APPENDIX 8.1D

Health Risk Assessment and Support Data

APPENDIX 8.1D

Screening Health Risk Assessment

The screening health risk assessment was conducted in accordance with the procedures developed by the California Air Resources Board and the Office of Environmental Health Hazard Analysis. The latest version of the HARP model was used to characterize risks from the proposed facility.

The screening health risk assessment was carried out in three steps. First, emissions of toxic air pollutants from the project were calculated. These calculations are described in Section 8.1 and Appendix 8.1A. (Emissions as delineated in Table 8.1A-2B, which represent the 4,000-hour operational scenario for modeling impacts, were used in the HRA. This will yield an upper limit of related risks due to the higher emissions of toxics under this scenario.)

Next, the ISCST3 subroutine in the CARB/OEHHA Health Risk Assessment Program (HARP) model was used to predict the maximum concentration at each receptor due to the facility. The receptor network based on data derived from the facility ISCST3 modeling was used in HARP. Finally, HARP was used to evaluate acute, chronic and cancer risks through inhalation and non-inhalation pathways based upon the maximum predicted concentration at each receptor.

Trace amounts of total chromium are present in the local water supply which will be used in the cooling tower process. No chromium, in any form, will be added to the cooling tower water in the form of biocides, etc. The other assumptions used in running the HARP program were as follows:

- Emission rates for non-criteria pollutants are taken from AFC Section 8.1, and from Appendix 8.1A.
- Number of residents affected is based upon the updated 2000 population data for those census tracts or portions of census tracts which lie within the maximum impact receptor radius of the proposed facility.
- All receptors were treated as residential receptors, which allows for the assumption that the MIR, if assumed residential, will represent the highest risk and no other receptor will show risks higher than the MIR. This deletes the need for running worker risks. This scenario was discussed with SCAQMD staff, and the HARP risk run options as recommended by SCAQMD (Chico, 10-20-05) were utilized (i.e., for cancer – 70-year and derived adjusted method; for chronic – 70-year and derived OEHHA method; for acute – no options).
- Deposition velocity is taken to be 0.02 m/s, as recommended by ARB for controlled emission sources.
- Fraction of residents with gardens is taken to be 0.15 which is likely conservatively high for the rural area near the project site.

- Fraction of produce grown at home is taken to be 0.15, which is also likely to be conservatively high.

The HARP program is a tool that assists with the programmatic requirements of the Air Toxics Hot Spots Program, and it can be used for preparing health risk assessments for other related programs such as air toxic control measure development or facility permitting applications. HARP is a computer based risk assessment program which combines the tools of emission inventory database, facility prioritization, air dispersion modeling, and risk assessment analysis. Use of HARP promotes statewide consistency in the area of risk assessment, increases the efficiency of evaluating potential health impacts, and provides a cost effective tool for developing facility health risk assessments. HARP may be used on single sources, facilities with multiple sources, or multiple facilities in close proximity to each other.

The receptor grid used in HARP was a combination of the following:

1. All identified sensitive receptors within 2 miles (~3 km) of the site, and,
2. The highest 3 MIR locations for the 1-hour and annual averaging times as derived from the refined air quality modeling presented in Section 8.1. These receptors were identified for each of the following modeling scenarios: (1) combustion turbines, (2) cooling towers, (3) fire pump IC engine, and (4) construction equipment. These receptors were input into the HARP model as additional sensitive receptors, which negated the need for a large grid analysis.

A complete list of the discrete sensitive receptors within 1 mile of the facility is included in Table 8.9-2. The following tables and figures are presented at the end of this appendix:

- Table 8.1D-2 Census Tract Numbers, Areas, and Population Data
- Table 8.1D-3 SCAQMD TAC Summary
- Table 8.1D-4 Sensitive Receptor Listing for the 6-mile Radius (96 pages)
- Table 8.1D-5 OEHHA/CARB Risk Assessment Health Values (30 pages)

- Figure 8.1D-1 Census Tracts with 1-, 2-, and 3-mile Radius Markers
- Figure 8.1D-2 Sensitive Receptor Map for 60-mile Radius Distance
- Figure 8.1D-3 Census Tract Map with Various Radius Markers
- Figure 8.1D-4 MIR Location

The HARP program results for acute and chronic inhalation and chronic non-inhalation exposures, cancer burden and individual cancer risk (workplace and residential) for the cooling tower and the combustion sources are included in this Appendix. Separate calculations are shown for each type of exposure and risk, and the results of the calculations are summarized below.

The modeling results show that the maximum modeled cancer risk from SVEP (turbines and cooling tower) is expected to be 1.37 in one million. This risk is slightly above the one in one million level, but below the SCAQMD significance value of 10 per million with T-BACT. T-BACT for simple cycle combustion turbines is the use of clean fuels (natural gas) and the operation of a CO catalyst. These T-BACT technologies are proposed for SVEP, and as such, the significant risk threshold for SVEP is 10 in a million. The chronic and acute non-cancer hazard indices are < 0.0152 and < 0.079, respectively. Both are well below the significant

impact level of 1. The total cancer burden was calculated to be 0.0081, which is also well below 1.0, as well as being below the SCAQMD Rule 1401 significance level of 0.5. Detailed calculations and results for each significant receptor are included in the modeling results, which are being submitted electronically.

In addition, a HARP analysis was performed for the construction emissions (primarily exhaust emissions), the cooling tower, as well as the diesel fueled IC engine (fire pump). The results are as follows:

- Cooling Tower Cancer Risk = 5.98 E-13
- Cooling Tower Acute Hazard Index = 4.7 E-07
- Cooling Tower Chronic Hazard Index = 2.47 E-10
- Construction Cancer Risk = 3.15 E-07
- Construction Acute Hazard Index = 0.0
- Construction Chronic Hazard Index = 1.38 E-02
- IC Engine Cancer Risk = 8.27 E-08
- IC Engine Acute Hazard Index = 1.62 E-03
- IC Engine Chronic Hazard Index = 4.75 E-05

(IC engine risks are for the fire pump engine.)

Construction risks have been adjusted by a factor of 1/70 to account for the temporary exposure period of only 1 year.

These results are also provided in hard copy at the end of this Appendix.

Other Health Risk Studies Conducted in the Project Region

Identification of available health studies concerning the potentially affected populations within the project region are as follows:

1. *The 2005 California Almanac of Emissions and Air Quality*, California Air Resources Board, Planning and Technical Support Division, 2005.

   CARB presents a wide variety of air toxics data in the 2005 Almanac acquired from the statewide monitoring network. Data from the network is generally given for the years 1990-2004 for the top ten air toxics: acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter. A summary of this data was presented in the AFC Public Health section (8.9). This data is not specifically targeted for the proposed power plant site, but rather to the state and specified air basin areas. CARB currently monitors approximately 63 toxic substances in the statewide network, with the nearest station being the Azusa monitoring site.

2. The *Multiple Air Toxics Exposure Studies (MATES I, II, and III)*

   MATES I, conducted in the late 1980's only evaluated a small number of air toxic substances at only a small number of monitoring sites across the air basin. The results of MATES I became the driving force behind the larger scale MATES II program.

MATES II, the nation's most comprehensive study of toxic air pollution to date, found that:

- Diesel exhaust is responsible for about 70 percent of the total cancer risk from air pollution;
- Emissions from mobile sources—including cars and trucks as well as ships, trains, and planes—account for about 90 percent of the cancer risk. Emissions from businesses and industry are responsible for the remaining 10 percent; and
- The highest cancer risk occurs in south Los Angeles County—including the port area—and along major freeways.

The goal of MATES III is to update toxic air pollution levels and toxic emission inventories, and then input those data into a computer model of air dispersion to determine the cancer, as well as non-cancer, health risk from air toxics across the air basin. The study also will investigate potential toxic "hot spots" in communities.

MATES III will monitor for 21 toxic air contaminants and four other substances at 10 sites across the Los Angeles Basin (see lists below). In addition, starting next month, AQMD will use moveable monitoring stations to sample at a dozen or more neighborhood sites near toxic emission sources or in areas where community members are concerned about health risks from air pollution. Such neighborhood sites could be near airports, railroads, warehouses, landfills, high-volume vehicle traffic or multiple commercial or industrial facilities. Sampling at each neighborhood site will last for up to two months.

In addition to the above studies conducted within the project region, the SCAQMD is currently implementing an air toxics program which integrates both federal and state air toxics mandates. The SCAQMD program is composed of four basic elements, as follows:

- Preconstruction review of new and modified sources for potential health impacts (Regulation XIV).
- Implementation of the AB 2588 Air Toxics "Hot Spots" Program.
- Adoption and enforcement of source specific control measures to reduce air toxics emissions. This element relies upon the authority of state legislation (AB 1807), and federal legislation pursuant to the Clean Air Act, i.e., NESHAPs.
- Cooperative "toxics" air monitoring program with the State Air Resources Board.

Air monitoring data for calendar year 2004 shows the following for both gaseous and particulate toxic air contaminants:

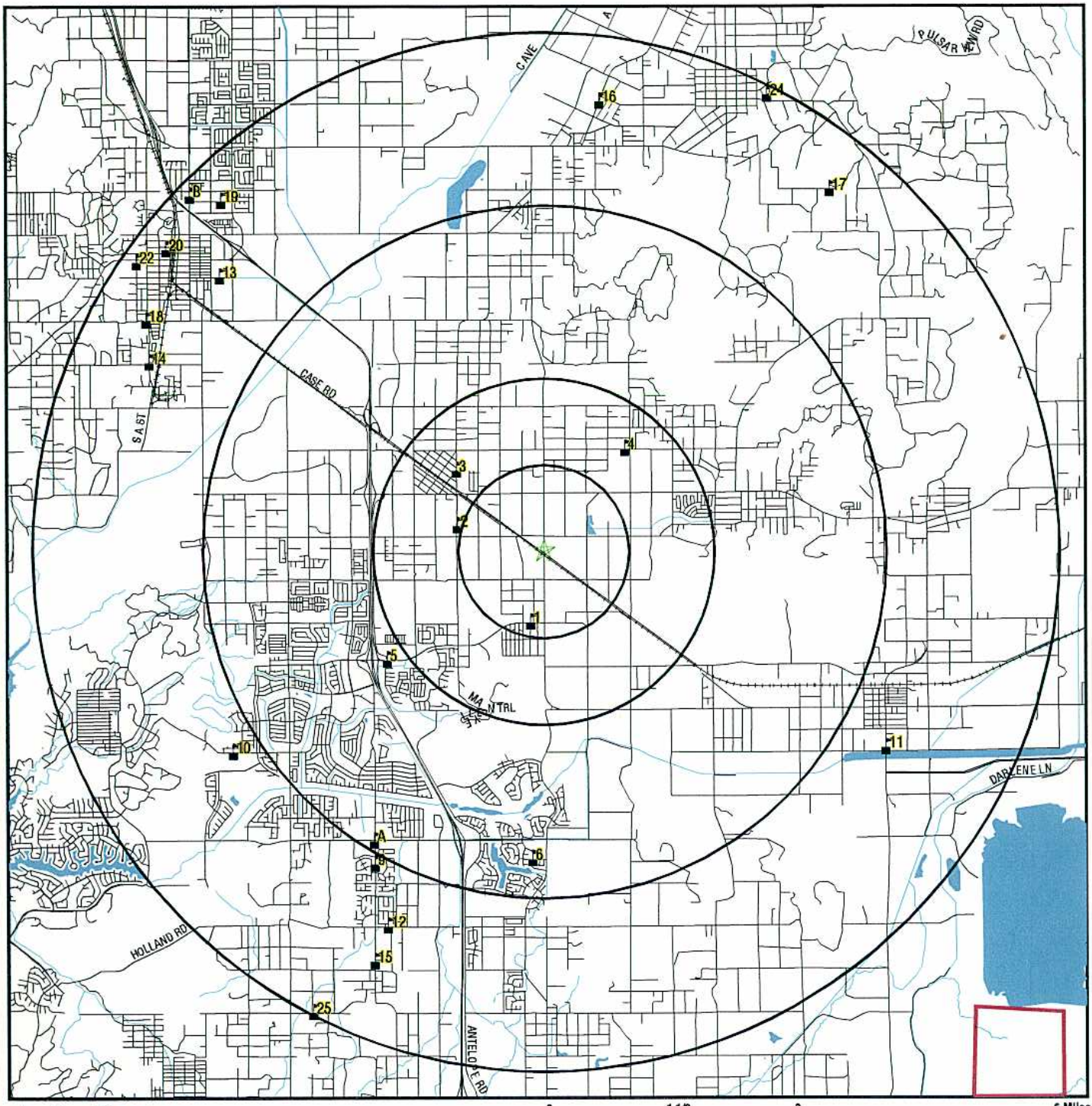
TABLE 8.1D-1
Toxics Monitoring Data for SCAQMD for Calendar Year 2003-2004

Toxic Contaminant	Concentration	Cancer Risk (per million)
1,3-Butadiene	0.076 ppb	29
Benzene	0.432 ppb	40

TABLE 8.1D-1
Toxics Monitoring Data for SCAQMD for Calendar Year 2003-2004

Toxic Contaminant	Concentration	Cancer Risk (per million)
Carbon tetrachloride*	0.095 ppb	25
Formaldehyde	3.04 ppb	22
Acetaldehyde	1.53 ppb	7
Perchloroethylene	0.063 ppb	3
Methylene chloride	1.43 ppb	5
MTBE*	0.41 ppb	0.3
Chloroform	0.048 ppb	1
Trichloroethylene	0.039 ppb	0.4
Hexavalent chromium	0.073 ng/m^3	11
PAHs (as BaP)	0.027 ppb	0.03
Nickel	12.5 ng/m^3	3
Lead	19.6 ng/m^3	0.2

* 2003 data only



- Target Property
- Roads
- Waterways
- Environmental or Public Receptor
- Federal Lands Linear Features
- Federal Lands Area

