Geology / Engineering Geology / Environmental Studies

HOEXTER CONSULTING, INC.
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(650) 494-2505 (ph & fax)

Do annual GW monitoring/sampling.

July 7, 1998

E-10-1B-192B
HCProjLtr:Seminary RBCAadd2

Ms. Eva Chu, Hazardous Materials Specialist
Alameda County Department of Environmental Health
Hazardous Materials Division
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

RE: **SECOND ADDENDUM TO ASTM RBCA TIER TWO EVALUATION**
STID 553 - FORMER GRIMIT AUTO AND REPAIR
1970 SEMINARY AVENUE
OAKLAND, CALIFORNIA

Dear Ms. Chu:

INTRODUCTION

This addendum letter follows our recent telephone conversations, and pertains to Hoexter Consulting's RBCA Tier Two Evaluation report issued December 18, 1997 and subsequent addendum, issued January 21, 1998. Previous Tier One and Tier Two evaluations utilized peak soil and ground water levels for plume generation and for migration studies. Per your directive, we have modified our modeling input data to reflect on-site values pertinent to immediately beneath the existing building, and off-site values pertinent to the nearest or adjacent data sources. You have also requested that we modify the analysis by averaging and grouping the input data.

The modifications are as follows:

1. For indoor inhalation risk, average last four ground water readings from each well used for input data (MW-1 and 7). - aver - 2125.
2. For offsite inhalation risk to southeast residence, average last four ground water readings from each well used for input data (MW-7 and 8). <20 ✓
3. For offsite inhalation risk to southwest residence, average last four ground water readings from each well used for input data (MW-5 and 6).

4. Uncharacteristic ground water contaminant "peaks" (unusually elevated levels) recorded prior to the past four readings or recorded in other wells would not be included in the input data.

5. The ground water ingestion path is not to be considered.

DISCUSSION

The revised ground water input data are presented on the attached tables (Tables 3A and 3B). Utilized ground water data are indicated in **bold typeface**. Soil input data have not been modified from previous analyses.

On-Site Risks

The analysis indicates the site specific target levels (SSTLs) for on-site industrial use are exceeded only for ground water ingestion (drinking water utilization). Compounds exceeding respective SSTLs are benzene, 1,2-dichloroethane, methyl t-butyl ether, and vinyl chloride. However, as indicated, ground water ingestion is not a consideration for this location.

Off-Site Risks (residence to southeast)

The analysis indicates the SSTLs for the adjacent residence to the southeast are exceeded only for ground water ingestion (drinking water utilization). Compounds exceeding respective SSTLs are benzene, tetrachloroethene, and vinyl chloride. As indicated, ground water ingestion is not a consideration for this location.

Off-Site Risks (residence to southwest)

The analysis indicates the SSTLs for the adjacent residence to the southwest are exceeded only for ground water ingestion (drinking water utilization). Compounds exceeding respective SSTLs are benzene and vinyl chloride. As indicated, ground water ingestion is not a consideration for this location.

CONCLUSIONS

We conclude from this addendum evaluation that contaminant levels at the site are less than the respective Tier Two SSTLs for soil and ground water volatilization. Only groundwater ingestion SSTLs are exceeded; however, as stated above, ground water ingestion risk is not of concern in the site vicinity.

RECOMMENDATIONS

The most recent ground water monitoring was conducted in October, 1997. A round of ground water monitoring should be conducted, to confirm that the ground water contaminant concentrations are consistent with the data used in this analysis.

LIMITATIONS

This evaluation has been prepared according to generally accepted geologic and environmental practices. No other warranty, either expressed or implied as to the methods, results, conclusions or professional advice provided is made. It should be recognized that certain limitations are inherent in the evaluation of subsurface conditions, and that certain conditions may not be detected during an investigation of this type. If you wish to reduce

the level of uncertainty associated with this study, we should be contacted for additional consultation.

The analysis, conclusions and recommendations contained in this report are based onsite conditions as they existed at the time of our investigation; review of previous reports relevant to the site conditions; and laboratory results from an outside analytical laboratory. Changes in the information or data gained from any of these sources could result in changes in our conclusions or recommendations. If such changes do occur, we should be advised so that we can review our report in light of those changes.

CLOSING

If you have any questions, or require additional information, please do not hesitate to call.

Very truly yours,

HOEXTER CONSULTING, INC.

Cathrene D. Glick

Cathrene D. Glick, RG/CEG/HG/REA
Consulting Geologist

David F. Hoexter

David F. Hoexter, RG/CEG/REA
Principal Geologist

Enclosure: Tables 3A and 3B (ground water data)
Site Plan
Appendices: RBCA Evaluation Output Data
- A- On-Site Risks
- B - Off-Site Risks (residence to southeast)
- C - Off-Site Risks (residence to southwest)

TABLE 3A

GROUND WATER

SUMMARY OF ANALYTICAL TEST RESULTS - PETROLEUM HYDROCARBONS

(Results reported in parts per ***billion***, ug/l) (1)

Well and Date	TPH Gasoline	MTBE	Benzene	Toluene	Ethyl-Benzene	Xylenes	Oil & Grease HVOC (7)
MW-1 ("deep")							
8/6/90 (2)	54,000	NA	3,500	3,200	1,900	9,400	7,600
1/28/92	2,000,000	NA	7,400	17,000	28,000	120,000	7,500 (5)
4/27/92 (3)	500,000	NA	3,400	6,400	10,000	45,000	440,000 (6)
4/27/92 (4)	175,000	NA	4,200	4,400	3,200	14,600	N/A
8/10/92	170,000	NA	4,200	4,200	3,300	15,900	120,000 (6)
2/11/94	1,800,000	NA	ND	5,100	5,200	23,900	16,000 (6)
9/9/94	23,000,000	NA	56,000	61,000	9,100	137,000	880,000 (6)
12/28/94	55,000	NA	3,700	5,300	1,400	5,800	83,000 (6)
4/13/95	45,000	NA	2,800	3,400	1,200	5,100	50,000 (5)
11/1/95	44,000	NA	2,600	3,400	1,400	5,900	52,000 (5)
3/25/96	45,000	NA	3,000	4,100	1,600	6,800	46,000 (5) (7)
10/8/96	**55,000**	**490**	**3,300**	**4,500**	**1,700**	**7,100**	11,000 (5) (7)
1/16/97	**48,000**	**310**	**2,600**	**3,200**	**1,300**	**5,300**	110,000 (5) (7)
6/23/97	**40,000**	**ND<100**	**2,300**	**3,500**	**1,500**	**6,300**	190,000 (5) (7)
10/7/97	**45,000**	**ND<680**	**2,500**	**3,600**	**1,700**	**6,800**	150,000 (5)(7)
MW-2 ("deep")							
2/11/94	130	NA	22	1.1	5.2	7.3	ND (6)
9/9/94	1,000	NA	89	ND	ND	6.9	ND (6)
12/28/94	330	NA	100	3.8	5.4	4.7	5100 (6)
4/13/95	1300	NA	280	6.9	33	23	ND (5)
11/1/95	100	NA	9.9	ND	ND	ND	ND (5)
3/25/96	4500	NA	470	57	220	280	ND (5) (7)
10/8/96	710	41	1.9	0.54	1.0	1.0	ND (5) (7)
1/16/97	330	12	41	2.4	1.3	9.9	ND (5) (7)
6/23/97	280	10	12	0.69	ND	13	NA (7)
10/7/97	320	ND<35	4.5	ND	ND	ND	NA (7)
MW-3 ("shallow")							
2/11/94	ND	NA	ND	ND	ND	ND	ND (6)
9/9/94	710	NA	10	ND	ND	3.5	ND (6)
12/28/94	2,300	NA	7.8	ND	130	73	ND (6)
4/13/95	1,700	NA	2.9	ND	61	24	ND (5)
11/1/95	1,100	NA	4.4	ND	27	22	ND (5)
3/25/96	2,300	NA	4.0	0.96	120	65	ND (5) (7)
10/8/96	160	ND	ND	0.5	1.2	0.77	ND (5) (7)
1/16/97	1,800	7.1	2.8	0.68	48	66	ND (5) (7)
6/23/97	ND	ND	ND	ND	ND	ND	NA (7)
10/7/97	ND	ND	ND	ND	ND	ND	NA (7)

average of MW-1 + MW-1= (2)/2 =

Table continued following page

Table 3A continued

Well and Date	TPH Gasoline	MTBE	Benzene	Toluene	Ethyl-Benzene	Xylenes	Oil & Grease HVOC (7)
MW-4 ("deep")							
3/26/96	9,900	NA	4,000	40	71	100	ND (5) (7)
10/8/96	7,800	140	3,900	33	31	40	ND (5) (7)
1/16/97	4,800	84	1,900	21	2.5	27	5,200 (5) (7)
6/23/97	6,200	160	2,800	20	20	23	ND (5) (7)
10/7/97	4,400	85	1800	14	18	14	ND (5) (7)
MW-5 ("deep")							
3/26/96	1,200	NA	43	8.2	83	95	ND (5) (7)
10/8/96	**6,700**	**190**	**260**	**92**	**410**	**370**	ND (5) (7)
1/16/97	**3,000**	**90**	**150**	**68**	**190**	**180**	ND (5) (7)
6/23/97	**12,000**	**150**	**410**	**170**	**920**	**800**	NA (7)
10/7/97	**10,000**	**ND<480**	**310**	**62**	**530**	**500**	NA (7)
MW-6 ("shallow")							
3/26/96	9,900	NA	1,000	150	470	720	ND (5) (7)
10/8/96	**1,300**	**57**	**120**	**2.3**	**1.4**	**4.0**	ND (5) (7)
1/15/97	**6,500**	**220**	**570**	**65**	**170**	**630**	ND (5) (7)
6/23/97	**3,100**	**100**	**410**	**16**	**110**	**140**	NA (7)
10/7/97	**960**	**ND<74**	**78**	**3.4**	**1.8**	**5.8**	NA (7)
MW-7 (deep")							
6/23/97	**8,700**	**ND<20**	**950**	**260**	**520**	**380**	ND (5) (7)
10/7/97	**7,500**	**ND<310**	**1100**	**86**	**280**	**150**	ND (5) (7)
MW-8 ("shallow")							
6/23/97	610	5.9	25	1.4	4.3	2.4	ND (5) (7)
10/7/97	120	ND	6.9	ND	ND	ND	ND (5) (7)
MW-9 ("shallow")							
6/23/97	32,000	250	340	280	1,500	4,300	ND (5) (7)
10/7/97	33,000	ND<690	880	350	1900	4700	ND (5) (7)
EB-4 ("grab" gw sample)							
3/8/96	15,000	NA	780	840	1,300	590	7,500 (5) (7)
MCL	NA	NA	1	150	700	1750	NA

Notes on following page

Notes to Table 3A

(1) ND - non-detect; N/A - not applicable
(2) Kaldveer Associates report, September, 1990
(3) Sequoia Analytical Laboratory
(4) Applied Remediation Laboratory
(5) Gravimetric Method
(6) Infrared Method
(7) HVOC detected: see Table 3B

TABLE 3B

GROUND WATER

SUMMARY OF ANALYTICAL TEST RESULTS - HALOGENATED VOLATILE ORGANIC COMPOUNDS (HVOC)

(Results reported in parts per billion, ug/l) (1) (2)

Well and Date	CA	1,2 DCB	1,2 DCA	cis 1,2 DCE	trns 1,2 DCE	1,2 DCP	PCE	TCE	VCL
MW-1 ("deep")									
3/25/96	ND<5	7.2	5.3	82	ND<5	ND<5	ND<5	7.8	25
10/8/96	ND<20	ND<20	ND<20	45	ND<20	ND<20	ND<20	ND<20	26
1/16/97	NA	NA	NA	NA	NA	NA	NA	NA	NA
6/23/97	ND<2	10	4.1	130	3.7	ND<2	5.0	23	54
10/7/97	3.5	7.4	2.2	82	3.8	ND<2	ND<3	9.5	68
MW-2 ("deep")									
3/25/96	ND<0.5	ND<0.5	8.7	11	ND<0.5	1.0	ND<0.5	3.2	0.92
10/8/96	ND<0.5	ND<0.5	15	9.6	ND<0.5	1.1	ND<0.5	6.6	ND<0.5
1/16/97	NA	NA	NA	NA	NA	NA	NA	NA	NA
6/23/97	ND<0.5	ND<0.5	9.7	8.0	ND<0.5	0.86	ND<0.5	9.6	ND<0.5
10/7/97	ND<0.5	ND<0.5	18	11	ND<0.5	1.2	ND<0.5	15	ND<0.5
MW-3 ("shallow")									
3/25/96	ND<0.5	ND<0.5	0.56	1.2	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
10/8/96	ND<0.5	ND<0.5	1.1	0.87	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
1/16/97	NA	NA	NA	NA	NA	NA	NA	NA	NA
6/23/97	ND<0.5	ND<0.5	0.54	0.76	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
10/7/97	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
MW-4 ("deep")									
3/26/96	ND<8	22	ND<8	300	9.2	ND<8	38	150	44
10/8/96	ND<15	22	4.9	320	ND<15	ND<15	52	130	60
1/16/97	NA	NA	NA	NA	NA	NA	NA	NA	NA
6/23/97 (5)	3.6	21	5.3	340	10	ND<3	11	110	83
10/7/97	ND<8	20	ND<8	380	9.9	ND<8	ND<12	56	56
MW-5 ("deep")									
3/26/96	1.4	ND<0.5	2.1	6.2	ND<0.5	ND<0.5	ND<0.5	ND<0.5	10
10/8/96	ND<2.5	ND<2.5	4.9	4.4	ND<2.5	ND<2.5	ND<2.5	ND<2.5	9.4
1/16/97	NA	NA	NA	NA	NA	NA	NA	NA	NA
6/23/97 (5)	2.0	2.1	2.0	7.2	0.71	ND<0.5	ND<0.5	ND<0.5	13
10/7/97	1.9	1.4	2.8	3.4	ND<0.5	ND<0.5	ND<0.5	ND<0.5	10

