MEASURES TO REDUCE PARTICULATE MATTER IN SAN DIEGO COUNTY

December 2005

SAN DIEGO COUNTY
AIR POLLUTION CONTROL DISTRICT
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1.0 SUMMARY

Particulate matter (PM) is a generic term for a broad class of suspended particles (solids and liquid droplets) arising from an array of sources. PM is a challenging air quality and public health issue. Exposure to PM is linked to increased frequency and severity of asthma attacks, pneumonia, and bronchitis, and increased risk of premature death in people with existing respiratory or cardiac disease.

In response to public health concerns, in 2003 the California State Legislature enacted Senate Bill 656 (SB 656, Sher)—codified as Health and Safety Code (HSC) section 39614—requiring additional controls to reduce ambient concentrations of particles 10 micrometers[1] (μm) in diameter or smaller (PM10), and the subset of fine particles 2.5 μm in diameter or smaller (PM2.5). This report addresses SB 656 implementation in San Diego County.

San Diego County is an Attainment Area for federal PM standards and a Nonattainment Area for state PM standards, which are more stringent. Fine PM air quality is improving in San Diego County as a result of emission control regulations addressing combustion sources, the major source of fine particles. However, ambient concentrations of PM10, which includes resuspended soil and road dust, have changed very little.

Pursuant to SB 656, in November 2004 the California Air Resources Board (ARB) adopted lists of the most readily available, feasible, and cost-effective statewide and local measures to reduce PM. Statewide measures generally fall under the jurisdiction of ARB. California air districts adopt and implement local measures.

The statewide measures include measures already adopted by ARB as well as proposed future measures. Over 100 potential air district measures are also listed by ARB, covering a broad spectrum of sources addressing the different types of PM problems that may exist. SB 656 requires each air district to review the list of potential air district measures and select the most promising measures for local implementation based on the nature and extent of PM pollution in their district. Implementation schedules must be adopted after prioritizing the measures based on their cost-effectiveness and their effect on public health, air quality, and emission reductions.

The Air Pollution Control District (District) has evaluated ARB's list of potential air district measures using the statutory criteria, finding that a majority are already being implemented in San Diego County primarily to address ozone air quality. However, the District does not have source category-specific control measures for PM emissions from residential wood combustion nor for fugitive dust from construction sites and unpaved roads. Pursuant to SB 656, measures addressing these sources are proposed for further detailed evaluation and, if appropriate, future rule development (or non-regulatory development, if applicable), adoption, and implementation in San Diego County. The rule development evaluation will further refine the portions of these measures that are most feasible and cost-effective for affected activities in San Diego County.

[1]A micrometer is a unit of length equal to one millionth of a meter or about one twenty-five-thousandth of an inch. For example, a human hair is about 50 to 100 micrometers in diameter.

2.0 BACKGROUND INFORMATION

2.1 THE NATURE OF PARTICULATE MATTER

2.1.1 Major Components

The four major components of airborne particulate matter (PM) are:

- *Carbon compounds* directly emitted in exhaust from combustion sources or formed in the atmosphere from reactive organic gas emissions.
- *Ammonium nitrate particles* formed in the atmosphere by the reaction of oxides of nitrogen gases from combustion sources and ammonia emitted from motor vehicles and dairy and farming operations.
- *Ammonium sulfate particles* formed in the atmosphere by the reaction of oxides of sulfur gases from combustion sources and ammonia emitted from motor vehicles and dairy and farming operations.
- *Crustal/geological material* composed of minerals such as silicon, aluminum, iron, and calcium arising from construction activities and travel on unpaved roads.

2.1.2 Types of Sources

Key sources of PM are:

- *Fuel combustion sources* such as off-road construction equipment, trucks, passenger cars, aircraft, ships, and power plants.
- *Wood or biomass combustion sources* such as woodstoves, fireplaces, and open burning.
- *Ammonia sources* such as motor vehicles, livestock operations, and fertilizer application.
- *Fugitive dust sources* such as unpaved and paved roads, construction and demolition sites, and mineral extraction and processing.

