CHAPTER 3

EXISTING SETTING

Existing Setting

Air Quality

Water Resources

Public Services

Transportation / Circulation

Solid / Hazardous Waste

Hazards

Human Health

EXISTING SETTING

In order to determine the significance of the impacts associated with a proposed project, it is necessary to evaluate the project's impacts against the backdrop of the environment as it exists at the time the notice of preparation is published. The CEQA Guidelines defines "environment" as "the physical conditions that exist within the area which will be affected by a proposed project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance" (CEQA Guidelines §15360; see also Public Resources Code §21060.5). Furthermore, a CEQA document must include a description of the physical environment in the vicinity of the project, as it exists at the time the notice of preparation is published, from both a local and regional perspective (CEQA Guidelines §15125). Therefore, the "environment" or "existing setting" against which a project's impacts are compared consists of the immediate, contemporaneous physical conditions at and around the project site (Remy, et al; 1996).

A brief discussion for each existing environmental topic setting, e.g., air quality, water resources, public services, transportation/circulation, solid/hazardous waste, hazards, and human health, that could be adversely affected by PAR 1113 is presented in the following sections. For a more detailed discussion of current and projected future environmental settings in the district for air quality, water resources, public services, solid/hazardous waste, hazards, and human health, with and without additional control measures, please refer to the Final 1997 AQMP, including its Appendices, and the 1997 AQMP Final Environmental Impact Report (EIR). These existing setting topics are still considered to be relevant with regard to implementing AQMP control measures. Copies of the above-referenced documents are available from the SCAQMD's Public Information Center by calling (909) 396-3600.

ARCHITECTURAL COATING INDUSTRY

AIM coatings are the largest segment of the United States' total paint market. In 1996, shipments of AIM coatings accounted for just over half of the total industry shipments. Architectural coatings are sold to do-it-yourself (DYI) consumers, painting contractors, and commercial and industrial maintenance users through company stores, independent dealers, mass retailers, and home improvement centers.

The architectural coatings market is split between waterborne latex and alkyd or oil-based paints, with latex accounting for more than 85 percent of the volume. Mr. Chris Maby of ICI Paints in North America wrote, "As environmental legislation grows along with waterborne technology, latex paints will probably completely take over the DIY market." This trend has already been noted through the staff's technical assessment and further corroborated by the 1998 Draft CARB Survey Data.

Ongoing Analysis and Technology Assessment

Subsequent to the November 1996 amendments, staff initiated a technical assessment focussing on coating categories included in Phase II of Control Measure CTS07 – Further Emission Reductions from Architectural Coatings. The assessment clearly shows a wide availability of zero- and low-VOC coatings in categories included in Phase II. The manufacturers' data, as listed on their product literature, as well as some technical papers pertaining to performance comparisons, indicate performance of the lower VOC coatings equal to their conventional, high solvent counterparts. For certain coating characteristics, including but not limited to overall durability, the lower VOC coatings were considered superior than the higher solvent coatings. The higher solvent coatings generally exhibited superior application characteristics.

The SCAQMD also contracted with Eastern Michigan University (EMU) Coatings Research Institute to further evaluate the six of the eight issues raised by coating manufacturers (see the "Analysis of Industry Issues" section in Chapter 4) and contractors pertaining to coating categories in the current proposal and to provide recommendations for future compliance limits for the different coating categories. This study concluded that low- and zero-VOC coatings are currently available for the proposed coating categories, but did not reach conclusions regarding the overall performance of these coatings, as compared to current, solvent-based coating formulations.

SCAQMD staff is also working with CARB's Reactivity Research Advisory Committee, formed to evaluate reactivities of selected VOCs. Dr. William P. L. Carter, College of Engineering Center for Environmental Research and Technology, has been contracted by CARB to investigate the atmospheric ozone formation potential of selected VOCs emitted from consumer products and industrial sources. Staff is also actively participating in workshops conducted by the North American Research Strategy for Tropospheric Ozone to evaluate research studies conducted at the national level.

To obtain performance data regarding application and durability characteristics of currently available low- and zero-VOC coatings, the SCAQMD contracted National Technical Systems to do a side-by-side comparison of zero-, low-, and high-VOC coatings. Since this study was initiated, staff has performed its own technology assessment of these low- and zero-VOC coatings and has gained even more information pertaining to their performance characteristics. Based on this assessment, staff is confident that both the proposed compliance limits and deadlines are achievable.

1998 CARB Survey

The 1998 CARB survey data, based on quantities reported for sales in 1996, indicate total architectural coating sales of approximately 87 million gallons, resulting in over 72 million pounds of VOC emissions or a little more than 0.8 pounds of VOC emissions per gallon of coating. The CARB emissions inventory for AIM coatings estimate 45 percent of the total AIM coatings sold in California are sold within the four county Basin. Therefore, an estimated 39 million gallons of coatings were sold in the Basin in 1996, resulting in approximately 32 million pounds of VOC emissions.

According to the CARB survey, there are AIM coatings currently available that comply with the January 1, 2003 compliance date for most coating categories affected by PAR 1113 (Table 3-1). The CARB survey also shows that for some AIM coating categories, there are coatings currently available that comply with the January 1, 2005 compliance date (Table 3-1). These data indicate that low VOC AIM coatings are already available and being used for some applications.

TABLE 3-1

SUMMARY OF CARB SURVEY RESULTS ON
AVAILABLE COMPLIANT COATINGS as of 1999

Coating Category	Number of Products in CARB Survey	SWA[a] VOC Content (g/l)	SWA[b] VOC Content (g/l)	Complies With 07/01/03 Limit		Complies With 07/01/2006 Limit	
				# of Coatings	% of Total Coatings*	# of Coatings	% of Total Coatings*
Floor Coatings	505	149	164	128	39%	65	28%
IM Coatings	2,754	435	124	743	27%	302	11%
High Temp. IM Coatings	204	367	222[c]	181	89%	165	81%
Nonflat Coatings	3,744	331	164	1,310	35%	112	3%
Quick-dry Enamels	118	403	n/a	0[d]	0[d]	0[d]	0[d]
Primer, Sealer & Undercoater (PSU)	647	384	101	431	67%	212	33%

TABLE 3-1 (CONCLUDED)

SUMMARY OF CARB SURVEY RESULTS ON
AVAILABLE COMPLIANT COATINGS as of 1999

Coating Category	Number of Products in CARB Survey	SWA[a] VOC Content (g/l)	SWA[b] VOC Content (g/l)	Complies With 07/01/03 Limit		Complies With 07/01/2006 Limit	
				# of Coatings	% of Total Coatings*	# of Coatings	% of Total Coatings*
Quick-dry PSU Coatings	145	432	136	18	12%	11[e]	8%
Rust Preventative Coatings[f]	16	382	144	10**	63%**	0	0
Stains	1,319	412	203	345	26%	n/a	n/a

[a] Sales weighted average for solvent-based coatings
[b] Sales weighted average for water-based coatings.
[c] Less than one percent of the coatings are water-based coatings.
[d] Numerous nonflat coatings not included in this category also meet the definition of quick-dry enamel.
[e] Numerous PSU coatings not included in this category also meet the definition of quick-dry PSU coating.
[f] These include products specifically listed as rust preventative in the CARB study. Other coatings not included in this category were identified in the following coating categories: IM, nonflats, PSU, quick-dry PSU.
* Percent of total coatings are based on individual products listed in the Draft 1998 Architectural Coating Survey.
** Interim limit has been removed from proposal.

AIR QUALITY

It is the responsibility of the SCAQMD to ensure that state and federal ambient air quality standards are achieved and maintained in its geographical jurisdiction. Health-based air quality standards have been established by California and the federal government for the following criteria air pollutants: ozone, carbon monoxide (CO), nitrogen dioxide (NO2), particulate matter less than 10 microns (PM10), sulfur dioxide (SO2) and lead. These standards were established to protect sensitive receptors with a margin of safety from adverse health impacts due to exposure to air pollution. The California standards are more stringent than the federal standards and in the case of PM10 and SO2, far more stringent. California has also established standards for sulfate, visibility, hydrogen sulfide, and vinyl chloride. The state and national ambient air quality standards for each of these pollutants and their effects on health are summarized in Table 3-1. The SCAQMD monitors levels of various criteria pollutants at 34 monitoring stations. The 2001 air quality data from SCAQMD's monitoring stations are presented in Table 3-2.

TABLE 3-2
Federal and State Ambient Air Quality Standards

	STATE STANDARD	FEDERAL PRIMARY STANDARD	MOST RELEVANT EFFECTS
AIR POLLUTANT	CONCENTRATION/ AVERAGING TIME	CONCENTRATION/ AVERAGING TIME	
Ozone	0.09 ppm, 1-hr. avg. >	0.12 ppm, 1-hr avg.>	(a) Short-term exposures: (1) Pulmonary function decrements and localized lung edema in humans and animals (2) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (b) Long-term exposures: Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (c) Vegetation damage; (d) Property damage
Carbon Monoxide	9.0 ppm, 8-hr avg. > 20 ppm, 1-hr avg. >	9 ppm, 8-hr avg.> 35 ppm, 1-hr avg.>	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; (d) Possible increased risk to fetuses
Nitrogen Dioxide	0.25 ppm, 1-hr avg. >	0.053 ppm, ann. avg.>	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; (c) Contribution to atmospheric discoloration
Sulfur Dioxide	0.04 ppm, 24-hr avg.> 0.25 ppm, 1-hr. avg. >	0.03 ppm, ann. avg.> 0.14 ppm, 24-hr avg.>	(a) Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma
Suspended Particulate Matter (PM10)	30 $\mu g/m^3$, ann. geometric mean > 50 $\mu g/m^3$, 24-hr average>	50 $\mu g/m^3$, annual arithmetic mean > 150 $\mu g/m^3$, 24-hr avg.>	(a) Excess deaths from short-term exposures and exacerbation of symptoms in sensitive patients with respiratory disease; (b) Excess seasonal declines in pulmonary function, especially in children
Suspended Particulate Matter (PM2.5)		15 $\mu g/m^3$, annual arithmetic mean> 150 $\mu g/m^3$, 24-hour average>	Decreased lung function from exposures and exacerbation of symptoms in sensitive patients with respiratory disease; elderly; children.
Sulfates	25 $\mu g/m^3$, 24-hr avg. >=		(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; (f) Property damage
Lead	1.5 $\mu g/m^3$, 30-day avg. >=	1.5 $\mu g/m^3$, calendar quarter>	(a) Increased body burden; (b) Impairment of blood formation and nerve conduction
Visibility-Reducing Particles	In sufficient amount to give an extinction coefficient >0.23 inverse kilometers (visual range to less than 10 miles) with relative humidity less than 70%, 8-hour average (10am – 6pm PST)		Nephelometry and AISI Tape Sampler; instrumental measurement on days when relative humidity is less than 70 percent

