/06/94	14.90		21.91	260	1.4	ND	0.88	ND	--
	07/08/94	15.38		21.43	200	ND	ND	ND	ND	--
	10/06/94	16.42		20.39	350	1.3	ND	ND	ND	--

Table 1

Groundwater Monitoring Data and Analytical Results

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WELL ID/ TOC* (ft.)	DATE	DTW (ft.)	S.I. (ft. bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-5	01/05/95	15.20	10.0-26.0	21.61	85	ND	ND	ND	ND	--
(cont)	04/05/95	11.72		25.09	ND	ND	ND	ND	ND	--
	07/14/95	13.69		23.12	180	1.3	ND	7.9	ND	--
	10/12/95	15.02		21.79	310	ND	ND	31	1.2	--[3]
	01/08/96	14.85		21.96	ND	0.55	ND	ND	0.58	--[4]
	07/08/96	13.52		23.29	140	2.1	1.4	5.6	0.51	110
	07/12/96	14.50		22.31	--	--	--	--	--	--
♦	01/03/97	12.85		23.96	12,000	150	ND	2,100	120	660
	07/02/97	13.79		23.02	ND	ND	ND	ND	ND	72
	01/15/98	13.03		23.78	69[6]	ND	ND	ND	ND	--[7]
	07/08/98	12.05		24.76	ND	0.74	ND	ND	ND	95
	01/11/99	14.41		22.40	ND	1.0	ND	ND	ND	170
♦♦	07/07/99	12.38		24.43	130	0.64	ND	ND	ND	330
	01/04/00	14.33		22.48	ND	ND	ND	ND	ND	183
	07/15/00	13.88		22.93	ND	0.68	ND	ND	ND	350
	01/19/01	13.41		23.40	ND	ND	ND	ND	ND	195
	07/31/01	15.12		21.69	ND	ND	ND	ND	ND	190
	01/28/02	13.59		23.22	<50	<0.50	<0.50	<0.50	<0.50	97
	04/22/02	13.61		23.20	<50	<0.50	<0.50	<0.50	<0.50	160
	05/24/02[16]	13.89		22.92	89	<0.50	<0.50	<0.50	<1.0	180
	06/21/02[16]	14.22		22.59	190[15]	<0.50	<0.50	<0.50	<1.0	85
	07/29/02[16]	14.48		22.33	120[15]	<0.50	<0.50	<0.50	<1.0	76
	08/29/02[16]	14.80		22.01	<500	<5.0	<5.0	<5.0	<10	380
	09/14/02[16]	14.91		21.90	130[15]	<0.50	<0.50	<0.50	<1.0	91
	10/25/02[16]	15.32		21.49	<200	<2.0	<2.0	<2.0	<4.0	270
	11/27/02[16]	**15.03**		**21.78**	**<250**	**<2.5**	**<2.5**	**<2.5**	**<5.0**	**330**
	12/19/02[16]	**13.75**		**23.06**	**290[15]**	**<2.5**	**<2.5**	**<2.5**	**<5.0**	**320**
	01/24/03[16]	**12.68**		**24.13**	**<250**	**<2.5**	**<2.5**	**<2.5**	**<5.0**	**200**

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San Leandro, California

WELL ID/ TOC* (ft.)	DATE	DTW (ft.)	S.I. (ft. bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-6	07/23/91	--	10.0-26.0	--	ND	ND	ND	ND	ND	--
	10/14/91	--		--	ND	ND	ND	ND	ND	--
	01/14/92	--		--	ND	ND	ND	ND	ND	--
	04/14/92	--		--	ND	ND	ND	ND	ND	--
	07/09/92	--		--	ND	ND	ND	ND	ND	--
	10/28/92	--		--	SAMPLED SEMI-ANNUALLY		--	--	--	--
	01/21/93	--		--	ND	ND	ND	ND	ND	--
37.55	04/20/93	15.27		22.28	--	--	--	--	--	ND
	07/22/93	15.20		22.35	ND	ND	ND	ND	ND	ND
37.13	10/06/93	15.75		21.38	--	--	--	--	--	--
	01/11/94	16.02		21.11	ND	ND	ND	ND	ND	--
	04/06/94	15.07		22.06	--	--	--	--	--	--
	07/08/94	15.55		21.58	ND	ND	ND	ND	ND	--
	10/06/94	16.58		20.55	--	--	--	--	--	--
	01/05/95	15.42		21.71	ND	ND	ND	ND	ND	--
	04/05/95	12.14		24.99	--	--	--	--	--	--
	07/14/95	13.87		23.26	ND	ND	ND	ND	ND	--
	10/12/95	15.17		21.96	--	--	--	--	--	--
	01/08/96	15.05		22.08	ND	ND	ND	ND	ND	--
	07/08/96	13.71		23.42	ND	ND	ND	ND	ND	ND
	01/03/97	13.12		24.01	97[1]	ND	ND	ND	ND	ND
	07/02/97	14.57		22.56	ND	ND	ND	ND	ND	ND
	01/15/98	13.30		23.83	ND	ND	ND	ND	ND	ND
	07/08/98	12.33		24.80	ND	ND	ND	ND	ND	ND
	01/11/99	14.60		22.53	ND	ND	ND	ND	ND	ND
	07/07/99	13.23		23.90	ND	ND	ND	ND	ND	ND
	01/04/00	14.41		22.72	ND	ND	ND	ND	ND	ND
	07/15/00	14.05		23.08	ND	ND	ND	ND	ND	ND
	01/19/01	13.58		23.55	ND	ND	ND	ND	ND	ND
	07/31/01	15.24		21.89	ND	ND	ND	ND	ND	ND
	01/28/02	13.80		23.33	<50	<0.50	<0.50	<0.50	<0.50	<2.5
	04/22/02	13.22		23.91	<50	<0.50	<0.50	<0.50	<0.50	<2.5