FIGURE 8.1D-1
Sensitive Receptors Within 6 Mile Radius

CH2MHill

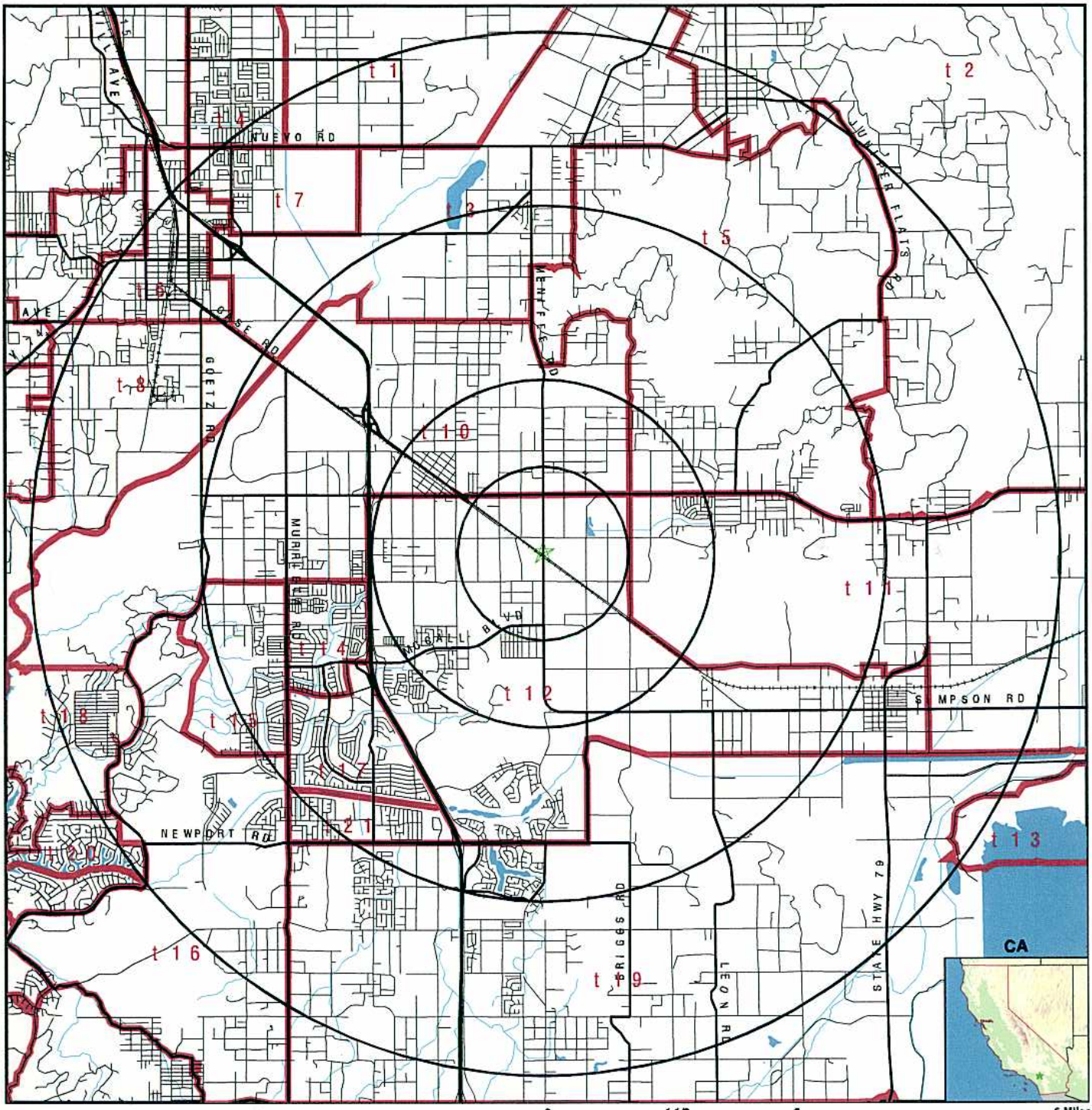


FIGURE 8.1D-2
Census Tracts Within 6 Mile Radius

CH2M Hill

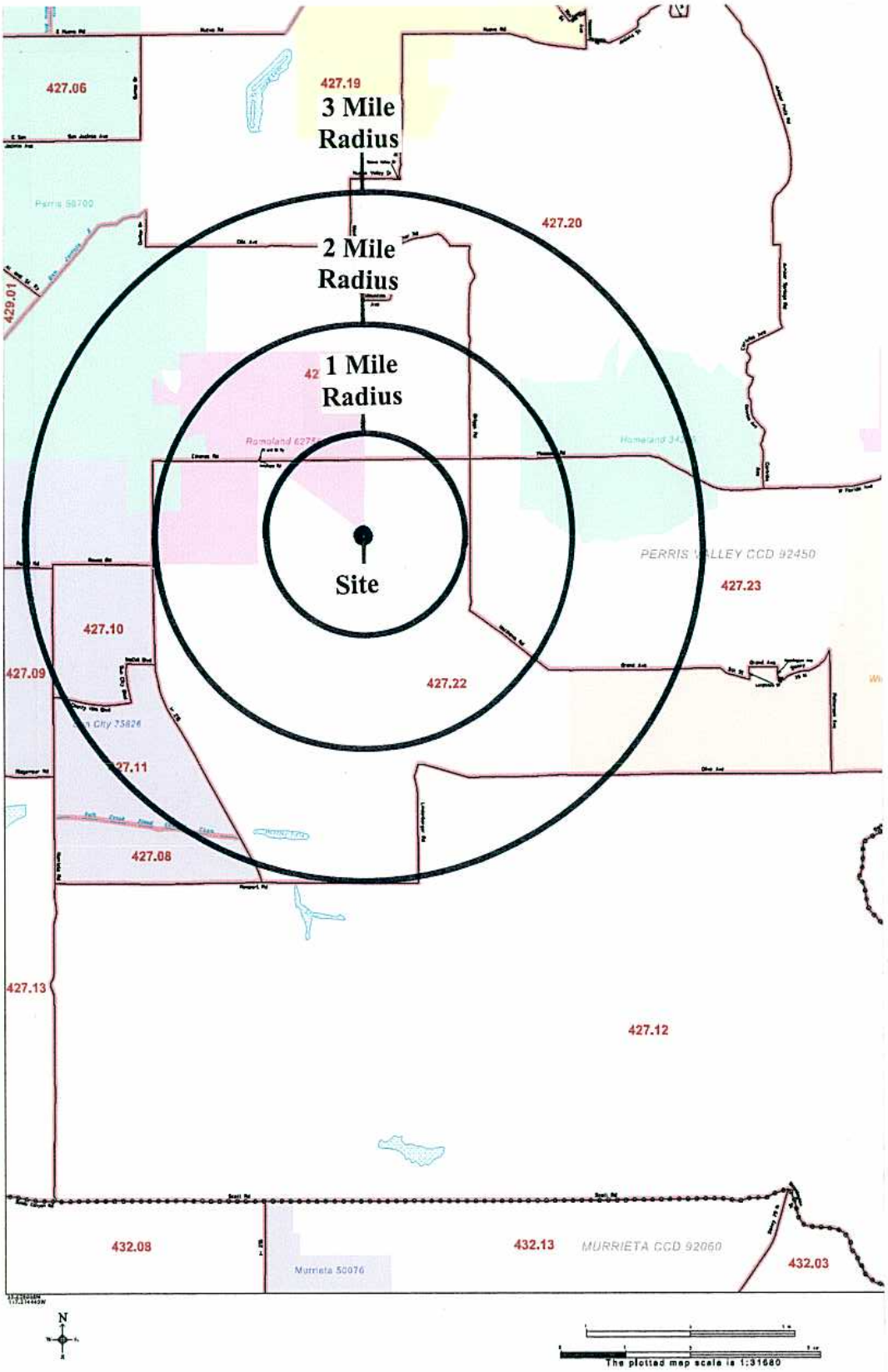


FIGURE 8.1D-3
Census Tract Map with 1, 2, 3 Mile Radius

CH2M Hill

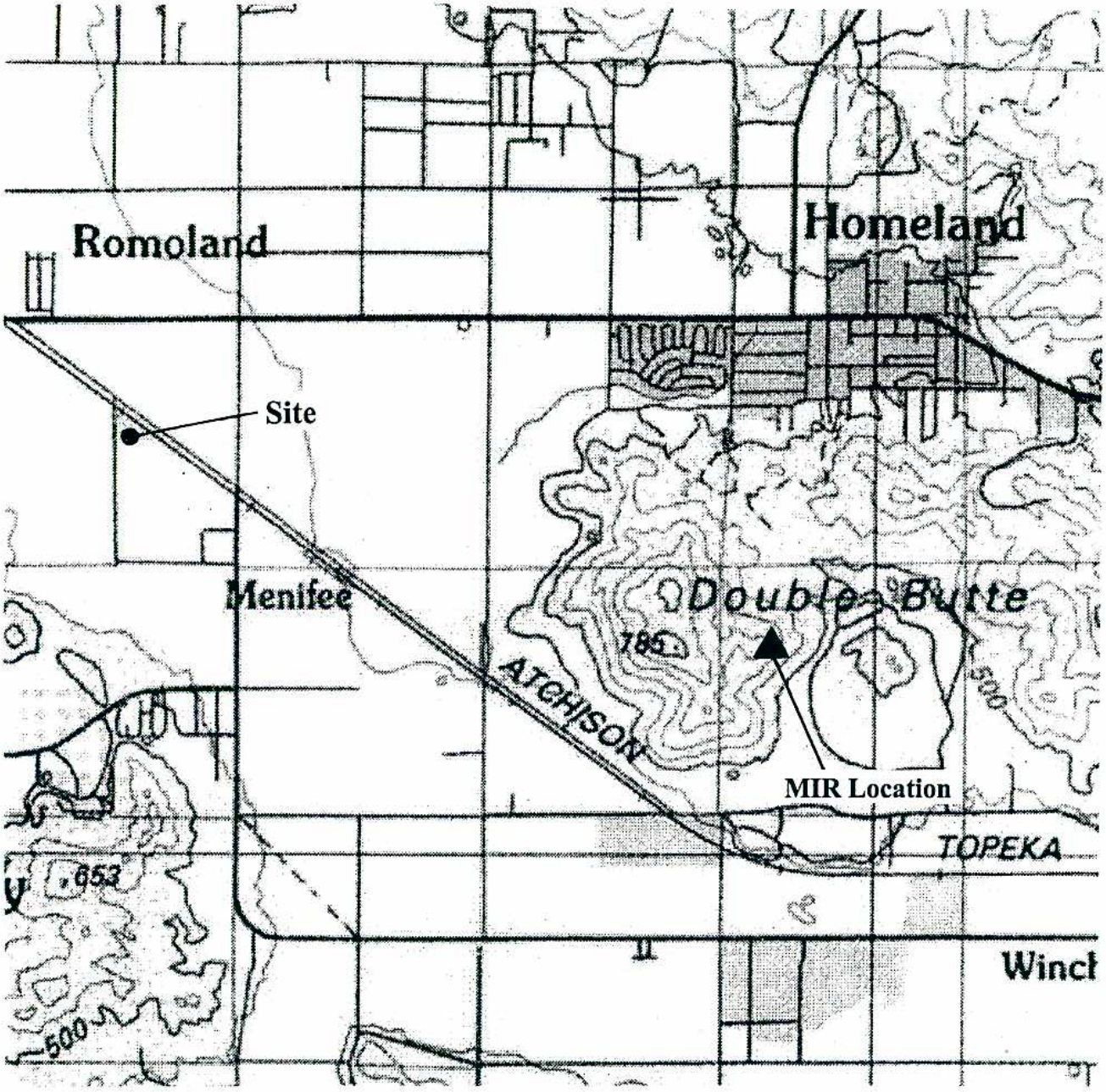


FIGURE 8.1D-4
MIR LOCATION
SUN VALLEY ENERGY PROJECT
ROMOLAND, CALIFORNIA

CH2MHILL

Table 8.1D-2 Census Tract Numbers, Areas, and Population Data

CENSUS FINDINGS

Map ID	Tract Number	Total Population	Population in Radius	Total Area(sq.mi.)	Area in Radius(sq.mi.)
T1	0426.02	4220	761.7	15.04	2.72
T2	0427.21	4751	1026.7	28.91	6.25
T3	0427.19	3641	3137.0	10.68	9.20
T4	0426.03	14563	1250.2	2.22	0.19
T5	0427.20	2996	2981.5	13.78	13.71
T6	0428.00	6451	5132.2	2.09	1.67
T7	0427.06	6032	5793.4	1.79	1.72
T8	0429.01	5289	2065.2	10.91	4.26
T9	0429.02	3829	27.3	16.78	0.12
T10	0427.18	5072	5004.6	14.42	14.23
T11	0427.23	4347	3293.8	13.63	10.32
T12	0427.22	8339	8339.0	14.23	14.23
T13	0433.05	5642	109.4	10.67	0.21
T14	0427.10	3913	3913.0	1.16	1.16
T15	0427.09	3749	3749.0	2.16	2.16
T16	0427.13	4231	2350.3	9.38	5.21
T17	0427.11	4860	4860.0	1.78	1.78
T18	0427.17	2790	1197.7	2.55	1.10
T19	0427.12	7539	3928.0	40.70	21.21
T20	0427.16	4754	388.1	1.33	0.11
T21	0427.08	4413	4413.0	0.97	0.97

Table 8.1D-3 SCAQMD TAC Summary

South Coast Air Basin

Air Basin Summary

Annual Average Concentrations and Health Risks															
TAC	**Conc.*/Risk****	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**
Acetaldehyde	Annual Avg	2.46	3.00	2.46	2.67	2.30	0.97	2.08	1.77	1.54	1.63	1.26	1.47	1.41	1.47
	Health Risk	12	15	12	13	11	5	10	9	7	8	6	7	7	7
Benzene	Annual Avg	3.42	2.91	2.61	2.17	2.40	1.89	1.45	1.34	1.25	1.20	0.97	0.86	0.77	0.75
	Health Risk	317	269	242	201	222	175	134	124	116	111	90	80	71	69
1,3-Butadiene	Annual Avg	0.53	0.45	0.50	0.57	0.50	0.46	0.39	0.38	0.35	0.33	0.25	0.25	0.21	0.15
	Health Risk	200	170	187	212	187	173	146	142	133	123	94	94	79	55
Carbon Tetrachloride	Annual Avg	0.14	0.13		0.11		0.10	0.08		0.11		0.10	0.09	0.09	0.09
	Health Risk	36	35		28		27	21		30		25	23	24	25
Chromium, Hexavalent	Annual Avg			0.39	0.29	0.29	0.46	0.18	0.17	0.15	0.14	0.18		0.18	0.16
	Health Risk			59	43	43	69	27	25	22	22	27		27	24
para-Dichlorobenzene	Annual Avg		0.17	0.19	0.17	0.13	0.17	0.11	0.13			0.13	0.15	0.16	0.17
	Health Risk		11	13	11	8	11	7	9			9	10	11	11
Formaldehyde	Annual Avg	2.92	3.08	2.22	3.22	3.14	3.57	5.06	4.47	3.79	4.06	3.13	4.13	4.16	3.83
	Health Risk	22	23	16	24	23	26	37	33	28	30	23	30	31	28
Methylene Chloride	Annual Avg	1.86	1.51	0.90	1.23	1.10	1.28	0.95	1.14	0.85	0.92	0.83	0.63	0.57	0.59
	Health Risk	6	5	3	4	4	4	3	4	3	3	3	2	2	2
Perchloroethylene	Annual Avg	0.58	0.55	0.41	0.45	0.39	0.36	0.32	0.27	0.26		0.21	0.18	0.15	0.11
	Health Risk	23	22	16	18	16	15	13	11	10		8	7	6	4
Diesel PM***	Annual Avg	(3.6)					(2.7)					(2.4)			
	Health Risk	(1080)					(810)					(720)			
Average Basin Health Risk		**616**	**550**	**548**	**564**	**514**	**505**	**398**	**357**	**349**	**297**	**285**	**253**	**258**	**225**

* Concentrations for Hexavalent Chromium are expressed as ng/m³, and concentrations for Diesel PM are expressed as µg/m³. Concentrations for all other TACs are expressed as ppb.
** Health Risk represents the number of excess cancer cases per million people based on a lifetime (70-year) exposure to the annual average concentration. Total Health Risk represents only those compounds listed in this table and only those with data for the year. There may be other significant compounds for which monitoring and/or health risk information are not available.
*** The Diesel PM concentrations are estimates based on receptor modeling. Because data are not available for all years, Diesel PM is not included in the Average Basin Health Risk number.

Table 8.1D-4 Sensitive Receptor Listing for 6 Mile Radius (7 pages)

SUN VALLEY ENERGY CENTER
MENIFEE ROAD
ROMOLAND, CA 92585

Distance Searched: 6.000 miles from subject property

RECEPTOR SUMMARY
An X indicates the presence of the receptor within the search radius.

Residential Population
Estimated population within search radius: 63721 persons.

Other Public Receptors

Type	Within Search Radius	Sites Total
Day Care Centers:	☒	3
Medical Centers:	☒	1
Nursing Homes:	☒	1
Schools:	☒	20
Hospitals:	☐	
Colleges:	☐	
Arena:	☐	
Prison:	☐	

Environmental Receptors

Type	Within Search Radius	Sites Total
Federal Land:	☒	1

MAP FINDINGS

Map ID / Direction / Distance / Distance (ft.) / Elevation	Site		EDR ID / Database
1 South 1/2-1 mi 4421 Higher	Name: ID: Address: City: Zip: State: Telephone:	MENIFEE VALLEY MEDICAL CENTER 050684 28400 MCCALL BLVD SUN CITY 92381 CA 9097663335	HOSP000684 Medical Centers
2 WNW 1-2 mi 5544 Lower	Name: Address: City: State: Zip:	ROMOLAND HEAD START Not Reported Not Reported CA Not Reported	DAY1041423 Daycare
3 NW 1-2 mi 7285 Lower	Name: NCES ID: Address: Telephone: Local Code: School Type: School Level: Lowest Grade: Highest Grade:	ROMOLAND ELEMENTARY 063339005173 25890 ANTELOPE ROAD ROMOLAND, CA 92585 9099282910 8 Regular Elementary and Secondary Schools Primary Kindergarten 08	PBS063339005173 Public Schools
4 NE 1-2 mi 8009 Higher	Name: NCES ID: Address: Telephone: Local Code: School Type: School Level: Lowest Grade: Highest Grade:	HARVEST VALLEY ELEMENTARY 063339010032 29955 WATSON ROAD ROMOLAND, CA 92585 9099282915 8 Regular Elementary and Secondary Schools Primary Kindergarten 08	PBS063339010032 Public Schools
5 SW 2-4 mi 11742 Lower	Provnum: Street: State: Phone: Num Beds: Occupied %: Owner Type: Multi Nursing home ownership?: YES Has Resident and Family Councils?: BOTH	056185 27600 ENCANTO DRIVE CA 9096796858 99 91 For profit - Corporation	SRNH056185 Nursing Homes Name: SUN CITY CONVALESCENT CENTER City: SUN CITY Zipcode: 92381 Last Insp: 20011120 Num Residents: 90 Description: Participating in Medicare and Medicaid Within Hosp?: NO

MAP FINDINGS

Map ID Direction Distance Distance (ft.) Elevation	Site	EDR ID Database

6
South
2-4 mi
18768
Lower

Name: KIRKPATRICK (CALLIE) ELEMENTAR
NCES ID: 062454000997
Address: 28800 REVIERE DR.
MENIFEE, CA 92584
Telephone: 9096726420
Local Code: 8
School Type: Regular Elementary and Secondary Schools
School Level: Primary
Lowest Grade: Kindergarten
Highest Grade:05

PBS062454000997
Public Schools

A7
SSW
2-4 mi
20361
Lower

PVTSCH00095445
Private Schools

Schoolid: 00095445
Address: 29885 BRADLEY RD
County num: 6065
State: CA
Zip5: 92586
Phone: 909-672-6799
Hi grde: Grade 6
Locale: Urban fringe of Large City
School type: Regular elementary or secondary
School level: Elementary
Affiliation: Seventh-Day Adventist
Association: General Conference of the Seventh-Day Adventist Church (GCSDAC)

Name: TRI-CITY ADVENTIST SCHOOL
City: SUN CITY
County: RIVERSIDE
Fips: 6
Zip4: Not Reported
Low grade: Kindergarten
Gender: Coed

A8
SSW
2-4 mi
20759
Lower

Name: Menifee School
ID: 245773
Site Type: school
Latitude: 33.68400
Longitude: -117.20000

GNS0206005
GNIS Schools

9
SSW
4-6 mi
21753
Lower

Name: MORRISON (CHESTER W.) ELEMENTA
NCES ID: 062454009580
Address: 30250 BRADLEY ROAD
MENIFEE, CA 92584
Telephone: 9096797076
Local Code: 8
School Type: Regular Elementary and Secondary Schools
School Level: Primary
Lowest Grade: Kindergarten
Highest Grade:05

PBS062454009580
Public Schools

MAP FINDINGS

Map ID Direction Distance Distance (ft.) Elevation	Site		EDR ID Database
10 WSW 4-6 mi 22842 Higher	Name: NCES ID: Address: Telephone: Local Code: School Type: School Level: Lowest Grade: Highest Grade:	RIDGEMOOR ELEMENTARY 062454007212 25455 RIDGEMOOR ROAD SUN CITY, CA 92586 9096726450 Urban Fringe of Large City Regular Elementary and Secondary Schools Primary Kindergarten 05	PBS062454007212 Public Schools
11 ESE 4-6 mi 24203 Higher	Name: NCES ID: Address: Telephone: Local Code: School Type: School Level: Lowest Grade: Highest Grade:	WINCHESTER ELEMENTARY 061692002159 28751 WINCHESTER ROAD WINCHESTER, CA 92596 9099260700 8 Regular Elementary and Secondary Schools Primary Kindergarten 08	PBS061692002159 Public Schools
12 SSW 4-6 mi 24813 Higher	Name: Address: City: State: Zip:	LITTLE STEPS CHILD DEVELOPMENT CENTER Not Reported Not Reported CA Not Reported	DAY1041529 Daycare
13 NW 4-6 mi 26109 Lower	Name: NCES ID: Address: Telephone: Local Code: School Type: School Level: Lowest Grade: Highest Grade:	PERRIS UNION HIGH COMMUNITY DA 063021006249 515 E. 7TH ST. PERRIS, CA 92570 9096572174 Urban Fringe of Large City Other High 07 12	PBS063021006249 Public Schools
14 WNW 4-6 mi 26981 Lower	Name: NCES ID: Address: Telephone: Local Code: School Type: School Level: Lowest Grade: Highest Grade:	PINACATE MIDDLE 063021009176 1990 S. A ST. PERRIS, CA 92570 9099436441 Urban Fringe of Large City Regular Elementary and Secondary Schools Middle 07 08	PBS063021009176 Public Schools

MAP FINDINGS

Map ID Direction Distance Distance (ft.) Elevation	Site		EDR ID Database
15 SSW 4-6 mi 27121 Higher	Name: NCES ID: Address: Telephone: Local Code: School Type: School Level: Lowest Grade: Highest Grade:	PALOMA VALLEY HIGH 063021004992 31375 BRADLEY ROAD MENIFEE, CA 92584 9096726030 8 Regular Elementary and Secondary Schools High 09 12	PBS063021004992 Public Schools
16 North 4-6 mi 27649 Higher	Schoolid: Address: County num: State: Zip5: Phone: Hi grde: Locale: School type: School level: Affiliation: Association:	A9900486 28331 LAKEVIEW AVE 6065 CA 92567 909-928-7780 Grade 12 Urban fringe of Large City Regular elementary or secondary Combined Pentecostal Accelerated Christian Education (ACE) or (School of Tomorrow)	Name: City: County: Fips: Zip4: Low grade: Gender: 	LIGHTHOUSE CHRISTIAN NUEVO RIVERSIDE 6 Not Reported Grade 2 Coed	PVTSCHA9900486 Private Schools
17 NE 4-6 mi 28277 Higher	Name: ID: Site Type: Latitude: Longitude:	Bar V Ranch School (historical) 1701100 school 33.79400 -117.10000	GNS0160698 GNIS Schools
18 WNW 4-6 mi 28324 Higher	Name: NCES ID: Address: Telephone: Local Code: School Type: School Level: Lowest Grade: Highest Grade:	PERRIS LAKE HIGH (CONT.) 063021004713 418 W. ELLIS PERRIS, CA 92570 9096577357 Urban Fringe of Large City Other High 09 12	PBS063021004713 Public Schools