Table 3-3
2001 Air Quality Data – South Coast Air Quality Management District

Carbon Monoxide						
					No. Days Standard Exceeded[a)]	
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Max. Conc. In ppm 1-hour	Max. Conc. In ppm 8-hour	Federal ≤9.5 ppm 8-hr.	State >9.0 ppm 8-hr.
LOS ANGELES COUNTY						
1	Central LA	362	6	4.57	0	0
2	Northwest Coast LA Co	361	4	3.00	0	0
3	Southwest Coast LA Co	365	7	5.14	0	0
4	South Coast LA Co	361	6	4.71	0	0
6	West San Fernando Valley	365	7	6.00	0	0
7	East San Fernando Valley	364	6	4.88	0	0
8	West San Fernando Valley	355	7	5.00	0	0
9	East San Gabriel Valley1	361	3	2.88	0	0
9	East San Gabriel Valley2	357	3	2.50	0	0
10	Pomona/Walnut Valley	365	5	3.43	0	0
11	South San Gabriel Valley	365	6	4.00	0	0
12	South Central LA Co	365	12	7.71	0	0
13	Santa Clarita Valley	361	6	3.14	0	0
ORANGE COUNTY						
16	North Orange Co	363	11	4.71	0	0
17	Central Orange Co	274*	8*	4.71*	0*	0*
18	North Coastal Orange Co	363	6	4.57	0	0
19	Saddleback Valley	365	3	2.38	0	0
RIVERSIDE COUNTY						
22	Norco/Corona	--	--	--	--	--
23	Metropolitan Riv Co1	356	5	3.43	0	0
23	Metropolitan Riv Co2	329*	6*	4.50*	0*	0*
24	Perris Valley	--	--	--	--	--
25	Lake Elsinore	355	2	2.00	0	0
29	Banning Airport	--	--	--	--	--
30	Coachella Valley1**	357	2	1.50	0	0
30	Coachella Valley2**	--	--	--	--	--
SAN BERNARDINO COUNTY						
32	NW San Bernardino Valley	364	3	1.75	0	0
33	SW San Bernardino Vally	--	--	--	--	--
34	Central San Bern Valley1	--	--	--	--	--
34	Central San Bern Valley2	365	4	3.25	0	0
35	East San Bernardino Valley	--	--	--	--	--
37	Central San Bern Mountains	--	--	--	--	--
38	East San Bern Mountains	--	--	--	--	--
	DISTRICT MAXIMUM		12	7.71	0	0

PPM – Parts Per Million parts of air, by volume
AAM = Annual Arithmetic Mean
-- - Pollutant not monitored.
*Less than 12 full months of data. May not be representative.
**Salton Sea Air Basin.
a) – The federal 1-hour standard (1-hour average CO> 35 ppm) and state 1-hour standard (1-hour average CO> 20 ppm) were not exceeded.

Table 3-3
(Continued)

Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Max. Conc. In ppm 1-hour	Max. Conc. In ppm 8-hour	Health Advisory ≥ 0.15 ppm 1-hour	No. Days Standard Exceeded[a)] Federal > 0.12 ppm 1-hour	Federal > 0.08 ppm 8-hour	State >9.0 ppm 8-hr.
			Ozone					
LOS ANGELES COUNTY								
1	Central LA	361	0.116	0.099	0	0	1	8
2	Northwest Coast LA Co	365	0.099	0.080	0	0	0	1
3	Southwest Coast LA Co	360	0.098	0.080	0	0	0	1
4	South Coast LA Co	360	0.091	0.070	0	0	0	0
6	West San Fernando V	365	0.140	1.117	0	2	7	25
7	East San Fernando V	356	0.129	1.104	0	2	5	15
8	West San Fernando V	361	0.160	0.120	1	1	9	28
9	East San Gabriel V1	365	0.189	1.131	2	9	18	36
9	East San Gabriel V2	362	0.190	0.135	5	13	31	61
10	Pomona/Walnut Valley	363	0.144	0.108	0	1	3	12
11	South San Gabriel V	365	0.132	0.100	0	1	2	7
12	South Central LA Co	365	0.077	0.061	0	0	0	0
13	Santa Clarita Valley	356	0.184	0.129	2	9	27	49
ORANGE COUNTY								
16	North Orange Co	360	0.114	0.090	0	0	2	4
17	Central Orange Co	274*	0.107*	0.071*	0*	0*	0*	2*
18	N Coastal Orange Co	365	0.098	0.073	0	0	0	1
19	Saddleback Valley	365	0.125	0.098	0	1	2	10
RIVERSIDE COUNTY								
22	Norco/Corona	--	--	--	--	--	--	--
23	Metropolitan Riv Co1	365	0.143	0.120	0	7	34	41
23	Metropolitan Riv Co2	--	--	--	--	--	--	--
24	Perris Valley	361	0.152	0.136	5	19	58	73
25	Lake Elsinore	348	0.151	0.120	1	12	46	61
29	Banning Airport	365	0.149	0.129	2	16	49	63
30	Coachella Valley1**	358	0.137	0.114	0	6	42	53
30	Coachella Valley2**	365	0.114	0.099	0	0	17	21
SAN BERNARDINO COUNTY								
32	NW San Bernardino V	365	0.174	0.138	6	14	33	53
33	SW San Bernardino V	--	--	--	--	--	--	--
34	Central San Bern V1	365	0.165	0.136	6	13	31	44
34	Central San Bern V2	365	0.184	0.144	5	18	39	55
35	East San Bernardino V	327*	0.167*	0.144*	7*	21*	52*	68*
37	Central San Bern Moun	365	0.171	0.139	12	26	74	88
38	East San Bern Moun	--	--	--	--	--	--	--
DISTRICT MAXIMUM			0.190	0.144	12	26	74	88

PPM – Parts Per Million parts of air, by volume
AAM = Annual Arithmetic Mean
-- - Pollutant not monitored.
*Less than 12 full months of data. May not be representative.
b) – The federal 1-hour standard (1-hour average CO> 35 ppm) and state 1-hour standard (1-hour average CO> 20 ppm) were not exceeded.

Table 3-3
(Continued)

Nitrogen Dioxide					
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Max. Conc. In ppm 1-hour[b)]	Max. Conc. In ppm 24-hour	Average Compared To Federal Standard[c)] AAM in ppm
LOS ANGELES COUNTY					
1	Central LA	365	0.14	0.078	0.0378
2	Northwest Coast LA Co	365	0.11	0.080	0.0251
3	Southwest Coast LA Co	362	0.11	0.080	0.0250
4	South Coast LA Co	364	0.13	0.070	0.0308
6	West San Fernando Valley	359	0.09	0.060	0.0266
7	East San Fernando Valley	347	0.25	0.091	0.0419
8	West San Fernando Valley	365	0.15	0.086	0.0345
9	East San Gabriel Valley1	365	0.12	0.094	0.0331
9	East San Gabriel Valley2	365	0.12	0.067	0.0274
10	Pomona/Walnut Valley	365	0.13	0.095	0.0371
11	South San Gabriel Valley	363	0.14	0.076	0.0352
12	South Central LA Co	363	0.15	0.072	0.0369
13	Santa Clarita Valley	351	0.10	0.048	0.0239
ORANGE COUNTY					
16	North Orange Co	363	0.13	0.069	0.0275
17	Central Orange Co	274*	0.12*	0.069*	0.0293*
18	North Coastal Orange Co	365	0.08	0.063	0.0182
19	Saddleback Valley	--	--	--	--
RIVERSIDE COUNTY					
22	Norco/Corona	--	--	--	--
23	Metropolitan Riv Co1	362	0.15	0.064	0.0247
23	Metropolitan Riv Co2	--	--	--	--
24	Perris Valley	--	--	--	--
25	Lake Elsinore	352	0.19	0.102	0.0185
29	Banning Airport	343	0.24	0.057	0.0211
30	Coachella Valley1**	345	0.08	0.043	0.0175
30	Coachella Valley2**	--	--	--	--
SAN BERNARDINO COUNTY					
32	NW San Bernardino Valley	347	0.13	0.085	0.0384
33	SW San Bernardino Vally	--	--	--	--
34	Central San Bern Valley1	365	0.13	0.084	0.0358
34	Central San Bern Valley2	329*	0.11*	0.066*	0.0303*
35	East San Bernardino Valley	--	--	--	--
37	Central San Bern Mountains	--	--	--	--
38	East San Bern Mountains	--	--	--	--
DISTRICT MAXIMUM			0.25	0.102	0.0419

PPM – Parts Per Million parts of air, by volume
AAM = Annual Arithmetic Mean
-- - Pollutant not monitored.
*Less than 12 full months of data. May not be representative.
**Salton Sea Air Basin.
b) – The state standard is 1-hour average > 0.25 ppm. No location exceeded state standard.
c) – The federal standard is annual arithmetic mean NO2 greater than 0.0534 ppm. No location exceeded this standard

Table 3-3
(Continued)

Sulfur Dioxide				
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Max. Conc. In ppm 1-hour[d)]	Max. Conc. In ppm 24-hour
LOS ANGELES COUNTY				
1	Central LA	365	0.08	0.010
2	Northwest Coast LA Co	--	--	--
3	Southwest Coast LA Co	365	0.09	0.012
4	South Coast LA Co	364	0.05	0.012
6	West San Fernando Valley	--	--	--
7	East San Fernando Valley	345	0.01	0.004
8	West San Fernando Valley	--	--	--
9	East San Gabriel Valley1	--	--	--
9	East San Gabriel Valley2	--	--	--
10	Pomona/Walnut Valley	--	--	--
11	South San Gabriel Valley	--	--	--
12	South Central LA Co	--	--	--
13	Santa Clarita Valley	--	--	--
ORANGE COUNTY				
16	North Orange Co	--	--	--
17	Central Orange Co	--	--	--
18	North Coastal Orange Co	343	0.01	0.007
19	Saddleback Valley	--	--	--
RIVERSIDE COUNTY				
22	Norco/Corona	--	--	--
23	Metropolitan Riv Co1	365	0.02	0.011
23	Metropolitan Riv Co2	--	--	--
24	Perris Valley	--	--	--
25	Lake Elsinore	--	--	--
29	Banning Airport	--	--	--
30	Coachella Valley1**	--	--	--
30	Coachella Valley2**	--	--	--
SAN BERNARDINO COUNTY				
32	NW San Bernardino Valley	--	--	--
33	SW San Bernardino Vally	--	--	--
34	Central San Bern Valley1	330*	0.01*	0.010*
34	Central San Bern Valley2	--	--	--
35	East San Bernardino Valley	--	--	--
37	Central San Bern Mountains	--	--	--
38	East San Bern Mountains	--	--	--
	DISTRICT MAXIMUM		0.09	0.012

PPM – Parts Per Million parts of air, by volume
AAM = Annual Arithmetic Mean
-- - Pollutant not monitored.
*Less than 12 full months of data. May not be representative.
**Salton Sea Air Basin.
d) – The state standards are 1-hour average >0.25 ppm and 24-hour average > 0.045 ppm. No location exceeded state standards. The federal standards are annual arithmetic mean SO_2 > 0.03 ppm, 3-hour average > 0.50 ppm, and 24-hour average > 0.14 ppm. SO_2 concentrations were well below the federal standards.

