RO- 448

ExxonMobil
Refining & Supply Company

2300 Clayton Road, Suite 1250
Concord, CA 94524-4032
(925) 246-8747 Telephone
(925) 246-8798 Facsimile
gene.n.ortega@exxonmobil.com

Gene N. Ortega
Territory Manager
Global Remediation-US Retail

ExxonMobil
Refining & Supply

August 5, 2002

Ms. Eva Chu
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, Room 250
Alameda, California 94502-6577

AUG 30 2002

RE: Former Exxon RAS #7-0104/1725 Park Street, Alameda, California.

Dear Ms. Chu:

Attached for your review and comment is a report entitled ***Site Conceptual Model***, dated August 2, 2002, for the above referenced site. The report was prepared by Environmental Resolutions, Inc. (ERI) of Novato, California, and presents assessment activities and the results of a Risk based corrective action analysis for the subject site.

If you have any questions or comments, please contact me at (925) 246-8747.

Sincerely,

Gene N. Ortega
Territory Manager

Attachment: ERI's Site Conceptual Model, dated August 2, 2002.

cc: w/attachment
Mr. Stephen Hill, California Regional Water Quality Control Board, San Francisco Bay Region
Mr. Joseph A. Aldridge, Valero Energy Corporation

w/o attachment
Mr. Scott R. Graham, Environmental Resolutions, Inc.

120-448

ENVIRONMENTAL RESOLUTIONS, INC.

August 2, 2002
ERI 250605.R02

AUG 30 2002

Mr. Gene N. Ortega
ExxonMobil Oil Corporation
2300 Clayton Road, Suite 1250
Concord, California 94520

Subject: Site Conceptual Model, Former Exxon Service Station 7-0104, 1725 Park Street, Alameda, California.

Mr. Ortega:

At the request of ExxonMobil Oil Corporation (ExxonMobil), Environmental Resolutions, Inc. (ERI) performs environmental assessment and remedial activities at the subject site. ERI prepared this Site Conceptual Model in response to the Alameda County Health Care Services Agency (the County) letter (electronic mail) dated November 15, 2001 (Attachment A).

BACKGROUND

The site is located on the western corner of Park Street and Eagle Avenue as shown on the Site Vicinity Map (Plate 1). The locations of underground storage tanks (USTs), dispenser islands, and other select site features are shown on the Generalized Site Plan (Plate 2). There is an active Shell-branded service station located at 1701 Park Street (upgradient of the site), as well as an active Chevron Service Station and two inactive former gasoline (unknown brand) service stations down and cross gradient of the site.

The site has eleven groundwater monitoring wells (MW1 through MW9, MW11, and MW12); two soil vapor extraction (SVE) wells (VW1 and VW2); three air sparge (AS) wells (SM1, SW1, and AS1); and five groundwater extraction wells (EW1 through EW5) as shown on Plate 2. Based on quarterly groundwater monitoring data, historical depths to water (DTW) measurements have ranged from approximately 3 to 23 feet below ground surface (bgs). Groundwater monitoring and sampling have been conducted at this site on a quarterly basis since September 1994. Cumulative results of groundwater monitoring and sample analyses are included in Table 1.

The air sparge/soil vapor extraction (AS/SVE) system began operation on February 16, 1998, and has operated continuously since that date.

SUMMARY OF ENVIRONMENTAL INVESTIGATIONS

In 1986, three gasoline USTs were removed and replaced with three double-walled fiberglass tanks. In 1988, Harding and Lawson Associates (HLA) conducted an initial investigation, which include the installation of three groundwater monitoring wells. Since 1988, a total of 12 groundwater monitoring wells, five groundwater-extraction wells, two vapor-extraction wells, six air-sparge wells, and seven soil borings have been installed at the site. A vapor extraction test and an aquifer slug test have been

performed, and a remediation system installed. The groundwater recovery system (GRS) began operation in February 1993, and ran continuously until March 2000. The vapor extraction system (VES) began operation in February 1998 and operated until March 2000 when it was shut down for evaluation. The VES was retrofitted to include an AS system and was restarted in June 2000. Operational and performance data for the VES since February 1998 are presented in Tables 2 and 3. Cumulative GRS flow rates, total volume extracted, and influent, intermediate, and effluent sample concentrations are presented in Table 4. ERI retrofitted the remediation system in April 2002, and restarted the GRS (pumping from extraction wells EW1 and EW3) on June 5, 2002.

SUMMARY OF SITE CONDTIONS

Regional Geology

Alameda County is located at the northern end of the Diablo Range of Central California. It is bounded on the north by the south flank of Mount Diablo. San Francisco Bay forms the western boundary, the San Joaquin Valley borders it on the east, and an arbitrary line from the Bay into the Diablo Range forms the southern boundary. Alameda is one of the nine Bay Area counties tributary to San Francisco Bay. Most of the country is mountainous with steep rugged topography. The Alameda Island area is comprised of a combination of Quaternary eolian dune and estuarine facies, and Merrit Sand (Pleistocene and Holocene).

Site Geology

Based on the results of previous investigation, there appears to be one upper water-bearing zone at the site. There is a sandy unit underlying the site that extends from the ground surface to approximately 40 feet bgs (the maximum depth of investigation). This sand layer contains sand, silty sand, and clayey sand (Attachment B).

Site Hydrogeology

This site is located on the eastern side of Alameda Island, approximately 1,400 feet west of the tidal canal and approximately one mile north and east of the San Francisco Bay (Plate 1). Due to the fact that this site is located on an island, with the shallow groundwater and potential for saltwater intrusion, the groundwater does not have current or potential uses.

Based on the most recent quarterly monitoring and sampling data, groundwater occurs at approximately 5 feet bgs. ERI calculated the average hydraulic gradient and groundwater flow direction using data collected from monitoring wells MW2, MW6, MW8, MW9, and MW11. These wells are located a sufficient distance from the vapor extraction wells so the effects of the remediation on the groundwater elevations should be minimal. Using elevation data gathered since the second quarter 2000, ERI calculated an average hydraulic gradient of 0.016, with groundwater flowing in an easterly direction. A groundwater flow direction rose diagram is included as Plate 3.

According to the Alameda County Water District, the sources of water for Alameda County are: the State Water Project which consists of water from the Sacramento/San Joaquin Delta and/or Lake Del Valle; the Hetch Hetchy Reservoir in Yosemite National Park; and local run-off from the Alameda Creek

watershed. The Alameda Creek watershed consists of an area of roughly 633 miles, stretching from Mt. Diablo in the north to Mt. Hamilton in the south, and east to Altamont Pass.

Distribution of Residual Hydrocarbons in Soil

Laboratory analyses of soil samples collected during excavation, product line removal, and monitoring well installation are summarized in Table 5. Maps showing concentrations of residual TPHg in soil underlying the site at various depths are presented in Attachment C.

Distribution of Dissolved Hydrocarbons in Groundwater

Maps showing the distribution of dissolved hydrocarbons in groundwater are presented in Attachment D. Hydrographs for each monitoring well showing hydrocarbon concentrations over a seven-year period and graphs showing hydrocarbon concentrations in groundwater versus distance are presented in Attachment E.

Distribution of Separate-Phase Hydrocarbons on Groundwater

On January 13, 1995, a separate-phase liquid was observed in on-site well MW5. Dissolved hydrocarbon concentrations in groundwater samples collected from this well, prior to and after this observation, were not in ranges typical of free product. No free product has been present in well since April 1995. Separate-phase hydrocarbons had not been reported in other wells associated with the site.

SENSITIVE RECEPTOR SURVEY

In January 2002, ERI conducted a well search and site visit for this site. The purpose of the search was to identify preferential pathways of migration and locate the presence of water supply wells within a 2,000-foot radius around the subject site. This survey found no private or municipal wells within 2,000 feet of the site. A tidal canal is located 1,344 feet east of the site.

RISK BASED CORRECTIVE ACTION ANALYSIS

ERI issued a report entitled *Risk-Based Corrective Action Tier II Analysis*, dated September 12, 2001, which reports the results of a risk-based corrective action (RBCA) analysis for MTBE and BTEX remaining in place at the subject site. For this report the groundwater data used in the RBCA analyses for MTBE and BTEX have been updated to reflect data collected during 2001 and 2002, and an additional RBCA analysis has been performed for gasoline-range hydrocarbons. The RBCA analysis for gasoline was performed assuming that the dissolved gasoline-range hydrocarbon mixture detected in groundwater samples and reported as total hydrocarbons as gasoline (TPHg) consists of aliphatic hydrocarbons in the C6 to C12 range. The total dissolved aromatic hydrocarbon BTEX concentrations were subtracted from the reported TPHg concentrations. Also, for the gasoline component of the RBCA, an updated RBCA program (version 1.3a) was used for the analysis. The RBCA output files are presented in Attachment F.

Input Parameters

ERI evaluated the following input parameters in the Tier II assessment:

- 1,344 feet was used as the distance to the nearest groundwater receptor (the tidal canal) based on the distance measured on the United States Geological Survey Map (Plate 1).
- 20 feet was used as the distance to the nearest off-site air receptor based on a site visit.
- A 110-foot by 110-foot rectangular area was used to define impacted soil area.
- A vadose-zone thickness of 5.5 feet was calculated using the average yearly fluctuations in groundwater elevation measurements.
- The thickness of the affected subsurface soil (10 feet thick) was selected based on soil analytical data as well as the average depth to water (DTW) measurements.
- 0.003 centimeters per second (cm/s) was entered as the saturated hydraulic conductivity based on the sediment type.
- Oral and inhalation cancer slope factors for benzene of 0.1 were input into the RBCA program; as specified in the California Regional Water Quality Control Board, San Francisco Bay Region, RBCA guidance document (Regional Board, December 2001).
- A maximum contaminant level (MCL) of 13 parts per billion (ppb) was used for MTBE in groundwater.
- Bio-attenuation was not considered in transport modeling for MTBE or TPH.

Exposure Pathways

ERI evaluated the following exposure pathways in the Tier II assessment:

- Surface soil, direct ingestion and dermal contact (commercial receptor)
- Subsurface soil, volatilization to indoor air (inhalation: commercial receptor)
- Subsurface soil, volatilization to outdoor air (inhalation: residential and commercial receptor)
- Groundwater, volatilization to outdoor air (inhalation: commercial receptor)
- Groundwater, volatilization to indoor air (inhalation: commercial receptor)
- Groundwater, ingestion (residential receptor)
- Soils leaching to groundwater (residential receptor)

Results

Using the 95% upper confidence limit (UCL) for soil and groundwater concentrations, the site-specific target levels (SSTLs) are not exceeded for BTEX or TPH. Using the 95% UCL as representative concentrations for soil and groundwater, the SSTLs are not exceeded for soil, but are exceeded by current on-site dissolved MTBE representative concentrations. The representative MTBE concentration for the site is currently 1,200 µg/L, and the calculated SSTL for MTBE in groundwater is 120 µg/L.

SUMMARY

Based on the cumulative results of environmental investigations and site conditions, ERI recommends continued groundwater monitoring and operation of the site vapor extraction system, as well as restarting the groundwater portion of the remediation system to reduce dissolved MTBE concentrations to less

than 120 µg/L, the calculated SSTL for the site. In ERI's opinion, the distance from the source and the area of distribution suggests the potential presence of one or more off-site sources. ERI has performed a file search on the adjacent properties to help evaluate plume size, migration, and the appropriate remedial activities. ERI also performed a well search along with an update of the sensitive receptor survey to identify if there are any new receptors that could possibly be impacted. No new receptors were identified, and the Shell branded gas station, which is located upgradient from the subject site, has been identified as a possible contributor to concentrations of dissolved hydrocarbons beneath the subject site. ERI has begun concurrent sampling activities and plume modeling to track the migration of dissolved hydrocarbons in groundwater beneath both sites.

LIMITATIONS

This report was prepared in accordance with generally accepted standards of environmental practice in California at the time this investigation was performed. This report has been prepared for ExxonMobil and any reliance on this report by third parties shall be at such party's sole risk.

ERI recommends forwarding copies of this correspondence to:

Ms. Eva Chu
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, Room 250
Alameda, California 94502-6577

Mr. Stephen Hill
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612

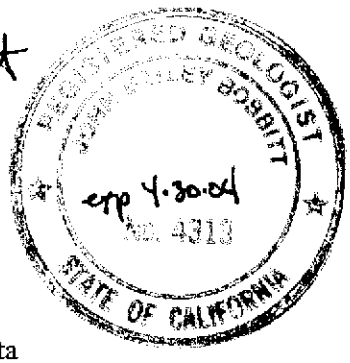
Mr. Joseph A. Aldridge
Valero Energy Corporation
685 West Third Street
Hanford, California 93230

Please call Mr. Scott R. Graham, ERI's project manager for this site, at (415) 382-5989 with any questions regarding this report.

Sincerely,
Environmental Resolutions, Inc.

Scott R. Graham
Project Manager

John B. Bobbitt
R.G. 4313



Attachment: References Cited

Table 1:	Cumulative Groundwater Monitoring and Sampling Data
Table 2:	Operational Data for Soil Vapor Extraction System
Table 3:	Cumulative Hydrocarbon Removal and Emissions for Soil Vapor Extraction System May 2002
Table 4:	Operation and Performance Data for Groundwater Remediation System
Table 5:	Cumulative Analytical Results of Soil Samples
Plate 1:	Site Vicinity Map
Plate 2:	Generalized Site Plan
Plate 3:	Groundwater Flow Direction Rose Diagram
Attachment A:	Alameda County Health Services Agency Letter, Dated November 15, 2001
Attachment B:	Geologic Cross Sections
Attachment C:	TPHg Concentrations in Soil
Attachment D:	Groundwater Elevation and Isoconcentration Maps
Attachment E:	Hydrographs
Attachment F:	Risk-Based Corrective Action Analysis Output Files

References Cited

California Regional Water Quality Control Board, San Francisco Bay Region, December 2001. Application of Risk-Based Screening Levels and Decision Making to Sites with Impacted Soil and Groundwater. Interim Final

TABLE 1
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California
(Page 1 of 17)

Well ID #	Sampling	SUBJ	DTW	Elev.	TPHd	TPHg	MTBE	B	T	E	X	Select VOCs
(TOC)	Date	<.....feet.....>			<.....ug/L.....>							
MW1	09/12/94	NLPH	7.11	10.24	---	1,600a	---	200	1.9	210	6.6	---
(17.35)	10/01/94	NLPH	7.44	9.91	---	1,400a	---	200	<0.5	160	6.6	---
	01/13/95	NLPH	5.13	12.22	---	2,100a	---	410b	17	280b	89	---
	04/27/95	NLPH	6.57	10.78	---	4,700	---	460	41	340	270	---
	08/03/95	NLPH	7.46	9.89	---	1,900	30	140	<5.0	160	9.9	---
	10/17/95	NLPH	7.67	9.68	---	280	5.5	6.2	<0.5	13	0.75	---
	01/24/96	NLPH	6.52	10.83	---	740	440	21	1.4	38	3.1	---
	04/24/96	NLPH	5.95	11.40	---	7,800	250	200	110	1,000	740	---
	07/26/96	NLPH	7.60	9.75	---	620	23	8.0	0.99	26	1.0	---
	10/30/96	NLPH	8.06	9.29	---	700	33	14	2.9	85	3.5	---
	01/31/97	NLPH	5.12	12.23	---	7,600	<200	420	33	1,400	480	---
	04/10/97	---	---	---	---	---	---	---	---	---	---	---
	07/10/97	NLPH	7.54	9.81	---	580	12	10	<0.5	<0.5	<0.5	---
	10/08/97	---	---	---	---	---	---	---	---	---	---	---
	01/28/98	NLPH	4.48	12.87	---	820	<2.5c	110	2.8	170	14	---
	04/14/98	---	4.69	12.66	---	---	---	---	---	---	---	---
	07/30/98	NLPH	6.19	11.16	---	2,700	41	210	<5.0	550	<5.0	---
	10/19/98	NLPH	6.72	10.63	---	---	---	---	---	---	---	---
	01/13/99	NLPH	6.52	10.83	---	491	9.78	8.0	<0.5	<0.5	<0.5	---
	04/28/99	---	5.37	11.98	---	---	---	---	---	---	---	---
	07/09/99	NLPH	6.39	10.96	---	1,030	10.6	114	8.07	184	0.644	---
	10/25/99	NLPH	6.68	10.67	---	---	---	---	---	---	---	---
	01/21/00	NLPH	6.20	11.15	---	<50	5.1	<1.0	<1.0	<1.0	<1.0	---
	04/14/00	NLPH	5.18	12.17	---	---	---	---	---	---	---	---
	06/16/00	Property transferred to Valero Refining Company.										
	07/05/00	NLPH	5.93	11.42	---	88	200	4.3	<0.5	0.61	<0.5	---
	10/03/00	NLPH	6.51	10.84	---	<50	240	0.72	<0.5	<0.5	<0.5	---
	01/02/01	NLPH	6.17	11.18	---	<50	68	0.75	<0.5	<0.5	<0.5	---
	04/02/01	NLPH	7.42	9.93	---	140	4.3	<0.5	<0.5	4.1	1.1	---
	07/02/01	NLPH	6.27	11.08	---	74	14	<0.5	<0.5	<0.5	<0.5	---
	10/15/01	NLPH	6.64	10.71	---	110	83	2.6	<0.5	<0.5	<0.5	---
(17.29)	Nov-2001	Well surveyed in compliance with AB 2886 requirements.										

TABLE 1
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

Well ID #	Sampling	SUBJ	DTW	Elev.	TPHd	TPHg	MTBE	B	T	E	X	Select VOCs
(TOC)	Date	<	feet	>	<			ug/L				>
MW1 (cont.)	2/4/02	NLPH	5.08	12.21	52.0	75.0	67.1	0.70	<0.50	0.50	<0.50	---
(17.29)	**5/6/02**	**NLPH**	**5.48**	**11.81**	**129**	**793.0**	**702/1,004g**	**8.6**	**<0.5**	**0.5**	**1.1**	**297h**
MW2	09/12/94	NLPH	6.71	9.96	---	31,000a	---	4,400	120	1,700	2,100	---
(16.67)	10/01/94	NLPH	7.22	9.45	---	45,000a	---	4,500	250	1,800	2,400	---
	01/13/95	NLPH	4.46	12.21	---	---	---	---	---	---	---	---
	04/27/95	NLPH	6.92	9.75	---	44,000	---	7,000	840	2,400	3,400	---
	08/03/95	NLPH	6.96	9.71	---	30,000	37,000	4,600	170	1,600	1,100	---
	10/17/95	NLPH	7.83	8.84	---	45,000	14,000	5,400	190	2,000	1,500	---
	01/24/96	NLPH	6.45	10.22	---	30,000	4,100	5,000	810	2,200	2,200	---
	04/24/96	NLPH	6.00	10.67	---	34,000	22,000	8,700	410	2,200	2,000	---
	07/26/96	NLPH	7.14	9.53	---	40,000	18,000	10,000	<200	1,800	760	---
	10/30/96	NLPH	6.95	9.72	---	43,000	18,000	9,100	<250	2,400	730	---
	01/31/97	NLPH	5.07	11.60	---	28,000	8,000c	2,400	630	1,500	3,300	---
	04/10/97	---	---	---	---	---	---	---	---	---	---	---
	07/10/97	NLPH	7.34	9.33	---	18,000	2,600	2,900	82	1,500	530	---
	10/08/97	---	---	---	---	---	---	---	---	---	---	---
	01/28/98	NLPH	4.46	12.21	---	29,000	28,000c	5,600	410	1,500	720	---
	04/14/98	---	4.48	12.19	---	---	---	---	---	---	---	---
	07/30/98	NLPH	6.01	10.66	---	24,000	6,300	7,500	<200	1,300	280	---
	10/19/98	NLPH	6.35	10.32	---	---	---	---	---	---	---	---
	01/13/99	NLPH	6.54	10.13	---	18,400	2,200	4,750	211	1,760	45.3	---
	04/28/99	---	5.54	11.13	---	---	---	---	---	---	---	---
	07/09/99	NLPH	6.45	10.22	---	14,100	3,410	4,270	80.1	1,300	339	---
	10/25/99	---	---	---	---	---	---	---	---	---	---	---
	01/21/00	---	---	---	---	---	---	---	---	---	---	---
	02/11/00	NLPH	---	---	---	<50	15	<1.0	<1.0	<1.0	<1.0	---
	04/14/00	NLPH	4.69	11.98	---	---	---	---	---	---	---	---
	06/16/00	Property transferred to Valero Refining Company.										
	07/05/00	NLPH	5.44	11.23	---	150	86	15	<0.5	6.2	2.8	---
	10/03/00	NLPH	6.31	10.36	---	200	2,500	35	0.51	5.1	12	---
	01/02/01	---	---	---	---	---	---	---	---	---	---	---

TABLE 1
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

Well ID #	Sampling	SUBJ	DTW	Elev.	TPHd	TPHg	MTBE	B	T	E	X	Select VOCs
(TOC)	Date	<.....feet.....>			<.....ug/L.....>							
MW2 (cont.)	04/02/01	NLPH	5.00	11.67	---	<50	680	3.6	<0.5	<0.5	<0.5	---
(16.67)	07/02/01	NLPH	5.62	11.05	---	1,400	890	13	1.1	<0.5	1.1	---
	10/15/01	NLPH	7.55	9.12	---	620	1,900	190	3.5	4.5	7	---
(16.39)	Nov-2001	Well surveyed in compliance with AB 2886 requirements.										
	2/4/02	NLPH	4.71	11.68	69.0	122	7.10	31.4	5.40	9.10	10.4	—
	5/6/02	**NLPH**	**5.08**	**11.31**	**252**	**1,250**	**646/958.0g**	**125**	**22.5**	**68.2**	**63.1**	**44.8h**
MW3	09/12/94	NLPH	6.58	10.53	---	3,100a	---	580	8	340	100	---
(17.11)	10/01/94	NLPH	6.85	10.26	---	3,800a	---	640	11	230	130	---
	01/13/95	NLPH	5.27	11.84	---	3,800a	---	690	24	210	130	---
	04/27/95	NLPH	6.05	11.06	---	7,500	---	940	35	810	530	---
	08/03/95	NLPH	6.71	10.40	---	1,900	24	380	<5.0	140	45	---
	10/17/95	NLPH	7.46	9.65	---	6,100	<5.0	950	29	230	190	---
	01/24/96	NLPH	5.83	11.28	---	3,000	<100	730	15	190	110	---
	04/24/96	NLPH	5.38	11.73	---	11,000	<100	1,200	130	1,000	1,400	---
	07/26/96	NLPH	6.80	10.31	---	2,500	250	800	16	24	56	---
	10/30/96	NLPH	7.20	9.91	---	5,200	2,900	1,300	28	170	180	---
	01/31/97	NLPH	4.31	12.80	---	---	---	---	---	---	---	---
	04/10/97	---	---	---	---	---	---	---	---	---	---	---
	07/10/97	---	---	---	---	---	---	---	---	---	---	---
	10/08/97	---	---	---	---	---	---	---	---	---	---	---
	01/28/98	NLPH	4.03	13.08	---	---	---	---	---	---	---	---
	04/14/98	NLPH	3.80	13.31	---	---	---	---	---	---	---	---
	07/30/98	NLPH	5.84	11.27	---	---	---	---	---	---	---	---
	10/19/98	NLPH	6.25	10.86	---	---	---	---	---	---	---	---
	01/13/99	NLPH	6.14	10.97	---	---	---	---	---	---	---	---
	04/28/99	---	4.95	12.16	---	---	---	---	---	---	---	---
	07/09/99	---	---	---	---	---	---	---	---	---	---	---
	10/25/99	---	---	---	---	---	---	---	---	---	---	---
	01/21/00	---	---	---	---	---	---	---	---	---	---	---
	04/14/00	---	---	---	---	---	---	---	---	---	---	---
	06/16/00	Property transferred to Valero Refining Company.										

TABLE 1
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

Well ID #	Sampling	SUBJ	DTW	Elev.	TPHd	TPHg	MTBE	B	T	E	X	Select VOCs
(TOC)	Date	<.....feet.....>			<.....ug/L.....>							
MW3 (cont.)	07/05/00	---	---	---	---	---	---	---	---	---	---	---
(17.11)	10/03/00	---	---	---	---	---	---	---	---	---	---	---
	01/02/01	NLPH	5.78	11.33	560d	2,700	3,100	1300	8.8	11	21.3	---
	04/02/01	NLPH	4.71	12.40	620	3,700	1,400	1,400	11	36	21	---
	07/02/01	NLPH	5.82	11.29	880	5,300	1,200	1,300	32	30	730	---
	10/15/01	NLPH	6.12	10.99	210e	2,300	1,800	630	2.5	8.2	3.34	---
(17.02)	Nov-2001	Well surveyed in compliance with AB 2886 requirements.										
	2/4/02	NLPH	4.59	12.43	402	8,830	1,420	2,300	166	150	158	---
	5/6/02	**NLPH**	**4.84**	**12.18**	**1,300**	**7,950**	**544/967.0g**	**1,930**	**18.0**	**80.0**	**648**	**194h**
MW4	09/12/94	NLPH	6.80	10.54	---	5,200a	---	900	57	310	490	---
(17.34)	10/01/94	NLPH	7.09	10.25	---	9,100a	---	1,200	66	360	380	---
	01/13/95	NLPH	4.66	12.68	---	25,000a	---	1,300	200	550	1,000	---
	04/27/95	NLPH	5.54	11.80	---	5,900	---	650	130	350	590	---
	08/03/95	NLPH	6.92	10.42	---	4,200	5,700	1,000	<12	170	140	---
	10/17/95	NLPH	7.50	9.84	---	6,900	1,700	1,300	30	360	380	---
	01/24/96	NLPH	5.81	11.53	---	6,300	830	1,900	46	290	330	---
	04/24/96	NLPH	5.44	11.90	---	5,000	1,600	1,800	<20	190	130	---
	07/26/96	NLPH	7.03	10.31	---	9,100	1,200	1,700	<25	340	280	---
	10/30/96	NLPH	7.57	9.77	---	5,300	1,500	1,100	35	420	300	---
	01/31/97	NLPH	4.22	13.12	---	6,500	40,000	1,200	28	490	130	---
	04/10/97	---	---	---	---	---	---	---	---	---	---	---
	07/10/97	NLPH	7.56	9.78	---	10,000	11,000	1,100	120	470	720	---
	10/08/97	---	---	---	---	---	---	---	---	---	---	---
	01/28/98	NLPH	3.70	13.64	---	1,700	4,900c	450	6.8	220	73	---
	04/14/98	---	3.81	13.53	---	---	---	---	---	---	---	---
	07/30/98	NLPH	5.96	11.38	---	2,900	2,800	680	<10	220	56	---
	10/19/98	NLPH	6.51	10.83	---	---	---	---	---	---	---	---
	01/13/99	NLPH	6.24	11.10	---	2,140	1,800	146	<10	60.9	16.2	---
	04/28/99	---	4.80	12.54	---	---	---	---	---	---	---	---
	07/09/99	NLPH	6.04	11.30	---	1,300	1,310	322	<2.5	76.1	<2.5	---
	10/25/99	NLPH	6.51	10.83	---	---	---	---	---	---	---	---

TABLE 1
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

Well ID #	Sampling	SUBJ	DTW	Elev.	TPHd	TPHg	MTBE	B	T	E	X	Select VOCs
(TOC)	Date	<.....feet.....>			<.....ug/L.....>							
MW4 (cont.)	01/21/00	NLPH	5.75	11.59	---	2,200	1,000	410	3.70	40	14.4	---
(17.34)	04/14/00	NLPH	4.39	12.95	---	---	---	---	---	---	---	---
	06/16/00	Property transferred to Valero Refining Company.										
	07/05/00	NLPH	5.48	11.86	---	1,600	260	400	3.9	100	84	---
	10/03/00	NLPH	6.22	11.12	---	1,600	190	280	2	64	34.10	---
	01/02/01	NLPH	5.93	11.41	---	840	1,000	210	2.5	45	28.10	---
	04/02/01	NLPH	4.89	12.45	---	1,900	320	340	8.5	110	116	---
	07/02/01	NLPH	5.83	11.51	---	100	<2	3.9	<0.5	0.65	<0.5	---
	10/15/01	NLPH	6.36	10.98	---	930	360	140	7	24	10	---
(17.29)	Nov-2001	Wells surveyed in compliance with AB 2886 requirements.										
	2/4/02	NLPH	4.35	12.94	774	1,250	46.1	124	4.40	46.7	43.5	---
	5/6/02	**NLPH**	**4.95**	**12.34**	**776**	**2,040**	**1,410/2,120g**	**165**	**5.0**	**42.0**	**39.0**	**499h/0.80j**
MW5	09/12/94	NLPH	7.12	9.59	---	10,000a	---	2,300	17	320	230	---
(16.71)	10/01/94	Sheen	7.06	9.65	---	11,000a	---	2,300	19	220	200	---
	01/13/95	SPL	4.85	11.86	---	---	---	---	---	---	---	---
	04/27/95	NLPH	6.51	10.20	---	14,000	---	2,200	72	540	350	---
	08/03/95	NLPH	7.24	9.47	---	<10,000	39,000	2,100	<100	210	<100	---
	10/17/95	NLPH	7.80	8.91	---	13,000	38,000	1,800	14	240	170	---
	01/24/96	NLPH	6.66	10.05	---	10,000	20,000	2,400	79	340	190	---
	04/24/96	NLPH	5.80	10.91	---	13,000	33,000	3,700	120	520	170	---
	07/26/96	NLPH	7.67	9.04	---	15,000	140,000	3,400	53	280	76	---
	10/30/96	NLPH	7.77	8.94	---	10,000	110,000a	2,600	76	260	150	---
	01/31/97	NLPH	4.90	11.81	---	10,000	34,000c	2,400	66	430	140	---
	04/10/97	---	---	---	---	---	---	---	---	---	---	---
	07/10/97	NLPH	7.65	9.06	---	9,800	36,000/52,000c	1,400	120	190	120	---
	10/08/97	---	---	---	---	---	---	---	---	---	---	---
	01/28/98	NLPH	3.95	12.76	---	6,500	15,000c	1,500	34	73	57	---
	04/14/98	---	4.30	12.41	---	---	---	---	---	---	---	---
	07/30/98	NLPH	5.86	10.85	---	8,300	4,300	1,700	26	110	66	---
	10/19/98	NLPH	6.20	10.51	---	---	---	---	---	---	---	---
	01/13/99	NLPH	6.37	10.34	---	4,780	3,650	1,240	11.1	<10	<10	---

TABLE 1
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California
(Page 6 of 17)

Well ID #	Sampling	SUBJ	DTW	Elev.	TPHd	TPHg	MTBE	B	T	E	X	Select VOCs
(TOC)	Date	<.....feet.....>			<.....ug/L.....>							
MW5 (cont.)	04/28/99	---	5.25	11.46	---	---	---	---	---	---	---	---
(16.71)	07/09/99	NLPH	6.08	10.63	---	4,360	2,360	1,780	18.6	45	<5.0	---
	10/25/99	NLPH	6.46	10.25	---	---	---	---	---	---	---	---
	01/21/00	NLPH	5.79	10.92	---	2,600	3,100	720	4.7	25	11.3	---
	04/14/00	NLPH	4.57	12.14	---	---	---	---	---	---	---	---
	06/16/00	Property transferred to Valero Refining Company.										
	07/05/00	NLPH	5.37	11.34	---	5,100	380	1,800	14	52	34	---
	10/03/00	NLPH	5.93	10.78	---	5,800	630	2,000	8.9	59	21	---
	01/02/01	NLPH	5.68	11.03	---	4,800	1,100	1,600	9.6	38	15	---
	04/02/01	NLPH	4.87	11.84	---	6,800	1,500	2,000	40	150	49	---
	07/02/01	NLPH	5.77	10.94	---	4,100	960	1,600	20	35	21	---
	10/15/01	NLPH	6.15	10.56	---	3,900	1,000	1,400	8.7	17	15.7	---
(16.64)	Nov-2001	Well surveyed in compliance with AB 2886 requirements.										
	2/4/02	NLPH	4.69	11.95	976	4,380	620	1,440	38.0	84.0	50.0	---
	5/6/02	**NLPH**	**5.00**	**11.64**	**1,360**	**3,810**	**764/1,220g**	**1,110**	**20.0**	**26.0**	**26.0**	**306h/3.20i**
MW6	09/12/94	NLPH	6.88	10.68	---	1,500a	---	150	4.4	170	85	---
(17.56)	10/01/94	NLPH	7.15	10.41	---	87a	---	120	<0.5	99	38	---
	01/13/95	NLPH	4.80	12.76	---	9,900a	---	710	220	780	1,100	---
	04/27/95	NLPH	6.14	11.42	---	3,900	---	340	40	460	320	---
	08/03/95	NLPH	6.83	10.73	---	1,100	65	89	<2.5	110	63	---
	10/17/95	NLPH	7.66	9.90	---	8,500	<5.0	410	74	850	110	---
	01/24/96	NLPH	5.86	11.70	---	31,000	<5.0	560	1,500	2,200	7,500	---
	04/24/96	NLPH	5.39	12.17	---	15,000	280	460	570	1,400	3,300	---
	07/26/96	NLPH	6.97	10.59	---	27,000	1,300	270	660	1,600	5,500	---
	10/30/96	NLPH	7.45	10.11	---	28,000	900	490	440	1,800	6,200	---
	01/31/97	NLPH	4.30	13.26	---	7,000	770	190	1,000	380	1,400	---
	04/10/97	---	---	---	---	---	---	---	---	---	---	---
	07/10/97	NLPH	7.57	9.99	---	6,800	1,100	200	<50	300	860	---
	10/08/97	NLPH	7.48	10.08	---	51,000	580	870	7,300	2,600	12,000	---
	01/28/98	NLPH	3.74	13.82	---	15,000	2,400c	650	2,300	900	2,700	---
	04/14/98	NLPH	3.92	13.64	---	25,000	2,100c	850	3,300	1,200	4,300	---

TABLE 1
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

Well ID #	Sampling	SUBJ	DTW	Elev.	TPHd	TPHg	MTBE	B	T	E	X	Select VOCs
(TOC)	Date	<.....feet.....>			<.....ug/L.....>							
MW6 (cont.)	07/30/98	NLPH	6.09	11.47	---	5,900	910	270	65	500	630	---
(17.56)	10/19/98	NLPH	6.56	11.00	---	---	---	---	---	---	---	---
	01/13/99	NLPH	6.35	11.21	---	3,150	422	204	107	297	304	---
	04/28/99	NLPH	4.89	12.67	---	15,300	436c	1,270	980	1,100	3,320	---
	07/09/99	NLPH	6.07	11.49	---	1,140	439	121	9.95	160	4.69	---
	10/25/99	NLPH	6.11	11.45	---	2,200	3,400	590	<10	22	12.1	---
	01/21/00	NLPH	5.86	11.70	---	1,300	1,000	95	15	94	74	---
	04/14/00	NLPH	4.29	13.27	---	13,000	420	440	630	840	3,000	---
	06/16/00	Property transferred to Valero Refining Company.										---
	07/05/00	NLPH	5.39	12.17	---	5,800	830	1,000	13	550	798	---
	10/03/00	NLPH	6.14	11.42	---	490	3,800	61	<0.5	74	12	---
	01/02/01	---	---	---	---	---	---	---	---	---	---	---
	04/02/01	NLPH	4.70	12.86	400	16,000	450	370	690	870	3,200	---
	07/02/01	NLPH	8.73	8.83	520	3,700	2,000	330	<5	160	32	---
	10/15/01	NLPH	6.24	11.32	1,100e	27,000	790	<12	<12	<12	<12	---
(17.31)	Nov-2001	Well surveyed in compliance with AB 2886 requirements.										
	2/4/02	NLPH	4.24	13.07	168	14,800	545	425	120	1,480	4,030	---
	5/6/02	**NLPH**	**4.83**	**12.48**	**1,540**	**8,580**	**380/522.0g**	**988**	**24.0**	**866**	**1,080**	**32.0h**
MW7	09/12/94	NLPH	6.43	10.69	---	6,000a	---	490	50	280	70	---
(17.12)	10/01/94	NLPH	6.71	10.41	---	8,900a	---	940	670	310	160	---
	01/13/95	NLPH	4.29	12.83	---	20,000a	---	590	780	970	4,200	---
	04/27/95	NLPH	5.00	12.12	---	8,800	---	410	32	410	230	---
	08/03/95	NLPH	6.53	10.59	---	4,900	17,000	390	<50	290	<50	---
	10/17/95	NLPH	7.23	9.89	---	6,700	17,000	530	26	240	25	---
	01/24/96	NLPH	5.26	11.86	---	9,300	60,000	2,000	390	350	230	---
	04/24/96	NLPH	5.06	12.06	---	9,000	360,000	2,400	850	150	130	---
	07/26/96	NLPH	6.62	10.50	---	4,800	86,000	530	25	60	46	---
	10/30/96	NLPH	7.09	10.03	---	3,400	28,000	180	9.8	58	38	---
	01/31/97	NLPH	3.65	13.47	---	3,800	45,000	300	18	48	37	---
	04/10/97	---	---	---	---	---	---	---	---	---	---	---
	07/10/97	NLPH	7.44	9.68	---	3,500	18,000	70	<25	<25	<25	---

TABLE 1
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

Well ID #	Sampling	SUBJ	DTW	Elev.	TPHd	TPHg	MTBE	B	T	E	X	Select VOCs
(TOC)	Date	<.....feet.....>			<.....ug/L.....>							
MW7 (cont.)	10/08/97	---	---	---	---	---	---	---	---	---	---	---
(17.12)	01/28/98	NLPH	3.06	14.06	---	100	250c	1.0	<0.5	<0.5	0.67	---
	04/14/98	---	3.10	14.02	---	---	---	---	---	---	---	---
	07/30/98	NLPH	5.78	11.34	---	100	670	1.4	<0.5	<0.5	<0.5	---
	10/19/98	NLPH	6.25	10.87	---	---	---	---	---	---	---	---
	01/13/99	NLPH	5.98	11.14	---	273	530	<2.5	<2.5	<2.5	<2.5	---
	04/28/99	---	4.32	12.80	---	---	---	---	---	---	---	---
	07/09/99	NLPH	5.67	11.45	---	139	860	3.79	7.10	1.19	8.65	---
	10/25/99	NLPH	6.23	10.89	---	<50	<1.0	<1.0	<1.0	<1.0	<1.0	---
	01/21/00	NLPH	5.41	11.71	---	410	500	10	2.5	<1.0	2.5	---
	04/14/00	NLPH	3.84	13.28	---	---	---	---	---	---	---	---
	06/16/00	Property transferred to Valero Refining Company.										
	07/05/00	NLPH	5.05	12.07	---	140	480	<0.5	<0.5	<0.5	0.56	---
	10/03/00	NLPH	5.88	11.24	---	370	1,900	<0.5	0.62	<0.5	3.20	---
	01/02/01	NLPH	5.52	11.60	---	120	1,500	2.2	<0.5	<0.5	<0.5	---
	04/02/01	NLPH	4.26	12.86	---	120	1,500	0.91	<0.5	<0.5	<0.5	---
	07/02/01	NLPH	5.42	11.70	---	110	740	4.1	<0.5	0.75	0.84	---
	10/15/01	NLPH	7.50	9.62	---	170	740	<0.5	<0.5	<0.5	0.69	---
(17.06)	Nov-2001	Well surveyed in compliance with AB 2886 requirements.										
	2/4/02	NLPH	3.81	13.25	88.0	928	610	<0.50	<0.50	<0.50	<0.50	---
	5/6/02	**NLPH**	**4.51**	**12.55**	**72**	**591**	**565/712.0g**	**2.4**	**<0.5**	**2.5**	**4.1**	**144h**
MW8	09/12/94	NLPH	6.42	9.91	---	<50a	---	<0.5	<0.5	<0.5	<0.5	---
(16.33)	10/01/94	NLPH	6.62	9.71	---	<50a	---	<0.5	<0.5	<0.5	<0.5	---
	01/13/95	NLPH	5.25	11.08	---	<50a	---	<0.5	<0.5	<0.5	<0.5	---
	04/27/95	NLPH	6.00	10.33	---	<50	---	<0.5	<0.5	<0.5	<0.5	---
	08/03/95	NLPH	6.28	10.05	---	<50	<2.5	<0.5	<0.5	<0.5	<0.5	---
	10/17/95	NLPH	6.93	9.40	---	<50	<5.0	<0.5	<0.5	<0.5	<0.5	---
	01/24/96	NLPH	5.71	10.62	---	<50	<5.0	<0.5	<0.5	<0.5	<0.5	---
	04/24/96	NLPH	5.52	10.81	---	<50	<5.0	<0.5	<0.5	<0.5	<0.5	---
	07/26/96	NLPH	6.27	10.06	---	<50	230	<0.5	<0.5	<0.5	<0.5	---
	10/30/96	NLPH	6.69	9.64	---	<50	<5.0	<0.5	<0.5	<0.5	<0.5	---

TABLE 1
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

Well ID #	Sampling	SUBJ	DTW	Elev.	TPHd	TPHg	MTBE	B	T	E	X	Select VOCs
(TOC)	Date	<.....feet.....>			<.....ug/L.....>							
MW8 (cont.)	01/31/97	NLPH	5.18	11.15	---	---	---	---	---	---	---	---
(16.33)	04/10/97	---	---	---	---	---	---	---	---	---	---	---
	07/10/97	---	---	---	---	---	---	---	---	---	---	---
	10/08/97	---	---	---	---	---	---	---	---	---	---	---
	01/28/98	NLPH	5.11	11.22	---	---	---	---	---	---	---	---
	04/14/98	NLPH	5.02	11.31	---	<50	<2.5	<0.5	<0.5	<0.5	<0.5	---
	07/30/98	NLPH	5.84	10.49	---	<50	6.6	<0.5	<0.5	<0.5	<0.5	---
	10/19/98	NLPH	6.07	10.26	---	<50	<2.5	<0.5	<0.5	<0.5	<0.5	---
	01/13/99	NLPH	5.59	10.74	---	<50	<2.0	<0.5	<0.5	<0.5	<0.5	---
	04/28/99	NLPH	5.38	10.95	---	<50	<0.5c	<0.5	<0.5	<0.5	<0.5	ND
	07/09/99	NLPH	5.71	10.62	---	<50	3.01	<0.5	<0.5	<0.5	<0.5	---
	10/25/99	NLPH	6.15	10.18	---	<50	<1.0	<1.0	<1.0	<1.0	<1.0	---
	01/21/00	NLPH	6.51	9.82	---	<50	<1.0	<1.0	<1.0	<1.0	<1.0	---
	04/14/00	Brown	5.54	10.79	---	<50	<1	<1	<1	<1	<1	
	06/16/00	Property transferred to Valero Refining Company.										---
	07/05/00	NLPH	5.67	10.66	---	<50	<2	<0.5	<0.5	<0.5	<0.5	---
	10/03/00	NLPH	6.02	10.31	---	<50	<2	<0.5	<0.5	<0.5	<0.5	---
	01/02/01	NLPH	5.95	10.38	140d	<50	<2	<0.5	<0.5	<0.5	<0.5	---
	04/02/01	---	---	---	---	---	---	---	---	---	---	---
	07/02/01	NLPH	5.76	10.57	<50	<50	<2	<0.5	<0.5	<0.5	<0.5	---
	10/15/01	NLPH	6.19	10.14	<50	<50	<2	<0.5	<0.5	<0.5	<0.5	
(16.24)	Nov-2001	Well surveyed in compliance with AB 2886 requirements.										---
	2/4/02	f	---	---	---	---	---	---	---	---	---	---
	5/6/02	**NLPH**	**5.31**	**10.93**	**<50**	**<50.0**	**0.5/<0.50g**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**ND**
MW9	09/12/94	NLPH	6.84	8.78	---	<50a	---	<0.5	<0.5	<0.5	<0.5	---
(15.62)	10/01/94	NLPH	6.97	8.65	---	<50a	---	<0.5	<0.5	<0.5	<0.5	---
	01/13/95	NLPH	6.18	9.44	---	<50a	---	<0.5	<0.5	<0.5	<0.5	---
	04/27/95	NLPH	6.58	9.04	---	<50	---	<0.5	<0.5	<0.5	<0.5	---
	08/03/95	NLPH	6.72	8.90	---	<50	<2.5	<0.5	<0.5	<0.5	<0.5	---
	10/17/95	NLPH	7.09	8.53	---	<50	<5.0	<0.5	<0.5	<0.5	<0.5	---
	01/24/96	NLPH	6.46	9.16	---	<50	<5.0	<0.5	<0.5	<0.5	<0.5	---

TABLE 1
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

Well ID #	Sampling	SUBJ	DTW	Elev.	TPHd	TPHg	MTBE	B	T	E	X	Select VOCs
(TOC)	Date	<.....feet.....>			<.....ug/L.....>							
MW9 (cont.)	04/24/96	NLPH	6.43	9.19	---	<50	<5.0	<0.5	<0.5	<0.5	<0.5	---
(15.62)	07/26/96	NLPH	6.80	8.82	---	<50	<5.0	<0.5	<0.5	<0.5	<0.5	---
	10/30/96	NLPH	6.94	8.68	---	<50	<5.0	<0.5	<0.5	<0.5	<0.5	---
	01/31/97	NLPH	6.10	9.52	---	---	---	---	---	---	---	---
	04/10/97	---	---	---	---	---	---	---	---	---	---	---
	07/10/97	---	---	---	---	---	---	---	---	---	---	---
	10/08/97	---	---	---	---	---	---	---	---	---	---	---
	01/28/98	NLPH	5.66	9.96	---	---	---	---	---	---	---	---
	04/14/98	---	---	---	---	---	---	---	---	---	---	---
	07/30/98	NLPH	6.17	9.45	---	---	---	---	---	---	---	---
	10/19/98	NLPH	6.40	9.22	---	---	---	---	---	---	---	---
	01/13/99	NLPH	6.28	9.34	---	---	---	---	---	---	---	---
	04/28/99	NLPH	5.87	9.75	---	<50	<0.5c	<0.5	<0.5	<0.5	<0.5	---
	07/09/99	NLPH	6.24	9.38	---	<50	<2.0	<0.5	<0.5	<0.5	<0.5	---
	10/25/99	NLPH	6.67	8.95	---	<50	<1.0	<1.0	<1.0	<1.0	<1.0	---
	01/21/00	NLPH	6.93	8.69	---	<50	<1.0	<1.0	<1.0	<1.0	<1.0	---
	04/14/00	Turbid	6.05	9.57	---	<50	<1	<1	<1	<1	<1	---
	06/16/00	Property transferred to Valero Refining Company.										
	07/05/00	NLPH	6.34	9.28	---	<50	<2	<0.5	<0.5	<0.5	<0.5	---
	10/03/00	NLPH	6.52	9.10	---	<50	<2	<0.5	<0.5	<0.5	<0.5	---
	01/02/01	NLPH	6.53	9.09	---	<50	<2	<0.5	<0.5	<0.5	<0.5	---
	04/02/01	NLPH	6.21	9.41	---	<50	<2	<0.5	<0.5	0.57	0.73	---
	07/02/01	NLPH	6.40	9.22	---	<50	<2	<0.5	<0.5	<0.5	<0.5	---
	10/15/01	NLPH	6.65	8.97	---	<50	<2	<0.5	<0.5	<0.5	<0.5	---
(15.56)	Nov-2001	Well surveyed in compliance with AB 2886 requirements.										
	2/4/02	NLPH	4.77	10.79	<50.0	<50.0	0.50	<0.50	<0.50	<0.50	<0.50	---
	5/6/02	**NLPH**	**6.29**	**9.27**	**<50**	**<50.0**	**<0.5/<0.50g**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**ND**
MW10	09/12/94	NLPH	7.04	9.75	---	71a	---	<0.5	<0.5	1.6	<0.5	---
(16.79)	10/01/94	NLPH	7.30	9.49	---	330a	---	1.1	<0.5	2.8	0.73	---
	01/13/95	NLPH	6.04	10.75	---	90a	---	<0.5	<0.5	<0.5	<0.5	---
	04/27/95	NLPH	6.66	10.13	---	140	---	<0.5	<0.5	5.4	1.3	---

TABLE 1
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

Well ID #	Sampling	SUBJ	DTW	Elev.	TPHd	TPHg	MTBE	B	T	E	X	Select VOCs
(TOC)	Date	<.....feet.....>			<.....ug/L.....>							
MW10 (cont.)	08/03/95	NLPH	7.23	9.56	---	150	<2.5	<0.5	<0.5	<0.5	<0.5	---
(16.79)	10/17/95	NLPH	7.93	8.86	---	<50	95	<0.5	<0.5	<0.5	<0.5	---
	01/24/96	NLPH	6.43	10.36	---	760	24	1.6	0.52	62	28	---
	04/24/96	NLPH	6.42	10.37	---	110	6.8	<0.5	<0.5	7.1	<0.5	---
	07/26/96	NLPH	7.47	9.32	---	140	<5.0	<0.5	<0.5	12	0.86	---
	10/30/96	NLPH	7.88	8.91	---	<50	5.6	<0.5	<0.5	<0.5	<0.5	---
	01/31/97	NLPH	5.88	10.91	---	<50	10	<0.5	<0.5	<0.5	<0.5	---
	04/10/97	---	---	---	---	---	---	---	---	---	---	---
	07/10/97	NLPH	7.32	9.47	---	<50	<2.5	<0.5	<0.5	<0.5	<0.5	---
	10/08/97	---	---	---	---	---	---	---	---	---	---	---
	12/12/97	Well destroyed.			---							
MW11	10/17/95	NLPH	7.72	10.32	---	34,000	890	3,800	150	950	4,500	---
(18.04)	01/24/96	NLPH	5.97	12.07	---	44,000	<500	3,800	1,200	2,100	9,800	---
	04/24/96	NLPH	5.84	12.20	---	34,000	720	2,900	1,400	1,700	8,300	---
	07/26/96	NLPH	6.98	11.06	---	39,000	800	4,600	4,200	950	9,500	---
	10/30/96	NLPH	7.54	10.50	---	53,000	990	4,200	3,600	2,100	9,600	---
	01/31/97	NLPH	5.00	13.04	---	23,000	310c	170	2,500	940	4,300	---
	04/10/97	NLPH	---	---	---	29,000	200	1,200	440	970	6,400	---
	07/10/97	NLPH	7.30	10.74	---	42,000	690	1,700	870	1,900	12,000	---
	10/08/97	NLPH	7.62	10.42	---	42,000	1,100	1,700	2,500	1,400	9,900	---
	01/28/98	NLPH	4.77	13.27	---	35,000	6,800c	2,400	3,500	1,700	7,900	---
	04/14/98	NLPH	4.68	13.36	---	15,000	1,200c	1,700	250	500	2,000	---
	07/30/98	NLPH	6.33	11.71	---	24,000	1,700	1,600	560	1,000	4,300	---
	10/19/98	NLPH	6.65	11.39	---	29,000	1,700	1,200	2,500	920	4,900	---
	01/13/99	NLPH	6.42	11.62	---	50,900	1,920	2,210	6,440	2,030	10,600	---
	04/28/99	NLPH	5.30	12.74	---	59,400	2,390c	3,790	4,260	1,790	2,970	---
	07/09/99	NLPH	6.22	11.82	---	51,500	4,630	5,890	5,340	2,370	12,700	---
	10/25/99	NLPH	6.77	11.27	---	51,000	1,700	3,900	5,800	2,300	12,300	---
	01/21/00	NLPH	6.47	11.57	---	56,000	1,100	2,300	4,600	2,100	11,600	---
	04/14/00	NLPH	5.09	12.95	---	42,000	2,100	3,000	2,600	1,600	8,000	---
	06/16/00	Property transferred to Valero Refining Company.										