MAP FINDINGS

Map ID Direction Distance Distance (ft.) Elevation	Site		EDR ID Database
19 NW 4-6 mi 29243 Lower	Name: NCES ID: Address: Telephone: Local Code: School Type: School Level: Lowest Grade: Highest Grade:	PALMS ELEMENTARY 063018003601 255 E. JARVIS PERRIS, CA 92571 9099405112 Urban Fringe of Large City Regular Elementary and Secondary Schools Primary Kindergarten 06	PBS063018003601 Public Schools
20 NW 4-6 mi 29721 Higher	Name: ID: Site Type: Latitude: Longitude:	Saint James School 248622 school 33.78400 -117.20000	GNS0223119 GNIS Schools
B21 NW 4-6 mi 30646 Lower	Name: Address: City: State: Zip:	REDEEMER LUTHERAN DAYCARE CENTER Not Reported Not Reported CA Not Reported	DAY1041229 Daycare
22 NW 4-6 mi 30736 Higher	Name: NCES ID: Address: Telephone: Local Code: School Type: School Level: Lowest Grade: Highest Grade:	PARK AVENUE ELEMENTARY 063018009991 445 SOUTH PARK AVE. PERRIS, CA 92570 9099405140 Urban Fringe of Large City Regular Elementary and Secondary Schools Primary Kindergarten 06	PBS063018009991 Public Schools
B23 NW 4-6 mi 30979 Lower			PVTSCH00091076 Private Schools

Schoolid:	00091076	Name:	TEMPLE CHRISTIAN SCHOOL
Address:	745 NORTH PERRIS BLVD	City:	PERRIS
County num:	6065	County:	RIVERSIDE
State:	CA	Fips:	6
Zip5:	92571	Zip4:	Not Reported
Phone:	909-657-7326	Low grade:	Prekindergarten
Hi grde:	Grade 11		
Locale:	Urban fringe of Large City	Gender:	Coed
School type:	Regular elementary or secondary		
School level:	Combined		
Affiliation:	Baptist		
Association:	Association of Christian Schools International (ACSI)		

MAP FINDINGS

Map ID Direction Distance Distance (ft.) Elevation	Site		EDR ID Database
24 NNE 4-6 mi 31089 Higher	Name: NCES ID: Address: Telephone: Local Code: School Type: School Level: Lowest Grade: Highest Grade:	VALLEY VIEW ELEMENTARY 062778002426 21220 MAURICE ST. NUEVO, CA 92567 9099281841 Urban Fringe of Large City Regular Elementary and Secondary Schools Primary Kindergarten 05	PBS062778002426 Public Schools
25 SSW 4-6 mi 31541 Higher	Name: NCES ID: Address: Telephone: Local Code: School Type: School Level: Lowest Grade: Highest Grade:	MENIFEE ELEMENTARY 062454003681 26301 GARBONI ROAD MENIFEE, CA 92584 9096798896 8 Regular Elementary and Secondary Schools Primary Kindergarten 05	PBS062454003681 Public Schools
NA SE 6-8 mi 38358 NA	Name1: Name2: Name3: Feature1: Feature2: Feature3: URL:	Not Reported Not Reported Not Reported Public Domain Land BLM Not Reported Not Reported Not Reported	CUSA043986 FED_LAND

Table 8.1D-5 OEHHA/CARB Risk Assessment Values (30 pages)

Table 1

CONSOLIDATED TABLE OF OEHHA/ARB APPROVED RISK ASSESSMENT HEALTH VALUES ⊕

Chemical	Chemical▼ Abstract Number	Noncancer Effects						Cancer Risk					
		Acute Inhalation ($\mu g/m^3$)	Date◆ Value Reviewed [Added]	Chronic Inhalation ($\mu g/m^3$)	Date◆ Value Reviewed [Added]	Chronic Oral (mg/kg/d)	Date◆ Value Reviewed [Added]	Inhalation‡ Unit Risk $(\mu g/m^3)^{-1}$	Inhalation‡ Cancer Potency Factor $(mg/kg\text{-}d)^{-1}$	Date◆ Value Reviewed [Added]	Oral Slope Factor $(mg/kg\text{-}d)^{-1}$	Date◆ Value Reviewed [Added]	M◆ W A F
ACETALDEHYDE	75-07-0			9.0E+00	5/93			2.7E-06	1.0E-02	4/99 [5/93]			1
ACETAMIDE	60-35-5							2.0E-05	7.0E-02	4/99			1
ACROLEIN	107-02-8	1.9E-01	4/99	6.0E-02	1/01								1
ACRYLAMIDE	79-06-1			7.0E-01	1/91			1.3E-03	4.5E+00	4/99 [7/90]			1
ACRYLIC ACID	79-10-7	6.0E+03	4/99	1.0E+00 RfC	1996								1
ACRYLONITRILE	107-13-1			5.0E+00	12/01			2.9E-04	1.0E+00	4/99 [1/91]			1
ALLYL CHLORIDE	107-05-1			1.0E+00 RfC	1996			6.0E-06	2.1E-02	4/99			1
2-AMINOANTHRAQUINONE	117-79-3							9.4E-06	3.3E-02	4/99			1
AMMONIA	7664-41-7	3.2E+03	4/99	2.0E+02	2/00								1
ANILINE	62-53-3			1.0E+00 RfC	1996			1.6E-06	5.7E-03	4/99			1
Antimony Compounds	*7440-36-0*			*2.0E-01 RfC*	*1996*								*1*
ANTIMONY TRIOXIDE	1309-64-4			2.0E-01 RfC	1996								1
ARSENIC AND COMPOUNDS (INORGANIC) TAC	7440-38-2 1016 [1015]	1.9E-01 AveP	4/99	3.0E-02	1/01	3.0E-04	10/00	3.3E-03 TAC	1.2E+01	7/90	1.5E+00	10/00	1
ARSINE	7784-42-1	1.6E+02	4/99	5.0E-02 RfC	1996								1
ASBESTOS TAC ¤	1332-21-4							1.9E-04 TAC¤	2.2E+02	3/86			333.33
BENZENE TAC	71-43-2	1.3E+03 AveP	4/99	6.0E+01	2/00			2.9E-05 TAC	1.0E-01	1/85			1
BENZIDINE (AND ITS SALTS) *values also apply to:*	92-87-5			1.0E+01	1/91			1.4E-01	5.0E+02	4/99 [1/91]			1
Benzidine based dyes	*1020*			*1.0E+01*	*1/91*			*1.4E-01*	*5.0E+02*	*4/99 [1/91]*			*1*
Direct Black 38	*1937-37-7*			*1.0E+01*	*1/91*			*1.4E-01*	*5.0E+02*	*4/99 [1/91]*			*1*
Direct Blue 6	*2602-46-2*			*1.0E+01*	*1/91*			*1.4E-01*	*5.0E+02*	*4/99 [1/91]*			*1*
Direct Brown 95 (technical grade)	*16071-86-6*			*1.0E+01*	*1/91*			*1.4E-01*	*5.0E+02*	*4/99 [1/91]*			*1*
BENZYL CHLORIDE	100-44-7	2.4E+02	4/99	1.2E+01	1/92			4.9E-05	1.7E-01	4/99			1
BERYLLIUM AND COMPOUNDS	7440-41-7 [1021]			7.0E-03	12/01	2.0E-03	12/01	2.4E-03	8.4E+00	4/99 [7/90]			1
BIS(2-CHLOROETHYL)ETHER (Dichloroethyl ether)	111-44-4							7.1E-04	2.5E+00	4/99			1
BIS(CHLOROMETHYL)ETHER	542-88-1							1.3E-02	4.6E+01	4/99 [1/91]			1

Table last updated: April 25, 2005

Table 1
CONSOLIDATED TABLE OF OEHHA/ARB APPROVED RISK ASSESSMENT HEALTH VALUES ⊕

Chemical	Chemical▼ Abstract Number	Noncancer Effects						Cancer Risk					
		Acute Inhalation ($\mu g/m^3$)	Date◆ Value Reviewed [Added]	Chronic Inhalation ($\mu g/m^3$)	Date◆ Value Reviewed [Added]	Chronic Oral (mg/kg/d)	Date◆ Value Reviewed [Added]	Inhalation‡ Unit Risk $(\mu g/m^3)^{-1}$	Inhalation‡ Cancer Potency Factor $(mg/kg\text{-}d)^{-1}$	Date◆ Value Reviewed [Added]	Oral Slope Factor $(mg/kg\text{-}d)^{-1}$	Date◆ Value Reviewed [Added]	M◆ W A F
BROMINE AND COMPOUNDS	7726-95-6 [1040]			1.7E+00	1/92								1
BROMINE PENTAFLUORIDE	7789-30-2			1.7E+00	1/92								1
HYDROGEN BROMIDE	10035-10-6			2.4E+01	1/92								1
POTASSIUM BROMATE	7758-01-2			*1.7E+00*	*1/92*			1.4E-04	4.9E-01	4/99 [10/93]			1
1,3-BUTADIENE[TAC]	106-99-0			2.0E+01	1/01			1.7E-04 TAC	6.0E-01	7/92			1
CADMIUM AND COMPOUNDS[TAC]	7440-43-9 [1045]			2.0E-02	1/01	5.0E-04	10/00	4.2E-03 TAC	1.5E+01	1/87			1
CARBON DISULFIDE	75-15-0	6.2E+03 AveP	4/99	8.0E+02	5/02								1
CARBON MONOXIDE	630-08-0	2.3E+04	4/99										1
CARBON TETRACHLORIDE[TAC] (Tetrachloromethane)	56-23-5	1.9E+03 AveP	4/99	4.0E+01	1/01			4.2E-05 TAC	1.5E-01	9/87			1
CHLORINATED PARAFFINS	108171-26-2							2.5E-05	8.9E-02	4/99			1
CHLORINE	7782-50-5	2.1E+02	4/99	2.0E-01	2/00								1
CHLORINE DIOXIDE	10049-04-4			6.0E-01	1/01								1
4-CHLORO-O-PHENYLENEDIAMINE	95-83-0							4.6E-06	1.6E-02	4/99			1
2-CHLOROACETOPHENONE	532-27-4			3.0E-02 RfC	1996								1
CHLOROBENZENE	108-90-7			1.0E+03	1/01								1
CHLORODIFLUOROMETHANE ... (see Fluorocarbons)													
CHLOROFORM[TAC]	67-66-3	1.5E+02 AveP	4/99	3.0E+02	4/00			5.3E-06 TAC	1.9E-02	12/90			1
Chlorophenols	*1060*												*1*
2-CHLOROPHENOL	95-57-8			1.8E+01	1/91								1
PENTACHLOROPHENOL	87-86-5			2.0E-01	1/92			5.1E-06	1.8E-02	4/99			1
TETRACHLOROPHENOLS	25167-83-3			8.8E+01	1/92								1
2,3,4,6-Tetrachlorophenol	*58-90-2*			*8.8E+01*	*1/92*								*1*
2,4,6-TRICHLOROPHENOL	88-06-2							2.0E-05	7.0E-02	4/99 [1/91]			1
CHLOROPICRIN	76-06-2	2.9E+01	4/99	4.0E-01	12/01								1
CHLOROPRENE	126-99-8			1.0E+00	1/92								1
p-CHLORO-o-TOLUIDINE	95-69-2							7.7E-05	2.7E-01	4/99			1
CHROMIUM 6+[TAC] *values also apply to:*	18540-29-9			2.0E-01	1/01	2.0E-02	10/00	1.5E-01 TAC	5.1E+02	1/86	∅		1
Barium chromate	*10294-40-3*			*2.0E-01*	*1/01*	*2.0E-02*	*10/00*	*1.5E-01 TAC*	*5.1E+02*	*1/86*	∅		*0.2053*
Calcium chromate	*13765-19-0*			*2.0E-01*	*1/01*	*2.0E-02*	*10/00*	*1.5E-01 TAC*	*5.1E+02*	*1/86*	∅		*0.3332*

Table last updated: April 25, 2005

Table 1

CONSOLIDATED TABLE OF OEHHA/ARB APPROVED RISK ASSESSMENT HEALTH VALUES ⊕

Chemical	Chemical▼ Abstract Number	Noncancer Effects						Cancer Risk					
		Acute Inhalation ($\mu g/m^3$)	Date◆ Value Reviewed [Added]	Chronic Inhalation ($\mu g/m^3$)	Date◆ Value Reviewed [Added]	Chronic Oral (mg/kg/d)	Date◆ Value Reviewed [Added]	Inhalation‡ Unit Risk $(\mu g/m^3)^{-1}$	Inhalation‡ Cancer Potency Factor $(mg/kg\text{-}d)^{-1}$	Date◆ Value Reviewed [Added]	Oral Slope Factor $(mg/kg\text{-}d)^{-1}$	Date◆ Value Reviewed [Added]	M✦ W A F
Lead chromate	*7758-97-6*			*2.0E-01*	*1/01*	*2.0E-02*	*10/00*	*1.5E-01 TAC*	*5.1E+02*	*1/86*	Ø		*0.1609*
Sodium dichromate	*10588-01-9*			*2.0E-01*	*1/01*	*2.0E-02*	*10/00*	*1.5E-01 TAC*	*5.1E+02*	*1/86*	Ø		*0.397*
Strontium chromate	*7789-06-2*			*2.0E-01*	*1/01*	*2.0E-02*	*10/00*	*1.5E-01 TAC*	*5.1E+02*	*1/86*	Ø		*0.2554*
CHROMIUM TRIOXIDE (as chromic acid mist)	1333-82-0			2.0E-03	1/01	2.0E-02	10/00	1.5E-01 TAC	5.1E+02	1/86	Ø		0.52
COPPER AND COMPOUNDS	7440-50-8 [1067]	1.0E+02	4/99	2.4E+00	1/92								1
p-CRESIDINE	120-71-8							4.3E-05	1.5E-01	4/99			1
CRESOLS (mixtures of)	1319-77-3			6.0E+02	1/01								1
m-CRESOL	108-39-4			6.0E+02	1/01								1
o-CRESOL	95-48-7			6.0E+02	1/01								1
p-CRESOL	106-44-5			6.0E+02	1/01								1
CUPFERRON	135-20-6							6.3E-05	2.2E-01	4/99			1
Cyanide Compounds (inorganic)	*57-12-5 1073*	*3.4E+02*	*4/99*	*9.0E+00*	*4/00*								*1*
HYDROGEN CYANIDE (Hydrocyanic acid)	74-90-8	3.4E+02	4/99	9.0E+00	4/00								1
2,4-DIAMINOANISOLE	615-05-4							6.6E-06	2.3E-02	4/99			1
2,4-DIAMINOTOLUENE	95-80-7							1.1E-03	4.0E+00	4/99			1
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	96-12-8			2.0E-01	1/92			2.0E-03	7.0E+00	4/99 [1/92]			1
p-DICHLOROBENZENE	106-46-7			8.0E+02	1/01			1.1E-05	4.0E-02	4/99 [1/91]			1
3,3-DICHLOROBENZIDINE	91-94-1							3.4E-04	1.2E+00	4/99 [1/91]			1
1,1,-DICHLOROETHANE (Ethylidene dichloride)	75-34-3							1.6E-06	5.7E-03	4/99			1
1,1-DICHLOROETHYLENE ... (see Vinylidene Chloride)													
DI(2-ETHYLHEXYL)PHTHALATE (DEHP)	117-81-7			7.0E+01	1/91			2.4E-06	8.4E-03	4/99 [1/92]	8.4E-03	10/00	1
DIESEL EXHAUST ... (see Particulate Emissions from Diesel-Fueled Engines)													
DIETHANOLAMINE	111-42-2			3.0E+00	12/01								
p-DIMETHYLAMINOAZOBENZENE	60-11-7							1.3E-03	4.6E+00	4/99			1
N,N-DIMETHYL FORMAMIDE	68-12-2			8.0E+01	1/01								1
2,4-DINITROTOLUENE	121-14-2							8.9E-05	3.1E-01	4/99			1
1,4-DIOXANE* (1,4-Diethylene dioxide)	123-91-1	3.0E+03	4/99	3.0E+03	4/00			7.7E-06	2.7E-02	4/99 [1/91]			1

Table last updated: April 25, 2005

Table 1
CONSOLIDATED TABLE OF OEHHA/ARB APPROVED RISK ASSESSMENT HEALTH VALUES ⊕

Chemical	Chemical▼ Abstract Number	Noncancer Effects						Cancer Risk					
		Acute Inhalation ($\mu g/m^3$)	Date◆ Value Reviewed [Added]	Chronic Inhalation ($\mu g/m^3$)	Date◆ Value Reviewed [Added]	Chronic Oral (mg/kg/d)	Date◆ Value Reviewed [Added]	Inhalation‡ Unit Risk $(\mu g/m^3)^{-1}$	Inhalation‡ Cancer Potency Factor $(mg/kg\text{-}d)^{-1}$	Date◆ Value Reviewed [Added]	Oral Slope Factor $(mg/kg\text{-}d)^{-1}$	Date◆ Value Reviewed [Added]	M✦ W A F
EPICHLOROHYDRIN (1-Chloro-2,3-epoxypropane)	106-89-8	1.3E+03	4/99	3.0E+00	1/01			2.3E-05	8.0E-02	4/99 [1/92]			1
1,2-EPOXYBUTANE	106-88-7			2.0E+01	1/01								1
ETHYL ACRYLATE	140-88-5			4.8E+01	1/92								1
ETHYL BENZENE	100-41-4			2.0E+03	2/00								1
ETHYL CHLORIDE (Chloroethane)	75-00-3			3.0E+04	4/00								1
ETHYLENE DIBROMIDE[TAC] (1,2-Dibromoethane)	106-93-4			8.0E-01	12/01			7.1E-05 TAC	2.5E-01	7/85			1
ETHYLENE DICHLORIDE[TAC] (1,2-Dichloroethane)	107-06-2			4.0E+02	1/01			2.1E-05 TAC	7.2E-02	9/85			1
ETHYLENE GLYCOL	107-21-1			4.0E+02	4/00								1
ETHYLENE GLYCOL BUTYL ETHER ... (see Glycol ethers)													
ETHYLENE OXIDE[TAC] (1,2-Epoxyethane)	75-21-8			3.0E+01	1/01			8.8E-05 TAC	3.1E-01	11/87			1
ETHYLENE THIOUREA	96-45-7							1.3E-05	4.5E-02	4/99			1
Fluorides	1101	*2.4E+02*	*4/99*	1.3E+01	8/03	4.0E-02	8/03						*1*
HYDROGEN FLUORIDE (Hydrofluoric acid)	7664-39-3	2.4E+02	4/99	1.4E+01	8/03	4.0E-02	8/03						1
FLUOROCARBONS (chlorinated) *values also apply to:*	1104 [1105]			7.0E+02	1/91								1
Chlorinated fluorocarbon (CFC-113)	*76-13-1*			*7.0E+02*	*1/91*								*1*
CHLORODIFLUOROMETHANE (Freon 22)	75-45-6			5.0E+04 RfC	1996								1
Dichlorofluoromethane (Freon 12)	*75-43-4*			*7.0E+02*	*1/91*								*1*
Trichlorofluoromethane (Freon 11)	*75-69-4*			*7.0E+02*	*1/91*								*1*
Fluorocarbons (brominated)	*1103*			*7.0E+02*	*1/91*								*1*
FORMALDEHYDE[TAC]	50-00-0	9.4E+01	4/99	3.0E+00	2/00			6.0E-06 TAC	2.1E-02	3/92			1
GASOLINE VAPORS	1110			2.1E+03	1/91								1
GLUTARALDEHYDE	111-30-8			8.0E-02	1/01								1
GLYCOL ETHERS	1115												1
ETHYLENE GLYCOL BUTYL ETHER – EGBE	111-76-2	1.4E+04	4/99	2.0E+01	1/92								1
ETHYLENE GLYCOL ETHYL ETHER – EGEE	110-80-5	3.7E+02 AveP	4/99[1/92]	7.0E+01	2/00								1
ETHYLENE GLYCOL ETHYL ETHER ACETATE – EGEEA	111-15-9	1.4E+02 AveP	4/99	3.0E+02	2/00								1