Table 3-3
(Continued)

Suspended Particulates PM10[e)]							
			No. (%) Samples Exceeding Standard			Annual Averages[h)]	
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Max Conc. in µg/m^3 24-hour	Federal > 150 µg/m^3 24-hour	State > 50 µg/m^3 24-hour	AAM Conc. µg/m^3	AGM Conc. µg/m^3
LOS ANGELES COUNTY							
1	Central LA	61	97	0	20(33)	44.2	40.3
2	Northwest Coast LA Co	--	--	--	--	--	--
3	Southwest Coast LA Co	58	75	0	8(14)	37.1	34.4
4	South Coast LA Co	59	91	0	10(17)	37.4	34.8
6	West San Fernando V	--	--	--	--	--	--
7	East San Fernando V	61	86	0	14(23)	40.9	36.9
8	West San Fernando V	--	--	--	--	--	--
9	East San Gabriel V1	58	106	0	22(38)	45.3	39.9
9	East San Gabriel V2	--	--	--	--	--	--
10	Pomona/Walnut Valley	--	--	--	--	--	--
11	South San Gabriel V	--	--	--	--	--	--
12	South Central LA Co	--	--	--	--	--	--
13	Santa Clarita Valley	61	62	0	4(7)	32.0	28.5
ORANGE COUNTY							
16	North Orange Co	--	--	--	--	--	--
17	Central Orange Co	46*	93*	0*	9(20)*	36.0*	33.7*
18	N Coastal Orange Co	--	--	--	--	--	--
19	Saddleback Valley	57	60	0	3(5)	26.4	24.0
RIVERSIDE COUNTY							
22	Norco/Corona	54	109	0	18(33)	44.8	39.3
23	Metropolitan Riv Co1	117	136	0	78(67)	63.1	54.3
23	Metropolitan Riv Co2	--	--	--	--	--	--
24	Perris Valley	60	86	0	16(27)	40.8	36.0
25	Lake Elsinore	--	--	--	--	--	--
29	Banning Airport	54	219	1(1.9)	7(13)	35.1	26.7
30	Coachella Valley1**	49*	53 [k)]	0[k)]	1(2)[k)]	26.7[k)]	23.9[k)]
30	Coachella Valley2**	112[k)]	149[k)]	0[k)]	50(45)[k)]	50.2[k)]	44.3[k)]
SAN BERNARDINO COUNTY							
32	NW San Bernardino V	--	--	--	--	--	--
33	SW San Bernardino V	64	166	1(1.6)	27(42)	52.4	46.2
34	Central San Bern V1	60	106	0	34(57)	50.5	43.8
34	Central San Bern V2	60	106	0	31(52)	52.0	45.2
35	East San Bernardino V	49*	102*	0*	22(45)*	46.6*	39.6*
37	Central San Bern Moun	--	--	--	--	--	--
38	East San Bern Moun	--	--	--	--	--	--
DISTRICT MAXIMUM			219	1	78	63.1	54.3

PPM – Parts Per Million parts of air, by volume
AAM = Annual Arithmetic Mean
-- - Pollutant not monitored.
*Less than 12 full months of data. May not be representative.
e) – PM10 samples were collected every 6 days (every 3 days at Station Numbers 4144 and 4157) using the size-selective inlet high volume sampler with quartz filter media.
f) – PM2.5 samples were collected every 3 days at all sites except for the following sites: Station Numbers 060, 072, 087, 3176, and 4144 where samples were taken every day, and Station Number 5818 where samples were taken every 6 days.
g) – Total suspended particulates, lead, and sulfate were determined from samples collected every 6 days by the high volume sampler method, on glass fiber filter media.
h) – Federal PM10 standard is AAM > 50 µg/m^3; and state standard is AGM > 30 µg/m^3

Table 3-3
(Continued)

Suspended Particulates PM2.5 [f]					
Source Receptor Area No.	Location of Air Monitoring Station	No. Days of Data	Max. Conc. in µg/m^3 24-hour	No. (%) Samples Exceeding Standard Federal > 65 µg/m3 24-hour	Annual Averages[i] AAM Conc. µg/m^3
LOS ANGELES COUNTY					
1	Central LA	334	73.4	4(1.2)	22.9
2	Northwest Coast LA Co	--	--	--	--
3	Southwest Coast LA Co	--	--	--	--
4	South Coast LA Co	317	72.9	1(0.3)	21.4
6	West San Fernando Valley	109	71.1	1(0.9)	18.5
7	East San Fernando Valley	117	94.7	4(3.4)	24.9
8	West San Fernando Valley	110	78.1	1(0.9)	20.9
9	East San Gabriel Valley1	308	79.7	4(1.3)	21.8
9	East San Gabriel Valley2	--	--	--	--
10	Pomona/Walnut Valley	--	--	--	--
11	South San Gabriel Valley	95	77.3	3(3.2)	26.1
12	South Central LA Co	116	73.1	3(2.6)	24.5
13	Santa Clarita Valley	--	--	--	--
ORANGE COUNTY					
16	North Orange Co	--	--	--	--
17	Central Orange Co	252*	70.8*	1(0.4)*	22.4*
18	North Coastal Orange Co	--	--	--	--
19	Saddleback Valley	102	53.4	0	15.8
RIVERSIDE COUNTY					
22	Norco/Corona	--	--	--	--
23	Metropolitan Riv Co1	325	98.0	19(5.8)	31.1
23	Metropolitan Riv Co2	106	74.9	5(4.7)	28.3
24	Perris Valley	--	--	--	--
25	Lake Elsinore	--	--	--	--
29	Banning Airport	--	--	--	--
30	Coachella Valley1**	107	44.7	0	10.8
30	Coachella Valley2**	113	33.5	0	12.2
SAN BERNARDINO COUNTY					
32	NW San Bernardino Valley	--	--	--	--
33	SW San Bernardino Vally	113	71.2	2(1.8)	26.2
34	Central San Bern Valley1	114	74.8	4(3.5	24.8
34	Central San Bern Valley2	111	78.5	5(4.5)	26.2
35	East San Bernardino Valley	--	--	--	--
37	Central San Bern Mountains	--	--	--	--
38	East San Bern Mountains	57	34.6	0	10.9
DISTRICT MAXIMUM			98.0	19	31.1

PPM – Parts Per Million parts of air, by volume
AAM = Annual Arithmetic Mean
-- - Pollutant not monitored.
*Less than 12 full months of data. May not be representative.
**Salton Sea Air Basin.
f) – PM2.5 samples were collected every 3 days at all sites except for the following sites: Station Numbers 060, 072, 087, 3176, and 4144 where samples were taken every day, and Station Number 5818 where samples were taken every 6 days.
i) – Federal PM2.5 standard is AAM > µg/m^3

Table 3-3
(Continued)

Source Receptor Area No.	Location of Air Monitoring Station	Particulates TSP g) No. Days of Data	Max. Conc. in µg/m^3 24-hour	Annual Average AAM Conc. µg/m^3
LOS ANGELES COUNTY				
1	Central LA	61	131	75.4
2	Northwest Coast LA Co	60	81	46.5
3	Southwest Coast LA Co	61	118	71.4
4	South Coast LA Co	68	113	67.2
6	West San Fernando Valley	--	--	--
7	East San Fernando Valley	--	--	--
8	West San Fernando Valley	60	88	49.6
9	East San Gabriel Valley1	59	178	93.9
9	East San Gabriel Valley2	--	--	--
10	Pomona/Walnut Valley	--	--	--
11	South San Gabriel Valley	59	146	76.9
12	South Central LA Co	58	385	90.2
13	Santa Clarita Valley	--	--	--
ORANGE COUNTY				
16	North Orange Co	--	--	--
17	Central Orange Co	--	--	--
18	North Coastal Orange Co	--	--	--
19	Saddleback Valley	--	--	--
RIVERSIDE COUNTY				
22	Norco/Corona	--	--	--
23	Metropolitan Riv Co1	57	296	123.7
23	Metropolitan Riv Co2	61	182	86.8
24	Perris Valley	--	--	--
25	Lake Elsinore	--	--	--
29	Banning Airport	--	--	--
30	Coachella Valley1**	--	--	--
30	Coachella Valley2**	--	--	--
SAN BERNARDINO COUNTY				
32	NW San Bernardino Valley	58	171	69.7
33	SW San Bernardino Vally	--	--	--
34	Central San Bern Valley1	60	237	102.1
34	Central San Bern Valley2	55	224	101.3
35	East San Bernardino Valley	--	--	--
37	Central San Bern Mountains	--	--	--
38	East San Bern Mountains	--	--	--
	DISTRICT MAXIMUM		385	123.7

PPM – Parts Per Million parts of air, by volume
AAM = Annual Arithmetic Mean
-- - Pollutant not monitored.
*Less than 12 full months of data. May not be representative.
**Salton Sea Air Basin.
g) – Total suspended particulates, lead, and sulfate were determined from samples collected every 6 days by the high volume sampler method, on glass fiber filter media.

Table 3-3
(Continued)

Source Receptor Area No.	Location of Air Monitoring Station	Lead [g)] Max Monthly Average Conc.[j)] µg/m³	Lead [g)] Max Quarterly Average Conc.[j)] µg/m³	Sulfate [g)] Max Conc. in µg/m³ 24-hour	Sulfate [g)] No. (%) Samples Standard State > 25 µg/m³ 24-hour
LOS ANGELES COUNTY					
1	Central LA	0.06	0.05	15.9	0
2	Northwest Coast LA Co	--	--	15.6	0
3	Southwest Coast LA Co	0.04	0.04	20.6	0
4	South Coast LA Co	0.05	0.04	15.9	0
6	West San Fernando Valley	--	--	--	--
7	East San Fernando Valley	--	--	--	--
8	West San Fernando Valley	--	--	13.4	0
9	East San Gabriel Valley1	--	--	14.1	0
9	East San Gabriel Valley2	--	--	--	--
10	Pomona/Walnut Valley	--	--	--	--
11	South San Gabriel Valley	0.07	0.05	14.5	0
12	South Central LA Co	0.23	0.12	15.4	0
13	Santa Clarita Valley	--	--	--	--
ORANGE COUNTY					
16	North Orange Co	--	--	--	--
17	Central Orange Co	--	--	--	--
18	North Coastal Orange Co	--	--	--	--
19	Saddleback Valley	--	--	--	--
RIVERSIDE COUNTY					
22	Norco/Corona	--	--	--	--
23	Metropolitan Riv Co1	0.04	0.03	10.7	0
23	Metropolitan Riv Co2	0.03	0.03	9.2	0
24	Perris Valley	--	--	--	--
25	Lake Elsinore	--	--	--	--
29	Banning Airport	--	--	--	--
30	Coachella Valley1**	--	--	--	--
30	Coachella Valley2**	--	--	--	--
SAN BERNARDINO COUNTY					
32	NW San Bernardino Valley	0.05	0.04	10.7	0
33	SW San Bernardino Vally	--	--	--	--
34	Central San Bern Valley1	--	--	10.7	0
34	Central San Bern Valley2	0.05	0.04	11.5	0
35	East San Bernardino Valley	--	--	--	--
37	Central San Bern Mountains	--	--	--	--
38	East San Bern Mountains	--	--	--	--
	DISTRICT MAXIMUM	0.23	0.12	20.6	0

PPM – Parts Per Million parts of air, by volume
AAM = Annual Arithmetic Mean
-- - Pollutant not monitored.
*Less than 12 full months of data. May not be representative.
**Salton Sea Air Basin.
g) – Total suspended particulates, lead, and sulfate were determined from samples collected every 6 days by the high volume sampler method, on glass fiber filter media.
J) – Federal lead standard is quarterly average > 1.5 µg/m³, and state standard is monthly average ≥ 1.5 µg/m³. No location exceeded lead standards. Special monitoring immediately downwind of stationary sources of lead was carried out at four locations in 2000. The maximum monthly average concentration was 0.57 µg/m³, and the maximum quarterly average concentration was 0.49 µg/m³, both recorded in Area 1, Central Los Angeles

Ozone

Unlike primary criteria pollutants that are emitted directly from an emissions source, ozone is a secondary pollutant. It is formed in the atmosphere through a photochemical reaction of VOC, NOx, oxygen, and other hydrocarbon materials with sunlight.

Ozone is a deep lung irritant, causing the passages to become inflamed and swollen. Exposure to ozone produces alterations in respiration, the most characteristic of which is shallow, rapid breathing and a decrease in pulmonary performance. Ozone reduces the respiratory system's ability to fight infection and to remove foreign particles. People who suffer from respiratory diseases such as asthma, emphysema, and chronic bronchitis are more sensitive to ozone's effects. In severe cases, ozone is capable of causing death from pulmonary edema. Early studies suggested that long-term exposure to ozone results in adverse effects on morphology and function of the lung and acceleration of lung-tumor formation and aging. Ozone exposure also increases the sensitivity of the lung to bronchoconstrictive agents such as histamine, acetylcholine, and allergens.