TABLE 1
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

Well ID #	Sampling	SUBJ	DTW	Elev.	TPHd	TPHg	MTBE	B	T	E	X	Select VOCs
(TOC)	Date	<.....feet.....>			<.....ug/L.....>							
MW11 (cont.)	07/05/00	NLPH	5.93	12.11	---	32,000	3,900	3,000	2,700	1,300	6,200	---
(18.04)	10/03/00	NLPH	6.57	11.47	---	46,000	4,300	2,900	3,600	1,600	7,900	---
	01/02/01	NLPH	6.46	11.58	1,600d	44,000	4,200	3,900	3,600	1,300	6,500	---
	04/02/01	NLPH	5.44	12.60	2,000	39,000	3,100	2,600	3,600	1,500	7,500	---
	07/02/01	NLPH	9.10	8.94	2,300	45,000	3,000	2,000	2,000	1,400	7,200	---
	10/15/01	NLPH	8.10	9.94	1,400e	55,000	2,600	5,100	5,700	1,900	9,100	---
(17.98)	Nov-2001	Well surveyed in compliance with AB 2886 requirements.										
	2/4/02	NLPH	5.14	12.84	2,430	37,800	1,910	3,340	3,550	1,450	6,480	---
	5/6/02	**NLPH**	**5.51**	**12.47**	**3,000**	**27,200**	**1,350/1,984g**	**1,420**	**1,580**	**1,110**	**4,960**	**311h/1.00j**
MW12	10/17/95	NLPH	6.38	9.92	---	<50	<5.0	<0.5	<0.5	<0.5	<0.5	---
(16.30)	01/24/96	NLPH	4.86	11.44	---	<50	<5.0	<0.5	<0.5	<0.5	<0.5	---
	04/24/96	NLPH	4.46	11.84	---	<50	<5.0	<0.5	0.68	<0.5	0.72	---
	07/26/96	NLPH	5.90	10.40	---	<50	<5.0	<0.5	<0.5	<0.5	<0.5	---
	10/30/96	NLPH	6.56	9.74	---	<50	<5.0	<0.5	<0.5	<0.5	<0.5	---
	01/31/97	NLPH	4.57	11.73	---	<50	<5.0	<0.5	<0.5	<0.5	<0.5	---
	04/10/97	---	---	---	---	---	---	---	---	---	---	---
	07/10/97	---	---	---	---	---	---	---	---	---	---	---
	10/08/97	---	---	---	---	---	---	---	---	---	---	---
	01/28/98	NLPH	3.90	12.40	---	---	---	---	---	---	---	---
	04/14/98	NLPH	3.67	12.63	---	---	---	---	---	---	---	---
	07/30/98	NLPH	5.00	11.30	---	---	---	---	---	---	---	---
	10/19/98	NLPH	---	---	---	---	---	---	---	---	---	---
	01/13/99	NLPH	5.19	11.11	---	---	---	---	---	---	---	---
	04/28/99	---	4.53	11.77	---	---	---	---	---	---	---	---
	06/16/00	Property transferred to Valero Refining Company.										
(16.15)	Nov-2001	Well surveyed in compliance with AB 2886 requirements.										
	Not monitored or sampled 07/09/99 through present.					---	---	---	---	---	---	---
EW1	09/12/94	NLPH	6.13	10.09	---	400a	---	40	<0.5	10	5.4	---
(16.22)	10/01/94	NLPH	7.63	8.59	---	3,400a	---	<0.5	4.4	30	11	---
	01/13/95	NLPH	11.46	4.76	---	680a	---	40	<0.5	12	16	---

TABLE 1
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

Well ID #	Sampling	SUBJ	DTW	Elev.	TPHd	TPHg	MTBE	B	T	E	X	Select VOCs
(TOC)	Date	<.....feet.....>			<.....ug/L.....>							
EW1 (cont.)	04/27/95	NLPH	15.47	0.75	---	---	---	---	---	---	---	---
(16.22)	08/03/95	NLPH	13.85	2.37	---	<125	590	2.7	<1.2	<1.2	<1.2	---
	10/17/95	NLPH	8.05	8.17	---	3,600	400	220	<0.5	160	36	---
	01/24/96	NLPH	11.07	5.15	---	64	260	4.3	<0.5	1.3	0.53	---
	04/24/96	NLPH	6.20	10.02	---	740	3,000	130	2.3	35	2.1	---
	07/26/96	NLPH	13.93	2.29	---	<50	960	<0.5	<0.5	<0.5	<0.5	---
	10/30/96	NLPH	13.74	2.48	---	<50	5,300	0.52	<0.5	<0.5	<0.5	---
	01/31/97	NLPH	8.40	7.82	---	---	---	---	---	---	---	---
	04/10/97	---	---	---	---	---	---	---	---	---	---	---
	07/10/97	---	---	---	---	---	---	---	---	---	---	---
	10/08/97	---	---	---	---	---	---	---	---	---	---	---
	01/28/98	NLPH	3.35	12.87	---	---	---	---	---	---	---	---
	04/14/98	NLPH	3.52	12.70	---	---	---	---	---	---	---	---
	07/30/98	NLPH	5.48	10.74	---	---	---	---	---	---	---	---
	10/19/98	NLPH	5.77	10.45	---	---	---	---	---	---	---	---
	01/13/99	NLPH	5.49	10.73	---	---	---	---	---	---	---	---
	04/28/99	NLPH	4.31	11.91	---	---	---	---	---	---	---	---
	06/16/00	Property transferred to Valero Refining Company.										
(16.27)	Nov-2001	Well surveyed in compliance with AB 2886 requirements.										
	Not monitored or sampled 07/09/99 through March 2002.											
	5/6/02	**NLPH**	**4.94**	**11.33**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
EW2	09/12/94	NLPH	6.09	9.96	---	8,800a	---	2,000	79	180	290	---
(16.05)	10/01/94	NLPH	7.32	8.73	---	9,500a	---	1,400	6.7	700	310	---
	01/13/95	NLPH	14.38	1.67	---	5,700a	---	930	270	21	280	---
	04/27/95	NLPH	15.23	0.82	---	---	---	---	---	---	---	---
	08/03/95	NLPH	7.19	8.86	---	830	1,600	170	27	36	64	---
	10/17/95	NLPH	18.97	-2.92	---	180	3,600	<0.5	<0.5	<0.5	5.1	---
	01/24/96	NLPH	20.32	-4.27	---	1,700	6,400	290	82	14	170	---
	04/24/96	NLPH	9.46	6.59	---	3,500	7,300	670	200	110	490	---
	07/26/96	NLPH	16.50	-0.45	---	1,400	14,000	250	56	10	220	---
	10/30/96	NLPH	20.30	-4.25	---	1,500	13,000	200	44	8.8	190	---

TABLE 1
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California
(Page 14 of 17)

Well ID #	Sampling	SUBJ	DTW	Elev.	TPHd	TPHg	MTBE	B	T	E	X	Select VOCs
(TOC)	Date	<.....feet.....>			<.....ug/L.....>							
EW2 (cont)	01/31/97	NLPH	19.21	-3.16	---	---	---	---	---	---	---	---
(16.05)	04/10/97	---	---	---	---	---	---	---	---	---	---	---
	07/10/97	---	---	---	---	---	---	---	---	---	---	---
	10/08/97	---	---	---	---	---	---	---	---	---	---	---
	01/28/98	NLPH	3.35	12.70	---	---	---	---	---	---	---	---
	04/14/98	NLPH	3.45	12.60	---	---	---	---	---	---	---	---
	07/30/98	NLPH	11.50	4.55	---	---	---	---	---	---	---	---
	10/19/98	NLPH	5.67	10.38	---	---	---	---	---	---	---	---
	01/13/99	NLPH	9.57	6.48	---	---	---	---	---	---	---	---
	04/28/99	NLPH	10.15	5.90	---	---	---	---	---	---	---	---
	06/16/00	Property transferred to Valero Refining Company.										
(16.07)	Nov-2001	Well surveyed in compliance with AB 2886 requirements.										
	Not monitored or sampled 07/09/99 through present.											
EW3	09/12/94	NLPH	6.12	9.90	---	300a	---	44	5.9	12	31	---
(16.02)	10/01/94	NLPH	10.52	5.50	---	140a	---	12	0.42	1.7	3.7	---
	01/13/95	NLPH	18.13	-2.11	---	230a	---	4.6	7.6	1.2	6.6	---
	04/27/95	NLPH	23.07	-7.05	---	---	---	---	---	---	---	---
	08/03/95	NLPH	22.90	-6.88	---	<200	1,400	<2.0	<2.0	<2.0	<2.0	---
	10/17/95	NLPH	22.87	-6.85	---	74	2,400	4.4	<0.5	<0.5	<0.5	---
	01/24/96	NLPH	20.97	-4.95	---	120	2,300	16	<0.5	<0.5	<0.5	---
	04/24/96	NLPH	18.10	-2.08	---	180	3,800	34	3.7	8.9	11	---
	07/26/96	NLPH	13.14	2.88	---	180	2,000	45	0.7	<0.5	2.1	---
	10/30/96	NLPH	9.24	6.78	---	660	2,800	60	8.2	<0.5	100	---
	01/31/97	NLPH	11.10	4.92	---	---	---	---	---	---	---	---
	04/10/97	---	---	---	---	---	---	---	---	---	---	---
	07/10/97	---	---	---	---	---	---	---	---	---	---	---
	10/08/97	---	---	---	---	---	---	---	---	---	---	---
	01/28/98	NLPH	3.42	12.60	---	---	---	---	---	---	---	---
	04/14/98	NLPH	3.50	12.52	---	---	---	---	---	---	---	---
	07/30/98	NLPH	18.57	-2.55	---	---	---	---	---	---	---	---
	10/19/98	NLPH	5.65	10.37	---	---	---	---	---	---	---	---

TABLE 1
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

Well ID #	Sampling	SUBJ	DTW	Elev.	TPHd	TPHg	MTBE	B	T	E	X	Select VOCs
(TOC)	Date	<.....feet.....>			<.....ug/L.....>							
EW3(cont.)	01/13/99	NLPH	13.85	2.17	---	---	---	---	---	---	---	---
(16.02)	04/28/99	NLPH	4.52	11.50	---	---	---	---	---	---	---	---
	06/16/00	Property transferred to Valero Refining Company.										
(16.08)	Nov-2001	Well surveyed in compliance with AB 2886 requirements.										
	Not monitored or sampled 07/09/99 through March 2002.											
	5/6/02	**NLPH**	**5.38**	**10.70**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**
EW4	09/12/94	NLPH	5.69	10.92	---	4,000a	---	1,700	12	210	77	---
(16.61)	10/01/94	NLPH	7.90	8.71	---	460a	---	100	1.5	15	11	---
	01/13/95	NLPH	11.36	5.25	---	520a	---	89	8.8	1.6	82	---
	04/27/95	NLPH	16.30	0.31	---	---	---	---	---	---	---	---
	08/03/95	NLPH	6.45	10.16	---	42,000	17,000	3,100	1,100	2,000	8,200	---
	10/17/95	NLPH	15.89	0.72	---	92	2,500	6.3	<0.5	<0.5	<0.5	---
	01/24/96	NLPH	6.03	10.58	---	220	9,200	79	2.5	2.9	10	---
	04/24/96	NLPH	4.97	11.64	---	4,600	860	49	36	69	1,100	---
	07/26/96	NLPH	6.54	10.07	---	2,900	15,000	610	6.2	200	300	---
	10/30/96	NLPH	6.53	10.08	---	550	3,400	68	11	<2.5	71	---
	01/31/97	NLPH	3.98	12.63	---	---	---	---	---	---	---	---
	04/10/97	---	---	---	---	---	---	---	---	---	---	---
	07/10/97	---	---	---	---	---	---	---	---	---	---	---
	10/08/97	---	---	---	---	---	---	---	---	---	---	---
	01/28/98	NLPH	3.22	13.39	---	---	---	---	---	---	---	---
	04/14/98	NLPH	3.20	13.41	---	---	---	---	---	---	---	---
	07/30/98	NLPH	4.89	11.72	---	---	---	---	---	---	---	---
	10/19/98	NLPH	5.16	11.45	---	---	---	---	---	---	---	---
	01/13/99	NLPH	5.57	11.04	---	---	---	---	---	---	---	---
	04/28/99	NLPH	4.27	12.34	---	---	---	---	---	---	---	---
	06/16/00	Property transferred to Valero Refining Company.										
(15.69)	Nov-2001	Well surveyed in compliance with AB 2886 requirements.										
	Not monitored or sampled 07/09/99 through present.											

TABLE 1
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

Well ID #	Sampling	SUBJ	DTW	Elev.	TPHd	TPHg	MTBE	B	T	E	X	Select VOCs
(TOC)	Date	<.....feet.....>			<.....ug/L.....>							
EW5	09/12/94	NLPH	6.30	10.21	---	180a	---	26	1.7	11	12	---
(16.51)	10/01/94	NLPH	11.83	4.68	---	130a	---	16	0.92	5.7	8.5	---
	01/13/95	NLPH	12.54	3.97	---	130a	---	0.6	0.8	0.6	2.9	---
	04/27/95	NLPH	13.11	3.40	---	---	---	---	---	---	---	---
	08/03/95	NLPH	11.99	4.52	---	70	210	<0.5	<0.5	<0.5	<0.5	---
	10/17/95	NLPH	13.43	3.08	---	78	50	1.5	<0.5	<0.5	3.0	---
	01/24/96	NLPH	9.72	6.79	---	2,500	350	280	66	22	370	---
	04/24/96	NLPH	8.13	8.38	---	6,400	400	690	240	380	1,300	---
	07/26/96	NLPH	10.00	6.51	---	850	84	82	2.5	2.4	100	---
	10/30/96	NLPH	9.82	6.69	---	1,200	68	110	5.1	2.2	120	---
	01/31/97	NLPH	9.00	7.51	---	---	---	---	---	---	---	---
	04/10/97	---	---	---	---	---	---	---	---	---	---	---
	07/10/97	---	---	---	---	---	---	---	---	---	---	---
	10/08/97	---	---	---	---	---	---	---	---	---	---	---
	01/28/98	NLPH	3.54	12.97	---	---	---	---	---	---	---	---
	04/14/98	NLPH	3.65	12.86	---	---	---	---	---	---	---	---
	07/30/98	NLPH	7.63	8.88	---	---	---	---	---	---	---	---
	10/19/98	NLPH	5.75	10.76	---	---	---	---	---	---	---	---
	01/13/99	NLPH	7.03	9.48	---	---	---	---	---	---	---	---
	04/28/99	NLPH	8.80	7.71	---	---	---	---	---	---	---	---
	06/16/00	Property transferred to Valero Refining Company.										
(16.67)	Nov-2001	Well surveyed in compliance with AB 2886 requirements.										
	Not monitored or sampled 07/09/99 through March 2002.											
	5/6/02	**NLPH**	**4.78**	**11.89**	**---**	**---**	**---**	**---**	**---**	**---**	**---**	**---**

TABLE 1
CUMULATIVE GROUNDWATER MONITORING AND SAMPLING DATA
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

Notes:		
SUBJ	=	Results of subjective evaluation, liquid-phase hydrocarbon thickness in feet.
TOC	=	Elevation of top of well casing; in feet above mean sea level.
DTW	=	Depth to water.
Elev.	=	Elevation of groundwater in feet above mean sea level.
TPHg	=	Total petroleum hydrocarbons as gasoline analyzed using EPA Method 5030/8015 (modified).
TPHd	=	Total petroleum hydrocarbons as diesel using EPA Method 5030/8015 (modified).
MTBE	=	Methyl tertiary butyl ether analyzed using EPA Method 8021B.
BTEX	=	Benzene, toluene, ethylbenzene, and total xylenes analyzed using EPA Method 8021B.
Select VOCs	=	Select volatile organic compounds analyzed using EPA Method 8260.
NLPH	=	No liquid-phase hydrocarbons.
SPL	=	Separate-phase liquids present.
ND	=	Not detected at or above laboratory detection limits.
---	=	Not sampled.
ug/L	=	Micrograms per liter.
<	=	Less than the stated laboratory method detection limit.
a	=	Total volatile hydrocarbons by DHS /LUFT Manual Method.
b	=	Results obtained from a 1:10 dilution analyzed on January 17, 1995.
c	=	Methyl tertiary butyl ether by EPA Method 8260 (GC/MS).
d	=	Diesel-range hydrocarbons reportedly detected in bailer blank; result is suspect.
e	=	TPHd was detected in the sample; however, the detections do not resemble the typical diesel pattern.
f	=	Well inaccessible.
g	=	MTBE analyzed using EPA Method 8260B.
h	=	Tertiary butyl alcohol (TBA) detected using EPA Method 8260B.
I	=	Di-isopropyl ether (DIPE) detected using EPA Method 8260B.
j	=	Ethyl tert-butyl ether (ETBE) detected using EPA Method 8260B.

Data prior to second Quarter 2000 provided by Delta Environmental Consultants, Inc.

TABLE 2
OPERATIONAL DATA FOR
SOIL VAPOR EXTRACTION SYSTEM
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

		FIELD MEASUREMENTS			Laboratory Analytical Results		TPHg Removal	
Date	Sample ID	Hour Meter	Hours of Operation	Flow cfm	TPHg ppmv	Benzene ppmv	Per Period Pounds	Cumulative Pounds
2/16/98	System startup	1,583	0	—				
2/19/98	A-INF	1,652	69	48	< 2.4	< 0.031	<	< 0.1
	A-INT				< 2.4	< 0.031		
	A-EFF				< 2.4	< 0.031		
3/3/98	A-INF	1,828	176	50	< 2.4	< 0.031	<	< 0.2
	A-INT				< 2.4	< 0.031		
	A-EFF				< 2.4	< 0.031		
4/2/98	A-INF	2,184	356	52	< 2.4	< 0.031	<	< 0.5
	A-INT				< 2.4	< 0.031		
	A-EFF				< 2.4	< 0.031		
5/4/98	A-INF	2,538	354	131	17	0.44		< 5.8
	A-INT				< 2.4	< 0.031		
	A-EFF				< 2.4	< 0.031		
6/10/98	A-INF	2,940	402	131	12	0.047		< 10.0
	A-INT				4.2	< 0.031		
	A-EFF				< 2.4	< 0.031		
7/7/99	A-INF	2,940	0	131	76	2.6		< 10.0
	A-INT				---	---		
	A-EFF				< 2.4	< 0.031		
8/4/98	A-INF	3,248	308	131	34	0.94		< 19.1
	A-INT				8.8	0.27		
	A-EFF				10	< 0.031		
10/20/98	A-INF	3,249	1	131	210	6.0		< 19.3
	A-INT				< 2.4	< 0.031		
	A-EFF				< 2.4	< 0.031		
11/9/98	A-INF	3,464	215	131	13	0.056		< 21.7
	A-INT				< 2.4	< 0.031		
	A-EFF				< 2.4	< 0.031		
12/8/98	A-INF	3,798	334	131	3.1	0.034		< 22.7
	A-INT				< 2.4	< 0.031		
	A-EFF				< 2.4	< 0.031		
1/13/99	A-INF	4,264	466	131	12	< 0.031		< 27.5
	A-INT				5.6	< 0.031		
	A-EFF				< 2.4	< 0.031		
2/8/99	A-INF	4,600	336	131	< 12.1	< 0.16	<	< 31.1
	A-INT				< 12.1	< 0.16		
	A-EFF				< 12.1	< 0.16		

TABLE 2
OPERATIONAL DATA FOR
SOIL VAPOR EXTRACTION SYSTEM
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

		FIELD MEASUREMENTS			Laboratory Analytical Results		TPHg Removal	
Date	Sample ID	Hour Meter	Hours of Operation	Flow cfm	TPHg ppmv	Benzene ppmv	Per Period Pounds	Cumulative Pounds
3/8/99	A-INF	4,919	319	131	2.7	< 0.031		< 31.8
	A-INT				< 2.4	< 0.031		
	A-EFF				< 2.4	< 0.031		
4/5/99	A-INF	4,957	38	131	42.6	0.474		< 33.3
	A-INT				4.6	< 0.0314		
	A-EFF				< 2.84	< 0.0314		
5/6/99	A-INF	5,470	513	131	11.84	0.0872		< 38.6
	A-INT				4.20	< 0.0314		
	A-EFF				4.71	< 0.0314		
5/26/99	A-INF	5,799	329	131	---	---		< 42.0
	A-INT				18.03	< 0.031		
	A-EFF				11.98	< 0.031		
8/9/99	A-INF	5,799	0	118	240	1.60		< 42.0
	A-INT				< 2.84	< 0.0314		
	A-EFF				< 2.84	< 0.0314		
9/7/99	A-INF	6,275	476	109	10.6	0.0403		< 45.7
	A-INT				6.23	< 0.0314		
	A-EFF				3.74	< 0.0314		
10/12/99	A-INF	6,638	363	122	15	< 0.31		< 50.1
	A-INT				< 2.8	< 0.31		
	A-EFF				< 2.8	< 0.31		
12/9/99	A-INF	6,686	48	109	82	1.0		< 53.0
	A-INT				< 2.8	< 0.31		
	A-EFF				< 2.8	< 0.31		
2/8/00	A-INF	7,030	344	109	31	0.59		< 60.8
	A-INT				< 2.8	< 0.31		
	A-EFF				< 2.8	< 0.31		
3/24/00	System shutdown pending evaluation							
4/1/00	Environmental Resolutions Inc., assumed operation of the system.							

Notes:		Data prior to April 1, 2000 provided by Delta Environmental Consultants, Inc.
A-INF	=	Influent vapor sample collected prior to biofilters.
A-INT1	=	Vapor sample collected after biofilters.
A-INT2	=	Vapor sample collected after 1st carbon vessel.
A-EFF	=	Vapor sample collected from effluent sample port.
cfm	=	Cubic feet per minute.
ppmv	=	Parts per million by volume
---	=	Not sampled/not measured.

TABLE 3
CUMULATIVE HYDROCARBON REMOVAL AND EMISSIONS FOR
SOIL VAPOR EXTRACTION SYSTEM
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

		FIELD MEASUREMENTS								Analytical Laboratory Results		TPHg Removal		Benzene Removal		Benzene
Date	Sample ID	Hour Meter	Hours of Operation	Temp F	Pressure in H_2O	Vacuum in H_2O	Flow lfm	Flow cfm	PID ppmv	TPHg mg/m^3	Benzene mg/m^3	Per Period Pounds	Cumulative Pounds	Per Period Pounds	Cumulative Pounds	Emission Rate lbs/day
02/16/98	System startup	---	0	---		---		---	---							
03/24/00	System shutdown pending evaluation															
		12,001										< 60.8	< 60.8		---	—
04/01/00	Environmental Resolutions Inc., assumed operation of the system.															
06/28/00	System upgrades completed, system restarted.															
	A-INF	12,008	7	---		26	---	---	770.0							
	A-INT								18.1							
	A-EFF								13.3							
	System shutdown for carbon changeout, 2 x 500-pounds.															
07/11/00	System down upon arrival, restart.															
	A-INF	12,011	3	86		8	4,000	85	207.0	51	< 1.0	< 0.16	< 61.0	< 0.00	< 0.0	
	A-INT								9.1	< 10	< 1.0					
	A-EFF								0.0	< 10	< 1.0					< 0.01
07/20/00	System running upon arrival (VES only). System running on departure.															
	A-INF	12,226	215	78		9	4,500	97	42.3							
	A-INT								2.4							
	A-EFF								0.0							
07/31/00	System down on departure for carbon changeout (2x500 lb).															
	A-INF	12,493	267	87		9	4,500	95	266.0							
	A-INT								73.0							
	A-EFF								41.2							
08/10/00	System down upon arrival for carbon changeout. System running on departure.															
	A-INF	12,733	0	80		30	800	17	53.5	43	< 1	< 6.22	< 67.2	< 0.13	< 0.14	
	A-INT								0.0	< 10	< 1					
	A-EFF								0.0	< 10	< 1					< 0.002
08/16/00	A-INF	12,874	141	84		31.5	250	5	164.1							
	A-INT								0.0							
	A-EFF								0.0							
08/24/00	System down on departure for carbon changeout.															
	A-INF	13,065	191	76		20	2,400	52	294.0							
	A-INT								23.7							
	A-EFF								2.4							
09/12/00	System down upon arrival for carbon changeout. System running on departure.															
	A-INF	13,070	5	74		20	2,600	56	247.5	190	2.5	< 4.79	< 72.0	< 0.07	< 0.21	
	A-INT								0.0	< 10	< 1.0					

TABLE 3
CUMULATIVE HYDROCARBON REMOVAL AND EMISSIONS FOR
SOIL VAPOR EXTRACTION SYSTEM
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

		FIELD MEASUREMENTS								Analytical Laboratory Results		TPHg Removal		Benzene Removal		Benzene
Date	Sample ID	Hour Meter	Hours of Operation	Temp F	Pressure in H_2O	Vacuum in H_2O	Flow lfm	Flow cfm	PID ppmv	TPHg mg/m^3	Benzene mg/m^3	Per Period Pounds	Cumulative Pounds	Per Period Pounds	Cumulative Pounds	Emission Rate lbs/day
	A-EFF								0.0	< 10	< 1.0					< 0.01
09/26/00	A-INF	13,406	336	80		22	2,450	52	448.7							
	A-INT								10.7							
	A-EFF								0.0							
10/12/00	System running on arrival and down upon departure for carbon c/o. Samples taken															
	A-INF	13,786	380	67		24	2,400	53	96.4	55	< 1.0	< 17.64	< 89.6	< 0.25	< 0.46	
	A-INT								72.3	21	< 1.0					
	A-EFF								9.0	< 10	< 1.0					< 0.005
10/30/00	System down upon arrival for carbon changeout. System running on departure.															
	A-INF	13,788	2	56		24	2,450	55	10,024	1,700	15	< 0.35	< 90.0	< 0.003	< 0.46	
	A-INT								59.1	< 10	< 1.0					
	A-EFF								0.0	< 10	< 1.0					< 0.005
11/08/00	A-INF	14,008	220	60		25	2,300	51	102.6	29	< 1.0	< 37.69	< 127.6	< 0.35	< 0.81	
	A-INT								41.8	< 10	< 1.0					
	A-EFF								Stet	< 10	< 1.0					< 0.005
11/21/00	System running upon arrival. System down upon departure for carbon changeout.															
	A-INF	14,314	306	68		25	2,300	50	322.0							
	A-INT								32.3							
	A-EFF								42.9							
12/06/00	System down upon arrival for carbon changeout. System down upon departure for carbon changeout															
12/11/00	System down on arrival due to carbon changeout. Running on departure.															
	A-INF	14,316	2	52		24	2,400	54	957	240	2.1	< 8.04	< 135.7	< 0.09	< 0.90	
	A-INT								1.2	< 10	< 1.0					
	A-EFF								3.1	< 10	< 1.0					< 0.005
12/27/00	A-INF	14,697	381	56		26	2,600	58	192.1							
	A-INT								4.8							
	A-EFF								0.0							
01/09/01	A-INF	15,012	315	56		25	2,400	54	82.4	32	< 1.0	< 19.60	< 155.3	< 0.22	< 1.12	
	A-INT								23.2	< 10	< 1.0					
	A-EFF								0.0	< 10	< 1.0					< 0.005
01/23/01	System down on departure for carbon changeout.															
	A-INF	15,353	341	60		26	2,300	51	485.0							
	A-INT								35.2							
	A-EFF								20.7							
01/31/01	A-INF	15,355	2	45		33	1,500	34	10000							
	A-INT								0							
	A-EFF								0							
02/13/01	A-INF	15,669	314	56		12	4,000	90	37.8	31	< 1.0	< 4.43	< 159.7	< 4.20	< 5.32	
	A-INT								29.5	< 10	< 1.0					
	A-EFF								0	< 10	< 1.0					< 0.008
02/27/01	System down upon departure for C/O.															
	A-INF	15,999	330	70		8	4,000	87	316							

TABLE 3
CUMULATIVE HYDROCARBON REMOVAL AND EMISSIONS FOR
SOIL VAPOR EXTRACTION SYSTEM
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

		FIELD MEASUREMENTS								Analytical Laboratory Results		TPHg Removal		Benzene Removal		Benzene
Date	Sample ID	Hour Meter	Hours of Operation	Temp F	Pressure in H_2O	Vacuum in H_2O	Flow lfm	Flow cfm	PID ppmv	TPHg mg/m^3	Benzene mg/m^3	Per Period Pounds	Cumulative Pounds	Per Period Pounds	Cumulative Pounds	Emission Rate lbs/day
	A-INT								37.5							
	A-EFF								73.6							
03/13/01	System down upon arrival for C/O and running upon departure. Monthly samples taken.															
	A-INF	16,002	3	65		9	4,000	88	5833	1300	6.1	< 73.16	< 232.9	< 0.39	< 5.71	
	A-INT								190.4	16	< 1.0					
	A-EFF								0	11	< 1.0					< 0.008
03/27/01	System running on arrival and departure.															
	A-INF	16,336	334	62		10	4,000	89	182.6							
	A-INT								16.8							
	A-EFF								0							
04/12/01	System running on arrival and departure.															
	A-INF	16,725	389	72		8	4,000	87	4.8							
	A-INT								2.6							
	A-EFF								0							
04/25/01	System running on arrival and departure.															
	A-INF	17,034	309	80		9	4,000	86	18.6	< 10	< 1.0	< 220.60	< 453.5	< 1.19	< 6.90	
	A-INT								9.5	< 10	< 1.0					
	A-EFF								0	26	< 1.0					< 0.008
05/09/01	System running on arrival and departure.															
	A-INF	17,371	337	86		10	4,000	85	11.3	< 10	< 1.0	< 1.07	< 454.5	< 1.57	< 8.47	
	A-INT								3.6	< 10	< 1.0					
	A-EFF								5.9	< 10	< 1.0					< 0.008
05/24/01	System running on arrival and departure.															
	A-INF	17,734	363	86		20	3,050	65	6.2							
	A-INT								1.6							
	A-EFF								3.1							
06/04/01	System running on arrival and departure.															
	A-INF	17,992	258	80		40	500	11	496	280	< 1.0	< 16.05	< 470.6	< 0.11	< 8.58	
	A-INT								19.7	< 10	< 1.0					
	A-EFF								3.2	< 10	< 1.0					< 0.001
06/19/01	System running on arrival and departure.															
	A-INF	18,353	361	80		38	500	11	140							
	A-INT								6.4							
	A-EFF								3.0							
07/02/01	System running on arrival and departure.															
	A-INF	18,660	307	80		38	500	11	7.2							
	A-INT								0.0							
	A-EFF								0.0							
07/17/01	System running on arrival and departure.															
	A-INF	19,028	368	75		10	4,000	86	0.0	< 10	< 1.0	< 27.27	< 497.9	< 0.19	< 8.77	
	A-INT								0.0	< 10	< 1.0					
	A-EFF								0.0	< 10	< 1.0					< 0.008

TABLE 3
CUMULATIVE HYDROCARBON REMOVAL AND EMISSIONS FOR
SOIL VAPOR EXTRACTION SYSTEM
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California
(Page 4 of 5)

		FIELD MEASUREMENTS								Analytical Laboratory Results		TPHg Removal		Benzene Removal		Benzene
Date	Sample ID	Hour Meter	Hours of Operation	Temp F	Pressure in H_2O	Vacuum in H_2O	Flow lfm	Flow cfm	PID ppmv	TPHg mg/m^3	Benzene mg/m^3	Per Period Pounds	Cumulative Pounds	Per Period Pounds	Cumulative Pounds	Emission Rate lbs/day
08/07/01	System running on arrival and shut down on departure for blower failure															
	A-INF	---	---	---		—	—	—								
	A-INT		---	---		—	—	—								
	A-EFF		---	---		—	—	—								
08/13/01	System down on arrival, blower removed awaiting replacement.															
08/27/01	System down, awaiting blower replacement.															
09/10/01	System down, awaiting blower replacement.															
10/18/01	System down on arrival, installed blower, and running on departure.															
	A-INF	19,534	506	120		31	4,000	80	568.0							
	A-INT								3.0							
	A-EFF								2.0							
10/24/01	System running on arrival and running upon departure.															
	A-INF	19,673	139	80		41	3,300	71	93.1	72	< 1.0	< 7.76	< 505.6	< 0.19	< 8.96	
	A-INT								7.3	< 10	< 1.0					
	A-EFF								5	< 10	< 1.0					< 0.006
11/07/01	System running on arrival and down upon departure for carbon c/o. Samples taken															
	A-INF	20,012	339	74		45	3,000	65	230.0	55	< 1.0	5.46	< 511.1	< 0.09	< 9.05	
	A-INT								27.0	< 10	< 1.0					
	A-EFF								5.1	< 10	< 1.0					< 0.006
11/21/01	System running on arrival and down upon departure for carbon c/o. Samples taken															
	A-INF	20,012	0	150		45	3,000	57	373.0							
	A-INT								0.0							
	A-EFF								0							
12/12/01	System down upon arrival, K.O. tank H/H, and running upon departure.															
12/12/01	A-INF	20,361	349	142		46	3,000	58	98.1	45	1.3	4.00	< 515.1	< 0.09	< 9.14	
	A-INT								1.0	< 10	< 1.0					
	A-EFF								2.7	< 10	< 1.0					< 0.005
12/27/01	System down upon arrival and running upon departure.															
12/27/01	A-INF	20,508	147	142		44	2,400	46	2396							
	A-INT								2.4							
	A-EFF								0							
01/09/02	System down upon arrival, K.O. tank H/H, and running upon departure.															
01/09/02	A-INF	20,541	33	148		42	2,700	51	794.5	670	8.0	13.10	< 528.2	0.17	< 9.31	
	A-INT								36.2	< 10	< 1.0					
	A-EFF								2	< 10	< 1.0					< 0.005
01/23/02	System running upon arrival and down upon departure for carbon c/o.															
01/23/02	A-INF	20,876	335	136		45	3,800	74	41.2							
	A-INT								8.3							
	A-EFF								7.2							
02/06/02	System down upon arrival and running upon departure.															
02/06/02	A-INF	20,877	1	50		50	3,000	68	260	458	24.5	42.27	< 570.4	1.22	< 10.53	
	A-INT								4.9	< 5.00	< 0.500					

TABLE 3
CUMULATIVE HYDROCARBON REMOVAL AND EMISSIONS FOR
SOIL VAPOR EXTRACTION SYSTEM
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

		FIELD MEASUREMENTS								Analytical Laboratory Results		TPHg Removal		Benzene Removal		Benzene
Date	Sample ID	Hour Meter	Hours of Operation	Temp F	Pressure in H_2O	Vacuum in H_2O	Flow lfm	Flow cfm	PID ppmv	TPHg mg/m^3	Benzene mg/m^3	Per Period Pounds	Cumulative Pounds	Per Period Pounds	Cumulative Pounds	Emission Rate lbs/day
	A-EFF								0.1	< 5.00	< 0.500					< 0.003
02/21/02	System running upon arrival and upon departure.															
02/21/02	A-INF	21,237	360	158		50	2,600	49	189.8							
	A-INT								4.7							
	A-EFF								0							
03/06/02	System running upon arrival and upon departure.															
03/06/02	A-INF	21,549	312	152		45	2,800	53	185.2	82.3	2.90	41.02	< 611.5	2.08	< 12.61	
	A-INT								14.2	15.1	< 0.500					
	A-EFF								1.4	16.0	< 0.500					< 0.002
03/21/02	System running upon arrival and upon departure. Installed pressure gauge for field reading.															
03/21/02	A-INF	21,913	364	146	---	38	3,200	61	96.3							
	A-INT								1.5							
	A-EFF								1.7							
04/10/02	System running upon arrival and down upon departure.															
04/10/02	A-INF	22,393	480	76	---	45	3,200	69	64.3	12.0	0.16	9.07	< 620.5	0.29	< 12.90	
	A-INT								19.6	< 10	< 0.10					
	A-EFF								6	< 10	< 0.10					< 0.001

Notes: Data prior to April 1, 2000 provided by Delta Environmental Consultants, Inc.

A-INF = Influent vapor sample collected prior to biofilters.
A-INT1 = Vapor sample collected after biofilters.
A-INT2 = Vapor sample collected after 1st carbon vessel.
A-INT3 = Vapor sample collected after 2nd carbon vessel.
A-EFF = Vapor sample collected from effluent sample port.
cfm = Cubic feet per minute.
ppmv = Parts per million by volume.
mg/M^3 = Milligrams per cubic meter.
— = Not sampled/Not measured.

Removal rates are calculated using ERI SOP-25: "Hydrocarbons Removed from A Vadose Well".