Continued following page

Table 3B continued

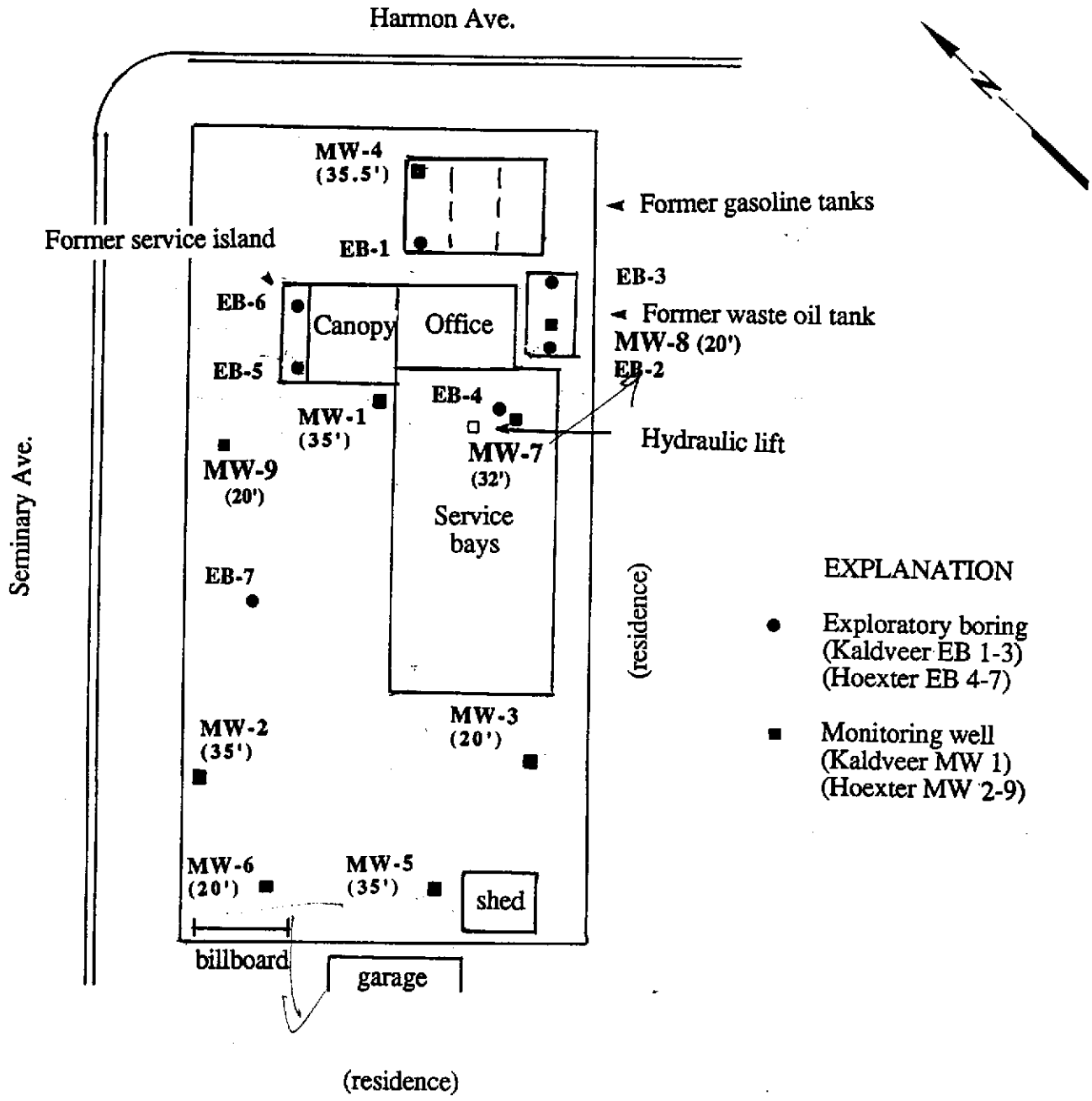
Well and Date	CA	1,2 DCB	1,2 DCA	cis 1,2 DCE	trns 1,2 DCE	1,2 DCP	PCE	TCE	VCL
MW-6 ("shallow")									
3/26/96	ND<0.5	ND<0.5	3.9	15	ND<0.5	1.9	0.77	2	ND<0.5
10/8/96	ND<0.5	ND<0.5	2.3	9.9	ND<0.5	ND<0.5	ND<0.5	0.57	ND<0.5
1/16/97	NA	NA	NA	NA	NA	NA	NA	NA	NA
6/23/97	ND<0.5	ND<0.5	1.6	10	ND<0.5	ND<0.5	ND<0.5	0.63	0.50
10/7/97	ND<0.5	ND<0.5	3.4	7.9	ND<0.5	ND<0.5	ND<0.5	0.82	ND<0.5
MW-7 ("deep")									
6/23/97	0.93	1.6	ND<0.5	2.4	1.2	ND<0.5	9.8	17	1.5
10/7/97	ND<2	ND<2	ND<2	8.5	2.4	ND<2	38	110	ND<2
MW-8 ("shallow")									
6/23/97	ND<1	5.4	ND<1	64	ND<1	ND<1	97	100	ND<1
10/7/97	ND<0.5	1.1	ND<0.5	16	ND<0.5	ND<0.5	30	27	ND<0.5
MW-9 (shallow")									
6/23/97 (5)	ND<1	2.1	ND<1	7.4	ND<1	ND<1	3.5	1.4	ND<1
10/7/97 (6)	ND<0.5	1.6	2.1	21	ND<0.5	0.7	ND<2	0.53	2.7
EB-4 (grab)									
3/8/96	ND	ND	ND	42	ND	ND	130	340	ND
MCL	NA	600	0.5	6	10	5	7	5	0.5

Notes to Table 3B

(1) ND = non-detect
(2) NA = not applicable
(3) Composite
(4) Abbreviations as follows:

CA	Chloroethane	1,2 DCP	1,2 Dichloropropane
1,2 DCB	1,2 Dichlorobenzene	PCE	Tetrachloroethene (perchloroeth
1,2 DCA	1,2 Dichloroethane	TCE	trichloroethene
cis 1,2 DCE	cis 1,2 Dichloroethene	VCL	vinyl chloride
trans 1,2 DCE	trans 1,2 Dichloroethene		

(5) 6/23/97 additional detections:
MW-4, 4.8 ppb 1,4-Dichlorobenzene
MW-5, 0.53 ppb 1,4-Dichlorobenzene
MW-9 2.1 ppb chloroform (tetrachloromethane)
(6)10/7/97 additional detections:
MW-9, 0.65 chloroform (tetrachloromethane)



Base: A. Deak, Licensed Land Surveyor, 3/21/96 (wells, streets & property line); Hoexter field sketch, 10/25/93 (explor. borings, other features)

HOEXTER CONSULTING
Geology
Engineering Geology
Environmental Studies

SITE PLAN

1970 Seminary Ave.
Oakland, California

Project No.	Date	Figure 2

RBCA TIER 1/TIER 2 EVALUATION

Output Table 1

Site Name: 1970 Seminary
Site Location: Oakland, CA

Job Identification: E-10-1B-192B
Date Completed: 6/29/98
Completed By: Cathrene Glick

Software: GSI RBCA Spreadsheet
Version: v 1.0

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

DEFAULT PARAMETERS

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

Surface Parameters	Definition (Units)	Residential	Commercial/Industrial Chronic	Commercial/Industrial Construction
t	Exposure duration (yr)	30	25	1
A	Contaminated soil area (cm^2)	***8.1E+05***		***8.1E+05***
W	Length of affected soil parallel to wind (cm)	***1.1E+03***		1.0E+03
W.gw	Length of affected soil parallel to groundwater (c	***7.6E+02***		
Uair	Ambient air velocity in mixing zone (cm/s)	2.3E+02		
delta	Air mixing zone height (cm)	2.0E+02		
Lss	Definition of surficial soils (cm)	***1.4E+02***		
Pe	Particulate areal emission rate (g/cm^2/s)	2.2E-10		

Groundwater	Definition (Units)	Value
delta.gw	Groundwater mixing zone depth (cm)	***6.1E+02***
I	Groundwater infiltration rate (cm/yr)	***1.5E+01***
Ugw	Groundwater Darcy velocity (cm/yr)	***4.5E+03***
Ugw.tr	Groundwater Transport velocity (cm/yr)	***1.4E+04***
Ks	Saturated Hydraulic Conductivity(cm/s)	
grad	Groundwater Gradient (cm/cm)	
Sw	Width of groundwater source zone (cm)	9.1E+02
Sd	Depth of groundwater source zone (cm)	6.1E+02
BC	Biodegradation Capacity (mg/L)	4.2E+00
BIO?	Is Bioattenuation Considered	TRUE
phi.eff	Effective Porosity in Water-Bearing Unit	3.8E-01
foc.sat	Fraction organic carbon in water-bearing unit	***2.5E-03***

Soil	Definition (Units)	Value		
hc	Capillary zone thickness (cm)	***7.6E+00***		
hv	Vadose zone thickness (cm)	***3.0E+02***		
rho	Soil density (g/cm^3)	***1.856***		
foc	Fraction of organic carbon in vadose zone	***0.025***		
phi	Soil porosity in vadose zone	***0.32***		
Lgw	Depth to groundwater (cm)	***3.0E+02***		
Ls	Depth to top of affected soil (cm)	***2.4E+02***		
Lsubs	Thickness of affected subsurface soils (cm)	***9.1E+01***		
pH	Soil/groundwater pH	***6.8***		
		capillary	vadose	foundation
phi.w	Volumetric water content	***0.3***	***0.17***	***0.1***
phi.a	Volumetric air content	***0.02***	***0.15***	***0.22***

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)	***1.0E+01***	
eta	Foundation crack fraction	***0.005***	

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

Matrix of Receptor Distance and Location on- or off-site		Residential Distance	Residential On-Site	Commercial/Industrial Distance	Commercial/Industrial On-Site
GW	Groundwater receptor (cm)	7.6E+03	FALSE		TRUE
S	Inhalation receptor (cm)	3.0E+02	FALSE		TRUE

Matrix of Target Risks		Individual	Cumulative
TRab	Target Risk (class A&B carcinogens)	***1.0E-05***	
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	

Dispersive Transport Parameters	Definition (Units)	Residential	Commercial
Groundwater			
ax	Longitudinal dispersion coefficient (cm)		
ay	Transverse dispersion coefficient (cm)		
az	Vertical dispersion coefficient (cm)		
Vapor			
dcy	Transverse dispersion coefficient (cm)	3.9E+01	
dcz	Vertical dispersion coefficient (cm)	2.7E+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 alue (mg/kg	note
Acenaphthene						
Anthracene						
Benzene	1.9E+0				6.4E-2	
Chloroethane	1.6E-3					
Dichlorobenzene (1,2) (-o)	5.0E-3				5.5E-2	
Dichlorobenzene, (1,4) (-p)						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-	2.2E-2				5.0E-2	
Dichloroethene, cis-1,2-	5.6E-2				3.1E-2	
Dichloroethene,1,2-trans-	2.8E-3				5.0E-2	
Ethylbenzene	9.8E-1				1.1E+0	
Fluoranthene						
Methyl t-Butyl Ether	2.2E-1				5.0E-2	
Naphthalene	1.1E+0				5.0E-2	
Phenanthrene	1.1E-3				5.0E-2	
Pyrene						
Tetrachloroethene	1.4E-2				1.5E+0	
Toluene	1.9E+0				1.6E+0	
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethene	0.039.87				1.1E-1	
Vinyl chloride	3.1E-2				5.0E-2	
Xylene (mixed isomers)	3.3E+0				2.2E+0	

Site Name: 1970 Seminary
Site Location: Oakland, CA

Completed By: Cathrene Glick
Date Completed: 6/29/1998

RBCA SITE ASSESSMENT **Input Screen 6.3**

CONSTITUENT MOLE FRACTIONS

(Complete the following table)

CONSTITUENT	Mole Fraction of Constituent in Source Material
Acenaphthene	
Anthracene	
Benzene	
Chloroethane	
Dichlorobenzene (1,2) (-o)	
Dichlorobenzene, (1,4) (-p)	
Dichloroethane, 1,1-	
Dichloroethane, 1,2-	
Dichloroethene, cis-1,2-	
Dichloroethene,1,2-trans-	
Ethylbenzene	
Fluoranthene	
Methyl t-Butyl Ether	
Naphthalene	
Phenanthrene	
Pyrene	
Tetrachloroethene	
Toluene	
Trichloroethane, 1,1,1-	
Trichloroethane, 1,1,2-	
Trichloroethene	
Vinyl chloride	
Xylene (mixed isomers)	

Site Name: 1970 Seminary
Site Location: Oakland, CA

Completed By: Cathrene Glick
Date Completed: 6/29/1998

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
Acenaphthene	#DIV/0!	#DIV/0!
Anthracene	#DIV/0!	#DIV/0!
Benzene	1.0E+0	1.0E+0
Chloroethane	1.0E+0	1.0E+0
Dichlorobenzene (1,2) (-o)	1.0E+0	1.0E+0
Dichlorobenzene, (1,4) (-p)	#DIV/0!	#DIV/0!
Dichloroethane, 1,1-	#DIV/0!	#DIV/0!
Dichloroethane, 1,2-	1.0E+0	1.0E+0
Dichloroethene, cis-1,2-	1.0E+0	1.0E+0
Dichloroethene,1,2-trans-	1.0E+0	1.0E+0
Ethylbenzene	1.0E+0	1.0E+0
Fluoranthene	#DIV/0!	#DIV/0!
Methyl t-Butyl Ether	1.0E+0	1.0E+0
Naphthalene	1.0E+0	1.0E+0
Phenanthrene	1.0E+0	1.0E+0
Pyrene	#DIV/0!	#DIV/0!
Tetrachloroethene	1.0E+0	1.0E+0
Toluene	1.0E+0	1.0E+0
Trichloroethane, 1,1,1-	#DIV/0!	#DIV/0!
Trichloroethane, 1,1,2-	#DIV/0!	#DIV/0!
Trichloroethene	#VALUE!	#VALUE!
Vinyl chloride	1.0E+0	1.0E+0
Xylene (mixed isomers)	1.0E+0	1.0E+0

Site Name: 1970 Seminary
Site Location: Oakland, CA

Completed By: Cathrene Glick
Date Completed: 6/29/1998

RBCA SITE ASSESSMENT **Input Screen 9.1**

CONSTITUENT HALF-LIFE VALUES

(Complete the following table)

CONSTITUENT	Half-Life of Constituent (day)
Acenaphthene	
Anthracene	
Benzene	
Chloroethane	
Dichlorobenzene (1,2) (-o)	
Dichlorobenzene, (1,4) (-p)	
Dichloroethane, 1,1-	
Dichloroethane, 1,2-	
Dichloroethene, cis-1,2-	
Dichloroethene,1,2-trans-	
Ethylbenzene	
Fluoranthene	
Methyl t-Butyl Ether	
Naphthalene	
Phenanthrene	
Pyrene	
Tetrachloroethene	
Toluene	
Trichloroethane, 1,1,1-	
Trichloroethane, 1,1,2-	
Trichloroethene	
Vinyl chloride	
Xylene (mixed isomers)	

Site Name: 1970 Seminary
Site Location: Oakland, CA

Completed By: Cathrene Glick
Date Completed: 6/29/1998

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)
Acenaphthene		
Anthracene		
Benzene		
Chloroethane		
Dichlorobenzene (1,2) (-o)		
Dichlorobenzene, (1,4) (-p)		
Dichloroethane, 1,1-		
Dichloroethane, 1,2-		
Dichloroethene, cis-1,2-		
Dichloroethene,1,2-trans-		
Ethylbenzene		
Fluoranthene		
Methyl t-Butyl Ether		
Naphthalene		
Phenanthrene		
Pyrene		
Tetrachloroethene		
Toluene		
Trichloroethane, 1,1,1-		
Trichloroethane, 1,1,2-		
Trichloroethene		
Vinyl chloride		
Xylene (mixed isomers)		

Site Name: 1970 Seminary
Site Location: Oakland, CA

Completed By: Cathrene Glick
Date Completed: 6/29/1998

Site Name: 1970 Seminary
Site Location: Oakland, CA

Completed By: Cathrene Glick
Date Completed: 6/29/1998

SURFACE SOIL SSTL VALUES (< 3 FT BGS)

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

☐ MCL exposure limit?
☐ PEL exposure limit?