Table 1

Groundwater Monitoring Data and Analytical Results

Former Tosco (Unocal) Service Station #7004

15599 Hesperian Boulevard

San Leandro, California

WELL ID/ TOC* (ft.)	DATE	DTW (ft.)	S.I. (ft. bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
MW-6 (cont)	05/24/02[16]	14.07	10.0-26.0	23.06	<50	<0.50	<0.50	<0.50	<1.0	<0.50
	06/21/02[16]	14.38		22.75	<50	<0.50	<0.50	<0.50	<1.0	<0.50
	07/29/02[16]	14.64		22.49	<50	<0.50	<0.50	<0.50	<1.0	<2.0
	08/29/02[16]	14.97		22.16	<50	<0.50	<0.50	<0.50	<1.0	<2.0
	09/14/02[16]	15.04		22.09	<50	<0.50	<0.50	<0.50	<1.0	<2.0
	10/25/02[16]	15.46		21.67	<50	<0.50	<0.50	<0.50	<1.0	<2.0
	11/27/02[16]	**15.17**		**21.96**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**<2.0**
	12/19/02[16]	**13.88**		**23.25**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**<2.0**
	01/24/03[16]	**12.91**		**24.22**	**<50**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**<2.0**
RW-1	07/08/98	11.72	12.5-27.5	--	80[8]	1.7	ND	ND	ND	1,300
	01/11/99	14.05		--	ND[5]	3.0	ND[5]	ND[5]	ND[5]	1,200
	07/07/99	13.05		--	ND	ND	ND	ND	ND	590
	01/04/00	14.26		--	ND	ND	ND	ND	ND	270
	07/15/00	13.77		--	ND	0.55	ND	ND	ND	460
	01/19/01	13.29		--	ND	ND	ND	ND	ND	338
	07/31/01	14.72		--	ND[5]	ND[5]	ND[5]	ND[5]	ND[5]	1,900
	01/28/02	13.21		--	72[15]	0.98	<0.50	<0.50	<0.50	460
	04/22/02	13.22		--	<50	<0.50	<0.50	<0.50	<0.50	290
	05/24/02[16]	13.51		--	1,200[15]	<1.0	<1.0	30	<2.0	300
	06/21/02[16]	13.85		--	400	<0.50	<0.50	<0.50	<1.0	130
	07/29/02[16]	14.11		--	130	<0.50	<0.50	<0.50	<1.0	91
	08/29/02[16]	14.43		--	2,400	<2.0	<2.0	47	<4.0	210
	09/14/02[16]	14.54		--	390	<0.50	<0.50	<0.50	<1.0	120
	10/25/02[16]	14.95		--	2,700	0.96	1.1	51	<1.0	160
	11/27/02[16]	**14.66**		**--**	**1,800**	**0.91**	**0.82**	**31**	**<1.0**	**170**
	12/19/02[16]	**13.60**		**--**	**2,900**	**<5.0**	**<5.0**	**50**	**<10**	**200**
	01/24/03[16]	**12.31**		**--**	**1,800**	**0.88**	**0.69**	**29**	**<1.0**	**140**