TABLE 4
OPERATION AND PERFORMANCE DATA FOR
GROUNDWATER REMEDIATION SYSTEM
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

Date	Total Flow	Average Flowrate	Sample	Laboratory Analytical Results							TPHg Removal		Benzene Removal		MTBE Removal	
				TPHg		B	T	E	X	MTBE	Per Period	Cumulative	Per Period	Cumulative	Per Period	Cumulative
	gal	gpm	ID	<.....ug/L.....							<.....lbs.....>		<.....lbs.....>		<.....lbs.....>	
10/10/94	1,331,420		W-INF	< 50	<	0.5	<0.5	<0.5	<0.5	---					---	---
			W-EFF	< 50	<	0.5	<0.5	<0.5	<0.5							
12/02/94	1,392,010	0.8	W-INF	65		1.9	0.9	<0.5	2.4	---	0.03	0.0	0.0006	0.00	---	---
			W-EFF	< 50	<	0.5	<0.5	<0.5	<0.5							
01/13/95	1,415,980	0.4	W-INF	1,000	<	0.5	<0.5	<0.5	<0.5	---	0.11	0.1	0.0002	0.00	---	---
			W-INT	< 50	<	0.5	<0.5	<0.5	<0.5							
			W-EFF	< 50	<	0.5	<0.5	<0.5	<0.5							
02/23/95	1,494,030	1.3	W-INF	57	<	0.5	<0.5	<0.5	2.7	---	0.34	0.5	0.0003	0.00	---	---
			W-INT	< 50	<	0.5	<0.5	<0.5	<0.5							
			W-EFF	< 50	<	0.5	<0.5	<0.5	<0.5							
03/14/95	---		W-INF	< 50	<	0.5	<0.5	<0.5	<0.5	---	---	---	---	---	---	---
			W-INT	< 50	<	0.5	<0.5	<0.5	<0.5							
			W-EFF	< 50	<	0.5	<0.5	<0.5	<0.5							
04/14/95	1,513,240	0.3	W-INF	< 50	<	0.5	<0.5	<0.5	<0.5	---	0.01	0.5	0.0001	0.00	---	---
			W-INT	< 50	<	0.5	<0.5	<0.5	<0.5							
			W-EFF	< 50	<	0.5	<0.5	<0.5	<0.5							
05/18/95	1,714,850	4.1	W-INF	NS		---	---	---	---	---	---	---	---	---	---	---
06/30/95	1,847,330	2.1	W-INF	1,700		480	23	66	180	---	2.44	2.9	0.6685	0.67	---	---
			W-INT	< 50	<	0.5	<0.5	<0.5	<0.5							
			W-EFF	< 50	<	0.5	<0.5	<0.5	<0.5							
07/12/95	1,908,730	3.6	W-INF	290		68	<2.0	2.4	5.6	---	0.51	3.4	0.1128	0.78	---	---
			W-INT	< 50	<	0.5	<0.5	<0.5	<0.5							

TABLE 4
OPERATION AND PERFORMANCE DATA FOR
GROUNDWATER REMEDIATION SYSTEM
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California
(Page 2 of 10)

Date	Total Flow	Average Flowrate	Sample	Laboratory Analytical Results							TPHg Removal		Benzene Removal		MTBE Removal	
				TPHg	B	T	E	X	MTBE		Per Period	Cumulative	Per Period	Cumulative	Per Period	Cumulative
	gal	gpm	ID	<.....ug/L.....							<.....lbs.....>		<.....lbs.....>		<.....lbs.....>	
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5								
08/09/95	2,027,830	3.0	W-INF	6,600	1,700	260	370	550	---		3.42	6.9	0.8768	1.66	---	---
			W-INT	< 50	< 0.5	<0.5	<0.5	<0.5								
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5								
09/06/95	2,158,260	3.2	W-INF	120	17	0.84	1.0	3.0	---		3.65	10.5	0.9325	2.59	---	---
			W-INT	< 50	< 0.5	<0.5	<0.5	<0.5								
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5								
10/11/95	2,215,310	1.1	W-INF	160	22	0.97	1.2	4.0	---		0.07	10.6	0.0093	2.60	---	---
			W-INT	< 50	< 0.5	<0.5	<0.5	<0.5								
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5								
11/16/95	2,384,880	3.3	W-INF	120	4.9	<0.5	<0.5	5.9	---		0.20	10.8	0.0190	2.62	---	---
			W-INT	< 50	< 0.5	<0.5	<0.5	<0.5								
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5								
12/14/95	2,453,200	1.7	W-INF	450	46	16	4.6	65	---		0.16	10.9	0.0145	2.63	---	---
			W-INT	< 50	< 0.5	<0.5	<0.5	<0.5								
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5								
01/05/96	2,516,900	2.0	W-INF	240	26	2.4	1.2	20	---		0.18	11.1	0.0191	2.65	---	---
			W-INT	< 50	< 0.5	<0.5	<0.5	<0.5								
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5								
02/14/96	2,680,160	2.8	W-INF	470	43	5.5	<0.5	55	---		0.48	11.6	0.0469	2.70	---	---
			W-INT	< 50	< 0.5	<0.5	<0.5	<0.5								
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5								

TABLE 4
OPERATION AND PERFORMANCE DATA FOR
GROUNDWATER REMEDIATION SYSTEM
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

Date	Total Flow	Average Flowrate	Laboratory Analytical Results									TPHg Removal		Benzene Removal		MTBE Removal	
			Sample		TPHg		B	T	E	X	MTBE	Per Period	Cumulative	Per Period	Cumulative	Per Period	Cumulative
	gal	gpm	ID	<		<		ug/L				<	lbs		lbs	<	lbs >
03/12/96	2,767,820	2.3	W-INF		620		60	9.8	3.9	70	---	0.40	12.0	0.0376	2.74	---	---
			W-INT	<	50	<	0.5	<0.5	<0.5	<0.5							
			W-EFF	<	50	<	0.5	<0.5	<0.5	<0.5							
04/16/96	2,927,390	3.2	W-INF		790		120	27	8.8	120	---	0.94	12.9	0.1196	2.86	---	---
			W-INT	<	50	<	0.5	<0.5	<0.5	<0.5							
			W-EFF	<	50	<	0.5	<0.5	<0.5	<0.5							
05/07/96	2,971,100	1.4	W-INF		430		66	2.7	5	32	---	0.22	13.2	0.0339	2.89	---	---
			W-INT	<	50	<	0.5	<0.5	<0.5	<0.5							
			W-EFF	<	50	<	0.5	<0.5	<0.5	<0.5							
06/11/96	3,109,730	2.8	W-INF		2,900		470	120	19	410	---	1.92	15.1	0.3094	3.20	---	---
			W-INT	<	50	<	0.5	<0.5	<0.5	<0.5							
			W-EFF	<	50	<	0.5	<0.5	<0.5	<0.5							
07/09/96	3,232,330	3.0	W-INF		490		55	6.2	<0.5	110	---	1.73	16.8	0.2680	3.47	---	---
			W-INT	<	50	<	0.5	<0.5	<0.5	<0.5							
			W-EFF	<	50	<	0.5	<0.5	<0.5	<0.5							
08/08/96	3,365,060	3.1	W-INF		580		49	4.6	<1.0	75	---	0.59	17.4	0.0575	3.53	---	---
			W-INT	<	50	<	0.5	<0.5	<0.5	<0.5							
			W-EFF	<	50	<	0.5	<0.5	<0.5	<0.5							
09/05/96	---	---	W-INF		740		67	19	10	72	---	---	---	---	---	---	---
			W-INT	<	50	<	0.5	<0.5	<0.5	<0.5							
			W-EFF	<	50	<	0.5	<0.5	<0.5	<0.5							
10/02/96	3,530,230	2.1	W-INF		980		130	39	7.8	130	---	1.07	18.5	0.1231	3.65	---	---

TABLE 4
OPERATION AND PERFORMANCE DATA FOR
GROUNDWATER REMEDIATION SYSTEM
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California
(Page 4 of 10)

Date	Total Flow gal	Average Flowrate gpm	Sample ID	Laboratory Analytical Results TPHg ug/L	B ug/L	T ug/L	E ug/L	X ug/L	MTBE ug/L	TPHg Removal Per Period lbs	TPHg Removal Cumulative lbs	Benzene Removal Per Period lbs	Benzene Removal Cumulative lbs	MTBE Removal Per Period lbs	MTBE Removal Cumulative lbs
			W-INT	< 50	< 0.5	<0.5	<0.5	<0.5							
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5							
11/08/96	3,657,370	2.4	W-INF	480	42	7.1	0.69	79	—	0.77	19.2	0.0911	3.74	---	—
			W-INT	< 50	< 0.5	<0.5	<0.5	<0.5							
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5							
12/09/96	3,735,650	1.8	W-INF	< 50	< 0.5	<0.5	<0.5	<0.5	—	0.17	19.4	0.0139	3.75	---	—
			W-INT	< 50	< 0.5	<0.5	<0.5	<0.5							
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5							
01/21/97	3,735,730	0.0	W-INF	690	69	20	20	91	—	0.00	19.4	0.0000	3.75	---	—
			W-INT	< 50	< 0.5	<0.5	<0.5	<0.5							
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5							
02/10/97	3,735,360	0.0	W-INF	860	100	24	1.4	160	—	—	—	—	—	—	—
			W-INT	< 50	< 0.5	<0.5	<0.5	<0.5							
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5							
03/20/97	3,843,430	2.0	W-INF	86	< 0.5	<0.5	<0.5	5.1	—	0.43	19.8	0.0452	3.80	---	---
			W-INT	< 50	< 0.5	<0.5	<0.5	<0.5							
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5							
04/03/97	3,918,650	3.7	W-INF	690	31	6.1	<5.0	89	—	0.24	20.1	0.0099	3.81	---	—
			W-INT	< 1,000	< 10	<10	<10	<10							
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5							
05/07/97	4,092,720	3.6	W-INF	1,000	57	29	11	110	---	1.22	21.3	0.0638	3.87	---	---
			W-INT	< 50	1.1	<0.5	<0.5	<0.5							
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5							

TABLE 4
OPERATION AND PERFORMANCE DATA FOR
GROUNDWATER REMEDIATION SYSTEM
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

Date	Total Flow	Average Flowrate	Sample	Laboratory Analytical Results							TPHg Removal		Benzene Removal		MTBE Removal	
				TPHg	B	T	E	X	MTBE		Per Period	Cumulative	Per Period	Cumulative	Per Period	Cumulative
	gal	gpm	ID	<.....ug/L.....							<.....lbs.....>		<.....lbs.....>		<.....lbs.....>	
06/11/97	4,144,600	1.0	W-INF	570	66	14	4.7	75	---		0.34	21.7	0.0266	3.90	---	---
			W-INT	< 50	0.57	<0.5	<0.5	<0.5								
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5								
06/25/97	4,273,310	---	W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5			---	---	---	---	---	---
07/24/97	4,363,090	3.5	W-INF	470	25	8.8	3.7	49	---		0.95	22.6	0.0828	3.98	---	---
			W-INT	< 50	< 0.5	<0.5	<0.5	<0.5								
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5								
08/04/97	4,408,100	2.8	W-INF	610	48	18	6.2	69	---		0.20	22.8	0.0137	4.00	---	---
			W-INT	< 50	0.76	<0.5	<0.5	<0.5								
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5								
10/21/97	4,496,810	0.8	W-INF	250	16	5.4	2.3	29	---		0.32	23.1	0.0236	4.02	---	---
			W-INT	< 50	< 0.5	<0.5	<0.5	<0.5								
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5								
11/04/97	4,553,090	2.8	W-INF	510	22	9.8	13	60	---		0.18	23.3	0.0089	4.03	---	---
			W-INT	< 50	0.82	<0.5	<0.5	0.5								
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5								
12/05/97	4,588,340	0.8	W-INF	79	1.5	<0.5	<0.5	53	---		0.09	23.4	0.0034	4.03	---	---
			W-INT	< 50	< 0.5	<0.5	<0.5	<0.5								
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5								
01/08/98	4,625,400	0.8	W-INF	83	2.6	0.74	<0.5	5.4	---		0.03	23.4	0.0006	4.03	---	---
			W-INT	< 50	< 0.5	<0.5	<0.5	<0.5								
			W-EFF	< 50	0.58	<0.5	0.81	1.5								

TABLE 4
OPERATION AND PERFORMANCE DATA FOR
GROUNDWATER REMEDIATION SYSTEM
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

Date	Total Flow	Average Flowrate	Sample	Laboratory Analytical Results						TPHg Removal		Benzene Removal		MTBE Removal	
				TPHg	B	T	E	X	MTBE	Per Period	Cumulative	Per Period	Cumulative	Per Period	Cumulative
	gal	gpm	ID	ug/L						lbs		lbs		lbs	
03/03/98	4,662,470	0.5	W-INF	< 50	0.54	<0.5	<0.5	0.88	—	0.02	23.4	0.0005	4.03	—	—
			W-INT	< 50	< 0.5	<0.5	<0.5	0.5							
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5							
04/02/98	4,702,760	0.9	W-INF	1,100	170	32	12	160	—	0.19	23.6	0.0286	4.06	—	—
			W-INT	< 50	< 0.5	<0.5	<0.5	<0.5							
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5							
05/04/98	4,786,330	1.8	W-INF	1,000	140	23	8.5	150	—	0.73	24.4	0.1079	4.17	—	—
			W-INT	< 50	< 0.5	<0.5	<0.5	0.5							
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5							
06/10/98	4,852,030	1.2	W-INF	670	110	16	7.6	74	—	0.46	24.8	0.0684	4.24	—	—
			W-INT	< 50	< 0.5	<0.5	<0.5	<0.5							
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5							
07/07/98	4,951,910	2.6	W-INF	690	91	13	6.3	55	—	0.57	25.4	0.0836	4.32	—	—
			W-INT	< 200	< 2.0	<2.0	<2.0	<2.0							
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5							
08/04/98	5,039,980	2.2	W-INF	230	36	6.4	2.5	17	—	0.34	25.7	0.0466	4.37	—	—
			W-INT	< 50	< 0.5	<0.5	<0.5	<0.5							
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5							
09/03/98	5,080,850	0.9	W-INF	280	13	2.0	6.4	21	—	0.09	25.8	0.0083	4.38	—	—
			W-INT	< 50	< 0.5	<0.5	<0.5	<0.5							
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5							
10/20/98	NM		W-INF	740	43	54	25	110	—	—	—	—	—	—	—
			W-INT	< 50	< 0.5	<0.5	<0.5	<0.5							
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5							

TABLE 4
OPERATION AND PERFORMANCE DATA FOR
GROUNDWATER REMEDIATION SYSTEM
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

Date	Total Flow gal	Average Flowrate gpm	Sample ID	Laboratory Analytical Results TPHg ug/L	B ug/L	T ug/L	E ug/L	X ug/L	MTBE ug/L	TPHg Removal Per Period lbs	TPHg Removal Cumulative lbs	Benzene Removal Per Period lbs	Benzene Removal Cumulative lbs	MTBE Removal Per Period lbs	MTBE Removal Cumulative lbs
11/09/98	5,232,360	1.6	W-INF	300	37	10	8.4	43	---	0.37	26.2	0.0315	4.41	---	---
			W-INT	< 50	< 0.5	<0.5	<0.5	<0.5							
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5							
12/08/98	5,284,180	1.2	W-INF	700	82	25	13	100	---	0.22	26.4	0.0257	4.43	---	---
			W-INT	< 50	< 0.5	<0.5	<0.5	<0.5							
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5							
01/13/99	5,377,930	1.8	W-INF	1,030	155	46.5	52.7	73.3	---	0.68	27.1	0.0925	4.53	---	---
			W-INT	< 500	< 5.0	<5.0	<5.0	<5.0							
			W-EFF	< 500	< 5.0	<5.0	<5.0	<5.0							
02/08/99	5,441,820	1.7	W-INF	260	31	9.0	2.4	33	---	0.34	27.4	0.0495	4.58	---	---
			W-INT	< 50	< 0.5	<0.5	<0.5	<0.5							
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5							
03/08/99	5,509,090	1.7	W-INF	800	87	16	8.5	140	---	0.30	27.7	0.0331	4.61	---	---
			W-INT	< 50	< 0.5	<0.5	<0.5	<0.5							
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5							
04/05/99	5,571,890	1.6	W-INF	< 500	36.6	12.2	5.84	20.9	---	0.34	28.0	0.0323	4.64	---	---
			W-INT	< 500	< 5.0	<5.0	<5.0	<5.0							
			W-EFF	< 500	< 5.0	<5.0	<5.0	<5.0							
05/06/99	5,621,560	1.1	W-INF	310	45	6.0	0.86	41	---	0.17	28.2	0.0169	4.66	---	---
			W-INT	< 50	< 0.5	<0.5	<0.5	<0.5							
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5							
06/07/99	5,706,250	1.8	W-INF	< 250	24.8	<2.5	<2.5	8.74	---	0.20	28.4	0.0246	4.68	---	---
			W-INT	< 100	< 1.0	<1.0	<1.0	<1.0							

TABLE 4
OPERATION AND PERFORMANCE DATA FOR
GROUNDWATER REMEDIATION SYSTEM
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

Date	Total Flow	Average Flowrate	Laboratory Analytical Results									TPHg Removal		Benzene Removal		MTBE Removal	
			Sample		TPHg		B	T	E	X	MTBE	Per Period	Cumulative	Per Period	Cumulative	Per Period	Cumulative
	gal	gpm	ID		ug/L							lbs		lbs		lbs	
			W-EFF	<	250	<	2.5	<2.5	<2.5	<2.5							
07/28/99	5,805,010	1.3	W-INF	<	100		7.00	<1.0	2.40	6.40	---	0.14	28.5	0.0131	4.70	---	---
			W-INT	<	50	<	0.5	<0.5	<0.5	<0.5							
			W-EFF	<	50	<	0.5	<0.5	<0.5	<0.5							
08/09/99	5,849,280	2.6	W-INF	<	500		17.1	5.88	<5.0	26.8	---	0.11	28.7	0.0044	4.70	---	---
			W-INT	<	250	<	2.5	<2.5	<2.5	<2.5							
			W-EFF	<	250	<	2.5	<2.5	<2.5	<2.5							
09/07/99	5,880,860	0.8	W-INF	<	500		20.4	<5.0	<5.0	31.1	---	0.13	28.8	0.0049	4.71	---	---
			W-INT	<	50	<	0.5	<0.5	<0.5	<0.5							
			W-EFF	<	50	<	0.5	<0.5	<0.5	<0.5							
10/12/99	5,966,690	1.7	W-INF		100		2	<1.0	<1.0	<1.0	---	0.21	29.0	0.0080	4.71	---	---
			W-INT	<	50	<	1.0	<1.0	<1.0	<1.0							
			W-EFF	<	50	<	1.0	<1.0	<1.0	<1.0							
11/18/99	5,971,540	0.1	W-INF		660		66	7.8	5.6	57	---	0.02	29.0	0.0014	4.72	---	---
			W-INT	<	50	<	1.0	<1.0	<1.0	<1.0							
			W-EFF	<	50	<	1.0	<1.0	<1.0	<1.0							
12/09/99	5,992,780	0.7	W-INF		200		28	3.2	2.2	22.4	---	0.08	29.1	0.0083	4.72	---	---
			W-INT1	<	50	<	1.0	<1.0	<1.0	<1.0							
			W-INT2	<	50	<	1.0	<1.0	<1.0	<1.0							
			W-EFF	<	50	<	1.0	<1.0	<1.0	<1.0							
01/10/00	6,035,690	0.9	W-INF		120		11	1.5	1.8	14.5	---	0.06	29.2	0.0070	4.73	---	---
			W-INT	<	50	<	1.0	<1.0	<1.0	<1.0							
			W-EFF	<	50	<	1.0	<1.0	<1.0	<1.0							

TABLE 4
OPERATION AND PERFORMANCE DATA FOR
GROUNDWATER REMEDIATION SYSTEM
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

Date	Total Flow	Average Flowrate	Sample	Laboratory Analytical Results							TPHg Removal		Benzene Removal		MTBE Removal	
				TPHg	B	T	E	X	MTBE		Per Period	Cumulative	Per Period	Cumulative	Per Period	Cumulative
	gal	gpm	ID	ug/L							lbs		lbs		lbs	
02/08/00	6,055,000	0.5	W-INF	130	14	<1.0	<1.0	11.9	---		0.02	29.2	0.3530	5.08	---	---
			MID	< 50	< 1.0	<1.0	<1.0	<1.0								
			W-EFF	< 50	< 1.0	<1.0	<1.0	<1.0								
03/24/00	6,080,125	0.4	System shutdown pending evaluation.													
03/28/00	6,080,360	0.0	W-INF	< 50	< 1.0	<1.0	<1.0	<1.0	---		0.02	29.2	0.0016	5.08	---	---
			MID	< 50	< 1.0	<1.0	<1.0	<1.0								
			W-EFF	< 67	< 1.0	<1.0	<1.0	<1.0								
03/28/00	System shutdown upon departure.															
04/01/00	Environmental Resolutions, Inc. assumed operation of the remediation system.															
04/01/00	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0							
06/05/02	System down on arrival and running on departure. Startup. Water samples collected for startup.															

TABLE 4
OPERATION AND PERFORMANCE DATA FOR
GROUNDWATER REMEDIATION SYSTEM
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

Date	Total Flow	Average Flowrate	Sample	Laboratory Analytical Results							TPHg Removal		Benzene Removal		MTBE Removal	
				TPHg	B	T	E	X	MTBE		Per Period	Cumulative	Per Period	Cumulative	Per Period	Cumulative
	gal	gpm	ID	ug/L							lbs		lbs		lbs	
06/05/02	10	0.0000	W-INF	< 50	< 0.5	<0.5	<0.5	<0.5	---		0.000	0.000	0.000	0.000	---	---
			W-INT 1	< 50	< 0.5	<0.5	<0.5	<0.5								
			W-INT 2	< 50	< 0.5	<0.5	<0.5	<0.5								
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5								
06/19/02	GRS running on arrival and departure.															
06/19/02	47,370	2.3492														
07/03/02	GRS running on arrival and departure.															
07/03/02	114,030	3.3065	W-INF	< 270	< 2.5	<2.5	<2.5	<2.5	1,300		0.152	0.152	0.001	0.001	0.618	0.618
			W-INT 1	< 50	< 0.5	<0.5	<0.5	<0.5	46							
			W-INT 2	< 50	< 0.5	<0.5	<0.5	<0.5	<2.5							
			W-EFF	< 50	< 0.5	<0.5	<0.5	<0.5	<2.5							

Notes: Data prior to April 1, 2000 provided by Delta Environmental Consultants, Inc.

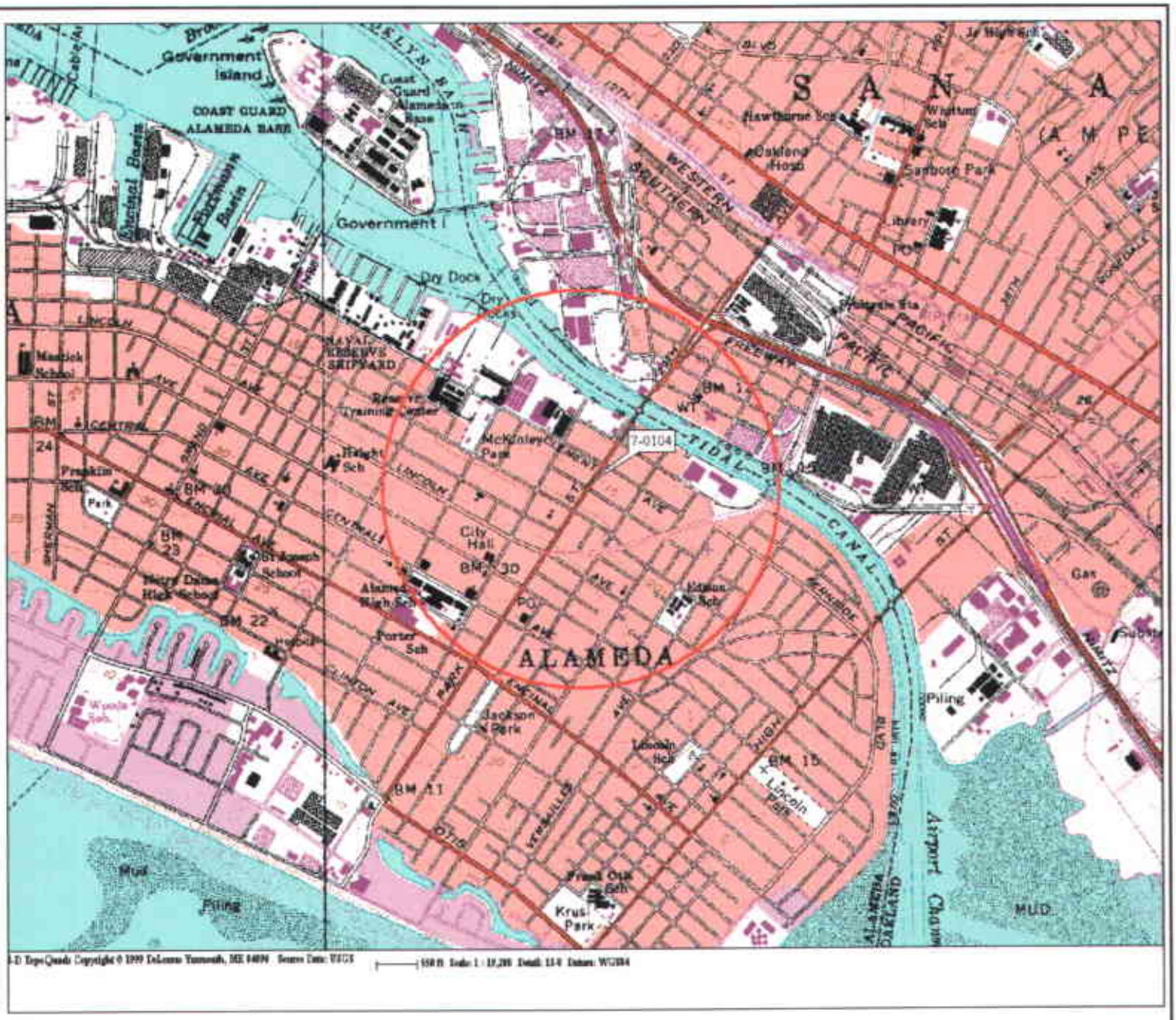
W- INF	=	Water sample collected at the influent sample location.
W-INT	=	Water sample collected at the intermediate sample location.
W-EFF	=	Water sample collected at the effluent sample location (EBMUD sample location SS#1).
gal	=	Gallons.
gpm	=	Gallons per minute.
ug/L	=	Micrograms per liter.
lbs	=	Pounds.
TPHg	=	Total petroleum hydrocarbons as gasoline.
B	=	Benzene.
T	=	Toluene.
E	=	Ethylbenzene.
X	=	Total xylenes.
<	=	Less than the laboratory method detection limit as indicated.
—	=	Not measured/Not sampled/Not analyzed.

TABLE 5
CUMULATIVE ANALYTICAL RESULTS OF SOIL SAMPLES
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

Sample ID	Sampling Date	Sample Depth (feet)	TPHd	TPHg	MTBE	B	T	E	X
			<.....mg/kg.....>						
MW1	6/2/88	10	---	11.0	---	0.0670	<0.025	0.150	0.370
MW2	6/2/88	5	---	1,400	---	<2.0	32.0	25.0	150.0
MW3	6/2/88	5	---	74	---	<0.500	<0.500	<0.500	2.4
MW4	1/9/89	5	---	0.6	---	0.017	0.002	0.007	0.012
MW5	1/9/89	4.5	---	2.0	---	0.055	0.007	0.066	0.240
MW6	1/9/89	5	---	490	---	3.7	0.970	23.0	94.0
MW7	1/4/89	5.5	---	600	---	1.7	3.2	10.0	29.0
SB-1	3/19/90	2.2	---	1.8	---	0.0062	<0.0025	0.016	0.0092
	3/19/90	4.5	---	260	---	1.3	1.3	1.4	4.9
	3/19/90	5	---	2,600	---	6.9	23.0	32.0	14.0
SB-2	3/19/90	2.5	---	1.3	---	0.013	0.018	0.10	0.54
	3/19/90	4	---	230	---	1.2	3.7	2.1	1.3
SB-3	3/19/90	3	---	1.8	---	0.0068	0.047	0.011	0.230
	3/19/90	5	---	540	---	4.6	12.0	3.2	44.0
SB-4	3/19/90	4	---	<1.0	---	<0.0025	<0.0025	0.0053	0.018
	3/19/90	5	---	<1.0	---	<0.0025	<0.0025	<0.0025	<0.0025
SB-5	3/19/90	2.5	---	<1.0	---	0.028	0.006	0.0065	0.016
	3/19/90	4.5	---	<1.0	---	0.150	0.080	0.016	0.069
	3/19/90	5.5	---	260	---	1.3	6.5	4.0	24.0
SB-6	3/19/90	2.5	---	140	---	1.1	1.2	1.7	6.7
	3/19/90	5	---	1.6	---	0.065	0.020	0.019	0.060
SB-7	3/19/90	3	---	240	---	0.260	1.4	1.2	4.7
	3/19/90	6	---	<1.0	---	0.055	0.0041	0.012	0.011
MW8/SB-8	5/5/93	5.5	<5.0	<1.0	---	<0.005	<0.005	<0.005	<0.005
MW9/SB-9	5/5/93	6	<5.0	<1.0	---	<0.005	<0.005	<0.005	<0.005
MW10/SB-10	5/5/93	6	<5.0	<1.0	---	<0.005	<0.005	<0.005	<0.005
S-5-B11/SW-1	11/01/93	5	---	<1.0	---	0.061	<0.005	0.018	<0.005
S-9-B11/SW-1	11/01/93	9	---	<1.0	---	0.054	0.0075	0.020	0.029
S-11-B11/SW-1	11/01/93	11	---	<1.0	---	<0.005	<0.005	<0.005	<0.005
S-4.5-B11/SW-1	11/01/93	14.5	---	<1.0	---	<0.005	<0.005	<0.005	<0.005
S-19.5-B11/SW-1	11/01/93	19.5	---	<1.0	---	<0.005	<0.005	<0.005	<0.005
S-5-B13/SM-1	11/01/93	5	---	1,400	---	0.170	<0.005	0.060	0.0073
S-9-B13/SM-1	11/01/93	7	---	1,800	---	7.6	10.0	37.0	98.0
S-10-B11/SM-1	11/01/93	10	---	290	---	0.077	0.031	0.085	0.270
S-12.5-B11/SM-1	11/01/93	12.5	---	<1.0	---	<0.005	<0.005	<0.005	<0.005
S-15.5-B11/SM-1	11/01/93	15.5	---	<1.0	---	<0.005	<0.005	<0.005	<0.005
S-20-B13/SM-1	11/01/93	20	---	<1.0	---	<0.005	<0.005	<0.005	0.0079
MW-11-6.5	8/23/95	6.5	---	<1.0	<0.025	<0.005	<0.005	<0.005	0.024
MW-11-11.5	8/23/95	11.5	---	2.0	<0.025	0.26	<0.005	0.021	0.16
MW-12-6.5	8/23/95	6.5	---	<1.0	<0.025	<0.005	<0.005	<0.005	<0.005
DI-1-3.5	6/25/97	3.5	---	21	---	0.023	0.050	0.076	0.45
DI-2-3.5	6/25/97	3.5	---	30	---	<0.05	0.051	0.083	0.52
DI-3-3.5	6/25/97	3.5	---	<1.0	---	<0.005	<0.005	<0.005	0.012
DI-4-3.5	6/25/97	3.5	---	160	---	0.30	<0.12	2.1	0.81
PL-1-3.5	6/25/97	3.5	---	15	---	0.22	0.042	0.19	0.32
PL-2-3.5	6/25/97	3.5	---	1,200	---	3.2	2.2	7.7	66
PL-3-3.5	6/25/97	3.5	---	96	---	1.1	0.22	0.37	0.82

TABLE 5
CUMULATIVE ANALYTICAL RESULTS OF SOIL SAMPLES
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

Notes:		
SB-1	=	Soil boring-sample number.
S-5-B11	=	Soil sample-depth-sample number.
DI-1-3.5	=	Dispenser Island-sample number-depth.
PL-1-3.5	=	Product Line-sample number-depth.
Sample Depth	=	Sample depth in feet below ground surface.
TPHd	=	Total petroleum hydrocarbons as diesel using EPA Method 8015 (modified).
TPHg	=	Total petroleum hydrocarbons as gas analyzed using EPA Method 8015 (modified).
BTEX	=	Benzene, toluene, ethylbenzene and total xylenes using EPA Method 8020.
MTBE	=	Methyl tertiary butyl ether analyzed using EPA method 8020.
<	=	Less than the stated laboratory detection limit.
---	=	Not Analyzed.



EXPLANATION

1/2–mile radius circle

N

APPROXIMATE SCALE

0 0.5 1 mile

SOURCE:
Modified from a map
provided by
DeLorme 3–D TopoQuads

ERI ENVIRONMENTAL RESOLUTIONS, INC.

SITE VICINITY MAP

FORMER EXXON SERVICE STATION 7–0104
1725 Park Street
Alameda, California

PROJECT NO. 2506

PLATE 1

APPROXIMATE SCALE

0 50 100 Feet

FN 25060002

ENVIRONMENTAL RESOLUTIONS, INC.

GENERALIZED SITE PLAN

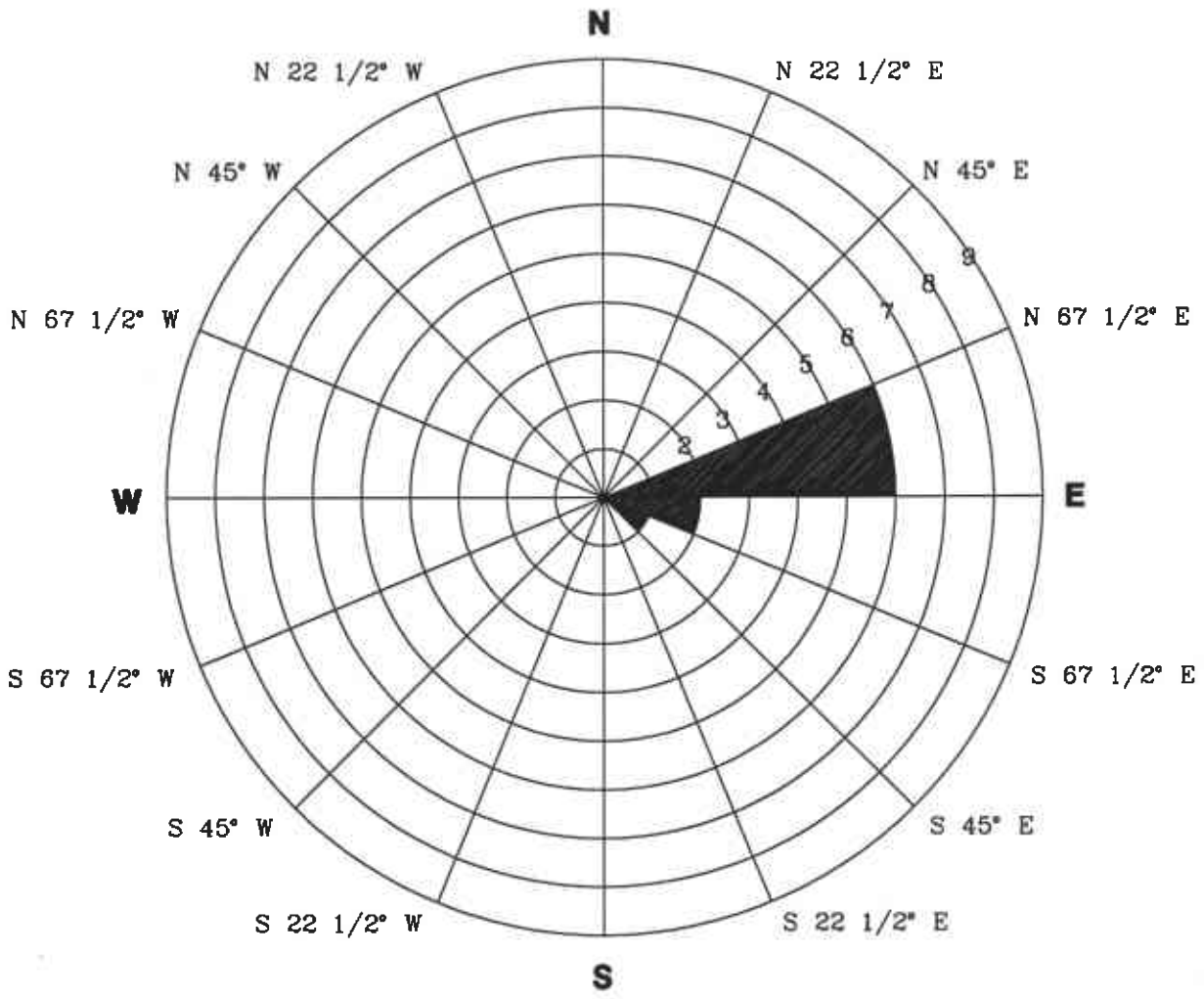
FORMER
EXXON SERVICE STATION 7-0104
1725 Park Street
Alameda, California

EXPLANATION

- MW11 Groundwater Monitoring Well
- EW4 Recovery Well
- MW10 Destroyed Groundwater Monitoring Well
- SB-7 Soil Boring Location
- MW4 Groundwater Monitoring Well By Others
- VW2 Vapor Extraction Well
- AS1 Air Sparge/Soil Vapor Well

PROJECT NO. 2506

PLATE 2



FN 2506rose

EXPLANATION

N Compass Direction

9 Data Points Shown

Rose diagram developed by evaluating the groundwater gradient direction from the quarterly monitoring data. Each circle on the rose diagram represents the number of monitoring events that the gradient plotted in that 22 1/2 degree sector.

ENVIRONMENTAL RESOLUTIONS, INC.

GROUNDWATER FLOW DIRECTION ROSE DIAGRAM

FORMER EXXON SERVICE STATION 7-0104
1725 Park Street
Alameda, California

PROJECT NO. 2506

PLATE 3

May 13, 2002

ATTACHMENT A

ALAMEDA COUNTY HEALTH SERVICES AGENCY LETTER, DATED NOVEMBER 15, 2001

RO0000448

December 13, 2001

Mr. Gene Ortega
ExxonMobil
P.O. Box 4032
Concord, CA 94524-4032

RE: RBCA Analysis for Exxon RAS #7-1004 at 1725 Park St, Alameda, CA

Dear Mr. Ortega:

I have completed review of Environmental Resolutions, Inc's September 2001 *Risk-Based Corrective Action Tier II Analysis* prepared for the above referenced site. The results of the analysis suggested that BTEX constituents in soil and groundwater did not exceed site specific target levels (SSTLs). But the representative MTBE concentration for the site exceeded the calculated SSTL.

Upon review of the RBCA, the following items need clarification:

- it was not clear how the representative concentration of each chemical of concern was calculated,
- evaluation of risk due to TPH was not performed,
- some of the exposure pathways evaluated are not applicable to this site

Please provide a site conceptual model for the site (so applicable exposure pathways are determined), conduct a risk analysis for TPH, and show how the representative concentrations were calculated.

If you have any questions, I can be reached at (510) 567-6762.

eva chu
Hazardous Materials Specialist

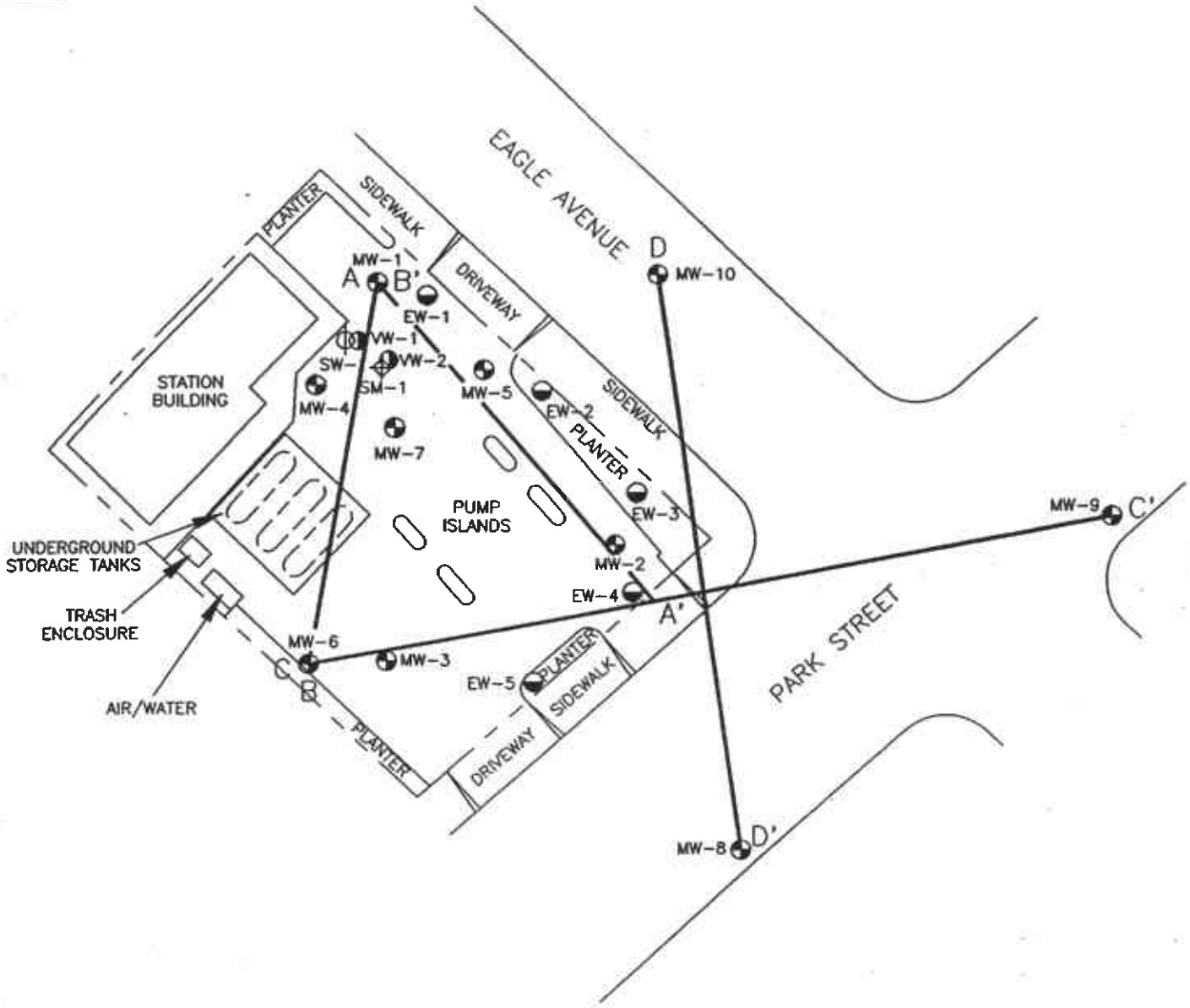
email: Scott Graham

exxon0104-2

ATTACHMENT B

GEOLOGIC CROSS SECTIONS

7007760C



EXPLANATION

MW-10 = Groundwater monitoring well

EW-5 = Groundwater extraction well

VW-2 = Vapor well

SW-1 = Air-sparging well

SM-1 = Sparge monitoring point

D — D' = Cross section line

N

Approximate Scale

40 20 0 40

feet

Source: Modified from map supplied by Harding Lawson Associates, 1992; survey by Ron Archer, Civil Engineer, Inc., 1993

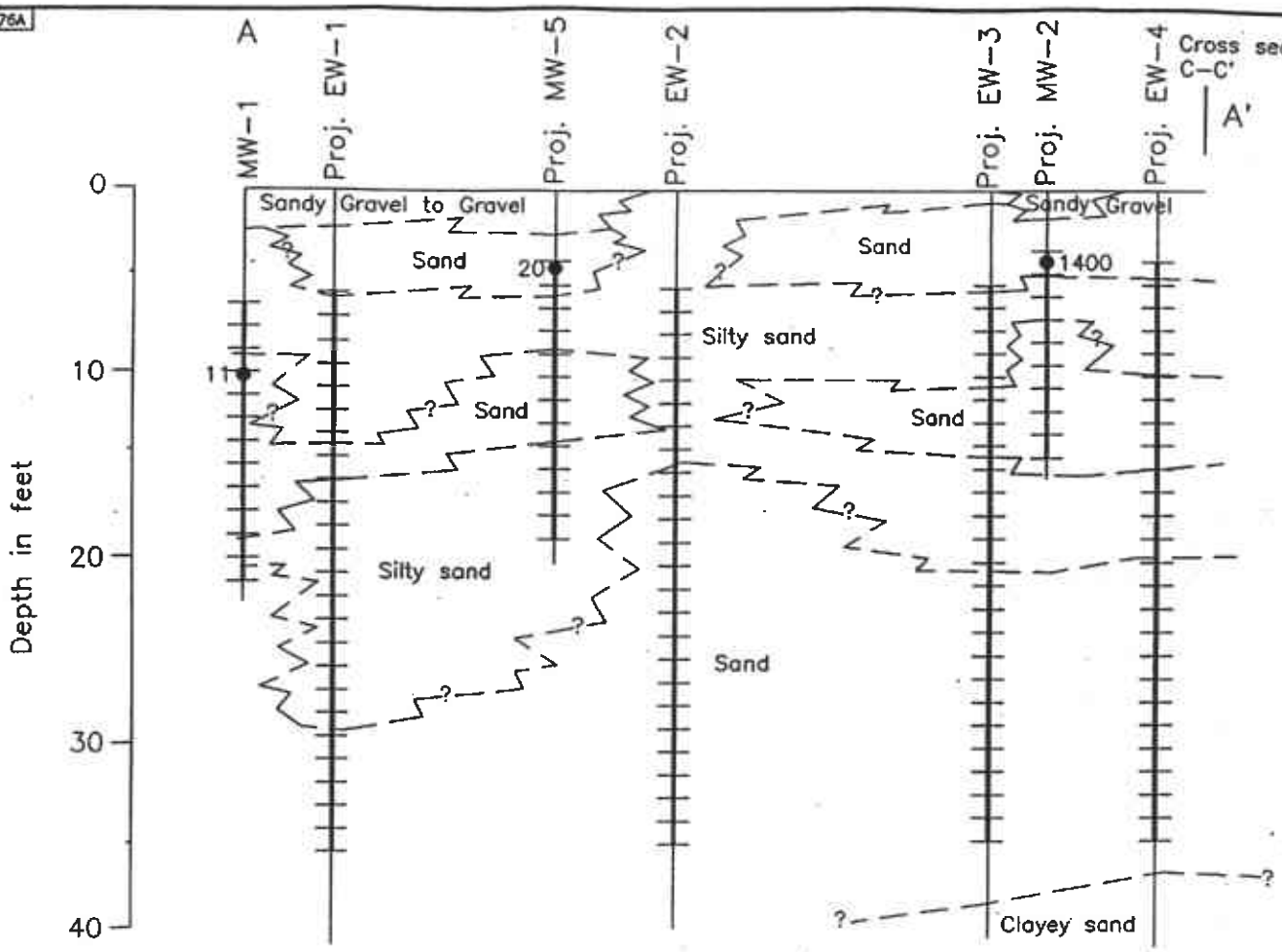
RESNA
Working to Restore Nature

PROJECT 170077.06

GENERALIZED SITE PLAN
Exxon Service Station 7-0104
1725 Park Street
Alameda, California

PLATE 2

1700776A



EXPLANATION

1400 = Laboratory analyzed soil sample showing concentration of TPHg in parts per million

= Well casing

= Well screen

= Boring

Approximate Horizontal Scale

20 10 0 20

feet

Approximate Vertical Scale

10 5 0 10

feet

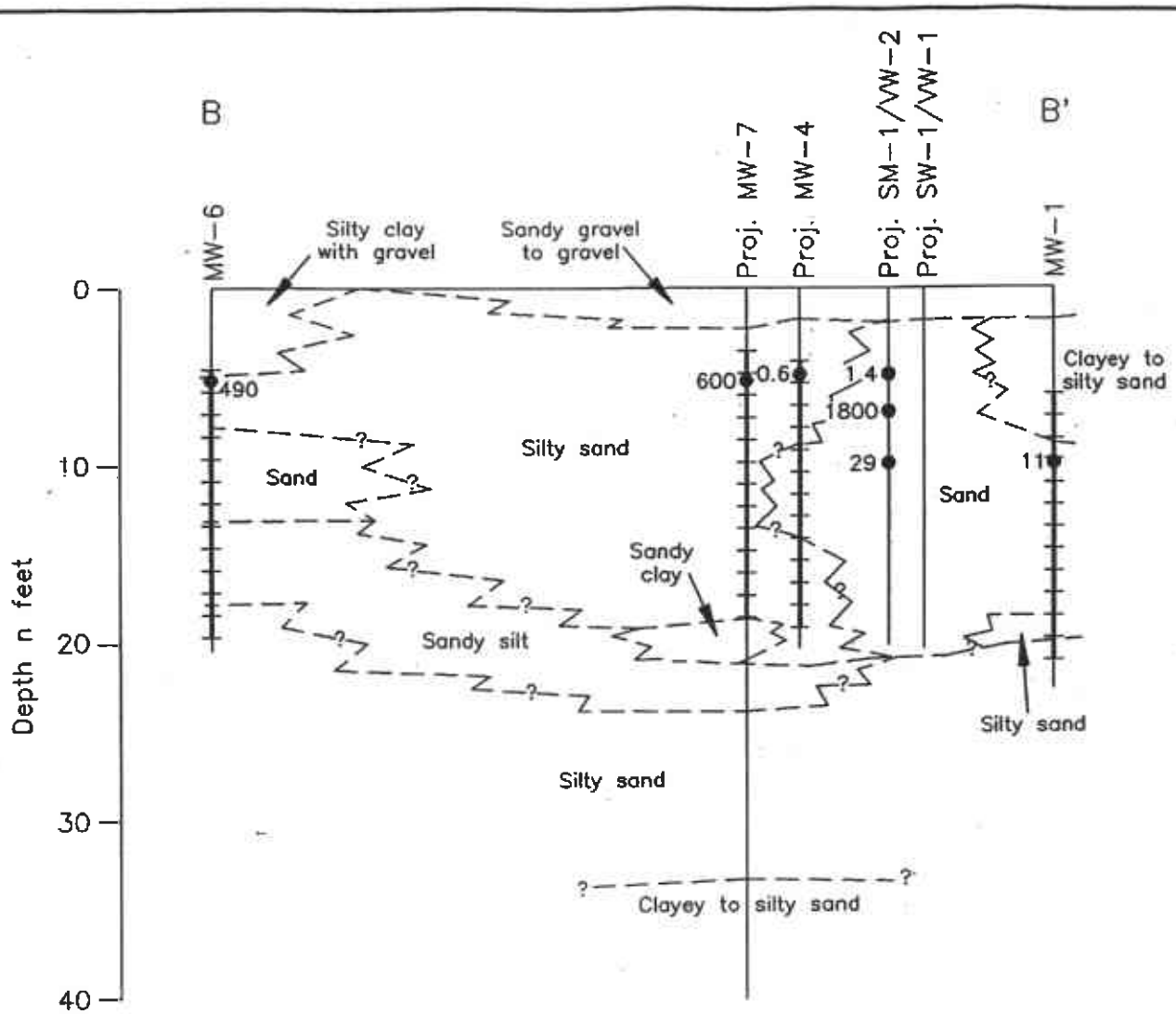
RESNA
Working to Restore Nature

PROJECT 170077.06

GEOLOGIC CROSS SECTION A-A'
Exxon Service Station 7-0104
1725 Park Street
Alameda, California

PLATE 3

17007768



EXPLANATION

1800 = Laboratory analyzed soil sample showing concentration of TPHg in parts per million