Calculation Option: 2

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

CONSTITUENTS OF CONCERN		Representative Concentration	X	Soil Leaching to Groundwater			X	Ingestion, Inhalation and Dermal Contact		X	Construction Worker	Applicable SSTL	SSTL Exceeded ?	Required CRF
CAS No.	Name	(mg/kg)		Residential: 250 feet	Commercial: (on-site)	Regulatory(MCL): (on-site)		Residential: 10 feet	Commercial: (on-site)		Commercial: (on-site)	(mg/kg)	"■" If yes	Only if "yes" left
83-32-9	Acenaphthene	0.0E+0		#VALUE!	#VALUE!	NA		>Res	>Res		>Res	#VALUE!	■	#VALUE!
120-12-7	Anthracene	0.0E+0		#VALUE!	#VALUE!	NA		>Res	>Res		>Res	#VALUE!	■	#VALUE!
71-43-2	Benzene	0.0E+0		7.3E+0	2.5E+1	NA		4.6E+2	3.6E+1		8.3E+2	7.3E+0	☐	<1
75-00-3	Chloroethane	0.0E+0		1.9E+3	5.3E+3	NA		>Res	>Res		>Res	1.9E+3	☐	<1
95-50-1	Dichlorobenzene (1,2) (-o)	0.0E+0		>Res	>Res	NA		>Res	3.4E+3		4.0E+3	3.4E+3	☐	<1
106-46-7	Dichlorobenzene, (1,4) (-p)	0.0E+0		4.5E+2	1.5E+3	NA		2.4E+3	4.5E+1		1.3E+3	4.5E+1	☐	<1
75-34-3	Dichloroethane, 1,1-	0.0E+0		1.4E+3	3.8E+3	NA		>Res	3.8E+3		3.6E+3	1.4E+3	☐	<1
107-06-2	Dichloroethane, 1,2-	0.0E+0		3.4E+0	1.1E+1	NA		1.5E+2	1.1E+1		3.1E+2	3.4E+0	☐	<1
156-59-2	Dichloroethene, cis-1,2-	0.0E+0		6.8E+1	1.9E+2	NA		>Res	3.7E+2		3.0E+2	6.8E+1	☐	<1
156-60-5	Dichloroethene,1,2-trans-	0.0E+0		1.4E+2	4.0E+2	NA		>Res	>Res		>Res	1.4E+2	☐	<1
100-41-4	Ethylbenzene	0.0E+0		>Res	>Res	NA		>Res	>Res		>Res	>Res	☐	<1
206-44-0	Fluoranthene	0.0E+0		#VALUE!	#VALUE!	NA		>Res	>Res		>Res	#VALUE!	■	#VALUE!
1634-04-4	Methyl t-Butyl Ether	0.0E+0		1.7E+1	4.7E+1	NA		>Res	2.0E+2		2.4E+2	1.7E+1	☐	<1
91-20-3	Naphthalene	0.0E+0		>Res	>Res	NA		>Res	7.7E+2		>Res	7.7E+2	☐	<1
85-01-8	Phenanthrene	0.0E+0		>Res	>Res	NA		>Res	>Res		>Res	>Res	☐	<1
129-00-0	Pyrene	0.0E+0		#VALUE!	#VALUE!	NA		>Res	>Res		>Res	#VALUE!	■	#VALUE!
127-18-4	Tetrachloroethene	0.0E+0		1.3E+4	4.3E+4	NA		5.2E+4	2.1E+1		6.4E+2	2.1E+1	☐	<1
108-88-3	Toluene	0.0E+0		>Res	>Res	NA		>Res	>Res		>Res	>Res	☐	<1
71-55-6	Trichloroethane, 1,1,1-	0.0E+0		5.5E+3	>Res	NA		>Res	3.5E+3		4.0E+3	3.5E+3	☐	<1
79-00-5	Trichloroethane, 1,1,2-	0.0E+0		4.2E-1	1.4E+0	NA		2.3E+2	1.8E+1		4.2E+2	4.2E-1	☐	<1
79-01-6	Trichloroethene	0.0E+0		#VALUE!	#VALUE!	NA		>Res	9.7E+1		>Res	#VALUE!	■	#VALUE!
75-01-4	Vinyl chloride	0.0E+0		4.3E-2	1.4E-1	NA		4.4E+1	5.7E-1		1.6E+1	4.3E-2	☐	<1
1330-20-7	Xylene (mixed isomers)	0.0E+0		>Res	>Res	NA		>Res	>Res		>Res	>Res	☐	<1

Site Name: 1970 Seminary
Site Location: Oakland, CA

Completed By: Cathrene Glick
Date Completed: 6/29/1998

SUBSURFACE SOIL SSTL VALUES (> 3 FT BGS)

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

☐ MCL exposure limit?
☐ PEL exposure limit?

Calculation Option: 2

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: 250 feet	Commercial: (on-site)	Regulatory(MCL): (on-site)	Residential: (on-site)	Commercial: (on-site)	Residential: 10 feet	Commercial: (on-site)	(mg/kg)	"■" If yes	Only if "yes" left
83-32-9	Acenaphthene	0.0E+0	#VALUE!	#VALUE!	NA	NA	>Res	>Res	>Res	#VALUE!	■	#VALUE!
120-12-7	Anthracene	0.0E+0	#VALUE!	#VALUE!	NA	NA	>Res	>Res	>Res	#VALUE!	■	#VALUE!
71-43-2	Benzene	6.4E-2	7.3E+0	2.5E+1	NA	NA	1.6E+0	6.9E+2	9.7E+2	1.6E+0	☐	<1
75-00-3	Chloroethane	0.0E+0	1.9E+3	5.3E+3	NA	NA	4.7E+3	>Res	>Res	1.9E+3	☐	<1
95-50-1	Dichlorobenzene (1,2) (-o)	5.5E-2	>Res	>Res	NA	NA	6.0E+3	>Res	>Res	6.0E+3	☐	<1
106-46-7	Dichlorobenzene, (1,4) (-p)	0.0E+0	4.5E+2	1.5E+3	NA	NA	2.2E+2	>Res	>Res	2.2E+2	☐	<1
75-34-3	Dichloroethane, 1,1-	0.0E+0	1.4E+3	3.8E+3	NA	NA	2.3E+2	>Res	>Res	2.3E+2	☐	<1
107-06-2	Dichloroethane, 1,2-	5.0E-2	3.4E+0	1.1E+1	NA	NA	1.5E+0	2.2E+2	3.1E+2	1.5E+0	☐	<1
156-59-2	Dichloroethene, cis-1,2-	3.1E-2	6.8E+1	1.9E+2	NA	NA	1.6E+1	>Res	>Res	1.6E+1	☐	<1
156-60-5	Dichloroethene,1,2-trans-	5.0E-2	1.4E+2	4.0E+2	NA	NA	3.3E+1	>Res	>Res	3.3E+1	☐	<1
100-41-4	Ethylbenzene	1.6E+0	>Res	>Res	NA	NA	>Res	>Res	>Res	>Res	☐	<1
206-44-0	Fluoranthene	0.0E+0	#VALUE!	#VALUE!	NA	NA	>Res	>Res	>Res	#VALUE!	■	#VALUE!
########	Methyl t-Butyl Ether	5.0E-2	1.7E+1	4.7E+1	NA	NA	2.8E+3	>Res	>Res	1.7E+1	☐	<1
91-20-3	Naphthalene	5.0E-2	>Res	>Res	NA	NA	5.9E+2	>Res	>Res	5.9E+2	☐	<1
85-01-8	Phenanthrene	5.0E-2	>Res	>Res	NA	NA	>Res	>Res	>Res	>Res	☐	<1
129-00-0	Pyrene	0.0E+0	#VALUE!	#VALUE!	NA	NA	>Res	>Res	>Res	#VALUE!	■	#VALUE!
127-18-4	Tetrachloroethene	1.5E+0	1.3E+4	4.3E+4	NA	NA	8.4E+3	>Res	>Res	8.4E+3	☐	<1
108-88-3	Toluene	1.6E+0	>Res	>Res	NA	NA	2.9E+2	>Res	>Res	2.9E+2	☐	<1
71-55-6	Trichloroethane, 1,1,1-	0.0E+0	5.5E+3	>Res	NA	NA	5.9E+2	>Res	>Res	5.9E+2	☐	<1
79-00-5	Trichloroethane, 1,1,2-	0.0E+0	4.2E-1	1.4E+0	NA	NA	8.0E-1	3.5E+2	4.9E+2	4.2E-1	☐	<1
79-01-6	Trichloroethene	1.1E-1	1.1E+1	3.6E+1	NA	NA	7.6E+0	>Res	>Res	7.6E+0	☐	<1
75-01-4	Vinyl chloride	5.0E-2	4.3E-2	1.4E-1	NA	NA	1.5E-1	6.7E+1	9.3E+1	4.3E-2	■	1.0E+00
########	Xylene (mixed isomers)	2.2E+0	>Res	>Res	NA	NA	>Res	>Res	>Res	>Res	☐	<1

GROUNDWATER SSTL VALUES

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

☐ MCL exposure limit?
☐ PEL exposure limit?

Calculation Option: 2

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: 250 feet	Commercial: (on-site)	Regulatory(MCL): (on-site)	Residential: (on-site)	Commercial: (on-site)	Residential (on-site)	Commercial: (on-site)	(mg/L	"■" If yes	Only if "yes" left
83-32-9	Acenaphthene	0.0E+0	#VALUE!	#VALUE!	NA	NA	>Sol	NA	>Sol	#VALUE!	✂✂	#VALUE!
120-12-7	Anthracene	0.0E+0	#VALUE!	#VALUE!	NA	NA	>Sol	NA	>Sol	#VALUE!	✂✂	#VALUE!
71-43-2	Benzene	1.9E+0	2.9E-2	9.9E-2	NA	NA	1.9E+0	NA	8.4E+2	2.9E-2	■	6.3E+01
75-00-3	Chloroethane	1.6E-3	1.5E+1	4.1E+1	NA	NA	4.3E+3	NA	>Sol	1.5E+1	☐	<1
95-50-1	Dichlorobenzene (1,2) (-o)	5.0E-3	3.3E+0	9.2E+0	NA	NA	>Sol	NA	>Sol	3.3E+0	☐	<1
106-46-7	Dichlorobenzene, (1,4) (-p)	0.0E+0	3.5E-2	1.2E-1	NA	NA	6.4E+0	NA	>Sol	3.5E-2	☐	<1
75-34-3	Dichloroethane, 1,1-	0.0E+0	3.7E+0	1.0E+1	NA	NA	1.8E+2	NA	>Sol	3.7E+0	☐	<1
107-06-2	Dichloroethane, 1,2-	2.2E-2	9.4E-3	3.1E-2	NA	NA	1.5E+0	NA	4.9E+2	9.4E-3	■	2.0E+00
156-59-2	Dichloroethene, cis-1,2-	5.6E-2	3.7E-1	1.0E+0	NA	NA	8.3E+0	NA	>Sol	3.7E-1	☐	<1
156-60-5	Dichloroethene,1,2-trans-	2.8E-3	7.3E-1	2.0E+0	NA	NA	4.4E+1	NA	>Sol	7.3E-1	☐	<1
100-41-4	Ethylbenzene	9.8E-1	3.7E+0	1.0E+1	NA	NA	>Sol	NA	>Sol	3.7E+0	☐	<1
206-44-0	Fluoranthene	0.0E+0	#VALUE!	#VALUE!	NA	NA	>Sol	NA	>Sol	#VALUE!	✂✂	#VALUE!
1634-04-4	Methyl t-Butyl Ether	2.2E-1	1.8E-1	5.1E-1	NA	NA	7.7E+3	NA	>Sol	1.8E-1	■	1.0E+00
91-20-3	Naphthalene	1.1E+0	1.5E-1	4.1E-1	NA	NA	2.6E+1	NA	>Sol	1.5E-1	■	8.0E+00
85-01-8	Phenanthrene	1.1E-3	1.5E-1	4.1E-1	NA	NA	>Sol	NA	>Sol	1.5E-1	☐	<1
129-00-0	Pyrene	0.0E+0	#VALUE!	#VALUE!	NA	NA	>Sol	NA	>Sol	#VALUE!	✂✂	#VALUE!
127-18-4	Tetrachloroethene	1.4E-2	1.6E-2	5.5E-2	NA	NA	1.4E+1	NA	>Sol	1.6E-2	☐	<1
108-88-3	Toluene	1.9E+0	7.3E+0	2.0E+1	NA	NA	2.3E+2	NA	>Sol	7.3E+0	☐	<1
71-55-6	Trichloroethane, 1,1,1-	0.0E+0	3.3E+0	9.2E+0	NA	NA	3.7E+2	NA	>Sol	3.3E+0	☐	<1
79-00-5	Trichloroethane, 1,1,2-	0.0E+0	1.5E-2	5.0E-2	NA	NA	4.3E+0	NA	1.2E+3	1.5E-2	☐	<1
79-01-6	Trichloroethene	0.039.87	#VALUE!	#VALUE!	NA	NA	3.0E+0	NA	8.9E+2	#VALUE!	✂✂	#VALUE!
75-01-4	Vinyl chloride	3.1E-2	4.5E-4	1.5E-3	NA	NA	2.9E-2	NA	1.6E+1	4.5E-4	■	6.9E+01
1330-20-7	Xylene (mixed isomers)	3.3E+0	7.3E+1	>Sol	NA	NA	>Sol	NA	>Sol	7.3E+1	☐	<1

APPENDIX B

Off-Site Risks
Residence to Southeast

RBCA TIER 1/TIER 2 EVALUATION

Output Table 1

Site Name: 1970 Seminary
Site Location: Oakland, CA

Job Identification: E-10-1B-192B
Date Completed: 6/29/98
Completed By: Cathrene Glick

Software: GSI RBCA Spreadsheet
Version: v 1.0

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

DEFAULT PARAMETERS

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

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

Matrix of Receptor Distance and Location on- or off-site		Residential Distance	Residential On-Site	Commercial/Industrial Distance	Commercial/Industrial On-Site
GW	Groundwater receptor (cm)	7.6E+03	FALSE		TRUE
S	Inhalation receptor (cm)	3.0E+02	FALSE		TRUE

Matrix of Target Risks		Individual	Cumulative
TRab	Target Risk (class A&B carcinogens)	***1.0E-05***	
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	Commercial/Industrial Chronic	Commercial/Industrial Construction
t	Exposure duration (yr)	30	25	1
A	Contaminated soil area (cm^2)	***8.1E+05***		***8.1E+05***
W	Length of affected soil parallel to wind (cm)	***1.1E+03***		1.0E+03
W.gw	Length of affected soil parallel to groundwater (c	***7.6E+02***		
Uair	Ambient air velocity in mixing zone (cm/s)	2.3E+02		
delta	Air mixing zone height (cm)	2.0E+02		
Lss	Definition of surficial soils (cm)	***1.4E+02***		
Pe	Particulate areal emission rate (g/cm^2/s)	2.2E-10		

Groundwater	Definition (Units)	Value
delta.gw	Groundwater mixing zone depth (cm)	***6.1E+02***
I	Groundwater infiltration rate (cm/yr)	***1.5E+01***
Ugw	Groundwater Darcy velocity (cm/yr)	***4.5E+03***
Ugw.tr	Groundwater Transport velocity (cm/yr)	***1.4E+04***
Ks	Saturated Hydraulic Conductivity(cm/s)	
grad	Groundwater Gradient (cm/cm)	
Sw	Width of groundwater source zone (cm)	9.1E+02
Sd	Depth of groundwater source zone (cm)	6.1E+02
BC	Biodegradation Capacity (mg/L)	4.2E+00
BIO?	Is Bioattenuation Considered	TRUE
phi.eff	Effective Porosity in Water-Bearing Unit	3.8E-01
foc.sat	Fraction organic carbon in water-bearing unit	***2.5E-02***

Soil	Definition (Units)	Value		
hc	Capillary zone thickness (cm)	***7.6E+00***		
hv	Vadose zone thickness (cm)	***3.0E+02***		
rho	Soil density (g/cm^3)	***1.856***		
foc	Fraction of organic carbon in vadose zone	***0.025***		
phi	Soil porosity in vadose zone	***0.32***		
Lgw	Depth to groundwater (cm)	***3.0E+02***		
Ls	Depth to top of affected soil (cm)	***2.4E+02***		
Lsubs	Thickness of affected subsurface soils (cm)	***9.1E+01***		
pH	Soil/groundwater pH	***6.8***		
		capillary	vadose	foundation
phi.w	Volumetric water content	***0.3***	***0.17***	***0.1***
phi.a	Volumetric air content	***0.02***	***0.15***	***0.22***