2.1.3 Particle Size and Characteristics

Coarse versus Fine Particles

PM is typically categorized according to particle size. PM10 refers to particles 10 µm or less in diameter, while PM2.5 refers to a subset composed of particles 2.5 µm or less in diameter. Particles in the 2.5 to 10-µm size range represent the "coarse" fraction of PM10, while those 2.5 µm or smaller represent the "fine" fraction.

In San Diego County, on an annual average basis the total PM10 mass is composed of about 50 percent coarse particles and 50 percent fine particles. (A discussion of monthly variation in PM10 and PM2.5 levels is presented in Section 3.5.3.) Consequently, implementing control

measures to reduce both the coarse and fine fractions is an effective PM strategy for San Diego County.

Primary versus Secondary Particles
PM can further be distinguished between primary and secondary particles. Primary particles are directly emitted into the air and are mostly coarse particles. Examples include resuspended soil or road dust. An exception is elemental carbon (black soot), a fine particle (2.5 μm or smaller) directly emitted from combustion processes. Secondary particles are mostly fine particles and are not directly emitted but are formed in the atmosphere (like ozone) by reactions of precursor gas emissions from combustion sources. The major precursor gases for secondary particles are oxides of nitrogen (NOx), oxides of sulfur (SOx), volatile organic compounds (VOC), and ammonia. Secondary formation processes can result in either new particles or the addition of PM to pre-existing particles.

Particle Lifetime
Coarse particles are removed by gravitational settling and are short-lived in the atmosphere—on the order of hours to days. Consequently, coarse particles tend to be unevenly distributed across urban areas. This contrasts with fine particles, which are more buoyant and can remain suspended in the atmosphere for days to weeks and travel long distances. Consequently, fine particles tend to be more uniformly distributed over urban areas.

2.1.4 Links with Ozone

Ozone and PM pollution are caused by many of the same sources (combustion sources) and precursors (NOx and VOC emissions). Consequently, control strategies to reduce ozone provide dual benefits for public health by also reducing PM. However, the peak seasons for ozone (spring and summer) differ from the peak seasons for PM (fall and winter), resulting from differences in seasonal source influences and atmospheric chemistry processes.

2.2 HEALTH EFFECTS OF PM EXPOSURE

There is a considerable body of evidence indicating that exposure to PM can cause health problems, as described below.

2.2.1 Particle-Size Dependence

The health effects of PM exposure are specific to the cardio-respiratory (heart-lung) system and depend on particle size. Most particles larger than 10 μm are caught in the nose and throat, never reaching the lungs. However, PM10 can be inhaled into the bronchial tubes (lung airways). The largest of these particles are trapped by mucus that naturally coats the lung airways and cilia (microscopic hair-like structures) that lines them and moves in a rhythmic motion to push trapped particles up and out.

Fine PM2.5 can evade the respiratory system's natural defenses and penetrate deeper into the alveolar (gas-exchange) regions of the lung where there is no mucus or cilia to move the particles up and out. Consequently, the deposited particles are retained for months to years and can cause

lung injury and inflammation, which impairs breathing. Lung inflammation can also lead to blood clot formation,[2] which is a risk factor for heart attacks[3] and strokes.[4] Some PM2.5 may even be absorbed into the circulation system (bloodstream), directly affecting the heart and other organs.[5]

2.2.2 Chronic and Acute Effects

Both long-term and short-term particle exposures have been linked to health problems. Long-term exposure, such as that experienced by people living for many years in areas with high PM levels, has been associated with chronic (ongoing) health problems such as reduced lung function[6] and chronic bronchitis,[7] and potential premature death.

Short-term particle exposure (hours or days) is associated with acute (short-term) health effects. Short-term exposure can aggravate lung disease, causing asthma attacks[8] and acute bronchitis, and may also increase susceptibility to respiratory infections. In people with heart disease, short-term exposures have been linked to heart attacks and cardiac arrhythmias.[9]

2.2.3 Toxic Components

Some components of PM2.5 are toxic air contaminants, meaning they are suspected of being a human carcinogen[10] with no known threshold below which potential adverse impacts would not result. PM from diesel-fueled engines has been identified by ARB as a toxic air contaminant, based on data linking exposure to increased risks of lung cancer and respiratory disease. Additionally, burning wood that has been treated with preservatives (such as lumber and plywood) emits PM that contains toxic air contaminants, including dioxins and benzene.