= Well casing

= Well screen

= Boring

Approximate Horizontal Scale

20 10 0 20

feet

Approximate Vertical Scale

10 5 0 10

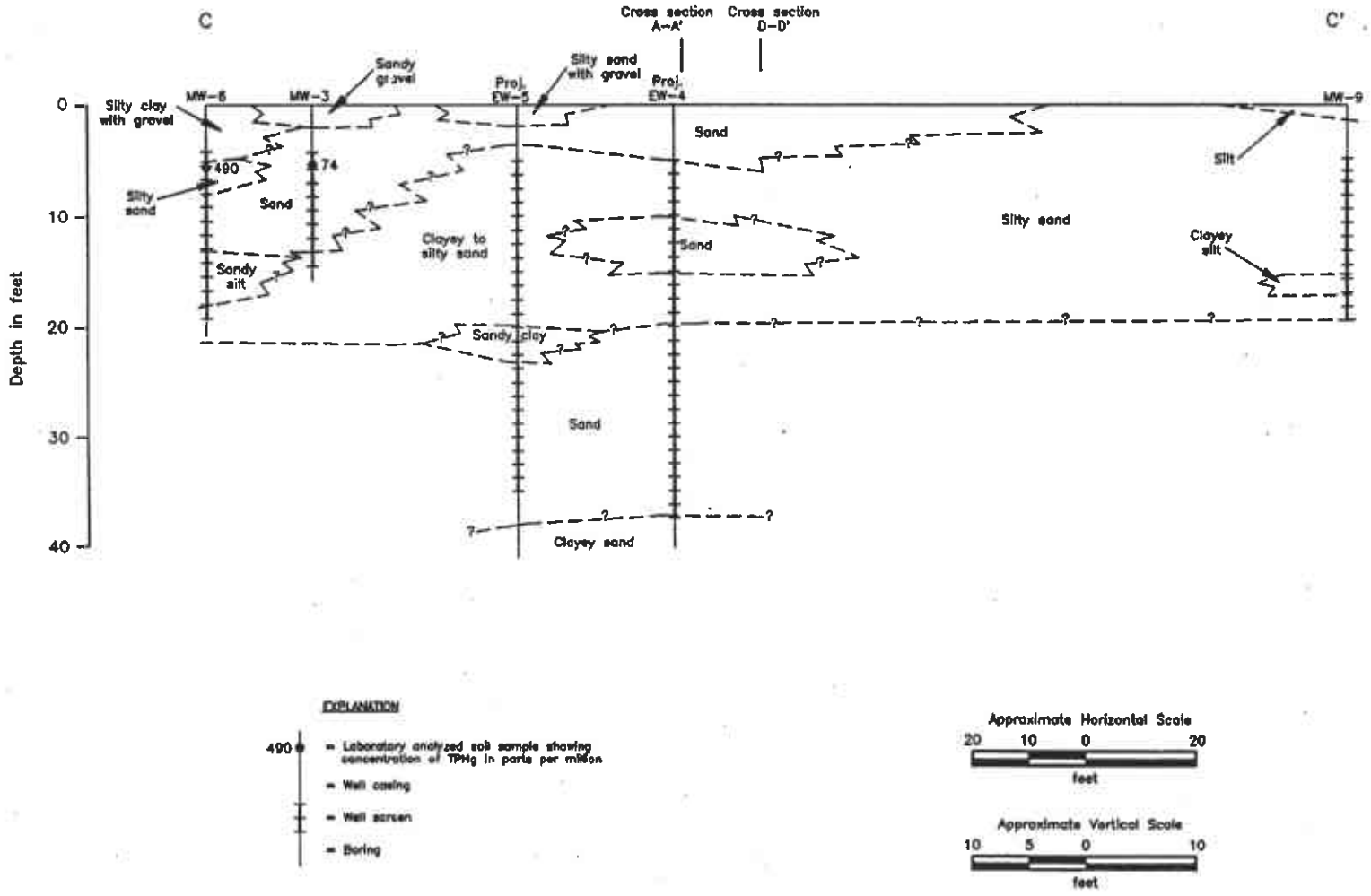
feet

RESNA
Working to Restore Nature

PROJECT 170077.06

GEOLOGIC CROSS SECTION B-B'
Exxon Service Station 7-0104
1725 Park Street
Alameda, California

PLATE 4



EXPLANATION

490 = Laboratory analyzed soil sample showing concentration of TPHg in parts per million

= Well casing

= Well screen

= Boring

Approximate Horizontal Scale

20 10 0 20

feet

Approximate Vertical Scale

10 5 0 10

feet

RESNA
Working to Restore Nature

PROJECT 170077.06

GEOLOGIC CROSS SECTION C-C'
Exxon Service Station 7-0104
1725 Park Street
Alameda, California

PLATE 5

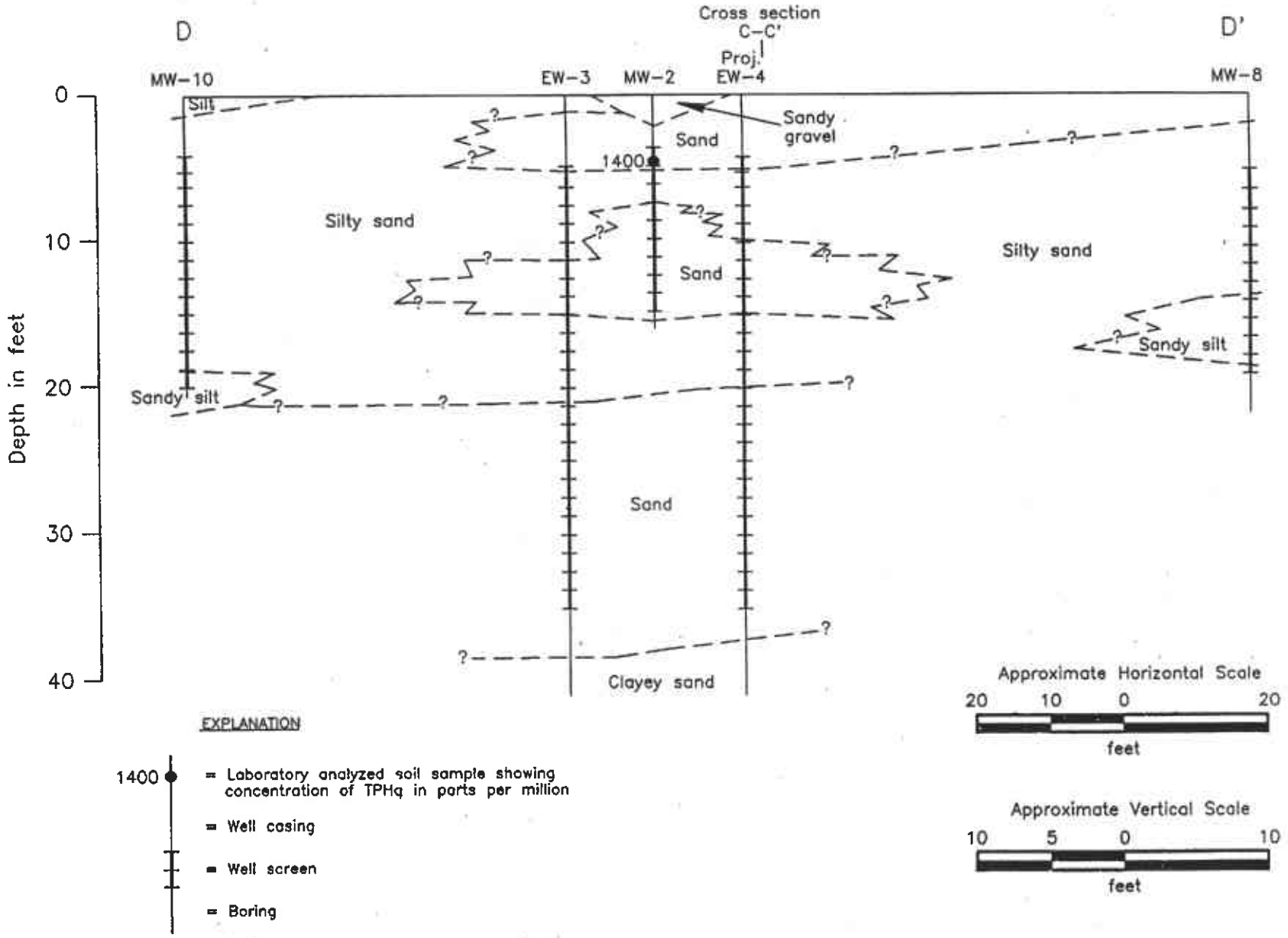


PLATE	GEOLOGIC CROSS SECTION D-D'	RESNA Working to Restore Nature
6	Exxon Service Station 7-0104 1725 Park Street Alameda, California	PROJECT 170077.06

ATTACHMENT C

TPHg CONCENTRATIONS IN SOIL

APPROXIMATE SCALE

0 50 100 Feet

FN 25060002

ERI ENVIRONMENTAL RESOLUTIONS, INC.

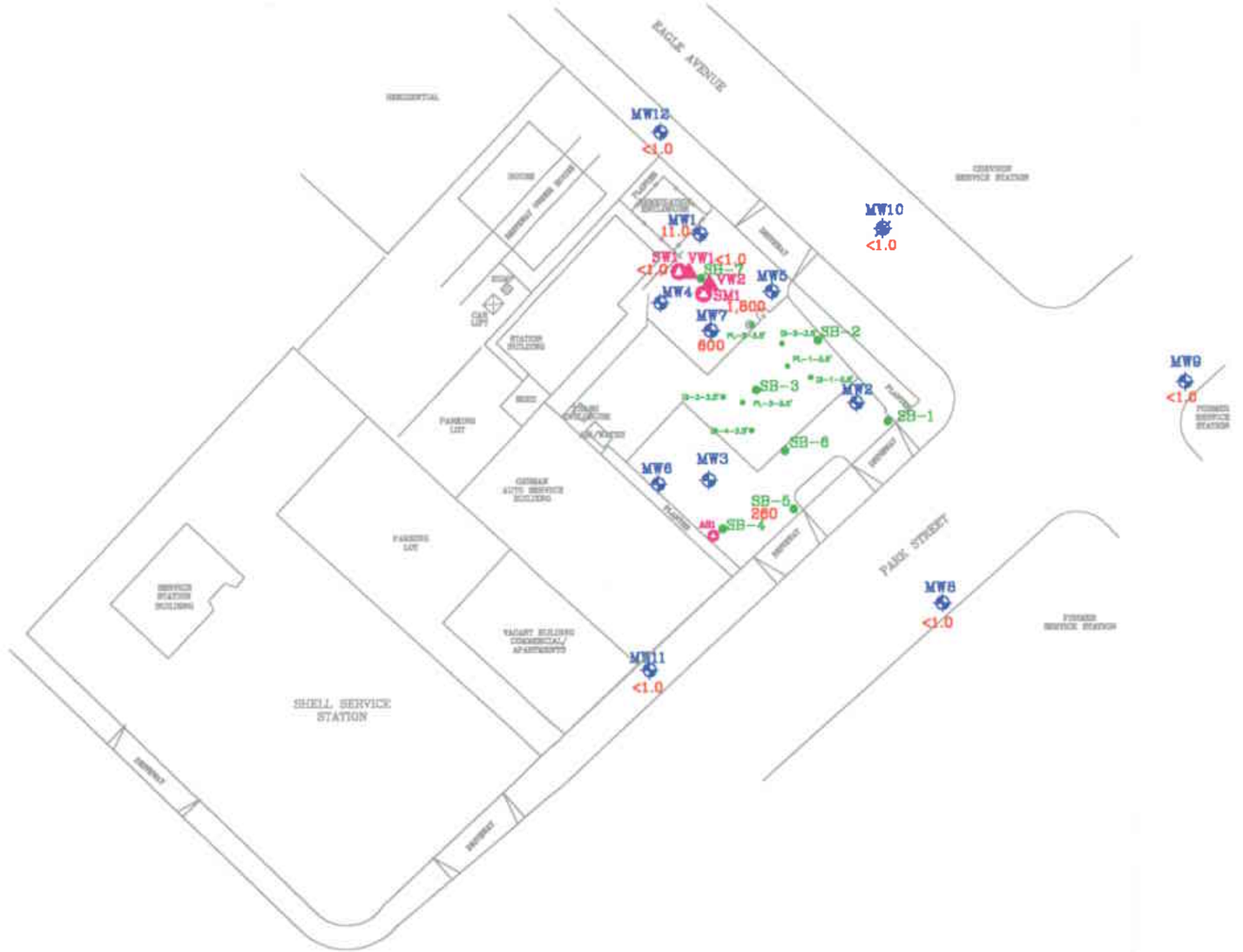
TPHg CONCENTRATIONS IN SOIL
0 TO 5 FEET BELOW GROUND SURFACE
FORMER
EXXON SERVICE STATION 7-0104
1725 Park Street
Alameda, California

EXPLANATION

- MW11 Groundwater Monitoring Well
- EW4 Recovery Well
- MW10 Destroyed Groundwater Monitoring Well
- SB-7 Soil Boring Location
- 2,600 TPHg Concentrations in Soil (mg/Kg)
- VW2 Vapor Extraction Well
- SW1 Air Sparge/Soil Vapor Well

PROJECT NO.
2506

ATTACHMENT
C



APPROXIMATE SCALE

0 50 100 Feet

FN 25060002

ENVIRONMENTAL RESOLUTIONS, INC.

TPHg CONCENTRATIONS IN SOIL
5.5 TO 10 FEET BELOW GROUND SURFACE
FORMER
EXXON SERVICE STATION 7-0104
1725 Park Street
Alameda, California

EXPLANATION

- MW11 — Groundwater Monitoring Well
- EW4 — Recovery Well
- MW10 — Destroyed Groundwater Monitoring Well
- SB-7 — Soil Boring Location
- <1.0 — TPHg Concentrations in soil (mg/Kg)
- VW2 — Vapor Extraction Well
- SW1 — Air Sparge/Soil Vapor Well

PROJECT NO. 2506

ATTACHMENT C

APPROXIMATE SCALE

0 50 100 Feet

FN 25060002

ENVIRONMENTAL RESOLUTIONS, INC.

TPHg CONCENTRATIONS IN SOIL
10.5 TO 15 FEET BELOW GROUND SURFACE
FORMER
EXXON SERVICE STATION 7-0104
1725 Park Street
Alameda, California

EXPLANATION

- MW11 Groundwater Monitoring Well
- 2.0 TPHg Concentrations in soil (mg/Kg)
- EW4 Recovery Well
- MW10 Destroyed Groundwater Monitoring Well
- SB-7 Soil Boring Location
- VW2 Vapor Extraction Well
- SW1 Air Sparge/Soil Vapor Well

PROJECT NO. 2506

ATTACHMENT C

APPROXIMATE SCALE

0 50 100 Feet

FN 25060002

ENVIRONMENTAL RESOLUTIONS, INC.

TPHg CONCENTRATIONS IN SOIL
15.5 to 20 FEET BELOW GROUND SURFACE
FORMER
EXXON SERVICE STATION 7-0104
1725 Park Street
Alameda, California

EXPLANATION

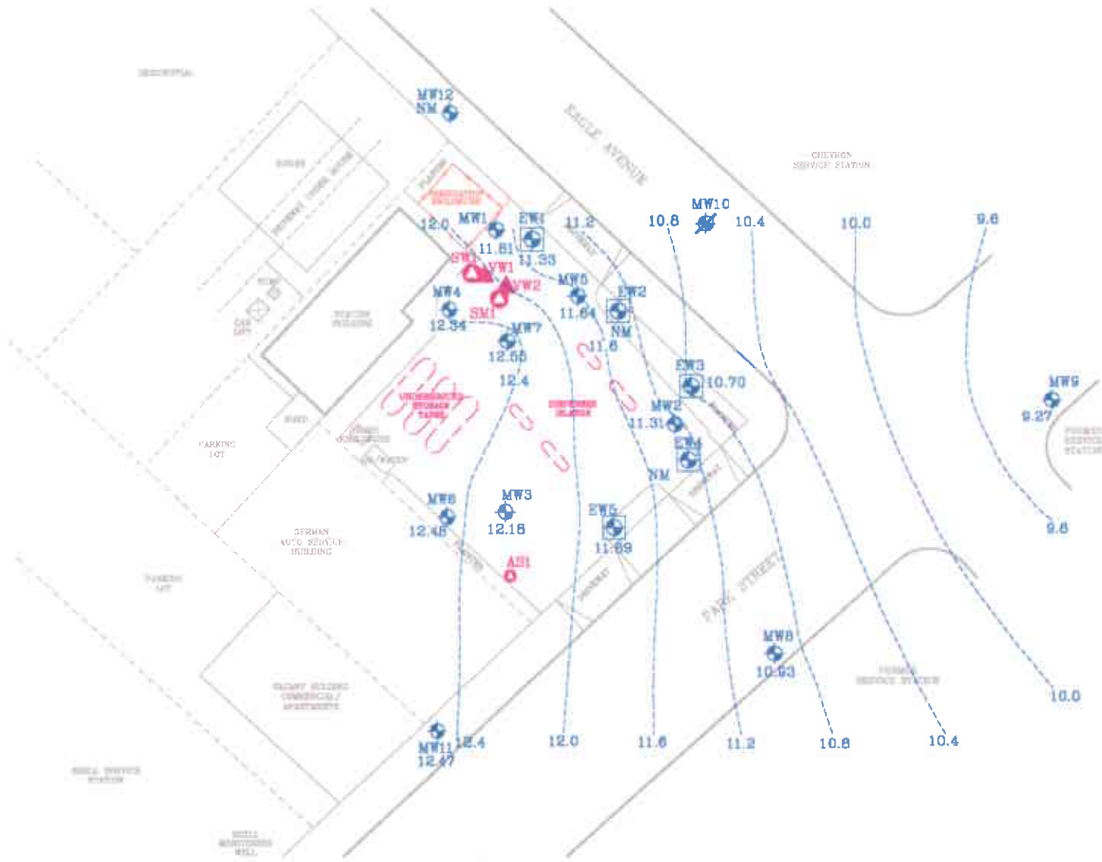
- MW11 Groundwater Monitoring Well
- EW4 Recovery Well
- MW10 Destroyed Groundwater Monitoring Well
- SB-7 Soil Boring Location
- VW2 Vapor Extraction Well
- SW1 Air Sparge/Soil Vapor Well
- <1.0 TPHg Concentrations in soil (mg/Kg)

PROJECT NO.
2506

ATTACHMENT
C

ATTACHMENT D

GROUNDWATER ELEVATION AND ISOCONCENTRATION MAPS



APPROXIMATE SCALE

0 50 100 Feet

FN 2506002A

SOURCE: Modified from a map provided by Delta Environmental Consultants

ENVIRONMENTAL RESOLUTIONS, INC.

GROUNDWATER ELEVATION MAP
May 6, 2002
FORMER
EXXON SERVICE STATION 7-0104
1725 Park Street
Alameda, California

EXPLANATION

- MW9 / 9.27 — Groundwater Monitoring Well; Groundwater elevation in feet; datum is mean sea level
- MW10 — Destroyed Groundwater Monitoring Well
- VW2 — Vapor Extraction Well
- EW5 — Recovery Well
- AS1 — Air Sparge
- NM — Not Measured
- 12.4 ---- Line of Equal Groundwater Elevation; datum is mean sea level

PROJECT NO. 2506

ATTACHMENT D

APPROXIMATE SCALE

0 50 100 Feet

FN 2506002A

SOURCE: Modified from a map provided by Delta Environmental Consultants

ENVIRONMENTAL RESOLUTIONS, INC.

TPHd ISOCONCENTRATION MAP
May 6, 2002
FORMER
EXXON SERVICE STATION 7-0104
1725 Park Street
Alameda, California

EXPLANATION

- MW1 — Groundwater Monitoring Well
- <50 — TPHd concentration (ug/L)
- MW10 — Destroyed Groundwater Monitoring Well
- VW2 — Vapor Extraction Well
- EW5 — Recovery Well
- AS1 — Air Sparge
- NM — Not Sampled
- 1,000---- — Line of Equal TPHd Concentration (ug/L)

PROJECT NO.
2506

ATTACHMENT
D

APPROXIMATE SCALE

0 50 100 Feet

FN 2506002A

SOURCE: Modified from a map provided by Delta Environmental Consultants

ENVIRONMENTAL RESOLUTIONS, INC.

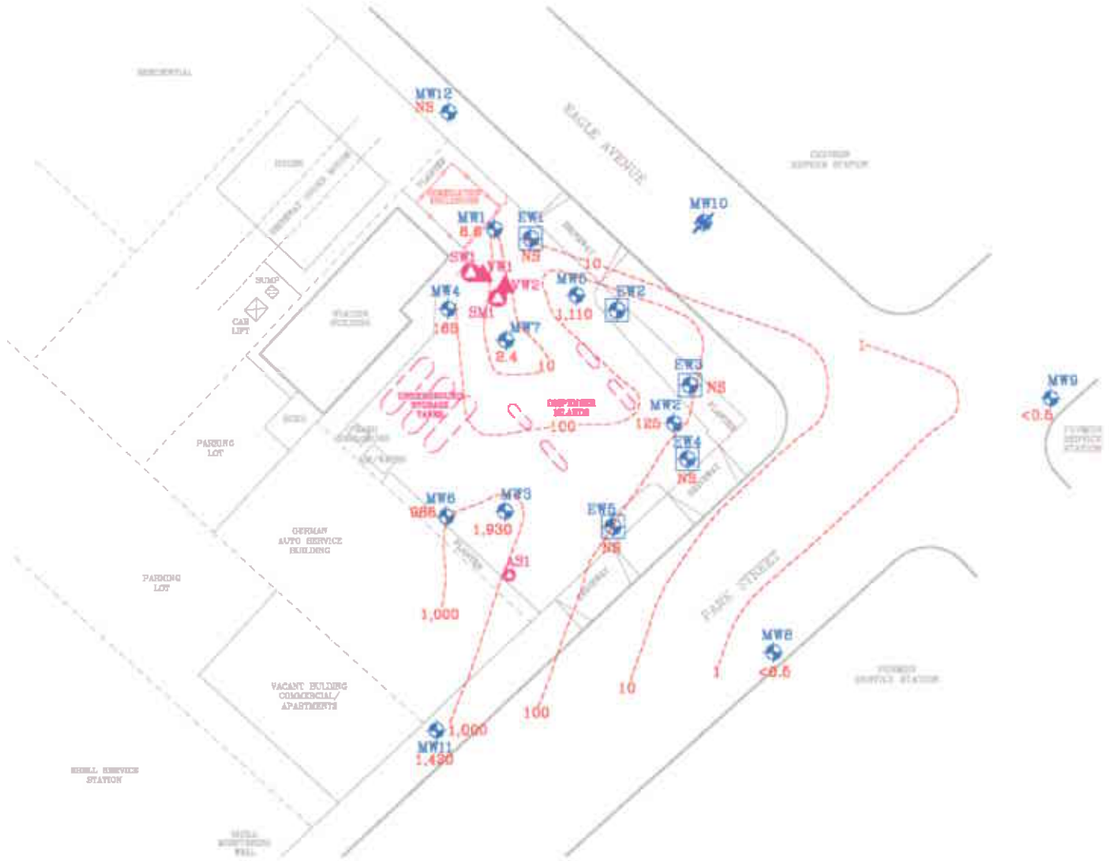
THPg ISOCONCENTRATION MAP
May 6, 2002
FORMER
EXXON SERVICE STATION 7-0104
1725 Park Street
Alameda, California

EXPLANATION

- Groundwater Monitoring Well
- <50.0 TPHg concentration (ug/L)
- Destroyed Groundwater Monitoring Well
- Vapor Extraction Well
- Recovery Well
- Air Sparge
- NS Not Sampled
- 10,000---- Line of Equal TPHg Concentration (ug/L)

PROJECT NO. 2506

ATTACHMENT D



APPROXIMATE SCALE

0 50 100 Feet

FN 2506002A

SOURCE: Modified from a map provided by Delta Environmental Consultants

ERI ENVIRONMENTAL RESOLUTIONS, INC.

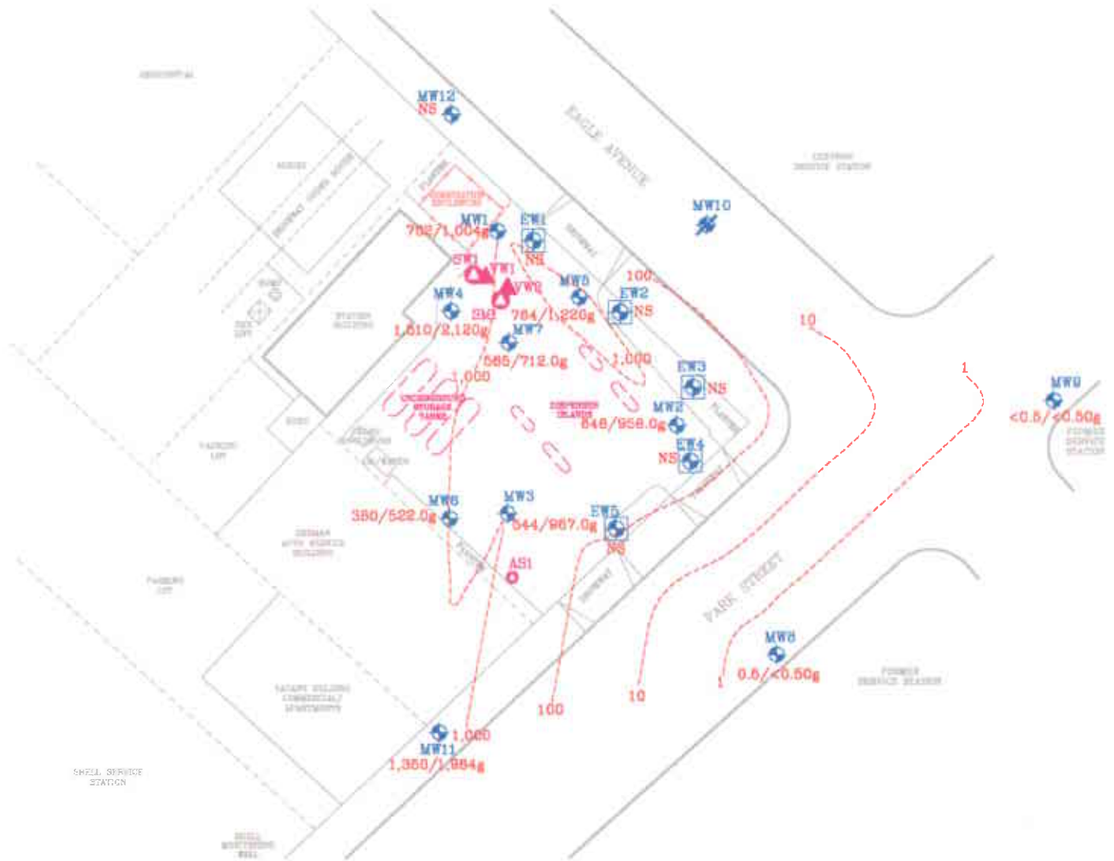
BENZENE ISOCONCENTRATION MAP
May 6, 2002
FORMER
EXXON SERVICE STATION 7-0104
1725 Park Street
Alameda, California

EXPLANATION

- MW Groundwater Monitoring Well
- <0.5 Benzene concentration (ug/L)
- MW10 Destroyed Groundwater Monitoring Well
- VW2 Vapor Extraction Well
- EW3 Recovery Well
- AS1 Air Sparge
- NS Not Sampled
- 1,000----Line of Equal Benzene Concentration (ug/L)

PROJECT NO. 2506

ATTACHMENT D



APPROXIMATE SCALE

0 50 100 Feet

FN 2506002A

SOURCE: Modified from a map provided by Delta Environmental Consultants

ERI ENVIRONMENTAL RESOLUTIONS, INC.

MTBE ISOCONCENTRATION MAP
May 6, 2002
FORMER
EXXON SERVICE STATION 7-0104
1725 Park Street
Alameda, California

EXPLANATION

- MW10 — Groundwater Monitoring Well
- <0.5/<0.50g — MTBE concentration (ug/L)
- MW10 — Destroyed Groundwater Monitoring Well
- VW2 — Vapor Extraction Well
- EW5 — Recovery Well
- A51 — Air Sparge
- g — MTBE analyzed using EPA Method 8260B.
- NS — Not Sampled
- 1,000 --- — Line of Equal Concentration (ug/L)

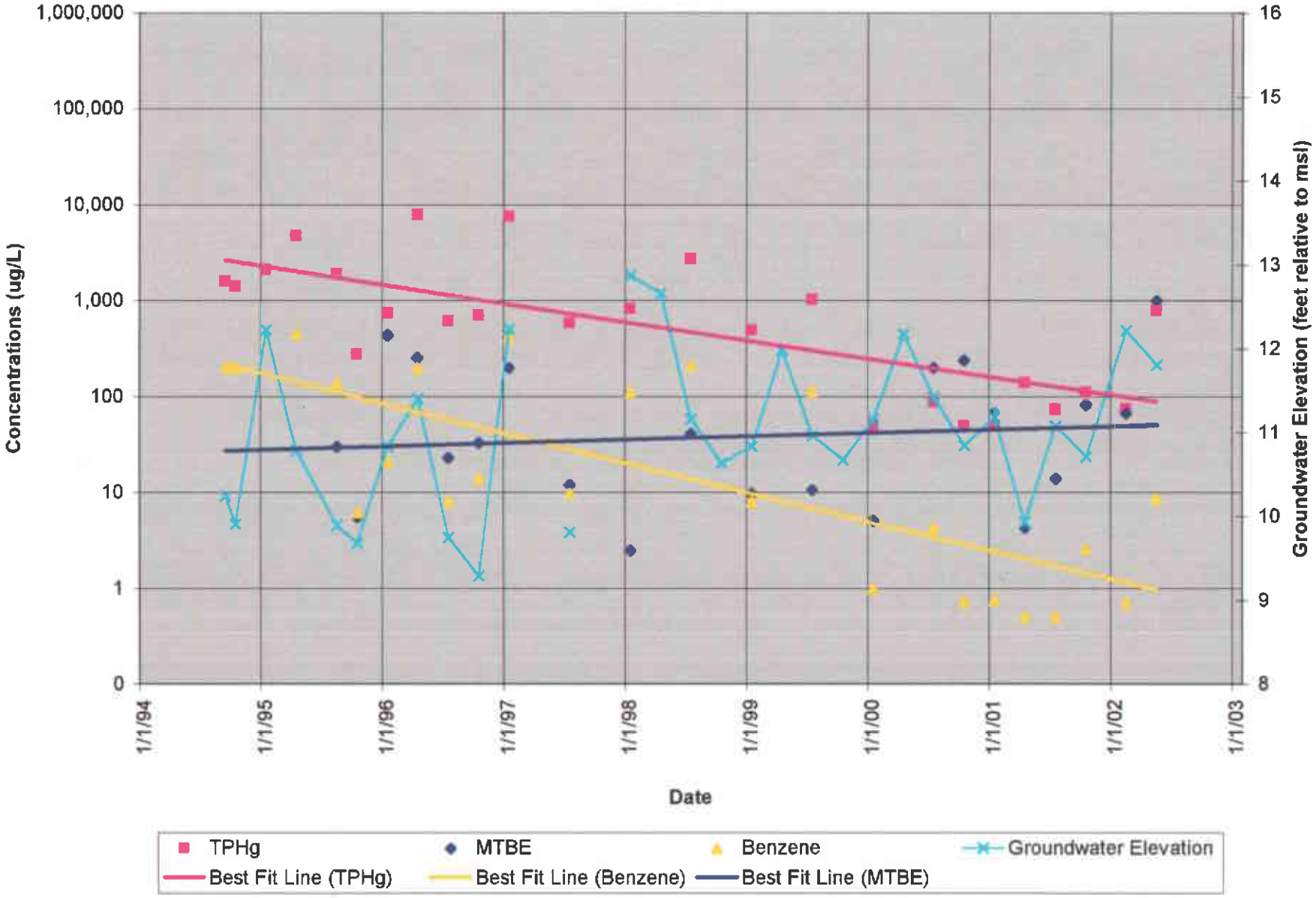
PROJECT NO. 2506

ATTACHMENT D

ATTACHMENT E

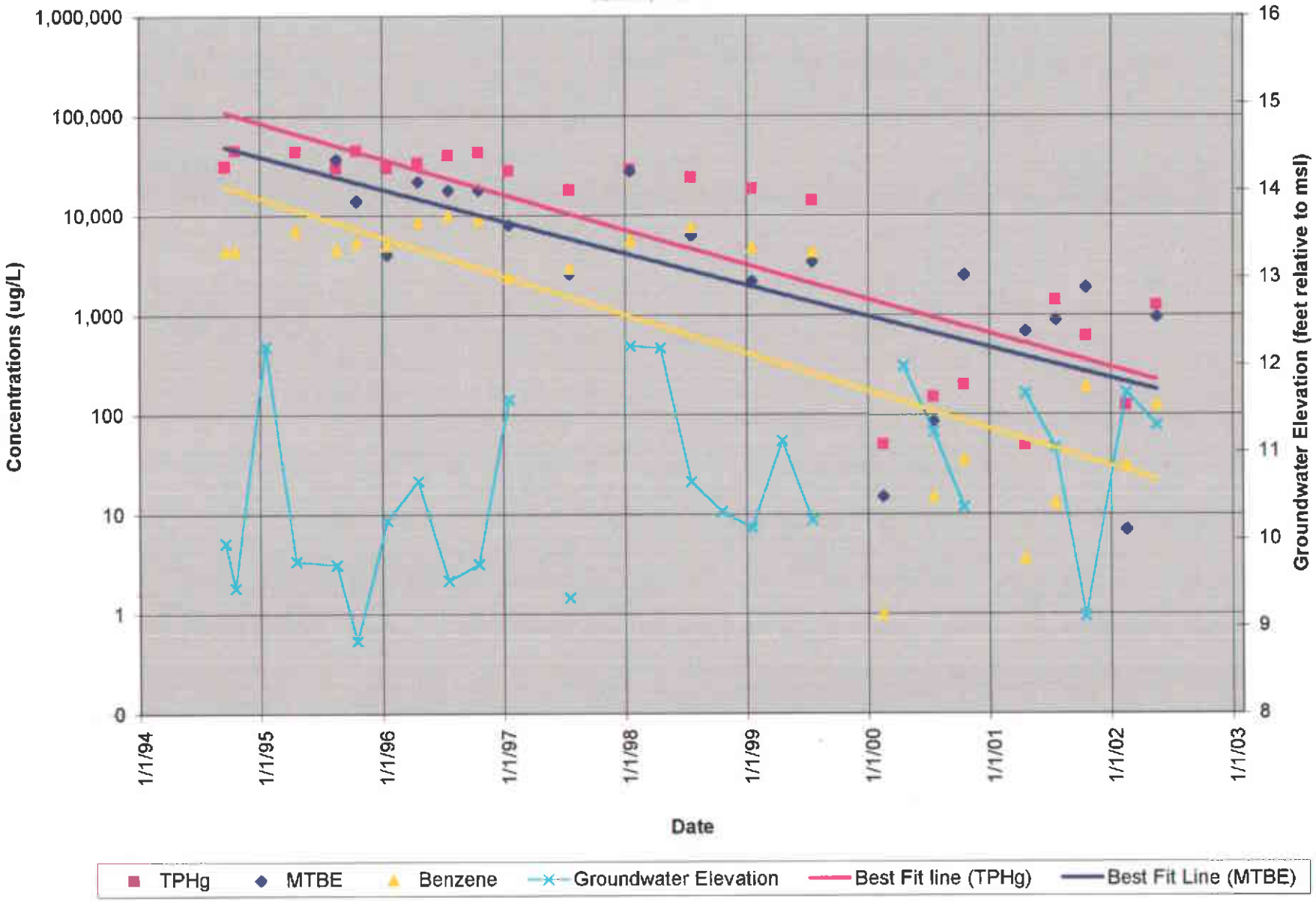
HYDROGRAPHS

MW1
Concentrations vs. Time
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California



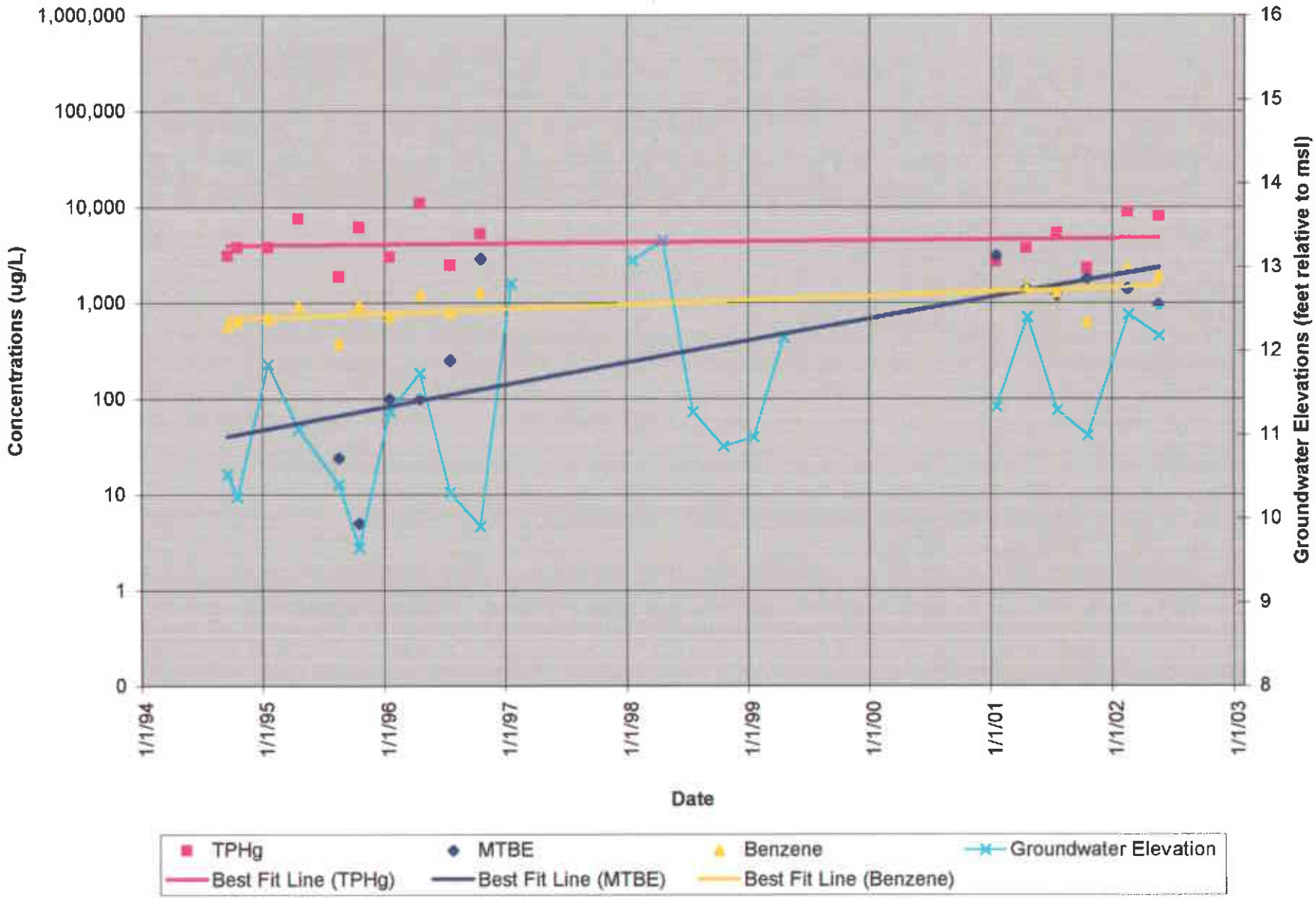
Note: Analytes reported as less than the laboratory reporting limit are plotted at the reporting limit.
Reporting Limit:
TPHg = <50 ug/L
MTBE = <2 ug/L
Benzene = <0.5 ug/L

MW2
Concentrations vs. Time
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California



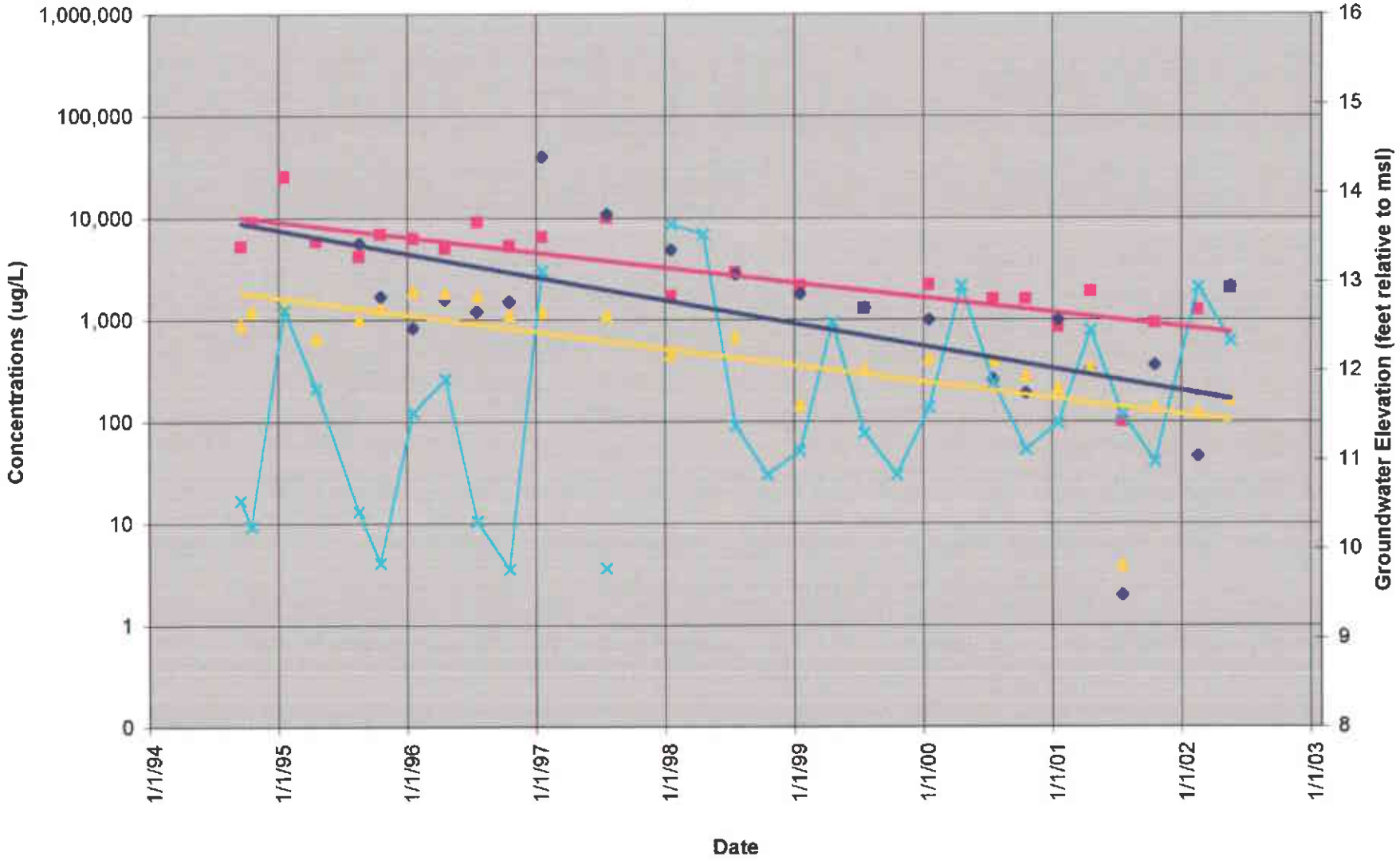
Note: Analytes reported as less than the laboratory reporting limit are plotted at the reporting limit
Reporting Limit:
TPHg = <50 ug/L
MTBE = <2 ug/L
Benzene = <0.5 ug/L

MW3
Concentrations vs. Time
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California



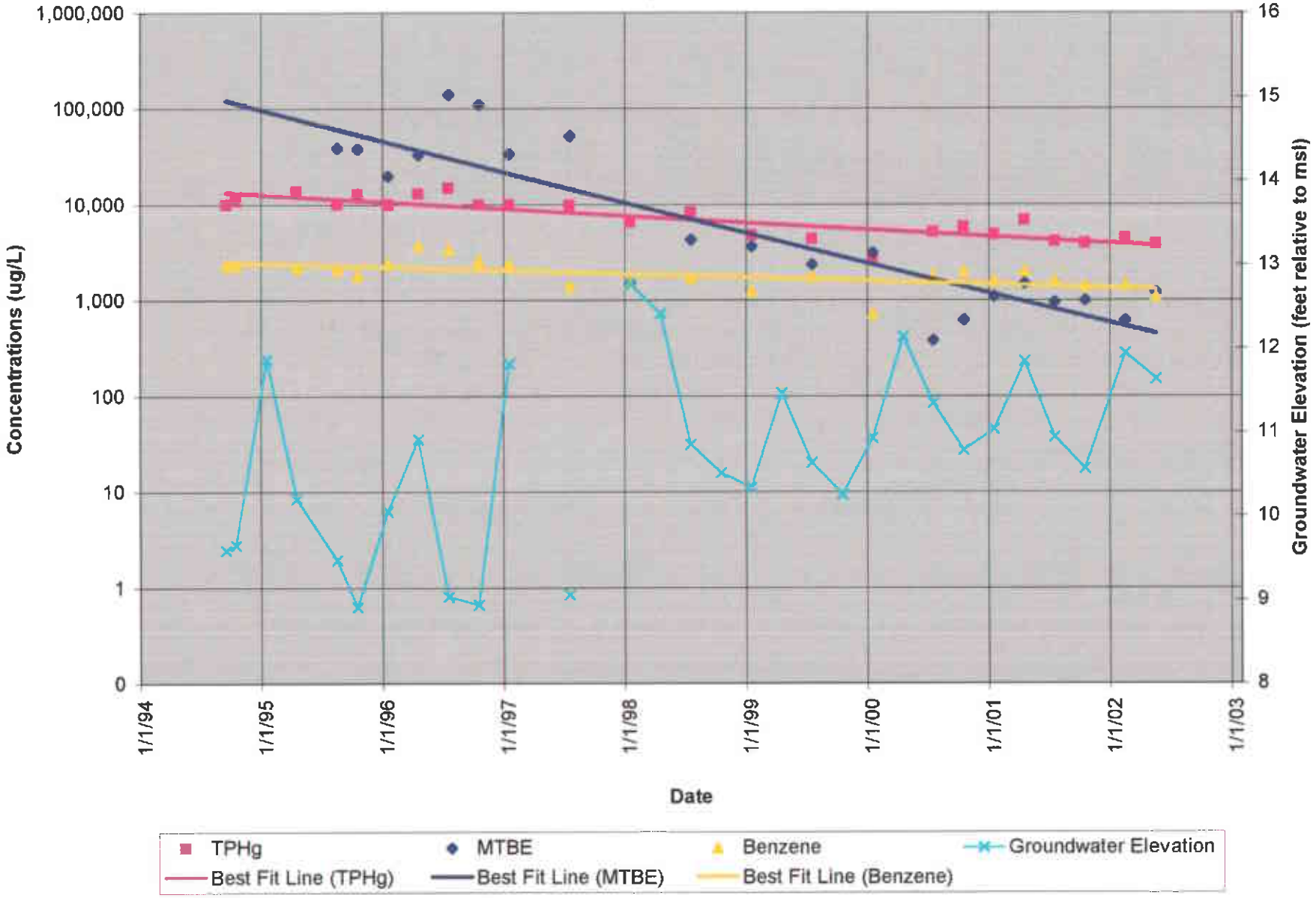
Note: Analytes reported as less that the laboratory reporting limit are plotted at the reporting limit.
Reporting Limit:
TPHg = <50 ug/L
MTBE = <2 ug/L
Benzene = <0.5 ug/L

MW4
Concentrations vs. Time
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California