Table 1

Groundwater Monitoring Data and Analytical Results

Former Tosco (Unocal) Service Station #7004

15599 Hesperian Boulevard

San Leandro, California

WELL ID/ TOC* (ft.)	DATE	DTW (ft.)	S.I. (ft. bgs)	GWE (msl)	TPH-G (ppb)	B (ppb)	T (ppb)	E (ppb)	X (ppb)	MTBE (ppb)
Trip Blank										
TB-LB	01/15/98	--	--	--	ND	ND	ND	ND	ND	ND
	07/08/98	--		--	ND	ND	ND	ND	ND	ND
	01/11/99	--		--	ND	ND	ND	ND	ND	ND
	07/07/99	--		--	ND	ND	ND	ND	ND	ND
	01/04/00	--		--	ND	ND	ND	ND	ND	ND
	07/15/00	--		--	ND	ND	ND	ND	ND	ND
	01/19/01	--		--	ND	ND	ND	ND	ND	ND
	07/31/01	--		--	<50	<0.50	<0.50	<0.50	<0.50	<2.5
	01/28/02	--		--	<50	<0.50	<0.50	<0.50	<0.50	<2.5
	04/22/02	--		--	<50	<0.50	<0.50	<0.50	<1.0	<0.50
QA	05/24/02[16]	--		--	<50	<0.50	<0.50	<0.50	<1.0	<0.50
	06/21/02[16]	--		--	<50	<0.50	<0.50	<0.50	<1.0	<2.0
	07/29/02[16]	--		--	<50	<0.50	<0.50	<0.50	<1.0	<2.0
	08/29/02[16]	--		--	<50	<0.50	<0.50	<0.50	<1.0	<2.0
	09/14/02[16]	--		--	<50	<0.50	<0.50	<0.50	<1.0	<2.0
	10/25/02[16]	--		--	**<50**	**<0.50**	**0.69**	**<0.50**	**<1.0**	**<2.0**
	11/27/02[16]	--		--	**<50**	**<0.50**	**0.52[17]**	**<0.50**	**<1.0**	**<2.0**
	12/19/02[16]	--		--	**<50**	**<0.50**	**<0.50**	**<0.50**	**<1.0**	**<2.0**
	01/24/03[16]	--		--						

Table 1

Groundwater Monitoring Data and Analytical Results

Former Tosco (Unocal) Service Station #7004
15599 Hesperian Boulevard
San Leandro, California

EXPLANATIONS:

Groundwater monitoring data and laboratory analytical results prior to January 15, 1998, were compiled from reports prepared by MPDS Services, Inc.

TOC = Top of Casing
DTW = Depth to Water
(ft.) = Feet
S.I. = Screen Interval
(ft. bgs) = Feet Below Ground Surface
GWE = Groundwater Elevation
(msl) = Mean sea level

TPH-G = Total Petroleum Hydrocarbons as Gasoline
B = Benzene
T = Toluene
E = Ethylbenzene
X = Xylenes
MTBE = Methyl tertiary butyl ether

(ppb) = Parts per billion
ND = Not Detected
-- = Not Measured/Not Analyzed/Not Available
QA = Quality Assurance/Trip Blank

* TOC elevations are relative to mean sea level (msl), based on the City of San Leandro Benchmark (Elevation = 36.04 feet msl). Prior to October 6, 1993, the DTW measurements were taken from the top of well covers.

♦ ORC installed.

♦♦ ORC removed from well.

1 Laboratory report indicates the hydrocarbons detected did not appear to be gasoline.

2 Laboratory report indicates the hydrocarbons detected appeared to be a gasoline and non-gasoline mixture.

3 Laboratory has potentially identified the presence of MTBE at reportable levels in the groundwater sample collected from this well.

4 Laboratory has identified the presence of MTBE at a level above or equal to the taste and odor threshold of 40 ppb in the sample collected from this well.

5 Detection limit raised. Refer to analytical reports.

6 Laboratory report indicates unidentified hydrocarbons C6-C8.

7 Laboratory narrative: MTBE was not reported due to the presence of a chlorinated hydrocarbon pattern.

8 Laboratory report indicates discrete peaks and unidentified hydrocarbons <C7.

9 Laboratory report indicates discrete peaks.

10 Laboratory report indicates gasoline and unidentified hydrocarbons C6-C12.

11 Laboratory report indicates gasoline and unidentified hydrocarbons <C6.

12 Laboratory report indicates gasoline C6-C12.

13 MTBE by EPA Method 8260.

14 Laboratory report indicates weathered gasoline C6-C12.

15 Laboratory report indicates hydrocarbon pattern is present in the requested fuel quantitation range but does not resemble the pattern of the requested fuel.

16 TPH-G, BTEX and MTBE by EPA Method 8260.

17 Laboratory report indicates Toluene was detected in the trip blank at a concentration above the reporting limit. The laboratory has determined that this is due to trace contamination in this set of blanks when received from the vendor, and was not caused by field contamination.

Table 2

Groundwater Analytical Results - Oxygenate Compounds

Former Tosco (Unocal) Service Station #7004
15599 Hesperian Boulevard
San Leandro, California