Table last updated: April 25, 2005

Table 1

CONSOLIDATED TABLE OF OEHHA/ARB APPROVED RISK ASSESSMENT HEALTH VALUES ⊕

Chemical	Chemical▼ Abstract Number	Noncancer Effects						Cancer Risk					
		Acute Inhalation ($\mu g/m^3$)	Date◆ Value Reviewed [Added]	Chronic Inhalation ($\mu g/m^3$)	Date◆ Value Reviewed [Added]	Chronic Oral (mg/kg/d)	Date◆ Value Reviewed [Added]	Inhalation‡ Unit Risk $(\mu g/m^3)^{-1}$	Inhalation‡ Cancer Potency Factor $(mg/kg\text{-}d)^{-1}$	Date◆ Value Reviewed [Added]	Oral Slope Factor $(mg/kg\text{-}d)^{-1}$	Date◆ Value Reviewed [Added]	M◆ W A F
ETHYLENE GLYCOL METHYL ETHER – EGME	109-86-4	9.3E+01 AveP	4/99	6.0E+01	2/00								1
ETHYLENE GLYCOL METHYL ETHER ACETATE – EGMEA	110-49-6			9.0E+01	2/00								1
HEXACHLOROBENZENE	118-74-1			2.8E+00	7/90			5.1E-04	1.8E+00	4/99 [1/91]			1
HEXACHLOROCYCLOHEXANES (mixed or technical grade)	608-73-1 1120			1.0E+00	1/91	3.0E-04	1/91	1.1E-03	4.0E+00	4/99 [1/91]	4.0E+00	10/00 [1/92]	1
alpha-HEXACHLOROCYCLOHEXANE	319-84-6			1.0E+00	1/91	3.0E-04	1/91	1.1E-03	4.0E+00	4/99 [1/91]	4.0E+00	10/00 [1/92]	1
beta- HEXACHLOROCYCLOHEXANE	319-85-7			1.0E+00	1/91	3.0E-04	1/91	1.1E-03	4.0E+00	4/99 [1/91]	4.0E+00	10/00 [1/92]	1
gamma-HEXACHLOROCYCLOHEXANE (Lindane)	58-89-9			1.0E+00	1/91	3.0E-04	1/91	3.1E-04	1.1E+00	4/99	1.1E+00	10/00	1
HEXACHLOROCYCLOPENTADIENE	77-47-4			2.4E-01	1/91								1
n-HEXANE	110-54-3			7.0E+03	4/00								1
HYDRAZINE	302-01-2			2.0E-01	1/01			4.9E-03	1.7E+01	4/99 [7/90]			1
HYDROCHLORIC ACID (Hydrogen chloride)	7647-01-0	2.1E+03	4/99	9.0E+00	2/00								1
HYDROGEN BROMIDE ... (see Bromine & Compounds)													
HYDROGEN CYANIDE ... (see Cyanide & Compounds)													
HYDROGEN FLUORIDE ... (see Fluorides & Compounds)													
HYDROGEN SELENIDE ... (see Selenium & Compounds)													
HYDROGEN SULFIDE	7783-06-4	4.2E+01	4/99[7/90]	1.0E+01	4/00								1
ISOPHORONE	78-59-1			2.0E+03	12/01								
ISOPROPYL ALCOHOL (Isopropanol)	67-63-0	3.2E+03	4/99	7.0E+03	2/00								1
LEAD AND COMPOUNDS[TAC] ✳ (inorganic) *values also apply to:*	7439-92-1 1128 [1130]							1.2E-05 TAC	4.2E-02	4/97	8.5E-03	10/00	1
Lead acetate	*301-04-2*							*1.2E-05 TAC*	*4.2E-02*	*4/97*	*8.5E-03*	*10/00*	*0.637*
Lead phosphate	*7446-27-7*							*1.2E-05 TAC*	*4.2E-02*	*4/97*	*8.5E-03*	*10/00*	*0.7659*
Lead subacetate	*1335-32-6*							*1.2E-05 TAC*	*4.2E-02*	*4/97*	*8.5E-03*	*10/00*	*0.7696*
LINDANE ... (see gamma-Hexachlorocyclohexane)													
MALEIC ANHYDRIDE	108-31-6			7.0E-01	12/01								1

Table last updated: April 25, 2005

Table 1
CONSOLIDATED TABLE OF OEHHA/ARB APPROVED RISK ASSESSMENT HEALTH VALUES ⊕

Chemical	Chemical▼ Abstract Number	Noncancer Effects						Cancer Risk					
		Acute Inhalation ($\mu g/m^3$)	Date◆ Value Reviewed [Added]	Chronic Inhalation ($\mu g/m^3$)	Date◆ Value Reviewed [Added]	Chronic Oral (mg/kg/d)	Date◆ Value Reviewed [Added]	Inhalation‡ Unit Risk $(\mu g/m^3)^{-1}$	Inhalation‡ Cancer Potency Factor $(mg/kg\text{-}d)^{-1}$	Date◆ Value Reviewed [Added]	Oral Slope Factor $(mg/kg\text{-}d)^{-1}$	Date◆ Value Reviewed [Added]	M◆ W A F
MANGANESE AND COMPOUNDS	7439-96-5 [1132]			2.0E-01	4/00								1
MERCURY AND COMPOUNDS (INORGANIC)	7439-97-6 [1133]	1.8E+00	4/99	9.0E-02	2/00	3.0E-04	10/00 [1/92]						1
Mercuric chloride	*7487-94-7*	*1.8E+00*	*4/99*	*9.0E-02*	*2/00*	*3.0E-04*	*10/00 [1/92]*						*1*
MERCURY AND COMPOUNDS (ORGANIC) *values also apply to:*	N/A												1
METHYL MERCURY	593-74-8			1.0E+00	1/91								1
METHANOL	67-56-1	2.8E+04	4/99	4.0E+03	4/00								1
METHYL BROMIDE (Bromomethane)	74-83-9	3.9E+03	4/99	5.0E+00	2/00								1
METHYL tertiary-BUTYL ETHER	1634-04-4			8.0E+03	2/00			2.6E-07	1.8E-03	11/99			1
METHYL CHLOROFORM (1,1,1-Trichloroethane)	71-55-6	6.8E+04	4/99	1.0E+03	2/00								1
METHYL ETHYL KETONE (2-Butanone)	78-93-3	1.3E+04	4/99	1.0E+03 RfC	1996								1
METHYL ISOCYANATE	624-83-9			1.0E+00	12/01								1
METHYL MERCURY ... (see Mercury & Compounds)													
METHYL METHACRYLATE	80-62-6			9.8E+02	1/92								1
4,4'-METHYLENE BIS (2-CHLOROANILINE) (MOCA)	101-14-4							4.3E-04	1.5E+00	4/99			1
METHYLENE CHLORIDE TAC (Dichloromethane)	75-09-2	1.4E+04	4/99	4.0E+02	2/00			1.0E-06 TAC	3.5E-03	7/89			1
4,4'-METHYLENE DIANILINE (AND ITS DICHLORIDE)	101-77-9			2.0E+01	12/01			4.6E-04	1.6E+00	4/99	1.6E+00	10/00	1
METHYLENE DIPHENYL ISOCYANATE	101-68-8			7.0E-01	1/01								1
MICHLER'S KETONE (4,4'-Bis(dimethylamino)benzophenone)	90-94-8							2.5E-04	8.6E-01	4/99			1
MINERAL FIBERS (<1% FREE SILICA)	N/A			2.4E+01	1/92								1
Ceramic fibers (man-made)	*1056*			*2.4E+01*	*1/92*								*1*
Glasswool (man-made fibers)	*1111*			*2.4E+01*	*1/92*								*1*
Mineral fibers (fine: man-made)	*1136*			*2.4E+01*	*1/92*								*1*
Rockwool (man-made fibers)	*1168*			*2.4E+01*	*1/92*								*1*
Slagwool (man-made fibers)	*1181*			*2.4E+01*	*1/92*								*1*
N-NITROSODI-n-BUTYLAMINE	924-16-3							3.1E-03	1.1E+01	4/99 [1/92]			1
N-NITROSODI-n-PROPYLAMINE	621-64-7							2.0E-03	7.0E+00	4/99 [1/91]			1
N-NITROSODIETHYLAMINE	55-18-5							1.0E-02	3.6E+01	4/99 [1/91]			1

Table last updated: April 25, 2005

Table 1
CONSOLIDATED TABLE OF OEHHA/ARB APPROVED RISK ASSESSMENT HEALTH VALUES ⊕

Chemical	Chemical▼ Abstract Number	Noncancer Effects						Cancer Risk					
		Acute Inhalation ($\mu g/m^3$)	Date◆ Value Reviewed [Added]	Chronic Inhalation ($\mu g/m^3$)	Date◆ Value Reviewed [Added]	Chronic Oral (mg/kg/d)	Date◆ Value Reviewed [Added]	Inhalation‡ Unit Risk $(\mu g/m^3)^{-1}$	Inhalation‡ Cancer Potency Factor $(mg/kg\text{-}d)^{-1}$	Date◆ Value Reviewed [Added]	Oral Slope Factor $(mg/kg\text{-}d)^{-1}$	Date◆ Value Reviewed [Added]	M◆ W A F
N-NITROSODIMETHYLAMINE	62-75-9							4.6E-03	1.6E+01	4/99 [1/91]			1
N-NITROSODIPHENYLAMINE	86-30-6							2.6E-06	9.0E-03	4/99			1
N-NITROSO-N-METHYLETHYLAMINE	10595-95-6							6.3E-03	2.2E+01	4/99 [7/90]			1
N-NITROSOMORPHOLINE	59-89-2							1.9E-03	6.7E+00	4/99 [7/92]			1
N-NITROSOPIPERIDINE	100-75-4							2.7E-03	9.4E+00	4/99 [7/92]			1
N-NITROSOPYRROLIDINE	930-55-2							6.0E-04	2.1E+00	4/99 [7/90]			1
NAPHTHALENE ... (see Polycyclic aromatic hydrocarbons)													
NICKEL AND COMPOUNDS[TAC] *values also apply to:*	7440-02-0 [1145]	6.0E+00	4/99	5.0E-02	2/00	5.0E-02	10/00	2.6E-04 TAC	9.1E-01	8/91			1
Nickel acetate	*373-02-4*	*6.0E+00*	*4/99*	*5.0E-02*	*2/00*	*5.0E-02*	*10/00*	*2.6E-04 TAC*	*9.1E-01*	*8/91*			*0.3321*
Nickel carbonate	*3333-67-3*	*6.0E+00*	*4/99*	*5.0E-02*	*2/00*	*5.0E-02*	*10/00*	*2.6E-04 TAC*	*9.1E-01*	*8/91*			*0.4945*
Nickel carbonyl	*13463-39-3*	*6.0E+00*	*4/99*	*5.0E-02*	*2/00*	*5.0E-02*	*10/00*	*2.6E-04 TAC*	*9.1E-01*	*8/91*			*0.3438*
Nickel hydroxide	*12054-48-7*	*6.0E+00*	*4/99*	*5.0E-02*	*2/00*	*5.0E-02*	*10/00*	*2.6E-04 TAC*	*9.1E-01*	*8/91*			*0.6332*
Nickelocene	*1271-28-9*	*6.0E+00*	*4/99*	*5.0E-02*	*2/00*	*5.0E-02*	*10/00*	*2.6E-04 TAC*	*9.1E-01*	*8/91*			*0.4937*
NICKEL OXIDE	1313-99-1	6.0E+00	4/99	1.0E-01	2/00	5.0E-02	10/00	2.6E-04 TAC	9.1E-01	8/91			0.7859
Nickel refinery dust from the pyrometallurgical process	*1146*	*6.0E+00*	*4/99*	*5.0E-02*	*2/00*	*5.0E-02*	*10/00*	*2.6E-04 TAC*	*9.1E-01*	*8/91*			*1*
Nickel subsulfide	*12035-72-2*	*6.0E+00*	*4/99*	*5.0E-02*	*2/00*	*5.0E-02*	*10/00*	*2.6E-04 TAC*	*9.1E-01*	*8/91*			*0.2443*
NITRIC ACID	7697-37-2	8.6E+01	4/99										1
NITROBENZENE	98-95-3			1.7E+00	1/91								1
NITROGEN DIOXIDE	10102-44-0	4.7E+02	4/99[1/92]	4.7E+02	1/92								1
2-NITROPROPANE	79-46-9			2.0E+01	1/92								1
p-NITROSODIPHENYLAMINE	156-10-5							6.3E-06	2.2E-02	4/99			1
OZONE	10028-15-6	1.8E+02	4/99[1/92]	1.8E+02	1/92								1
PARTICULATE EMISSIONS FROM DIESEL-FUELED ENGINES[TAC] ■	9901			5.0E+00 TAC	8/98			3.0E-04 TAC	1.1E+00	8/98			1
PENTACHLOROPHENOL ... (see Chlorophenols)													
PERCHLOROETHYLENE[TAC] (Tetrachloroethylene)	127-18-4	2.0E+04	4/99	3.5E+01 TAC	10/91			5.9E-06 TAC	2.1E-02	10/91			1
PHENOL	108-95-2	5.8E+03	4/99	2.0E+02	4/00								1

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Table 1
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Chemical	Chemical▼ Abstract Number	Noncancer Effects						Cancer Risk					
		Acute Inhalation ($\mu g/m^3$)	Date◆ Value Reviewed [Added]	Chronic Inhalation ($\mu g/m^3$)	Date◆ Value Reviewed [Added]	Chronic Oral (mg/kg/d)	Date◆ Value Reviewed [Added]	Inhalation‡ Unit Risk $(\mu g/m^3)^{-1}$	Inhalation‡ Cancer Potency Factor $(mg/kg\text{-}d)^{-1}$	Date◆ Value Reviewed [Added]	Oral Slope Factor $(mg/kg\text{-}d)^{-1}$	Date◆ Value Reviewed [Added]	M◆ W A F
PHOSGENE	75-44-5	4.0E+00	4/99										1
PHOSPHINE	7803-51-2			8.0E-01	9/02								1
PHOSPHORIC ACID	7664-38-2			7.0E+00	2/00								1
PHOSPHORUS (WHITE)	7723-14-0			7.0E-02	1/91								1
PHTHALIC ANHYDRIDE	85-44-9			2.0E+01	1/01								1
PCB (POLYCHLORINATED BIPHENYLS) (unspeciated mixture) [lowest risk]★	1336-36-3			1.2E+00	1/91	2.0E-05 RfD	1996	2.0E-05	7.0E-02	4/99	7.0E-02	10/00	1
PCB (POLYCHLORINATED BIPHENYLS) (unspeciated mixture) [low risk]★	1336-36-3			1.2E+00	1/91	2.0E-05 RfD	1996	1.1E-04	4.0E-01★		4.0E-01★		1
PCB (POLYCHLORINATED BIPHENYLS) (unspeciated mixture) [high risk]★	1336-36-3			1.2E+00	1/91	2.0E-05 RfD	1996	5.7E-04	2.0E+00	4/99	2.0E+00	10/00	1
PCB (POLYCHLORINATED BIPHENYLS (speciated) ⊠													
3,3',4,4'-TETRACHLOROBIPHENYL (PCB 77)	32598-13-3			4.0E-01	8/03	1.0E-04	8/03	3.8E-03	1.3E+01	8/03	1.3E+01	8/03	1
3,4,4',5-TETRACHLOROBIPHENYL (PCB 81)	70362-50-4			4.0E-01	8/03	1.0E-04	8/03	3.8E-03	1.3E+01	8/03	1.3E+01	8/03	1
2,3,3',4,4'-PENTACHLOROBIPHENYL (PCB 105)	32598-14-4			4.0E-01	8/03	1.0E-04	8/03	3.8E-03	1.3E+01	8/03	1.3E+01	8/03	1
2,3,4,4',5-PENTACHLOROBIPHENYL (PCB 114)	74472-37-0			8.0E-02	8/03	2.0E-05	8/03	1.9E-02	6.5E+01	8/03	6.5E+01	8/03	1
2,3',4,4',5-PENTACHLOROBIPHENYL (PCB 118)	31508-00-6			4.0E-01	8/03	1.0E-04	8/03	3.8E-03	1.3E+01	8/03	1.3E+01	8/03	1
2,3',4,4',5'-PENTACHLOROBIPHENYL (PCB 123)	65510-44-3			4.0E-01	8/03	1.0E-04	8/03	3.8E-03	1.3E+01	8/03	1.3E+01	8/03	1
3,3',4,4',5-PENTACHLOROBIPHENYL (PCB 126)	57465-28-8			4.0E-04	8/03	1.0E-07	8/03	3.8E+00	1.3E+04	8/03	1.3E+04	8/03	1
2,3,3',4,4',5-HEXACHLOROBIPHENYL (PCB 156)	38380-08-4			8.0E-02	8/03	2.0E-05	8/03	1.9E-02	6.5E+01	8/03	6.5E+01	8/03	1
2,3,3',4,4',5'-HEXACHLOROBIPHENYL (PCB 157)	69782-90-7			8.0E-02	8/03	2.0E-05	8/03	1.9E-02	6.5E+01	8/03	6.5E+01	8/03	1
2,3',4,4',5,5'-HEXACHLOROBIPHENYL (PCB 167)	52663-72-6			4.0E+00	8/03	1.0E-03	8/03	3.8E-04	1.3E+00	8/03	1.3E+00	8/03	1
3,3',4,4',5,5'-HEXACHLOROBIPHENYL (PCB 169)	32774-16-6			4.0E-03	8/03	1.0E-06	8/03	3.8E-01	1.3E+03	8/03	1.3E+03	8/03	1
2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL (PCB 189)	39635-31-9			4.0E-01	8/03	1.0E-04	8/03	3.8E-03	1.3E+01	8/03	1.3E+01	8/03	1