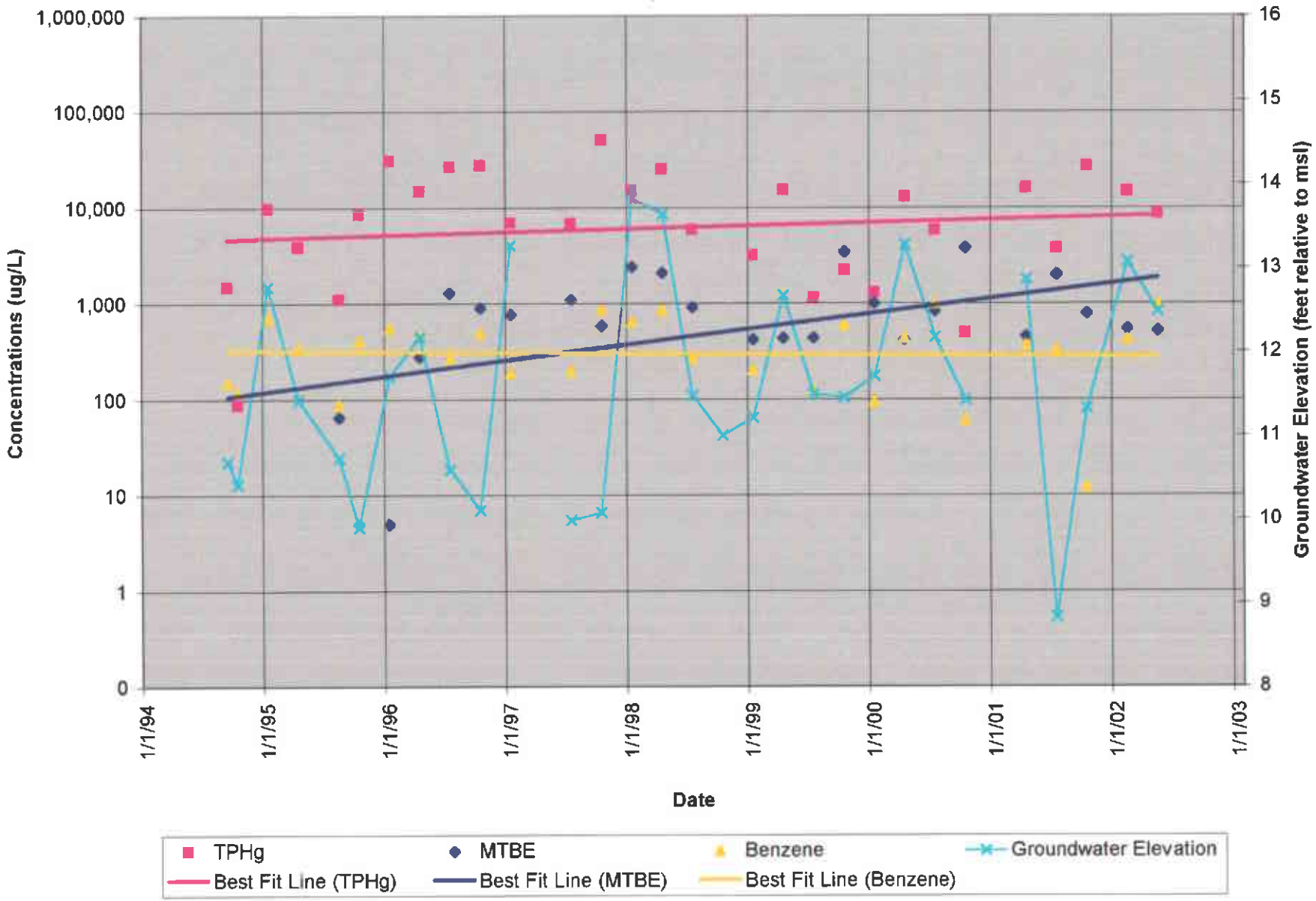
Note: Analytes reported as less than the laboratory reporting limit are plotted at the reporting limit.
Reporting Limit:
TPHg = <50 ug/L
MTBE = <2 ug/L
Benzene = <0.5 ug/L

MW5
Concentration vs. Time
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California



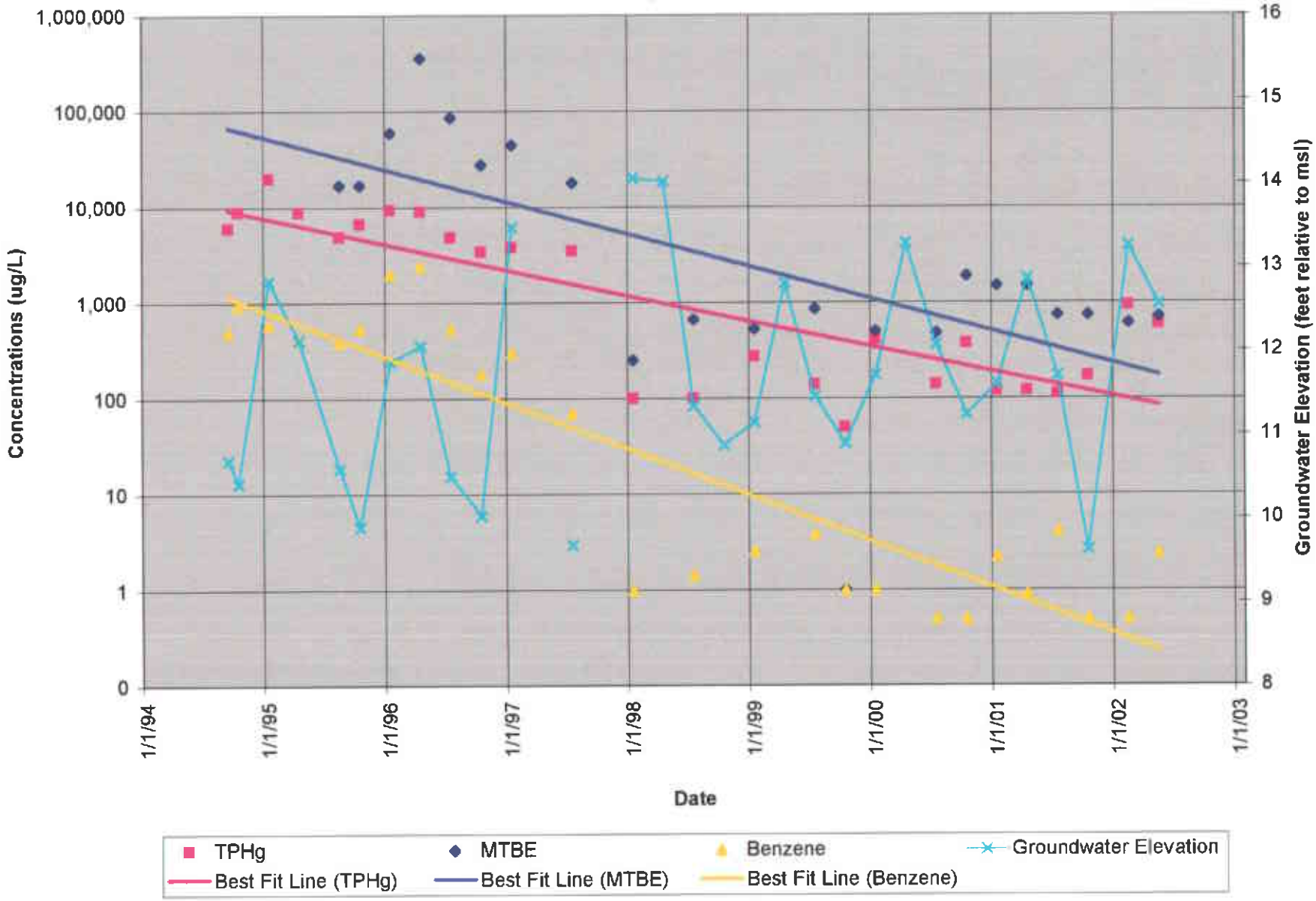
Note: Analytes reported as less than the laboratory reporting limit are plotted at the reporting limit.
Reporting Limit:
TPHg = <50 ug/L
MTBE = <2 ug/L
Benzene = <0.5 ug/L

MW6
Concentrations vs. Time
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California



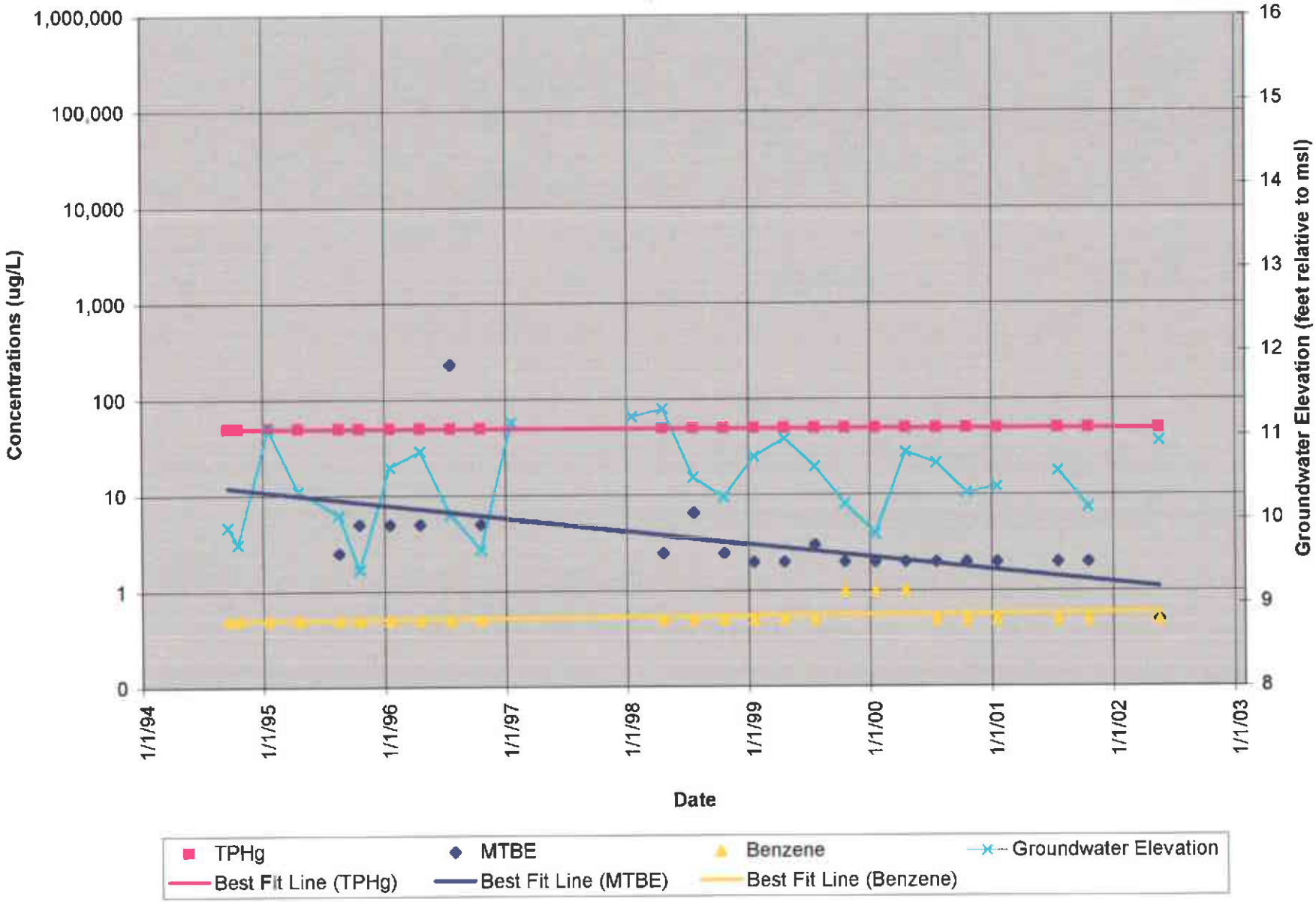
Note: Analytes reported as less than the laboratory reporting limit are plotted at the reporting limit.
Reporting Limit:
TPHg = <50 ug/L
MTBE = <2 ug/L
Benzene = <0.5 ug/L

MW7
Concentrations vs. Time
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California



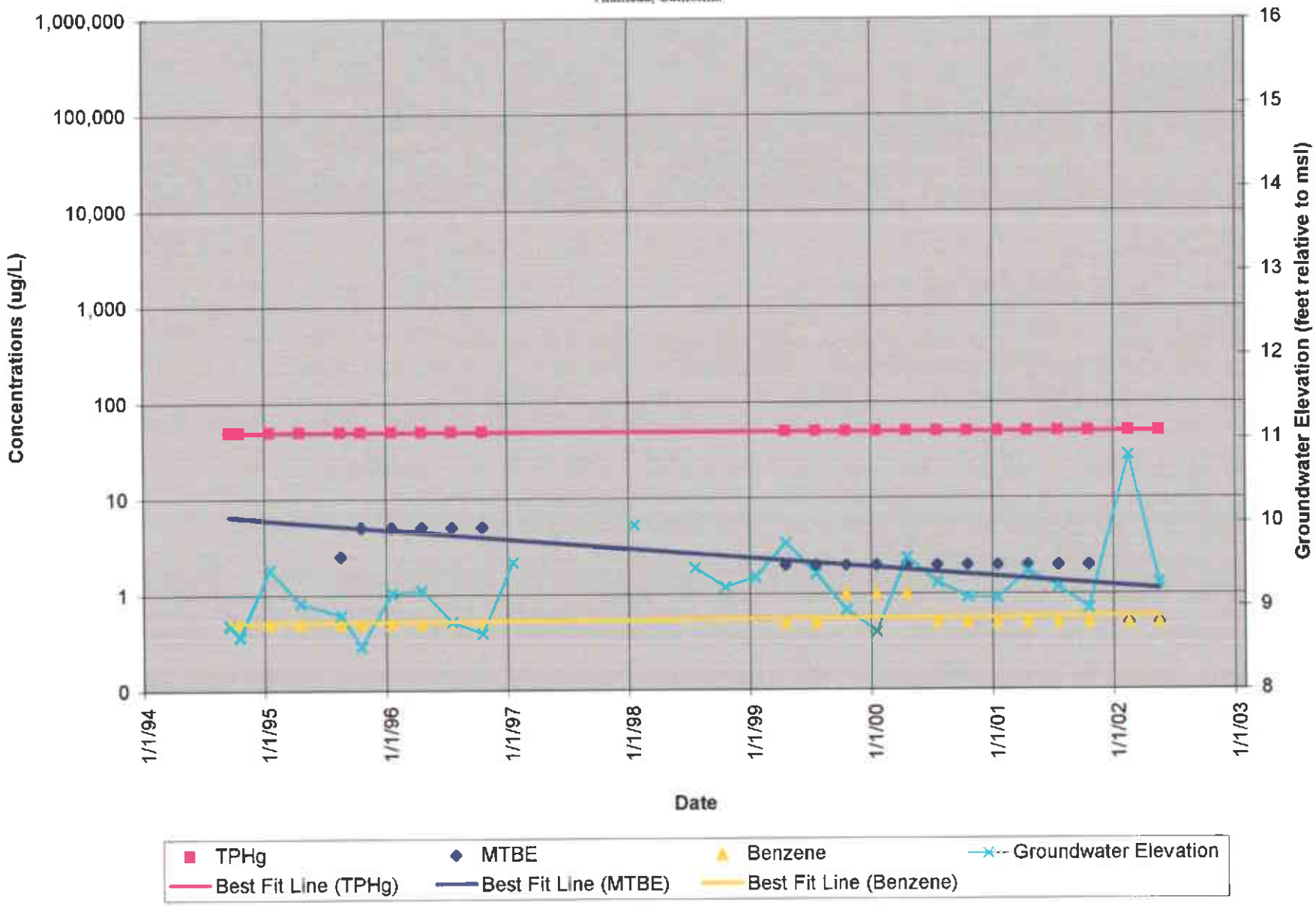
Note: Analytes reported as less than the laboratory reporting limit are plotted at the reporting limit.
Reporting Limit:
TPHg = <50 ug/L
MTBE = <2 ug/L
Benzene = <0.5 ug/L

MW8
Concentrations vs. Time
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California



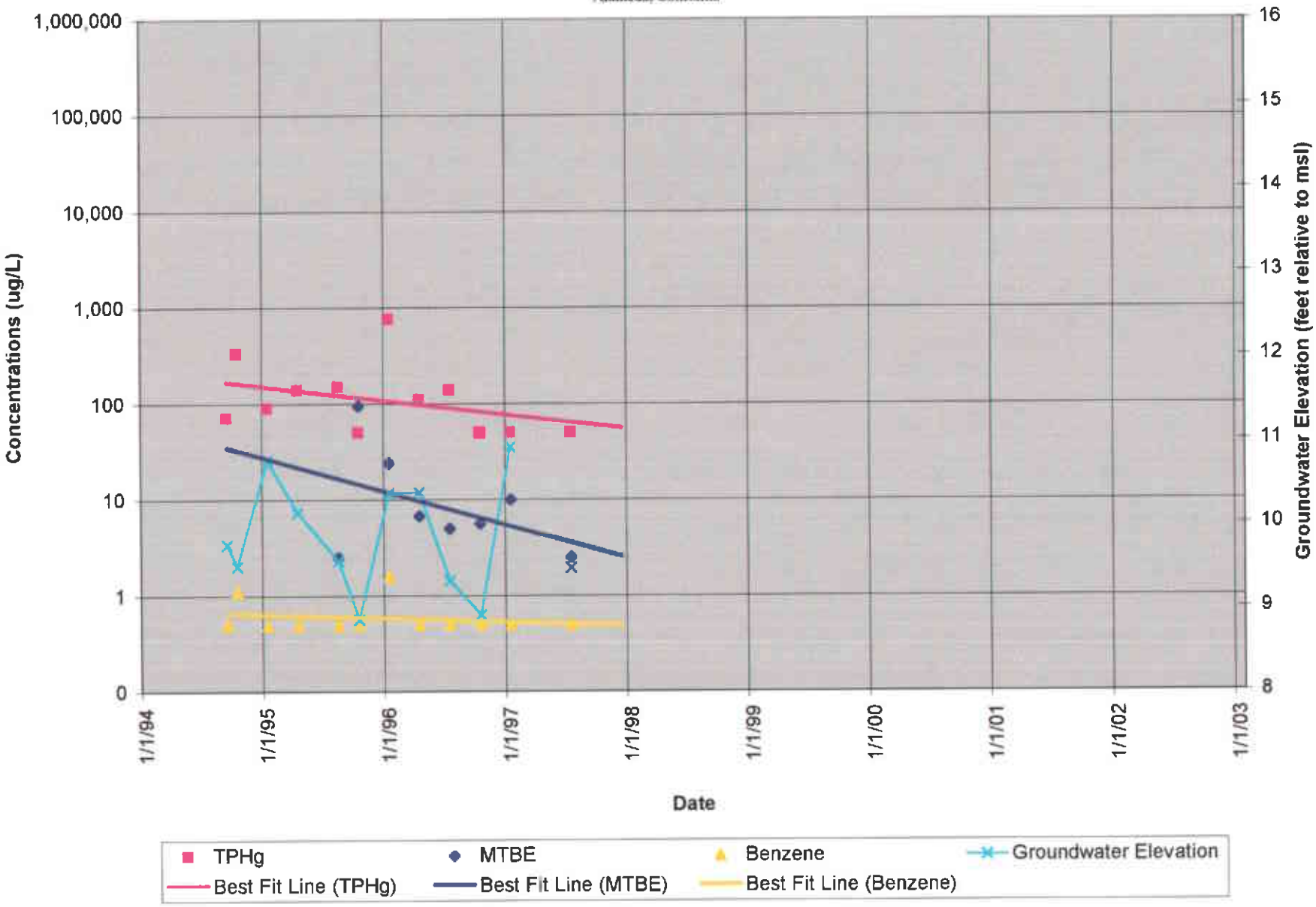
Note: Analytes reported as less than the laboratory reporting limit are plotted at the reporting limit.
Reporting Limit:
TPHg = <50 ug/L
MTBE = <2 ug/L
Benzene = <0.5 ug/L

MW9
Concentrations vs. Time
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California



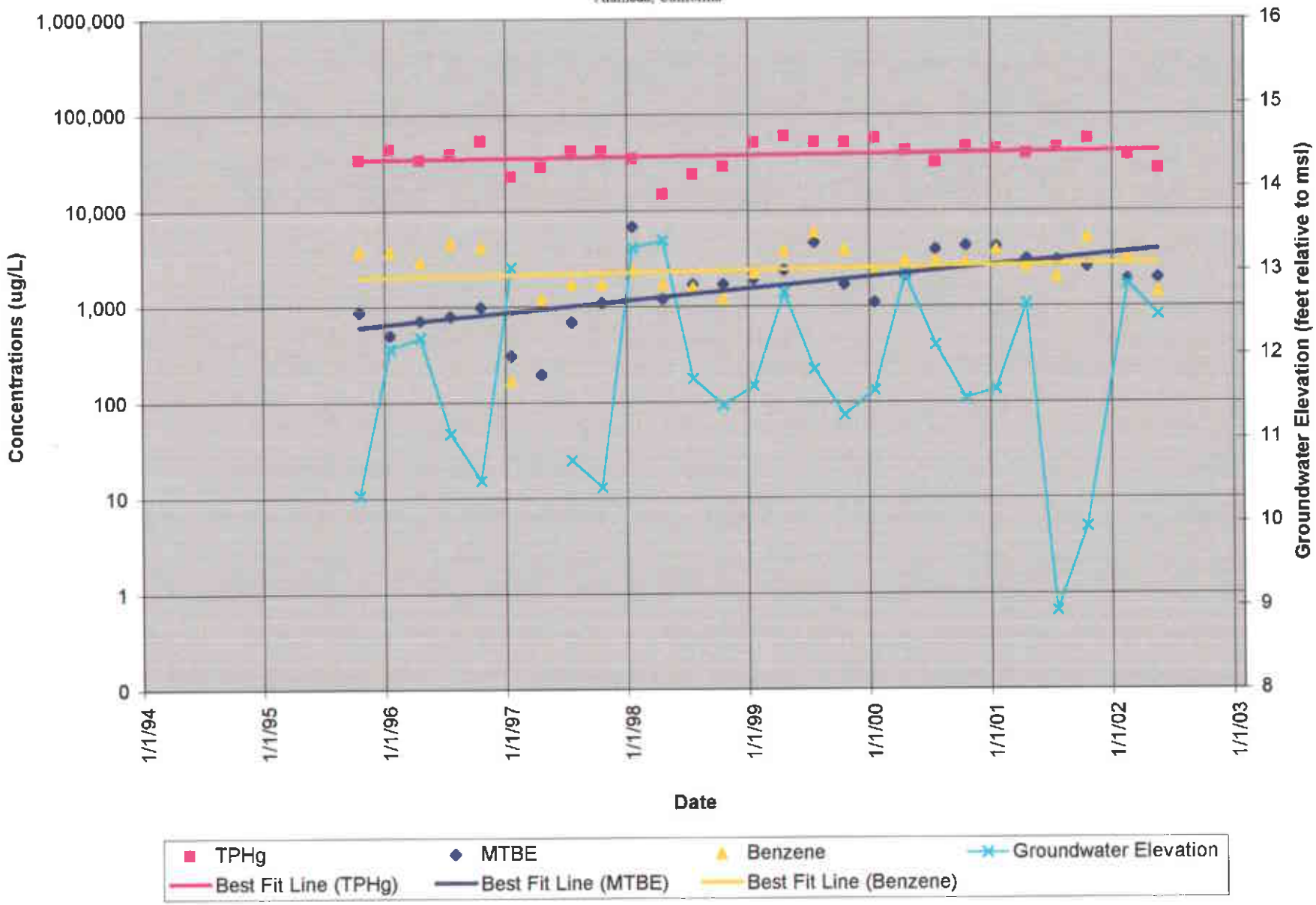
Note: Analytes reported as less than the laboratory reporting limit are plotted at the reporting limit.
Reporting Limit:
TPHg = <50 ug/L
MTBE = <2 ug/L
Benzene = <0.5 ug/L

MW10
Concentrations vs. Time
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California



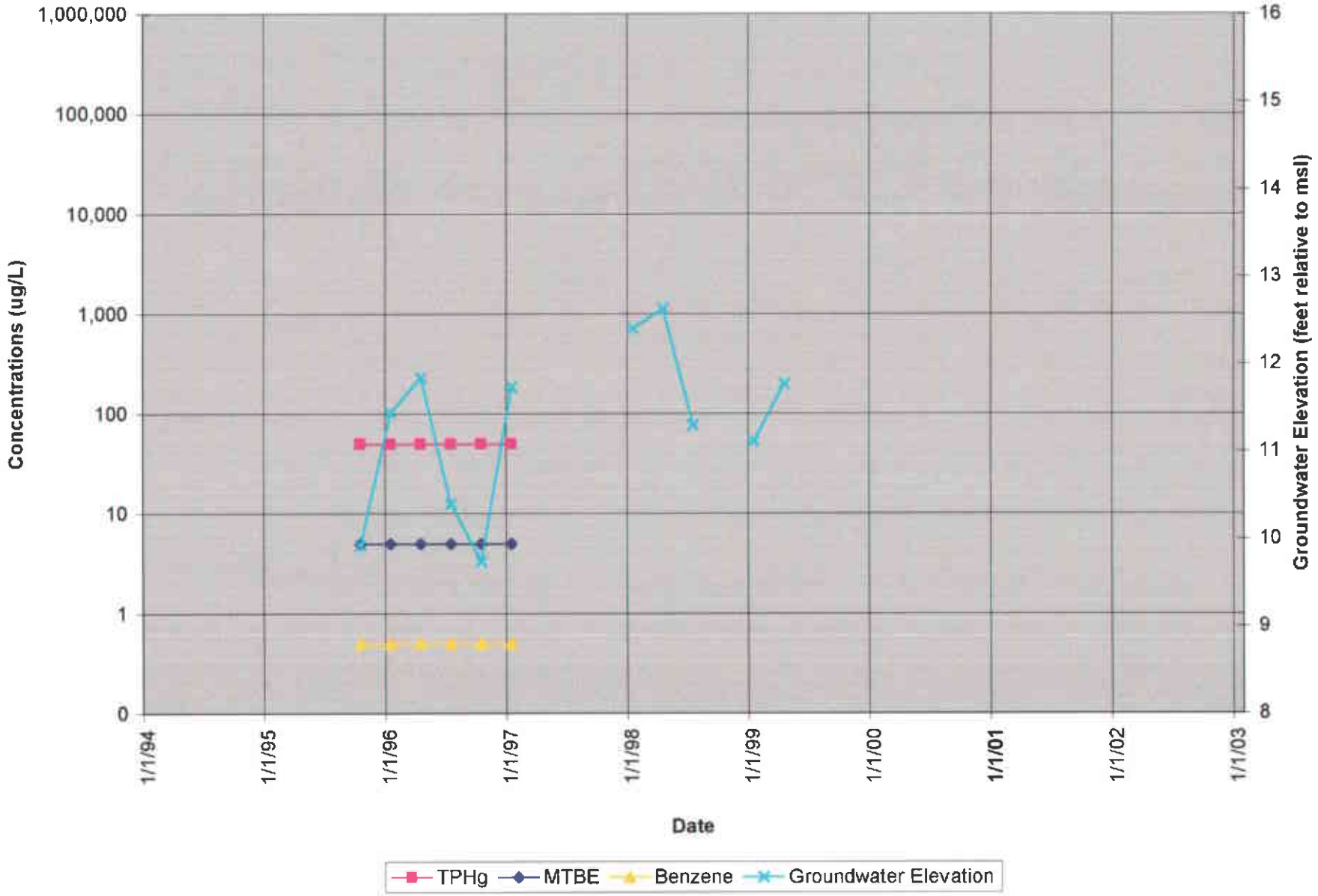
Note: Analytes reported as less than the laboratory reporting limit are plotted at the reporting limit.
Reporting Limit:
TPHg = <50 ug/L
MTBE = <2 ug/L
Benzene = <0.5 ug/L

MW11
Concentrations vs. Time
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California



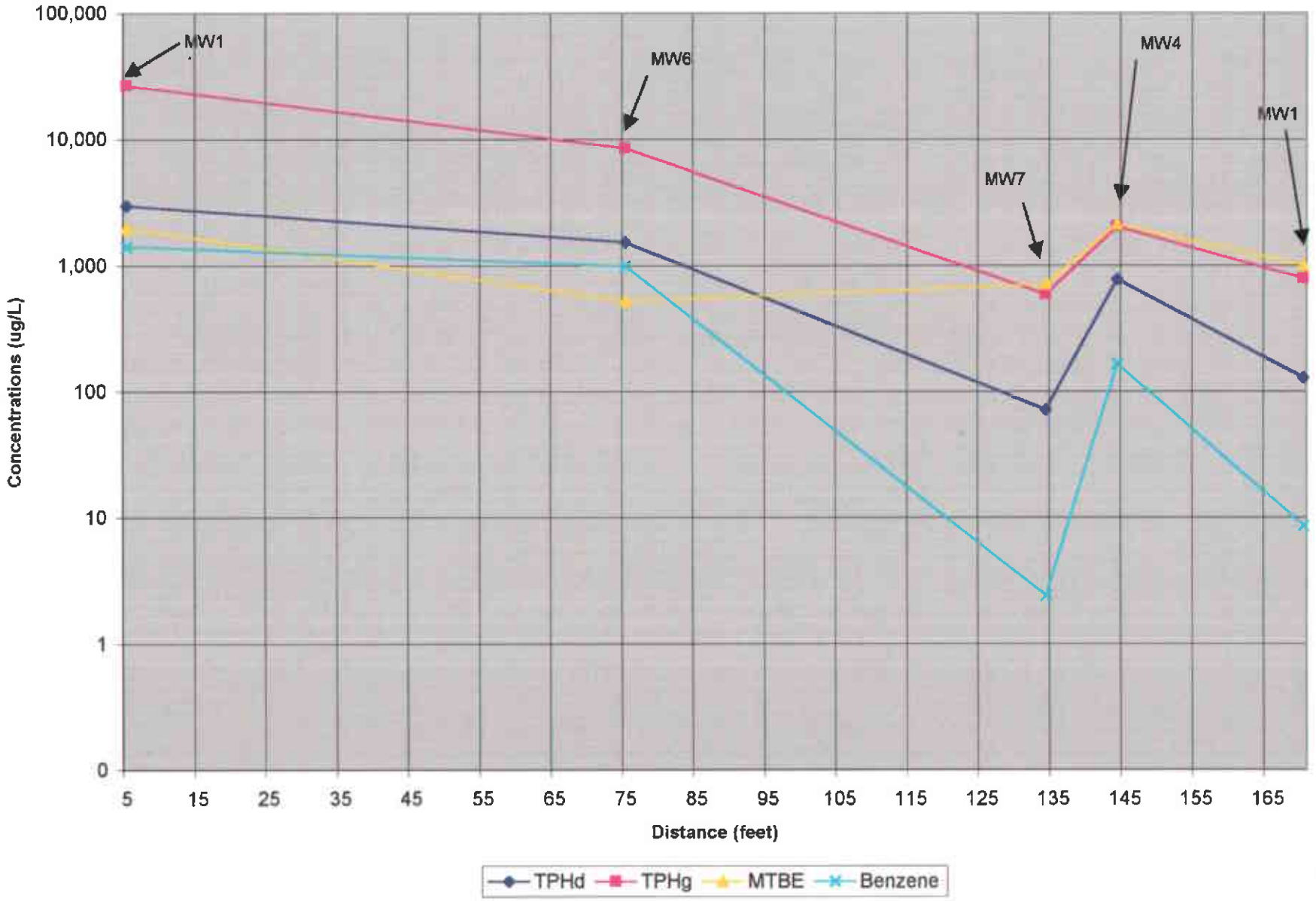
Note: Analytes reported as less than the laboratory reporting limit are plotted at the reporting limit.
Reporting Limit:
TPHg = <50 ug/L
MTBE = <2 ug/L
Benzene = <0.5 ug/L

MW12
Concentrations vs. Time
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California

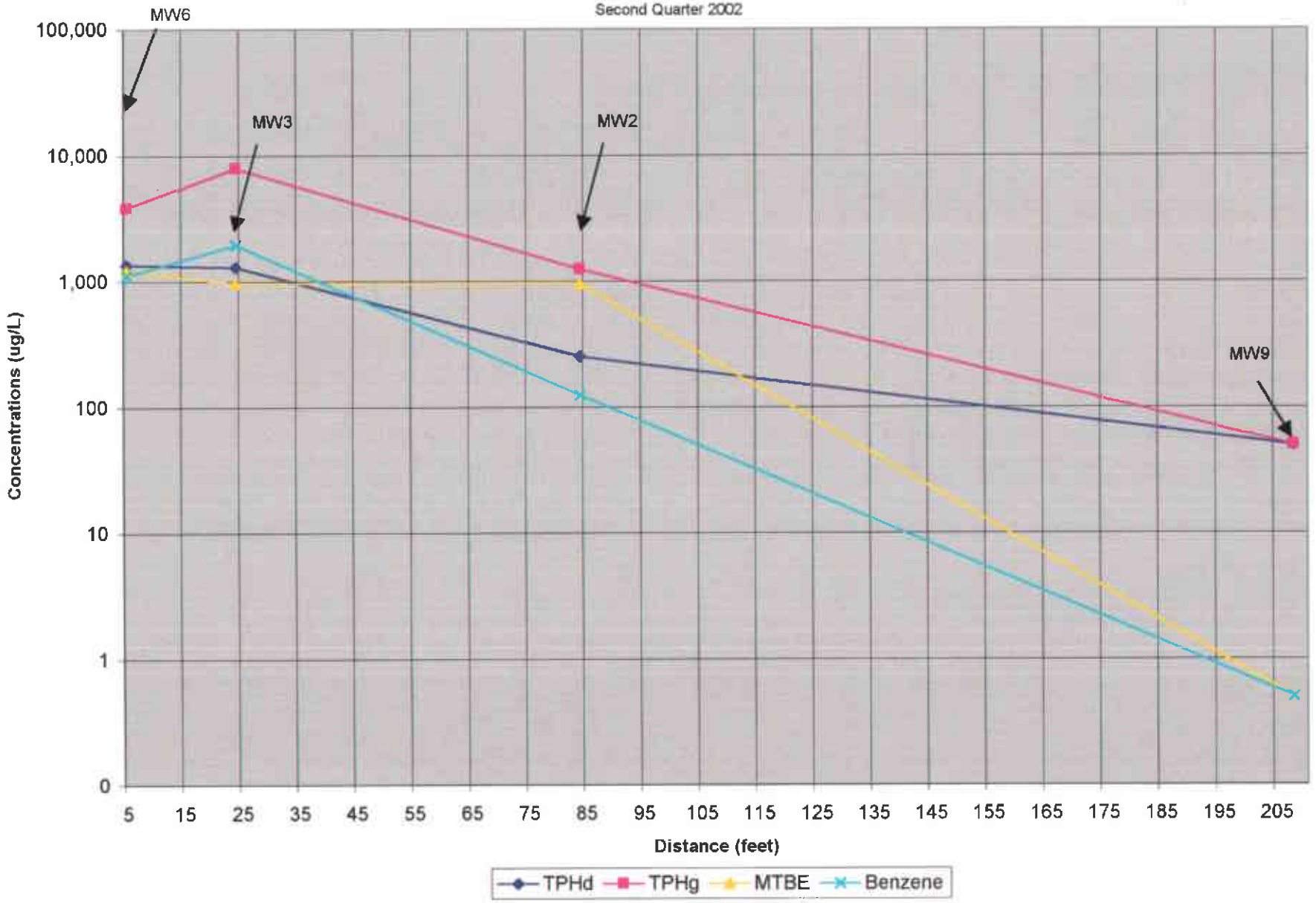


Note: Analytes reported as less than the laboratory reporting limit are plotted at the reporting limit.
Reporting Limit:
TPHg = <50 ug/L
MTBE = <2 ug/L
Benzene = <0.5 ug/L

Concentrations vs Distance
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California
Second Quarter 2002



Concentrations vs. Distance
Former Exxon Service Station 7-0104
1725 Park Street
Alameda, California
Second Quarter 2002



ATTACHMENT F

RISK-BASED CORRECTIVE ACTION ANALYSIS
OUTPUT FILES

RBCA TIER 1/TIER 2 EVALUATION

Output Table 1

Site Name: Exxon Station No. 7-0104 Job Identification: 2506RBCM
Site Location: 1725 Park Street, Alameda, CA Date Completed: 12/3/01
Completed By: Scott Graham

Software: GSI RBCA Spreadsheet
Version: 1.0.1

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

Exposure Parameter	Definition (Units)	Residential Adult	Residential (1-6yrs)	Residential (1-16 yrs)	Commercial/Industrial Chronic	Commercial/Industrial Constrctn
ATc	Averaging time for carcinogens (yr)	70				
ATn	Averaging time for non-carcinogens (yr)	30	6	16	25	1
BW	Body Weight (kg)	70	15	35	70	
ED	Exposure Duration (yr)	30	6	16	25	1
t	Averaging time for vapor flux (yr)	30			25	1
EF	Exposure Frequency (days/yr)	350			250	180
EF.Derm	Exposure Frequency for dermal exposure	350			250	
IRgw	Ingestion Rate of Water (L/day)	2			1	
IRs	Ingestion Rate of Soil (mg/day)	100	200		50	100
IRadj	Adjusted soil ing. rate (mg-yr/kg-d)	1.1E+02			9.4E+01	
IRa.in	Inhalation rate indoor (m^3/day)	15			20	
IRa.out	Inhalation rate outdoor (m^3/day)	20			20	10
SA	Skin surface area (dermal) (cm^2)	5.8E+03		2.0E+03	5.8E+03	5.8E+03
SAadj	Adjusted dermal area (cm^2-yr/kg)	2.1E+03			1.7E+03	
M	Soil to Skin adherence factor	1				
AAFs	Age adjustment on soil ingestion	FALSE			FALSE	
AAFd	Age adjustment on skin surface area	FALSE			FALSE	
tox	Use EPA tox data for air (or PEL based)?	TRUE				
gwMCL?	Use MCL as exposure limit in groundwater?	TRUE				

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

Matrix of Receptor Distance and Location On- or Off-Site		Residential Distance	Residential On-Site	Commercial/Industrial Distance	Commercial/Industrial On-Site
GW	Groundwater receptor (cm)	4.1E+04	FALSE	4.1E+04	FALSE
S	Inhalation receptor (cm)	6.1E+02	FALSE		TRUE

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

Surface Parameters	Definition (Units)	Residential	Constrctn
A	Contaminated soil area (cm^2)	***1.1E+07***	1.0E+06
W	Length of affect. soil parallel to wind (cm)	***4.7E+02***	1.0E+03
W.gw	Length of affect. soil parallel to groundwater (cm	***4.7E+02***	
Uair	Ambient air velocity in mixing zone (cm/s)	2.3E+02	
delta	Air mixing zone height (cm)	2.0E+02	
Lss	Thickness of affected surface soils (cm)	***6.1E+01***	
Pe	Particulate areal emission rate (g/cm^2/s)	6.9E-14	

Groundwater	Definition (Units)	Value
delta.gw	Groundwater mixing zone depth (cm)	2.0E+02
I	Groundwater infiltration rate (cm/yr)	3.0E+01
Ugw	Groundwater Darcy velocity (cm/yr)	***6.3E+02***
Ugw.tr	Groundwater seepage velocity (cm/yr)	***1.7E+03***
Ks	Saturated hydraulic conductivity(cm/s)	1.0E-03
grad	Groundwater gradient (cm/cm)	2.0E-02
Sw	Width of groundwater source zone (cm)	4.7E+03
Sd	Depth of groundwater source zone (cm)	1.8E+02
phi.eff	Effective porosity in water-bearing unit	3.8E-01
foc.sat	Fraction organic carbon in water-bearing unit	1.0E-03
BIO?	Is bioattenuation considered?	FALSE
BC	Biodegradation Capacity (mg/L)	

Soil	Definition (Units)	Value		
hc	Capillary zone thickness (cm)	***7.6E+00***		
hv	Vadose zone thickness (cm)	***1.7E+02***		
rho	Soil density (g/cm^3)	1.7		
foc	Fraction of organic carbon in vadose zone	***0.001***		
phi	Soil porosity in vadose zone	0.38		
Lgw	Depth to groundwater (cm)	***1.8E+02***		
Ls	Depth to top of affected subsurface soil (cm)	***6.1E+01***		
Lsubs	Thickness of affected subsurface soils (cm)	***3.0E+02***		
pH	Soil/groundwater pH	6.5		
		capillary	vadose	foundation
phi.w	Volumetric water content	0.342	0.12	0.12
phi.a	Volumetric air content	0.038	0.26	0.26

Building	Definition (Units)	Residential	Commercial
Lb	Building volume/area ratio (cm)	2.0E+02	3.0E+02
ER	Building air exchange rate (s^-1)	1.4E-04	2.3E-04
Lcrk	Foundation crack thickness (cm)	1.5E+01	
eta	Foundation crack fraction	***0.0001***	

Transport Parameters	Definition (Units)	Residential	Commercial
Groundwater			
ax	Longitudinal dispersivity (cm)	8.4E+02	
ay	Transverse dispersivity (cm)	8.4E+01	
az	Vertical dispersivity (cm)	8.4E+00	
Vapor			
dcy	Transverse dispersion coefficient (cm)	7.5E+01	
dcz	Vertical dispersion coefficient (cm)	5.2E+01	

REPRESENTATIVE COC CONCENTRATIONS IN SOURCE MEDIA

(Complete the following table)

CONSTITUENT	Representative COC Concentration in Groundwater value (mg/L)	note	in Surface Soil value (mg/kg)	note	in Subsurface Soil value (mg/kg)	note
Methyl t-Butyl Ether	1.2E+0	UCL		max	1.3E-2	UCL

Site Name: Exxon Station No. 7-0104
Site Location: 1725 Park Street, Alameda, CA

Completed By: Scott Graham
Date Completed: 12/3/2001

RBCA SITE ASSESSMENT

Tier 2 Worksheet 5.6

Site Name: Exxon Station No. 7-0104
Site Location: 1725 Park Street, Alameda, CA

Completed By: Scott Graham
Date Completed: 12/2/1997

TIER 2 GROUNDWATER CONCENTRATION DATA SUMMARY

CONSTITUENTS DETECTED		Analytical Method	Detected Concentrations				Calculated Distribution of Data
CAS No.	Name	Typical Detec Limit (mg/	No. of Samples	No. of Detects	Maximum Conc. (mg/L)	Mean Conc. (mg/L)	UCL on Mean Conc. (mg/L)	
1634-04-4	Methyl t-Butyl Ether	2.5E-03	42	41	3.8E+00	1.0E+00	1.2E+00	Normal

TIER 2 SUBSURFACE SOIL CONCENTRATION DATA SUMMARY

CONSTITUENTS DETECTED		Analytical Method	Detected Concentrations				Calculated Distribution of Data
CAS No.	Name	Typical Detec Limit (mg/k	No. of Samples	No. of Detects	Maximum Conc. (mg/kg)	Mean Conc. (mg/kg)	UCL on Mean Conc. (mg/kg)	
1634-04-4	Methyl t-Butyl Ether	2.5E-02	2	0	0.0E+00	1.3E-02	1.3E-02	Normal

Serial: G-311-YSX-926
Software: GSI RBCA Spreadsheet
Version: 1.0.1

Choose UCL Percentile

95%

Analytical Data (Up to 50 Data Points)

Default Detection Limit (mg/L)

0.0025

	1	2	3	4	5	6	7	8	9	10
	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Well Name	MW1	MW1	MW1	MW1	MW2	MW2	MW2	MW2	MW3	MW3
Date Sampled	1/1/97	4/1/97	7/1/97	10/14/97	10/2/96	4/1/97	7/1/97	10/14/97	1/1/97	4/1/97
	0.068	0.0043	0.014	0.083	2.5	0.68	0.89	1.9	3.1	1.4

Default Detection Limit (mg/kg)

0.025

	1	2	3	4	5	6	7	8	9	10
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Sample Name	MW1	MW2	MW3	MW4	MW5	MW6	MW7	SB-1	SB-1	SB-2
Date Sampled	6/1/84	6/1/84	6/1/84	1/8/85	1/8/85	1/8/85	1/8/85	3/18/86	3/18/86	3/18/86

11	12	13	14	15	16	17	18	19	20	21	22	23
(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)
MW3	MW3	MW4	MW4	MW4	MW4	MW5	MW5	MW5	MW5	MW6	MW6	MW6
7/1/97	10/14/97	1/1/97	4/1/97	7/1/97	10/14/97	1/1/97	4/1/97	7/1/97	10/14/97	10/2/96	4/1/97	7/1/97
1.2	1.8	1	0.32	<	0.36	1.1	1.5	0.96	1	3.8	0.45	2

11	12	13	14	15	16	17	18	19	20	21	22	23
(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)
SB-3	SB-5	SB-5	SB-6	SB-7	S-5-B11	S-9-B11	S-5-B13	S-9-B13	S-10-B11	DI-1-3.5	DI-2-3.5	DI-3-3.5
3/18/86	3/18/86	3/18/86	3/18/86	3/18/86	Oct-89	Oct-89	Oct-89	Oct-89	Oct-89	6/24/93	6/24/93	6/24/93

24	25	26	27	28	29	30	31	32	33	34	35	36
(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)
MW6	MW7	MW7	MW7	MW7	MW1	MW2	MW3	MW4	MW5	MW6	MW7	MW1
10/14/97	1/1/97	4/1/97	7/1/97	10/14/97	2/3/98	2/3/98	2/3/98	2/3/98	2/3/98	2/3/98	2/3/98	5/5/98
0.79	1.5	1.5	0.74	0.74	0.0671	0.0071	1.42	0.0461	0.62	0.545	0.61	1.004

24	25	26	27	28	29	30	31	32	33	34	35
(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
DI-4-3.5	PL-1-3.5	PL-2-3.5	PL-3-3.5	MW-11-6.	W-11-11.5						
6/24/93	6/24/93	6/24/93	6/24/93	8/22/91	8/22/91						
				<	<						

37	38	39	40	41	42	43	44	45
(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
MW2	MW3	MW4	MW5	MW6	MW7			
5/5/98	5/5/98	5/5/98	5/5/98	5/5/98	5/5/98			
0.958	0.967	2.12	1.22	0.522	0.712			

RBCA SITE ASSESSMENT	Input Screen 9.4

GROUNDWATER DAF VALUES

(Enter DAF values in the grey area of the following table)

CONSTITUENT	Dilution Attenuation Factor (DAF) in Groundwater	
	Residential Receptor	Comm./Ind. Receptor
Methyl t-Butyl Ether	9.1E+0	1.0E+0

Site Name: Exxon Station No. 7-0104
Site Location: 1725 Park Street, Alameda, CA

Completed By: Scott Graham
Date Completed: 12/3/2001

RBCA SITE ASSESSMENT

EXPOSURE LIMITS IN GROUNDWATER AND AIR

CONSTITUENT	Exposure Limits Applied to Receptors	
	Groundwater (MCL) (mg/L)	Air (Comm. only) (PEL/TLV) (mg/m^3)
Methyl t-Butyl Ether	1.3E-2	