2.2.4 At-Risk Individuals

Certain population groups are more susceptible to particle-associated health effects. People with lung disease such as chronic bronchitis, asthma, or emphysema[11] are at increased health risk

[2]A blood clot forms when the cells in blood clump together, forming a gelatin-like mass of blood components that can potentially obstruct a blood vessel and restrict blood flow.
[3]A heart attack occurs when heart muscle is damaged because of a lack of blood flow to the heart, typically accompanied by chest pain and other warning signs.
[4]A stroke occurs when the brain is damaged because of lack of blood flow to a part of the brain, caused by an obstruction or the rupture of a blood vessel.
[5]Environment Canada, *Ambient Particular Matter: An Overview* (December 18, 2002).
[6]Lung function is a measure of the volume and flow rate of inhaled and exhaled air.
[7]Bronchitis is characterized by inflammation of the bronchial tubes (lung airways), resulting in a persistent cough that produces excess mucus.
[8]Asthma is a chronic inflammatory disorder of the lungs that causes recurrent episodes of wheezing, breathlessness, chest tightness, and cough.
[9]Cardiac arrhythmia is characterized by irregular or rapid heartbeat.
[10]A carcinogen is a substance that is capable of causing cancer—i.e., uncontrolled growth of abnormal cells that tend to invade surrounding tissues and spread to other parts of the body—after prolonged or excessive exposure.
[11]Emphysema is a progressive condition causing irreversible damage to the lower (gas exchange) portions of the lung and a persistent shortness of breath.

because the presence of respiratory disease can reduce the ability of the lungs to clear particles. Similarly, people with heart disease such as coronary artery disease[12] or congestive heart failure[13] are also at increased health risk. Particles can trigger irregular heartbeat and can also lead to blood clot formation.

Additionally, studies show that children and elderly people are at particular health risk from exposure to PM. The elderly are more likely to have underlying lung or heart disease and therefore are more susceptible to particle-associated effects. Additionally, respiratory defense mechanisms may decline with age. Children also have higher incidences of preexisting respiratory conditions. Other factors that render children more susceptible to PM exposures include more time spent outdoors, greater activity levels and more air (and therefore more PM) inhaled per body weight and lung surface area, and the potential for irreversible effects on the developing lung.

Further, people of all ages that are physically active are at increased health risk from exposure to PM. Exercise and physical activity cause people to breathe faster and more deeply, receiving higher doses of particles per unit of lung surface area compared to people at rest.

2.3 AIR QUALITY STANDARDS

Both the U.S. Environmental Protection Agency (EPA) and ARB have established health-based ambient air quality standards for PM10 and PM2.5 (Table 1). The standards identify the ambient concentrations above which PM may cause adverse health effects in humans. Annual and 24-hour standards are in place to protect against different exposure effects. California's standards are generally more stringent than federal standards and provide additional protection for the most sensitive groups of people.

TABLE 1
AMBIENT AIR QUALITY STANDARDS FOR PM (μg/m3)

Pollutant	Measurement	Federal Standard	State Standard
PM10	Annual Average	50	20
	24-hour Average	150	50
PM2.5	Annual Average	15	12
	24-hour Average	65	--

[12]Coronary artery disease is a narrowing of the arteries that supply blood to the heart muscle. When these arteries become blocked, the heart is deprived of oxygen and can become permanently damaged.
[13]Congestive heart failure is the inability of the heart to maintain normal blood circulation, resulting in the accumulation of fluid in various body regions.