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)	***1.0E+01***	
eta	Foundation crack fraction	***0.005***	

Dispersive Transport Parameters	Definition (Units)	Residential	Commercial
Groundwater			
ax	Longitudinal dispersion coefficient (cm)		
ay	Transverse dispersion coefficient (cm)		
az	Vertical dispersion coefficient (cm)		
Vapor			
dcy	Transverse dispersion coefficient (cm)	3.9E+01	
dcz	Vertical dispersion coefficient (cm)	2.7E+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 alue (mg/kg	note
Acenaphthene						
Anthracene						
Benzene	5.2E-1				6.4E-2	
Chloroethane	8.4E-3					
Dichlorobenzene (1,2) (-o)	2.3E-3				5.5E-2	
Dichlorobenzene, (1,4) (-p)						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-	2.0E-3				5.0E-2	
Dichloroethene, cis-1,2-	2.3E-2				3.1E-2	
Dichloroethene,1,2-trans-	1.3E-3				5.0E-2	
Ethylbenzene	2.1E-1				1.6E+0	
Fluoranthene						
Methyl t-Butyl Ether	8.2E-2				5.0E-2	
Naphthalene	5.0E-4				5.0E-2	
Phenanthrene	5.0E-4				5.0E-2	
Pyrene						
Tetrachloroethene	4.4E-2				1.5E+0	
Toluene	8.7E-2				1.6E+0	
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethene	6.4E-2				1.1E-1	
Vinyl chloride	3.1E-2				5.0E-2	
Xylene (mixed isomers)	1.3E-1				2.2E+0	

Site Name: 1970 Seminary
Site Location: Oakland, CA

Completed By: Cathrene Glick
Date Completed: 6/29/1998

CONSTITUENT MOLE FRACTIONS

(Complete the following table)

CONSTITUENT	Mole Fraction of Constituent in Source Material
Acenaphthene	
Anthracene	
Benzene	
Chloroethane	
Dichlorobenzene (1,2) (-o)	
Dichlorobenzene, (1,4) (-p)	
Dichloroethane, 1,1-	
Dichloroethane, 1,2-	
Dichloroethene, cis-1,2-	
Dichloroethene,1,2-trans-	
Ethylbenzene	
Fluoranthene	
Methyl t-Butyl Ether	
Naphthalene	
Phenanthrene	
Pyrene	
Tetrachloroethene	
Toluene	
Trichloroethane, 1,1,1-	
Trichloroethane, 1,1,2-	
Trichloroethene	
Vinyl chloride	
Xylene (mixed isomers)	

Site Name: 1970 Seminary
Site Location: Oakland, CA

Completed By: Cathrene Glick
Date Completed: 6/29/1998

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
Acenaphthene	#DIV/0!	#DIV/0!
Anthracene	#DIV/0!	#DIV/0!
Benzene	1.0E+0	1.0E+0
Chloroethane	1.0E+0	1.0E+0
Dichlorobenzene (1,2) (-o)	1.0E+0	1.0E+0
Dichlorobenzene, (1,4) (-p)	#DIV/0!	#DIV/0!
Dichloroethane, 1,1-	#DIV/0!	#DIV/0!
Dichloroethane, 1,2-	1.0E+0	1.0E+0
Dichloroethene, cis-1,2-	1.0E+0	1.0E+0
Dichloroethene,1,2-trans-	1.0E+0	1.0E+0
Ethylbenzene	1.0E+0	1.0E+0
Fluoranthene	#DIV/0!	#DIV/0!
Methyl t-Butyl Ether	1.0E+0	1.0E+0
Naphthalene	1.0E+0	1.0E+0
Phenanthrene	1.0E+0	1.0E+0
Pyrene	#DIV/0!	#DIV/0!
Tetrachloroethene	1.0E+0	1.0E+0
Toluene	1.0E+0	1.0E+0
Trichloroethane, 1,1,1-	#DIV/0!	#DIV/0!
Trichloroethane, 1,1,2-	#DIV/0!	#DIV/0!
Trichloroethene	1.0E+0	1.0E+0
Vinyl chloride	1.0E+0	1.0E+0
Xylene (mixed isomers)	1.0E+0	1.0E+0

Site Name: 1970 Seminary
Site Location: Oakland, CA

Completed By: Cathrene Glick
Date Completed: 6/29/1998

RBCA SITE ASSESSMENT **Input Screen 9.1**

CONSTITUENT HALF-LIFE VALUES

(Complete the following table)

CONSTITUENT	Half-Life of Constituent (day)
Acenaphthene	
Anthracene	
Benzene	
Chloroethane	
Dichlorobenzene (1,2) (-o)	
Dichlorobenzene, (1,4) (-p)	
Dichloroethane, 1,1-	
Dichloroethane, 1,2-	
Dichloroethene, cis-1,2-	
Dichloroethene,1,2-trans-	
Ethylbenzene	
Fluoranthene	
Methyl t-Butyl Ether	
Naphthalene	
Phenanthrene	
Pyrene	
Tetrachloroethene	
Toluene	
Trichloroethane, 1,1,1-	
Trichloroethane, 1,1,2-	
Trichloroethene	
Vinyl chloride	
Xylene (mixed isomers)	

Site Name: 1970 Seminary
Site Location: Oakland, CA

Completed By: Cathrene Glick
Date Completed: 6/29/1998

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)
Acenaphthene		
Anthracene		
Benzene		
Chloroethane		
Dichlorobenzene (1,2) (-o)		
Dichlorobenzene, (1,4) (-p)		
Dichloroethane, 1,1-		
Dichloroethane, 1,2-		
Dichloroethene, cis-1,2-		
Dichloroethene,1,2-trans-		
Ethylbenzene		
Fluoranthene		
Methyl t-Butyl Ether		
Naphthalene		
Phenanthrene		
Pyrene		
Tetrachloroethene		
Toluene		
Trichloroethane, 1,1,1-		
Trichloroethane, 1,1,2-		
Trichloroethene		
Vinyl chloride		
Xylene (mixed isomers)		

Site Name: 1970 Seminary
Site Location: Oakland, CA

Completed By: Cathrene Glick
Date Completed: 6/29/1998

RBCA SITE ASSESSMENT

Tier 2 Worksheet 9.1

Site Name: 1970 Seminary
Site Location: Oakland, CA

Completed By: Cathrene Glick
Date Completed: 6/29/1998

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

☐ MCL exposure limit?
☐ PEL exposure limit?

Calculation Option: 2

SURFACE SOIL SSTL VALUES (< 3 FT BGS)

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

CONSTITUENTS OF CONCERN		Representative Concentration	X Soil Leaching to Groundwater			X Ingestion, Inhalation and Dermal Contact		X Construction Worker	Applicable SSTL	SSTL Exceeded ?	Required CRF
CAS No.	Name	(mg/kg)	Residential: 250 feet	Commercial: (on-site)	Regulatory(MCL): (on-site)	Residential: 10 feet	Commercial: (on-site)	Commercial: (on-site)	(mg/kg)	"■" If yes	Only if "yes" left
83-32-9	Acenaphthene	0.0E+0	#VALUE!	#VALUE!	NA	>Res	>Res	>Res	#VALUE!	■	#VALUE!
120-12-7	Anthracene	0.0E+0	#VALUE!	#VALUE!	NA	>Res	>Res	>Res	#VALUE!	■	#VALUE!
71-43-2	Benzene	0.0E+0	7.3E+0	2.5E+1	NA	4.6E+2	3.6E+1	8.3E+2	7.3E+0	☐	<1
75-00-3	Chloroethane	0.0E+0	1.9E+3	5.3E+3	NA	>Res	>Res	>Res	1.9E+3	☐	<1
95-50-1	Dichlorobenzene (1,2) (-o)	0.0E+0	>Res	>Res	NA	>Res	3.4E+3	4.0E+3	3.4E+3	☐	<1
106-46-7	Dichlorobenzene, (1,4) (-p)	0.0E+0	4.5E+2	1.5E+3	NA	2.4E+3	4.5E+1	1.3E+3	4.5E+1	☐	<1
75-34-3	Dichloroethane, 1,1-	0.0E+0	1.4E+3	3.8E+3	NA	>Res	3.8E+3	3.6E+3	1.4E+3	☐	<1
107-06-2	Dichloroethane, 1,2-	0.0E+0	3.4E+0	1.1E+1	NA	1.5E+2	1.1E+1	3.1E+2	3.4E+0	☐	<1
156-59-2	Dichloroethene, cis-1,2-	0.0E+0	6.8E+1	1.9E+2	NA	>Res	3.7E+2	3.0E+2	6.8E+1	☐	<1
156-60-5	Dichloroethene,1,2-trans-	0.0E+0	1.4E+2	4.0E+2	NA	>Res	>Res	>Res	1.4E+2	☐	<1
100-41-4	Ethylbenzene	0.0E+0	>Res	>Res	NA	>Res	>Res	>Res	>Res	☐	<1
206-44-0	Fluoranthene	0.0E+0	#VALUE!	#VALUE!	NA	>Res	>Res	>Res	#VALUE!	■	#VALUE!
1634-04-4	Methyl t-Butyl Ether	0.0E+0	1.7E+1	4.7E+1	NA	>Res	2.0E+2	2.4E+2	1.7E+1	☐	<1
91-20-3	Naphthalene	0.0E+0	>Res	>Res	NA	>Res	7.7E+2	>Res	7.7E+2	☐	<1
85-01-8	Phenanthrene	0.0E+0	>Res	>Res	NA	>Res	>Res	>Res	>Res	☐	<1
129-00-0	Pyrene	0.0E+0	#VALUE!	#VALUE!	NA	>Res	>Res	>Res	#VALUE!	■	#VALUE!
127-18-4	Tetrachloroethene	0.0E+0	1.3E+4	4.3E+4	NA	5.2E+4	2.1E+1	6.4E+2	2.1E+1	☐	<1
108-88-3	Toluene	0.0E+0	>Res	>Res	NA	>Res	>Res	>Res	>Res	☐	<1
71-55-6	Trichloroethane, 1,1,1-	0.0E+0	5.5E+3	>Res	NA	>Res	3.5E+3	4.0E+3	3.5E+3	☐	<1
79-00-5	Trichloroethane, 1,1,2-	0.0E+0	4.2E-1	1.4E+0	NA	2.3E+2	1.8E+1	4.2E+2	4.2E-1	☐	<1
79-01-6	Trichloroethene	0.0E+0	1.1E+1	3.6E+1	NA	>Res	9.7E+1	>Res	1.1E+1	☐	<1
75-01-4	Vinyl chloride	0.0E+0	4.3E-2	1.4E-1	NA	4.4E+1	5.7E-1	1.6E+1	4.3E-2	☐	<1
1330-20-7	Xylene (mixed isomers)	0.0E+0	>Res	>Res	NA	>Res	>Res	>Res	>Res	☐	<1

Software: GSI RBCA Spreadsheet
Version: v 1.0

Serial: g-265-vhx-686

Site Name: 1970 Seminary
Site Location: Oakland, CA

Completed By: Cathrene Glick
Date Completed: 6/29/1998

SUBSURFACE SOIL SSTL VALUES (> 3 FT BGS)

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

☐ MCL exposure limit?
☐ PEL exposure limit?

Calculation Option: 2

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: 250 feet	Commercial: (on-site)	Regulatory(MCL): (on-site)		Residential: (on-site)	Commercial: (on-site)		Residential: 10 feet	Commercial: (on-site)	(mg/kg)	"■" If yes	Only if "yes" left
83-32-9	Acenaphthene	0.0E+0		#VALUE!	#VALUE!	NA		NA	>Res		>Res	>Res	#VALUE!	✂	#VALUE!
120-12-7	Anthracene	0.0E+0		#VALUE!	#VALUE!	NA		NA	>Res		>Res	>Res	#VALUE!	✂	#VALUE!
71-43-2	Benzene	6.4E-2		7.3E+0	2.5E+1	NA		NA	1.6E+0		6.9E+2	9.7E+2	1.6E+0	☐	<1
75-00-3	Chloroethane	0.0E+0		1.9E+3	5.3E+3	NA		NA	4.7E+3		>Res	>Res	1.9E+3	☐	<1
95-50-1	Dichlorobenzene (1,2) (-o)	5.5E-2		>Res	>Res	NA		NA	6.0E+3		>Res	>Res	6.0E+3	☐	<1
106-46-7	Dichlorobenzene, (1,4) (-p)	0.0E+0		4.5E+2	1.5E+3	NA		NA	2.2E+2		>Res	>Res	2.2E+2	☐	<1
75-34-3	Dichloroethane, 1,1-	0.0E+0		1.4E+3	3.8E+3	NA		NA	2.3E+2		>Res	>Res	2.3E+2	☐	<1
107-06-2	Dichloroethane, 1,2-	5.0E-2		3.4E+0	1.1E+1	NA		NA	1.5E+0		2.2E+2	3.1E+2	1.5E+0	☐	<1
156-59-2	Dichloroethene, cis-1,2-	3.1E-2		6.8E+1	1.9E+2	NA		NA	1.6E+1		>Res	>Res	1.6E+1	☐	<1
156-60-5	Dichloroethene,1,2-trans-	5.0E-2		1.4E+2	4.0E+2	NA		NA	3.3E+1		>Res	>Res	3.3E+1	☐	<1
100-41-4	Ethylbenzene	1.6E+0		>Res	>Res	NA		NA	>Res		>Res	>Res	>Res	☐	<1
206-44-0	Fluoranthene	0.0E+0		#VALUE!	#VALUE!	NA		NA	>Res		>Res	>Res	#VALUE!	✂	#VALUE!
########	Methyl t-Butyl Ether	5.0E-2		1.7E+1	4.7E+1	NA		NA	2.8E+3		>Res	>Res	1.7E+1	☐	<1
91-20-3	Naphthalene	5.0E-2		>Res	>Res	NA		NA	5.9E+2		>Res	>Res	5.9E+2	☐	<1
85-01-8	Phenanthrene	5.0E-2		>Res	>Res	NA		NA	>Res		>Res	>Res	>Res	☐	<1
129-00-0	Pyrene	0.0E+0		#VALUE!	#VALUE!	NA		NA	>Res		>Res	>Res	#VALUE!	✂	#VALUE!
127-18-4	Tetrachloroethene	1.5E+0		1.3E+4	4.3E+4	NA		NA	8.4E+3		>Res	>Res	8.4E+3	☐	<1
108-88-3	Toluene	1.6E+0		>Res	>Res	NA		NA	2.9E+2		>Res	>Res	2.9E+2	☐	<1
71-55-6	Trichloroethane, 1,1,1-	0.0E+0		5.5E+3	>Res	NA		NA	5.9E+2		>Res	>Res	5.9E+2	☐	<1
79-00-5	Trichloroethane, 1,1,2-	0.0E+0		4.2E-1	1.4E+0	NA		NA	8.0E-1		3.5E+2	4.9E+2	4.2E-1	☐	<1
79-01-6	Trichloroethene	1.1E-1		1.1E+1	3.6E+1	NA		NA	7.6E+0		>Res	>Res	7.6E+0	☐	<1
75-01-4	Vinyl chloride	5.0E-2		4.3E-2	1.4E-1	NA		NA	1.5E-1		6.7E+1	9.3E+1	4.3E-2	■	1.0E+00
########	Xylene (mixed isomers)	2.2E+0		>Res	>Res	NA		NA	>Res		>Res	>Res	>Res	☐	<1

Site Name: 1970 Seminary
Site Location: Oakland, CA

Completed By: Cathrene Glick
Date Completed: 6/29/1998

GROUNDWATER SSTL VALUES

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

☐ MCL exposure limit?
☐ PEL exposure limit?