Site Name: Exxon Station No. 7-0104
Site Location: 1725 Park Street, Alameda, CA

Completed By: Scott Graham
Date Completed: 12/3/2001

Site Name: Exxon Station No. 7-0104 | Site Location: 1725 Park Street, Alameda, CA | Completed By: Scott Graham | Date Completed: 12/3/2001 |

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

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

SURFACE SOILS: VAPOR AND DUST INHALATION

Constituents of Concern	Exposure Concentration 1) Source Medium: Surface Soil Conc. (mg/kg)	2) NAF Value (m^3/kg) Receptor		3) Exposure Medium: Outdoor Air: POE Conc. (mg/m^3) (1) / (2)		4) Exposure Multiplier: (IRxEFxED)/(BWxAT) (m^3/kg-day)		5) Average Daily Intake Rate: (mg/kg-day) (3) X (4)	
Methyl t-Butyl Ether	0.0E+0								

NOTE: ABS = Dermal absorption factor (dim); AF = Adherance factor (mg/cm^2); AT = Averaging time (days); BW = Body weight (kg); CF = Units conversion factor; ED = Exposure duration (yrs); EF = Exposure frequencey (days/yr); ET = Exposure time (hrs/day); IR = Inhalation rate (m^3/day); POE = Point of exposure; SA = Skin exposure area (cm^2/day)

Site Name: Exxon Station No. 7-0104 | Site Location: 1725 Park Street, Alameda, CA | Completed By: Scott Graham | Date Completed: 12/3/2001 | 2 OF 9

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

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

SUBSURFACE SOILS: VAPOR INHALATION

Constituents of Concern	Exposure Concentration 1) Source Medium: Subsurface Soil Conc. (mg/kg)	2) NAF Value (m^3/kg) Receptor: On-Site Commercial	2) NAF Value (m^3/kg) Receptor: Off-Site Residential	3) Exposure Medium: Outdoor Air: POE Conc. (mg/m^3) (1) / (2) On-Site Commercial	3) Exposure Medium: Outdoor Air: POE Conc. (mg/m^3) (1) / (2) Off-Site Residential	4) Exposure Multiplier: (IRxEFxED)/(BWxAT) (m^3/kg-day) On-Site Commercial	4) Exposure Multiplier: (IRxEFxED)/(BWxAT) (m^3/kg-day) Off-Site Residential	5) Average Daily Intake Rate: (mg/kg-day) (3) X (4) On-Site Commercial	5) Average Daily Intake Rate: (mg/kg-day) (3) X (4) Off-Site Residential
Methyl t-Butyl Ether	1.3E-2	1.4E+4	1.7E+4	8.6E-7	7.2E-7	7.0E-2	1.2E-1	6.0E-8	8.4E-8

NOTE: ABS = Dermal absorption factor (dim); AF = Adherance factor (mg/cm^2); AT = Averaging time (days); BW = Body weight (kg); CF = Units conversion factor; ED = Exposure duration (yrs); EF = Exposure frequencey (days/yr); ET = Exposure time (hrs/day); IR = Inhalation rate (m^3/day); POE = Point of exposure; SA = Skin exposue area (cm^2/day)

Site Name: Exxon Station No. 7-0104 Site Location: 1725 Park Street, Alameda, Completed By: Scott Graham Date Completed: 12/3/2001

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

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

GROUNDWATER: VAPOR INHALATION Constituents of Concern	Exposure Concentration 1) Source Medium Groundwater Conc. (mg/L)	2) NAF Value (m^3/L) Receptor On-Site Commercial	3) Exposure Medium Outdoor Air: POE Conc. (mg/m^3) (1) / (2) On-Site Commercial	4) Exposure Multiplier (IRxEFxED)/(BWxAT) (m^3/kg-day) On-Site Commercial	5) Average Daily Intake Rate (mg/kg-day) (3) X (4) On-Site Commercial	TOTAL PATHWAY INTAKE (mg/kg-day) *(Sum intake values from surface, subsurface & groundwater routes.)*	
						On-Site Commercial	Off-Site Residential
Methyl t-Butyl Ether	1.2E+0	1.5E+4	8.4E-5	7.0E-2	5.8E-6	5.9E-6	8.4E-8

NOTE:
ABS = Dermal absorption factor (dim)
AF = Adherance factor (mg/cm^2)
AT = Averaging time (days)
BW = Body weight (kg)
CF = Units conversion factor
ED = Exposure duration (yrs)
EF = Exposure frequencey (days/yr)
ET = Exposure time (hrs/day)
IR = Inhalation rate (m^3/day)
POE = Point of exposure
SA = Skin exposure area (cm^2/day)

Site Name: Exxon Station No. 7-0104 | Site Location: 1725 Park Street, Alameda, CA | Completed By: Scott Graham | Date Completed: 12/3/2001 | 4 OF 9

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

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

SUBSURFACE SOILS: VAPOR INTRUSION TO BUILDINGS Constituents of Concern	Exposure Concentration 1) Source Medium Subsurface Soil Conc. (mg/kg)	2) NAF Value (m^3/kg) Receptor On-Site Commercial	3) Exposure Medium Indoor Air: POE Conc. (mg/m^3) (1) / (2) On-Site Commercial	4) Exposure Multiplier (IRxEFxED)/(BWxAT) (m^3/kg-day) On-Site Commercial	5) Average Daily Intake Rate (mg/kg-day) (3) X (4) On-Site Commercial
Methyl t-Butyl Ether	1.3E-2	6.0E+3	2.1E-6	7.0E-2	1.5E-7

NOTE: ABS = Dermal absorption factor (dim); AF = Adherance factor (mg/cm^2); AT = Averaging time (days); BW = Body weight (kg); CF = Units conversion factor; ED = Exposure duration (yrs); EF = Exposure frequencey (days/yr); ET = Exposure time (hrs/day); IR = Inhalation rate (m^3/day); POE = Point of exposure; SA = Skin exposure area (cm^2/day)

Site Name: Exxon Station No. 7-0104 | Site Location: 1725 Park Street, Alameda, | Completed By: Scott Graham | Date Completed: 12/3/2001 | 5 OF 9

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

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

GROUNDWATER: VAPOR INTRUSION TO BUILDINGS Constituents of Concern	Exposure Concentration 1) Source Medium Groundwater Conc. (mg/L)	2) NAF Value (m^3/L) Receptor On-Site Commercial	3) Exposure Medium Indoor Air: POE Conc. (mg/m^3) (1) / (2) On-Site Commercial	4) Exposure Multiplier (IRxEFxED)/(BWxAT) (m^3/kg-day) On-Site Commercial	5) Average Daily Intake Rate (mg/kg-day) (3) X (4) On-Site Commercial	TOTAL PATHWAY INTAKE (mg/kg-day) *(Sum intake values from subsurface & groundwater routes.)* On-Site Commercial
Methyl t-Butyl Ether	1.2E+0	7.0E+4	1.8E-5	7.0E-2	1.2E-6	1.4E-6

NOTE:
ABS = Dermal absorption factor (dim)
AF = Adherance factor (mg/cm^2)
AT = Averaging time (days)
BW = Body weight (kg)
CF = Units conversion factor
ED = Exposure duration (yrs)
EF = Exposure frequencey (days/yr)
ET = Exposure time (hrs/day)
IR = Inhalation rate (m^3/day)
POE = Point of exposure
SA = Skin exposure area (cm^2/day)

Site Name: Exxon Station No. 7- Site Location: 1725 Park Street, Alameda, CA Completed By: Scott Grah Date Completed: 12/3/2001

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

SOIL EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAY IS ACTIVE)

SURFACE SOILS OR SEDIMENTS: DERMAL CONTACT	Exposure Concentration 1) Source Medium	2) Exposure Multiplier (SAxAFxABSxCFxEFxED)/(BWxAT) (kg/kg-day)		3) Average Daily Intake Rate (mg/kg-day) (1) x (2)	
Constituents of Concern	Surface Soil Conc. (mg/kg)	On-Site Residential	On-Site Commercial	On-Site Residential	On-Site Commercial
Methyl t-Butyl Ether	0.0E+0		1.0E-5		0.0E+0

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

Site Name: Exxon Station No. 7-01 Site Location: 1725 Park Street, Alameda, Completed By: Scott Graham Date Completed: 12/3/2001

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

SOIL EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAY IS ACTIVE)

SURFACE SOILS OR SEDIMENTS: INGESTION	Exposure Concentration	1) Source Medium	2) Exposure Multiplier (IRxCFxEFxED)/(BWxAT) (kg/kg-day)		3) Average Daily Intake Rate (mg/kg-day) (1) x (2)		TOTAL PATHWAY INTAKE (mg/kg-day) (Sum intake values from dermal & ingestion routes.)	
Constituents of Concern	Surface Soil Conc. (mg/kg)	On-Site Residential	On-Site Commercial		On-Site Residential	On-Site Commercial	On-Site Residential	On-Site Commercial
Methyl t-Butyl Ether	0.0E+0		1.7E-7			0.0E+0		0.0E+0

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

Site Name: Exxon Station No. 7-01 Site Location: 1725 Park Street, Alameda, CA Completed By: Scott Graham Date Completed: 12/3/2001

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

GROUNDWATER EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAY IS ACTIVE)

SOIL: LEACHING TO GROUNDWATER/ GROUNDWATER INGESTION

Exposure Concentration

Constituents of Concern	1) Source Medium: Soil Concentration (mg/kg)	2) NAF Value (L/kg) Receptor: Off-Site Residential	3) Exposure Medium: Groundwater: POE Conc. (mg/L) (1)/(2) Off-Site Residential	4) Exposure Multiplier: (IRxEFxED)/(BWxAT) (L/kg-day) Off-Site Residential	5) Average Daily Intake Rate: (mg/kg-day) (3) x (4) Off-Site Residential
Methyl t-Butyl Ether	1.3E-2	1.5E+0	8.4E-3	1.2E-2	9.9E-5

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

Site Name: Exxon Station No. 7-01 Site Location: 1725 Park Street, Alameda, CA Completed By: Scott Graham Date Completed: 12/3/2001

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

GROUNDWATER EXPOSURE PATHWAYS ■ = (CHECKED IF PATHWAY IS ACTIVE)

GROUNDWATER: INGESTION

Constituents of Concern	Exposure Concentration: 1) Source Medium — Groundwater Conc. (mg/L)	2) NAF Value (dim) — Receptor: Off-Site Residential	3) Exposure Medium — Groundwater: POE Conc. (mg/L) (1)/(2): Off-Site Residential	4) Exposure Multiplier — (IRxEFxED)/(BWxAT) (L/kg-day): Off-Site Residential	5) Average Daily Intake Rate — (mg/kg-day) (3) x (4): Off-Site Residential	MAX. PATHWAY INTAKE (mg/kg-day) (Maximum intake of active pathways soil leaching & groundwater routes.): Off-Site Residential
Methyl t-Butyl Ether	1.2E+0	9.1E+0	1.3E-1	1.2E-2	1.6E-3	1.6E-3

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

Site Name: Exxon Station No. 7-0104 | Site Location: 1725 Park Street, Alameda, CA | Completed By: Scott Graham | Date Completed: 12/3/2001 |

TIER 2 PATHWAY RISK CALCULATION

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

		CARCINOGENIC RISK					TOXIC EFFECTS			
	(1) EPA Carcinogenic Classification	(2) Total Carcinogenic Intake Rate (mg/kg/day) On-Site Commercial	(2) Total Carcinogenic Intake Rate (mg/kg/day) Off-Site Residential	(3) Inhalation Slope Factor (mg/kg-day)^-1	(4) Individual COC Risk (2) x (3) On-Site Commercial	(4) Individual COC Risk (2) x (3) Off-Site Residential	(5) Total Toxicant Intake Rate (mg/kg/day) On-Site Commercial	(5) Total Toxicant Intake Rate (mg/kg/day) Off-Site Residential	(6) Inhalation Reference Dose (mg/kg-day)	(7) Individual COC Hazard Quotient (5) / (6) On-Site Commercial	(7) Individual COC Hazard Quotient (5) / (6) Off-Site Residential
Constituents of Concern											
Methyl t-Butyl Ether		5.9E-6	8.4E-8	1.3E-2	7.7E-8	1.1E-9	1.7E-5	2.0E-7	8.6E-1	1.9E-5	2.3E-7
Total Pathway Carcinogenic Risk =					**7.7E-8**	**1.1E-9**	***Total Pathway Hazard Index =***			**1.9E-5**	**2.3E-7**

Software: GSI RBCA Spreadsheet
Version: 1.0.1
Serial: G-311-YSX-926

Site Name: Exxon Station No. 7-0104 Site Location: 1725 Park Street, Alameda, CA Completed By: Scott Graham Date Completed: 12/3/2001

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 Intake Rate (mg/kg/day) On-Site	(2) Total Carcinogenic Intake Rate (mg/kg/day) Commercial	(3) Inhalation Slope Factor (mg/kg-day)^-1	(4) Individual COC Risk (2) x (3) On-Site	(4) Individual COC Risk (2) x (3) Commercial	TOXIC EFFECTS: (5) Total Toxicant Intake Rate (mg/kg/day) On-Site	(5) Total Toxicant Intake Rate (mg/kg/day) Commercial	(6) Inhalation Reference Dose (mg/kg-day)	(7) Individual COC Hazard Quotient (5) / (6) On-Site	(7) Individual COC Hazard Quotient (5) / (6) Commercial
Methyl t-Butyl Ether			1.4E-6	1.3E-2		1.8E-8		3.8E-6	8.6E-1		4.5E-6
Total Pathway Carcinogenic Risk =					0.0E+0	1.8E-8	***Total Pathway Hazard Index =***			0.0E+0	4.5E-6

Site Name: Exxon Station No. 7-0104 | Site Location: 1725 Park Street, Alameda, CA | Completed By: Scott Graham | Date Completed: 12/3/2001 | 3 OF 4

TIER 2 PATHWAY RISK CALCULATION

SOIL EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAYS ARE ACTIVE)

	CARCINOGENIC RISK						TOXIC EFFECTS		
	(1) EPA Carcinogenic Classification	(2) Total Carcinogenic Intake Rate (mg/kg/day) On-Site Residential	(2) Total Carcinogenic Intake Rate (mg/kg/day) On-Site Commercial	(3) Oral Slope Factor (mg/kg-day)^-1	(4) Individual COC Risk (2) x (3) On-Site Residential	(4) Individual COC Risk (2) x (3) On-Site Commercial	(5) Total Toxicant Intake Rate (mg/kg/day) On-Site Residential	(5) Total Toxicant Intake Rate (mg/kg/day) On-Site Commercial	(6) Oral Reference Dose (mg/kg-day)	(7) Individual COC Hazard Quotient (5) / (6) On-Site Residential	(7) Individual COC Hazard Quotient (5) / (6) On-Site Commercial
Constituents of Concern											
Methyl t-Butyl Ether			0.0E+0	1.3E-2		0.0E+0		0.0E+0	5.0E-3		0.0E+0
Total Pathway Carcinogenic Risk =					0.0E+0	0.0E+0	*Total Pathway Hazard Index =*			0.0E+0	0.0E+0

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

Site Name: Exxon Station No. 7-0104 | Site Location: 1725 Park Street, Alameda, CA | Completed By: Scott Graham | Date Completed: 12/3/2001 | *4 OF 4*

TIER 2 PATHWAY RISK CALCULATION

GROUNDWATER EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAYS ARE ACTIVE)

	CARCINOGENIC RISK					TOXIC EFFECTS			
Constituents of Concern	(1) EPA Carcinogenic Classification	(2) Total Carcinogenic Intake Rate (mg/kg/day) Off-Site Residential	(3) Oral Slope Factor (mg/kg-day)^-1	(4) Individual COC Risk (2) x (3) Off-Site Residential	(5) Total Toxicant Intake Rate (mg/kg/day) Off-Site Residential	(6) Oral Reference Dose (mg/kg-day)	(7) Individual COC Hazard Quotient (5) / (6) Off-Site Residential
Methyl t-Butyl Ether		1.6E-3	1.3E-2	2.1E-5	3.7E-3	5.0E-3	7.4E-1

Total Pathway Carcinogenic Risk = 0.0E+0 | 2.1E-5

Total Pathway Hazard Index = 0.0E+0 | 7.4E-1

Software: GSI RBCA Spreadsheet
Version: 1.0.1

Serial: G-311-YSX-926

RBCA SITE ASSESSMENT | **Tier 2 Worksheet 8.3**

Site Name: Exxon Station No. 7-0104
Site Location: 1725 Park Street, Alameda, CA

Completed By: Scott Graham
Date Completed: 12/3/2001

TIER 2 BASELINE RISK SUMMARY TABLE

	BASELINE CARCINOGENIC RISK					BASELINE TOXIC EFFECTS				
	Individual COC Risk		Cumulative COC Risk		Risk Limit(s) Exceeded?	Hazard Quotient		Hazard Index		Toxicity Limit(s) Exceeded?
EXPOSURE PATHWAY	Maximum Value	Target Risk	Total Value	Target Risk		Maximum Value	Applicable Limit	Total Value	Applicable Limit	
OUTDOOR AIR EXPOSURE PATHWAYS										
Complete:	7.7E-8	1.0E-6	7.7E-8	N/A	☐	1.9E-5	1.0E+0	1.9E-5	N/A	☐
INDOOR AIR EXPOSURE PATHWAYS										
Complete:	1.8E-8	1.0E-6	1.8E-8	N/A	☐	4.5E-6	1.0E+0	4.5E-6	N/A	☐
SOIL EXPOSURE PATHWAYS										
Complete:	NC	1.0E-6	NC	N/A	■	NC	1.0E+0	NC	N/A	■
GROUNDWATER EXPOSURE PATHWAYS										
Complete:	2.1E-5	1.0E-6	2.1E-5	N/A	■	7.4E-1	1.0E+0	7.4E-1	N/A	☐
CRITICAL EXPOSURE PATHWAY (Select Maximum Values From Complete Pathways)										
	2.1E-5	1.0E-6	2.1E-5	N/A	■	7.4E-1	1.0E+0	7.4E-1	N/A	☐

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

Site Name: Exxon Station No. 7-0104
Site Location: 1725 Park Street, Alameda, CA

Completed By: Scott Graham
Date Completed: 12/3/2001

SUBSURFACE SOIL SSTL VALUES (> 2 FT BGS)

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

■ MCL exposure limit?
☐ PEL exposure limit?

Calculation Option: 2
Groundwater DAF Option: Domenico - No Decay (One-directional vert. dispersion)

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

CONSTITUENTS OF CONCERN		Representative Concentration	X	Soil Leaching to Groundwater			X	Soil Volatilization to Indoor Air		X	Soil Volatilization to Outdoor Air		Applicable SSTL	SSTL Exceeded ?	Required CRF
CAS No.	Name	(mg/kg)		Residential: 1344 feet	Commercial: (on-site)	Regulatory(MCL): 1344 feet		Residential: (on-site)	Commercial: (on-site)		Residential: 20 feet	Commercial: (on-site)	(mg/kg)	"■" If yes	Only if "yes" left
1634-04-4	Methyl t-Butyl Ether	1.3E-2		9.7E-3	NA	1.9E-2		NA	6.6E+0		1.1E+1	1.6E+1	1.9E-2	☐	<1

>Res indicates risk-based target concentration greater than constituent residual saturation value

Software: GSI RBCA Spreadsheet Serial: G-311-YSX-926
Version: 1.0.1

[redacted]

RBCA SITE ASSESSMENT | **Tier 2 Worksheet 9.3**

Site Name: Exxon Station No. 7-0104
Site Location: 1725 Park Street, Alameda, CA

Completed By: Scott Graham
Date Completed: 12/3/2001

GROUNDWATER SSTL VALUES

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

■ MCL exposure limit?
☐ PEL exposure limit?

Calculation Option: 2
Groundwater DAF Option: Domenico - No Decay (One-directional vert. dispersion)

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

CONSTITUENTS OF CONCERN		Representative Concentration	X	Groundwater Ingestion			X	Groundwater Volatilization to Indoor Air		X	Groundwater Volatilization to Outdoor Air		Applicable SSTL	SSTL Exceeded ?	Required CRF
CAS No.	Name	(mg/L)		Residential: 1344 feet	Commercial: (on-site)	Regulatory(MCL): 1344 feet		Residential: (on-site)	Commercial: (on-site)		Residential (on-site)	Commercial: (on-site)	(mg/L	"■" If yes	Only if "yes" left
1634-04-4	Methyl t-Butyl Ether	1.2E+0		6.0E-2	NA	1.2E-1		NA	7.7E+1		NA	1.6E+1	1.2E-1	■	1.0E+01

>Sol indicates risk-based target concentration greater than constituent solubility

Software: GSI RBCA Spreadsheet
Version: 1.0.1

Serial: G-311-YSX-926

RBCA TIER 1/TIER 2 EVALUATION

Output Table 1

Site Name: Exxon Station No. 7-0104 Job Identification: 2506RBCA
Site Location: 1725 Park Street, Alameda, CA Date Completed: 7/1/02
Completed By: Scott Graham

Software: GSI RBCA Spreadsheet
Version: 1.0.1

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

Exposure Parameter	Definition (Units)	Residential Adult	Residential (1-6yrs)	Residential (1-16 yrs)	Commercial/Industrial Chronic	Commercial/Industrial Constrctn
ATc	Averaging time for carcinogens (yr)	70				
ATn	Averaging time for non-carcinogens (yr)	30	6	16	25	1
BW	Body Weight (kg)	70	15	35	70	
ED	Exposure Duration (yr)	30	6	16	25	1
t	Averaging time for vapor flux (yr)	30			25	1
EF	Exposure Frequency (days/yr)	350			250	180
EF.Derm	Exposure Frequency for dermal exposure	350			250	
IRgw	Ingestion Rate of Water (L/day)	2			1	
IRs	Ingestion Rate of Soil (mg/day)	100	200		50	100
IRadj	Adjusted soil ing. rate (mg-yr/kg-d)	1.1E+02			9.4E+01	
IRa.in	Inhalation rate indoor (m^3/day)	15			20	
IRa.out	Inhalation rate outdoor (m^3/day)	20			20	10
SA	Skin surface area (dermal) (cm^2)	5.8E+03		2.0E+03	5.8E+03	5.8E+03
SAadj	Adjusted dermal area (cm^2-yr/kg)	2.1E+03			1.7E+03	
M	Soil to Skin adherence factor	1				
AAFs	Age adjustment on soil ingestion	FALSE			FALSE	
AAFd	Age adjustment on skin surface area	FALSE			FALSE	
tox	Use EPA tox data for air (or PEL based)?	TRUE				
gwMCL?	Use MCL as exposure limit in groundwater?	FALSE				

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

Matrix of Receptor Distance and Location On- or Off-Site		Residential Distance	Residential On-Site	Commercial/Industrial Distance	Commercial/Industrial On-Site
GW	Groundwater receptor (cm)	4.1E+04	FALSE	4.1E+04	FALSE
S	Inhalation receptor (cm)	6.1E+02	FALSE		TRUE

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

Surface Parameters	Definition (Units)	Residential	Constrctn
A	Contaminated soil area (cm^2)	***1.1E+07***	1.0E+06
W	Length of affect. soil parallel to wind (cm)	***4.7E+03***	1.0E+03
W.gw	Length of affect. soil parallel to groundwater (cm	***4.7E+03***	
Uair	Ambient air velocity in mixing zone (cm/s)	2.3E+02	
delta	Air mixing zone height (cm)	2.0E+02	
Lss	Thickness of affected surface soils (cm)	***5.1E+01***	
Pe	Particulate areal emission rate (g/cm^2/s)	6.9E-14	

Groundwater	Definition (Units)	Value
delta.gw	Groundwater mixing zone depth (cm)	2.0E+02
I	Groundwater infiltration rate (cm/yr)	3.0E+01
Ugw	Groundwater Darcy velocity (cm/yr)	***6.3E+02***
Ugw.tr	Groundwater seepage velocity (cm/yr)	***1.7E+03***
Ks	Saturated hydraulic conductivity(cm/s)	1.0E-03
grad	Groundwater gradient (cm/cm)	2.0E-02
Sw	Width of groundwater source zone (cm)	4.7E+03
Sd	Depth of groundwater source zone (cm)	1.8E+02
phi.eff	Effective porosity in water-bearing unit	3.8E-01
foc.sat	Fraction organic carbon in water-bearing unit	1.0E-03
BIO?	Is bioattenuation considered?	TRUE
BC	Biodegradation Capacity (mg/L)	

Soil	Definition (Units)	Value	capillary	vadose	foundation
hc	Capillary zone thickness (cm)	***7.6E+00***			
hv	Vadose zone thickness (cm)	***1.7E+02***			
rho	Soil density (g/cm^3)	1.7			
foc	Fraction of organic carbon in vadose zone	***0.001***			
phi	Soil porosity in vadose zone	0.38			
Lgw	Depth to groundwater (cm)	***1.8E+02***			
Ls	Depth to top of affected subsurface soil (cm)	***6.1E+01***			
Lsubs	Thickness of affected subsurface soils (cm)	***3.0E+02***			
pH	Soil/groundwater pH	6.5			
phi.w	Volumetric water content		0.342	0.12	0.12
phi.a	Volumetric air content		0.038	0.26	0.26

Building	Definition (Units)	Residential	Commercial
Lb	Building volume/area ratio (cm)	2.0E+02	3.0E+02
ER	Building air exchange rate (s^-1)	1.4E-04	2.3E-04
Lcrk	Foundation crack thickness (cm)	1.5E+01	
eta	Foundation crack fraction	***0.0001***	

Transport Parameters	Definition (Units)	Residential	Commercial
Groundwater			
ax	Longitudinal dispersivity (cm)	8.4E+02	
ay	Transverse dispersivity (cm)	8.4E+01	
az	Vertical dispersivity (cm)	8.4E+00	
Vapor			
dcy	Transverse dispersion coefficient (cm)	7.5E+01	
dcz	Vertical dispersion coefficient (cm)	5.2E+01	

REPRESENTATIVE COC CONCENTRATIONS IN SOURCE MEDIA

(Complete the following table)

CONSTITUENT	Representative COC Concentration in Groundwater		in Surface Soil		in Subsurface Soil	
	value (mg/L)	note	value (mg/kg)	note	value (mg/kg)	note
Benzene	1.2E-1	UCL	2.3E-1	UCL	3.3E-1	UCL
Ethylbenzene	1.0E-2	UCL	5.8E-1	UCL	6.1E-1	UCL
Toluene	1.3E-2	UCL	4.9E-1	UCL	2.3E-1	UCL
Xylene (mixed isomers)	2.1E-2	UCL	2.8E+0	UCL	1.9E+0	UCL

Site Name: Exxon Station No. 7-0104
Site Location: 1725 Park Street, Alameda, CA

Completed By: Scott Graham
Date Completed: 7/1/2002

RBCA SITE ASSESSMENT

Tier 2 Worksheet 5.6

Site Name: Exxon Station No. 7-0104
Site Location: 1725 Park Street, Alameda, CA

Completed By: Scott Graham
Date Completed: 7/1/2002

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	1.0E-03	42	38	2.3E+00	5.7E-02	1.2E-01
100-41-4	Ethylbenzene	1.0E-03	42	30	1.5E+00	5.7E-03	1.0E-02
108-88-3	Toluene	1.0E-03	42	30	8.7E-01	7.2E-03	1.3E-02
1330-20-7	Xylene (mixed isomer	1.0E-03	42	33	4.0E+00	1.1E-02	2.1E-02

TIER 2 SUBSURFACE 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	29	24	7.6E+00	1.5E-01	3.3E-01
100-41-4	Ethylbenzene	5.0E-03	29	26	3.7E+01	2.3E-01	6.1E-01
108-88-3	Toluene	5.0E-03	29	21	3.2E+01	8.0E-02	2.3E-01
1330-20-7	Xylene (mixed isomer	5.0E-03	29	28	1.5E+02	6.7E-01	1.9E+00

Choose UCL Percentile

95%

Analytical Data (Up to 50 Data Points)

Calculated Distribution of Data	Default Detection Limit (mg/L)
Lognormal	0.001
Lognormal	0.001
Lognormal	0.001
Lognormal	0.001

	1	2	3	4	5	6	7	8	9
	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Well Name	MW1	MW1	MW1	MW1	MW2	MW2	MW2	MW2	MW4
Date Sampled	1/1/97	4/1/97	7/1/97	10/14/97	10/2/96	4/1/97	7/1/97	10/14/97	1/1/97
	0.00075	<	<	0.0026	0.035	0.0036	0.013	0.19	0.21
	<	<	<	<	0.00051	<	0.0011	0.0035	0.0025
	<	0.0041	<	<	0.0051	<	<	0.0045	0.045
	<	0.0011	<	<	0.012	<	0.0011	0.007	0.0281

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

	1	2	3	4	5	6	7	8	9
	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Sample Name	MW1	MW2	MW3	MW4	MW5	MW6	MW7	SB-1	SB-1
Date Sampled	6/1/84	6/1/84	6/1/84	1/8/85	1/8/85	1/8/85	1/8/85	3/18/86	3/18/86
	0.067	<	<	0.017	0.055	3.7	1.7	1.3	6.9
	0.15	25	<	0.007	0.066	23	10	1.4	32
	<	32	<	0.002	0.007	0.97	3.2	1.3	23
	0.37	150	2.4	0.012	0.24	94	29	4.9	14

10	11	12	13	14	15	16	17	18	19	20	21	22
(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)
MW4	MW4	MW4	MW5	MW5	MW5	MW5	MW6	MW6	MW6	MW6	MW7	MW7
4/1/97	7/1/97	10/14/97	1/1/97	4/1/97	7/1/97	10/14/97	10/2/96	4/1/97	7/1/97	10/14/97	1/1/97	4/1/97
0.34	0.0039	0.14	1.6	2	1.6	1.4	0.061	0.37	0.33	0.012	0.0022	0.00091
0.0085	<	0.007	0.0096	0.04	0.02	0.0087	<	0.69	0.005	0.012	<	<
0.11	0.00065	0.024	0.038	0.15	0.035	0.017	0.074	0.87	0.16	0.012	<	<
0.116	<	0.01	0.015	0.049	0.021	0.016	0.012	3.2	0.032	0.012	<	<

10	11	12	13	14	15	16	17	18	19	20	21	22
(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)
SB-2	SB-3	SB-5	SB-5	SB-6	SB-7	S-5-B11	S-9-B11	S-5-B13	S-9-B13	S-10-B11	DI-1-3.5	DI-2-3.5
3/18/86	3/18/86	3/18/86	3/18/86	3/18/86	3/18/86	Oct-89	Oct-89	Oct-89	Oct-89	Oct-89	6/24/93	6/24/93
1.2	4.6	0.15	1.3	0.065	0.055	0.061	0.054	0.17	7.6	0.077	0.023	<
2.1	3.2	0.016	4	0.019	0.012	0.018	0.02	0.06	37	0.085	0.076	0.083
3.7	12	0.08	6.5	0.02	0.0041	<	0.0075	<	10	0.031	0.05	0.051
1.3	44	0.069	24	0.06	0.011	<	0.029	0.0073	98	0.27	0.45	0.52

23	24	25	26	27	28	29	30	31	32	33	34	35
(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)
MW7	MW7	MW3	MW3	MW3	MW3	MW1	MW2	MW3	MW4	MW5	MW6	MW7
7/1/97	10/14/97	1/1/97	4/1/97	7/1/97	10/14/97	2/3/97	2/3/97	2/3/98	2/3/98	2/3/98	2/3/98	2/3/98
0.0041	<	1.3	1.4	1.3	0.63	0.0007	0.0314	2.3	0.124	1.44	0.425	<
<	<	0.0088	0.011	0.032	0.0025	0.0005	0.0091	0.15	0.0467	0.084	1.48	<
0.00075	<	0.011	0.036	0.03	0.0082	<	0.0054	0.166	0.0044	0.038	0.12	<
0.00084	0.00069	0.0213	0.021	0.73	0.00334	<	0.0104	0.158	0.0435	0.05	4.03	<

23	24	25	26	27	28	29	30
(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
DI-3-3.5	DI-4-3.5	PL-1-3.5	PL-2-3.5	PL-3-3.5	MW-11-6	W-11-11.5	
6/24/93	6/24/93	6/24/93	6/24/93	6/24/93	8/22/91	8/22/91	
<	0.3	0.22	3.2	1.1	<	0.26	
<	2.1	0.19	7.7	0.37	<	0.021	
<	<	0.042	2.2	0.22	<	<	
0.012	0.81	0.32	66	0.82	0.024	0.16	

36	37	38	39	40	41	42	43	44	45
(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
MW1	MW2	MW3	MW4	MW5	MW6	MW7			
5/5/98	5/5/98	5/5/98	5/5/98	5/5/98	5/5/98	5/5/98			
0.0086	0.125	1.93	0.165	1.11	0.988	0.0024			
0.0005	0.0682	0.08	0.042	0.026	0.866	0.0025			
<	0.0225	0.018	0.005	0.02	0.024	<			
0.0011	0.0631	0.648	0.039	0.026	1.08	0.0041			

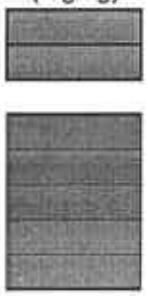
TIER 2 SURFACE SOIL CONCENTRATION DATA SUMMARY

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	2.5E-03	6	6	1.1E+00	4.0E-02	2.3E-01
100-41-4	Ethylbenzene	2.5E-03	6	6	1.7E+00	7.8E-02	5.8E-01
108-88-3	Toluene	2.5E-03	6	5	1.4E+00	4.7E-02	4.9E-01
1330-20-7	Xylene (mixed isomer	2.5E-03	6	6	6.7E+00	2.9E-01	2.8E+00

		1	2	3	4	5	6	7	8	9
Calculated Distribution of Data	Default Detection Limit (mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
	Sample Name	SB-1	SB-2	SB-3	SB-5	SB-6	SB-7			
	Date Sampled	3/18/86	3/18/86	3/18/86	3/18/86	3/18/86	3/18/86			
Lognormal	0.0025	0.0062	0.013	0.0068	0.028	1.1	0.26			
Lognormal	0.0025	0.016	0.1	0.011	0.0065	1.7	1.2			
Lognormal	0.0025	<	0.018	0.047	0.006	1.2	1.4			
Lognormal	0.0025	0.0092	0.54	0.23	0.016	6.7	4.7			

10

(mg/kg)



RBCA SITE ASSESSMENT | Input Screen 9.4

GROUNDWATER DAF VALUES

(Enter DAF values in the grey area of the following table)

CONSTITUENT	Dilution Attenuation Factor (DAF) in Groundwater: Residential Receptor	Comm./Ind. Receptor
Benzene	5.0E+4	1.0E+0
Ethylbenzene	1.2E+12	1.0E+0
Toluene	3.7E+48	1.0E+0
Xylene (mixed isomers)	2.5E+11	1.0E+0

Site Name: Exxon Station No. 7-0104
Site Location: 1725 Park Street, Alameda, CA

Completed By: Scott Graham
Date Completed: 7/1/2002

Site Name: Exxon Station No. 7-0104 Site Location: 1725 Park Street, Alameda, CA Completed By: Scott Graham Date Completed: 7/1/2002

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

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

SURFACE SOILS: VAPOR AND DUST INHALATION Constituents of Concern	Exposure Concentration 1) Source Medium Surface Soil Conc. (mg/kg)	2) NAF Value (m^3/kg) Receptor		3) Exposure Medium Outdoor Air: POE Conc. (mg/m^3) (1) / (2)		4) Exposure Multiplier (IRxEFxED)/(BWxAT) (m^3/kg-day)		5) Average Daily Intake Rate (mg/kg-day) (3) X (4)	
Benzene	2.3E-1								
Ethylbenzene	5.8E-1								
Toluene	4.9E-1								
Xylene (mixed isomers)	2.8E+0								

NOTE: ABS = Dermal absorption factor (dim); AF = Adherance factor (mg/cm^2); AT = Averaging time (days); BW = Body weight (kg); CF = Units conversion factor; ED = Exposure duration (yrs); EF = Exposure frequencey (days/yr); ET = Exposure time (hrs/day); IR = Inhalation rate (m^3/day); POE = Point of exposure; SA = Skin exposure area (cm^2/day)

Site Name: Exxon Station No. 7-0104 | Site Location: 1725 Park Street, Alameda, CA | Completed By: Scott Graham | Date Completed: 7/1/2002 | 2 OF 9

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS (CHECKED IF PATHWAY IS ACTIVE)

SUBSURFACE SOILS: VAPOR INHALATION

Constituents of Concern	Exposure Concentration: 1) Source Medium — Subsurface Soil Conc. (mg/kg)	2) NAF Value (m^3/kg) Receptor: On-Site Commercial	2) NAF Value (m^3/kg) Receptor: Off-Site Residential	3) Exposure Medium — Outdoor Air: POE Conc. (mg/m^3) (1) / (2): On-Site Commercial	3) Exposure Medium — Outdoor Air: POE Conc. (mg/m^3) (1) / (2): Off-Site Residential	4) Exposure Multiplier (IRxEFxED)/(BWxAT) (m^3/kg-day): On-Site Commercial	4) Exposure Multiplier (IRxEFxED)/(BWxAT) (m^3/kg-day): Off-Site Residential	5) Average Daily Intake Rate (mg/kg-day) (3) X (4): On-Site Commercial	5) Average Daily Intake Rate (mg/kg-day) (3) X (4): Off-Site Residential
Benzene	3.3E-1	1.4E+4	1.7E+4	2.3E-5	1.9E-5	7.0E-2	1.2E-1	1.6E-6	2.2E-6
Ethylbenzene	6.1E-1	1.4E+4	1.7E+4	4.2E-5	3.5E-5	2.0E-1	2.7E-1	8.2E-6	9.6E-6
Toluene	2.3E-1	1.4E+4	1.7E+4	1.6E-5	1.3E-5	2.0E-1	2.7E-1	3.2E-6	3.7E-6
Xylene (mixed isomers)	1.9E+0	1.4E+4	1.7E+4	1.3E-4	1.1E-4	2.0E-1	2.7E-1	2.5E-5	3.0E-5

NOTE: ABS = Dermal absorption factor (dim); AF = Adherance factor (mg/cm^2); AT = Averaging time (days); BW = Body weight (kg); CF = Units conversion factor; ED = Exposure duration (yrs); EF = Exposure frequencey (days/yr); ET = Exposure time (hrs/day); IR = Inhalation rate (m^3/day); POE = Point of exposure; SA = Skin exposue area (cm^2/day)

Site Name: Exxon Station No. 7-0104 | Site Location: 1725 Park Street, Alameda, | Completed By: Scott Graham | Date Completed: 7/1/2002 | 3 OF 9

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

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

GROUNDWATER: VAPOR INHALATION

Constituents of Concern	Exposure Concentration: 1) Source Medium — Groundwater Conc. (mg/L)	2) NAF Value (m^3/L) Receptor — On-Site Commercial		3) Exposure Medium — Outdoor Air: POE Conc. (mg/m^3) (1) / (2) — On-Site Commercial		4) Exposure Multiplier (IRxEFxEDY)(BWxAT) (m^3/kg-day) — On-Site Commercial		5) Average Daily Intake Rate (mg/kg-day) (3) X (4) — On-Site Commercial		TOTAL PATHWAY INTAKE (mg/kg-day) (Sum intake values from surface, subsurface & groundwater routes.) — On-Site Commercial	Off-Site Residential
Benzene	1.2E-1	1.6E+4		7.5E-6		7.0E-2		5.3E-7		2.1E-6	2.2E-6
Ethylbenzene	1.0E-2	1.6E+4		6.5E-7		2.0E-1		1.3E-7		8.4E-6	9.6E-6
Toluene	1.3E-2	1.6E+4		7.7E-7		2.0E-1		1.5E-7		3.3E-6	3.7E-6
Xylene (mixed isomers)	2.1E-2	1.6E+4		1.2E-6		2.0E-1		2.4E-7		2.6E-5	3.0E-5

NOTE:
ABS = Dermal absorption factor (dim)
AF = Adherance factor (mg/cm^2)
AT = Averaging time (days)
BW = Body weight (kg)
CF = Units conversion factor
ED = Exposure duration (yrs)
EF = Exposure frequencey (days/yr)
ET = Exposure time (hrs/day)
IR = Inhalation rate (m^3/day)
POE = Point of exposure
SA = Skin exposure area (cm^2/day)

Site Name: Exxon Station No. 7-0104 Site Location: 1725 Park Street, Alameda, CA Completed By: Scott Graham Date Completed: 7/1/2002

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

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

SUBSURFACE SOILS: **Exposure Concentration**

VAPOR INTRUSION TO BUILDINGS

Constituents of Concern	1) Source Medium: Subsurface Soil Conc. (mg/kg)	2) NAF Value (m^3/kg) Receptor: On-Site Commercial	3) Exposure Medium: Indoor Air: POE Conc. (mg/m^3) (1) / (2): On-Site Commercial	4) Exposure Multiplier: (IRxEFxED)/(BWxAT) (m^3/kg-day): On-Site Commercial	5) Average Daily Intake Rate: (mg/kg-day) (3) X (4): On-Site Commercial
Benzene	3.3E-1	9.2E+2	3.6E-4	7.0E-2	2.5E-5
Ethylbenzene	6.1E-1	1.2E+3	5.2E-4	2.0E-1	1.0E-4
Toluene	2.3E-1	1.5E+3	1.6E-4	2.0E-1	3.1E-5
Xylene (mixed isomers)	1.9E+0	2.3E+3	8.3E-4	2.0E-1	1.6E-4

NOTE: ABS = Dermal absorption factor (dim); AF = Adherance factor (mg/cm^2); AT = Averaging time (days); BW = Body weight (kg); CF = Units conversion factor; ED = Exposure duration (yrs); EF = Exposure frequencey (days/yr); ET = Exposure time (hrs/day); IR = Inhalation rate (m^3/day); POE = Point of exposure; SA = Skin exposure area (cm^2/day)

Site Name: Exxon Station No. 7-0104 Site Location: 1725 Park Street, Alameda, Completed By: Scott Graham Date Completed: 7/1/2002

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

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

GROUNDWATER:

VAPOR INTRUSION TO BUILDINGS

Constituents of Concern	Exposure Concentration: 1) Source Medium — Groundwater Conc. (mg/L)	2) NAF Value (m^3/L) — Receptor: On-Site Commercial	3) Exposure Medium — Indoor Air: POE Conc. (mg/m^3) (1) / (2): On-Site Commercial	4) Exposure Multiplier (IRxEFxED)/(BWxAT) (m^3/kg-day): On-Site Commercial	5) Average Daily Intake Rate (mg/kg-day) (3) X (4): On-Site Commercial	TOTAL PATHWAY INTAKE (mg/kg-day) (Sum intake values from subsurface & groundwater routes.): On-Site Commercial
Benzene	1.2E-1	6.6E+3	1.8E-5	7.0E-2	1.3E-6	2.6E-5
Ethylbenzene	1.0E-2	5.6E+3	1.9E-6	2.0E-1	3.6E-7	1.0E-4
Toluene	1.3E-2	6.1E+3	2.1E-6	2.0E-1	4.0E-7	3.1E-5
Xylene (mixed isomers)	2.1E-2	6.5E+3	3.3E-6	2.0E-1	6.4E-7	1.6E-4

NOTE:
ABS = Dermal absorption factor (dim)
AF = Adherance factor (mg/cm^2)
AT = Averaging time (days)
BW = Body weight (kg)
CF = Units conversion factor
ED = Exposure duration (yrs)
EF = Exposure frequencey (days/yr)
ET = Exposure time (hrs/day)
IR = Inhalation rate (m^3/day)
POE = Point of exposure
SA = Skin exposure area (cm^2/day)

Site Name: Exxon Station No. 7- Site Location: 1725 Park Street, Alameda, CA Completed By: Scott Grah Date Completed: 7/1/2002

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

SOIL EXPOSURE PATHWAYS (CHECKED IF PATHWAY IS ACTIVE)

SURFACE SOILS OR SEDIMENTS: **Exposure Concentration**

DERMAL CONTACT

	1) Source Medium	2) Exposure Multiplier (SAxAFxABSxCFxEFxED)/(BWxAT) (kg/kg-day)		3) Average Daily Intake Rate (mg/kg-day) (1) x (2)	
Constituents of Concern	Surface Soil Conc. (mg/kg)	On-Site Residential	On-Site Commercial	On-Site Residential	On-Site Commercial
Benzene	2.3E-1		1.0E-5		2.3E-6
Ethylbenzene	5.8E-1		2.8E-5		1.6E-5
Toluene	4.9E-1		2.8E-5		1.4E-5
Xylene (mixed isomers)	2.8E+0		2.8E-5		8.0E-5

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

Site Name: Exxon Station No. 7-01 Site Location: 1725 Park Street, Alameda, Completed By: Scott Graham Date Completed: 7/1/2002

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

SOIL EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAY IS ACTIVE)

SURFACE SOILS OR SEDIMENTS: INGESTION	Exposure Concentration	2) Exposure Multiplier (IRxCFxEFxED)/(BWxAT) (kg/kg-day)		3) Average Daily Intake Rate (mg/kg-day) (1) x (2)		TOTAL PATHWAY INTAKE (mg/kg-day) (Sum intake values from dermal & ingestion routes.)	
	1) Source Medium						
Constituents of Concern	Surface Soil Conc. (mg/kg)	On-Site Residential	On-Site Commercial	On-Site Residential	On-Site Commercial	On-Site Residential	On-Site Commercial
Benzene	2.3E-1		1.7E-7		4.0E-8		2.4E-6
Ethylbenzene	5.8E-1		4.9E-7		2.8E-7		1.7E-5
Toluene	4.9E-1		4.9E-7		2.4E-7		1.4E-5
Xylene (mixed isomers)	2.8E+0		4.9E-7		1.4E-6		8.1E-5

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

Site Name: Exxon Station No. 7-01 Site Location: 1725 Park Street, Alameda, CA Completed By: Scott Graham Date Completed: 7/1/2002

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

GROUNDWATER EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAY IS ACTIVE)

SOIL: LEACHING TO GROUNDWATER/ GROUNDWATER INGESTION

Constituents of Concern	Exposure Concentration 1) Source Medium Soil Concentration (mg/kg)	2) NAF Value (L/kg) Receptor Off-Site Residential	3) Exposure Medium Groundwater: POE Conc. (mg/L) (1)(2) Off-Site Residential	4) Exposure Multiplier ((IRxEFxED)/(BWxAT) (L/kg-day) Off-Site Residential	5) Average Daily Intake Rate (mg/kg-day) (3) x (4) Off-Site Residential
Benzene	3.3E-1	1.3E+4	2.4E-5	1.2E-2	2.9E-7
Ethylbenzene	6.1E-1	4.7E+11	1.3E-12	2.7E-2	3.5E-14
Toluene	4.9E-1	1.7E+48	2.8E-49	2.7E-2	7.8E-51
Xylene (mixed isomers)	2.8E+0	1.7E+11	1.7E-11	2.7E-2	4.6E-13

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

Site Name: Exxon Station No. 7-01 Site Location: 1725 Park Street, Alameda, CA Completed By: Scott Graham Date Completed: 7/1/2002