The national ozone ambient air quality standard is exceeded far more frequently in the SCAQMD's jurisdiction than almost every other area in the United States1. In the past few years, ozone air quality has been the cleanest on record in terms of maximum concentration and number of days exceeding the standards and episode levels. Maximum one-hour average and eight-hour average ozone concentrations in 2001 (0.19 ppm and 0.144 ppm) were 158 percent and 180 percent of the federal one-hour and eight-hour standards, respectively. Ozone concentrations exceeded the one-hour state standard at all, but two, monitored locations in 2001. In 1997, the U.S. EPA promulgated a new national ambient air quality standard for ozone. Soon thereafter, a court decision ordered that the U.S. EPA could not enforce the new standard until adequate justification for the new standard was provided. U.S. EPA appealed the decision to the Supreme Court. On February 27, 2001, the Supreme Court upheld U.S. EPA's authority and methods to establish clean air standards. The Supreme Court, however, ordered U.S. EPA to revise its implementation plan for the new ozone standard. Meanwhile, CARB and local air districts continue to collect technical information in order to prepare for an eventual SIP to reduce unhealthful levels of ozone in areas violating the new federal standard. California has previously developed a SIP for the current ozone standard, which has been approved by U.S. EPA for the South Coast Air Basin.

Carbon Monoxide

CO is a colorless, odorless gas formed by the incomplete combustion of fuels. CO competes with oxygen, often replacing it in the blood, thus reducing the blood's ability to transport oxygen to vital organs in the body. The ambient air quality standard for carbon monoxide is intended to protect persons whose medical condition already compromises their circulatory

[1] It should be noted that in 1999 and 2000 Houston, Texas exceeded the federal ozone standards on more occasions than the district and reported the highest ozone concentrations in the nation.

systems' ability to deliver oxygen. These medical conditions include certain heart ailments, chronic lung diseases, and anemia. Persons with these conditions have reduced exercise capacity even when exposed to relatively low levels of CO. Fetuses are at risk because their blood has an even greater affinity to bind with CO. Smokers are also at risk from ambient CO levels because smoking increases the background level of CO in their blood.

CO was monitored at 23 locations in the district in 2001. The national and state eight-hour CO standards were not exceeded at any location. The highest eight-hour average CO concentration of the year (7.71 ppm) was 81 percent of the federal standard.

Nitrogen Dioxide

NO2 is a brownish gas that is formed in the atmosphere through a rapid reaction of the colorless gas nitric oxide (NO) with atmospheric oxygen. NO and NO2 are collectively referred to as NOx. NO2 can cause health effects in sensitive population groups such as children and people with chronic lung diseases. It can cause respiratory irritation and constriction of the airways, making breathing more difficult. Asthmatics are especially sensitive to these effects. People with asthma and chronic bronchitis may also experience headaches, wheezing and chest tightness at high ambient levels of NO2. NO2 is suspected to reduce resistance to infection, especially in young children.

By 1991, exceedances of the federal standard were limited to one location in Los Angeles County. The Basin was the only area in the United States classified as nonattainment for the federal NO2 standard under the 1990 Clean Air Act Amendments. No location in the area of SCAQMD's jurisdiction has exceeded the federal standard since 1992 and the South Coast Air Basin was designated attainment for the national standard in 1998. In 2001, the maximum annual arithmetic mean (0.0419 ppm) was 78 percent of the federal standard (the federal standard is annual arithmetic mean NO2 greater than 0.0534 ppm.). The more stringent state standard (0.25 ppm) was never exceeded by any of the monitored stations in year 2001, and the South Coast Air Basin was designated attainment for the state standard in 1996. Despite declining NOx emissions over the last decade, further NOx emissions reductions are necessary because NOx emissions are PM10 and ozone precursors.

Particulate Matter

PM10 is defined as suspended particulate matter 10 microns or less in diameter and includes a complex mixture of man-made and natural substances including sulfates, nitrates, metals, elemental carbon, sea salt, soil, organics and other materials. PM10 may have adverse health impacts because these microscopic particles are able to penetrate deeply into the respiratory system. In some cases, the particulates themselves may cause actual damage to the alveoli of the lungs or they may contain adsorbed substances that are injurious. Children can experience a decline in lung function and an increase in respiratory symptoms from PM10 exposure. People with influenza, chronic respiratory disease and cardiovascular disease can be at risk of

aggravated illness from exposure to fine particles. Increases in death rates have been statistically linked to corresponding increases in PM10 levels.

In 2001, PM10 was monitored at 18 locations in the district. There were two exceedances of the federal 24-hour standard (150 μg/m3), while the state 24-hour standard (50 μg/m3) was exceeded at all 18 monitored locations. The federal standard (annual arithmetic mean greater than 50 μg/m3) was exceeded in five locations, and the state standard (annual geometric mean greater than 30 μg/m3) was exceeded at 14 locations.

In 1997, the U.S. EPA promulgated a new national ambient air quality standard for PM2.5, particulate matter 2.5 microns or less in diameter and a new PM10 standard as well. The PM2.5 standard complements existing national and state ambient air quality standards that target the full range of inhalable PM10. However, a court decision ordered that the U.S. EPA couldn't enforce the new PM10 standard until adequate justification for the new standard is provided. U.S. EPA is complying with the decision by considering separate fine (PM2.5) and coarse (PM2.5-10) standards. Meanwhile, CARB and local air districts continue to collect technical information in order to prepare for an eventual SIP to reduce unhealthful levels of PM2.5 in areas violating the new federal standards. California has previously developed a SIP for the current PM10 standard.

Sulfur Dioxide

SO2 is a colorless, pungent gas formed primarily by the combustion of sulfur-containing fossil fuels. Health effects include acute respiratory symptoms and difficulty in breathing for children. Though SO2 concentrations have been reduced to levels well below state and federal standards, further reductions in emissions of SO2 are needed to comply with standards for other pollutants (sulfate and PM10).

Sulfates

Sulfates are a group of chemical compounds containing the sulfate group, which is a sulfur atom with four oxygen atoms attached. Though not exceeded in 1993, 1996, 1997, and 1998, the state sulfate standard was exceeded at three locations in 1994 and one location in 1995, 1999, 2000 and 2001. There are no federal air quality standards for sulfate.

Lead

Lead concentrations once exceeded the state and national ambient air quality standards by a wide margin, but have not exceeded state or federal standards at any regular monitoring station since 1982. Though special monitoring sites immediately downwind of lead sources recorded very localized violations of the state standard in 1994, no violations were recorded at these stations since that time.

Visibility

Since deterioration of visibility is one of the most obvious manifestations of air pollution and plays a major role in the public's perception of air quality, the state of California has adopted a standard for visibility or visual range. Until 1989, the standard was based on visibility estimates made by human observers. The standard was changed to require measurement of visual range using instruments that measure light scattering and absorption by suspended particles.

Volatile Organic Compounds

It should be noted that there are no state or national ambient air quality standards for VOCs because they are not classified as criteria pollutants. VOCs are regulated, however, because reduction in VOC emissions reduces the rate of photochemical reactions that contribute to the formation of ozone. They are also transformed into organic aerosols in the atmosphere, contributing to higher PM10 and lower visibility levels.

Although health-based standards have not been established for VOCs, health effects can occur from exposures to high concentrations of VOCs because of interference with oxygen uptake. In general, ambient VOC concentrations in the atmosphere are suspected to cause coughing, sneezing, headaches, weakness, laryngitis, and bronchitis, even at low concentrations. Some hydrocarbon components classified as VOC emissions are thought or known to be hazardous. Benzene, for example, one hydrocarbon component of VOC emissions, is known to be a human carcinogen.

Architectural Coating Existing Emissions Inventory

Architectural and industrial maintenance (AIM) coatings represent one of the largest non-mobile sources of VOC emissions in the district -- larger than petroleum refining, larger than petroleum marketing, larger than degreasing and dry cleaning combined, and larger than the combined VOC emissions from the 950 largest VOC-emitting facilities. It has been estimated that 25 percent of all hydrocarbons used as solvents (293 million gallons in 1992) are used in paints and coatings.[2]

The emission inventories from the 1997 AQMP include VOC emissions from AIM coatings from 1987 to 2010. Baseline emissions, assuming no new rules, are reported in terms of average, annual-day emissions, and in terms of average, summer-day emissions. The average summer-day figures, also called seasonal or planning inventories, are the ones used for demonstrating ozone attainment. Future, controlled AIM VOC emissions, assuming the AQMP measures are adopted and implemented, are only reported in terms of average summer-day emissions. The 1997 AQMP emission data for AIM coatings are summarized in Table 3-4. Table 3-5 provides a breakdown of the emission inventories associated with these coatings.

TABLE 3-4

[2] Stirring Up Innovation: Environmental Improvements in Paints and Adhesives, INFORM, Inc., 1994.

1997 AQMP VOC EMISSIONS INVENTORY (tons per day)

AIM Coating VOC Baseline	1987	1990	1993	1997	1999	2000	2002	2005	2008	2010
Annual Avg.	55.3	55.9	56.3	57.8	58.9	59.4	61.1	63.4	65.7	67.3
Summer Avg.	65.2	65.9	66.4	68.2	69.5	70.1	72.0	74.7	77.5	79.4
Total VOC Emissions All Sources	1818.5	1648.3	1240.2	996.6	916.0	891.4	858.9	810.4	785.5	770.1

Table 3-5 is based on the 1998 CARB AIM "Survey of Emissions from Solvent Use". Evaluation of the 1996 sales data indicates statewide AIM coating VOC emissions in 1996 of approximately 99 tons per day. Prorated by population to the Basin portion of AQMD, this results in 45 tons per day. This data does not include the clean-up and thinning solvents used as a part of the coating operation. The usage and emission values found in this report are subject to changes based on the final 1998 CARB Survey Report. See page 3-3 of this Draft SEA for updated usage and emission data.

TABLE 3-5

VOC EMISSIONS INVENTORY FOR AFFECTED COATING CATEGORIES

Categories	1997 Inventory (tons/day)	2010 Inventory (tons/day)
Floor Coatings	0.61	0.71
IM Coatings	6.48	7.52
High Temperature IM Coatings	0.04	0.05
Non-Flats	8.80	10.22
Quick-Dry Enamels	1.86	2.16
PSU	3.60	4.18
Quick-Dry PSU	2.68	3.11
Rust Preventive Coatings	0.89	1.03
Stains	2.16	2.51
Water-Proofing Wood Sealers	0.89	1.03
Total	**28.01**	**32.52**

Strategy for Attaining the National and State Ozone Standards

As required by federal law, the AQMD adopted the 1997 AQMP in November 1996. The AQMP is a comprehensive plan to achieve the national and state ambient air quality standards in the district, the area with the highest air pollution levels in the United States.

Based on the Urban Airshed Model simulation of the Basin, it was concluded in the 1997 AQMP that major reductions in emissions of VOCs and NOx are necessary to attain the air quality standards for ozone and PM_{10}. Earlier AQMPs contained the same conclusion. To attain the ozone standards, VOC emissions must be reduced from 1,366[3] tons per day in 1993 (the baseline inventory year for the 1997 AQMP) to 444 tons per day by 2010, a 68 percent reduction. NOx emissions must be reduced by 57 percent, from 1,321 tons per day to 571 tons per day.

The 1997 AQMP underscores the increasing role of pollution from areawide sources, including consumer products. As emissions from facilities and vehicles are reduced, the widespread areawide sources become a larger part of the inventory, and are included as the biggest area for potential reductions of VOC emissions.