2.4 CALIFORNIA SENATE BILL 656 (2003 STATUTES)

The goal of SB 656 (Attachment A) is to accelerate progress toward attaining ambient PM standards. As a first step, ARB is required to adopt lists of the most readily available, feasible, and cost-effective statewide measures and local air district measures to reduce PM from stationary, area, and mobile sources. The listed measures must be based on rules, regulations, and programs existing in one or more California regions as of January 1, 2004.

ARB adopted lists of statewide and local measures on November 18, 2004. The statewide measures include measures already adopted by ARB and proposed future measures associated with the Diesel Risk Reduction Program and the California State Implementation Plan. Over 100 potential air district measures are also listed by ARB (Attachment B), covering a broad spectrum of sources addressing the different types of PM problems that may exist.

SB 656 requires each air district to review the list of potential air district measures and select measures that are appropriate for local implementation based on the nature and extent of PM pollution in their district. Implementation schedules must be developed after prioritizing the selected measures based on their effect on public health, air quality, and emission reductions, and considering the cost-effectiveness of each measure.

The District has evaluated ARB's list of potential air district measures using the statutory criteria. Results of the evaluation are presented in Section 5.0 of this report, along with an implementation schedule for the selected measures.

3.0 PM AIR QUALITY IN SAN DIEGO COUNTY

3.1 MONITORING NETWORK

The District operates a network of monitors that measure concentrations of ambient PM10 and PM2.5 at various sites throughout San Diego County (Figure 1) pursuant to federal and state requirements. The resulting data are used to define the nature and extent of ambient PM in San Diego County and to demonstrate attainment or nonattainment of ambient PM standards.

FIGURE 1
PM MONITORS IN SAN DIEGO COUNTY

3.2 ATTAINMENT STATUS

Table 2 lists San Diego County's designation status[14] (attainment or nonattainment) in 2005 for federal and state PM air quality standards. San Diego County is an Attainment Area for federal PM10 and PM2.5 standards. However, the region is a Nonattainment Area for both state PM10 and PM2.5 standards, which are more stringent than federal standards. Nearly all of California is

[14]Federal designations are specified in Part 81.305 of the Code of Federal Regulations, Title 40. State designations are specified in sections 60205-60210 of the California Code of Regulations, Title 17.

designated as nonattainment for state PM10 standards,[15] while approximately half of California is designated as nonattainment for the state PM2.5 standard.

TABLE 2
PM DESIGNATION STATUS
SAN DIEGO COUNTY, 2005

Pollutant	Measurement	Federal Standard	State Standard
PM10	Annual Average	Attainment[16]	Nonattainment
	24-hour Average	Attainment[16]	Nonattainment
PM2.5	Annual Average	Attainment[17]	Nonattainment
	24-hour Average	Attainment	--

3.2.1 Attainment Planning Requirements

Federal PM attainment plan requirements do not apply because of San Diego County's status as a federal PM Attainment Area. State law does not require plans for attaining state PM standards.[18] Nevertheless, the District and ARB have adopted numerous control measures applying to most sources of PM and its precursors in San Diego County. Some of the measures are general rules to control directly emitted PM, such as District Rule 50 (Visible Emissions) and District Rule 52 (Particulate Matter). Numerous other measures are being implemented primarily as part of ozone air quality efforts. These measures are identified in Section 4.

3.3 EMISSION INVENTORIES

3.3.1 Directly Emitted PM

PM10

Directly emitted PM10 contributes approximately 70 percent of the ambient PM10 in San Diego County on an annual average basis.[19] Table 3 identifies the sources of directly emitted PM10 and the estimated quantities of emissions for each category.

Direct PM10 emissions are projected to increase by 18% in San Diego County between 2005 and 2020 (from 114 tons/day to 134 tons/day). This projected increase is mostly due to growth in emissions from area sources, primarily fugitive dust resulting from vehicle travel and

[15]Lake County is the only Attainment Area for state PM10 standards as of 2005.
[16]The region is Attainment-Unclassifiable for federal PM10, pursuant to Clean Air Act section 107(d)(4)(B)(iii).
[17]EPA previously announced its intention to designate San Diego County as PM2.5 nonattainment based on 2001-03 air monitoring data. However, federal PM2.5 standards are attained in the region based on 2002-04 data. Accordingly, on April 5, 2005, EPA designated San Diego County as a federal Attainment Area for PM2.5.
[18]HSC section 40911 identifies the pollutants for which plans are required if nonattainment: ozone, carbon monoxide (CO), sulfur dioxide, and nitrogen dioxide.
[19]ARB, "California Almanac of Emissions and Air Quality (2005 Edition)."

construction and demolition operations. The growth in these area sources is primarily due to population growth and increases in vehicle miles traveled.