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

GROUNDWATER EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAY IS ACTIVE)

GROUNDWATER: INGESTION

Constituents of Concern	Exposure Concentration: 1) Source Medium — Groundwater Conc. (mg/L)	2) NAF Value (dim) — Receptor: Off-Site Residential	3) Exposure Medium — Groundwater: POE Conc. (mg/L) (1)/(2): Off-Site Residential	4) Exposure Multiplier — (IRxEFxED)/(BWxAT) (L/kg-day): Off-Site Residential	5) Average Daily Intake Rate — (mg/kg-day) (3) x (4): Off-Site Residential	MAX. PATHWAY INTAKE (mg/kg-day) (Maximum intake of active pathways soil leaching & groundwater routes.): Off-Site Residential
Benzene	1.2E-1	5.0E+4	2.4E-6	1.2E-2	2.9E-8	2.9E-7
Ethylbenzene	1.0E-2	1.2E+12	8.9E-15	2.7E-2	2.4E-16	3.5E-14
Toluene	1.3E-2	3.7E+48	3.4E-51	2.7E-2	9.4E-53	7.8E-51
Xylene (mixed isomers)	2.1E-2	2.5E+11	8.6E-14	2.7E-2	2.3E-15	4.6E-13

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

Site Name: Exxon Station No. 7-0104 Site Location: 1725 Park Street, Alameda, CA Completed By: Scott Graham Date Completed: 7/1/2002

TIER 2 PATHWAY RISK CALCULATION

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

Constituents of Concern	(1) EPA Carcinogenic Classification	CARCINOGENIC RISK: (2) Total Carcinogenic Intake Rate (mg/kg/day) On-Site Commercial	(2) Off-Site Residential	(3) Inhalation Slope Factor (mg/kg-day)^-1	(4) Individual COC Risk (2) x (3) On-Site Commercial	(4) Off-Site Residential	TOXIC EFFECTS: (5) Total Toxicant Intake Rate (mg/kg/day) On-Site Commercial	(5) Off-Site Residential	(6) Inhalation Reference Dose (mg/kg-day)	(7) Individual COC Hazard Quotient (5) / (6) On-Site Commercial	(7) Off-Site Residential
Benzene	A	2.1E-6	2.2E-6	2.9E-2	6.1E-8	6.4E-8	5.9E-6	5.2E-6	1.7E-3	3.5E-3	3.0E-3
Ethylbenzene	D						8.4E-6	9.6E-6	2.9E-1	2.9E-5	3.4E-5
Toluene	D						3.3E-6	3.7E-6	1.1E-1	2.9E-5	3.2E-5
Xylene (mixed isomers)	D						2.6E-5	3.0E-5	2.0E+0	1.3E-5	1.5E-5

Total Pathway Carcinogenic Risk = **6.1E-8** **6.4E-8**

Total Pathway Hazard Index = **3.5E-3** **3.1E-3**

Site Name: Exxon Station No. 7-0104 | Site Location: 1725 Park Street, Alameda, CA | Completed By: Scott Graham | Date Completed: 7/1/2002 | 2 OF 4

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 Intake Rate (mg/kg/day) On-Site	Commercial	(3) Inhalation Slope Factor (mg/kg-day)^-1	(4) Individual COC Risk (2) x (3) On-Site	Commercial	TOXIC EFFECTS: (5) Total Toxicant Intake Rate (mg/kg/day) On-Site	Commercial	(6) Inhalation Reference Dose (mg/kg-day)	(7) Individual COC Hazard Quotient (5) / (6) On-Site	Commercial
Benzene	A		2.6E-5	2.9E-2		7.6E-7		7.3E-5	1.7E-3		4.3E-2
Ethylbenzene	D							1.0E-4	2.9E-1		3.6E-4
Toluene	D							3.1E-5	1.1E-1		2.8E-4
Xylene (mixed isomers)	D							1.6E-4	2.0E+0		8.2E-5
Total Pathway Carcinogenic Risk =					0.0E+0	7.6E-7	***Total Pathway Hazard Index =***			0.0E+0	4.4E-2

Site Name: Exxon Station No. 7-0104 | Site Location: 1725 Park Street, Alameda, CA | Completed By: Scott Graham | Date Completed: 7/1/2002 | *3 OF 4*

TIER 2 PATHWAY RISK CALCULATION

SOIL EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAYS ARE ACTIVE)

Constituents of Concern	(1) EPA Carcinogenic Classification	CARCINOGENIC RISK: (2) Total Carcinogenic Intake Rate (mg/kg/day) On-Site Residential	(2) Total Carcinogenic Intake Rate (mg/kg/day) On-Site Commercial	(3) Oral Slope Factor (mg/kg-day)^-1	(4) Individual COC Risk (2) x (3) On-Site Residential	(4) Individual COC Risk (2) x (3) On-Site Commercial	TOXIC EFFECTS: (5) Total Toxicant Intake Rate (mg/kg/day) On-Site Residential	(5) Total Toxicant Intake Rate (mg/kg/day) On-Site Commercial	(6) Oral Reference Dose (mg/kg-day)	(7) Individual COC Hazard Quotient (5) / (6) On-Site Residential	(7) Individual COC Hazard Quotient (5) / (6) On-Site Commercial
Benzene	A		2.4E-6	1.0E-1		2.4E-7					
Ethylbenzene	D							1.7E-5	1.0E-1		1.7E-4
Toluene	D							1.4E-5	2.0E-1		7.0E-5
Xylene (mixed isomers)	D							8.1E-5	2.0E+0		4.1E-5

Total Pathway Carcinogenic Risk = 0.0E+0 | 2.4E-7

Total Pathway Hazard Index = 0.0E+0 | 2.8E-4

RBCA SITE ASSESSMENT	Tier 2 Worksheet 8.2

Site Name: Exxon Station No. 7-0104 | Site Location: 1725 Park Street, Alameda, CA | Completed By: Scott Graham | Date Completed: 7/1/2002 | *4 OF 4*

TIER 2 PATHWAY RISK CALCULATION

GROUNDWATER EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAYS ARE ACTIVE)

		CARCINOGENIC RISK					TOXIC EFFECTS				
	(1) EPA	(2) Total Carcinogenic Intake Rate (mg/kg/day)		(3) Oral Slope Factor	(4) Individual COC Risk (2) x (3)		(5) Total Toxicant Intake Rate (mg/kg/day)		(6) Oral Reference Dose	(7) Individual COC Hazard Quotient (5) / (6)	
Constituents of Concern	Carcinogenic Classification		Off-Site Residential	(mg/kg-day)^-1		Off-Site Residential		Off-Site Residential	(mg/kg-day)		Off-Site Residential
Benzene	A		2.9E-7	1.0E-1		2.9E-8					
Ethylbenzene	D							3.5E-14	1.0E-1		3.5E-13
Toluene	D							7.8E-51	2.0E-1		3.9E-50
Xylene (mixed isomers)	D							4.6E-13	2.0E+0		2.3E-13
Total Pathway Carcinogenic Risk =					**0.0E+0**	**2.9E-8**	***Total Pathway Hazard Index =***			**0.0E+0**	**5.8E-13**

RBCA SITE ASSESSMENT | **Tier 2 Worksheet 8.3**

Site Name: Exxon Station No. 7-0104
Site Location: 1725 Park Street, Alameda, CA

Completed By: Scott Graham
Date Completed: 7/1/2002

TIER 2 BASELINE RISK SUMMARY TABLE

	BASELINE CARCINOGENIC RISK					BASELINE TOXIC EFFECTS				
	Individual COC Risk		Cumulative COC Risk		Risk Limit(s) Exceeded?	Hazard Quotient		Hazard Index		Toxicity Limit(s) Exceeded?
EXPOSURE PATHWAY	Maximum Value	Target Risk	Total Value	Target Risk		Maximum Value	Applicable Limit	Total Value	Applicable Limit	
OUTDOOR AIR EXPOSURE PATHWAYS										
Complete:	6.4E-8	1.0E-6	6.4E-8	N/A	☐	3.5E-3	1.0E+0	3.5E-3	N/A	☐
INDOOR AIR EXPOSURE PATHWAYS										
Complete:	7.6E-7	1.0E-6	7.6E-7	N/A	☐	4.3E-2	1.0E+0	4.4E-2	N/A	☐
SOIL EXPOSURE PATHWAYS										
Complete:	2.4E-7	1.0E-6	2.4E-7	N/A	☐	1.7E-4	1.0E+0	2.8E-4	N/A	☐
GROUNDWATER EXPOSURE PATHWAYS										
Complete:	2.9E-8	1.0E-6	2.9E-8	N/A	☐	3.5E-13	1.0E+0	5.8E-13	N/A	☐
CRITICAL EXPOSURE PATHWAY (Select Maximum Values From Complete Pathways)										
	7.6E-7	1.0E-6	7.6E-7	N/A	☐	4.3E-2	1.0E+0	4.4E-2	N/A	☐

RBCA SITE ASSESSMENT

Tier 2 Worksheet 9.1

Site Name: Exxon Station No. 7-0104
Site Location: 1725 Park Street, Alameda, CA

Completed By: Scott Graham
Date Completed: 7/1/2002

SURFACE SOIL SSTL VALUES (< 2 FT BGS)

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

☐ MCL exposure limit?
☐ PEL exposure limit?

Calculation Option: 2
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			X Ingestion and Dermal Contact		X Construction Worker	Applicable SSTL	SSTL Exceeded ?	Required CRF
CAS No.	Name	(mg/kg)	Residential: 1344 feet	Commercial: (on-site)	Regulatory(MCL): 1344 feet	Residential: (on-site)	Commercial: (on-site)	Commercial: (on-site)	(mg/kg)	"■" If yes	Only if "yes" left
71-43-2	Benzene	2.3E-1	1.1E+1	NA	NA	NA	9.7E-1	3.1E+1	9.7E-1	☐	<1
100-41-4	Ethylbenzene	5.8E-1	>Res	NA	NA	NA	>Res	>Res	>Res	☐	<1
108-88-3	Toluene	4.9E-1	>Res	NA	NA	NA	>Res	>Res	>Res	☐	<1
1330-20-7	Xylene (mixed isomers)	2.8E+0	>Res	NA	NA	NA	>Res	>Res	>Res	☐	<1

>Res indicates risk-based target concentration greater than constituent residual saturation value

Software: GSI RBCA Spreadsheet
Version: 1.0.1

Serial: G-311-YSX-826

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

Site Name: Exxon Station No. 7-0104
Site Location: 1725 Park Street, Alameda, CA

Completed By: Scott Graham
Date Completed: 7/1/2002

SUBSURFACE SOIL SSTL VALUES (> 2 FT BGS)

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

☐ MCL exposure limit?
☐ PEL exposure limit?

Calculation Option: 2
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			X Soil Volatilization to Indoor Air		X Soil Volatilization to Outdoor Air		Applicable SSTL	SSTL Exceeded ?	Required CRF
CAS No.	Name	(mg/kg)	Residential: 1344 feet	Commercial: (on-site)	Regulatory(MCL): 1344 feet	Residential: (on-site)	Commercial: (on-site)	Residential: 20 feet	Commercial: (on-site)	(mg/kg)	"■" If yes	Only If "yes" left
71-43-2	Benzene	3.3E-1	1.1E+1	NA	NA	NA	4.6E-1	5.1E+0	7.2E+0	4.6E-1	☐	<1
100-41-4	Ethylbenzene	6.1E-1	>Res	NA	NA	NA	>Res	>Res	>Res	>Res	☐	<1
108-88-3	Toluene	2.3E-1	>Res	NA	NA	NA	>Res	>Res	>Res	>Res	☐	<1
1330-20-7	Xylene (mixed isomers)	1.9E+0	>Res	NA	NA	NA	>Res	>Res	>Res	>Res	☐	<1

>Res indicates risk-based target concentration greater than constituent residual saturation value

Software: GSI RBCA Spreadsheet
Version: 1.0.1

Serial: G-311-YSX-926

Site Name: Exxon Station No. 7-0104
Completed By: Scott Graham
Site Location: 1725 Park Street, Alameda, CA
Date Completed: 7/1/2002

GROUNDWATER SSTL VALUES

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

☐ MCL exposure limit?
☐ PEL exposure limit?

Calculation Option: 2
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			X Groundwater Volatilization to Indoor Air		X Groundwater Volatilization to Outdoor Air		Applicable SSTL	SSTL Exceeded ?	Required CRF
CAS No.	Name	(mg/L)	Residential: 1344 feet	Commercial: (on-site)	Regulatory(MCL): 1344 feet	Residential: (on-site)	Commercial: (on-site)	Residential (on-site)	Commercial: (on-site)	(mg/L	"■" If yes	Only If "yes" left
71-43-2	Benzene	1.2E-1	4.3E+1	NA	NA	NA	3.3E+0	NA	8.0E+0	3.3E+0	☐	<1
100-41-4	Ethylbenzene	1.0E-2	>Sol	NA	NA	NA	>Sol	NA	>Sol	>Sol	☐	<1
108-88-3	Toluene	1.3E-2	>Sol	NA	NA	NA	>Sol	NA	>Sol	>Sol	☐	<1
1330-20-7	Xylene (mixed isomers)	2.1E-2	>Sol	NA	NA	NA	>Sol	NA	>Sol	>Sol	☐	<1

>Sol indicates risk-based target concentration greater than constituent solubility

Software: GSI RBCA Spreadsheet
Version: 1.0.1
Serial: G-311-YSX-926

Main Screen

RBCA Tool Kit for Chemical Releases
Version 1.3a © 2000

1. Project Information

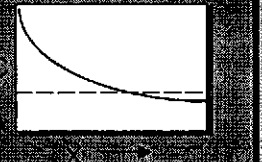
Site Name:	Former Exxon Service Station 7-0104
Location:	1725 Park Street, Alameda, CA
Compl. By:	Scott R. Graham
Date:	1-Jul-02
Job ID:	250603X02

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...

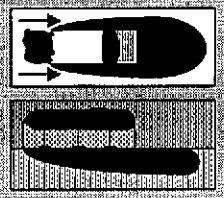
5. Commands and Options

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

Exposure Pathway Identification

Site Name: Former Exxon Service Station 7-0104
Location: 1725 Park Street, Alameda, CA
Compl. By: Scott R. Graham
Job ID: 250603X02 Date: 1-Jul-02

1. Groundwater Exposure



Groundwater Ingestion/ Surface Water Impact

Receptor Type:	None On-site	Res. Off-site1	S.W. Off-site2

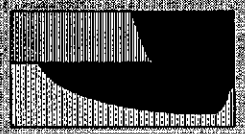
Source Media:

- [x] Affected Groundwater
- [x] Affected Soils Leaching to Groundwater

Distance to GW receptors

	On-site	Off-site1	Off-site2	
Affected Groundwater	0	2000	1344	(ft)
Affected Soils Leaching to Groundwater	0	2000	1344	(ft)

GW Discharge to Surface Water Exposure



- [x] Swimming
- [x] Fish Consumption
- [ ] Aquatic Life Protection

Enter ALP Criteria

2. Surface Soil Exposure

Direct Ingestion and Dermal Contact

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

Construction Worker: [x]

3. Air Exposure

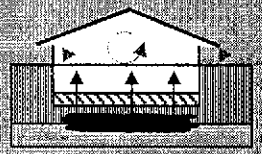
Volatilization and Particulates to Outdoor Air Inhalation

Receptor Type:	Com. On-site	Res. Off-site1	None Off-site2	
	0	20	0	(ft)

Construction worker: [x]

- [x] Affected Soils--Volatilization to Ambient Outdoor Air
- [x] Affected Groundwater--Volatilization to Ambient Outdoor Air
- [ ] Affected Surface Soils--Particulates to Ambient Outdoor Air

Volatilization to Indoor Air Inhalation



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

- [x] Affected Soils--Volatilization to Enclosed Space
- [x] Affected Groundwater--Volatilization to Enclosed Space

4. Commands and Options

Main Screen | Print Sheet | Set Units | *Help*

Exposure Factors & Target Risks | Exposure Flowchart

Site Name: Former Exxon Service Station 7-0104 | Job ID: 250603X02
Location: 1725 Park Street, Alameda, CA | Date: 1-Jul-02
Compl. By: Scott R. Graham

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 (mg/L)	Groundwater Source Zone: Enter Site Data note	Soil Source Zone: Enter Directly (mg/kg)	Soil Source Zone: Enter Site Data note	Mole Fraction in Source Material (-)
TPH - Aliph >C06-C08	1.3E+0		6.6E+1		
TPH - Aliph >C08-C10	1.3E+0		6.6E+1		
TPH - Aliph >C10-C12	1.3E+0		6.6E+1		

Commands and Options

Site Name: Former Exxon Service Station 7-0104 — Job ID: 250603X02
Location: 1725 Park Street, Alameda, CA — Date: 1-Jul-02
Compl. By: Scott R. Graham

Enter Ana
Groundw
(up to 50

UCL
Percentile
95%

ID
Date

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)
	0.0E+0						
TPH - Aliph >C06-C0	5.0E-2	42	40	Lognormal	2.7E+1	8.4E-1	1.3E+0
TPH - Aliph >C08-C1	5.0E-2	42	40	Lognormal	2.7E+1	8.4E-1	1.3E+0
TPH - Aliph >C10-C1	5.0E-2	42	40	Lognormal	2.7E+1	8.4E-1	1.3E+0
dummyCOC	#N/A	0	NA	NA	NA	NA	NA

ytical Data from
ter Source Zone
ata Points)

Analytical Data

1	2	3	4	5	6	7	8	9	10	11	12	13
MW1	MW1	MW1	MW1	MW2	MW2	MW2	MW2	MW3	MW3	MW3	MW3	MW4
2-Jan-01	2-Apr-01	2-Jul-01	15-Oct-01	3-Oct-00	2-Apr-01	2-Jul-01	15-Oct-01	2-Jan-01	2-Apr-01	2-Jul-01	15-Oct-01	2-Jan-01
(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)
<	1.35E-1	7.40E-2	1.08E-1	1.48E-1	<	1.39E+0	4.15E-1	1.36E+0	2.23E+0	3.21E+0	1.66E+0	5.55E-1
<	1.35E-1	7.40E-2	1.08E-1	1.48E-1	<	1.39E+0	4.15E-1	1.36E+0	2.23E+0	3.21E+0	1.66E+0	5.55E-1
<	1.35E-1	7.40E-2	1.08E-1	1.48E-1	<	1.39E+0	4.15E-1	1.36E+0	2.23E+0	3.21E+0	1.66E+0	5.55E-1

Analytical Data

14	15	16	17	18	19	20	21	22	23	24	25	26
MW4	MW4	MW4	MW5	MW5	MW5	MW5	MW6	MW6	MW6	MW6	MW7	MW7
2-Apr-01	2-Jul-01	15-Oct-01	2-Jan-01	2-Apr-01	2-Jul-01	15-Oct-01	3-Oct-00	2-Apr-01	2-Jul-01	15-Oct-01	2-Jan-01	2-Apr-01
(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)
1.33E+0	9.60E-2	7.49E-1	3.14E+0	4.56E+0	2.42E+0	2.46E+0	3.43E-1	1.09E+1	3.18E+0	2.70E+1	1.18E-1	1.19E-1
1.33E+0	9.60E-2	7.49E-1	3.14E+0	4.56E+0	2.42E+0	2.46E+0	3.43E-1	1.09E+1	3.18E+0	2.70E+1	1.18E-1	1.19E-1
1.33E+0	9.60E-2	7.49E-1	3.14E+0	4.56E+0	2.42E+0	2.46E+0	3.43E-1	1.09E+1	3.18E+0	2.70E+1	1.18E-1	1.19E-1

Analytical Data

27	28	29	30	31	32	33	34	35	36	37	38	39
MW7	MW7	MW1	MW2	MW3	MW4	MW5	MW6	MW7	MW1	MW2	MW3	MW4
2-Jul-01	15-Oct-01	4-Feb-02	4-Feb-02	4-Feb-02	4-Feb-02	4-Feb-02	4-Feb-02	4-Feb-02	6-May-02	6-May-02	6-May-02	6-May-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)
1.05E-1	1.70E-1	7.50E-2	1.22E-1	8.83E+0	1.25E+0	4.38E+0	1.48E+1	9.28E-1	7.93E-1	1.25E+0	7.95E+0	2.04E+0
1.05E-1	1.70E-1	7.50E-2	1.22E-1	8.83E+0	1.25E+0	4.38E+0	1.48E+1	9.28E-1	7.93E-1	1.25E+0	7.95E+0	2.04E+0
1.05E-1	1.70E-1	7.50E-2	1.22E-1	8.83E+0	1.25E+0	4.38E+0	1.48E+1	9.28E-1	7.93E-1	1.25E+0	7.95E+0	2.04E+0

40	41	42	43	44	45
MW5	MW6	MW7			
6-May-02	6-May-02	6-May-02			
(mg/L)	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*	*(mg/L)*
3.81E+0	8.58E+0	5.91E-1			
3.81E+0	8.58E+0	5.91E-1			
3.81E+0	8.58E+0	5.91E-1			

Transport Modeling Options

Site Name: Former Exxon Service Station 7-0104 Job ID: 250603X02
Location: 1725 Park Street, Alameda, CA Date: 1-Jul-02
Compl. By: Scott R. Graham

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

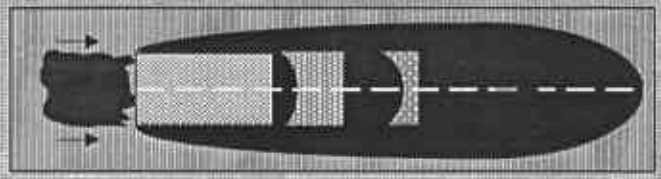
- ◉ ASTM Model ?
  - ☑ Apply Soil Attenuation Model (SAM)
  - ☐ Allow first-order biodecay — Enter Decay Rates
- ○ User-specified LF from other model — Enter LF Values

2. Lateral Air Dispersion Factor

?

	Off-site 1	Off-site 2	
◉ 3-D Gaussian dispersion model			
○ User-Specified ADF	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 — Enter Site Data

Enter Directly — Biodegradation Capacity: NC *(mg/L)*

— or —

User-Specified DAF Values

- ○ DAF values from other model or site data — Enter DAF Values

n o

4. Commands and Options

Main Screen **Print Sheet** ***Help***

Site-Specific Soil Parameters

Site Name: Former Exxon Service Station 7-0104 — Job ID: 250603X02
Location: 1725 Park Street, Alameda, CA — Date: 1-Jul-02
Compl. By: Scott R. Graham

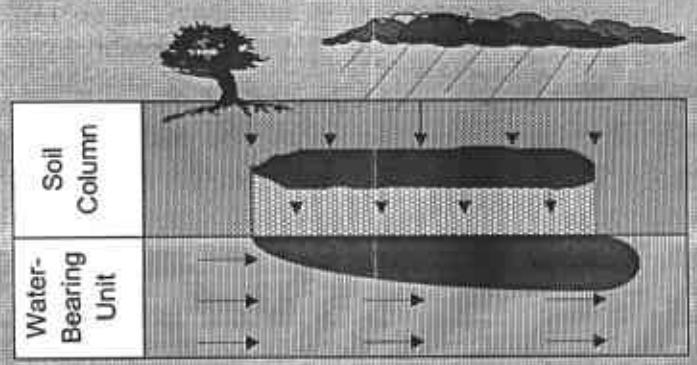
1. Soil Source Zone Characteristics

Hydrogeology

	General Case	Construction	
Depth to water-bearing unit	7		(ft)
Capillary zone thickness	0.16		(ft)
Soil column thickness	6.84		(ft)

Affected Soil Zone

Depth to top of affected soils	3		(ft)
Depth to base of affected soils	10		(ft)
Affected soil area	12100	1080	(ft^2)
Length of affected soil parallel to assumed wind direction	155	32.8	(ft)
Length of affected soil parallel to assumed GW flow direction	155		(ft)



2. Surface Soil Column

	Vadose Zone	Capillary Fringe	
Predominant USCS Soil Type			ults
or Calculate			
Total porosity	0.38		(-)
Volumetric water content	0.12	0.342	(-)
Volumetric air content	0.26	0.038	(-)
Dry bulk density	1.7		(kg/L)
Vertical hydraulic conductivity	1.0E-3		(cm/s)
Vapor permeability	1.1E-11		(ft^2)
Capillary zone thickness	1.6E-1		(ft)

Net Rainfall Infiltration

Net infiltration estimate	11.81102362	(in/yr)
or Calculate		
or Average annual precipitation	0	(in/yr)

Partitioning Parameters

Fraction organic carbon	0.01	(-)
Soil/water pH	6.8	(-)

3. Commands and Options

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

Site-Specific Groundwater Parameters

Site Name: Former Exxon Service Station 7-0104 Job ID: 250603X02
Location: 1725 Park Street, Alameda, CA Date: 1-Jul-02
Compl. By: Scott R. Graham

1. Water-Bearing Unit

Hydrogeology

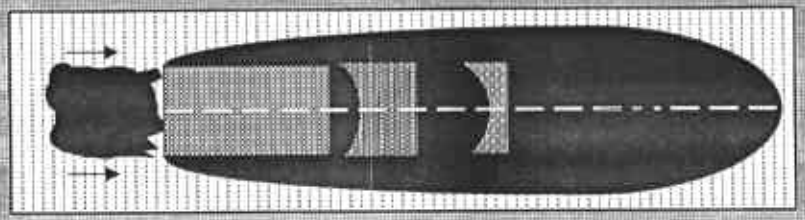
Groundwater Darcy velocity	2.0E-5	(cm/s)
Groundwater seepage velocity	5.3E-5	(cm/s)
or Enter Directly	↑ or	
Hydraulic conductivity	1.0E-3	(cm/s)
Hydraulic gradient	2.0E-2	(-)
Effective porosity	0.38	(-)

Sorption

Fraction organic carbon--saturated zone	0.001	(-)
Groundwater pH	6.20	(-)

2. Groundwater Source Zone

Groundwater plume width at source	155	(ft)
Plume (mixing zone) thickness at source	6.56167979	(ft)
or Calculate	↑ or	
Saturated thickness	10	(ft)
Length of source zone		(ft)



3. Groundwater Dispersion

Model: Xu and Eckstien

	GW Ingestion		Soil Leaching to GW		
	Off-site 1	Off-site 2	Off-site 1	Off-site 2	
Distance to GW receptors	2000	1344	2000	1344	(ft)
or Enter Directly	↓ or	↓	↓ or	↓	
Longitudinal dispersivity	32.28	27.66	32.28	27.66	(ft)
Transverse dispersivity	3.228	2.766	3.228	2.766	(ft)
Vertical dispersivity	0.323	0.277	0.323	0.277	(ft)

4. Groundwater Discharge to Surface Water

	Off-site 2	
Distance to GW/SW disharge point	1344	(ft)
Plume width at GW/SW discharge	300	(ft)
Plume thickness at GW/SW discharge	12	(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 Exxon Service Station 7-0104 Job ID: 250603X02
Location: 1725 Park Street, Alameda, CA Date: 1-Jul-02
Compl. By: Scott R. Graham

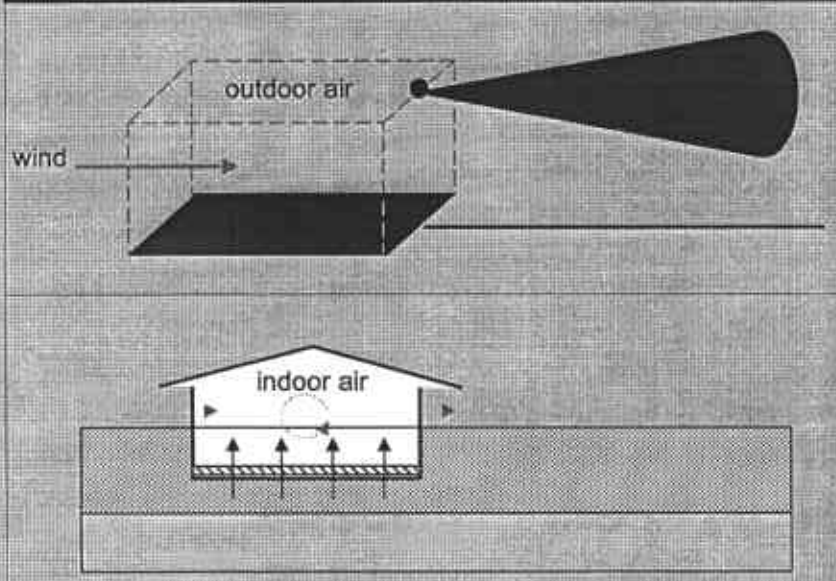
1. Outdoor Air Pathway

Dispersion in Air

	Off-site 1	Off-site 2	
Distance to offsite air receptor	20	0	(ft)
or Enter Directly	or	or	
Horizontal dispersivity	2.48	0	(ft)
Vertical dispersivity	1.71	0	(ft)

Air Source Zone

Air mixing zone height	6.56167979	(ft)
Ambient air velocity in mixing zone	7.381889764	(ft/s)
Areal particulate emission flux	6.9E-14	(g/cm^2/s)



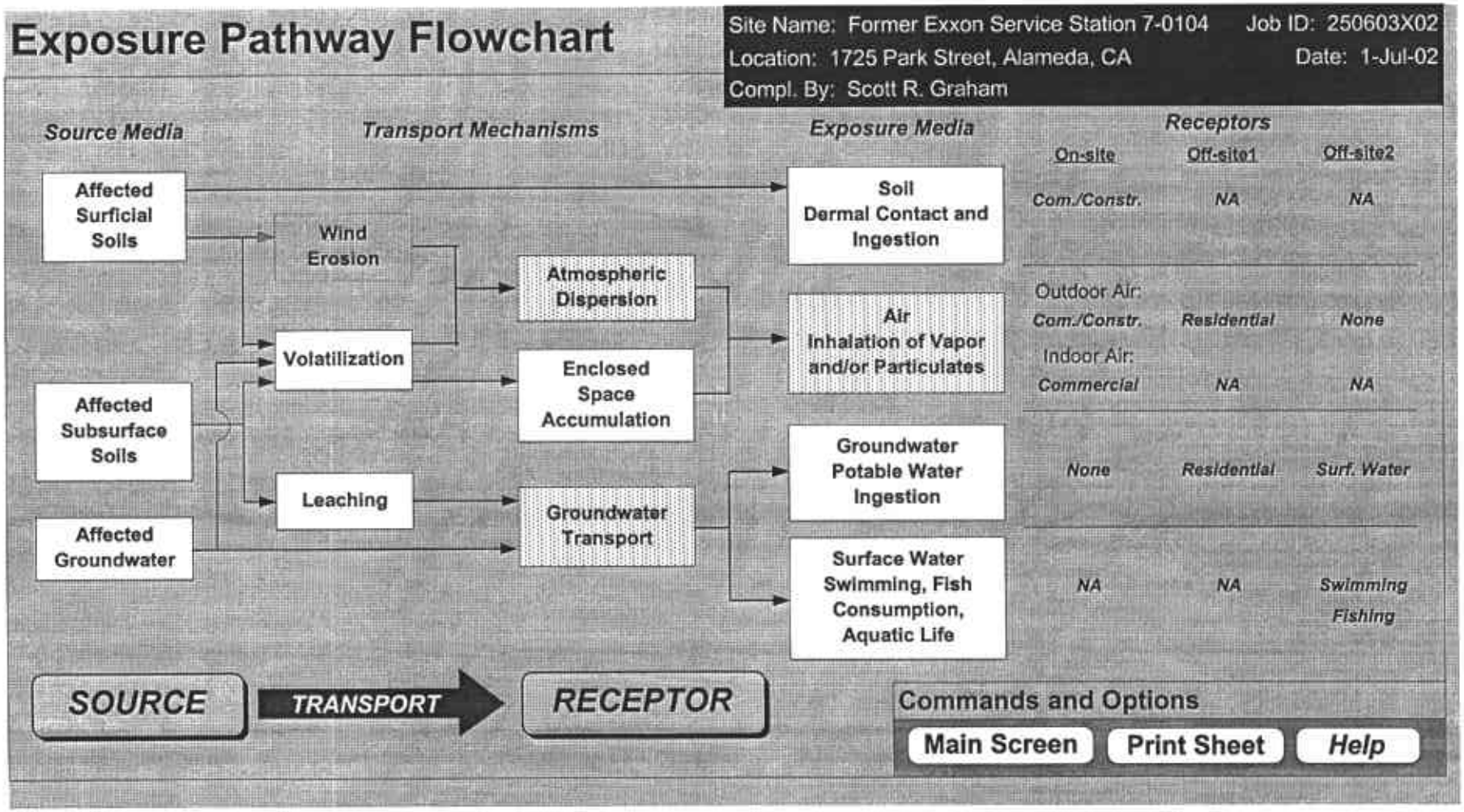
2. Indoor Air Pathway

Building Parameters

	Residential	Commercial	
Building volume/area ratio	6.56168	9.84252	(ft)
Foundation area	753.474	753.474	(ft^2)
Foundation perimeter	111.549	111.549	(ft)
Building air exchange rate	1.4E-4	2.3E-4	(1/s)
Depth to bottom of foundation slab	0.49213	0.49213	(ft)
Convective air flow through cracks	0.0E+0	0.0E+0	(ft^3/s)
Foundation thickness	0.5		(ft)
Foundation crack fraction	0.0001		(-)
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*


Exposure Pathway Flowchart
Site Name: Former Exxon Service Station 7-0104
Job ID: 250603X02
Location: 1725 Park Street, Alameda, CA
Date: 1-Jul-02
Compl. By: Scott R. Graham
Source Media
Transport Mechanisms
Exposure Media
Receptors
On-site
Off-site1
Off-site2
Affected Surficial Soils
Wind Erosion
Volatilization
Affected Subsurface Soils
Leaching
Affected Groundwater
Atmospheric Dispersion
Enclosed Space Accumulation
Groundwater Transport
Soil Dermal Contact and Ingestion
Com./Constr.
NA
NA
Air Inhalation of Vapor and/or Particulates
Outdoor Air:
Com./Constr.
Residential
None
Indoor Air:
Commercial
NA
NA
Groundwater Potable Water Ingestion
None
Residential
Surf. Water
Surface Water Swimming, Fish Consumption, Aquatic Life
NA
NA
Swimming
Fishing
SOURCE
TRANSPORT
RECEPTOR
Commands and Options
Main Screen
Print Sheet
Help

RBCA SITE ASSESSMENT

Input Parameter Summary

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA

Completed By: Scott R. Graham
Date Completed: 1-Jul-02

Job ID: 250603X002

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 adherance 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				
FI_{fish}	Contaminated fish fraction (unitless)	1				

Complete Exposure Pathways and Receptors	On-site	Off-site 1	Off-site 2
Groundwater:			
Groundwater Ingestion	None	Residential	Surf. Water
Soil Leaching to Groundwater Ingestion	None	Residential	Surf. Water
Applicable Surface Water Exposure Routes:			
Swimming			Yes
Fish Consumption			Yes
Aquatic Life Protection			No
Soil:			
Direct Ingestion and Dermal Contact	Com./Constr.		
Outdoor Air:			
Particulates from Surface Soils	None	None	None
Volatilization from Soils	Com./Constr.	Residential	None
Volatilization from Groundwater	Commercial	Residential	None
Indoor Air:			
Volatilization from Subsurface Soils	Commercial	NA	NA
Volatilization from Groundwater	Commercial	NA	NA

Receptor Distance from Source Media	On-site	Off-site 1	Off-site 2	(Units)
Groundwater receptor	NA	2000	1344	(ft)
Soil leaching to groundwater receptor	NA	2000	1344	(ft)
Outdoor air inhalation receptor	0	20	NA	(ft)

Target Health Risk Values		Individual	Cumulative
TR_{ac}	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	3-D Gaussian dispersion
Groundwater dilution-attenuation factor	Domenico model

NOTE: NA = Not applicable

Surface Parameters		General	Construction	(Units)
A	Source zone area	1.2E+4	1.1E+3	(ft^2)
W	Length of source-zone area parallel to wind	1.6E+2	3.3E+1	(ft)
W_{gw}	Length of source-zone area parallel to GW flow	1.6E+2		(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	1.0E-1			(ft)
h_v	Vadose zone thickness	6.8E+0			(ft)
ρ_b	Soil bulk density	1.7E+0			(g/cm^3)
f_{oc}	Fraction organic carbon	1.0E-2			(-)
θ_T	Soil total porosity	3.8E-1			(-)
K_{vs}	Vertical hydraulic conductivity	1.0E-3			(cm/s)
k_v	Vapor permeability	1.1E-11			(ft^2)
L_{gw}	Depth to groundwater	7.0E+0			(ft)
L_s	Depth to top of affected soils	3.0E+0			(ft)
L_{subs}	Depth to base of affected soils	1.0E+1			(ft)
L_{ssubs}	Thickness of affected soils	7.0E+0			(ft)
pH	Soil/groundwater pH	6.8E+0			(-)
		capillary	vadose	foundation	
θ_w	Volumetric water content	0.342	0.12	0.12	(-)
θ_a	Volumetric air content	0.038	0.26	0.26	(-)

Building Parameters		Residential	Commercial	(Units)
L_b	Building volume/area ratio	NA	9.84E+0	(ft)
A_b	Foundation area	NA	7.53E+2	(ft^2)
X_{crk}	Foundation perimeter	NA	1.12E+2	(ft)
ER	Building air exchange rate	NA	2.30E-4	(1/s)
L_{crk}	Foundation thickness	NA	5.00E-1	(ft)
Z_{crk}	Depth to bottom of foundation slab	NA	4.92E-1	(ft)
η	Foundation crack fraction	NA	1.00E-4	(-)
dP	Indoor/outdoor differential pressure	NA	0.00E+0	(g/cm/s^2)
Q_s	Convective air flow through slab	NA	0.00E+0	(ft^3/s)

Groundwater Parameters		Value	(Units)
S_{gw}	Groundwater mixing zone depth	6.6E+0	(ft)
I_f	Net groundwater infiltration rate	1.2E+1	(in/yr)
U_{gw}	Groundwater Darcy velocity	2.0E-5	(cm/s)
V_{gw}	Groundwater seepage velocity	5.3E-5	(cm/s)
K_s	Saturated hydraulic conductivity	1.0E-3	(cm/s)
i	Groundwater gradient	2.0E-2	(-)
S_w	Width of groundwater source zone	1.6E+2	(ft)
S_d	Depth of groundwater source zone	6.6E+0	(ft)
θ_{eff}	Effective porosity in water-bearing unit	3.8E-1	(-)
f_{oc-aq}	Fraction organic carbon in water-bearing unit	1.0E-3	(-)
pH_{aq}	Groundwater pH	6.2E+0	(-)
	Biodegradation considered?	No	

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	3.2E+1	2.6E+1	3.2E+1	2.6E+1	(ft)
α_y	Transverse dispersivity	3.2E+0	2.6E+0	3.2E+0	2.6E+0	(ft)
α_z	Vertical dispersivity	3.2E-1	2.6E-1	3.2E-1	2.6E-1	(ft)
Lateral Outdoor Air Transport		Soil to Outdoor Air Inhal.		GW to Outdoor Air Inhal.		
α_y	Transverse dispersion coefficient	2.5E+0	NA	2.5E+0	NA	(ft)
α_z	Vertical dispersion coefficient	1.7E+0	NA	1.7E+0	NA	(ft)
ADF	Air dispersion factor	1.0E+0	NA	1.0E+0	NA	(-)

Surface Water Parameters		Off-site 2	(Units)
Q_{sw}	Surface water flowrate	1	(ft^3/s)
W_{gs}	Width of GW plume at SW discharge	300	(ft)
δ_{gs}	Thickness of GW plume at SW discharge	12	(ft)
DF_{sw}	Groundwater-to-surface water dilution factor	4.2E+2	(-)

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
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	-	-	-

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA

Completed By: Scott R. Graham
Date Completed: 1-Jul-02

Job ID: 250603X02

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)			
			(mg/kg/day)						1/(mg/kg/day)					
Constituent	Oral RfD_oral	ref	Dermal RfD_dermal	ref	Inhalation RfC_Inhal	ref	Oral SF_oral	ref	Dermal SF_dermal	ref	Inhalation URF_Inhal	ref	EPA Weight of Evidence	Is Constituent Carcinogenic ?
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

Site Name: Former Exxon Servi

Site Location: 1725 Park Str

[redacted] Miscellaneous Chemical Data

Constituent	Maximum Contaminant 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)
TPH - Aliph >C06-C08	-	-	-	-	-	-	1
TPH - Aliph >C08-C10	-	-	-	-	-	-	1
TPH - Aliph >C10-C12	-	-	-	-	-	-	1

Site Name: Former Exxon Servi

Site Location: 1725 Park Str

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
TPH - Allph >C06-C08	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH - Allph >C08-C10	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH - Aliph >C10-C12	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-

Site Name: Former Exxon Servi

Site Location: 1725 Park Str

RBCA SITE ASSESSMENT | **User-Specified COC Data**

REPRESENTATIVE COC CONCENTRATIONS IN SOURCE MEDIA

CONSTITUENT	Representative COC Concentration			
	Groundwater		Soils (3 - 10 ft)	
	value (mg/L)	note	value (mg/kg)	note
TPH - Aliph >C06-C08	1.3E+0		6.6E+1	
TPH - Aliph >C08-C10	1.3E+0		6.6E+1	
TPH - Aliph >C10-C12	1.3E+0		6.6E+1	

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA
Completed By: Scott R. Graham

Date Completed: 1-Jul-02
Job ID: 250603X02

RBCA SITE ASSESSMENT | **Tier 2 Domenico Groundwater Modeling Summary**

Site Name: Former Exxon Service Site Location: 1725 Park Street, Alameda, C Completed By: Scott R. Graham Date Completed: 1-Jul-02

DOMENICO GROUNDWATER MODELING SUMMARY

OFF-SITE GROUNDWATER EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAY IS ACTIVE)

SOILS LEACHING TO GROUNDWATER:

INGESTION / SURFACE WATER IMPACT

Constituents of Concern	1) Source Medium: Soil Conc. (mg/kg)	2) Steady-state Exposure Concentration, Groundwater: POE Conc. (mg/L): Off-site 1 (2000 ft) Residential	2) Steady-state Exposure Concentration, Groundwater: POE Conc. (mg/L): Off-site 2 (1344 ft) Surf. Water	3) POE Concentration Limit, Groundwater: POE Conc. (mg/L): Off-site 1 (2000 ft) Residential	3) POE Concentration Limit, Groundwater: POE Conc. (mg/L): Off-site 2 (1344 ft) Surf. Water	4) Time to Reach POE Conc. Limit, Conc. limit reached? ("■" If yes) ; Time (yr): Off-site 1 (2000 ft) Residential	4) Time to Reach POE Conc. Limit, Conc. limit reached? ("■" If yes) ; Time (yr): Off-site 2 (1344 ft) Surf. Water
TPH - Aliph >C06-C08	6.6E+1	9.5E-2	1.6E-1	1.8E+2	NC	□ NA	□ NA
TPH - Aliph >C08-C10	6.6E+1	1.4E-2	2.2E-2	3.7E+0	NC	□ NA	□ NA
TPH - Aliph >C10-C12	6.6E+1	1.8E-3	2.9E-3	3.7E+0	NC	□ NA	□ NA

NOTE: POE = Point of exposure

RBCA SITE ASSESSMENT | **Tier 2 Domenico Groundwater Modeling Summary**

Site Name: Former Exxon Service Site Location: 1725 Park Street, Alameda, C Completed By: Scott R. Graham Date Completed: 1-Jul-02 *2 OF 2*

DOMENICO GROUNDWATER MODELING SUMMARY

OFF-SITE GROUNDWATER EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAY IS ACTIVE)

GROUNDWATER:

INGESTION / SURFACE WATER IMPACT

Constituents of Concern	1) Source Medium: Groundwater Conc. (mg/L)	2) Steady-state Exposure Concentration, Groundwater: POE Conc. (mg/L): Off-site 1 (2000 ft) Residential	2) Steady-state Exposure Concentration, Groundwater: POE Conc. (mg/L): Off-site 2 (1344 ft) Surf. Water	3) POE Concentration Limit, Groundwater: POE Conc. (mg/L): Off-site 1 (2000 ft) Residential	3) POE Concentration Limit, Groundwater: POE Conc. (mg/L): Off-site 2 (1344 ft) Surf. Water	4) Time to Reach POE Conc. Limit, Conc reaches limit? ("■" If yes) ; Time (yr): Off-site 1 (2000 ft) Residential	4) Time to Reach POE Conc. Limit, Conc reaches limit? ("■" If yes) ; Time (yr): Off-site 2 (1344 ft) Surf. Water
TPH - Aliph >C06-C08	1.3E+0	9.8E-2	1.6E-1	1.8E+2	NC	□ NA	□ NA
TPH - Aliph >C08-C10	1.3E+0	9.8E-2	1.6E-1	3.7E+0	NC	□ NA	□ NA
TPH - Aliph >C10-C12	1.3E+0	9.8E-2	1.6E-1	3.7E+0	NC	□ NA	□ NA

NOTE: POE = Point of exposure

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: Soil Conc. (mg/kg)	2) NAF Value (m^3/kg) Receptor: On-site (0 ft) Commercial	On-site (0 ft) Construction Worker	Off-site 1 (20 ft) Residential	Off-site 2 (0 ft) None	3) Exposure Medium Outdoor Air: POE Conc. (mg/m^3) (1) / (2): On-site (0 ft) Commercial	On-site (0 ft) Construction Worker	Off-site 1 (20 ft) Residential	Off-site 2 (0 ft) None
TPH - Aliph >C06-C08	6.6E+1								
TPH - Aliph >C08-C10	6.6E+1								
TPH - Aliph >C10-C12	6.6E+1								

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

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA
Completed By: Scott R. Graham

Date Completed: 1-Jul-02
Job ID: 250603X02

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 (20 ft)	Off-site 2 (0 ft)	On-site (0 ft)		Off-site 1 (20 ft)	Off-site 2 (0 ft)
	Commercial	Construction Worker	Residential	None	Commercial	Construction Worker	Residential	None
TPH - Aliph >C06-C08								
TPH - Aliph >C08-C10								
TPH - Aliph >C10-C12								

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

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA
Completed By: Scott R. Graham

Date Completed: 1-Jul-02
Job ID: 250603X02

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

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

SUBSURFACE SOILS (3 - 10 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) Commercial	Off-site 1 (20 ft) Residential	Off-site 2 (0 ft) None	On-site (0 ft) Commercial	Off-site 1 (20 ft) Residential	Off-site 2 (0 ft) None
TPH - Aliph >C06-C08	6.6E+1	2.1E+4	2.5E+4		3.2E-3	2.7E-3	
TPH - Aliph >C08-C10	6.6E+1	2.1E+4	2.5E+4		3.2E-3	2.7E-3	
TPH - Aliph >C10-C12	6.6E+1	2.1E+4	2.5E+4		3.2E-3	2.7E-3	

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

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA
Completed By: Scott R. Graham