It is estimated in the 1997 AQMP that without additional AIM regulations the summer-day average inventory for AIM coating emissions will increase due to population growth by the following: 68.2 tons per day in 1997; 74.7 tons per day by the year 2005; and 79.4 tons per day by the year 2010. If left unregulated, AIM coating emissions alone would account for more than 26 percent of the VOC emissions inventory targeted for 2010. To assist with attaining and maintaining the state and national ozone standards, the 1997 AQMP has a specific control measure (CTS-07) to reduce AIM VOC emissions by 50 percent by the year 2010, as well as a long-term measure requiring an additional 25 percent reduction in VOC emissions. The projected 62 tons per day emission reduction from control measure CTS-07, based on the Summer Planning Inventory, produces the largest VOC emissions reduction of all short- and long-term AQMP control measures. The proposed Rule 1113 amendments will implement Phase II of the control measure and will seek to reduce AIM emissions by approximately 36 percent.

Installation of air pollution control equipment is not feasible for reducing AIM coatings emissions, thereby leaving coating reformulation as the only possible means to achieve the required reductions. The current proposal emphasizes reformulation of existing coatings, primarily by using currently available, technologically-innovative resins, as well as utilizing the growing list of solvents from the definition of Exempt Compounds.

[3] All emission figures in this section are based on the summer planning inventories.

WATER RESOURCES

California has an extensive regulatory program to control water pollution. The most important statute affecting water quality issues is the Porter-Cologne Act, which gives the State Water Resources Control Board (SWRCB) and the nine regional water quality control boards (RWQCB) broad powers to protect surface and groundwater supplies in California, regulate waste disposal, and require cleanup of hazardous conditions (California Water Code §§13000 - 13999.16). In particular, the SWRCB establishes water-related policies and approves water quality control plans, which are implemented and enforced by the RWQCBs. Five RWQCBs have jurisdiction over areas within the boundaries of the district. These Regional Boards include: Los Angeles, Lahontan, Colorado River Basin, Santa Ana, and San Diego.

It is the responsibility of each regional board to prepare water quality control plans to protect surface and groundwater supplies within its region. These plans must: identify important regional water resources and their beneficial uses, such as domestic, navigational, agricultural, industrial, and recreational; establish water quality objectives, limits or levels of water constituents or characteristics established for beneficial uses and to prevent nuisances; and present an implementation program necessary to achieve those water quality objectives. These plans also contain technical information for determining waste discharge requirements and taking enforcement actions. The plans are typically reviewed and updated every three years (California Water Code §13241).

California dischargers of waste, which "could affect the quality of the waters of the state" are required to file a report of, waste discharge with the appropriate regional water board (California Water Code §13260). The report is essentially a permit application and must contain information required by the regional board. After receipt of a discharge report, the regional board will issue "waste discharge requirements" analogous to a permit with conditions prescribing the allowable nature of the proposed discharge (California Water Code §§13263, 13377, and 13378).

National Pollution Discharge Elimination System Requirements

Most discharges into state waters are regulated by the National Pollution Discharge Elimination System (NPDES), a regulatory program under the federal Clean Water Act. The NPDES is supervised by USEPA, but administered by the SWRCB. NPDES requirements apply to discharges of pollutants into navigable waters from a point source, discharges of dredged or fill material into navigable waters, and the disposal of sewage sludge that could result in pollutants entering navigable waters. California has received USEPA approval of its NPDES program.

Pursuant to California's NPDES program, any waste discharger subject to the NPDES program must obtain an NPDES permit from the appropriate RWQCB. The permits typically include criteria and water quality objectives for a wide range of constituents. The NPDES

program is self-monitoring, requiring periodic effluent sampling. Permit compliance is assessed monthly by the local RWQCB and any NPDES violations are then categorized and reported to USEPA on a quarterly basis.

USEPA has also published regulations that require certain industries, cities and counties to obtain NPDES permits for stormwater discharges [(55 Fed. Reg. (1990)]. The new regulations set forth permit application requirements for classes of stormwater discharges specifically identified in the federal Clean Water Act. The regulated stormwater discharges include those associated with industrial activity and from municipal storm sewer systems serving a population of 100,000 or more.

Discharges to Publicly Owned Treatment Works (POTWs)

Water discharges to a public sewage system (referred to generically as a POTW), rather than directly to the environment, are not subject to the NPDES discharge requirements. Instead, such discharges are subject to federal pretreatment requirements under §§307(b) and (c) of the Clean Water Act [(33 U.S.C., §1317(b)-(c))]. Though these pretreatment standards are enforced directly by USEPA, they are implemented by local sanitation districts (Monahan et al., 1993). The discharger, however, has the responsibility to ensure that the waste stream complies with the pretreatment requirements of the local system. Any facility using air pollution control equipment affecting water quality must receive a permit to operate from the local sanitation district. In cases where facilities modify their equipment or install air pollution controls that generate or alter existing wastewater streams, owner/operators must notify the local sanitation district and request that their existing permit be reviewed and modified.

To ensure compliance with wastewater pretreatment regulations, local sanitation districts, such as the County Sanitation Districts of Los Angeles County, sample and analyze the wastewater streams from facilities approximately two to four times per year (Lum, 1989). Persons who violate the state's water quality laws are subject to a wide array of enforcement provisions.

In 1990, USEPA revised and extended existing regulations to further regulate hazardous waste dischargers and require effluent testing by POTWs. To comply with revised permit limits, POTWs may alter their operations or impose more stringent local limits on industrial user discharges of hazardous wastes (Monahan, et al., 1993). Sanitation districts that adopt ordinances establishing a permit system and fee structure operate POTWs in California. There are 47 agencies providing wastewater treatment in the district, the largest three being the County Sanitation Districts of Los Angeles County, Los Angeles City Sanitation District, and the Orange County Sanitation District. These three agencies account for 71 percent of influent wastewater in the district (SCAG, 1993).

There are a variety of advanced chemical and physical treatment techniques and equipment that remove chemical contaminants from waste streams. Depending upon the characteristics

of the contaminants in the wastewater stream, it may be necessary for the wastewater to undergo a series of treatment processes. Table 3-6 identifies some examples of wastewater treatment methodologies and the appropriate sequence in the wastewater treatment process in which they would occur.

TABLE 3-6

Examples of Wastewater Treatment Methods

INITIAL TREATMENT	INTERMEDIATE TREATMENT	ADVANCED TREATMENT
Sedimentation	Trickling Filters	Carbon Adsorption
Neutralization	Activated Sludge	Ion Exchange
Chemical Coagulation	(aerobic bacteria)	Air Stripping
Precipitation	Chemical Oxidation	Reverse Osmosis
	(chlorination & ozonation)	Electrodialysis

Source: Lippmann and Schlesinger, 1979; Vembu, 1994.

Existing Water Sources and Uses

Local water districts are the primary water purveyors. These water districts receive some of their water supply from surface and groundwater resources within their respective jurisdictions, with any shortfall made up from supplemental water purveyors. In some cases, 100 percent of a local water district's water supply may come from supplemental sources. The main sources of surface water used by local water districts within the district are the Colorado, Santa Ana, and Santa Clara Rivers. The primary groundwater sources used by local water districts are as follows:

- Los Angeles County: Raymond, San Fernando, and San Gabriel Water Basins.
- San Bernardino and Riverside counties: Upper Santa Ana Valley Water Basin.
- Riverside County: Coachella Valley Water Basin.
- Orange County: Coastal Plain Water Basin.

The major supplemental water importer in the district is the Southern California Metropolitan Water District (MWD), which *distributes wholesale water obtained from the Colorado River and Northern California through* ~~is made up of~~ 12 member agencies, 14 member cities, and one County Water Authority. *Also, MWD provides more than one-half of the water used by approximately 17 million people in six counties covering the 5,200 square-mile coastal plain of Southern California. To provide this service, MWD operates an extensive system of water conveyance, reservoirs, and water treatment plants.*

Water Consumption

Estimating total water use in the district is difficult because the boundaries of supplemental water purveyors' service areas bear little relation to the boundaries of the district and there are dozens of individual water retailers within the district.

Total water demand within the district is estimated by the Metropolitan Water District of Southern California (MWD) to be approximately 1.9 million acre-feet[4] (MAF) in calendar year 2005. The MWD's service area includes southern Los Angeles county, including the San Gabriel and San Fernando Valleys, all of Orange County, the western portion of Riverside County, and the Chino Basin in southwestern San Bernardino County. The MWD estimates a supply of 3.0 MAF by year 2005, providing a potential reserve capacity of 1.1 MAF. Local water districts within the MWD service area drew the remaining water from local water sources. About 89 percent of water consumed in the MWD region goes to urban uses with the rest going to agriculture (Rodrigo, 1996). Sixty-six percent of urban water use occurs in the residential sector, with another 17 percent in the commercial and six percent in the industrial sectors. Remaining water uses include public entities, fire fighting, industrial and manufacturing processes. Smaller water purveyors supplied water to northern and eastern areas of the district. Table 3-7 shows water supply, water demand and the potential reserve capacity in MWD jurisdiction.

TABLE 3-7

Metropolitan Water District Water Supply and Potential Reserve Capacity

	YEAR (acre–feet per year)			
	2005	**2010**	**2015**	**2020**
Expected Maximum Supply	3,050,800	3,076,800	3,152,100	2,996,600
Total Demands	1,901,400	1,953,800	2,076,500	2,390,000
Potential Reserve Capacity	1,149,400	1,114,000	1,075,600	606,600

Source: "Report on Metropolitan's Water Supplies" (February 11, 2002)

Most of the outlying regions of the district are heavily dependent on local surface and groundwater resources as major sources of supply for both domestic and agricultural uses. Supplemental supplies are also available in some areas through California State Water Project (SWP) contractors. The largest water supply source in this sub-region is the Colorado River.

Past population growth and agricultural development in the outlying regions have resulted in groundwater pumping beyond safe yield levels. The Antelope Valley Basin (north Los Angeles County), Mojave Basin (San Bernardino County), and the Coachella Valley Basin (Riverside County) are all in overdraft condition.

[4]One acre foot (AF) is equivalent to 325,800 gallons.

Local Water Supplies

Local surface water sources and groundwater basins provide about one-third of the water supply in the district (calculated from data in SCAG, 1993d). The largest surface water sources in the region are the Colorado, the Santa Ana, and the Santa Clara River systems. Major groundwater basins in the region include the Central, Raymond, San Fernando, and San Gabriel basins (Los Angeles county); the Upper Santa Ana Valley Basin system (San Bernardino and Riverside counties); the Coastal Plain Basin (Orange county); and the Coachella Valley Basin (Riverside county).

Local water resources are fully developed and are expected to remain relatively stable in the future on a region-wide basis. However, local water supplies may decline in certain localized areas and increase in others. Several groundwater basins in the region are threatened by overdraft conditions, increasing levels of salinity, and contamination by toxics or other pollutants. Local supplies may also be reduced by conversion of agricultural land to urban development, thereby reducing the land surface available for groundwater recharge. Increasing demand for groundwater may also be limited by water quality, since levels of salinity in sources currently used for irrigation could be unacceptably high for domestic use without treatment.

Imported Water Supplies

Several major conveyance systems bring water to the urbanized portion of the region from: northern California via the SWP; the Sierra Nevada via the Los Angeles Aqueduct; and the Colorado River via the Colorado River Aqueduct. The All-American/Coachella Canals deliver agricultural irrigation water from the Colorado River to the Coachella Valley. The continued availability of water from these sources is uncertain at current levels. The yield of the SWP system is expected to decrease in the future as water use in areas of origin increases, Central Valley Project (CVP) contractual obligations increase, and users with prior rights to northern California water supplies begin to exercise those rights (SCAG, 1987). The following subsections detail some of the major sources of water supplied to the area within the jurisdiction of the SCAQMD.