WELL ID	DATE	ETHANOL (ppb)	TBA (ppb)	MTBE (ppb)	DIPE (ppb)	ETBE (ppb)	TAME (ppb)	1,2-DCA (ppb)	EDB (ppb)
MW-1	05/24/02	--	--	<0.50	--	--	--	--	--
	06/21/02	--	--	0.59	--	--	--	--	--
	07/29/02	--	--	<2.0	--	--	--	--	--
	08/29/02	--	--	<2.0	--	--	--	--	--
	09/14/02	--	--	<2.0	--	--	--	--	--
	10/25/02	--	--	<2.0	--	--	--	--	--
	11/27/02	--	--	**<2.0**	--	--	--	--	--
	12/19/02	--	--	**<2.0**	--	--	--	--	--
	01/24/03	--	--	**<2.0**	--	--	--	--	--
MW-2	05/24/02	--	--	<0.50	--	--	--	--	--
	06/21/02	--	--	<0.50	--	--	--	--	--
	07/29/02	--	--	<2.0	--	--	--	--	--
	08/29/02	--	--	<2.0	--	--	--	--	--
	09/14/02	--	--	<2.0	--	--	--	--	--
	10/25/02	--	--	<2.0	--	--	--	--	--
	11/27/02	--	--	**<2.0**	--	--	--	--	--
	12/19/02	--	--	**<2.0**	--	--	--	--	--
	01/24/03	--	--	**<2.0**	--	--	--	--	--
MW-3	08/25/00	--	ND[1]	1,920	ND[1]	ND[1]	ND[1]	ND[1]	ND[1]
	05/24/02	--	--	12	--	--	--	--	--
	06/21/02	--	--	17	--	--	--	--	--
	07/29/02	--	--	<20	--	--	--	--	--
	08/29/02	--	--	<100	--	--	--	--	--
	09/14/02	--	--	<2.0	--	--	--	--	--
	10/25/02	--	--	<2.0	--	--	--	--	--
	11/27/02	--	--	**<40**	--	--	--	--	--
	12/19/02	--	--	**<40**	--	--	--	--	--
	01/24/03	--	--	**<100**	--	--	--	--	--

Table 2

Groundwater Analytical Results - Oxygenate Compounds

Former Tosco (Unocal) Service Station #7004

15599 Hesperian Boulevard

San Leandro, California

WELL ID	DATE	ETHANOL (ppb)	TBA (ppb)	MTBE (ppb)	DIPE (ppb)	ETBE (ppb)	TAME (ppb)	1,2-DCA (ppb)	EDB (ppb)
MW-4	05/24/02	--	--	2.9	--	--	--	--	--
	06/21/02	--	--	3.6	--	--	--	--	--
	07/29/02	--	--	5.7	--	--	--	--	--
	08/29/02	--	--	8.5	--	--	--	--	--
	09/14/02	--	--	4.8	--	--	--	--	--
	10/25/02	--	--	7.1	--	--	--	--	--
	11/27/02	--	--	**7.3**	--	--	--	--	--
	12/19/02	--	--	**8.1**	--	--	--	--	--
	01/24/03	--	--	**8.4**	--	--	--	--	--
MW-5	05/24/02	--	--	180	--	--	--	--	--
	06/21/02	--	--	85	--	--	--	--	--
	07/29/02	--	--	76	--	--	--	--	--
	08/29/02	--	--	380	--	--	--	--	--
	09/14/02	--	--	91	--	--	--	--	--
	10/25/02	--	--	270	--	--	--	--	--
	11/27/02	--	--	**330**	--	--	--	--	--
	12/19/02	--	--	**320**	--	--	--	--	--
	01/24/03	--	--	**200**	--	--	--	--	--
MW-6	05/24/02	--	--	<0.50	--	--	--	--	--
	06/21/02	--	--	<0.50	--	--	--	--	--
	07/29/02	--	--	<2.0	--	--	--	--	--
	08/29/02	--	--	<2.0	--	--	--	--	--
	09/14/02	--	--	<2.0	--	--	--	--	--
	10/25/02	--	--	<2.0	--	--	--	--	--
	11/27/02	--	--	**<2.0**	--	--	--	--	--
	12/19/02	--	--	**<2.0**	--	--	--	--	--
	01/24/03	--	--	**<2.0**	--	--	--	--	--

Table 2

Groundwater Analytical Results - Oxygenate Compounds

Former Tosco (Unocal) Service Station #7004

15599 Hesperian Boulevard

San Leandro, California

WELL ID	DATE	ETHANOL (ppb)	TBA (ppb)	MTBE (ppb)	DIPE (ppb)	ETBE (ppb)	TAME (ppb)	1,2-DCA (ppb)	EDB (ppb)
RW-1	05/24/02	<50	<10	300	<2.0	<1.0	<1.0	<0.5	<0.5
	06/21/02	--	--	130	--	--	--	--	--
	07/29/02	--	--	91	--	--	--	--	--
	08/29/02	--	--	210	--	--	--	--	--
	09/14/02	--	--	120	--	--	--	--	--
	10/25/02	--	--	160	--	--	--	--	--
	11/27/02	--	--	**170**	--	--	--	--	--
	12/19/02	--	--	**200**	--	--	--	--	--
	01/24/03	--	--	**140**	--	--	--	--	--

Table 2

Groundwater Analytical Results - Oxygenate Compounds

Former Tosco (Unocal) Service Station #7004
15599 Hesperian Boulevard
San Leandro, California

EXPLANATIONS:

TBA = Tertiary butyl alcohol
MTBE = Methyl tertiary butyl ether
DIPE = Di-isopropyl ether
ETBE = Ethyl tertiary butyl ether
TAME = Tertiary amyl methyl ether
1,2-DCA = 1,2-Dichloroethane
EDB = 1,2-Dibromoethane
(ppb) = Parts per billion
QA = Quality Assurance/Trip Blank
ND = Not Detected
-- = Not Analyzed

[1] Dectection limit raised. Refer to analytical reports.