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Table 1
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Chemical	Chemical▼ Abstract Number	Noncancer Effects						Cancer Risk					
		Acute Inhalation ($\mu g/m^3$)	Date◆ Value Reviewed [Added]	Chronic Inhalation ($\mu g/m^3$)	Date◆ Value Reviewed [Added]	Chronic Oral (mg/kg/d)	Date◆ Value Reviewed [Added]	Inhalation‡ Unit Risk $(\mu g/m^3)^{-1}$	Inhalation‡ Cancer Potency Factor $(mg/kg\text{-}d)^{-1}$	Date◆ Value Reviewed [Added]	Oral Slope Factor $(mg/kg\text{-}d)^{-1}$	Date◆ Value Reviewed [Added]	M◆ W A F
POLYCHLORINATED DIBENZO-*P*-DIOXINS (PCDD) (Treated as 2,3,7,8-TCDD for HRA) TAC●	1085 1086			4.0E-05	2/00	1.0E-08	10/00	3.8E+01 TAC	1.3E+05	8/86	1.3E+05 TAC	8/86	1
2,3,7,8-TETRACHLORODIBENZO-*P*-DIOXIN TAC	1746-01-6			4.0E-05	2/00	1.0E-08	10/00	3.8E+01 TAC	1.3E+05	8/86	1.3E+05 TAC	8/86	1
1,2,3,7,8-PENTACHLORODIBENZO-*P*-DIOXIN	40321-76-4			4.0E-05	8/03	1.0E-08	8/03	3.8E+01	1.3E+05	8/03	1.3E+05	8/03	1
1,2,3,4,7,8-HEXACHLORODIBENZO-*P*-DIOXIN	39227-28-6			4.0E-04	2/00	1.0E-07	10/00	3.8E+00	1.3E+04	4/99	1.3E+04	10/00	1
1,2,3,6,7,8-HEXACHLORODIBENZO-*P*-DIOXIN	57653-85-7			4.0E-04	2/00	1.0E-07	10/00	3.8E+00	1.3E+04	4/99	1.3E+04	10/00	1
1,2,3,7,8,9-HEXACHLORODIBENZO-*P*-DIOXIN	19408-74-3			4.0E-04	2/00	1.0E-07	10/00	3.8E+00	1.3E+04	4/99	1.3E+04	10/00	1
1,2,3,4,6,7,8-HEPTACHLORODIBENZO-*P*-DIOXIN	35822-46-9			4.0E-03	2/00	1.0E-06	10/00	3.8E-01	1.3E+03	4/99	1.3E+03	10/00	1
1,2,3,4,6,7,8,9-OCTACHLORODIBENZO-*P*-DIOXIN	3268-87-9			4.0E-01	8/03	1.0E-04	8/03	3.8E-03	1.3E+01	8/03	1.3E+01	8/03	1
POLYCHLORINATED DIBENZOFURANS (PCDF) TAC● (Treated as 2,3,7,8-TCDD for HRA)	1080			4.0E-05	2/00	1.0E-08	10/00	3.8E+01 TAC	1.3E+05	8/86	1.3E+05 TAC	8/86	1
2,3,7,8-TETRACHLORODIBENZOFURAN	5120-73-19			4.0E-04	2/00	1.0E-07	10/00	3.8E+00	1.3E+04	4/99	1.3E+04	10/00	1
1,2,3,7,8-PENTACHLORODIBENZOFURAN	57117-41-6			8.0E-04	2/00	2.0E-07	10/00	1.9E+00	6.5E+03	4/99	6.5E+03	10/00	1
2,3,4,7,8-PENTACHLORODIBENZOFURAN	57117-31-4			8.0E-05	2/00	2.0E-08	10/00	1.9E+01	6.5E+04	4/99	6.5E+04	10/00	1
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN	70648-26-9			4.0E-04	2/00	1.0E-07	10/00	3.8E+00	1.3E+04	4/99	1.3E+04	10/00	1
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN	57117-44-9			4.0E-04	2/00	1.0E-07	10/00	3.8E+00	1.3E+04	4/99	1.3E+04	10/00	1
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN	72918-21-9			4.0E-04	2/00	1.0E-07	10/00	3.8E+00	1.3E+04	4/99	1.3E+04	10/00	1
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN	60851-34-5			4.0E-04	2/00	1.0E-07	10/00	3.8E+00	1.3E+04	4/99	1.3E+04	10/00	1
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN	67562-39-4			4.0E-03	2/00	1.0E-06	10/00	3.8E-01	1.3E+03	4/99	1.3E+03	10/00	1
1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN	55673-89-7			4.0E-03	2/00	1.0E-06	10/00	3.8E-01	1.3E+03	4/99	1.3E+03	10/00	1
1,2,3,4,6,7,8,9-OCTACHLORODIBENZOFURAN	39001-02-0			4.0E-01	8/03	1.0E-04	8/03	3.8E-03	1.3E+01	8/03	1.3E+01	8/03	1

Table last updated: April 25, 2005

Table 1

CONSOLIDATED TABLE OF OEHHA/ARB APPROVED RISK ASSESSMENT HEALTH VALUES ⊕

Chemical	Chemical▼ Abstract Number	Noncancer Effects						Cancer Risk					
		Acute Inhalation ($\mu g/m^3$)	Date◆ Value Reviewed [Added]	Chronic Inhalation ($\mu g/m^3$)	Date◆ Value Reviewed [Added]	Chronic Oral (mg/kg/d)	Date◆ Value Reviewed [Added]	Inhalation▼ Unit Risk $(\mu g/m^3)^{-1}$	Inhalation▼ Cancer Potency Factor $(mg/kg\text{-}d)^{-1}$	Date◆ Value Reviewed [Added]	Oral Slope Factor $(mg/kg\text{-}d)^{-1}$	Date◆ Value Reviewed [Added]	M◆ W A F
POLYCYCLIC AROMATIC HYDROCARBON (PAH) [Treated as B(a)P for HRA] ❖	1150 1151							1.1E-03	3.9E+00	4/99 [4/94]	1.2E+01	10/00 [4/94]	1
BENZ(A)ANTHRACENE❖	56-55-3							1.1E-04	3.9E-01	4/99 [4/94]	1.2E+00	10/00 [4/94]	1
BENZO(A)PYRENE❖	50-32-8							1.1E-03	3.9E+00	4/99 [4/94]	1.2E+01	10/00 [4/94]	1
BENZO(B)FLUORANTHENE❖	205-99-2							1.1E-04	3.9E-01	4/99 [4/94]	1.2E+00	10/00 [4/94]	1
BENZO(J)FLUORANTHENE❖	205-82-3							1.1E-04	3.9E-01	4/99 [4/94]	1.2E+00	10/00 [4/94]	1
BENZO(K)FLUORANTHENE❖	207-08-9							1.1E-04	3.9E-01	4/99 [4/94]	1.2E+00	10/00 [4/94]	1
CHRYSENE❖	218-01-9							1.1E-05	3.9E-02	4/99 [4/94]	1.2E-01	10/00 [4/94]	1
DIBENZ(A,H)ACRIDINE❖	226-36-8							1.1E-04	3.9E-01	4/99 [4/94]	1.2E+00	10/00 [4/94]	1
DIBENZ(A,H)ANTHRACENE❖	53-70-3							1.2E-03	4.1E+00	4/99 [4/94]	4.1E+00	10/00 [4/94]	1
DIBENZ(A,J)ACRIDINE❖	224-42-0							1.1E-04	3.9E-01	4/99 [4/94]	1.2E+00	10/00 [4/94]	1
DIBENZO(A,E)PYRENE❖	192-65-4							1.1E-03	3.9E+00	4/99 [4/94]	1.2E+01	10/00 [4/94]	1
DIBENZO(A,H)PYRENE❖	189-64-0							1.1E-02	3.9E+01	4/99 [4/94]	1.2E+02	10/00 [4/94]	1
DIBENZO(A,I)PYRENE❖	189-55-9							1.1E-02	3.9E+01	4/99 [4/94]	1.2E+02	10/00 [4/94]	1
DIBENZO(A,L)PYRENE❖	191-30-0							1.1E-02	3.9E+01	4/99 [4/94]	1.2E+02	10/00 [4/94]	1
7H-DIBENZO(C,G)CARBAZOLE❖	194-59-2							1.1E-03	3.9E+00	4/99 [4/94]	1.2E+01	10/00 [4/94]	1
7,12-DIMETHYLBENZ(A)ANTHRACENE❖	57-97-6							7.1E-02	2.5E+02	4/99 [4/94]	2.5E+02	10/00 [4/94]	1
1,6-DINITROPYRENE❖	42397-64-8							1.1E-02	3.9E+01	4/99 [4/94]	1.2E+02	10/00 [4/94]	1
1,8-DINITROPYRENE❖	42397-65-9							1.1E-03	3.9E+00	4/99 [4/94]	1.2E+01	10/00 [4/94]	1
INDENO(1,2,3-C,D)PYRENE❖	193-39-5							1.1E-04	3.9E-01	4/99 [4/94]	1.2E+00	10/00 [4/94]	1
3-METHYLCHOLANTHRENE❖	56-49-5							6.3E-03	2.2E+01	4/99 [4/94]	2.2E+01	10/00 [4/94]	1
5-METHYLCHRYSENE❖	3697-24-3							1.1E-03	3.9E+00	4/99 [4/94]	1.2E+01	10/00 [4/94]	1
NAPHTHALENE	91-20-3			9.0E+00	4/00			3.4E-05	1.2E-01	8/04			1

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CONSOLIDATED TABLE OF OEHHA/ARB APPROVED RISK ASSESSMENT HEALTH VALUES ⊕

Chemical	Chemical▼ Abstract Number	Noncancer Effects						Cancer Risk					
		Acute Inhalation ($\mu g/m^3$)	Date◆ Value Reviewed [Added]	Chronic Inhalation ($\mu g/m^3$)	Date◆ Value Reviewed [Added]	Chronic Oral (mg/kg/d)	Date◆ Value Reviewed [Added]	Inhalation‡ Unit Risk $(\mu g/m^3)^{-1}$	Inhalation‡ Cancer Potency Factor $(mg/kg\text{-}d)^{-1}$	Date◆ Value Reviewed [Added]	Oral Slope Factor $(mg/kg\text{-}d)^{-1}$	Date◆ Value Reviewed [Added]	M◆ W A F
5-NITROACENAPHTHENE❖	602-87-9							3.7E-05	1.3E-01	4/99 [4/94]	1.3E-01	10/00 [4/94]	1
6-NITROCHRYSENE❖	7496-02-8							1.1E-02	3.9E+01	4/99 [4/94]	1.2E+02	10/00 [4/94]	1
2-NITROFLUORENE❖	607-57-8							1.1E-05	3.9E-02	4/99 [4/94]	1.2E-01	10/00 [4/94]	1
1-NITROPYRENE❖	5522-43-0							1.1E-04	3.9E-01	4/99 [4/94]	1.2E+00	10/00 [4/94]	1
4-NITROPYRENE❖	57835-92-4							1.1E-04	3.9E-01	4/99 [4/94]	1.2E+00	10/00 [4/94]	1
POTASSIUM BROMATE.... ... (see Bromine & Compounds)													
1,3-PROPANE SULTONE	1120-71-4							6.9E-04	2.4E+00	4/99			1
PROPYLENE (PROPENE)	115-07-1			3.0E+03	4/00								1
PROPYLENE GLYCOL MONOMETHYL ETHER	107-98-2			7.0E+03	2/00								1
PROPYLENE OXIDE	75-56-9	3.1E+03	4/99	3.0E+01	2/00			3.7E-06	1.3E-02	4/99 [7/90]			1
SELENIUM AND COMPOUNDS	7782-49-2 [1170]			2.0E+01	12/01								1
HYDROGEN SELENIDE	7783-07-5	5.0E+00	4/99										1
Selenium sulfide	*7446-34-6*			*2.0E+01*	*12/01*								*1*
SILICA [CRYSTALLINE, RESPIRABLE]	7631-86-9			3.0E+00	2/05								1
SODIUM HYDROXIDE	1310-73-2	8.0E+00	4/99	4.8E+00	7/90								1
STYRENE	100-42-5	2.1E+04	4/99	9.0E+02	4/00								1
SULFATES	9960	1.2E+02	4/99	2.5E+01	1/92								1
SULFUR DIOXIDE	7446-09-5	6.6E+02	4/99[1/92]	6.6E+02	1/92								1
SULFURIC ACID AND OLEUM	7664-93-9	1.2E+02	4/99	*1.0E+00*	*12/01*								1
SULFURIC ACID	*7664-93-9*	*1.2E+02*	*4/99*	1.0E+00	12/01								*1*
SULFUR TRIOXIDE	*7446-71-9*	*1.2E+02*	*4/99*										*1*
OLEUM	*8014-95-7*	*1.2E+02*	*4/99*	*1.0E+00*	*12/01*								*1*
1,1,2,2-TETRACHLOROETHANE	79-34-5							5.8E-05	2.0E-01	4/99			1
TETRACHLOROPHENOLS ... (see Chlorophenols)													
2,4,5-TRICHLOROPHENOL ... (see Chlorophenols)													
2,4,6-TRICHLOROPHENOL ... (see Chlorophenols)													
THIOACETAMIDE	62-55-5							1.7E-03	6.1E+00	4/99			1
TOLUENE	108-88-3	3.7E+04	4/99	3.0E+02	4/00								1

Table last updated: April 25, 2005

Table 1
CONSOLIDATED TABLE OF OEHHA/ARB APPROVED RISK ASSESSMENT HEALTH VALUES ⊕

Chemical	Chemical▼ Abstract Number	Noncancer Effects						Cancer Risk					
		Acute Inhalation ($\mu g/m^3$)	Date◆ Value Reviewed [Added]	Chronic Inhalation ($\mu g/m^3$)	Date◆ Value Reviewed [Added]	Chronic Oral (mg/kg/d)	Date◆ Value Reviewed [Added]	Inhalation‡ Unit Risk $(\mu g/m^3)^{-1}$	Inhalation‡ Cancer Potency Factor $(mg/kg\text{-}d)^{-1}$	Date◆ Value Reviewed [Added]	Oral Slope Factor $(mg/kg\text{-}d)^{-1}$	Date◆ Value Reviewed [Added]	M◆ W A F
Toluene diisocyantates	*26471-62-5 1204*			*7.0E-02*	*1/01*			*1.1E-05*	*3.9E-02*	*4/99*			*1*
TOLUENE-2,4-DIISOCYANATE	584-84-9			7.0E-02	1/01			1.1E-05	3.9E-02	4/99			1
TOLUENE-2,6-DIISOCYANATE	91-08-7			7.0E-02	1/01			1.1E-05	3.9E-02	4/99			1
1,1,2-TRICHLOROETHANE (Vinyl trichloride)	79-00-5							1.6E-05	5.7E-02	4/99			1
TRICHLOROETHYLENE[TAC]	79-01-6			6.0E+02	4/00			2.0E-06 TAC	7.0E-03	10/90			1
TRIETHYLAMINE	121-44-8	2.8E+03	4/99	2.0E+02	9/02								1
URETHANE (Ethyl carbamate)	51-79-6							2.9E-04	1.0E+00	4/99 [7/90]			1
Vanadium Compounds	*N/A*												*1*
Vanadium (fume or dust)	*7440-62-2*	*3.0E+01*	*4/99*										*1*
VANADIUM PENTOXIDE	1314-62-1	3.0E+01	4/99										1
VINYL ACETATE	108-05-4			2.0E+02	12/01								1
VINYL BROMIDE	593-60-2			7.0E+00 RfC	1996								1
VINYL CHLORIDE[TAC] (Chloroethylene)	75-01-4	1.8E+05	4/99	2.6E+01	7/90			7.8E-05 TAC	2.7E-01	12/90			1
VINYLIDENE CHLORIDE (1,1-Dichloroethylene)	75-35-4			7.0E+01	1/01								1
XYLENES (mixed isomers)	1330-20-7 1210	2.2E+04	4/99	7.0E+02	4/00								1
m-XYLENE	108-38-3	2.2E+04	4/99	7.0E+02	4/00								1
o-XYLENE	95-47-6	2.2E+04	4/99	7.0E+02	4/00								1
p-XYLENE	106-42-3	2.2E+04	4/99	7.0E+02	4/00								1
ZINC AND COMPOUNDS	7440-66-6 [1211]			3.5E+01	7/90								1
Zinc oxide	*1314-13-2*			*3.5E+01*	*7/90*								*0.8034*

Table last updated: April 25, 2005

Table 1
CONSOLIDATED TABLE OF OEHHA/ARB APPROVED RISK ASSESSMENT HEALTH VALUES ❋

Purpose: The purpose of this reference table is to provide a quick list of all health values that have been approved by the Office of Environmental Health Hazard Assessment (OEHHA) and the Air Resources Board (ARB) for use in facility health risk assessments conducted for the AB 2588 Air Toxics Hot Spots Program. The OEHHA has developed and adopted new risk assessment guidelines that update and replace the California Air Pollution Control Officers Association's (CAPCOA) *Air Toxics "Hot Spots" Program Revised 1992 Risk Assessment Guidelines, October 1993.* The OEHHA has adopted five technical support documents for these guidelines.

This table lists the OEHHA adopted inhalation and oral cancer slope factors, noncancer acute Reference Exposure Levels (RELs), and inhalation and oral noncancer chronic RELs. In addition, it lists the substances in Appendix A-I *(Substances For Which Emissions Must Be Quantified)* and Appendix F (*Criteria For Inputs For Risk Assessment Using Screening Air Dispersion Modeling*) of the ARB's *Air Toxics "Hot Spots" Emission Inventory Criteria and Guidelines (EICG) (July 1997).* OEHHA is still in the process of adopting new noncancer chronic RELs. Therefore, new health values will periodically be added to, or deleted from, this table. Users of this table are advised to monitor the OEHHA website (www.oehha.ca.gov) for any updates to the health values.

❋ Substances written in *italics* do not have explicit OEHHA approved health values, but are included in this table to clarify applicability of OEHHA adopted heath effects values to individual or grouped substances listed in the *Air Toxics "Hot Spots" Emission Inventory Criteria and Guidelines*, Appendix A-I list of *"Substances For Which Emissions Must Be Quantified"*.

▼ Chemical Abstract Service Number (CAS): For chemical groupings and mixtures where a CAS number is not applicable, the 4-digit code used in the *Air Toxics "Hot Spots" Emission Inventory Criteria and Guidelines (EICG) Report* is listed. The 4-digit codes enclosed in brackets [ ] are codes that have been phased out, but may still appear on previously reported Hot Spots emissions. For information on the origin and use of the 4-digit code, see the EICG report.

◆ Date Value Reviewed [Added]: These columns list the date that the health value was last reviewed by OEHHA and the Scientific Review Panel, and/or approved for use in the AB 2588 Air Toxics Hot Spots Program. If the health value is unchanged since it was first approved for use in the Hot Spots Program, then the date that the value was first approved for use by CAPCOA is listed within the brackets [ ].