Calculation Option: 2

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: 250 feet	Commercial: (on-site)	Regulatory(MCL): (on-site)	Residential: (on-site)	Commercial: (on-site)	Residential (on-site)	Commercial: (on-site)	(mg/L	"■" If yes	Only if "yes" left
83-32-9	Acenaphthene	0.0E+0	#VALUE!	#VALUE!	NA	NA	>Sol	NA	>Sol	#VALUE!	✂✂	#VALUE!
120-12-7	Anthracene	0.0E+0	#VALUE!	#VALUE!	NA	NA	>Sol	NA	>Sol	#VALUE!	✂✂	#VALUE!
71-43-2	Benzene	5.2E-1	2.9E-2	9.9E-2	NA	NA	1.9E+0	NA	8.4E+2	2.9E-2	■	1.8E+01
75-00-3	Chloroethane	8.4E-3	1.5E+1	4.1E+1	NA	NA	4.3E+3	NA	>Sol	1.5E+1	☐	<1
95-50-1	Dichlorobenzene (1,2) (-o)	2.3E-3	3.3E+0	9.2E+0	NA	NA	>Sol	NA	>Sol	3.3E+0	☐	<1
106-46-7	Dichlorobenzene, (1,4) (-p)	0.0E+0	3.5E-2	1.2E-1	NA	NA	6.4E+0	NA	>Sol	3.5E-2	☐	<1
75-34-3	Dichloroethane, 1,1-	0.0E+0	3.7E+0	1.0E+1	NA	NA	1.8E+2	NA	>Sol	3.7E+0	☐	<1
107-06-2	Dichloroethane, 1,2-	2.0E-3	9.4E-3	3.1E-2	NA	NA	1.5E+0	NA	4.9E+2	9.4E-3	☐	<1
156-59-2	Dichloroethene, cis-1,2-	2.3E-2	3.7E-1	1.0E+0	NA	NA	8.3E+0	NA	>Sol	3.7E-1	☐	<1
156-60-5	Dichloroethene,1,2-trans-	1.3E-3	7.3E-1	2.0E+0	NA	NA	4.4E+1	NA	>Sol	7.3E-1	☐	<1
100-41-4	Ethylbenzene	2.1E-1	3.7E+0	1.0E+1	NA	NA	>Sol	NA	>Sol	3.7E+0	☐	<1
206-44-0	Fluoranthene	0.0E+0	#VALUE!	#VALUE!	NA	NA	>Sol	NA	>Sol	#VALUE!	✂✂	#VALUE!
1634-04-4	Methyl t-Butyl Ether	8.2E-2	1.8E-1	5.1E-1	NA	NA	7.7E+3	NA	>Sol	1.8E-1	☐	<1
91-20-3	Naphthalene	5.0E-4	1.5E-1	4.1E-1	NA	NA	2.6E+1	NA	>Sol	1.5E-1	☐	<1
85-01-8	Phenanthrene	5.0E-4	1.5E-1	4.1E-1	NA	NA	>Sol	NA	>Sol	1.5E-1	☐	<1
129-00-0	Pyrene	0.0E+0	#VALUE!	#VALUE!	NA	NA	>Sol	NA	>Sol	#VALUE!	✂✂	#VALUE!
127-18-4	Tetrachloroethene	4.4E-2	1.6E-2	5.5E-2	NA	NA	1.4E+1	NA	>Sol	1.6E-2	■	3.0E+00
108-88-3	Toluene	8.7E-2	7.3E+0	2.0E+1	NA	NA	2.3E+2	NA	>Sol	7.3E+0	☐	<1
71-55-6	Trichloroethane, 1,1,1-	0.0E+0	3.3E+0	9.2E+0	NA	NA	3.7E+2	NA	>Sol	3.3E+0	☐	<1
79-00-5	Trichloroethane, 1,1,2-	0.0E+0	1.5E-2	5.0E-2	NA	NA	4.3E+0	NA	1.2E+3	1.5E-2	☐	<1
79-01-6	Trichloroethene	6.4E-2	7.7E-2	2.6E-1	NA	NA	3.0E+0	NA	8.9E+2	7.7E-2	☐	<1
75-01-4	Vinyl chloride	3.1E-2	4.5E-4	1.5E-3	NA	NA	2.9E-2	NA	1.6E+1	4.5E-4	■	6.9E+01
1330-20-7	Xylene (mixed isomers)	1.3E-1	7.3E+1	>Sol	NA	NA	>Sol	NA	>Sol	7.3E+1	☐	<1

RBCA TIER 1/TIER 2 EVALUATION

Output Table 1

Site Name: 1970 Seminary
Site Location: Oakland, CA

Job Identification: E-10-1B-192B
Date Completed: 6/29/98
Completed By: Cathrene Glick

Software: GSI RBCA Spreadsheet
Version: v 1.0

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

DEFAULT PARAMETERS

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

Matrix of Exposed Persons to Complete Exposure Pathways		Residential	Commercial/Industrial Chronic	Commercial/Industrial Constrctn
Groundwater Pathways:				
GW.i	Groundwater Ingestion	TRUE	FALSE	
GW.v	Volatilization to Outdoor Air	TRUE	FALSE	
GW.b	Vapor Intrusion to Buildings	TRUE	FALSE	
Soil Pathways				
S.v	Volatiles from Subsurface Soils	TRUE	FALSE	
SS.v	Volatiles and Particulate Inhalation	TRUE	FALSE	TRUE
SS.d	Direct Ingestion and Dermal Contact	TRUE	FALSE	TRUE
S.l	Leaching to Groundwater from all Soils	TRUE	FALSE	
S.b	Intrusion to Buildings - Subsurface 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)		TRUE	7.6E+03	FALSE
S	Inhalation receptor (cm)		TRUE	3.0E+02	FALSE

Matrix of Target Risks		Individual	Cumulative
TRab	Target Risk (class A&B carcinogens)	***1.0E-05***	
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	Commercial/Industrial Chronic	Commercial/Industrial Construction
t	Exposure duration (yr)	30	25	1
A	Contaminated soil area (cm^2)	***8.1E+05***		***8.1E+05***
W	Length of affected soil parallel to wind (cm)	***1.1E+03***		1.0E+03
W.gw	Length of affected soil parallel to groundwater (c	***7.6E+02***		
Uair	Ambient air velocity in mixing zone (cm/s)	2.3E+02		
delta	Air mixing zone height (cm)	2.0E+02		
Lss	Definition of surficial soils (cm)	***1.4E+02***		
Pe	Particulate areal emission rate (g/cm^2/s)	2.2E-10		

Groundwater	Definition (Units)	Value
delta.gw	Groundwater mixing zone depth (cm)	***6.1E+02***
I	Groundwater infiltration rate (cm/yr)	***1.5E+01***
Ugw	Groundwater Darcy velocity (cm/yr)	***4.5E+03***
Ugw.tr	Groundwater Transport velocity (cm/yr)	***1.4E+04***
Ks	Saturated Hydraulic Conductivity(cm/s)	
grad	Groundwater Gradient (cm/cm)	
Sw	Width of groundwater source zone (cm)	9.1E+02
Sd	Depth of groundwater source zone (cm)	6.1E+02
BC	Biodegradation Capacity (mg/L)	4.2E+00
BIO?	Is Bioattenuation Considered	TRUE
phi.eff	Effective Porosity in Water-Bearing Unit	3.8E-01
foc.sat	Fraction organic carbon in water-bearing unit	***2.5E-02***

Soil	Definition (Units)	Value		
hc	Capillary zone thickness (cm)	***7.6E+00***		
hv	Vadose zone thickness (cm)	***3.0E+02***		
rho	Soil density (g/cm^3)	***1.856***		
foc	Fraction of organic carbon in vadose zone	***0.025***		
phi	Soil porosity in vadose zone	***0.32***		
Lgw	Depth to groundwater (cm)	***3.0E+02***		
Ls	Depth to top of affected soil (cm)	***2.4E+02***		
Lsubs	Thickness of affected subsurface soils (cm)	***9.1E+01***		
pH	Soil/groundwater pH	***6.8***		
		capillary	vadose	foundation
phi.w	Volumetric water content	***0.3***	***0.17***	***0.1***
phi.a	Volumetric air content	***0.02***	***0.15***	***0.22***

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)	***1.0E+01***	
eta	Foundation crack fraction	***0.005***	

Dispersive Transport Parameters	Definition (Units)	Residential	Commercial
Groundwater			
ax	Longitudinal dispersion coefficient (cm)		
ay	Transverse dispersion coefficient (cm)		
az	Vertical dispersion coefficient (cm)		
Vapor			
dcy	Transverse dispersion coefficient (cm)	3.9E+01	
dcz	Vertical dispersion coefficient (cm)	2.7E+01	

Site Name: 1970 Seminary
Site Location: Oakland, CA

Completed By: Cathrene Glick
Date Completed: 6/29/1998

SURFACE SOIL SSTL VALUES (< 3 FT BGS)

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

☐ MCL exposure limit?
☐ PEL exposure limit?

Calculation Option: 2

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

CONSTITUENTS OF CONCERN		Representative Concentration	X Soil Leaching to Groundwater			X Ingestion, Inhalation and Dermal Contact		X Construction Worker	Applicable SSTL	SSTL Exceeded ?	Required CRF
CAS No.	Name	(mg/kg)	Residential: 0 feet	Commercial: (on-site)	Regulatory(MCL): (on-site)	Residential: 0 feet	Commercial: (on-site)	Commercial: (on-site)	(mg/kg)	"■" if yes	Only if "yes" left
83-32-9	Acenaphthene	0.0E+0	#VALUE!	NA	NA	>Res	NA	>Res	#VALUE!	■	#VALUE!
120-12-7	Anthracene	0.0E+0	#VALUE!	NA	NA	>Res	NA	>Res	#VALUE!	■	#VALUE!
71-43-2	Benzene	0.0E+0	7.3E+0	NA	NA	2.1E+1	NA	8.3E+2	7.3E+0	☐	<1
75-00-3	Chloroethane	0.0E+0	1.9E+3	NA	NA	1.1E+4	NA	>Res	1.9E+3	☐	<1
95-50-1	Dichlorobenzene (1,2) (-o)	0.0E+0	>Res	NA	NA	2.4E+3	NA	4.0E+3	2.4E+3	☐	<1
106-46-7	Dichlorobenzene, (1,4) (-p)	0.0E+0	4.5E+2	NA	NA	2.6E+1	NA	1.3E+3	2.6E+1	☐	<1
75-34-3	Dichloroethane, 1,1-	0.0E+0	1.4E+3	NA	NA	2.6E+3	NA	3.6E+3	1.4E+3	☐	<1
107-06-2	Dichloroethane, 1,2-	0.0E+0	3.4E+0	NA	NA	6.6E+0	NA	3.1E+2	3.4E+0	☐	<1
156-59-2	Dichloroethene, cis-1,2-	0.0E+0	6.8E+1	NA	NA	2.6E+2	NA	3.0E+2	6.8E+1	☐	<1
156-60-5	Dichloroethene,1,2-trans-	0.0E+0	1.4E+2	NA	NA	>Res	NA	>Res	1.4E+2	☐	<1
100-41-4	Ethylbenzene	0.0E+0	>Res	NA	NA	>Res	NA	>Res	>Res	☐	<1
206-44-0	Fluoranthene	0.0E+0	#VALUE!	NA	NA	>Res	NA	>Res	#VALUE!	■	#VALUE!
1634-04-4	Methyl t-Butyl Ether	0.0E+0	1.7E+1	NA	NA	1.4E+2	NA	2.4E+2	1.7E+1	☐	<1
91-20-3	Naphthalene	0.0E+0	>Res	NA	NA	5.4E+2	NA	>Res	5.4E+2	☐	<1
85-01-8	Phenanthrene	0.0E+0	>Res	NA	NA	5.6E+2	NA	>Res	5.6E+2	☐	<1
129-00-0	Pyrene	0.0E+0	#VALUE!	NA	NA	>Res	NA	>Res	#VALUE!	■	#VALUE!
127-18-4	Tetrachloroethene	0.0E+0	1.3E+4	NA	NA	1.2E+1	NA	6.4E+2	1.2E+1	☐	<1
108-88-3	Toluene	0.0E+0	>Res	NA	NA	>Res	NA	>Res	>Res	☐	<1
71-55-6	Trichloroethane, 1,1,1-	0.0E+0	5.5E+3	NA	NA	2.4E+3	NA	4.0E+3	2.4E+3	☐	<1
79-00-5	Trichloroethane, 1,1,2-	0.0E+0	4.2E-1	NA	NA	1.1E+1	NA	4.2E+2	4.2E-1	☐	<1
79-01-6	Trichloroethene	0.0E+0	1.1E+1	NA	NA	5.6E+1	NA	>Res	1.1E+1	☐	<1
75-01-4	Vinyl chloride	0.0E+0	4.3E-2	NA	NA	3.3E-1	NA	1.6E+1	4.3E-2	☐	<1
1330-20-7	Xylene (mixed isomers)	0.0E+0	>Res	NA	NA	>Res	NA	>Res	>Res	☐	<1

Site Name: 1970 Seminary
Site Location: Oakland, CA

Completed By: Cathrene Glick
Date Completed: 6/29/1998

SUBSURFACE SOIL SSTL VALUES (> 3 FT BGS)

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

☐ MCL exposure limit?
☐ PEL exposure limit?