State Water Project

The SWP supplied 0.57 MAF to the MWD in 1995 (Muir, 1996). Contractors in the MWD service area hold contracts for 1.86 MAF. California's total apportionment of SWP water is 4.23 MAF per year, with a dependable supply of about 2.1 MAF. If additional water supplies are not secured, SWP contractors in the region will face increasing risks of water supply deficiencies during dry years. Efforts to increase dependable yields through the SWP have included a Coordinated Operation Agreement between the State and the U.S. Bureau of Reclamation, completion of additional pumping capacity in the San Francisco Bay Delta, and development of additional off-stream storage facilities. If these efforts are successful, annual net use of SWP may increase by 0.8 MAF by 2010.

Los Angeles Aqueduct

The Los Angeles Aqueduct provided about 0.17 MAF of water in 1992 (RWQCB, 1993). Court decisions (September, 1994) have required that minimum stream flows be established in four of the streams feeding Mono Lake so that fish and water fowl habitats can be restored and protected (Frink, 1996). In addition, California courts have ruled that the average lake surface elevation of Mono Lake be restored to 6,392 feet above mean sea level. To comply with these rulings, the City of Los Angeles anticipates it will have to ultimately reduce diversion of Mono Lake water by as much as 60,000 AF per year.

Colorado River Aqueduct

Currently, California's basic apportionment of Colorado River water is 4.4 MAF. However, due to above-normal runoff in the Colorado River Basin, and the states of Arizona and Nevada not taking their full apportionment, California has received an average of 4.8 MAF per year in recent years (SCAG, 1993).

With the Central Arizona Project operational, and therefore diverting Colorado River water, the supply of Colorado River water available to MWD can be reduced from 1.212 MAF to 0.62 MAF per year, even with completion of a cooperative water conservation program with the Imperial Irrigation District. MWD staff has conservatively projected future supply at 0.62 MAF per year from existing programs and facilities and is considering programs to increase its dependable Colorado River supplies (Schempp, 1996).

Subregional Water Quality

The following subsections consider the quality of surface and groundwater sources that lie within the coastal sub-region and the outlying sub-region. Water quality of the major water basins in each sub-region is discussed for both surface and groundwater sources.

Coastal Sub-region Water Quality

The Los Angeles River Basin area is located in southern Los Angeles County and is drained by the Los Angeles River, San Gabriel River, and Malibu Creek (RWQCB, 1993).

- Surface water quality of the Los Angeles River system has minor problems that are attributable to high pH, nitrate/nitrite, chlorine levels, and low dissolved oxygen. The Los Angeles River drainage basin includes large recreation and wildlife habitat areas in the San Fernando Valley. Urban runoff and illegal dumping are the major sources of water quality problems in this river system.

- Minor water quality problems caused by urban runoff and point source discharges have occurred in urbanized portions of the San Gabriel River drainage system, but water quality is good in the source areas of the San Gabriel Mountains.

- Malibu Creek and its tributaries are an intermittent stream system that drains a portion of the western Santa Monica Mountains. This drainage area has high total dissolved solids (TDS) levels and, in general, water quality has declined as a result of wastewater discharge into the creek. Non-point source pollutants of concern include excess nutrients, sediment and bacteria.

Groundwater sources of the Los Angeles River Basin include the Los Angeles Coastal Plain, San Fernando Valley, and San Gabriel Valley Basins (RWQCB, 1993).

- Water quality in the Los Angeles Coastal Plain Basin is generally good, although saltwater intrusion has been a problem along the coast. The Los Angeles County Flood Control District through the Dominguez Gap Barrier project is currently addressing this problem. The purpose of the project is to create a fresh water pressure ridge to prevent further landward movement of seawater.

- Hydrocarbons from industry, and nitrates from subsurface sewage disposal and past agricultural activities are the primary pollutants in much of the groundwater throughout the San Gabriel and San Fernando Valley Groundwater Basins. Pollution has shut down at least 20 percent of municipal groundwater production capacity in both basins. The California Department of Toxic Substances Control has designated large areas of these basins as high priority Hazardous Substances Cleanup sites. The USEPA has designated both areas as Superfund sites. Both the RWQCB and USEPA are overseeing investigations to further define the extent of pollution, identify the responsible parties and begin remediation.

Santa Ana River Basin

The Santa Ana River Basin area is located in Orange County and the western (non-desert) portion of San Bernardino and Riverside counties. Improper operation of individual sewage storage or treatment systems in the upper Santa Ana River area has degraded surface water quality. High Total Dissolved Solids (TDS) and nutrient levels have affected lower portions of the river due to low quality rising groundwater, urban runoff, and nonpoint agricultural pollution. Lakes in the area receive water from the State Water Project and Colorado River and have fair to good water quality.

Primary groundwater basins in the Santa Ana River Basin include Orange County Coastal Plain, Upper Santa Ana River Valley, San Jacinto, Elsinore, and San Juan Creek. Groundwater quality is generally good in this area. Some deterioration has occurred due to recharge by Colorado River water, percolation of irrigation wastewater, overdraft, seawater intrusion, and mineralization. Water quality has been compromised further by municipal, industrial, and agricultural waste disposal. Saltwater intrusion problems have been somewhat alleviated by injection of water into wells of the Talbert Gap Barrier Project and increased use of Colorado River water by southern Orange County.

Outlying Sub-region Water Quality

Santa Clara River Basin

The Santa Clara River Basin area is located in Ventura County and northern Los Angeles County and is drained by the Santa Clara River, which empties into the Pacific Ocean near the City of Oxnard. Surface water sources are provided mainly by reservoirs in the area, which are in turn supplied by water from the SWP and the Los Angeles Aqueduct. These water sources provide water that is generally of high quality. Tributary creeks typically possess good water quality except during low flows. Water quality in the Santa Clara River is relatively poor and further degrades downstream when groundwaters rise, resulting in high TDS levels, irrigation return flows, and other contaminants. Threats to water quality include increasing urban development in floodplain areas, which requires flood control measures. These measures result in increased flows and erosion and loss of habitat (RWQCB, 1993).

Nine groundwater basins are located in the Santa Clara River Basin. Groundwater quality is generally good in the upper Santa Clara River Basin (Los Angeles County) but worsens near the Los Angeles County-Ventura County line. High TDS concentrations are common in the Santa Clara River Valley area.

Desert Basins

The desert sub-region includes most of San Bernardino County, eastern Riverside County, and Imperial County. Few water quality problems exist in this area with the exception of the Salton Sea vicinity, which has high and increasing salinity as a result of irrigation return flows, increasing salinity of Colorado River water, and inadequately treated municipal discharges (particularly from sources in Mexico) (Coachella Valley Water District, 1993).

Groundwater quality problems in the South Lahontan Basin, located in desert sub-region portions of Los Angeles and San Bernardino counties, include overdraft and pollution from mining and sewage wastes. West Colorado River Basin has increasingly high salinity near the Colorado River. Local groundwater supplies along the Colorado River are also poor where they are affected by saline river water, failing septic tanks and leachfield systems, and irrigation return flows.

PUBLIC SERVICES

Public services offered and available within the Basin are extensive and numerous although statistical data specific to the Basin are not available. Information concerning public services was obtained from references that outlined data by county or by the Southern California Association of Governments (SCAG) Region. The SCAG region comprises Ventura and Imperial counties, and the desert portions of Los Angeles, San Bernardino and Riverside counties in addition to the four-county area comprising the Basin. Statistical information will

therefore be provided for the four-county area or by SCAG region. The following public service areas are discussed in this section.

- Schools;
- Law Enforcement; and
- Fire Protection;

Schools

In 1994, there were more than 2,700 schools in Los Angeles, Orange, Riverside, and San Bernardino counties serving over 3.6 million students (SCAQMD, 1994). Schools include private and public schools from kindergarten through junior colleges, vocational education and continuing education programs, and major universities. For the 1992 to 1993 school year, Los Angeles County had the largest number of schools, (kindergarten through twelfth grade schools), with a student population of approximately 1,667,014, Orange County with 442,510, Riverside County with 261,886 and San Bernardino County with 334,741. Nearly 44 percent of the public school districts in the Basin are within Los Angeles County including the Los Angeles Unified School District (LAUSD) and the Long Beach Unified School District (LBUSD). Combined with Santa Ana Unified School District (SAUSD) in Orange County, these three school districts represent almost 30 percent of the Basin's public school enrollment (SCAG, 1993).

The greatest growth in both public and private secondary and elementary school enrollments has been in San Bernardino and Riverside counties. Riverside County alone has experienced an 80 percent increase in its public school enrollment, while San Bernardino County's public school enrollment population grew by 64 percent, between 1981 and 1991 (SCAG, 1993). It is anticipated these growth trends will continue into the future.

The capacity of school facilities to accommodate the student population is directly affected by increases in school enrollment. The greatest percent of new school construction is in Riverside (45 percent) and San Bernardino (38 percent) counties. The greatest percentage of reconstruction/remodeling 87 percent, however, is in Los Angeles County. This high percentage of facility expansion projects is a strong indication of the current school congestion problem in Los Angeles County. Further evidence of the current overcrowding is the fact that, both LAUSD and LBUSD have had to institute busing programs (SCAG, 1993).

Post secondary schools include public and private colleges and universities, and adult schools. Nearly 43 percent of the state's 1991 community college enrollment was concentrated in the four-county region (SCAG, 1993). The four-county region contains dozens of institutions of higher learning (post 12th grade), including 13 community colleges, seven California State Universities (CSU), three University of California (UC) campuses,

and many private colleges such as the University of Southern California (USC), Pepperdine University, and Loyola-Maymount University.

Law Enforcement

As of 1990, there were approximately 55,471 law enforcement officers employed within the SCAG Region, yielding a ratio of one police officer and/or sheriff per 263 civilians (SCAG, 1993). Most cities in the district maintain their own police departments, although some cities may contract with county sheriffs departments or nearby larger cities for police services. Unincorporated areas receive police protection from county sheriff departments. The California Highway Patrol (CHP) provides law enforcement services on state and interstate highways. The CHP also provides back-up services, along with county sheriff departments, on federal lands such as national forests and Bureau of Land Management land. State rangers protect state park and recreation areas.

Many of the police and sheriff departments have begun programs to improve efficiencies in delivering protection services and increase involvement in policing. These programs have included drug and crime prevention programs and education, job training and community activities for youth and adults. Police departments have also begun to place a greater reliance upon communities to provide needed support services, such as neighborhood watch programs. Some law enforcement agencies have established a goal of increasing their efficiency in delivering protection services and utilization of existing facilities through consolidation of services, better use of underutilized facilities, and redefinition of service district boundaries and use of new technologies.

In an effort to increase law enforcement officers available to provide protection services, some law enforcement agencies are replacing officers in administrative functions with civilian personnel. In addition, Congress has passed the new crime bill which is expected to provide among other things, additional funding for more law enforcement officers.

Fire Protection

Fire protection consists of fire fighting, paramedical care, fire detection and building and fire code inspection. In addition, they are usually the first agency to respond to an emergency release of hazardous materials. City and county fire departments generally provide these services with some cities contracting with the county for services. The U.S. Forest Service provides fire protection on all national forest lands while the California Department of Forestry has jurisdiction over wildland fire protection in various unincorporated areas of Riverside and San Bernardino counties. The Los Angeles County Department of Forestry serves the northeastern area of Los Angeles County. Approximately 17,924 personnel (one employee per 765 civilians) were employed in fire protection within the four county area, as of June 1993 (SCAG, 1993).