ANALYTICAL METHOD:

EPA Method 8260 for Oxygenate Compounds

Table 3

Dissolved Oxygen Concentrations

Former Tosco (Unocal) Service Station #7004

15599 Hesperian Boulevard

San Leandro, California

WELL ID	DATE	Before Purging *(mg/L)*	After Purging *(mg/L)*
MW-5	07/02/97	3.82	3.97
	01/03/97	4.35	4.27
	07/12/96	3.44	3.67
	01/15/98	4.19	4.38
	07/08/98	4.67	4.60

EXPLANATIONS:

Dissolved oxygen concentrations prior to January 15, 1998, were compiled from reports prepared by MPDS Services, Inc.

(mg/L) = milligrams per liter

TABLE 1 - SOIL SAMPLE CHEMICAL ANALYTICAL DATA

Former Tosco (76) Service Station No. 7004
15599 Hesperian Boulevard
San Leandro, California

Sample No.	Sample Date	Sample Depth (feet)	TPHg (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-benzene (ppm)	Total Xylenes (ppm)	ETHANOL (ppm)	TBA (ppm)	MTBE (ppm)	DIPE (ppm)	ETBE (ppm)	1,2-DCA (ppm)	TAME (ppm)	EDB (ppm)	Total Lead (ppm)
G-1 (S10)	9/20/2002	10	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---
G-1 (S14)	9/20/2002	14	<100	<0.50	<0.50	<0.50	<0.50	<20	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	---
G-2 (S5)	9/20/2002	5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---
G-2 (S10)	9/20/2002	10	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---
G-2 (S14)	9/20/2002	14	<100	<0.50	<0.50	<0.50	<0.50	<20	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	---
G-3 (S5)	9/20/2002	5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---
G-3 (S10)	9/20/2002	10	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---
G-3 (S13.5)	9/20/2002	14	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	0.083	0.051	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---
G-4 (S10)	9/20/2002	10	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---
G-4 (S13)	9/20/2002	13	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---
G-5 (S5)	9/20/2002	5	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---
G-5 (S10)	9/20/2002	10	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	---
G-5 (S13)	9/20/2002	13	<100	<0.50	<0.50	<0.50	<0.50	<0.20	<5.0	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	---
Comp-1 (A,B,C,D)	9/20/2002	na	7.4[1]	0.035[1]	0.066[1]	0.11[1]	0.074[1]	NA	NA	NA	NA	NA	NA	NA	NA	<10

EXPLANATION:

ppm = parts per million
--- = Not Analyzed
na = Not Applicable
[1] = Analyses by DHS LUFT
<1.0 = Not detected at or above laboratories listed reporting limit

ANALYTICAL LABORATORY:

Sequoia Analytical Sacramento CA (ELAP #1624)

SSL Benzene 0.0014

ANALYTICAL METHOD:

TPHg = Total Petroleum Hydrocarbons as gasoline by EPA Method 8260B
Benzene, Toluene, Ethylbenzene and Total Xylenes by EPA Method 8260B
ETHANOL by EPA Method 8260B
TBA= tert-Butyl alcohol by EPA Method 8260B
MTBE = Methyl tert-butyl ether by EPA Method 8260B
DIPE = Di-isopropyl ether by EPA Method 8260B
ETBE = Ethyl tert-butyl ether by EPA Method 8260B
1,2- DCA =1,2-Dichloroethane by EPA Method 8260B
TAME = tert-Amyl methyl ether by EPA Method 8260B
EDB = Ethylene Dibromide by EPA Method 8260B
Total Lead by EPA Method 6010A

TABLE 2 - GRAB GROUNDWATER SAMPLE CHEMICAL ANALYTICAL DATA

Former Tosco (76) Service Station No. 7004
15599 Hesperian Boulevard
San Leandro, California

Sample No.	Sample Date	TPHg (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Total Xylenes (ppb)	ETHANOL (ppb)	TBA (ppb)	MTBE (ppb)	DIPE (ppb)	ETBE (ppb)	TAME (ppb)	1,2-DCA (ppb)	EDB (ppb)
G-1W	9/20/2002	22[1]	<0.50	<0.50	<0.50	<0.50	<50	<5.0	0.47[1]	<0.50	<0.50	<0.50	<0.50	<0.50
G-2W	9/20/2002	8,200	<250	<250	540	<250	<25,000	<2,500	<250	<250	<250	<250	<250	<250
G-3W	9/20/2002	1,000	<25	<25	29	<25	<2,500	300	240	<25	<25	<25	<25	<25
G-4W	9/20/2002	96,000[2]	<100	<100	1,500	<100	<10,000	<1,000	<100	<100	<100	<100	<100	<100
G-5W	9/20/2002	9,300	<500	<500	4,300	<500	<50,000	<5,000	360	<500	<500	<500	<500	<500

EXPLANATION:

ppb = parts per billion

[1] = Estimated Value

[2] = Hydrocarbon pattern is present in the requested fuel quantitation range but does not resemble the pattern of the requested fuel