- April 1999 is listed for the cancer potency values and noncancer acute RELs, which have been adopted by the OEHHA as part of the AB 2588 Hot Spot Risk Assessment Guidelines.
- February 2000, April 2000, January 2001, and December 2001 are listed for the first set of 22, the second set of 16, the third set of 22, and the fourth set of 12 noncancer chronic RELs, respectively. The chronic REL for carbon disulfide was adopted in May 2002. Chronic RELs for phosphine and triethylamine were adopted in September 2002. Chronic RELs for fluorides including hydrogen fluoride were adopted August 2003. Chronic REL for silica [crystalline respirable] was adopted February 2005.
- October 2000 is listed for the oral chronic RELs and oral cancer slope factors. 1996 is listed for the U.S. EPA Reference Concentrations. Dates of 1990-1992 and 1996 are listed for chronic RELs that may eventually be dropped or replaced.
- Cancer potency value adopted for naphthalene in August 2004.
- For the substances identified as Toxic Air Contaminants, the Air Resources Board hearing date is listed. The dates for acetaldehyde, benzo[a]pyrene, and methyl tertiary-butyl ether represent the dates the values were approved by the Scientific Review Panel.

❣ Inhalation cancer potency factor: The "unit risk factor" has been replaced in the new risk assessment algorithms by a factor called the "inhalation cancer potency factor". Inhalation cancer potency factors are expressed as units of inverse dose [i.e., $(mg/kg\text{-}day)^{-1}$]. They were derived from unit risk factors [units = $(ug/m^3)^{-1}$] by assuming that a receptor weighs 70 kilograms and breathes 20 cubic meters of air per day. The inhalation potency factor is used to calculate a potential inhalation cancer risk using the new risk assessment algorithms defined in the OEHHA, *Air Toxics Hot Spots Program; Part IV; Technical Support Document for Exposure Assessment and Stochastic Analysis (September 2000)*.

♣ Molecular Weight Adjustment Factor: Molecular weight adjustment factors (MWAF) are only to be used when a toxic metal has a cancer potency factor. For most of the Hot Spots toxic metals, the OEHHA cancer potency factor applies to the weight of the toxic metal atom contained in the overall compound. Some of the Hot Spots compounds contain various elements along with the toxic metal atom (e.g., "Nickel hydroxide", CAS number 12054-48-7, has a formula of H_2NiO_2). Therefore, an adjustment to the reported pounds of the overall compound is needed before applying the OEHHA cancer potency factor for "Nickel and compounds" to such a compound. This ensures that the cancer potency factor is applied only to the fraction of the overall weight of the emissions that are associated with health effects of the metal. In other cases, the Hot Spots metals are already reported as the metal atom equivalent (e.g., CAS 7440-02-0, "Nickel"), and these cases do not use any further molecular weight adjustment. (Refer to Note [7] in Appendix A, List of Substances in the EICG Report for further information on how the emissions of various Hot Spots metal compounds are reported.) The appropriate molecular weight adjustment factors (MWAF) to be used along with the OEHHA cancer potency factors for Hot Spots metals can be found in the MWAF column of this table.

So, for example, assume 100 pounds of "Nickel hydroxide" emissions are reported under CAS number 12054-48-7. To get the Nickel atom equivalent of these emissions, multiply by the listed MWAF (0.6332) for Nickel hydroxide:

- 100 pounds x 0.6332 = 63.32 pounds of Nickel atom equivalent

This step should be completed prior to applying the OEHHA cancer potency factor for "Nickel and compounds" in a calculation for a prioritization score or risk assessment calculation. (For more information see Chapter 8 of OEHHA's document, *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments.*)

Note: The value listed in the MWAF column for Asbestos is not a molecular weight adjustment. This is a conversion factor for adjusting mass to fibers or structures. See Appendix C of OEHHA's document *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* for more information on Asbestos, or see the EICG report for reporting guidance. Also see the Asbestos footnote (designated by the symbol ⌑)

Table 1
CONSOLIDATED TABLE OF OEHHA/ARB APPROVED RISK ASSESSMENT HEALTH VALUES ⊕

N/A	Not Applicable
RfC/RfD	United States Environmental Protection Agency (U.S. EPA) Reference Concentrations (RfCs) and oral Reference Doses (RfDs) from the U.S. EPA Integrated Risk Information System (1996) have been added if the U.S. EPA health value and/or endpoint was different from the 1993 CAPCOA value or endpoint and OEHHA has not adopted a new value as part of the Hot Spot Risk Assessment Guidelines. The RfCs and RfDs listed meet the criteria of Appendix F of the Air Resources Board's Emission Inventory Criteria and Guidelines Report effective July 1, 1997. These RfC/RfDs may be replaced by new OEHHA values in the future.
TAC	Toxic Air Contaminant: The Air Resources Board has identified this substance as a Toxic Air Contaminant.
AveP	The averaging period of noncancer acute RELs is generally a one-hour exposure. However, some are based on several hour exposure for reproductive/developmental endpoints (see section 1.6 of OEHHA's technical support document for *The Determination of Acute Reference Exposure Levels for Airborne Toxicants, March 1999).* Typically the RELs for the following substances are compared to modeled emission concentrations of the same duration rather than maximum one-hour concentrations (e.g., a 4-hour REL should be compared to the maximum 4-hour average concentration from the air dispersion model). 4-Hour: Arsenic and Inorganic Arsenic Compounds 6-Hour: Benzene, Carbon disulfide, Ethylene glycol monoethyl ether, Ethylene glycol monoethyl ether acetate, Ethylene glycol monomethyl ether 7-Hour: Carbon tetrachloride, Chloroform
¤	Asbestos: The units for the Inhalation Cancer Potency factor for asbestos are (100 PCM fibers/m^3)$^{-1}$. A conversion factor of 100 fibers/0.003 µg can be multiplied by a receptor concentration of asbestos expressed in µg/m^3. Unless other information necessary to estimate the concentration (fibers/m^3) of asbestos at receptors of interest is available. A unit risk factor of 1.9 E 10^{-4} (µg/m^3)$^{-1}$ and an inhalation cancer potency factor of 2.2 E 10^{+2} (mg/kg BW * day)$^{-1}$ are available. For more information on asbestos quantity conversion factors, see Appendix C of OEHHA's *The Air Toxics Hot Spots Program Risk Assessment Guidelines; Part II; Technical Support Document for Describing Available Cancer Potency Factors,* and Appendix C of OEHHA's document *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments.*
∅	Hexavalent Chromium: The oral cancer slope factor for chromium 6+ and compounds has been withdrawn by the Office of Environmental Health Hazard Assessment.
✳	Inorganic Lead: Inorganic Lead was identified by the Air Resources Board as a Toxic Air Contaminant in April 1997. Since information on noncancer health effects show no identified threshold, no Reference Exposure Level has been developed. The document, *Risk Management Guidelines for New, Modified, and Existing Sources of Lead, March 2001,* has been developed by ARB and OEHHA staff for assessing noncancer health impacts from sources of lead. See Appendix F of OEHHA's document *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* for an overview of how to evaluate noncancer impacts from exposure to lead using these risk management guidelines.
❖	Polycyclic Aromatic Hydrocarbons (PAHs): These substances are PAH or PAH-derivatives that have OEHHA-developed Potency Equivalency Factors (PEFs) which were approved by the Scientific Review Panel in April 1994 (see ARB document entitled *Benzo[a]pyrene as a Toxic Air Contaminant*). PAH inhalation slope factors listed here have been adjusted by the PEFs. See Appendix G of OEHHA's document *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* for more information. See section 8.2.3 of OEHHA's *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* for conducting health risks when total (unspeciated) PAHs are reported.
★	Polychlorinated Biphenyls: (unspeciated mixtures) Lowest Risk: For use in cases where congeners with more than four chlorines comprise less than one-half percent of total polychlorinated biphenyls. High Risk: For use in cases where congeners with more than four chlorines do not comprise less than one-half percent of total polychlorinated biphenyls. Low Risk: This number would not ordinarily be used in the Hot Spots program. Chronic Oral: The chronic oral value is U.S. EPA's 1996 oral Reference Dose for Aroclor-1254.
ϖ	Polychlorinated Biphenyls (speciated): Values calculated using WHO_{97} TEF procedure. See OEHHA memo dated August 29, 2003.
•	Polychlorinated Dibenzo-*p*-dioxins and Polychlorinated Dibenzofurans (also referred to as chlorinated dioxins and dibenzofurans): The OEHHA has adopted the World Health Organization 1997 (WHO_{97}) Toxicity Equivalency Factor scheme for evaluating the cancer risk due to exposure to samples containing mixtures of polychlorinated dibenzo-*p*-dioxins (PCDD) and polychlorinated dibenzofurans (PCDF) and determining cancer risks for a number of specific PCB congeners. See Appendix A of OEHHA's *Technical Support Document For Describing Available Cancer Potency Factors* for more information about the scheme. See Appendix E of OEHHA's *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* for the methodology for calculating 2,3,7,8-equivalents for PCDD, PCDFs and a number of specific PCB congeners. See section 8.2.3 of OEHHA's *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* for conducting health risks when total (unspeciated) chlorinated dioxins and furans are reported.
■	Particulate Emissions from Diesel-Fueled Engines: The inhalation cancer potency factor and chronic REL were derived from whole diesel exhaust and should be used only for impacts from the inhalation pathway. The inhalation impacts from speciated emissions from diesel-fueled engines are already accounted for in the inhalation cancer potency factor and REL. However, at the discretion of the risk assessor, speciated emissions from diesel-fueled engines may be used to estimate acute noncancer health impacts or the contribution to cancer risk or chronic noncancer health impacts for the non-inhalation exposure pathway. See Appendix D of OEHHA's document *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* for more information.

Table last updated: April 25, 2005

Table last updated: April 25, 2005

Table 2
OEHHA/ARB APPROVED ACUTE REFERENCE EXPOSURE LEVELS AND TARGET ORGANS⊕

Substance ⊕	Chemical▼ Abstract Service Number (CAS)	Acute REL ($\mu g/m^3$)	Date ◆ Value Reviewed	Target Organs									
				Alimentary Tract	Cardiovascular	Developmental	Eye	Hematologic	Immune	Nervous	Reproductive	Respiratory	Skin
ACROLEIN	107-02-8	1.9E-01	4/99				X					X	
ACRYLIC ACID	79-10-7	6.0E+03	4/99				X					X	
AMMONIA	7664-41-7	3.2E+03	4/99				X					X	
ARSENIC AND COMPOUNDS (INORGANIC) TAC	7440-38-2 1016 [1015]	1.9E-01 AveP	4/99			X					X		
ARSINE	7784-42-1	1.6E+02	4/99					X					
BENZENE TAC	71-43-2	1.3E+03 AveP	4/99			X		X	X		X		
BENZYL CHLORIDE	100-44-7	2.4E+02	4/99				X					X	
CARBON DISULFIDE	75-15-0	6.2E+03 AveP	4/99			X				X	X		
CARBON MONOXIDE	630-08-0	2.3E+04	4/99		X								
CARBON TETRACHLORIDE TAC (Tetrachloromethane)	56-23-5	1.9E+03 AveP	4/99	X		X				X	X		
CHLORINE	7782-50-5	2.1E+02	4/99				X					X	
CHLOROFORM TAC	67-66-3	1.5E+02 AveP	4/99			X				X	X		
CHLOROPICRIN	76-06-2	2.9E+01	4/99				X					X	
COPPER AND COMPOUNDS	7440-50-8 [1067]	1.0E+02	4/99									X	
Cyanide Compounds (inorganic)	*57-12-5 1073*	*3.4E+02*	*4/99*							✓			
HYDROGEN CYANIDE (Hydrocyanic acid)	74-90-8	3.4E+02	4/99							X			
1,4-DIOXANE+ (1,4-Diethylene dioxide)	123-91-1	3.0E+03	4/99				X					X	
EPICHLOROHYDRIN (1-Chloro-2,3-epoxypropane)	106-89-8	1.3E+03	4/99				X					X	
Fluorides and Compounds	*1101*	*2.4E+02*	*4/99*				✓					✓	
HYDROGEN FLUORIDE (Hydrofluoric acid)	7664-39-3	2.4E+02	4/99				X					X	
FORMALDEHYDE TAC	50-00-0	9.4E+01	4/99				X		X			X	
GLYCOL ETHERS	1115												
ETHYLENE GLYCOL BUTYL ETHER – EGBE	111-76-2	1.4E+04	4/99				X					X	
ETHYLENE GLYCOL ETHYL ETHER – EGEE	110-80-5	3.7E+02 AveP	4/99 [1/92]			X					X		
ETHYLENE GLYCOL ETHYL ETHER ACETATE - EGEEA	111-15-9	1.4E+02 AveP	4/99			X				X	X		
ETHYLENE GLYCOL METHYL ETHER – EGME	109-86-4	9.3E+01 AveP	4/99			X					X		

Table last updated: April 25, 2005

Table 2
OEHHA/ARB APPROVED ACUTE REFERENCE EXPOSURE LEVELS AND TARGET ORGANS[⊕]

Substance [⊕]	Chemical Abstract Service Number (CAS) [▼]	Acute REL ($\mu g/m^3$)	Date Value Reviewed [◆]	Target Organs									
				Alimentary Tract	Cardiovascular	Developmental	Eye	Hematologic	Immune	Nervous	Reproductive	Respiratory	Skin
HYDROCHLORIC ACID (Hydrogen chloride)	7647-01-0	2.1E+03	4/99				X					X	
HYDROGEN CYANIDE (Hydrocyanic acid) ... (see Cyanide Compounds)													
HYDROGEN FLUORIDE (Hydrofluoric acid) ... (see Fluorides & Compounds)													
HYDROGEN SELENIDE ... (see Selenium & Compounds)													
HYDROGEN SULFIDE	7783-06-4	4.2E+01	4/99 [7/90]							X			
ISOPROPYL ALCOHOL (Isopropanol)	67-63-0	3.2E+03	4/99				X					X	
MERCURY AND COMPOUNDS (INORGANIC)	7439-97-6 [1133]	1.8E+00	4/99			X					X		
Mercuric chloride	*7487-94-7*	*1.8E+00*	*4/99*			✓					✓		
METHANOL	67-56-1	2.8E+04	4/99							X			
METHYL BROMIDE (Bromomethane)	74-83-9	3.9E+03	4/99			X				X	X	X	
METHYL CHLOROFORM (1,1,1-Trichbroethane)	71-55-6	6.8E+04	4/99							X			
METHYL ETHYL KETONE (2-Butanone)	78-93-3	1.3E+04	4/99				X					X	
METHYLENE CHLORIDE[TAC] (Dichloromethane)	75-09-2	1.4E+04	4/99							X			
NICKEL AND COMPOUNDS[TAC]	7440-02-0 [1145]	6.0E+00	4/99						X			X	
Nickel acetate,	*373-02-4*	*6.0E+00*	*4/99*						✓			✓	
Nickel carbonate	*3333-67-3*	*6.0E+00*	*4/99*						✓			✓	
Nickel carbonyl	*13463-39-3*	*6.0E+00*	*4/99*						✓			✓	
Nickel hydroxide	*12054-48-7*	*6.0E+00*	*4/99*						✓			✓	
Nickelocene	*1271-28-9*	*6.0E+00*	*4/99*						✓			✓	
NICKEL OXIDE	1313-99-1	6.0E+00	4/99						X			X	
Nickel refinery dust from the pyrometallurgical process	*1146*	*6.0E+00*	*4/99*						✓			✓	
Nickel subsulfide	*12035-72-2*	*6.0E+00*	*4/99*						✓			✓	
NITRIC ACID	7697-37-2	8.6E+01	4/99									X	
NITROGEN DIOXIDE	10102-44-0	4.7E+02	4/99 [1/92]									X	
OZONE	10028-15-6	1.8E+02	4/99 [1/92]				X					X	
PERCHLOROETHYLENE[TAC] (Tetrachloroethylene)	127-18-4	2.0E+04	4/99				X			X		X	

Table last updated: April 25, 2005

Table 2
OEHHA/ARB APPROVED ACUTE REFERENCE EXPOSURE LEVELS AND TARGET ORGANS[⊕]

Substance [⊕]	Chemical Abstract Service Number (CAS) [▼]	Acute REL ($\mu g/m^3$)	Date [◆] Value Reviewed	Target Organs									
				Alimentary Tract	Cardiovascular	Developmental	Eye	Hematologic	Immune	Nervous	Reproductive	Respiratory	Skin
PHENOL	108-95-2	5.8E+03	4/99				X					X	
PHOSGENE	75-44-5	4.0E+00	4/99									X	
PROPYLENE OXIDE	75-56-9	3.1E+03	4/99			X	X				X	X	
Selenium and Compounds	*7782-49-2 [1170]*												
HYDROGEN SELENIDE	7783-07-5	5.0E+00	4/99				X					X	
SODIUM HYDROXIDE	1310-73-2	8.0E+00	4/99				X					X	X
STYRENE	100-42-5	2.1E+04	4/99				X					X	
SULFATES	9960	1.2E+02	4/99									X	
SULFUR DIOXIDE	7446-09-5	6.6E+02	4/99 [1/92]									X	
SULFURIC ACID AND OLEUM	7664-93-9	1.2E+02	4/99									X	
SULFURIC ACID	*7664-93-9*	*1.2E+02*	*4/99*									✓	
SULFUR TRIOXIDE	*7446-71-9*	*1.2E+02*	*4/99*									✓	
OLEUM	*8014-95-7*	*1.2E+02*	*4/99*									✓	
TOLUENE	108-88-3	3.7E+04	4/99			X	X			X	X	X	
TRIETHYLAMINE	121-44-8	2.8E+03	4/99				X			X			
Vanadium Compounds	*N/A*												
Vanadium (fume or dust)	*7440-62-2*	*3.0E+01*	*4/99*				✓					✓	
VANADIUM PENTOXIDE	1314-62-1	3.0E+01	4/99				X					X	
VINYL CHLORIDE[TAC] (Chloroethylene)	75-01-4	1.8E+05	4/99				X			X		X	
XYLENES (mixed isomers)	1330-20-7 1210	2.2E+04	4/99				X					X	
m-Xylene	108-38-3	2.2E+04	4/99				X					X	
o-Xylene	95-47-6	2.2E+04	4/99				X					X	
p-Xylene	106-42-3	2.2E+04	4/99				X					X	

Table last updated: April 25, 2005

Table 2
OEHHA/ARB APPROVED ACUTE REFERENCE EXPOSURE LEVELS AND TARGET ORGANS[⊕]