Average response times vary from 4.35 to 15 minutes for emergency medical service and from 2.52 to 15 minutes for structure incidence fires (SCAG, 1993). Times vary according to a variety of factors, such as size of area covered, distance from station, time of day, and road congestion. Within the district, response times are often longer in rural areas than in suburban and urban areas.

TRANSPORTATION / CIRCULATION

Many agencies share authority for transportation planning and operations in the district. These agencies include SCAG, the county transportation authorities, local government transportation departments, and Caltrans, as well as the SCAQMD. For the purposes of the AQMP, however, the SCAQMD and SCAG share the responsibility for developing transportation measures to achieve air quality objectives.

SCAG, as the federally designated Metropolitan Planning Organization (MPO) for a major portion of Southern California, SCAG is required to adopt and periodically update a long-range transportation plan for the area of its jurisdiction [(Title 23 United States Code §134(g)(1)]. SCAG also is required, under §65080 of the Government Code, to prepare a regional transportation plan (RTP) for the area. These subsections also specify that actions by transportation agencies must be consistent with an adopted RTP that conforms with air quality requirements in order to obtain federal and state funding.

By law, the Regional Transportation Plan must meet federal and state air quality (conformity) requirements. Failure to comply with conformity requirements will result in a loss of transportation funding from these sources. Currently there are seven federally designated non-attainment areas in the SCAG region--South Coast Air Basin, Ventura County, San Bernardino County, Searles Valley, Coachella Valley, North Los Angeles County (Antelope Valley) and Imperial County. In the South Coast Air Basin, the RTP is required to reduce VOC emissions by approximately 15 tons per day and NOx emissions by approximately 16 tons a day.

The transportation system utilized in the district is a multi-faceted and multi-modal system for moving people and goods. It includes an extensive network of freeways, highways and roads; public transit; air and sea routes; and non-motorized modes of travel (walking and biking). The routes of travel to move people and goods are briefly summarized below. Please consult SCAG's 1998 Regional Transportation Plan for further detail.

Freeways, Highways and Arterials

There are almost 8,000 miles of freeway and high-occupancy vehicle (HOV) lanes linking the region. Additionally, there are 27,500 lane miles of arterials and highways. These roadways are an integral part of the transportation system, often acting as alternative routes to freeway driving.

On an annual basis, transit ridership peaked in the mid-eighties at somewhat less than 600 million passenger trips annually and since then slowly has declined to slightly less than 500 million passenger trips per year. Despite this downward trend, ridership has increased on the recently introduced rail services and for several smaller bus operators. However, in the critical home-to-work trips category, according to census data, transit's share declined almost 12 percent between 1980 and 1990. By comparison, drive-alone, home-to-work trips increased from 70.2 to 72.4 percent for an increase of 3.1 percent.

Transit service is provided by approximately 17 separate public agencies, with nine of these providing 98 percent of the existing public bus transit service. Local service is supplemented by municipal lines and shuttle services and private bus companies provide additional regional service.

Rail

The Southern California Regional Rail Authority operates commuter rail systems. Additionally, Amtrak provides inter-city service, principally between San Diego and San Luis Obispo.

The SCAG region is served by two main line freight railroads--the Burlington Northern Santa Fe (BNSF) and the Union Pacific Railroad (UP). These freight railroads connect Southern California with other U.S. regions, Mexico and Canada via their connections with other railroads. They also provide freight rail service within Southern California. In 1995, these railroads moved more than 91 million tons of cargo in and out of Southern California.

The SCAG region is also served by three short line or switching railroads: Harbor Belt Railroad, owned by BNSF and UP; Los Angeles Junction Railway Company, owned by BNSF; and Ventura County Railway, owned by Greenbrier. These freight railroads perform specific local functions, and serve as feeder lines to the trunk line railroads for moving goods to and from Southern California.

The two main line freight railroads maintain major facilities in the SCAG region: Intermodal facilities in Commerce (BNSF), San Bernardino (BNSF), City of Industry (UP), Los Angeles (UP) and Long Beach (UP). Major classification yards include Barstow (BNSF), East Los Angeles (UP) and West Colton (UP), and Rail-truck transload and warehousing facilities in Bakersfield, Glendale, Fontana, Pomona, Los Angeles, Long Beach, Wilmington and Commerce.

Maritime

Three major seaports serve southern California. These ports--Hueneme, Long Beach and Los Angeles--serve over 80 ocean carriers, the two major railroads and almost every trucking company in southern California. Port of Hueneme with its recent port expansion ranks as one of the premier automobile and agricultural product handling facilities in California. The ports of Long Beach and Los Angeles are full-service ports with facilities for containers,

autos and various bulk cargoes. With an extensive landside transportation network, the three ports moved more than 120 million tons of cargo in 1995. In particular, the San Pedro Bay Ports (Long Beach and Los Angeles) dominate the container trade in the Americas by shipping and receiving more than 5 million containers. Together, these two ports rank third, behind Rotterdam and Hong Kong, in world sea trade.

SOLID / HAZARDOUS WASTE

Solid Waste

California Code of Regulations (CCR) Title 14, Division 7 provides the state standards for the management of facilities that handle and/or dispose of solid waste. CCR Title 14, Division 7 is administered by the California Integrated Waste Management Board (CIWMB) and the designated Local Enforcement Agency (LEA). The designated LEA for each county is the County Department of Environmental Health. CCR Title 14, Division 7 establishes general standards to provide required levels of performance for facilities that handle and/or dispose of solid waste. Other requirements included in CCR Title 14, include operational plans, closure plans, and post-closure monitoring and maintenance plans. This regulation covers various solid waste facilities including, but not limited to: landfills, materials recovery facilities (MRFs) and transfer stations and composting facilities.

The district's four-county region is permitted to accept over 111,198 tons of municipal solid waste (MSW) each day. Solid wastes consist of residential wastes (trash and garbage produced by households), construction wastes, commercial and industrial wastes, home appliances and abandoned vehicles, and sludge residues (waste remaining at the end of the sewage treatment process).

A total of 39 Class III active landfills and two transformation facilities are located within the district with a total capacity of 111,198 tons per day. Los Angeles County has 14 active landfills with a permitted capacity of over 58,000 tons per day. San Bernardino County has nine public and private landfills within the district’s boundaries with a combined permitted capacity of 11,783 tons per day. Riverside County has 12 active sanitary landfills with a total capacity of 14,707 tons per day. Each of these landfills is located within the unincorporated area of the county and is classified as Class III. Orange County currently has four active Class III landfills with a permitted capacity of over 25,000 tons per day.

Hazardous Waste

Hazardous materials as defined in 40 CFR 261.20 and California Title 22 Article 9 (including listed substances, 40 CFR 261.30) are disposed of in Class I landfills. California has enacted strict legislation for regulating Class I landfills (California Health and Safety Code, §§ 25209 - 25209.7). For example, the treatment zone of a Class I landfill must not extend more than five feet below the initial surface and the base of the zone must be a minimum of five feet above the highest anticipated elevation of underlying groundwater [H&S Code,

§25209.1(h)]. The Health and Safety Codes also require Class I landfills to be equipped with liners, a leachate collection and removal system, and a groundwater monitoring system (H&S Code, §25209.2(a). Such systems must meet the requirements of the California Department of Toxic Substances Control (DTSC) and the California Water Resources Control Board (H&S Code, §25209.5).

Currently, the area within the district does not have any approved Class I landfills that accept hazardous wastes. There are currently two Class I landfills located in California. Chemical Waste Management Corporation in Kettleman City is a treatment, storage and disposal facility that has a capacity of 13 million cubic yards. At current disposal rates, this capacity would last for approximately 26 years (Turek, 1996). Laidlaw Environmental has a Class I facility in Buttonwillow with a permitted capacity of 13 million cubic yards. The current capacity is 800 thousand cubic yards. At current disposal rates, this capacity would last for approximately three years. In addition, treatment services and landfill disposal are available from the Laidlaw facility located in Westmoreland (Buoni, 1996).

In addition, hazardous waste can also be transported to permitted facilities outside of California. The nearest out-of-state landfills are U.S. Ecology, Inc., located in Beatty, Nevada; USPCI, Inc., in Murray, Utah; and Envirosafe Services of Idaho, Inc.; in Mountain Home, Idaho. Incineration is provided at the following out-of-state facilities: Aptus, located in Aragonite, Utah and Coffeyville, Kansas; Rollins Environmental Services, Inc., located in Deer Park, Texas and Baton Rouge, Louisiana; Chemical Waste Management, Inc., in Port Arthur, Texas; and Waste Research & Reclamation Co., Eau Claire, Wisconsin (Kirby, 1996).

HAZARDS

Hazardous Materials Management Planning

State law requires detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of to prevent or mitigate injury to health or the environment in the event that such materials are accidentally released. The California Office of Emergency Services (OES) enforces these requirements. Federal laws, such as the Emergency Planning and Community-Right-to-Know Act of 1986 (also known as Title III of the Superfund Amendments and Reauthorization Act or SARA) impose similar requirements.

Hazardous Materials Transportation

The U.S. Department of Transportation (U.S.DOT) has the regulatory responsibility for the safe transport of hazardous materials between states and to foreign countries. U.S.DOT regulations govern all means of transportation, except for those packages shipped by mail. Hazardous materials sent by U.S. mail are covered by the U.S. Postal Service (USPS) regulations. U.S.DOT regulations are contained in the Code of Federal Regulations, Title 49 (49 CFR); USPS regulations are in 39 CFR.

Common carriers are licensed by the California Highway Patrol (CHP), pursuant to the California Vehicle Code, §32000. This section requires licensing of every motor (common) carrier who transports, for a fee, in excess of 500 pounds of hazardous materials at one time and every carrier, if not for hire, who carries more than 1,000 pounds of hazardous material of the type requiring placards. Common carriers conduct a large portion of their business in the delivery of hazardous materials.

Under the Resource Conservation and Recovery Act (RCRA) of 1976, the U.S.EPA sets standards for transporters of hazardous waste. In addition, the State of California regulates the transport of hazardous waste originating or passing through the state. State regulations are contained in CCR, Title 13. Hazardous waste must be regularly removed from generating sites by licensed hazardous waste transporters. Transported materials must be accompanied by hazardous waste manifests.

Two state agencies have primary responsibility for enforcing federal and state regulations and responding to hazardous materials transportation emergencies: the California Highway Patrol (CHP) and the California Department of Transportation (Caltrans).

The CHP enforces hazardous materials and hazardous waste labeling and packing regulations that prevent leakage and spills of material in transit and provide detailed information to cleanup crews in the event of an accident. Vehicle and equipment inspection, shipment preparation, container identification, and shipping documentation are all part of the responsibility of the CHP. The CHP conducts regular inspections of licensed transporters to assure regulatory compliance. Caltrans has emergency chemical spill identification teams at 72 locations throughout the state.

Hazardous Material Worker Safety Requirements

The California Occupational Safety and Health Administration (Cal/OSHA) and the Federal Occupational Safety and Health Administration (OSHA) are the agencies responsible for assuring worker safety in the handling and use of chemicals in the workplace. In California, Cal/OSHA assumes primary responsibility for developing and enforcing workplace safety regulations.