Calculation Option: 2

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: 0 feet	Commercial: (on-site)	Regulatory(MCL): (on-site)	Residential: (on-site)	Commercial: (on-site)	Residential: 0 feet	Commercial: (on-site)	(mg/kg)	"■" If yes	Only if "yes" left
83-32-9	Acenaphthene	0.0E+0	#VALUE!	NA	NA	>Res	NA	>Res	NA	#VALUE!	■	#VALUE!
120-12-7	Anthracene	0.0E+0	#VALUE!	NA	NA	>Res	NA	>Res	NA	#VALUE!	■	#VALUE!
71-43-2	Benzene	6.4E-2	7.3E+0	NA	NA	6.1E-1	NA	6.9E+2	NA	6.1E-1	☐	<1
75-00-3	Chloroethane	0.0E+0	1.9E+3	NA	NA	2.2E+3	NA	>Res	NA	1.9E+3	☐	<1
95-50-1	Dichlorobenzene (1,2) (-o)	5.5E-2	>Res	NA	NA	2.3E+3	NA	>Res	NA	2.3E+3	☐	<1
106-46-7	Dichlorobenzene, (1,4) (-p)	0.0E+0	4.5E+2	NA	NA	7.0E+1	NA	>Res	NA	7.0E+1	☐	<1
75-34-3	Dichloroethane, 1,1-	0.0E+0	1.4E+3	NA	NA	1.1E+2	NA	>Res	NA	1.1E+2	☐	<1
107-06-2	Dichloroethane, 1,2-	5.0E-2	3.4E+0	NA	NA	4.7E-1	NA	2.2E+2	NA	4.7E-1	☐	<1
156-59-2	Dichloroethene, cis-1,2-	3.1E-2	6.8E+1	NA	NA	7.6E+0	NA	>Res	NA	7.6E+0	☐	<1
156-60-5	Dichloroethene,1,2-trans-	5.0E-2	1.4E+2	NA	NA	1.5E+1	NA	>Res	NA	1.5E+1	☐	<1
100-41-4	Ethylbenzene	1.6E+0	>Res	NA	NA	2.2E+2	NA	>Res	NA	2.2E+2	☐	<1
206-44-0	Fluoranthene	0.0E+0	#VALUE!	NA	NA	>Res	NA	>Res	NA	#VALUE!	■	#VALUE!
########	Methyl t-Butyl Ether	5.0E-2	1.7E+1	NA	NA	1.1E+3	NA	>Res	NA	1.7E+1	☐	<1
91-20-3	Naphthalene	5.0E-2	>Res	NA	NA	2.3E+2	NA	>Res	NA	2.3E+2	☐	<1
85-01-8	Phenanthrene	5.0E-2	>Res	NA	NA	>Res	NA	>Res	NA	>Res	☐	<1
129-00-0	Pyrene	0.0E+0	#VALUE!	NA	NA	>Res	NA	>Res	NA	#VALUE!	■	#VALUE!
127-18-4	Tetrachloroethene	1.5E+0	1.3E+4	NA	NA	2.7E+3	NA	>Res	NA	2.7E+3	☐	<1
108-88-3	Toluene	1.6E+0	>Res	NA	NA	1.1E+2	NA	>Res	NA	1.1E+2	☐	<1
71-55-6	Trichloroethane, 1,1,1-	0.0E+0	5.5E+3	NA	NA	2.3E+2	NA	>Res	NA	2.3E+2	☐	<1
79-00-5	Trichloroethane, 1,1,2-	0.0E+0	4.2E-1	NA	NA	3.1E-1	NA	3.5E+2	NA	3.1E-1	☐	<1
79-01-6	Trichloroethene	1.1E-1	1.1E+1	NA	NA	3.0E+0	NA	>Res	NA	3.0E+0	☐	<1
75-01-4	Vinyl chloride	5.0E-2	4.3E-2	NA	NA	5.9E-2	NA	6.7E+1	NA	4.3E-2	■	1.0E+00
########	Xylene (mixed isomers)	2.2E+0	>Res	NA	NA	>Res	NA	>Res	NA	>Res	☐	<1

Site Name: 1970 Seminary
Site Location: Oakland, CA

Completed By: Cathrene Glick
Date Completed: 6/29/1998

GROUNDWATER SSTL VALUES

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

☐ MCL exposure limit?
☐ PEL exposure limit?

Calculation Option: 2

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: 0 feet	Commercial: (on-site)	Regulatory(MCL): (on-site)	Residential: (on-site)	Commercial: (on-site)	Residential (on-site)	Commercial: (on-site)	(mg/L	"■" If yes	Only if "yes" left
83-32-9	Acenaphthene	0.0E+0	#VALUE!	NA	NA	>Sol	NA	>Sol	NA	#VALUE!	✂✂	#VALUE!
120-12-7	Anthracene	0.0E+0	#VALUE!	NA	NA	>Sol	NA	>Sol	NA	#VALUE!	✂✂	#VALUE!
71-43-2	Benzene	5.2E-1	2.9E-2	NA	NA	6.1E-1	NA	5.0E+2	NA	2.9E-2	■	1.8E+01
75-00-3	Chloroethane	8.4E-3	1.5E+1	NA	NA	1.7E+3	NA	>Sol	NA	1.5E+1	☐	<1
95-50-1	Dichlorobenzene (1,2) (-o)	2.3E-3	3.3E+0	NA	NA	7.5E+1	NA	>Sol	NA	3.3E+0	☐	<1
106-46-7	Dichlorobenzene, (1,4) (-p)	0.0E+0	3.5E-2	NA	NA	2.1E+0	NA	>Sol	NA	3.5E-2	☐	<1
75-34-3	Dichloroethane, 1,1-	0.0E+0	3.7E+0	NA	NA	7.1E+1	NA	>Sol	NA	3.7E+0	☐	<1
107-06-2	Dichloroethane, 1,2-	2.0E-3	9.4E-3	NA	NA	4.7E-1	NA	2.9E+2	NA	9.4E-3	☐	<1
156-59-2	Dichloroethene, cis-1,2-	2.3E-2	3.7E-1	NA	NA	3.2E+0	NA	>Sol	NA	3.7E-1	☐	<1
156-60-5	Dichloroethene,1,2-trans-	1.3E-3	7.3E-1	NA	NA	1.7E+1	NA	>Sol	NA	7.3E-1	☐	<1
100-41-4	Ethylbenzene	2.1E-1	3.7E+0	NA	NA	>Sol	NA	>Sol	NA	3.7E+0	☐	<1
206-44-0	Fluoranthene	0.0E+0	#VALUE!	NA	NA	>Sol	NA	>Sol	NA	#VALUE!	✂✂	#VALUE!
1634-04-4	Methyl t-Butyl Ether	8.2E-2	1.8E-1	NA	NA	3.0E+3	NA	>Sol	NA	1.8E-1	☐	<1
91-20-3	Naphthalene	5.0E-4	1.5E-1	NA	NA	9.9E+0	NA	>Sol	NA	1.5E-1	☐	<1
85-01-8	Phenanthrene	5.0E-4	1.5E-1	NA	NA	>Sol	NA	>Sol	NA	1.5E-1	☐	<1
129-00-0	Pyrene	0.0E+0	#VALUE!	NA	NA	>Sol	NA	>Sol	NA	#VALUE!	✂✂	#VALUE!
127-18-4	Tetrachloroethene	4.4E-2	1.6E-2	NA	NA	4.5E+0	NA	>Sol	NA	1.6E-2	■	3.0E+00
108-88-3	Toluene	8.7E-2	7.3E+0	NA	NA	9.0E+1	NA	>Sol	NA	7.3E+0	☐	<1
71-55-6	Trichloroethane, 1,1,1-	0.0E+0	3.3E+0	NA	NA	1.4E+2	NA	>Sol	NA	3.3E+0	☐	<1
79-00-5	Trichloroethane, 1,1,2-	0.0E+0	1.5E-2	NA	NA	1.4E+0	NA	7.4E+2	NA	1.5E-2	☐	<1
79-01-6	Trichloroethene	6.4E-2	7.7E-2	NA	NA	9.6E-1	NA	5.3E+2	NA	7.7E-2	☐	<1
75-01-4	Vinyl chloride	3.1E-2	4.5E-4	NA	NA	9.2E-3	NA	9.4E+0	NA	4.5E-4	■	6.9E+01
1330-20-7	Xylene (mixed isomers)	1.3E-1	7.3E+1	NA	NA	>Sol	NA	>Sol	NA	7.3E+1	☐	<1

APPENDIX C

Off-Site Risks
Residence to Southwest

RBCA TIER 1/TIER 2 EVALUATION

Output Table 1

Site Name: 1970 Seminary
Site Location: Oakland, CA

Job Identification: E-10-1B-192B
Date Completed: 6/29/98
Completed By: Cathrene Glick

Software: GSI RBCA Spreadsheet
Version: v 1.0

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

DEFAULT PARAMETERS

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

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

Matrix of Receptor Distance and Location on- or off-site		Residential Distance	Residential On-Site	Commercial/Industrial Distance	Commercial/Industrial On-Site
GW	Groundwater receptor (cm)	7.6E+03	FALSE		TRUE
S	Inhalation receptor (cm)	3.0E+02	FALSE		TRUE

Matrix of Target Risks		Individual	Cumulative
TRab	Target Risk (class A&B carcinogens)	***1.0E-05***	
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	Commercial/Industrial Chronic	Commercial/Industrial Construction
t	Exposure duration (yr)	30	25	1
A	Contaminated soil area (cm^2)	***8.1E+05***		***8.1E+05***
W	Length of affected soil parallel to wind (cm)	***1.1E+03***		1.0E+03
W.gw	Length of affected soil parallel to groundwater (c	***7.6E+02***		
Uair	Ambient air velocity in mixing zone (cm/s)	2.3E+02		
delta	Air mixing zone height (cm)	2.0E+02		
Lss	Definition of surficial soils (cm)	***1.4E+02***		
Pe	Particulate areal emission rate (g/cm^2/s)	2.2E-10		

Groundwater	Definition (Units)	Value
delta.gw	Groundwater mixing zone depth (cm)	***6.1E+02***
I	Groundwater infiltration rate (cm/yr)	***1.5E+01***
Ugw	Groundwater Darcy velocity (cm/yr)	***4.5E+03***
Ugw.tr	Groundwater Transport velocity (cm/yr)	***1.4E+04***
Ks	Saturated Hydraulic Conductivity(cm/s)	
grad	Groundwater Gradient (cm/cm)	
Sw	Width of groundwater source zone (cm)	9.1E+02
Sd	Depth of groundwater source zone (cm)	6.1E+02
BC	Biodegradation Capacity (mg/L)	4.2E+00
BIO?	Is Bioattenuation Considered	TRUE
phi.eff	Effective Porosity in Water-Bearing Unit	3.8E-01
foc.sat	Fraction organic carbon in water-bearing unit	***2.5E-02***

Soil	Definition (Units)	Value		
hc	Capillary zone thickness (cm)	***7.6E+00***		
hv	Vadose zone thickness (cm)	***3.0E+02***		
rho	Soil density (g/cm^3)	***1.856***		
foc	Fraction of organic carbon in vadose zone	***0.015***		
phi	Soil porosity in vadose zone	***0.32***		
Lgw	Depth to groundwater (cm)	***3.0E+02***		
Ls	Depth to top of affected soil (cm)	***2.4E+02***		
Lsubs	Thickness of affected subsurface soils (cm)	***9.1E+01***		
pH	Soil/groundwater pH	***6.8***		
		capillary	vadose	foundation
phi.w	Volumetric water content	***0.3***	***0.17***	***0.1***
phi.a	Volumetric air content	***0.02***	***0.15***	***0.22***

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)	***1.0E+01***	
eta	Foundation crack fraction	***0.005***	

Dispersive Transport Parameters	Definition (Units)	Residential	Commercial
Groundwater			
ax	Longitudinal dispersion coefficient (cm)		
ay	Transverse dispersion coefficient (cm)		
az	Vertical dispersion coefficient (cm)		
Vapor			
dcy	Transverse dispersion coefficient (cm)	3.9E+01	
dcz	Vertical dispersion coefficient (cm)	2.7E+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 alue (mg/kg	note
Acenaphthene						
Anthracene						
Benzene	2.9E-1				2.4E+0	
Chloroethane	1.3E-3					
Dichlorobenzene (1,2) (-o)	1.1E-3				1.7E+0	
Dichlorobenzene, (1,4) (-p)						
Dichloroethane, 1,1-						
Dichloroethane, 1,2-	2.8E-3				1.0E-1	
Dichloroethene, cis-1,2-	7.1E-3				3.1E-2	
Dichloroethene,1,2-trans-	8.5E-4				1.0E-1	
Ethylbenzene	2.9E-1				4.2E+0	
Fluoranthene						
Methyl t-Butyl Ether	1.7E-1				5.0E-2	
Naphthalene	5.0E-4				5.0E-2	
Phenanthrene	5.0E-4				5.0E-2	
Pyrene						
Tetrachloroethene	1.0E-4				1.8E+0	
Toluene	5.9E-2				3.5E+0	
Trichloroethane, 1,1,1-						
Trichloroethane, 1,1,2-						
Trichloroethene	5.8E-3				8.2E-1	
Vinyl chloride	5.7E-3				5.0E-2	
Xylene (mixed isomers)	3.3E-1				8.3E+0	

Site Name: 1970 Seminary
Site Location: Oakland, CA

Completed By: Cathrene Glick
Date Completed: 6/29/1998

RBCA SITE ASSESSMENT **Input Screen 6.3**

CONSTITUENT MOLE FRACTIONS

(Complete the following table)

CONSTITUENT	Mole Fraction of Constituent in Source Material
Acenaphthene	
Anthracene	
Benzene	
Chloroethane	
Dichlorobenzene (1,2) (-o)	
Dichlorobenzene, (1,4) (-p)	
Dichloroethane, 1,1-	
Dichloroethane, 1,2-	
Dichloroethene, cis-1,2-	
Dichloroethene,1,2-trans-	
Ethylbenzene	
Fluoranthene	
Methyl t-Butyl Ether	
Naphthalene	
Phenanthrene	
Pyrene	
Tetrachloroethene	
Toluene	
Trichloroethane, 1,1,1-	
Trichloroethane, 1,1,2-	
Trichloroethene	
Vinyl chloride	
Xylene (mixed isomers)	

Site Name: 1970 Seminary
Site Location: Oakland, CA

Completed By: Cathrene Glick
Date Completed: 6/29/1998

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
Acenaphthene	#DIV/0!	#DIV/0!
Anthracene	#DIV/0!	#DIV/0!
Benzene	1.0E+0	1.0E+0
Chloroethane	1.0E+0	1.0E+0
Dichlorobenzene (1,2) (-o)	1.0E+0	1.0E+0
Dichlorobenzene, (1,4) (-p)	#DIV/0!	#DIV/0!
Dichloroethane, 1,1-	#DIV/0!	#DIV/0!
Dichloroethane, 1,2-	1.0E+0	1.0E+0
Dichloroethene, cis-1,2-	1.0E+0	1.0E+0
Dichloroethene,1,2-trans-	1.0E+0	1.0E+0
Ethylbenzene	1.0E+0	1.0E+0
Fluoranthene	#DIV/0!	#DIV/0!
Methyl t-Butyl Ether	1.0E+0	1.0E+0
Naphthalene	1.0E+0	1.0E+0
Phenanthrene	1.0E+0	1.0E+0
Pyrene	#DIV/0!	#DIV/0!
Tetrachloroethene	1.0E+0	1.0E+0
Toluene	1.0E+0	1.0E+0
Trichloroethane, 1,1,1-	#DIV/0!	#DIV/0!
Trichloroethane, 1,1,2-	#DIV/0!	#DIV/0!
Trichloroethene	1.0E+0	1.0E+0
Vinyl chloride	1.0E+0	1.0E+0
Xylene (mixed isomers)	1.0E+0	1.0E+0

Site Name: 1970 Seminary
Site Location: Oakland, CA

Completed By: Cathrene Glick
Date Completed: 6/29/1998

RBCA SITE ASSESSMENT **Input Screen 9.1**

CONSTITUENT HALF-LIFE VALUES

(Complete the following table)

CONSTITUENT	Half-Life of Constituent (day)
Acenaphthene	
Anthracene	
Benzene	
Chloroethane	
Dichlorobenzene (1,2) (-o)	
Dichlorobenzene, (1,4) (-p)	
Dichloroethane, 1,1-	
Dichloroethane, 1,2-	
Dichloroethene, cis-1,2-	
Dichloroethene,1,2-trans-	
Ethylbenzene	
Fluoranthene	
Methyl t-Butyl Ether	
Naphthalene	
Phenanthrene	
Pyrene	
Tetrachloroethene	
Toluene	
Trichloroethane, 1,1,1-	
Trichloroethane, 1,1,2-	
Trichloroethene	
Vinyl chloride	
Xylene (mixed isomers)	

Site Name: 1970 Seminary
Site Location: Oakland, CA

Completed By: Cathrene Glick
Date Completed: 6/29/1998

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)
Acenaphthene		
Anthracene		
Benzene		
Chloroethane		
Dichlorobenzene (1,2) (-o)		
Dichlorobenzene, (1,4) (-p)		
Dichloroethane, 1,1-		
Dichloroethane, 1,2-		
Dichloroethene, cis-1,2-		
Dichloroethene,1,2-trans-		
Ethylbenzene		
Fluoranthene		
Methyl t-Butyl Ether		
Naphthalene		
Phenanthrene		
Pyrene		
Tetrachloroethene		
Toluene		
Trichloroethane, 1,1,1-		
Trichloroethane, 1,1,2-		
Trichloroethene		
Vinyl chloride		
Xylene (mixed isomers)		

Site Name: 1970 Seminary
Site Location: Oakland, CA

Completed By: Cathrene Glick
Date Completed: 6/29/1998

Site Name: 1970 Seminary
Site Location: Oakland, CA

Completed By: Cathrene Glick
Date Completed: 6/29/1998

SURFACE SOIL SSTL VALUES (< 3 FT BGS)

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

☐ MCL exposure limit?
☐ PEL exposure limit?