<0.50 = Not detected at or above laboratories listed reporting limit

ANALYTICAL LABORATORY:

Sequoia Analytical Sacramento CA (ELAP #1624)

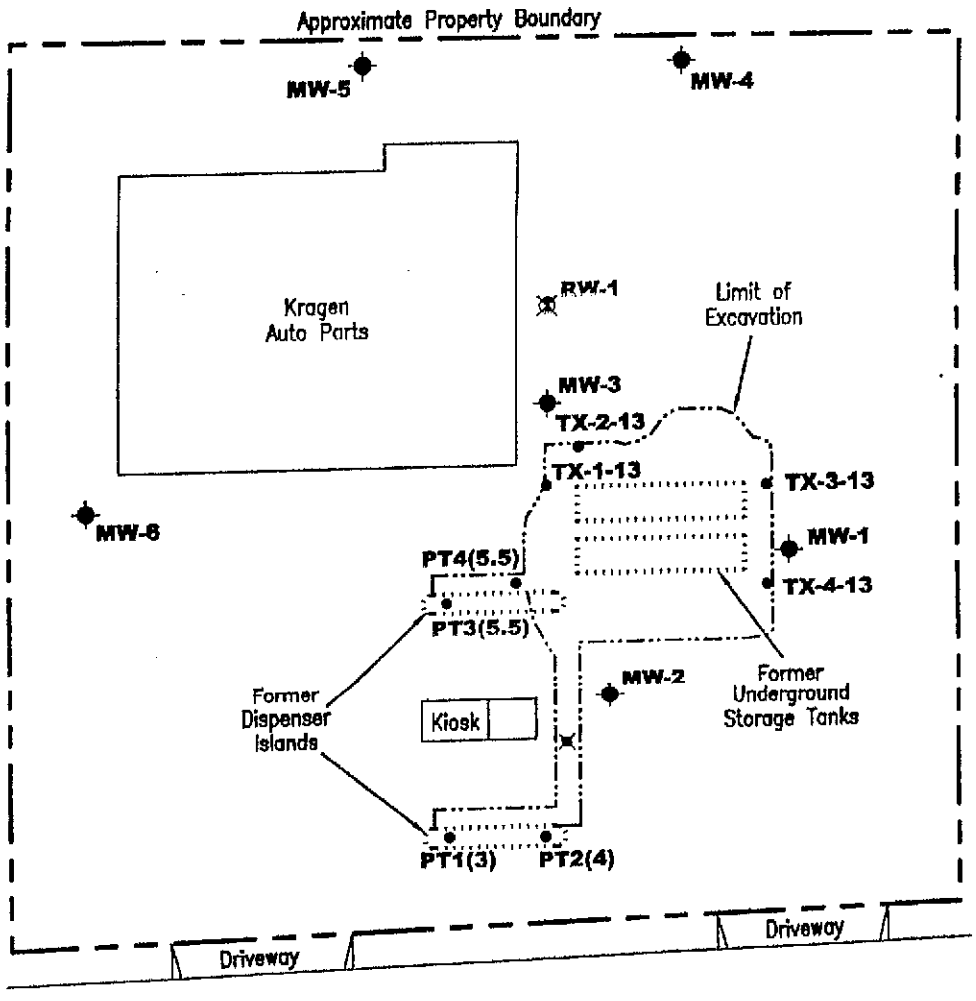
ANALYTICAL METHOD:

TPHg = Total Petroleum Hydrocarbons as gasoline by EPA Method 8260B
Benzene, Toluene, Ethylbenzene and Total Xylenes by EPA method 8260B
ETHANOL by EPA Method 8260B
TBA= tert-Butyl alcohol by EPA Method 8260B
MTBE = Methyl tert-butyl ether by EPA Method 8260B
DIPE = Di-isopropyl ether by EPA Method 8260B
ETBE = Ethyl tert-butyl ether by EPA Method 8260B
1,2-DCA =1,2-Dichloroethane by EPA Method 8260B
TAME = tert-Amyl methyl ether by EPA Method 8260B
EDB = Ethylene Dibromide by EPA Method 8260B

Table 1 - Chemical Analytical Data

Former Tosco 76 Branded Facility No.7004
15599 Hesperian Blvd
San Leandro, California

Sample ID	Date Collected	Sample Depth (feet)	TPHg (ppm)	Benzene (ppm)	Toluene (ppm)	Ethyl-Benzene (ppm)	Xylenes (ppm)	MTBE (ppm)
GASOLINE UST PIT (SOIL)								
TX-1-13	5/26/00	13.0	ND	ND	ND	ND	ND	ND
TX-2-13	5/26/00	13.0	1.1	ND	ND	0.014	0.015	ND
TX-3-13	5/26/00	13.0	350	ND	ND	4.8	0.81	ND
TX-4-13	5/26/00	13.0	4.1	ND	ND	0.016	0.013	ND
PRODUCT LINES (SOIL)								
PT1 (3)	5/24/00	3.0	ND	ND	ND	ND	ND	ND
PT2 (4)	5/24/00	4.0	ND	ND	ND	ND	ND	ND
PT3 (4.5)	5/24/00	4.5	ND	ND	ND	ND	ND	ND
PT4 (5.5)	5/24/00	5.5	ND	ND	ND	ND	ND	ND
GASOLINE TANK PIT STOCKPILE								
Comp S1	5/24/00	NA	ND	ND	ND	ND	ND	ND
Comp S2	5/24/00	NA	ND	ND	ND	ND	ND	ND