Date Completed: 1-Jul-02
Job ID: 250603X02

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS

SUBSURFACE SOILS (3 - 10 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) Commercial	Off-site 1 (20 ft) Residential	Off-site 2 (0 ft) None	On-site (0 ft) Commercial	Off-site 1 (20 ft) Residential	Off-site 2 (0 ft) None
TPH - Aliph >C06-C08	6.8E-1	9.6E-1		2.2E-3	2.6E-3	
TPH - Aliph >C08-C10	6.8E-1	9.6E-1		2.2E-3	2.6E-3	
TPH - Aliph >C10-C12	6.8E-1	9.6E-1		2.2E-3	2.6E-3	

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

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA
Completed By: Scott R. Graham

Date Completed: 1-Jul-02
Job ID: 250603X02

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) Commercial	Off-site 1 (20 ft) Residential	Off-site 2 (0 ft) None	On-site (0 ft) Commercial	Off-site 1 (20 ft) Residential	Off-site 2 (0 ft) None
TPH - Aliph >C06-C08	1.3E+0	8.0E+1	8.0E+1		1.7E-2	1.7E-2	
TPH - Aliph >C08-C10	1.3E+0	4.9E+1	4.9E+1		2.7E-2	2.7E-2	
TPH - Aliph >C10-C12	1.3E+0	3.1E+1	3.1E+1		4.3E-2	4.3E-2	

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

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA
Completed By: Scott R. Graham

Date Completed: 1-Jul-02
Job ID: 250603X02

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) Commercial	Off-site 1 (20 ft) Residential	Off-site 2 (0 ft) None	On-site (0 ft) Commercial	Off-site 1 (20 ft) Residential	Off-site 2 (0 ft) None
TPH - Aliph >C06-C08	6.8E-1	9.6E-1		1.1E-2	1.6E-2	
TPH - Aliph >C08-C10	6.8E-1	9.6E-1		1.9E-2	2.6E-2	
TPH - Aliph >C10-C12	6.8E-1	9.6E-1		2.9E-2	4.1E-2	

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

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA
Completed By: Scott R. Graham

Date Completed: 1-Jul-02
Job ID: 250603X02

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) Commercial	On-site (0 ft) Construction Worker	Off-site 1 (20 ft) Residential	Off-site 2 (0 ft) None
TPH - Aliph >C06-C08	1.4E-2		1.9E-2	
TPH - Aliph >C08-C10	2.1E-2		2.9E-2	
TPH - Aliph >C10-C12	3.1E-2		4.3E-2	

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA
Completed By: Scott R. Graham

Date Completed: 1-Jul-02
Job ID: 250603X02

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)				(3) Inhalation Unit Risk Factor (µg/m^3)^-1	(4) Individual COC Risk (2) x (3) x 1000			
		On-site (0 ft)		Off-site 1 (20 ft)	Off-site 2 (0 ft)		On-site (0 ft)		Off-site 1 (20 ft)	Off-site 2 (0 ft)
		Commercial	Construction Worker	Residential	None		Commercial	Construction Worker	Residential	None
TPH - Aliph >C06-C08	D									
TPH - Aliph >C08-C10	D									
TPH - Aliph >C10-C12	D									
Total Pathway Carcinogenic Risk =										

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA

Completed By: Scott R. Graham
Date Completed: 1-Jul-02

Job ID: 250603X02

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) On-site (0 ft) Commercial	On-site (0 ft) Construction Worker	Off-site 1 (20 ft) Residential	Off-site 2 (0 ft) None	(6) Inhalation Reference Conc. (mg/m^3)	(7) Individual COC Hazard Quotient (5) / (6) On-site (0 ft) Commercial	On-site (0 ft) Construction Worker	Off-site 1 (20 ft) Residential	Off-site 2 (0 ft) None
TPH - Aliph >C06-C08	1.4E-2		1.9E-2		1.8E+1	7.4E-4		1.0E-3	
TPH - Aliph >C08-C10	2.1E-2		2.9E-2		1.0E+0	2.1E-2		2.9E-2	
TPH - Aliph >C10-C12	3.1E-2		4.3E-2		1.0E+0	3.1E-2		4.3E-2	
Total Pathway Hazard Index =						**5.3E-2**		**7.3E-2**	

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA

Completed By: Scott R. Graham
Date Completed: 1-Jul-02

Job ID: 250603X02

RBCA SITE ASSESSMENT

TIER 2 PATHWAY RISK CALCULATION

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

Constituents of Concern	(1) EPA Carcinogenic Classification	(2) Total Carcinogenic Exposure (mg/m^3) Commercial	(3) Inhalation Unit Risk Factor (µg/m^3)^-1	(4) Individual COC Risk (2) x (3) x 1000 Commercial
		CARCINOGENIC RISK		
TPH - Aliph >C06-C08	D			
TPH - Aliph >C08-C10	D			
TPH - Aliph >C10-C12	D			

Total Pathway Carcinogenic Risk =

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA
Completed By: Scott R. Graham

Date Completed: 1-Jul-02
Job ID: 250603X02

RBCA SITE ASSESSMENT

TIER 2 PATHWAY RISK CALCULATION

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

Constituents of Concern	(5) Total Toxicant Exposure (mg/m^3) Commercial	(6) Inhalation Reference Concentration (mg/m^3)	(7) Individual COC Hazard Quotient (5) / (6) Commercial
	TOXIC EFFECTS		
TPH - Aliph >C06-C08	6.6E-2	1.8E+1	3.6E-3
TPH - Aliph >C08-C10	6.0E-2	1.0E+0	6.0E-2
TPH - Aliph >C10-C12	8.3E-2	1.0E+0	8.3E-2

Total Pathway Hazard Index = **1.5E-1**

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA
Completed By: Scott R. Graham

Date Completed: 1-Jul-02
Job ID: 250603X02

RBCA SITE ASSESSMENT

TIER 2 PATHWAY RISK CALCULATION

SOIL EXPOSURE PATHWAY ■ (CHECKED IF PATHWAY IS ACTIVE)

CARCINOGENIC RISK

Constituents of Concern	(1) EPA Carcinogenic Classification	(2) Total Carcinogenic Intake Rate (mg/kg/day)				(3) Slope Factor (mg/kg/day)^-1		(4) Individual COC Risk	
		(a) via Ingestion	(b) via Dermal Contact	(c) via Ingestion	(d) via Dermal Contact	(a) Oral	(b) Dermal	(2a)x(3a) + (2b)x(3b)	(2c)x(3a) + (2d)x(3b)
		Commercial		Construction Worker				Commercial	Construction Worker
TPH - Aliph >C06-C08	D								
TPH - Aliph >C08-C10	D								
TPH - Aliph >C10-C12	D								

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

Total Pathway Carcinogenic Risk =

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA
Completed By: Scott R. Graham

Date Completed: 1-Jul-02
Job ID: 250603X02

RBCA SITE ASSESSMENT

TIER 2 PATHWAY RISK CALCULATION

SOIL EXPOSURE PATHWAY ■ (CHECKED IF PATHWAY IS ACTIVE)

TOXIC EFFECTS

Constituents of Concern	(5) Total Toxicant Intake Rate (mg/kg/day) (a) via Ingestion	(b) via Dermal Contact	(c) via Ingestion	(d) via Dermal Contact	(6) Oral Reference Dose (mg/kg-day) (a) Oral	(b) Dermal	(7) Individual COC Hazard Quotient (5a)/(6a) + (5b)/(6b)	(5c)/(6a) + (5d)/(6b)
	Commercial		Construction Worker				Commercial	Construction Worker
TPH - Aliph >C06-C08	3.2E-5	1.9E-3	4.7E-5	1.9E-3	5.0E+0	5.0E+0*	3.8E-4	3.8E-4
TPH - Aliph >C08-C10	3.2E-5	1.9E-3	4.7E-5	1.9E-3	1.0E-1	1.0E-1*	1.9E-2	1.9E-2
TPH - Aliph >C10-C12	3.2E-5	1.9E-3	4.7E-5	1.9E-3	1.0E-1	1.0E-1*	1.9E-2	1.9E-2

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

Total Pathway Hazard Index = **3.9E-2** | **3.9E-2**

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA
Completed By: Scott R. Graham

Date Completed: 1-Jul-02
Job ID: 250603X02

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) None	Off-site 1 Residential	Off-site 2 Surf. Water		On-site (0 ft) None	Off-site 1 Residential	Off-site 2 Surf. Water
TPH - Aliph >C06-C08	D							
TPH - Aliph >C08-C10	D							
TPH - Aliph >C10-C12	D							
Total Pathway Carcinogenic Risk =								

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA
Completed By: Scott R. Graham

Date Completed: 1-Jul-02
Job ID: 250603X02

RBCA SITE ASSESSMENT

TIER 2 PATHWAY RISK CALCULATION

GROUNDWATER EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAYS ARE ACTIVE)

TOXIC EFFECTS

Constituents of Concern	(5) Maximum Toxicant Intake Rate (mg/kg/day)			(6) Oral Reference Dose (mg/kg/day)	(7) Individual COC Hazard Quotient (5) / (6)		
	On-site (0 ft) None	Off-site 1 Residential	Off-site 2 Surf. Water		On-site (0 ft) None	Off-site 1 Residential	Off-site 2 Surf. Water
TPH - Aliph >C06-C08		2.7E-3		5.0E+0		5.4E-4	
TPH - Aliph >C08-C10		2.7E-3		1.0E-1		2.7E-2	
TPH - Aliph >C10-C12		2.7E-3		1.0E-1		2.7E-2	
Total Pathway Hazard Index =						**5.4E-2**	

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA
Completed By: Scott R. Graham

Date Completed: 1-Jul-02
Job ID: 250603X02

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	(b) via Dermal Contact	(3) Slope Factor (mg/kg/day)^-1 (a) Oral	(b) Dermal	(4) Individual COC Risk (2a)x(3a) + (2b)x(3b)
		Off-site 2 Surface Water				Off-site 2 Surface Water
TPH - Aliph >C06-C08	D					
TPH - Aliph >C08-C10	D					
TPH - Aliph >C10-C12	D					

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

Total Pathway Carcinogenic Risk =

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA
Completed By: Scott R. Graham

Date Completed: 1-Jul-02
Job ID: 250603X02

RBCA SITE ASSESSMENT

TIER 2 PATHWAY RISK CALCULATION

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

Constituents of Concern	TOXIC EFFECTS (5) Maximum Toxicant Intake Rate (mg/kg/day) (a) via Ingestion — Off-site 2 Surface Water	(b) via Dermal Contact — Off-site 2 Surface Water	(6) Reference Dose (mg/kg/day) (a) Oral	(b) Dermal	(7) Individual COC Hazard Quotient (5a)/(6a) + (5b)/(6b) — Off-site 2 Surface Water
TPH - Aliph >C06-C08	2.7E-8	NC	5.0E+0	5.0E+0*	5.3E-9
TPH - Aliph >C08-C10	2.7E-8	NC	1.0E-1	1.0E-1*	2.7E-7
TPH - Aliph >C10-C12	2.7E-8	NC	1.0E-1	1.0E-1*	2.7E-7

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

Total Pathway Hazard Index = **5.4E-7**

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA
Completed By: Scott R. Graham

Date Completed: 1-Jul-02
Job ID: 250603X02

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

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

SOILS (3 - 10 ft): VAPOR INTRUSION INTO ON-SITE BUILDINGS

Constituents of Concern	1) Source Medium Soil Conc. (mg/kg)	2) NAF Value (m^3/kg) Receptor Commercial	3) Exposure Medium Indoor Air: POE Conc. (mg/m^3) (1) / (2) Commercial	4) Exposure Multiplier (EFxED)/(ATx365) (unitless) Commercial	5) Average Inhalation Exposure Concentration (mg/m^3) (3) X (4) Commercial
TPH - Aliph >C06-C08	6.6E+1	1.3E+3	5.0E-2	6.8E-1	3.4E-2
TPH - Aliph >C08-C10	6.6E+1	5.6E+3	1.2E-2	6.8E-1	8.0E-3
TPH - Aliph >C10-C12	6.6E+1	2.8E+4	2.4E-3	6.8E-1	1.6E-3

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 Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA
Completed By: Scott R. Graham

Date Completed: 1-Jul-02
Job ID: 250603X02

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 Commercial	3) Exposure Medium Indoor Air: POE Conc. (mg/m^3) (1) / (2) Commercial	4) Exposure Multiplier (EFxED)/(ATx365) (unitless) Commercial	5) Average Inhalation Exposure Concentration (mg/m^3) (3) X (4) Commercial
TPH - Aliph >C06-C08	1.3E+0	2.9E+1	4.7E-2	6.8E-1	3.2E-2
TPH - Aliph >C08-C10	1.3E+0	1.8E+1	7.7E-2	6.8E-1	5.2E-2
TPH - Aliph >C10-C12	1.3E+0	1.1E+1	1.2E-1	6.8E-1	8.2E-2

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 Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA
Completed By: Scott R. Graham

Date Completed: 1-Jul-02
Job ID: 250603X02

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.) Commercial
TPH - Aliph >C06-C08	6.6E-2
TPH - Aliph >C08-C10	6.0E-2
TPH - Aliph >C10-C12	8.3E-2

Site Name: Former Exxon Service Station 7-0104 Date Completed: 1-Jul-02
Site Location: 1725 Park Street, Alameda, CA Job ID: 250603X02
Completed By: Scott R. Graham

RBCA SITE ASSESSMENT

Site Name: Former Exxon Service Station 7- Site Location: 1725 Park Street, Alameda, Completed By: Scott R. Graham Date Completed: 1-Jul-02

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

SOIL EXPOSURE PATHWAY ■ (CHECKED IF PATHWAY IS ACTIVE)

SURFACE SOILS OR SEDIMENTS:
ON-SITE INGESTION AND DERMAL CONTACT

Constituents of Concern	1) Source/Exposure Medium	2) Exposure Multiplier (IR+SAxMxRAF)xEFxED/(BWxAT) (kg/kg/day)		3) Average Daily Intake Rate (mg/kg/day) (1) x (2)	
	Surface Soil Conc. (mg/kg)	Commercial	Construction Worker	Commercial	Construction Worker
TPH - Aliph >C06-C08	6.6E+1	2.9E-5	2.9E-5	1.9E-3	1.9E-3
TPH - Aliph >C08-C10	6.6E+1	2.9E-5	2.9E-5	1.9E-3	1.9E-3
TPH - Aliph >C10-C12	6.6E+1	2.9E-5	2.9E-5	1.9E-3	1.9E-3

NOTE: RAF = Relative absorption factor (-) AT = Averaging time (days) ED = Exposure duration (yrs) IR = Soil ingestion rate (mg/day)
M = Adherence factor (mg/cm^2) BW = Body weight (kg) EF = Exposure frequencey (days/yr) SA = Skin exposure area (cm^2/day)

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA
Completed By: Scott R. Graham
Date Completed: 1-Jul-02
Job ID: 250603X02

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

GROUNDWATER EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAY IS ACTIVE)

SOILS (3 - 10 ft): LEACHING TO GROUNDWATER INGESTION

Constituents of Concern	1) Source Medium: Soil Conc. (mg/kg)	2) NAF Value (L/kg) Receptor: On-site (0 ft) None	Off-site 1 (2000 ft) Residential	Off-site 2 (1344 ft) Surf. Water	3) Exposure Medium Groundwater: POE Conc. (mg/L) (1)/(2): On-site (0 ft) None	Off-site 1 (2000 ft) Residential	Off-site 2 (1344 ft) Surf. Water
TPH - Aliph >C06-C08	6.6E+1		7.0E+2			9.5E-2	
TPH - Aliph >C08-C10	6.6E+1		4.8E+3			1.4E-2	
TPH - Aliph >C10-C12	6.6E+1		3.7E+4			1.8E-3	

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

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA
Completed By: Scott R. Graham

Date Completed: 1-Jul-02
Job ID: 250603X02

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

GROUNDWATER EXPOSURE PATHWAYS

SOILS (3 - 10 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) None	Off-site 1 (2000 ft) Residential	Off-site 2 (1344 ft) Surf. Water	On-site (0 ft) None	Off-site 1 (2000 ft) Residential	Off-site 2 (1344 ft) Surf. Water
TPH - Aliph >C06-C08		2.7E-2			2.6E-3	
TPH - Aliph >C08-C10		2.7E-2			3.7E-4	
TPH - Aliph >C10-C12		2.7E-2			4.8E-5	

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 Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA

Completed By: Scott R. Graham
Date Completed: 1-Jul-02

Job ID: 250603X02

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) None	Off-site 1 (2000 ft) Residential	Off-site 2 (1344 ft) Surf. Water	3) Exposure Medium Groundwater: POE Conc. (mg/L) (1)/(2): On-site (0 ft) None	Off-site 1 (2000 ft) Residential	Off-site 2 (1344 ft) Surf. Water
TPH - Aliph >C06-C08	1.3E+0		1.4E+1			9.8E-2	
TPH - Aliph >C08-C10	1.3E+0		1.4E+1			9.8E-2	
TPH - Aliph >C10-C12	1.3E+0		1.4E+1			9.8E-2	

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

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA
Completed By: Scott R. Graham

Date Completed: 1-Jul-02
Job ID: 250603X02

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

GROUNDWATER EXPOSURE PATHWAYS

GROUNDWATER INGESTION (cont'd)

	4) Exposure Multiplier (IRxEFxED)/(BWxAT) (L/kg/day)			5) Average Daily Intake Rate (mg/kg/day) (3) x (4)		
	On-site (0 ft)	Off-site 1 (2000 ft)	Off-site 2 (1344 ft)	On-site (0 ft)	Off-site 1 (2000 ft)	Off-site 2 (1344 ft)
Constituents of Concern	None	Residential	Surf. Water	None	Residential	Surf. Water
TPH - Aliph >C06-C08		2.7E-2			2.7E-3	
TPH - Aliph >C08-C10		2.7E-2			2.7E-3	
TPH - Aliph >C10-C12		2.7E-2			2.7E-3	

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 Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA

Completed By: Scott R. Graham
Date Completed: 1-Jul-02

Job ID: 250603X02

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) None	Off-site 1 Residential	Off-site 2 Surf. Water
TPH - Aliph >C06-C08		2.7E-3	
TPH - Aliph >C08-C10		2.7E-3	
TPH - Aliph >C10-C12		2.7E-3	

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA
Completed By: Scott R. Graham

Date Completed: 1-Jul-02
Job ID: 250603X02

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

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

SOILS (3 - 10 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 (1344 ft) Surface Water	3) Exposure Medium Surface Water: POE Conc. (mg/L) (1)/(2) Off-site 2 (1344 ft) Surface Water
TPH - Aliph >C06-C08	6.6E+1	1.8E+5	3.7E-4
TPH - Aliph >C08-C10	6.6E+1	1.3E+6	5.3E-5
TPH - Aliph >C10-C12	6.6E+1	9.7E+6	6.8E-6

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

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA
Completed By: Scott R. Graham

Date Completed: 1-Jul-02
Job ID: 250603X02

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

SURFACE WATER EXPOSURE PATHWAYS

SOILS (3 - 10 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) Off-site 2 (1344 ft) Surface Water	5) Average Daily Intake Rate (mg/kg/day) (3) x (4) Off-site 2 (1344 ft) Surface Water
TPH - Aliph >C06-C08	7.0E-5	2.6E-8
TPH - Aliph >C08-C10	7.0E-5	3.7E-9
TPH - Aliph >C10-C12	7.0E-5	4.8E-10

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 Exxon Service Station 7-0104 Completed By: Scott R. Graham Job ID: 250603X02

Site Location: 1725 Park Street, Alameda, CA Date Completed: 1-Jul-02

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

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

SOILS (3 - 10 ft): LEACHING TO GW/ DISCHARGE TO SURFACE WATER/ FISH CONSUMPTION

Exposure Concentration

Constituents of Concern	1) Source Medium Soil Conc. (mg/kg)	2) NAF Value (L/kg) Receptor Off-site 2 (1344 ft) Surface Water	3) Exposure Medium Surface Water: POE Conc. (mg/L) (1)/(2) Off-site 2 (1344 ft) Surface Water
TPH - Aliph >C06-C08	6.6E+1	1.8E+5	3.7E-4
TPH - Aliph >C08-C10	6.6E+1	1.3E+6	5.3E-5
TPH - Aliph >C10-C12	6.6E+1	9.7E+6	6.8E-6

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

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA
Completed By: Scott R. Graham

Date Completed: 1-Jul-02
Job ID: 250603X02

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

SURFACE WATER EXPOSURE PATHWAYS

SOILS (3 - 10 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 (1344 ft) Surface Water	5) Average Daily Intake Rate (mg/kg/day) (3) x (4) Off-site 2 (1344 ft) Surface Water
TPH - Aliph >C06-C08	9.8E-7	3.6E-10
TPH - Aliph >C08-C10	9.8E-7	5.2E-11
TPH - Aliph >C10-C12	9.8E-7	6.7E-12

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 Exxon Service Station 7-0 Completed By: Scott R. Graham Job ID: 250603X02
Site Location: 1725 Park Street, Alameda, CA Date Completed: 1-Jul-02

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 (1344 ft) Surface Water	3) Exposure Medium Surface Water: POE Conc. (mg/L) (1)/(2) Off-site 2 (1344 ft) Surface Water
TPH - Aliph >C06-C08	1.3E+0	3.5E+3	3.8E-4
TPH - Aliph >C08-C10	1.3E+0	3.5E+3	3.8E-4
TPH - Aliph >C10-C12	1.3E+0	3.5E+3	3.8E-4

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

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA
Completed By: Scott R. Graham

Date Completed: 1-Jul-02
Job ID: 250603X02

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 (1344 ft) Surface Water	5) Average Daily Intake Rate (mg/kg/day) (3) x (4) Off-site 2 (1344 ft) Surface Water
TPH - Aliph >C06-C08	7.0E-5	2.7E-8
TPH - Aliph >C08-C10	7.0E-5	2.7E-8
TPH - Aliph >C10-C12	7.0E-5	2.7E-8

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 Exxon Service Station 7-010 Completed By: Scott R. Graham Job ID: 250603X02

Site Location: 1725 Park Street, Alameda, CA Date Completed: 1-Jul-02

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 (1344 ft) Surface Water	3) Exposure Medium Surface Water: POE Conc. (mg/L) (1)(2) Off-site 2 (1344 ft) Surface Water
TPH - Aliph >C06-C08	1.3E+0	3.5E+3	3.8E-4
TPH - Aliph >C08-C10	1.3E+0	3.5E+3	3.8E-4
TPH - Aliph >C10-C12	1.3E+0	3.5E+3	3.8E-4

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

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA
Completed By: Scott R. Graham

Date Completed: 1-Jul-02
Job ID: 250603X02

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 (1344 ft) Surface Water	5) Average Daily Intake Rate (mg/kg/day) (3) x (4) Off-site 2 (1344 ft) Surface Water	**MAXIMUM PATHWAY INTAKE (mg/kg/day)** ***(Maximum intake of active pathways soil leaching & groundwater routes.)*** Off-site 2 Surface Water
TPH - Aliph >C06-C08	9.8E-7	3.7E-10	2.7E-8
TPH - Aliph >C08-C10	9.8E-7	3.7E-10	2.7E-8
TPH - Aliph >C10-C12	9.8E-7	3.7E-10	2.7E-8

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 Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA

Completed By: Scott R. Graham
Date Completed: 1-Jul-02

Job ID: 250603X02

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

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA

Completed By: Scott R. Graham
Date Completed: 1-Jul-02

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:	NC	1.0E-6	NC	1.0E-5	☐	4.3E-2	1.0E+0	7.3E-2	1.0E+0	☐
INDOOR AIR EXPOSURE PATHWAYS										
Complete:	NC	1.0E-6	NC	1.0E-5	☐	8.3E-2	1.0E+0	1.5E-1	1.0E+0	☐
SOIL EXPOSURE PATHWAYS										
Complete:	NC	1.0E-6	NC	1.0E-5	☐	1.9E-2	1.0E+0	3.9E-2	1.0E+0	☐
GROUNDWATER EXPOSURE PATHWAYS										
Complete:	NC	1.0E-6	NC	1.0E-5	☐	2.7E-2	1.0E+0	5.4E-2	1.0E+0	☐
SURFACE WATER EXPOSURE PATHWAYS										
Complete:	NC	1.0E-6	NC	1.0E-5	☐	2.7E-7	1.0E+0	5.4E-7	1.0E+0	☐
CRITICAL EXPOSURE PATHWAY (Maximum Values From Complete Pathways)										
	NC	*1.0E-6*	*NC*	*1.0E-5*	☐	*8.3E-2*	*1.0E+0*	*1.5E-1*	*1.0E+0*	☐
	Outdoor Air		*Outdoor Air*			*Indoor Air*		*Indoor Air*		

RBCA SITE ASSESSMENT

Chemical-Specific Tier 2 Cleanup Summary

Site Name: Former Exxon Service Station 7-0104 | Completed By: Scott R. Graham | Job ID: 250603X02

Site Location: 1725 Park Street, Alameda, CA | Date Completed: 1-Jul-02

Constituent: TPH - Aliph >C06-C08 **CAS No.: 0-00-0**

Site-Specific Target Level (SSTL) Concentrations

		On-site	Off-site1	Off-site2
Groundwater Ingestion				
Receptor Type / Distance (ft)		None	Residential / 2000	Surf. Water / 1344
$SSTL_{gw}$ (mg/L)	THQ = 1e+0	NA	>5.4E+0	NC
	TR = 1e-6	NA	NC	NC
Soil Leaching to Groundwater Ingestion				
Receptor Type / Distance (ft)		None	**Residential / 2000**	Surf. Water / 1344
$SSTL_s$ (mg/kg)	THQ = 1e+0	NA	>2.6E+2	NC
	TR = 1e-6	NA	NC	NC
Surface Soil Ingestion and Dermal Contact				
Receptor Type / Distance (ft)		Com./Constr. / 0	No Off-site Receptors	
$SSTL_{ss}$ (mg/kg)	THQ = 1e+0	1.7E+5		
	TR = 1e-6	NC		
Outdoor Air Inhalation				
Receptor Type / Distance (ft)		Commercial / 0	Residential / 20	None
$RBEL_{air}$ ($\mu g/m^3$)	THQ = 1e+0	2.7E+4	1.9E+4	NA
	TR = 1e-6	NC	NC	NA
Soil Volatilization to Outdoor Air Inhalation				
Receptor Type / Distance (ft)		Com./Constr. / 0	Residential / 20	None
$SSTL_s$ (mg/kg)	THQ = 1e+0	#DIV/0!	>2.6E+2	NA
	TR = 1e-6	NC	NC	NA
Groundwater Volatilization to Outdoor Air Inhalation				
Receptor Type / Distance (ft)		Commercial / 0	Residential / 20	None
$SSTL_{gw}$ (mg/L)	THQ = 1e+0	>5.4E+0	>5.4E+0	NA
	TR = 1e-6	NC	NC	NA
Indoor Air Inhalation				
Receptor Type / Distance (ft)		Commercial / 0	No Off-site Receptors	
$RBEL_{air}$ ($\mu g/m^3$)	THQ = 1e+0	2.7E+4		
	TR = 1e-6	NC		
Soil Volatilization to Indoor Air Inhalation				
Receptor Type / Distance (ft)		Commercial / 0	No Off-site Receptors	
$SSTL_s$ (mg/kg)	THQ = 1e+0	>2.6E+2		
	TR = 1e-6	NC		
Groundwater Volatilization to Indoor Air Inhalation				
Receptor Type / Distance (ft)		Commercial / 0	No Off-site Receptors	
$SSTL_{gw}$ (mg/L)	THQ = 1e+0	>5.4E+0		
	TR = 1e-6	NC		

	Units	Residential	Commercial	Construction
Cross-Media Transfer Factors				
VF_{ss}	(kg-soil/m3-air)	NC	NC	NC
VF_{samb}	(kg-soil/m3-air)	4.0E-5	4.8E-5	2.6E-4
VF_{wamb}	(m3-wat/m3-air)	1.3E-2	1.3E-2	1.3E-2
VF_{sesp}	(kg-soil/m3-air)	NA	7.6E-4	NA
VF_{wesp}	(m3-wat/m3-air)	NA	3.5E-2	NA
LF	(kg-soil/L-wat)	All exposures: 2.0E-2		NA

	Units	On-Site	Off-Site1	Off-Site2
Lateral Transport Factors				
DAFgw	(-)	NA	1.4E+1	8.3E+0
DAFs/gw	(-)	NA	1.4E+1	8.3E+0

Chemical Parameters

	Units	Value	Reference
Physical Properties			
MW	(g/mol)	1.0E+2	T
Sol	(mg/L)	5.4E+0	T
P_{vap}	(mmHg)	4.8E+1	-
H_{atm}	(atm-m^3/mol)	1.2E+0	T
pK_a	(log[mol/mol])	-	-
pK_b	(log[mol/mol])	-	-
$log(K_{oc})$	(log[L/kg])	3.6E+0	T
D_{air}	(cm^2/sec)	1.0E-1	T
D_{wat}	(cm^2/sec)	1.0E-5	T
Toxicity Data			
Wt of Evd		D	
SF_o	(1/[mg/kg/day])	-	-
SF_d	(1/[mg/kg/day])	-	-
URF_i	(1/[$\mu g/m^3$])	-	-
RfD_o	(mg/kg/day)	5.0E+0	T
RfD_d	(mg/kg/day)	-	-
RfC_i	(mg/m^3)	1.8E+1	T
Dermal Exposure Parameters			
RAF_d	(mg/mg)	5.0E-1	-
K_p	(cm/hr)	-	
tau_d	(hr/event)	-	
t_{crit}	(hr)	-	
B	(-)	-	
Regulatory Standards			
MCL	(mg/L)	-	*
TWA	(mg/m^3)	-	-
AQL	(mg/L)	-	-
Miscellaneous Parameters			
ADL_{gw}	(mg/L)	-	-
ADL_s	(mg/kg)	-	-
$t_{1/2,sat}$	(d)	-	-
$t_{1/2,unsat}$	(d)	-	-

* MCL ref = -

	Units	Value
Derived Parameters		
H	(L-wat/L-air)	4.8E+1
K_{sw}	(L-wat/kg-soil)	2.1E-2
C_{sat}	(mg/kg-soil)	2.6E+2
$C_{sat,vap}$	($\mu g/m^3$-air)	2.6E+8
$D_{eff,s}$	(cm^2/sec)	7.8E-3
$D_{eff,crk}$	(cm^2/sec)	7.8E-3
$D_{eff,cap}$	(cm^2/sec)	1.3E-5
$D_{eff,ws}$	(cm^2/sec)	5.3E-4
R_{sat}	(-)	1.9E+1
R_{unsat}	(-)	5.6E+2
Z	(cm/event)	-

Notes: 1) NA = Not applicable; NC = Not calculated.

2) Definitions and references presented on page 4 of 4.

RBCA SITE ASSESSMENT

Chemical-Specific Tier 2 Cleanup Summary

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA

Completed By: Scott R. Graham
Date Completed: 1-Jul-02

Job ID: 250603X02

Constituent: TPH - Aliph >C08-C10 **CAS No.: 0-00-0**

Site-Specific Target Level (SSTL) Concentrations

		On-site	Off-site1	Off-site2
Groundwater Ingestion				
Receptor Type / Distance (ft)		None	Residential / 2000	Surf. Water / 1344
$SSTL_{gw}$ (mg/L)	THQ = 1e+0	NA	>4.3E-1	NC
	TR = 1e-6	NA	NC	NC
Soil Leaching to Groundwater Ingestion				
Receptor Type / Distance (ft)		None	Residential / 2000	Surf. Water / 1344
$SSTL_s$ (mg/kg)	THQ = 1e+0	NA	>1.4E+2	NC
	TR = 1e-6	NA	NC	NC
Surface Soil Ingestion and Dermal Contact				
Receptor Type / Distance (ft)		Com./Constr. / 0	No Off-site Receptors	
$SSTL_{ss}$ (mg/kg)	THQ = 1e+0	3.4E+3		
	TR = 1e-6	NC		
Outdoor Air Inhalation				
Receptor Type / Distance (ft)		Commercial / 0	Residential / 20	None
$RBEL_{air}$ ($\mu g/m^3$)	THQ = 1e+0	1.5E+3	1.0E+3	NA
	TR = 1e-6	NC	NC	NA
Soil Volatilization to Outdoor Air Inhalation				
Receptor Type / Distance (ft)		Com./Constr. / 0	Residential / 20	None
$SSTL_s$ (mg/kg)	THQ = 1e+0	#DIV/0!	>1.4E+2	NA
	TR = 1e-6	NC	NC	NA
Groundwater Volatilization to Outdoor Air Inhalation				
Receptor Type / Distance (ft)		Commercial / 0	Residential / 20	None
$SSTL_{gw}$ (mg/L)	THQ = 1e+0	>4.3E-1	>4.3E-1	NA
	TR = 1e-6	NC	NC	NA
Indoor Air Inhalation				
Receptor Type / Distance (ft)		Commercial / 0	No Off-site Receptors	
$RBEL_{air}$ ($\mu g/m^3$)	THQ = 1e+0	1.5E+3		
	TR = 1e-6	NC		
Soil Volatilization to Indoor Air Inhalation				
Receptor Type / Distance (ft)		Commercial / 0	No Off-site Receptors	
$SSTL_s$ (mg/kg)	THQ = 1e+0	>1.4E+2		
	TR = 1e-6	NC		
Groundwater Volatilization to Indoor Air Inhalation				
Receptor Type / Distance (ft)		Commercial / 0	No Off-site Receptors	
$SSTL_{gw}$ (mg/L)	THQ = 1e+0	>4.3E-1		
	TR = 1e-6	NC		

	Units	Residential	Commercial	Construction
Cross-Media Transfer Factors				
VF_{ss}	(kg-soil/m3-air)	NC	NC	NC
VF_{samb}	(kg-soil/m3-air)	4.0E-5	4.8E-5	2.6E-4
VF_{wamb}	(m3-wat/m3-air)	2.0E-2	2.0E-2	2.0E-2
VF_{wesp}	(kg-soil/m3-air)	NA	1.8E-4	NA
VF_{wesp}	(m3-wat/m3-air)	NA	5.7E-2	NA
LF	(kg-soil/L-wat)	All exposures: 2.8E-3		NA

	Units	On-Site	Off-Site1	Off-Site2
Lateral Transport Factors				
DAFgw	(-)	NA	1.4E+1	8.3E+0
DAFs/gw	(-)	NA	1.4E+1	8.3E+0

Chemical Parameters

	Units	Value	Reference
Physical Properties			
MW	(g/mol)	1.3E+2	T
Sol	(mg/L)	4.3E-1	T
P_{vap}	(mmHg)	4.8E+0	-
H_{atm}	(atm-m^3/mol)	1.9E+0	T
pK_a	(log[mol/mol])	-	-
pK_b	(log[mol/mol])	-	-
$log(K_{oc})$	(log[L/kg])	4.5E+0	T
D_{air}	(cm^2/sec)	1.0E-1	T
D_{wat}	(cm^2/sec)	1.0E-5	T
Toxicity Data			
Wt of Evd.		D	
SF_o	(1/[mg/kg/day])	-	-
SF_d	(1/[mg/kg/day])	-	-
URF_i	(1/[$\mu g/m^3$])	-	-
RfD_o	(mg/kg/day)	1.0E-1	T
RfD_d	(mg/kg/day)	-	-
RfC_i	(mg/m^3)	1.0E+0	T
Dermal Exposure Parameters			
RAF_d	(mg/mg)	5.0E-1	-
K_p	(cm/hr)	-	
tau_d	(hr/event)	-	
t_{crit}	(hr)	-	
B	(-)	-	
Regulatory Standards			
MCL	(mg/L)	-	*
TWA	(mg/m^3)	-	-
AQL	(mg/L)	-	-
Miscellaneous Parameters			
ADL_{gw}	(mg/L)	-	-
ADL_s	(mg/kg)	-	-
$t_{1/2,sat}$	(d)	-	-
$t_{1/2,unsat}$	(d)	-	-

* MCL ref = -

	Units	Value
Derived Parameters		
H	(L-wat/L-air)	7.9E+1
K_{sw}	(L-wat/kg-soil)	3.0E-3
C_{sat}	(mg/kg-soil)	1.4E+2
$C_{sat,vap}$	($\mu g/m^3$-air)	3.4E+7
$D_{eff,s}$	(cm^2/sec)	7.8E-3
$D_{eff,crk}$	(cm^2/sec)	7.8E-3
$D_{eff,cap}$	(cm^2/sec)	1.3E-5
$D_{eff,ws}$	(cm^2/sec)	5.3E-4
R_{sat}	(-)	1.4E+2
R_{unsat}	(-)	4.5E+3
Z	(cm/event)	-

Notes: 1) NA = Not applicable; NC = Not calculated.

2) Definitions and references presented on page 4 of 4.

RBCA SITE ASSESSMENT — Chemical-Specific Tier 2 Cleanup Summary

Site Name: Former Exxon Service Station 7-0104 | Completed By: Scott R. Graham | Job ID: 250603X02
Site Location: 1725 Park Street, Alameda, CA | Date Completed: 1-Jul-02 |

Constituent: TPH - Aliph >C10-C12 **CAS No.: 0-00-0**

Site-Specific Target Level (SSTL) Concentrations

		On-site	Off-site1	Off-site2
Groundwater Ingestion				
Receptor Type / Distance (ft)		None	Residential / 2000	Surf. Water / 1344
$SSTL_{gw}$ (mg/L)	THQ = 1e+0	NA	>3.4E-2	NC
	TR = 1e-6	NA	NC	NC
Soil Leaching to Groundwater Ingestion				
Receptor Type / Distance (ft)		None	Residential / 2000	Surf. Water / 1344
$SSTL_s$ (mg/kg)	THQ = 1e+0	NA	>8.6E+1	NC
	TR = 1e-6	NA	NC	NC
Surface Soil Ingestion and Dermal Contact				
Receptor Type / Distance (ft)		Com./Constr. / 0	No Off-site Receptors	
$SSTL_{ss}$ (mg/kg)	THQ = 1e+0	3.4E+3		
	TR = 1e-6	NC		
Outdoor Air Inhalation				
Receptor Type / Distance (ft)		Commercial / 0	Residential / 20	None
$RBEL_{air}$ ($\mu g/m^3$)	THQ = 1e+0	1.5E+3	1.0E+3	NA
	TR = 1e-6	NC	NC	NA
Soil Volatilization to Outdoor Air Inhalation				
Receptor Type / Distance (ft)		Com./Constr. / 0	Residential / 20	None
$SSTL_s$ (mg/kg)	THQ = 1e+0	#DIV/0!	>8.6E+1	NA
	TR = 1e-6	NC	NC	NA
Groundwater Volatilization to Outdoor Air Inhalation				
Receptor Type / Distance (ft)		Commercial / 0	Residential / 20	None
$SSTL_{gw}$ (mg/L)	THQ = 1e+0	>3.4E-2	>3.4E-2	NA
	TR = 1e-6	NC	NC	NA
Indoor Air Inhalation				
Receptor Type / Distance (ft)		Commercial / 0	No Off-site Receptors	
$RBEL_{air}$ ($\mu g/m^3$)	THQ = 1e+0	1.5E+3		
	TR = 1e-6	NC		
Soil Volatilization to Indoor Air Inhalation				
Receptor Type / Distance (ft)		Commercial / 0	No Off-site Receptors	
$SSTL_s$ (mg/kg)	THQ = 1e+0	>8.6E+1		
	TR = 1e-6	NC		
Groundwater Volatilization to Indoor Air Inhalation				
Receptor Type / Distance (ft)		Commercial / 0	No Off-site Receptors	
$SSTL_{gw}$ (mg/L)	THQ = 1e+0	>3.4E-2		
	TR = 1e-6	NC		

	Units	Residential	Commercial	Construction
Cross-Media Transfer Factors				
VF_{ss}	(kg-soil/m3-air)	NC	NC	NC
VF_{samb}	(kg-soil/m3-air)	4.0E-5	4.8E-5	2.6E-4
VF_{wamb}	(m3-wat/m3-air)	3.2E-2	3.2E-2	3.2E-2
VF_{ssap}	(kg-soil/m3-air)	NA	3.6E-5	NA
VF_{wsap}	(m3-wat/m3-air)	NA	8.9E-2	NA
LF	(kg-soil/L-wat)	All exposures: 3.7E-4		NA

	Units	On-Site	Off-Site1	Off-Site2
Lateral Transport Factors				
DAFgw	(-)	NA	1.4E+1	8.3E+0
DAFs/gw	(-)	NA	1.4E+1	8.3E+0

Chemical Parameters

	Units	Value	Reference
Physical Properties			
MW	(g/mol)	1.6E+2	T
Sol	(mg/L)	3.4E-2	T
P_{vap}	(mmHg)	4.8E-1	-
H_{atm}	(atm-m^3/mol)	3.0E+0	T
pK_a	(log[mol/mol])	-	-
pK_b	(log[mol/mol])	-	-
$log(K_{oc})$	(log[L/kg])	5.4E+0	T
D_{air}	(cm^2/sec)	1.0E-1	T
D_{wat}	(cm^2/sec)	1.0E-5	T
Toxicity Data			
Wt of Evd.		D	
SF_o	(1/[mg/kg/day])	-	-
SF_d	(1/[mg/kg/day])	-	-
URF_i	(1/[$\mu g/m^3$])	-	-
RfD_o	(mg/kg/day)	1.0E-1	T
RfD_d	(mg/kg/day)	-	-
RfC_i	(mg/m^3)	1.0E+0	T
Dermal Exposure Parameters			
RAF_d	(mg/mg)	5.0E-1	-
K_p	(cm/hr)	-	
tau_d	(hr/event)	-	
t_{crit}	(hr)	-	
B	(-)	-	
Regulatory Standards			
MCL	(mg/L)	-	*
TWA	(mg/m^3)	-	-
AQL	(mg/L)	-	-
Miscellaneous Parameters			
ADL_{gw}	(mg/L)	-	-
ADL_s	(mg/kg)	-	-
$t_{1/2,sat}$	(d)	-	-
$t_{1/2,unsat}$	(d)	-	-

* MCL ref = -

	Units	Value
Derived Parameters		
H	(L-wat/L-air)	1.2E+2
K_{sw}	(L-wat/kg-soil)	4.0E-4
C_{sat}	(mg/kg-soil)	8.6E+1
$C_{sat,vap}$	($\mu g/m^3$-air)	4.2E+6
$D_{eff,s}$	(cm^2/sec)	7.8E-3
$D_{eff,crk}$	(cm^2/sec)	7.8E-3
$D_{eff,cap}$	(cm^2/sec)	1.3E-5
$D_{eff,ws}$	(cm^2/sec)	5.3E-4
R_{sat}	(-)	1.1E+3
R_{unsat}	(-)	3.6E+4
Z	(cm/event)	-

Notes: 1) NA = Not applicable; NC = Not calculated.
2) Definitions and references presented on page 4 of 4.

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

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA

Completed By: Scott R. Graham
Date Completed: 1-Jul-02

Job ID: 250603X02

CALCULATION OF SSTL VALUES FOR TPH

CONSTITUENTS OF CONCERN		Mass Fractions		Representative Concentrations		Calculated Concentration Limits		Applicable SSTL Values	
		Soil	Groundwater	Soil	Groundwater	Residual Soil Concentration	Solubility	Soils (3 - 10 ft)	Groundwater
CAS No.	Name	(-)	(-)	(mg/kg)	(mg/L)	(mg/kg)	(mg/L)	(mg/kg)	(mg/L)
0-00-0	TPH - Aliph >C06-C08	1.4E-1	1.4E-1	6.6E+1	1.3E+0	2.6E+2	5.4E+0	#DIV/0!	>5.4E+0
0-00-0	TPH - Aliph >C08-C10	1.4E-1	1.4E-1	6.6E+1	1.3E+0	1.4E+2	4.3E-1	#DIV/0!	>4.3E-1
0-00-0	TPH - Aliph >C10-C12	1.4E-1	1.4E-1	6.6E+1	1.3E+0	8.6E+1	3.4E-2	#DIV/0!	>3.4E-2
	Total	4.3E-1	4.3E-1	2.0E+2	4.0E+0		Total TPH SSTL value		

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

RBCA SITE ASSESSMENT

Site Name: Former Exxon Service Station 7-0104
Site Location: 1725 Park Street, Alameda, CA

Completed By: Scott R. Graham
Date Completed: 1-Jul-02

Job ID: 250603X02

SOIL (3 - 10 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 - No Decay
(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				X	Surface Soil Inhalation, Ingestion,Dermal Contact		Applicable SSTL	SSTL Exceeded ?	Required CRF
				On-site (0 ft)	Off-site 1 (2000 ft)	Off-site 2 (1344 ft)		On-site (0 ft)		On-site (0 ft)		Off-site 1 (20 ft)	Off-site 2 (0 ft)		On-site (0 ft)				Only If "yes" left
CAS No.	Name	(mg/kg)		None	Residential	Surf. Water		Commercial		Commercial	Construction Worker	Residential	None		Commercial	Construction Worker	(mg/kg)	"■" If yes	
0-00-0	TPH - Aliph >C06-C08	6.6E+1		NA	>2.6E+2	NC		>2.6E+2		>2.6E+2	#DIV/0!	>2.6E+2	NA		1.7E+5	1.7E+5	#DIV/0!	☐	NA
0-00-0	TPH - Aliph >C08-C10	6.6E+1		NA	>1.4E+2	NC		>1.4E+2		>1.4E+2	#DIV/0!	>1.4E+2	NA		3.5E+3	3.4E+3	#DIV/0!	☐	NA
0-00-0	TPH - Aliph >C10-C12	6.6E+1		NA	>8.6E+1	NC		>8.6E+1		>8.6E+1	#DIV/0!	>8.6E+1	NA		3.5E+3	3.4E+3	#DIV/0!	☐	NA

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

RBCA SITE ASSESSMENT

Site Name: Former Exxon Service Station 7-0104 | Completed By: Scott R. Graham | Job ID: 250603X02

Site Location: 1725 Park Street, Alameda, CA | Date Completed: 1-Jul-02 | 1 OF 1

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 - No Decay (One-directional vert. dispersion)

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

			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
CONSTITUENTS OF CONCERN		Representative Concentration		On-site (0 ft)	Off-site 1 (2000 ft)	Off-site 2 (1344 ft)		On-site (0 ft)		On-site (0 ft)	Off-site 1 (20 ft)	Off-site 2 (0 ft)			Only if "yes" left
CAS No.	Name	(mg/L)		None	Residential	Surf. Water		Commercial		Commercial	Residential	None	(mg/L)	"■" If yes	
0-00-0	TPH - Aliph >C06-C08	1.3E+0		NA	>5.4E+0	NC		>5.4E+0		>5.4E+0	>5.4E+0	NA	>5.4E+0	☐	NA
0-00-0	TPH - Aliph >C08-C10	1.3E+0		NA	>4.3E-1	NC		>4.3E-1		>4.3E-1	>4.3E-1	NA	>4.3E-1	☐	NA
0-00-0	TPH - Aliph >C10-C12	1.3E+0		NA	>3.4E-2	NC		>3.4E-2		>3.4E-2	>3.4E-2	NA	>3.4E-2	☐	NA

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