Calculation Option: 2

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

CONSTITUENTS OF CONCERN		Representative Concentration	X Soil Leaching to Groundwater			X Ingestion, Inhalation and Dermal Contact		X Construction Worker	Applicable SSTL	SSTL Exceeded ?	Required CRF
CAS No.	Name	(mg/kg)	Residential: 250 feet	Commercial: (on-site)	Regulatory(MCL): (on-site)	Residential: 10 feet	Commercial: (on-site)	Commercial: (on-site)	(mg/kg)	"■" If yes	Only if "yes" left
83-32-9	Acenaphthene	0.0E+0	#VALUE!	#VALUE!	NA	>Res	>Res	>Res	#VALUE!	■	#VALUE!
120-12-7	Anthracene	0.0E+0	#VALUE!	#VALUE!	NA	>Res	>Res	>Res	#VALUE!	■	#VALUE!
71-43-2	Benzene	0.0E+0	7.3E+0	2.5E+1	NA	4.6E+2	3.6E+1	8.3E+2	7.3E+0	☐	<1
75-00-3	Chloroethane	0.0E+0	1.9E+3	5.3E+3	NA	>Res	>Res	>Res	1.9E+3	☐	<1
95-50-1	Dichlorobenzene (1,2) (-o)	0.0E+0	>Res	>Res	NA	>Res	3.4E+3	4.0E+3	3.4E+3	☐	<1
106-46-7	Dichlorobenzene, (1,4) (-p)	0.0E+0	4.5E+2	1.5E+3	NA	2.4E+3	4.5E+1	1.3E+3	4.5E+1	☐	<1
75-34-3	Dichloroethane, 1,1-	0.0E+0	1.4E+3	3.8E+3	NA	>Res	3.8E+3	3.6E+3	1.4E+3	☐	<1
107-06-2	Dichloroethane, 1,2-	0.0E+0	3.4E+0	1.1E+1	NA	1.5E+2	1.1E+1	3.1E+2	3.4E+0	☐	<1
156-59-2	Dichloroethene, cis-1,2-	0.0E+0	6.8E+1	1.9E+2	NA	>Res	3.7E+2	3.0E+2	6.8E+1	☐	<1
156-60-5	Dichloroethene,1,2-trans-	0.0E+0	1.4E+2	4.0E+2	NA	>Res	>Res	>Res	1.4E+2	☐	<1
100-41-4	Ethylbenzene	0.0E+0	>Res	>Res	NA	>Res	>Res	>Res	>Res	☐	<1
206-44-0	Fluoranthene	0.0E+0	#VALUE!	#VALUE!	NA	>Res	>Res	>Res	#VALUE!	■	#VALUE!
1634-04-4	Methyl t-Butyl Ether	0.0E+0	1.7E+1	4.7E+1	NA	>Res	2.0E+2	2.4E+2	1.7E+1	☐	<1
91-20-3	Naphthalene	0.0E+0	>Res	>Res	NA	>Res	7.7E+2	>Res	7.7E+2	☐	<1
85-01-8	Phenanthrene	0.0E+0	>Res	>Res	NA	>Res	>Res	>Res	>Res	☐	<1
129-00-0	Pyrene	0.0E+0	#VALUE!	#VALUE!	NA	>Res	>Res	>Res	#VALUE!	■	#VALUE!
127-18-4	Tetrachloroethene	0.0E+0	1.3E+4	4.3E+4	NA	5.2E+4	2.1E+1	6.4E+2	2.1E+1	☐	<1
108-88-3	Toluene	0.0E+0	>Res	>Res	NA	>Res	>Res	>Res	>Res	☐	<1
71-55-6	Trichloroethane, 1,1,1-	0.0E+0	5.5E+3	>Res	NA	>Res	3.5E+3	4.0E+3	3.5E+3	☐	<1
79-00-5	Trichloroethane, 1,1,2-	0.0E+0	4.2E-1	1.4E+0	NA	2.3E+2	1.8E+1	4.2E+2	4.2E-1	☐	<1
79-01-6	Trichloroethene	0.0E+0	1.1E+1	3.6E+1	NA	>Res	9.7E+1	>Res	1.1E+1	☐	<1
75-01-4	Vinyl chloride	0.0E+0	4.3E-2	1.4E-1	NA	4.4E+1	5.7E-1	1.6E+1	4.3E-2	☐	<1
1330-20-7	Xylene (mixed isomers)	0.0E+0	>Res	>Res	NA	>Res	>Res	>Res	>Res	☐	<1

Tier 2 Worksheet 9.2

Site Name: 1970 Seminary
Site Location: Oakland, CA

Completed By: Cathrene Glick
Date Completed: 6/29/1998

SUBSURFACE SOIL SSTL VALUES (> 3 FT BGS)

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

☐ MCL exposure limit?
☐ PEL exposure limit?

Calculation Option: 2

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: 250 feet	Commercial: (on-site)	Regulatory(MCL): (on-site)	Residential: (on-site)	Commercial: (on-site)	Residential: 10 feet	Commercial: (on-site)	(mg/kg)	"■" If yes	Only if "yes" left
83-32-9	Acenaphthene	0.0E+0	#VALUE!	#VALUE!	NA	NA	>Res	>Res	>Res	#VALUE!	☭☭	#VALUE!
120-12-7	Anthracene	0.0E+0	#VALUE!	#VALUE!	NA	NA	>Res	>Res	>Res	#VALUE!	☭☭	#VALUE!
71-43-2	Benzene	6.4E-2	7.3E+0	2.5E+1	NA	NA	1.6E+0	6.9E+2	9.7E+2	1.6E+0	☐	<1
75-00-3	Chloroethane	0.0E+0	1.9E+3	5.3E+3	NA	NA	4.7E+3	>Res	>Res	1.9E+3	☐	<1
95-50-1	Dichlorobenzene (1,2) (-o)	5.5E-2	>Res	>Res	NA	NA	6.0E+3	>Res	>Res	6.0E+3	☐	<1
106-46-7	Dichlorobenzene, (1,4) (-p)	0.0E+0	4.5E+2	1.5E+3	NA	NA	2.2E+2	>Res	>Res	2.2E+2	☐	<1
75-34-3	Dichloroethane, 1,1-	0.0E+0	1.4E+3	3.8E+3	NA	NA	2.3E+2	>Res	>Res	2.3E+2	☐	<1
107-06-2	Dichloroethane, 1,2-	5.0E-2	3.4E+0	1.1E+1	NA	NA	1.5E+0	2.2E+2	3.1E+2	1.5E+0	☐	<1
156-59-2	Dichloroethene, cis-1,2-	3.1E-2	6.8E+1	1.9E+2	NA	NA	1.6E+1	>Res	>Res	1.6E+1	☐	<1
156-60-5	Dichloroethene,1,2-trans-	5.0E-2	1.4E+2	4.0E+2	NA	NA	3.3E+1	>Res	>Res	3.3E+1	☐	<1
100-41-4	Ethylbenzene	1.6E+0	>Res	>Res	NA	NA	>Res	>Res	>Res	>Res	☐	<1
206-44-0	Fluoranthene	0.0E+0	#VALUE!	#VALUE!	NA	NA	>Res	>Res	>Res	#VALUE!	☭☭	#VALUE!
########	Methyl t-Butyl Ether	5.0E-2	1.7E+1	4.7E+1	NA	NA	2.8E+3	>Res	>Res	1.7E+1	☐	<1
91-20-3	Naphthalene	5.0E-2	>Res	>Res	NA	NA	5.9E+2	>Res	>Res	5.9E+2	☐	<1
85-01-8	Phenanthrene	5.0E-2	>Res	>Res	NA	NA	>Res	>Res	>Res	>Res	☐	<1
129-00-0	Pyrene	0.0E+0	#VALUE!	#VALUE!	NA	NA	>Res	>Res	>Res	#VALUE!	☭☭	#VALUE!
127-18-4	Tetrachloroethene	1.5E+0	1.3E+4	4.3E+4	NA	NA	8.4E+3	>Res	>Res	8.4E+3	☐	<1
108-88-3	Toluene	1.6E+0	>Res	>Res	NA	NA	2.9E+2	>Res	>Res	2.9E+2	☐	<1
71-55-6	Trichloroethane, 1,1,1-	0.0E+0	5.5E+3	>Res	NA	NA	5.9E+2	>Res	>Res	5.9E+2	☐	<1
79-00-5	Trichloroethane, 1,1,2-	0.0E+0	4.2E-1	1.4E+0	NA	NA	8.0E-1	3.5E+2	4.9E+2	4.2E-1	☐	<1
79-01-6	Trichloroethene	1.1E-1	1.1E+1	3.6E+1	NA	NA	7.6E+0	>Res	>Res	7.6E+0	☐	<1
75-01-4	Vinyl chloride	5.0E-2	4.3E-2	1.4E-1	NA	NA	1.5E-1	6.7E+1	9.3E+1	4.3E-2	■	1.0E+00
########	Xylene (mixed isomers)	2.2E+0	>Res	>Res	NA	NA	>Res	>Res	>Res	>Res	☐	<1

Site Name: 1970 Seminary
Site Location: Oakland, CA

Completed By: Cathrene Glick
Date Completed: 6/29/1998

GROUNDWATER SSTL VALUES

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

☐ MCL exposure limit?
☐ PEL exposure limit?

Calculation Option: 2

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: 250 feet	Commercial: (on-site)	Regulatory(MCL): (on-site)	Residential: (on-site)	Commercial: (on-site)	Residential (on-site)	Commercial: (on-site)	(mg/L	"■" If yes	Only if "yes" left
83-32-9	Acenaphthene	0.0E+0	#VALUE!	#VALUE!	NA	NA	>Sol	NA	>Sol	#VALUE!	■	#VALUE!
120-12-7	Anthracene	0.0E+0	#VALUE!	#VALUE!	NA	NA	>Sol	NA	>Sol	#VALUE!	■	#VALUE!
71-43-2	Benzene	2.9E-1	2.9E-2	9.9E-2	NA	NA	1.9E+0	NA	8.4E+2	2.9E-2	■	1.0E+01
75-00-3	Chloroethane	1.3E-3	1.5E+1	4.1E+1	NA	NA	4.3E+3	NA	>Sol	1.5E+1	☐	<1
95-50-1	Dichlorobenzene (1,2) (-o)	1.1E-3	3.3E+0	9.2E+0	NA	NA	>Sol	NA	>Sol	3.3E+0	☐	<1
106-46-7	Dichlorobenzene, (1,4) (-p)	0.0E+0	3.5E-2	1.2E-1	NA	NA	6.4E+0	NA	>Sol	3.5E-2	☐	<1
75-34-3	Dichloroethane, 1,1-	0.0E+0	3.7E+0	1.0E+1	NA	NA	1.8E+2	NA	>Sol	3.7E+0	☐	<1
107-06-2	Dichloroethane, 1,2-	2.8E-3	9.4E-3	3.1E-2	NA	NA	1.5E+0	NA	4.9E+2	9.4E-3	☐	<1
156-59-2	Dichloroethene, cis-1,2-	7.1E-3	3.7E-1	1.0E+0	NA	NA	8.3E+0	NA	>Sol	3.7E-1	☐	<1
156-60-5	Dichloroethene,1,2-trans-	8.5E-4	7.3E-1	2.0E+0	NA	NA	4.4E+1	NA	>Sol	7.3E-1	☐	<1
100-41-4	Ethylbenzene	2.9E-1	3.7E+0	1.0E+1	NA	NA	>Sol	NA	>Sol	3.7E+0	☐	<1
206-44-0	Fluoranthene	0.0E+0	#VALUE!	#VALUE!	NA	NA	>Sol	NA	>Sol	#VALUE!	■	#VALUE!
1634-04-4	Methyl t-Butyl Ether	1.7E-1	1.8E-1	5.1E-1	NA	NA	7.7E+3	NA	>Sol	1.8E-1	☐	<1
91-20-3	Naphthalene	5.0E-4	1.5E-1	4.1E-1	NA	NA	2.6E+1	NA	>Sol	1.5E-1	☐	<1
85-01-8	Phenanthrene	5.0E-4	1.5E-1	4.1E-1	NA	NA	>Sol	NA	>Sol	1.5E-1	☐	<1
129-00-0	Pyrene	0.0E+0	#VALUE!	#VALUE!	NA	NA	>Sol	NA	>Sol	#VALUE!	■	#VALUE!
127-18-4	Tetrachloroethene	1.0E-4	1.6E-2	5.5E-2	NA	NA	1.4E+1	NA	>Sol	1.6E-2	☐	<1
108-88-3	Toluene	5.9E-2	7.3E+0	2.0E+1	NA	NA	2.3E+2	NA	>Sol	7.3E+0	☐	<1
71-55-6	Trichloroethane, 1,1,1-	0.0E+0	3.3E+0	9.2E+0	NA	NA	3.7E+2	NA	>Sol	3.3E+0	☐	<1
79-00-5	Trichloroethane, 1,1,2-	0.0E+0	1.5E-2	5.0E-2	NA	NA	4.3E+0	NA	1.2E+3	1.5E-2	☐	<1
79-01-6	Trichloroethene	5.8E-3	7.7E-2	2.6E-1	NA	NA	3.0E+0	NA	8.9E+2	7.7E-2	☐	<1
75-01-4	Vinyl chloride	5.7E-3	4.5E-4	1.5E-3	NA	NA	2.9E-2	NA	1.6E+1	4.5E-4	■	1.3E+01
1330-20-7	Xylene (mixed isomers)	3.3E-1	7.3E+1	>Sol	NA	NA	>Sol	NA	>Sol	7.3E+1	☐	<1

RBCA TIER 1/TIER 2 EVALUATION

Output Table 1

Site Name: 1970 Seminary
Site Location: Oakland, CA

Job Identification: E-10-1B-192B
Date Completed: 6/29/98
Completed By: Cathrene Glick

Software: GSI RBCA Spreadsheet
Version: v 1.0

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

DEFAULT PARAMETERS

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

Surface Parameters	Definition (Units)	Residential	Commercial/Industrial Chronic	Commercial/Industrial Construction
t	Exposure duration (yr)	30	25	1
A	Contaminated soil area (cm^2)	***8.1E+05***		***8.1E+05***
W	Length of affected soil parallel to wind (cm)	***1.1E+03***		1.0E+03
W.gw	Length of affected soil parallel to groundwater (c	***7.6E+02***		
Uair	Ambient air velocity in mixing zone (cm/s)	2.3E+02		
delta	Air mixing zone height (cm)	2.0E+02		
Lss	Definition of surficial soils (cm)	***1.4E+02***		
Pe	Particulate areal emission rate (g/cm^2/s)	2.2E-10		