Under the authority of the Occupational Safety and Health Act of 1970, OSHA has adopted numerous regulations pertaining to worker safety (contained in 29 CFR - Labor). These regulations set standards for safe workplaces and work practices, including the reporting of accidents and occupational injuries. Some OSHA regulations contain standards relating to hazardous materials handling, including workplace conditions, employee protection requirements, first aid, and fire protection, as well as material handling and storage. Because California has a federally-approved OSHA program, it is required to adopt regulations that are at least as stringent as those found in 29 CFR.

Cal/OSHA regulations concerning the use of hazardous materials in the workplace (which

are detailed in CCR, Title 8) include requirements for employee safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces hazard communication program regulations, which contain training and information requirements, including procedures for identifying and labeling hazardous substances. The hazard communication program also requires that Material Safety Data Sheets (MSDS) be available to employees and that employee information and training programs be documented. These regulations also require preparation of emergency action plans (escape and evacuation procedures, rescue and medical duties, alarm systems, and emergency evacuation training).

Both federal and state laws include special provisions for hazard communication to employees in research laboratories, including training in chemical work practices. The training must include instruction in methods for the safe handling of hazardous materials, an explanation of MSDS, use of emergency response equipment and supplies, and an explanation of the building emergency response plan and procedures.

Chemical safety information must also be available at the workplace. More detailed training and monitoring is required for the use of carcinogens, ethylene oxide, lead, asbestos, and certain other chemicals listed in 29 CFR. Emergency equipment and supplies, such as fire extinguishers, safety showers, and eye washes, must also be kept in accessible places. Compliance with these regulations reduces the risk of accidents, worker health effects, and emissions.

The National Fire Code (NFC), Standard 45 (published by the National Fire Protection Association) contains standards for laboratories using chemicals, which are not requirements, but are generally employed by organizations in order to protect workers. These standards provide basic protection of life and property in laboratory work areas through prevention and control of fires and explosions, and also serve to protect personnel from exposure to non-fire health hazards.

While NFC Standard 45 is regarded as a nationally recognized standard, the California Fire Code (24 CCR) contains state standards for the use and storage of hazardous materials and special standards for buildings where hazardous materials are found. Some of these regulations consist of amendments to NFC Standard 45. State Fire Code regulations require emergency pre-fire plans to include training programs in first aid, the use of fire equipment, and methods of evacuation.

Hazardous Waste Handling Requirements

Under RCRA, a major new federal hazardous waste regulatory program was created that is administered by the U.S. EPA. Pursuant to RCRA, U.S. EPA regulates the generation, transportation, treatment, storage, and disposal of hazardous waste.

RCRA was amended in 1984 by the Hazardous and Solid Waste Act (HSWA), which

affirmed and extended the concept of regulating hazardous wastes from generation through disposal. HSWA specifically prohibits the use of certain techniques for the disposal of some types of hazardous wastes.

Under RCRA, individual states may implement their own hazardous waste programs in lieu of RCRA as long as the state program is at least as stringent as the federal RCRA requirements. U.S. EPA approved California's program to implement federal regulations as of August 1, 1992.

The California Environmental Protection Agency Department of Toxic Substance Control (DTSC) administers the Hazardous Waste Control Law (HWCL). Under HWCL, DTSC has adopted extensive regulations governing the generation, transportation, and disposal of hazardous wastes. HWCL differs little from RCRA; both laws impose "cradle to grave" regulatory systems for handling hazardous wastes in a manner that protects human health and the environment. Regulations implementing HWCL are generally more stringent than regulations implementing RCRA.

Regulations implementing HWCL list over 780 hazardous chemicals as well as nearly 30 more common materials that may be hazardous. HWCL regulations establish criteria for identifying, packaging and labeling hazardous wastes. They prescribe management practices for hazardous wastes; establish permit requirements for hazardous waste treatment, storage, disposal and transportation; and identify hazardous wastes that cannot be disposed of in landfills.

Under both RCRA and HWCL, hazardous waste manifests must be retained by the generator for a minimum of three years. Hazardous waste manifests list a description of the waste, its intended destination and regulatory information about the waste. A copy of each manifest must be filed with DTSC. The generator must match copies of hazardous waste manifests with certification notices from the treatment, disposal, or recycling facility.

Emergency Response to Hazardous Materials and Wastes Incidents

Pursuant to the Emergency Services Act, California has developed an Emergency Response Plan to coordinate emergency services provided by federal, state, and local government agencies and private persons. Response to hazardous materials incidents is one part of this plan. The Plan is administered by OES, which coordinates the responses of other agencies including U.S. EPA, CHP, Department of Fish and Game, the applicable RWQCB, and local fire departments **(**see California Government Code, §8550).

In addition, pursuant to the Hazardous Materials Release Response Plans and Inventory Law of 1985 (the Business Plan Law), local agencies are required to develop "area plans" for response to releases of hazardous materials and wastes. These emergency response plans depend to a large extent on the business plans submitted by persons who handle hazardous materials. An area plan must include pre-emergency planning of procedures for emergency

response, notification and coordination of affected government agencies and responsible parties, training, and follow-up.

Hazardous Materials Incidents

Hazard concerns are related to the risks of fire, explosions, or releases of hazardous substances in the event of accident or upset conditions. Hazard is thus related to the production, use, storage, and transport of hazardous materials. Industrial production and processing facilities are potential sites for hazardous materials. Some facilities produce hazardous materials as their end product, while others use such materials as an input to their production processes. Examples of hazardous materials used on a consumable basis include fuels, paints, paint thinner, nail polish, and solvents. Hazardous materials may be stored at facilities producing such materials and at facilities where hazardous materials are part of the production processes. Storage refers to the bulk handling of hazardous materials before and after they are transported to the general geographical area of use. Currently, hazardous materials are transported throughout the district in great quantities via all modes of transportation including rail, highway, water, air and pipeline.

Hazardous materials incidents are reported to the Governor's Office of Emergency Services (OES), which compiles and archives the information. The data on accidental hazardous materials releases presented below are based on a database search of the OES Warning Center's Hazardous Material Spills Reports conducted by OES staff. Even though the record search disclosed these spills, it should be noted that there could have been other spills not reported to OES.

From January 1, 2002 to July 28, 2002, the counties of Orange, Riverside, San Bernardino and Los Angeles reported a total of 1,346 hazardous material releases, while the statewide total was 3,980 (Table 3-8). The breakdown is as follows: 711 releases in Los Angeles County, 197 releases in Orange County, 234 releases in Riverside County, and 204 in San Bernardino County. Tables 3-9 through 3-12 provide information regarding releases of materials that could be used to formulate conventional and future compliant coatings. Table 3-13 provides information specifically regarding releases of paints and coatings.

TABLE 3-8

REPORTED HAZARDOUS MATERIALS INCIDENTS – 2002 (1/1-7/28)
ALL MATERIALS

Location	Reported Incidents	% of Reported Four-County Incidents
Los Angeles	711	53
Orange	197	15
Riverside	234	17
San Bernardino	204	15
Total	**1,346**	**100**

California Total	3,980

Source: Office of Emergency Services

TABLE 3-9

2002 (1/1-7/28) HAZARDOUS MATERIALS RELEASE INFORMATION: LOS ANGELES COUNTY

Conventional Solvent	Number of Releases	Amount Released (gallons)
Toluene	2	0.5
Xylene	1	0.5
Mineral Spirits	NR[a]	--
MEK[b]	1	0.5
Replacement Solvent		
Acetone	2	45
Texanol	NR	--
PCBTF[c]	NR	--
EGBE[d]	NR	--

Source: Office of Emergency Services

[a] NR = none reported

[b] MEK = methyl ethyl ketone

[c] PCBTF = parachlorobenzotriflouride

[d] EGBE = ethylene glycol butyl ether

TABLE 3-10

2002 (1/1-7/28) HAZARDOUS MATERIALS RELEASE INFORMATION: ORANGE COUNTY

Compound	Number of Releases	Amount Released
Toluene	NR[a]	--
Xylene	NR	--
Mineral Spirits	NR	--
MEK[b]	NR	--
Replacement Solvent		
Acetone	NR	--
Texanol	NR	--
PCBTF[c]	NR	--
EGBE[d]	NR	--

Source: Office of Emergency Services

[a] NR = none reported

[b] MEK = methyl ethyl ketone

[c] PCBTF = parachlorobenzotriflouride

[d] EGBE = ethylene glycol butyl ether

TABLE 3-11

2002 (1/1-7/28) HAZARDOUS MATERIALS RELEASE INFORMATION: RIVERSIDE COUNTY

Conventional Solvent	Number of Releases	Amount Released (gallons)
Toluene	NR [a]	--
Xylene	NR	--
Mineral Spirits	NR	--
MEK[b]	NR	--
Replacement Solvent		
Acetone	NR	--
Texanol	NR	--
PCBTF[c]	NR	--
EGBE[d]	NR	--

Source: Office of Emergency Services

[a] NR = none reported
[b] MEK = methyl ethyl ketone
[c] PCBTF = parachlorobenzotriflouride
[d] EGBE = ethylene glycol butyl ether

TABLE 3-12

2002 (1/1-7/28) HAZARDOUS MATERIALS RELEASE INFORMATION: SAN BERNARDINO COUNTY

Conventional Solvent	Number of Releases	Amount Released (gallons)
Toluene	NR[a]	--
Xylene	NR	--
Mineral Spirits	NR	--
MEK[b]	NR	--
Replacement Solvent		
Acetone	NR	--
Texanol	NR	--
PCBTF[c]	NR	--
EGBE[d]	NR	--

Source: Office of Emergency Services

[a] NR = none reported
[b] MEK = methyl ethyl ketone
[c] PCBTF = parachlorobenzotriflouride
[d] EGBE = ethylene glycol butyl ether

TABLE 3-13

REPORTED PAINT/COATING INCIDENTS – 2002 (1/1-7/28)

Location	Reported Incidents	Amount (gallons)
Los Angeles	3	35
Orange	1	20
Riverside	4	41
San Bernardino	3	157
Total	**11**	**253**

Source: Office of Emergency Services

Human Health

This section briefly describes the existing setting for human health as it is affected by emissions from existing coating formulations. The actual effects of exposure to coatings, however, depend on such factors as the exposure duration, potency of the solvents of concern, exposure frequency, and other factors. As noted in Table 3-14, AIM coatings are currently formulated with toxic substances with a range of adverse human health effects.

TABLE 3-14

TOXICITY OF CURRENTLY AVAILABLE COATING SOLVENTS

Traditional/Conventional Solvents				
Solvents	**TLV (ACGIH) (ppm)**	**PEL (OSHA) (ppm)**	**IDLH (ppm)**	**Health Hazard**
Toluene	100	200	2,000	Moderate irritation - eye, nose, throat; narcosis: skin; suspect teratogen; mutagen
Xylene	100	100	1,000	Mild irritation - eye, nose, throat; narcosis; skin
MEK	200	200	3,000	Mild irritation - eye, nose, throat; narcosis
Isopropanol	400	400	12,000	Mild irritation - eye, nose, throat; narcosis
Butyl Acetate	150	150	10,000	Moderate irritation - eye, nose, throat; narcosis
Isobutyl Alcohol	50	100	8,000	Mild irritation - eye, nose, throat; suspect carcinogen
Stoddard Solvent	100	500	5,000	Narcosis; mild irritant
Petroleum Distillates (Naptha)	100	400	10,000	Mild irritation; narcosis
EGBE	25	50	700	Mild irritation - eye, nose, throat; anemia; skin
EGME	5	25	Not Available	Cumulative CNS; skin; suspect reproductive effects; blood disorders
EGEE	5	200	Not Available	Cumulative blood damage; moderate irritation of eyes, throat, skin

[a] Source: American Conference of Government Industrial Hygienists

[b] Source: OSHA

[c] IDLH = immediately dangerous to life and health