EXPLANATION

- Groundwater monitoring well
- Aquifer testing well
- Soil sample location
- Sample attempted pea gravel too deep to reach native soil

N

0 40

Scale in Feet

Source: Figure modified from drawing provided by MPDS Services Inc..

FIGURE 2

Gettler - Ryan Inc.

6747 Sierra Ct., Suite J
Dublin, CA 94568 (925) 551-7555

SITE PLAN
Former Tosco (76) Service Station No. 7004
15599 Hesperian Boulevard
San Leandro, California

PROJECT NUMBER 140106

REVIEWED BY

DATE 8/00

REVISED DATE

FILE NAME: P:\ENVIRO\TOSCO\7004\A00-7004.DWG | Layout Tab: Tank Rpt 8-00

KEI-P90-1003.R5
August 16, 1991

TABLE 3

SUMMARY OF LABORATORY ANALYSES
SOIL

Date	Sample Number	Depth (feet)	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene
7/02/91	MW4(5)	5.0	ND	ND	0.0084	ND	ND
	MW4(10)	10.0	ND	ND	0.0051	ND	ND
	MW4(15)	15.0	ND	ND	0.016	0.017	ND
	MW4(17)	17.0	ND	ND	0.015	0.015	ND
	MW5(5)	5.0	ND	ND	0.030	ND	ND
	MW5(10)	10.0	ND	ND	0.0074	0.012	ND
	MW5(15)	15.0	ND	ND	0.011	0.0094	ND
	MW5(17.5)	17.5	ND	ND	0.0098	0.0077	0.0052
	MW6(5)	5.0	ND	ND	0.0086	ND	ND
	MW6(10)	10.0	ND	ND	0.0061	ND	ND
	MW6(15)	15.0	ND	ND	ND	ND	ND
	MW6(17.5)	17.5	ND	ND	0.0084	0.0063	ND
Detection Limits			1.0	0.0050	0.0050	0.0050	0.0050

ND = Non-detectable.

Results in parts per million (ppm), unless otherwise indicated.

KEI-P90-1003.R5
August 16, 1991

TABLE 4

SUMMARY OF LABORATORY ANALYSES
SOIL

Date	Sample Number	Depth (feet)	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethyl-benzene
4/22/91	MW1(5)	5.0	ND	ND	ND	0.012	ND
	MW1(10)	10.0	ND	ND	ND	ND	ND
	MW1(16)	16.0	1.5	ND	ND	ND	ND
	MW2(5)	5.0	4.5	0.015	ND	0.079	0.034
	MW2(10)	10.0	6.8	0.025	ND	0.043	0.035
	MW2(15.5)	15.5	ND	ND	ND	ND	ND
	MW2(17)	17.0	ND	0.014	ND	ND	ND
	MW3(5)	5.0	2.0	0.025	ND	0.011	ND
	MW3(10)	10.0	ND	0.018	ND	ND	ND
	MW3(15)	15.0	4,800	23	9.1	290	63
	MW3(17.5)	17.5	1,000	8.4	4.6	64	17
Detection Limits			1.0	0.0050	0.0050	0.0050	0.0050

ND = Non-detectable.

Results in parts per million (ppm), unless otherwise indicated.