TABLE 3
DIRECTLY EMITTED PM10 EMISSION TRENDS
IN SAN DIEGO COUNTY (tons/day)

Emission Source	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020
Stationary	**17**	**12**	**5**	**7**	**10**	**7**	**8**	**11**	**11**	**12**
Area	**44**	**56**	**69**	**83**	**79**	**88**	**94**	**99**	**105**	**110**
Fugitive Dust	39	50	63	76	73	81	87	92	97	102
Residential Wood Combustion	2	3	3	3	3	3	3	3	3	4
Other	2	3	3	4	4	4	4	4	5	5
Mobile	**9**	**10**	**12**	**14**	**12**	**12**	**12**	**12**	**12**	**11**
On-road	2	3	4	5	4	4	5	5	5	5
Off-road	7	8	8	9	8	8	8	7	7	7
All Sources	***70***	***78***	***86***	***104***	***101***	***107***	***114***	***122***	***127***	***134***

Note: Figures may not sum to exact totals due to rounding.
Source: ARB's *California Almanac of Emissions and Air Quality (2005 Edition)* with updated residential wood combustion data.

PM2.5

Directly emitted PM2.5 contributes approximately 50 percent of the ambient PM2.5 in San Diego County on an annual average basis.[20] Table 4 identifies the sources of directly emitted PM2.5 and the estimated quantities of emissions for each category.

Direct PM2.5 emissions are projected to increase by 18% in San Diego County between 2005 and 2020 (from 39 tons/day to 46 tons/day). This increase is due to projected growth in stationary and area emission sources, attributed to population growth, and increases in vehicle miles traveled.

TABLE 4
DIRECTLY EMITTED PM2.5 EMISSION TRENDS
IN SAN DIEGO COUNTY (tons/day)

Emission Source	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020
Stationary	**11**	**9**	**3**	**4**	**6**	**6**	**7**	**9**	**9**	**11**
Area	**12**	**15**	**18**	**21**	**20**	**21**	**23**	**24**	**25**	**26**
Fugitive Dust	8	10	12	15	14	16	17	18	19	19
Residential Wood Combustion	2	3	3	3	3	3	3	3	3	3
Other	2	2	2	3	3	3	3	3	3	3
Mobile	**8**	**9**	**10**	**12**	**10**	**10**	**10**	**10**	**9**	**9**
On-road	2	2	3	4	3	3	3	3	3	3
Off-road	6	7	7	8	7	7	7	7	6	6
All Sources	***31***	***33***	***31***	***36***	***35***	***37***	***39***	***42***	***44***	***46***

Note: Figures may not sum to exact totals due to rounding.
Source: ARB's *California Almanac of Emissions and Air Quality (2005 Edition)* with updated residential wood combustion data.

[20]ARB, "Characterization of Ambient PM10 and PM2.5 in California," June 2005.

3.3.2 PM Precursors

The emission inventory does not include estimates of secondary particles (nitrates, sulfates, and organic carbon). However, relative contributions may be inferred from precursor emissions of NOx, VOC, and SOx, which are addressed in the emission inventory. Table 5 identifies PM-precursor emission trends in San Diego County.[21] Substantial reductions in PM precursors are projected, which should lead to substantial reductions in secondary PM formation.

NOx emissions are projected to decrease by 49% in San Diego County between 2005 and 2020 (from 177 tons/day to 91 tons/day). VOC emissions are projected to decrease by 9% over the same timeframe (from 188 tons/day to 172 tons/day). These projected decreases are the result of adopted emission control measures described in Section 4. SOx emissions are lower than in the past due to improved emission controls and cleaner fuels and are projected to remain approximately the same through 2020.