Purpose:	The purpose of this reference table is to provide a quick list of all health values that have been approved by the Office of Environmental Health Hazard Assessment (OEHHA) and the Air Resources Board (ARB) for use in facility health risk assessments conducted for the AB 2588 Air Toxics Hot Spots Program. The OEHHA has developed and adopted new risk assessment guidelines that update and replace the California Air Pollution Control Officers Association's (CAPCOA) *Air Toxics "Hot Spots" Program Revised 1992 Risk Assessment Guidelines, October 1993*. The OEHHA has adopted five technical support documents for these guidelines. This table lists the OEHHA adopted inhalation noncancer acute RELs. In addition, it lists the substances in Appendix A-I *(Substances For Which Emissions Must Be Quantified)* and Appendix F (*Criteria For Inputs For Risk Assessment Using Screening Air Dispersion Modeling*) of the ARB's *Air Toxics "Hot Spots" Emission Inventory Criteria and Guidelines (EICG) (July 1997)*. OEHHA is still in the process of adopting new noncancer chronic RELs. Therefore, new health values will periodically be added to, or deleted from, this table. Users of this table are advised to monitor the OEHHA website (*www.oehha.ca.gov*) for any updates to the health values.
⊕	Substances written in *italics* and with a ✓ do not have explicit OEHHA approved health values, but are included in this table to clarify applicability of OEHHA adopted heath effects values to individual or grouped substances listed in the *Air Toxics "Hot Spots" Emission Inventory Criteria and Guidelines*, Appendix A-I list of *"Substances For Which Emissions Must Be Quantified"*.
▼	Chemical Abstract Service Number (CAS): For chemical groupings and mixtures where a CAS number is not applicable, the 4-digit code used in the *Air Toxics "Hot Spots" Emission Inventory Criteria and Guidelines (EICG) Report* is listed. The 4-digit codes enclosed in brackets [ ] are codes that have been phased out, but may still appear on previously reported Hot Spots emissions. For information on the origin and use of the 4-digit code, see the EICG report.
◆	Date Value Reviewed [Added]: This column lists the date that the health value was last reviewed by OEHHA and the Scientific Review Panel, and/or approved for use in the AB 2588 Air Toxics Hot Spots Program. If the health value is unchanged since it was first approved for use in the "Hot Spots" Program, then the date that the value was first approved for use by CAPCOA is listed within the brackets [ ]. • April 1999 is listed for the noncancer acute RELs which have been adopted by the OEHHA as part of the AB 2588 Hot Spot Risk Assessment Guidelines.
TAC	Toxic Air Contaminant: The Air Resources Board has identified this substance as a Toxic Air Contaminant.
AveP	The averaging period of noncancer acute RELs is generally a one-hour exposure. However, some are based on several hour exposure for reproductive/developmental endpoints (see section 1.6 of OEHHA's technical support document for *The Determination of Acute Reference Exposure Levels for Airborne Toxicants, March 1999).* Typically the RELs for the following substances are compared to modeled emission concentrations of the same duration rather than maximum one-hour concentrations (e.g., a 4-hour REL should be compared to the maximum 4-hour average concentration from the air dispersion model). 4-Hour: Arsenic and Inorganic Arsenic Compounds 6-Hour: Benzene, Carbon disulfide, Ethylene glycol ethyl ether, Ethylene glycol ethyl ether acetate, Ethylene glycol methyl ether 7-Hour: Carbon tetrachloride, Chloroform

Table last updated: April 25, 2005

Table last updated: April 25, 2005

Table 3
OEHHA/ARB APPROVED CHRONIC REFERENCE EXPOSURE LEVELS AND TARGET ORGANS[®]

Chemical	Chemical▼ Abstract Number	Chronic Inhalation REL ($\mu g/m^3$)	Chronic Oral REL	Date◆ Value Reviewed [Added]	Target Organs												
					Alimentary	Bone	Cardiovascular	Developmental	Endocrine	Eye	Hematologic	Immune	Kidney	Nervous	Reproductive	Respiratory	Skin
ACETALDEHYDE	75-07-0	9.0E+00		5/93												X	
ACROLEIN	107-02-8	6.0E-02		1/01						X						X	
ACRYLAMIDE	79-06-1	7.0E-01		1/91										X			
ACRYLIC ACID	79-10-7	1.0E+00[Rf/C]		1996												X	
ACRYLONITRILE	107-13-1	5.0E+00		12/01												X	
ALLYL CHLORIDE	107-05-1	1.0E+00[Rf/C]		1996										X			
AMMONIA	7664-41-7	2.0E+02		2/00												X	
ANILINE	62-53-3	1.0E+00[Rf/C]		1996			X										
Antimony Compounds	*7440-36-0*	*2.0E-01[Rf/C]*		*1996*												✓	
ANTIMONY TRIOXIDE	1309-64-4	2.0E-01[Rf/C]		1996												X	
ARSENIC AND COMPOUNDS (INORGANIC)[TAC]	7440-38-2 1016 [1015]	3.0E-02		1/01			X	X						X			
			3.0E-04	10/00			X										X
ARSINE	7784-42-1	5.0E-02[Rf/C]		1996			X										
BENZENE[TAC]	71-43-2	6.0E+01		2/00				X			X			X			
BENZIDINE (AND ITS SALTS) *values also apply to:*	92-87-5	1.0E+01		1/91	X									X			
Benzidine based dyes	*1020*	*1.0E+01*		*1/91*	✓									✓			
Direct Black 38	*1937-37-7*	*1.0E+01*		*1/91*	✓									✓			
Direct Blue 6	*2602-46-2*	*1.0E+01*		*1/91*	✓									✓			
Direct Brown 95 (technical grade)	*16071-86-6*	*1.0E+01*		*1/91*	✓									✓			
BENZYL CHLORIDE	100-44-7	1.2E+01		1/92												X	
BERYLLIUM AND COMPOUNDS	7440-41-7 [1021]	7.0E-03		12/01								X				X	
			2.0E-03	12/01	X												
BROMINE AND COMPOUNDS	7726-95-6 [1040]	1.7E+00		1/92												X	
BROMINE PENTAFLUORIDE	7789-30-2	1.7E+00		1/92	X								X			X	
HYDROGEN BROMIDE	10035-10-6	2.4E+01		1/92												X	
Potassium Bromate	*7758-01-2*	*1.7E+00*		1/92												✓	
1,3-BUTADIENE[TAC]	106-99-0	2.0E+01		1/01											X		

Table last updated: April 25, 2005

Table 3
OEHHA/ARB APPROVED CHRONIC REFERENCE EXPOSURE LEVELS AND TARGET ORGANS[⊕]

Chemical	Chemical[▼] Abstract Number	Chronic Inhalation REL ($\mu g/m^3$)	Chronic Oral REL	Date[◆] Value Reviewed [Added]	Target Organs												
					Alimentary	Bone	Cardiovascular	Developmental	Endocrine	Eye	Hematologic	Immune	Kidney	Nervous	Reproductive	Respiratory	Skin
CADMIUM AND COMPOUNDS[T7AC]	7440-43-9 [1045]	2.0E-02		1/01									X			X	
		◆	5.0E-04	10/00									X				
CARBON DISULFIDE	75-15-0	8.0E+02		5/02										X	X		
CARBON TETRACHLORIDE[TAC] (Tetrachloromethane)	56-23-5	4.0E+01		1/01	X			X						X			
CHLORINE	7782-50-5	2.0E-01		2/00												X	
CHLORINE DIOXIDE	10049-04-4	6.0E-01		1/01												X	
2-CHLOROACETOPHENONE	532-27-4	3.0E-02[RfC]		1996												X	
CHLOROBENZENE	108-90-7	1.0E+03		1/01	X								X		X		
CHLOROFORM[TAC]	67-66-3	3.0E+02		4/00	X			X					X				
Chlorophenols	*1060*																
2-CHLOROPHENOL	95-57-8	1.8E+01		1/91	X			X*							X*		
PENTACHLOROPHENOL	87-86-5	2.0E-01		1/92	X			X*							X*		
TETRACHLOROPHENOLS	25167-83-3	8.8E+01		1/92	X			X*							X*		
2,3,4,6-Tetrachlorophenol	*58-90-2*	*8.8E+01*		*1/92*	✓			✓*							✓*		
CHLOROPICRIN	76-06-2	4.0E-01		12/01												X	
CHLOROPRENE	126-99-8	1.0E+00		192										X			
CHROMIUM 6+[TAC]	18540-29-9	2.0E-01		1/01												X	
			2.0E-02	10/00							X						
Barium chromate	*10294-40-3*	*2.0E-01*		*1/01*												✓	
			2.0E-02	*10/00*							✓						
Calcium chromate	*13765-19-0*	*2.0E-01*		*1/01*												✓	
			2.0E-02	*10/00*							✓						
Lead chromate	*7758-97-6*	*2.0E-01*		*1/01*												✓	
			2.0E-02	*10/00*							✓						
Sodium dichromate	*10588-01-9*	*2.0E-01*		*1/01*												✓	
			2.0E-02	*10/00*							✓						
Strontium chromate	*7789-06-2*	*2.0E-01*		*1/01*												✓	
			2.0E-02	*10/00*							✓						

Table last updated: April 25, 2005

Table 3
OEHHA/ARB APPROVED CHRONIC REFERENCE EXPOSURE LEVELS AND TARGET ORGANS®

Chemical	Chemical▼ Abstract Number	Chronic Inhalation REL ($\mu g/m^3$)	Chronic Oral REL	Date◆ Value Reviewed [Added]	Target Organs												
					Alimentary	Bone	Cardiovascular	Developmental	Endocrine	Eye	Hematologic	Immune	Kidney	Nervous	Reproductive	Respiratory	Skin
CHROMIUM TRIOXIDE (as chromic acid mist)	1333-82-0	2.0E-03		1/01												X	
		•	*2.0E-02*	*10/00*							✓						
COPPER AND COMPOUNDS	7440-50-8 [1067]	2.4E+00		1/92												X	
CRESOLS (mixtures of)	1319-77-3	6.0E+02		1/01										X			
m-CRESOL	108-39-4	6.0E+02		1/01										X			
o-CRESOL	95-48-7	6.0E+02		1/01										X			
p-CRESOL	106-44-5	6.0E+02		1/01										X			
Cyanide Compounds (inorganic)	*57-12-5 1073*	*9.0E+00*		*4/00*			✓		✓					✓			
HYDROGEN CYANIDE (Hydrocyanic acid)	74-90-8	9.0E+00		4/00			X		X					X			
1,2-DIBROMO-3-CHLOROPROPANE (DBCP)	96-12-8	2.0E-01		1/92	X			X*							X*	X	
p-DICHLOROBENZENE	106-46-7	8.0E+02		1/01	X								X	X		X	
1,1,-DICHLOROETHYLENE ... (see Vinylidene Chloride)																	
DI(2-ETHYLHEXYL)PHTHALATE (DEHP)	117-81-7	7.0E+01		1/91	X												
DIESEL EXHAUST ... (see Particulate Emissions from Diesel-Fueled Engines)																	
DIETHANOLAMINE	111-42-2	3.0E+00		12/01			X							X			
N,N-DIMETHYL FORMAMIDE	68-12-2	8.0E+01		1/01	X											X	
1,4-DIOXANE✣ (1,4-Diethylene dioxide)	123-91-1	3.0E+03		4/00	X		X						X				
EPICHLOROHYDRIN (1-Chloro-2,3-epoxypropane)	106-89-8	3.0E+00		1/01						X						X	
1,2-EPOXYBUTANE	106-88-7	2.0E+01		1/01			X									X	
ETHYL ACRYLATE	140-88-5	4.8E+01		1/92	X								X			X	
ETHYL BENZENE	100-41-4	2.0E+03		2/00	X			X	X				X				
ETHYL CHLORIDE (Chlorethane)	75-00-3	3.0E+04		4/00	X			X									
ETHYLENE DIBROMIDE[TAC] (1,2-Dibromoethane)	106-93-4	8.0E-01		12/01											X		
ETHYLENE DICHLORIDE[TAC] (1,2-Dichloroethane)	107-06-2	4.0E+02		1/01	X												
ETHYLENE GLYCOL	107-21-1	4.0E+02		4/00				X					X			X	
ETHYLENE OXIDE[TAC] (1,2-Epoxyethane)	75-21-8	3.0E+01		1/01										X			

Table 3
OEHHA/ARB APPROVED CHRONIC REFERENCE EXPOSURE LEVELS AND TARGET ORGANS[◈]

Chemical	Chemical▼ Abstract Number	Chronic Inhalation REL ($\mu g/m^3$)	Chronic Oral REL	Date◆ Value Reviewed [Added]	Target Organs												
					Alimentary	Bone	Cardiovascular	Developmental	Endocrine	Eye	Hematologic	Immune	Kidney	Nervous	Reproductive	Respiratory	Skin
Fluorides	1101	1.3E+01				X										X	
		◆	4.0E-02	8/03		X											
HYDROGEN FLUORIDE (Hydrofluoric acid)	7664-39-3	1.4E+01				X										X	
			4.0E-02	8/03		X											
FLUOROCARBONS (chlorinated)	1104 [1105]	7.0E+02		1/91										X			
Chlorinated fluorocarbon (CFC-113)	*76-13-1*	*7.0E+02*		*1/91*										✓			
CHLORODIFLUOROMETHANE (Freon 22)	75-45-6	5.0E+04[RFC]		1996				X	X				X				
Dichlorofluoromnethane (Freon 12)	*75-43-4*	*7.0E+02*		*1/91*										✓			
Trichlorofluoromethane (Freon 11)	*75-69-4*	*7.0E+02*		*1/91*										✓			
Fluorocarbons (brominated)	*1103*	*7.0E+02*		*1/91*										✓			
FORMALDEHYDE[TAC]	50-00-0	3.0E+00		2/00						X						X	
GASOLINE VAPORS	1110	2.1E+03		1/91										X		X	
GLUTARALDEHYDE	111-30-8	8.0E-02		1/01												X	
GLYCOL ETHERS	1115																
ETHYLENE GLYCOL BUTYL ETHER – EGBE	111-76-2	2.0E+01		1/92				X*							X*	X	
ETHYLENE GLYCOL ETHYL ETHER – EGEE	110-80-5	7.0E+01		2/00							X				X		
ETHYLENE GLYCOL ETHYL ETHER ACETATE - EGEEA	111-15-9	3.0E+02		2/00				X									
ETHYLENE GLYCOL METHYL ETHER – EGME	109-86-4	6.0E+01		2/00											X		
ETHYLENE GLYCOL METHYL ETHER ACETATE - EGMEA	110-49-6	9.0E+01		2/00											X		
HEXACHLOROBENZENE	118-74-1	2.8E+00		7/90	X												
HEXACHLOROCYCLOHEXANES (mixed or technical grade)	608-73-1 1120	1.0E+00		1/91	X								X				
			3.0E-04	1/91	X								X				
alpha-HEXACHLOROCYCLOHEXANE	319-84-6	1.0E+00		1/91	X								X				
			3.0E-04	1/91	X								X				
beta-HEXACHLOROCYCLOHEXANE	319-85-7	1.0E+00		1/91	X								X				
			3.0E-04	1/91	X								X				

Table 3
OEHHA/ARB APPROVED CHRONIC REFERENCE EXPOSURE LEVELS AND TARGET ORGANS[⊕]

Chemical	Chemical▼ Abstract Number	Chronic Inhalation REL ($\mu g/m^3$)	Chronic Oral REL	Date◆ Value Reviewed [Added]	Target Organs												
					Alimentary	Bone	Cardiovascular	Developmental	Endocrine	Eye	Hematologic	Immune	Kidney	Nervous	Reproductive	Respiratory	Skin
gamma-HEXACHLOROCYCLOHEXANE (Lindane)	58-89-9	1.0E+00		1/91	X								X				
		•	3.0E-04	1/91	X								X				
HEXACHLOROCYCLOPENTADIENE	77-47-4	2.4E-01		1/91	X												
n-HEXANE	110-54-3	7.0E+03		4/00										X			
HYDRAZINE	302-01-2	2.0E-01		1/01	X				X								
HYDROCHLORIC ACID (Hydrogen chloride)	7647-01-0	9.0E+00		2/00												X	
HYDROGEN CYANIDE (Hydrocyanic acid) (see Cyanide Compounds)																	
HYDROGEN BROMIDE ... (see Bromine & Compounds)																	
HYDROGEN FLUORIDE (Hydrofluoric acid) (see Fluorides & Compounds)																	
HYDROGEN SULFIDE	7783-06-4	1.0E+01		4/00												X	
ISOPHORONE	78-59-1	2.0E+03		12/01	X			X									
ISOPROPYL ALCOHOL (Isopropanol)	67-63-0	7.0E+03		2/00				X					X				
LINDANE ... (see gamma-Hexachlorocyclohexane)																	
MALEIC ANHYDRIDE	108-31-6	7.0E-01		12/01												X	
MANGANESE AND COMPOUNDS	7439-96-5 [1132]	2.0E-01		4/00										X			
MERCURY AND COMPOUNDS (INORGANIC)	7439-97-6 [1133]	9.0E-02		2/00										X			
			3.0E-04	10/00 [1/92]								X	X				
Mercuric chloride	*7487-94-7*	*9.0E-02*		*2/00*										✓			
			3.0E-04	*10/00 [1/92]*								✓	✓				
MERCURY AND COMPOUNDS (ORGANIC)	N/A																
METHYL MERCURY	593-74-8	1.0E+00		1/91										X			
METHANOL	67-56-1	4.0E+03		4/00				X									
METHYL BROMIDE (Bromomethane)	74-83-9	5.0E+00		2/00				X						X		X	
METHYL tertiary-BUTYL ETHER	1634-04-4	8.0E+03		2/00	X					X			X				
METHYL CHLOROFORM (1,1,1-Trichloroethane)	71-55-6	1.0E+03		2/00										X			
METHYL ETHYL KETONE (2-Butanone)	78-93-3	1.0E+03[RfC]		1996											X		

Table last updated: April 25, 2005

Table 3
OEHHA/ARB APPROVED CHRONIC REFERENCE EXPOSURE LEVELS AND TARGET ORGANS[⊕]

Chemical	Chemical▼ Abstract Number	Chronic Inhalation REL ($\mu g/m^3$)	Chronic Oral REL	Date◆ Value Reviewed [Added]	Target Organs												
					Alimentary	Bone	Cardiovascular	Developmental	Endocrine	Eye	Hematologic	Immune	Kidney	Nervous	Reproductive	Respiratory	Skin
METHYL ISOCYANATE	624-83-9	1.0E+00		12/01											X	X	
METHYL MERCURY ... (see Mercury & Compounds)		•															
METHYL METHACRYLATE	80-62-6	9.8E+02		1/92												X	
METHYLENE CHLORIDE[TAC] (Dichloromethane)	75-09-2	4.0E+02		2/00			X							X			
4,4'-METHYLENE DIANILINE (AND ITS DICHLORIDE)	101-77-9	2.0E+01		12/01	X					X							
METHYLENE DIPHENYL ISOCYANATE	101-68-8	7.0E-01		1/01												X	
MINERAL FIBERS (<1% FREE SILICA)	N/A	2.4E+01		1/92												X	
Ceramic fibers (man-made)	*1056*	*2.4E+01*		*1/92*												✓	
Glasswool (man-made fibers)	*1111*	*2.4E+01*		*1/92*												✓	
Mineral fibers (fine: man-made)	*1136*	*2.4E+01*		*1/92*												✓	
Rockwool (man-made fibers)	*1168*	*2.4E+01*		*1/92*												✓	
Slagwool (man-made fibers)	*1181*	*2.4E+01*		*1/92*												✓	
NAPHTHALENE	91-20-3	9.0E+00		4/00												X	
NICKEL AND COMPOUNDS[TAC]	7440-02-0 [1145]	5.0E-02		2/00							X					X	
			5.0E-02	10/00	X												
Nickel acetate	*373-02-4*	*5.0E-02*		*2/00*							✓					✓	
			5.0E-02	*10/00*	✓												
Nickel carbonate	*3333-67-3*	*5.0E-02*		*2/00*							✓					✓	
			5.0E-02	*10/00*	✓												
Nickel carbonyl	*13463-39-3*	*5.0E-02*		*2/00*							✓					✓	
			5.0E-02	*10/00*	✓												
Nickel hydroxide	*12054-48-7*	*5.0E-02*		*2/00*							✓					✓	
			5.0E-02	*10/00*	✓												
Nickelocene	*1271-28-9*	*5.0E-02*		*2/00*							✓					✓	
			5.0E-02	*10/00*	✓												
NICKEL OXIDE	1313-99-1	1.0E-01		2/00							X					X	
			5.0E-02	10/00	X												