KEI-P90-1003.R5
August 16, 1991

TABLE 5

SUMMARY OF LABORATORY ANALYSES
SOIL

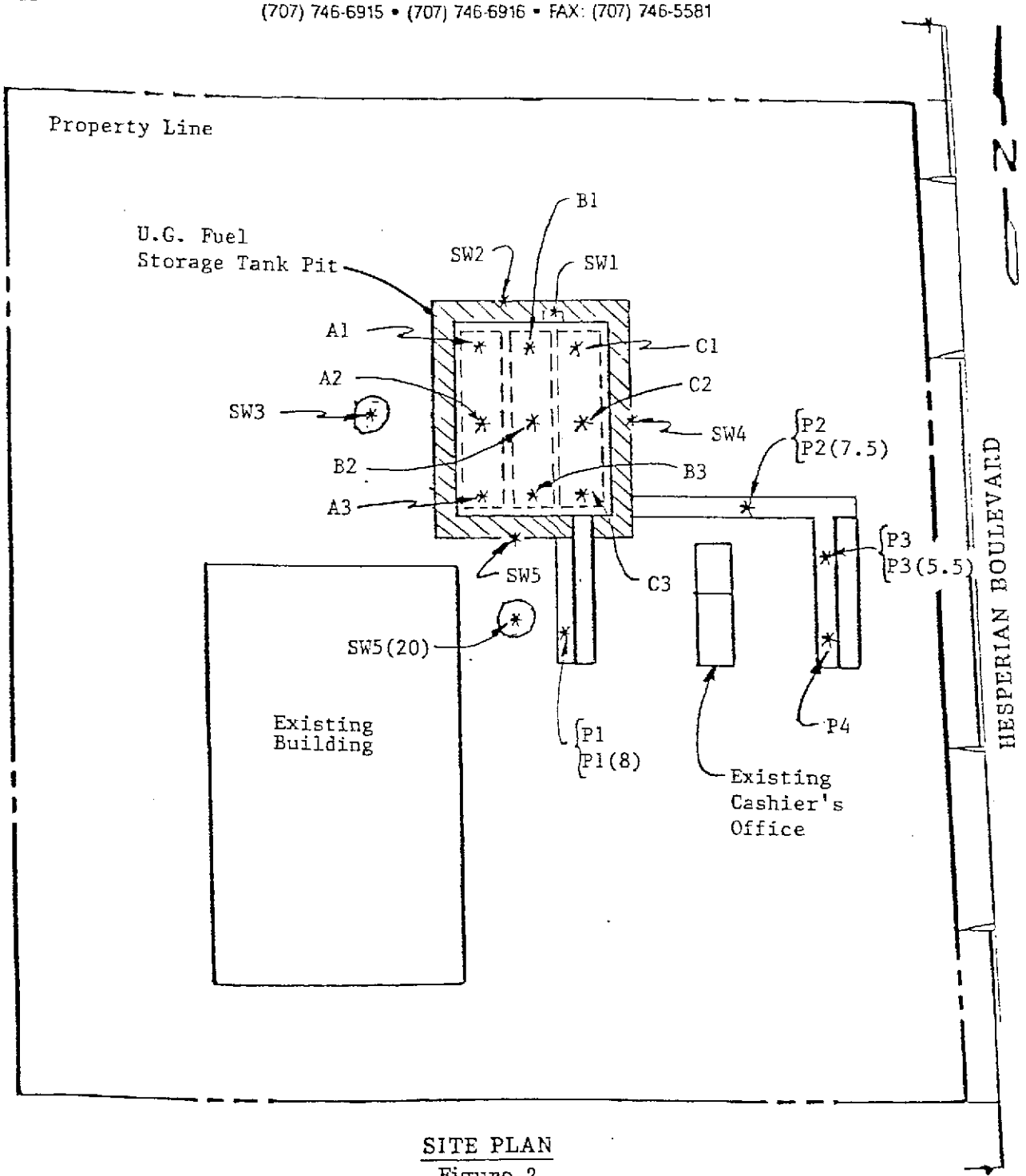
(Collected on October 12, 19, 22 & 31, and November 2, 1990)

Sample	Depth (feet)	TPH as Gasoline	Benzene	Toluene	Xylenes	Ethylbenzene
A1	14.5	350	2.0	3.6	47	7.7
A2	14.5	480	2.4	7.3	49	7.4
A3	14.0	570	0.97	5.6	50	8.3
B1	15.0	180	0.64	0.84	11	3.0
B2	15.0	1,900	9.7	120	250	33
B3	15.0	990	6.3	52	120	16
C1	15.0	270	0.64	3.7	22	5.4
C2	15.0	1,200	4.9	41	150	24
C3	15.0	590	4.6	23	80	9.4
SW1	18.0	3.7	0.21	0.024	0.42	0.14
SW2	18.0	4.5	0.46	0.024	0.46	0.26
SW3	18.0	4.1	0.024	0.0080	0.088	0.058
SW4	18.0	ND	0.0090	ND	0.0070	ND
SW5	18.0	998	0.58	ND	21	19
SW5(20)	18.0	30	0.054	0.047	0.054	0.46
P1	2.5	1,400	0.22	3.3	72	8.9
P1(8)	8.0	5.7	0.0078	0.0054	0.18	0.033
P2	3.0	3,900	1.1	23	280	41
P2(7.5)	7.5	20	ND	0.11	1.3	0.12
P3	2.5	100	0.057	0.63	12	0.97
P3(5.5)	5.5	9.8	0.015	0.15	1.3	0.13
P4	2.5	19	ND	0.10	0.13	ND
Detection Limits		1.0	0.0050	0.0050	0.0050	0.0050

ND = Non-detectable.

Results in parts per million (ppm), unless otherwise indicated.

KAPREALIAN ENGINEERING, INC.
Consulting Engineers
P.O. BOX 996 • BENICIA, CA 94510
(707) 746-6915 • (707) 746-6916 • FAX: (707) 746-5581



SITE PLAN
Figure 2

LEGEND

* Sample Point Location

▨ Area of Additional Excavation

0 30 60
Approx. scale feet

Unocal S/S #7004
15599 Hesperian Boulevard
San Leandro, CA