Groundwater	Definition (Units)	Value
delta.gw	Groundwater mixing zone depth (cm)	***6.1E+02***
I	Groundwater infiltration rate (cm/yr)	***1.5E+01***
Ugw	Groundwater Darcy velocity (cm/yr)	***4.5E+03***
Ugw.tr	Groundwater Transport velocity (cm/yr)	***1.4E+04***
Ks	Saturated Hydraulic Conductivity(cm/s)	
grad	Groundwater Gradient (cm/cm)	
Sw	Width of groundwater source zone (cm)	9.1E+02
Sd	Depth of groundwater source zone (cm)	6.1E+02
BC	Biodegradation Capacity (mg/L)	4.2E+00
BIO?	Is Bioattenuation Considered	TRUE
phi.eff	Effective Porosity in Water-Bearing Unit	3.8E-01
foc.sat	Fraction organic carbon in water-bearing unit	***2.5E-02***

Soil	Definition (Units)	Value
hc	Capillary zone thickness (cm)	***7.6E+00***
hv	Vadose zone thickness (cm)	***3.0E+02***
rho	Soil density (g/cm^3)	***1.856***
foc	Fraction of organic carbon in vadose zone	***0.025***
phi	Soil porosity in vadose zone	***0.32***
Lgw	Depth to groundwater (cm)	***3.0E+02***
Ls	Depth to top of affected soil (cm)	***2.4E+02***
Lsubs	Thickness of affected subsurface soils (cm)	***9.1E+01***
pH	Soil/groundwater pH	***6.8***

		capillary	vadose	foundation
phi.w	Volumetric water content	***0.3***	***0.17***	***0.1***
phi.a	Volumetric air content	***0.02***	***0.15***	***0.22***

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

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)	***1.0E+01***	
eta	Foundation crack fraction	***0.005***	

Matrix of Receptor Distance and Location on- or off-site		Residential Distance	Residential On-Site	Commercial/Industrial Distance	Commercial/Industrial On-Site
GW	Groundwater receptor (cm)		TRUE	7.6E+03	FALSE
S	Inhalation receptor (cm)		TRUE	3.0E+02	FALSE

Matrix of Target Risks		Individual	Cumulative
TRab	Target Risk (class A&B carcinogens)	***1.0E-05***	
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	

Dispersive Transport Parameters	Definition (Units)	Residential	Commercial
Groundwater			
ax	Longitudinal dispersion coefficient (cm)		
ay	Transverse dispersion coefficient (cm)		
az	Vertical dispersion coefficient (cm)		
Vapor			
dcy	Transverse dispersion coefficient (cm)	3.9E+01	
dcz	Vertical dispersion coefficient (cm)	2.7E+01	

Site Name: 1970 Seminary
Site Location: Oakland, CA

Completed By: Cathrene Glick
Date Completed: 6/29/1998

SURFACE SOIL SSTL VALUES (< 3 FT BGS)

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

☐ MCL exposure limit?
☐ PEL exposure limit?

Calculation Option: 2

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

CONSTITUENTS OF CONCERN		Representative Concentration	X	Soil Leaching to Groundwater			X	Ingestion, Inhalation and Dermal Contact		X	Construction Worker	Applicable SSTL	SSTL Exceeded ?	Required CRF
CAS No.	Name	(mg/kg)		Residential: 0 feet	Commercial: (on-site)	Regulatory(MCL): (on-site)		Residential: 0 feet	Commercial: (on-site)		Commercial: (on-site)	(mg/kg)	"■" if yes	Only if "yes" left
83-32-9	Acenaphthene	0.0E+0		#VALUE!	NA	NA		>Res	NA		>Res	#VALUE!	■	#VALUE!
120-12-7	Anthracene	0.0E+0		#VALUE!	NA	NA		>Res	NA		>Res	#VALUE!	■	#VALUE!
71-43-2	Benzene	0.0E+0		7.3E+0	NA	NA		2.1E+1	NA		8.3E+2	7.3E+0	☐	<1
75-00-3	Chloroethane	0.0E+0		1.9E+3	NA	NA		1.1E+4	NA		>Res	1.9E+3	☐	<1
95-50-1	Dichlorobenzene (1,2) (-o)	0.0E+0		>Res	NA	NA		2.4E+3	NA		4.0E+3	2.4E+3	☐	<1
106-46-7	Dichlorobenzene, (1,4) (-p)	0.0E+0		4.5E+2	NA	NA		2.6E+1	NA		1.3E+3	2.6E+1	☐	<1
75-34-3	Dichloroethane, 1,1-	0.0E+0		1.4E+3	NA	NA		2.6E+3	NA		3.6E+3	1.4E+3	☐	<1
107-06-2	Dichloroethane, 1,2-	0.0E+0		3.4E+0	NA	NA		6.6E+0	NA		3.1E+2	3.4E+0	☐	<1
156-59-2	Dichloroethene, cis-1,2-	0.0E+0		6.8E+1	NA	NA		2.6E+2	NA		3.0E+2	6.8E+1	☐	<1
156-60-5	Dichloroethene,1,2-trans-	0.0E+0		1.4E+2	NA	NA		>Res	NA		>Res	1.4E+2	☐	<1
100-41-4	Ethylbenzene	0.0E+0		>Res	NA	NA		>Res	NA		>Res	>Res	☐	<1
206-44-0	Fluoranthene	0.0E+0		#VALUE!	NA	NA		>Res	NA		>Res	#VALUE!	■	#VALUE!
1634-04-4	Methyl t-Butyl Ether	0.0E+0		1.7E+1	NA	NA		1.4E+2	NA		2.4E+2	1.7E+1	☐	<1
91-20-3	Naphthalene	0.0E+0		>Res	NA	NA		5.4E+2	NA		>Res	5.4E+2	☐	<1
85-01-8	Phenanthrene	0.0E+0		>Res	NA	NA		5.6E+2	NA		>Res	5.6E+2	☐	<1
129-00-0	Pyrene	0.0E+0		#VALUE!	NA	NA		>Res	NA		>Res	#VALUE!	■	#VALUE!
127-18-4	Tetrachloroethene	0.0E+0		1.3E+4	NA	NA		1.2E+1	NA		6.4E+2	1.2E+1	☐	<1
108-88-3	Toluene	0.0E+0		>Res	NA	NA		>Res	NA		>Res	>Res	☐	<1
71-55-6	Trichloroethane, 1,1,1-	0.0E+0		5.5E+3	NA	NA		2.4E+3	NA		4.0E+3	2.4E+3	☐	<1
79-00-5	Trichloroethane, 1,1,2-	0.0E+0		4.2E-1	NA	NA		1.1E+1	NA		4.2E+2	4.2E-1	☐	<1
79-01-6	Trichloroethene	0.0E+0		1.1E+1	NA	NA		5.6E+1	NA		>Res	1.1E+1	☐	<1
75-01-4	Vinyl chloride	0.0E+0		4.3E-2	NA	NA		3.3E-1	NA		1.6E+1	4.3E-2	☐	<1
1330-20-7	Xylene (mixed isomers)	0.0E+0		>Res	NA	NA		>Res	NA		>Res	>Res	☐	<1

Tier 2 Worksheet 9.2

Site Name: 1970 Seminary
Site Location: Oakland, CA

Completed By: Cathrene Glick
Date Completed: 6/29/1998

SUBSURFACE SOIL SSTL VALUES (> 3 FT BGS)

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

☐ MCL exposure limit?
☐ PEL exposure limit?

Calculation Option: 2

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: 0 feet	Commercial: (on-site)	Regulatory(MCL): (on-site)	Residential: (on-site)	Commercial (on-site)	Residential: 0 feet	Commercial: (on-site)	(mg/kg)	"■" If yes	Only if "yes" left
83-32-9	Acenaphthene	0.0E+0	#VALUE!	NA	NA	>Res	NA	>Res	NA	#VALUE!	☠☠	#VALUE!
120-12-7	Anthracene	0.0E+0	#VALUE!	NA	NA	>Res	NA	>Res	NA	#VALUE!	☠☠	#VALUE!
71-43-2	Benzene	6.4E-2	7.3E+0	NA	NA	6.1E-1	NA	6.9E+2	NA	6.1E-1	☐	<1
75-00-3	Chloroethane	0.0E+0	1.9E+3	NA	NA	2.2E+3	NA	>Res	NA	1.9E+3	☐	<1
95-50-1	Dichlorobenzene (1,2) (-o)	5.5E-2	>Res	NA	NA	2.3E+3	NA	>Res	NA	2.3E+3	☐	<1
106-46-7	Dichlorobenzene, (1,4) (-p)	0.0E+0	4.5E+2	NA	NA	7.0E+1	NA	>Res	NA	7.0E+1	☐	<1
75-34-3	Dichloroethane, 1,1-	0.0E+0	1.4E+3	NA	NA	1.1E+2	NA	>Res	NA	1.1E+2	☐	<1
107-06-2	Dichloroethane, 1,2-	5.0E-2	3.4E+0	NA	NA	4.7E-1	NA	2.2E+2	NA	4.7E-1	☐	<1
156-59-2	Dichloroethene, cis-1,2-	3.1E-2	6.8E+1	NA	NA	7.6E+0	NA	>Res	NA	7.6E+0	☐	<1
156-60-5	Dichloroethene,1,2-trans-	5.0E-2	1.4E+2	NA	NA	1.5E+1	NA	>Res	NA	1.5E+1	☐	<1
100-41-4	Ethylbenzene	1.1E+0	>Res	NA	NA	2.2E+2	NA	>Res	NA	2.2E+2	☐	<1
206-44-0	Fluoranthene	0.0E+0	#VALUE!	NA	NA	>Res	NA	>Res	NA	#VALUE!	☠☠	#VALUE!
########	Methyl t-Butyl Ether	5.0E-2	1.7E+1	NA	NA	1.1E+3	NA	>Res	NA	1.7E+1	☐	<1
91-20-3	Naphthalene	5.0E-2	>Res	NA	NA	2.3E+2	NA	>Res	NA	2.3E+2	☐	<1
85-01-8	Phenanthrene	5.0E-2	>Res	NA	NA	>Res	NA	>Res	NA	>Res	☐	<1
129-00-0	Pyrene	0.0E+0	#VALUE!	NA	NA	>Res	NA	>Res	NA	#VALUE!	☠☠	#VALUE!
127-18-4	Tetrachloroethene	1.5E+0	1.3E+4	NA	NA	2.7E+3	NA	>Res	NA	2.7E+3	☐	<1
108-88-3	Toluene	1.6E+0	>Res	NA	NA	1.1E+2	NA	>Res	NA	1.1E+2	☐	<1
71-55-6	Trichloroethane, 1,1,1-	0.0E+0	5.5E+3	NA	NA	2.3E+2	NA	>Res	NA	2.3E+2	☐	<1
79-00-5	Trichloroethane, 1,1,2-	0.0E+0	4.2E-1	NA	NA	3.1E-1	NA	3.5E+2	NA	3.1E-1	☐	<1
79-01-6	Trichloroethene	1.1E-1	1.1E+1	NA	NA	3.0E+0	NA	>Res	NA	3.0E+0	☐	<1
75-01-4	Vinyl chloride	5.0E-2	4.3E-2	NA	NA	5.9E-2	NA	6.7E+1	NA	4.3E-2	■	1.0E+00
########	Xylene (mixed isomers)	2.2E+0	>Res	NA	NA	>Res	NA	>Res	NA	>Res	☐	<1

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

Site Name: 1970 Seminary
Site Location: Oakland, CA

Completed By: Cathrene Glick
Date Completed: 6/29/1998

GROUNDWATER SSTL VALUES

Target Risk (Class A & B) 1.0E-5 ☐ MCL exposure limit?
Target Risk (Class C) 1.0E-5 ☐ PEL exposure limit?
Target Hazard Quotient 1.0E+0

Calculation Option: 2

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: 0 feet	Commercial: (on-site)	Regulatory(MCL): (on-site)	Residential: (on-site)	Commercial: (on-site)	Residential (on-site)	Commercial: (on-site)	(mg/L	"■" If yes	Only if "yes" left
83-32-9	Acenaphthene	0.0E+0	#VALUE!	NA	NA	>Sol	NA	>Sol	NA	#VALUE!	✂✂	#VALUE!
120-12-7	Anthracene	0.0E+0	#VALUE!	NA	NA	>Sol	NA	>Sol	NA	#VALUE!	✂✂	#VALUE!
71-43-2	Benzene	2.9E-1	2.9E-2	NA	NA	6.1E-1	NA	5.0E+2	NA	2.9E-2	■	1.0E+01
75-00-3	Chloroethane	1.3E-3	1.5E+1	NA	NA	1.7E+3	NA	>Sol	NA	1.5E+1	☐	<1
95-50-1	Dichlorobenzene (1,2) (-o)	1.1E-3	3.3E+0	NA	NA	7.5E+1	NA	>Sol	NA	3.3E+0	☐	<1
106-46-7	Dichlorobenzene, (1,4) (-p)	0.0E+0	3.5E-2	NA	NA	2.1E+0	NA	>Sol	NA	3.5E-2	☐	<1
75-34-3	Dichloroethane, 1,1-	0.0E+0	3.7E+0	NA	NA	7.1E+1	NA	>Sol	NA	3.7E+0	☐	<1
107-06-2	Dichloroethane, 1,2-	2.8E-3	9.4E-3	NA	NA	4.7E-1	NA	2.9E+2	NA	9.4E-3	☐	<1
156-59-2	Dichloroethene, cis-1,2-	7.1E-3	3.7E-1	NA	NA	3.2E+0	NA	>Sol	NA	3.7E-1	☐	<1
156-60-5	Dichloroethene,1,2-trans-	8.5E-4	7.3E-1	NA	NA	1.7E+1	NA	>Sol	NA	7.3E-1	☐	<1
100-41-4	Ethylbenzene	2.9E-1	3.7E+0	NA	NA	>Sol	NA	>Sol	NA	3.7E+0	☐	<1
206-44-0	Fluoranthene	0.0E+0	#VALUE!	NA	NA	>Sol	NA	>Sol	NA	#VALUE!	✂✂	#VALUE!
1634-04-4	Methyl t-Butyl Ether	1.7E-1	1.8E-1	NA	NA	3.0E+3	NA	>Sol	NA	1.8E-1	☐	<1
91-20-3	Naphthalene	5.0E-4	1.5E-1	NA	NA	9.9E+0	NA	>Sol	NA	1.5E-1	☐	<1
85-01-8	Phenanthrene	5.0E-4	1.5E-1	NA	NA	>Sol	NA	>Sol	NA	1.5E-1	☐	<1
129-00-0	Pyrene	0.0E+0	#VALUE!	NA	NA	>Sol	NA	>Sol	NA	#VALUE!	✂✂	#VALUE!
127-18-4	Tetrachloroethene	1.0E-4	1.6E-2	NA	NA	4.5E+0	NA	>Sol	NA	1.6E-2	☐	<1
108-88-3	Toluene	5.9E-2	7.3E+0	NA	NA	9.0E+1	NA	>Sol	NA	7.3E+0	☐	<1
71-55-6	Trichloroethane, 1,1,1-	0.0E+0	3.3E+0	NA	NA	1.4E+2	NA	>Sol	NA	3.3E+0	☐	<1
79-00-5	Trichloroethane, 1,1,2-	0.0E+0	1.5E-2	NA	NA	1.4E+0	NA	7.4E+2	NA	1.5E-2	☐	<1
79-01-6	Trichloroethene	5.8E-3	7.7E-2	NA	NA	9.6E-1	NA	5.3E+2	NA	7.7E-2	☐	<1
75-01-4	Vinyl chloride	5.7E-3	4.5E-4	NA	NA	9.2E-3	NA	9.4E+0	NA	4.5E-4	■	1.3E+01
1330-20-7	Xylene (mixed isomers)	3.3E-1	7.3E+1	NA	NA	>Sol	NA	>Sol	NA	7.3E+1	☐	<1