Table 3
OEHHA/ARB APPROVED CHRONIC REFERENCE EXPOSURE LEVELS AND TARGET ORGANS[⊕]

Chemical	Chemical[▼] Abstract Number	Chronic Inhalation REL (µg/m³)	Chronic Oral REL	Date[◆] Value Reviewed [Added]	Target Organs												
					Alimentary	Bone	Cardiovascular	Developmental	Endocrine	Eye	Hematologic	Immune	Kidney	Nervous	Reproductive	Respiratory	Skin
Nickel refinery dust from pyrometallurgical process	*1146*	*5.0E-02*		*2/00*							✓					✓	
			5.0E-02	*10/00*	✓												
Nickel subsulfide	*12035-72-2*	*5.0E-02*		*2/00*							✓					✓	
			5.0E-02	*10/00*	✓												
NITROBENZENE	98-95-3	1.7E+00		1/91	X								X				
NITROGEN DIOXIDE	10102-44-0	4.7E+02		1/92												X	
2-NITROPROPANE	79-46-9	2.0E+01		1/92	X												
OZONE	10028-15-6	1.8E+02		1/92												X	
PARTICULATE EMISSIONS FROM DIESEL-FUELED ENGINES[TAC] ■	9901	5.0E+00[TAC]		8/98												X	
PENTACHLOROPHENOL ... (see Chlorophenols)																	
PERCHLOROETHYLENE[TAC] (Tetrachloroethylene)	127-18-4	3.5E+01[TAC]		10/91	X								X				
PHENOL	108-95-2	2.0E+02		4/00	X		X						X	X			
PHOSPHINE	7803-51-2	8.0E-01		9/02	X						X		X	X		X	
PHOSPHORIC ACID	7664-38-2	7.0E+00		2/00												X	
PHOSPHORUS (WHITE)	7723-14-0	7.0E-02		1/91				X*							X*		
PHTHALIC ANHYDRIDE	85-44-9	2.0E+01		1/01												X	
PCB (POLYCHLORINATED BIPHENYLS) [lowest, low and high risk]*	1336-36-3	1.2E+00		1/91	X			X*				X			X*		
			2.0E-05[RfD]	1996	X			X*				X			X*		
DIOXIN-LIKE POLYCHLORINATED BIPHENYLS (PCBS) [ϖ]					X			X	X		X				X	X	
3,3',4,4'-TETRACHLOROBIPHENYL (PCB 77)	32598-13-3	4.0E-01		8/03	X			X	X		X				X	X	
			1.0E-04	8/03	X			X	X		X				X	X	
3,4,4',5-TETRACHLOROBIPHENYL (PCB 81)	70362-50-4	4.0E-01		8/03	X			X	X		X				X	X	
			1.0E-04	8/03	X			X	X		X				X	X	
2,3,3',4,4'-PENTACHLOROBIPHENYL (PCB 105)	32598-14-4	4.0E-01		8/03	X			X	X		X				X	X	
			1.0E-04	8/03	X			X	X		X				X	X	
2,3,4,4',5-PENTACHLOROBIPHENYL (PCB 114)	74472-37-0	8.0E-02		8/03	X			X	X		X				X	X	
			2.0E-05	8/03	X			X	X		X				X	X	

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Chemical	Chemical▼ Abstract Number	Chronic Inhalation REL ($\mu g/m^3$)	Chronic Oral REL	Date◆ Value Reviewed [Added]	Target Organs												
					Alimentary	Bone	Cardiovascular	Developmental	Endocrine	Eye	Hematologic	Immune	Kidney	Nervous	Reproductive	Respiratory	Skin
2,3',4,4',5-PENTACHLOROBIPHENYL (PCB 118)	31508-00-6	4.0E-01		8/03	X			X	X		X				X	X	
		•	1.0E-04	8/03	X			X	X		X				X	X	
2,3',4,4',5'-PENTACHLOROBIPHENYL (PCB 123)	65510-44-3	4.0E-01		8/03	X			X	X		X				X	X	
			1.0E-04	8/03	X			X	X		X				X	X	
3,3',4,4',5-PENTACHLOROBIPHENYL (PCB 126)	57465-28-8	4.0E-04		8/03	X			X	X		X				X	X	
			1.0E-07	8/03	X			X	X		X				X	X	
2,3,3',4,4',5-HEXACHLOROBIPHENYL (PCB 156)	38380-08-4	8.0E-02		8/03	X			X	X		X				X	X	
			2.0E-05	8/03	X			X	X		X				X	X	
2,3,3',4,4',5'-HEXACHLOROBIPHENYL (PCB 157)	69782-90-7	8.0E-02		8/03	X			X	X		X				X	X	
			2.0E-05	8/03	X			X	X		X				X	X	
2,3',4,4',5,5'-HEXACHLOROBIPHENYL (PCB 167)	52663-72-6	4.0E+00		8/03	X			X	X		X				X	X	
			1.0E-03	8/03	X			X	X		X			-	X	X	
3,3',4,4',5,5'-HEXACHLOROBIPHENYL (PCB 169)	32774-16-6	4.0E-03		8/03	X			X	X		X				X	X	
			1.0E-06	8/03	X			X	X		X				X	X	
2,3,3',4,4',5,5'-HEPTACHLOROBIPHENYL (PCB 189)	39635-31-9	4.0E-01		8/03	X			X	X		X				X	X	
			1.0E-04	8/03	X			X	X		X				X	X	
POLYCHLORINATED DIBENZO-P-DIOXINS (PCDD) (Treated as 2,3,7,8-TCDD for HRA)[TAC•]	1085 1086	4.0E-05		2/00	X			X	X		X				X	X	
			1.0E-08	10/00	X			X	X		X				X	X	
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN[TAC]	1746-01-6	4.0E-05		2/00	X			X	X		X				X	X	
			1.0E-08	10/00	X			X	X		X				X	X	
1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN	40321-76-4	4.0E-05		8/03	X			X	X		X				X	X	
			1.0E-08	8/03	X			X	X		X				X	X	
1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN	39227-28-6	4.0E-04		2/00	X			X	X		X				X	X	
			1.0E-07	10/00	X			X	X		X				X	X	
1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN	57653-85-7	4.0E-04		2/00	X			X	X		X				X	X	
			1.0E-07	10/00	X			X	X		X				X	X	
1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN	19408-74-3	4.0E-04		2/00	X			X	X		X				X	X	
			1.0E-07	10/00	X			X	X		X				X	X	

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Table 3
OEHHA/ARB APPROVED CHRONIC REFERENCE EXPOSURE LEVELS AND TARGET ORGANS®

Chemical	Chemical▼ Abstract Number	Chronic Inhalation REL ($\mu g/m^3$)	Chronic Oral REL	Date♦ Value Reviewed [Added]	Target Organs												
					Alimentary	Bone	Cardiovascular	Developmental	Endocrine	Eye	Hematologic	Immune	Kidney	Nervous	Reproductive	Respiratory	Skin
1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-DIOXIN	35822-46-9	4.0E-03		2/00	X			X	X		X				X	X	
			1.0E-06	10/00	X			X	X		X				X	X	
1,2,3,4,6,7,8,9-OCTACHLORODIBENZO-P-DIOXIN	3268-87-9	4.0E-01		8/03	X			X	X		X				X	X	
			1.0E-04	8/03	X			X	X		X				X	X	
POLYCHLORINATED DIBENZOFURANS (PCDF) (Treated as 2,3,7,8-TCDD for HRA) TAC♦	1080	4.0E-05		2/00	X			X	X		X				X	X	
			1.0E-08	10/00	X			X	X		X				X	X	
2,3,7,8-TETRACHLORODIBENZOFURAN	5120-73-19	4.0E-04		2/00	X			X	X		X				X	X	
			1.0E-07	10/00	X			X	X		X				X	X	
1,2,3,7,8-PENTACHLORODIBENZOFURAN	57117-41-6	8.0E-04		2/00	X			X	X		X				X	X	
			2.0E-07	10/00	X			X	X		X				X	X	
2,3,4,7,8-PENTACHLORODIBENZOFURN	57117-31-4	8.0E-05		2/00	X			X	X		X				X	X	
			2.0E-08	10/00	X			X	X		X				X	X	
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN	70648-26-9	4.0E-04		2/00	X			X	X		X				X	X	
			1.0E-07	10/00	X			X	X		X				X	X	
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN	57117-44-9	4.0E-04		2/00	X			X	X		X				X	X	
			1.0E-07	10/00	X			X	X		X				X	X	
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN	72918-21-9	4.0E-04		2/00	X			X	X		X				X	X	
			1.0E-07	10/00	X			X	X		X				X	X	
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN	60851-34-5	4.0E-04		2/00	X			X	X		X				X	X	
			1.0E-07	10/00	X			X	X		X				X	X	
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN	67562-39-4	4.0E-03		2/00	X			X	X		X				X	X	
			1.0E-06	10/00	X			X	X		X				X	X	
1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN	55673-89-7	4.0E-03		2/00	X			X	X		X				X	X	
			1.0E-06	10/00	X			X	X		X				X	X	
1,2,3,4,6,7,8,9-OCTACHLORODIBENZOFURAN	39001-02-0	4.0E-01		8/03	X			X	X		X				X	X	
			1.0E-04	8/03	X			X	X		X				X	X	
POTASSIUM BROMATE ... (see Bromine & Compounds)																	
PROPYLENE (PROPENE)	115-07-1	3.0E+03		4/00												X	

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Chemical	Chemical▼ Abstract Number	Chronic Inhalation REL ($\mu g/m^3$)	Chronic Oral REL	Date* Value Reviewed [Added]	Target Organs												
					Alimentary	Bone	Cardiovascular	Developmental	Endocrine	Eye	Hematologic	Immune	Kidney	Nervous	Reproductive	Respiratory	Skin
PROPYLENE GLYCOL MONOMETHYL ETHER	107-98-2	7.0E+03		2/00	X												
PROPYLENE OXIDE	75-56-9	3.0E+01		2/00												X	
SELENIUM AND COMPOUNDS (other than hydrogen selenide)	7782-49-2 [1170]	2.0E+01		12/01	X		X							X			
Selenium sulfide	*7446-34-6*	*2.0E+01*		*12/01*	✓		✓							✓			
SILICA [CRYSTALLINE, RESPIRABLE]	7631-86-9	3.0E+00		2/05												X	
SODIUM HYDROXIDE	1310-73-2	4.8E+00		7/90						X*						X	X*
STYRENE	100-42-5	9.0E+02		4/00										X			
SULFATES	9960	2.5E+01		1/92												X	
SULFUR DIOXIDE	7446-09-5	6.6E+02		1/92												X	
SULFURIC ACID	7664-93-9	1.0E+00		12/01												X	
Sulfuric Acid and Oleum	*7664-93-9*	*1.0E+00*		*12/01*												✓	
Sulfuric Trioxide	*7446-71-9*	*1.0E+00*		*12/01*												✓	
Oleum	*8014-95-7*	*1.0E+00*		*12/01*												✓	
TETRACHLOROPHENOLS ... (see Chlorophenols)																	
TOLUENE	108-88-3	3.0E+02		4/00				X						X		X	
Toluene diisocyanates	*26471-62-5 1204*	*7.0E-02*		*1/01*												✓	
TOLUENE-2,4-DIISOCYANATE	584-84-9	7.0E-02		1/01												X	
TOLUENE-2,6-DIISOCYANATE	91-08-7	7.0E-02		1/01												X	
TRICHLOROETHYLENE[TAC]	79-01-6	6.0E+02		4/00						X				X			
TRIETHYLAMINE	121-44-8	2.0E+02		9/02						X							
VINYL ACETATE	108-05-4	2.0E+02		12/01												X	
VINYL BROMIDE	593-60-2	7.0E+00[R/C]		1996	X												
VINYL CHLORIDE[TAC] (Chloroethylene)	75-01-4	2.6E+01		7/90	X			X*							X*		
VINYLIDENE CHLORIDE (1,1,-Dichloroethylene)	75-35-4	7.0E+01		1/01	X												
XYLENES (mixed isomers)	1330-20-7 1210	7.0E+02		4/00										X		X	
m-XYLENE	108-38-3	7.0E+02		4/00										X		X	
o-XYLENE	95-47-6	7.0E+02		4/00										X		X	

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Chemical	Chemical▼ Abstract Number	Chronic Inhalation REL ($\mu g/m^3$)	Chronic Oral REL	Date◆ Value Reviewed [Added]	Target Organs												
					Alimentary	Bone	Cardiovascular	Developmental	Endocrine	Eye	Hematologic	Immune	Kidney	Nervous	Reproductive	Respiratory	Skin
p-XYLENE	106-42-3	7.0E+02		4/00										X		X	
ZINC COMPOUNDS	7440-66-6 [1211]	3.5E+01		7/90			X*				X*					X	
Zinc oxide	*1314-13-2*	*3.5E+01*		*7/90*			✓*				✓*					✓	

Table 3
OEHHA/ARB APPROVED CHRONIC REFERENCE EXPOSURE LEVELS AND TARGET ORGANS⊛

Purpose:	The purpose of this reference table is to provide a quick list of all health values that have been approved by the Office of Environmental Health Hazard Assessment (OEHHA) and the Air Resources Board (ARB) for use in facility health risk assessments conducted for the AB 2588 Air Toxics Hot Spots Program. The OEHHA has developed and adopted new risk assessment guidelines that update and replace the California Air Pollution Control Officers Association's (CAPCOA) *Air Toxics "Hot Spots" Program Revised 1992 Risk Assessment Guidelines, October 1993*. The OEHHA has adopted five technical support documents for these guidelines. This table lists the OEHHA adopted inhalation and oral noncancer chronic RELs. In addition, it lists the substances in Appendix A-I *(Substances For Which Emissions Must Be Quantified)* and Appendix F (*Criteria For Inputs For Risk Assessment Using Screening Air Dispersion Modeling*) of the ARB's *Air Toxics "Hot Spots" Emission Inventory Criteria and Guidelines (EICG) (July 1997)*. OEHHA is still in the process of adopting new noncancer chronic RELs. Therefore, new health values will periodically be added to, or deleted from, this table. Users of this table are advised to monitor the OEHHA website (www.oehha.ca.gov) for any updates to the health values.
⊛	Substances written in *italics* and with a ✓ do not have explicit OEHHA approved health values, but are included in this table to clarify applicability of OEHHA adopted heath effects values to individual or grouped substances listed in the *Air Toxics "Hot Spots" Emission Inventory Criteria and Guidelines*, Appendix A-I list of *"Substances For Which Emissions Must Be Quantified"*.
▼	Chemical Abstract Service Number (CAS): For chemical groupings and mixtures where a CAS number is not applicable, the 4-digit code used in the *Air Toxics "Hot Spots" Emission Inventory Criteria and Guidelines (EICG) Report* is listed. The 4-digit codes enclosed in brackets [ ] are codes that have been phased out, but may still appear on previously reported Hot Spots emissions. For information on the origin and use of the 4-digit code, see the EICG report.
× *	These are chronic RELs which were approved by CAPCOA for use in the AB 2588 Air Toxics Hot Spots Program. These CAPCOA chronic RELs will eventually be removed or replaced by approved OEHHA chronic RELs. In the CAPCOA Guidelines (1993), these target organ systems were combined (reproductive/developmental; cardiovascular/blood).
◆	Date Value Reviewed [Added]: This column lists the date that the health value was last reviewed by OEHHA and the Scientific Review Panel, and/or approved for use in the AB 2588 Air Toxics Hot Spots Program. If the health value is unchanged since it was first approved for use in the "Hot Spots" Program, then the date that the value was first approved for use by CAPCOA is listed within the brackets [ ]. • February 2000, April 2000, January 2001, and December 2001 are listed for the first set of 22, the second set of 16, the third set of 22, and the fourth set of 12 noncancer chronic RELs, respectively. The chronic REL for carbon disulfide was adopted in May 2002. Chronic RELs for phosp hine and triethylamine were adopted in September 2002. Chronic RELs for fluorides including hydrogen fluoride were adopted August 2003. Chronic REL for silica [crystalline respirable] was adopted February 2005. • October 2000 is listed for the oral chronic RELs. 1996 is listed for the U.S. EPA Reference Concentrations. Dates of 1990-1992 are listed for chronic RELs that may eventually be dropped or replaced. • For the substances identified as Toxic Air Contaminants, the Air Resources Board hearing date is listed. The date for acetaldehyde represents the date the value was approved by the Scientific Review Panel.
RfC/RfD	United States Environmental Protection Agency (U.S. EPA) Reference Concentrations (RfCs) and oral Reference Doses (RfDs) from the U.S. EPA Integrated Risk Information System (1996) have been added if the U.S. EPA health value and/or endpoint was different from the 1993 CAPCOA value or endpoint and OEHHA has not adopted a new value as part of the Hot Spot Risk Assessment Guidelines. The RfCs and RfDs listed meet the criteria of Appendix F of the Air Resources Board's Emission Inventory Criteria and Guidelines Report effective July 1, 1997. These RfC/RfDs may be replaced by new OEHHA values in the future.
TAC	Toxic Air Contaminant: The Air Resources Bo ard has identified this substance as a Toxic Air Contaminant.
★	Polychlorinated Biphenyls (unspeciated mixtures): Chronic Oral: The chronic oral value is U.S. EPA's 1996 oral Reference Dose for Aroclor-1254.
ϖ	Polychlorinated Biphenyls (speciated): Values calculated using WHO_{97} TEF procedure. See OEHHA memo dated August 29, 2003.
•	Polychlorinated Dibenzo-*p*-dioxins and Polychlorinated Dibenzofurans (also referred to as chlorinated dioxins and dibenzofurans): The OEHHA has adopted the World Health Organization 1997 (WHO_{97}) Toxicity Equivalency Factor scheme for evaluating the cancer risk due to exposure to samples containing mixtures of polychlorinated dibenzo-*p*-dioxins (PCDD) and polychlorinated dibenzofurans (PCDF) and determining cancer risks for a number of specific PCB congeners. See Appendix A of OEHHA's *Technical Support Document For Describing Available Cancer Potency Factors* for more information about the scheme. See Appendix E of OEHHA's *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* for the methodology for calculating 2,3,7,8-equivalents for PCDD, PCDFs and a number of specific PCB congeners. See section 8.2.3 of OEHHA's *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* for conducting health risks when total (unspeciated) chlorinated dioxins and furans are reported.
■	Particulate Emissions from Diesel-Fueled Engines: The inhalation cancer potency factor and chronic REL were derived from whole diesel exhaust and should be used only for impacts from the inhalation pathway. The inhalation impacts from speciated emissions from diesel-fueled engines are already accounted for in the inhalation cancer potency factor and REL. However, at the discretion of the risk assessor, speciated emissions from diesel-fueled engines may be used to estimate acute noncancer health impacts or the contribution to cancer risk or chronic noncancer health impacts for the non-inhalation exposure pathway. See Appendix D of OEHHA's document *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* for more information.

Table last updated: April 25, 2005