TABLE 5
PM PRECURSOR EMISSION TRENDS
IN SAN DIEGO COUNTY
(tons/day)

Pollutant	1995	2000	2005	2010	2015	2020
NOx	262	221	177	142	110	91
VOC	271	228	188	175	171	172
SOx	8	3	3	3	3	3

Source: ARB's *California Almanac of Emissions and Air Quality (2005 Edition).*

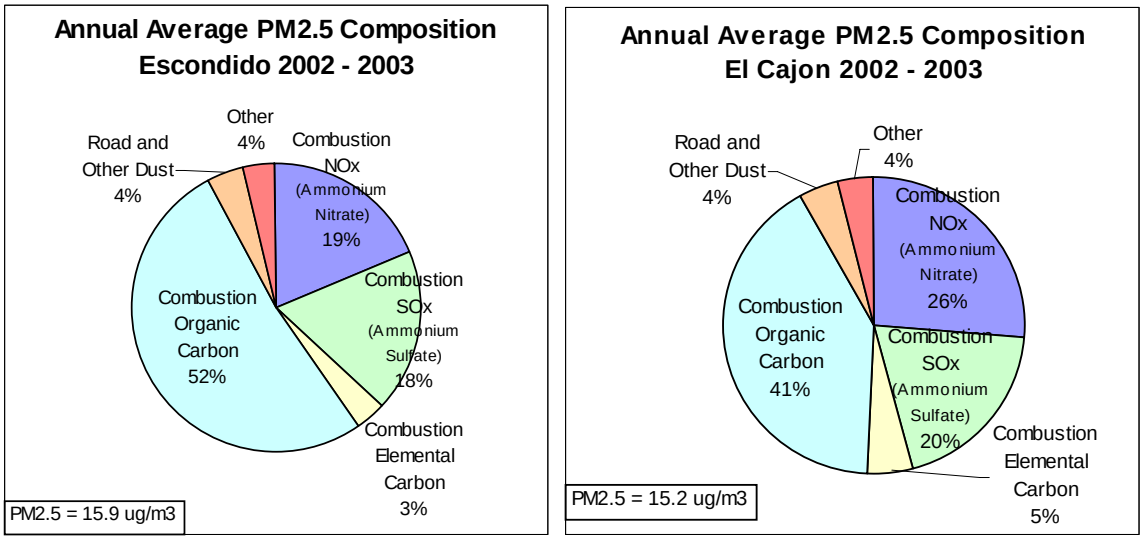
3.4 PM2.5 SOURCE APPORTIONMENT

Detailed analysis of PM2.5 monitoring data from Escondido and El Cajon (Figure 2) indicates a large majority (92%) of ambient PM2.5 results from combustion sources. Key combustion sources in San Diego County are off-road construction equipment, trucks, passenger cars, aircraft, ships, residential wood combustion, and power plants.

Combustion sources under District jurisdiction are already subject to emission control requirements for PM and secondary particle precursors. An exception is residential wood combustion, which can contribute to elevated PM levels on cold winter nights. Pursuant to SB 656, the District is proposing a combination of non-regulatory and regulatory measures to address this PM source (see Section 5).

[21] Ammonia is also a contributor to PM2.5 formation. However, because of uncertainty in ammonia emission estimates, its trends are not reported here.

FIGURE 2
PM2.5 SOURCE APPORTIONMENT



Source: ARB Report, *Characterization of Ambient PM10 and PM2.5 in California*, June 2005.

3.5 AMBIENT PM IN SAN DIEGO COUNTY

The chemical and physical properties of PM vary with season, region, meteorology, and source category. Consequently, characterizing ambient PM in San Diego County is not straightforward. Monitoring results indicate discernable daily and seasonal fluctuations in PM levels, PM size fractions, and PM chemical make-up. Additionally, coarse PM concentrations can vary throughout the region, while fine PM concentrations are more spatially uniform.

The District and ARB staffs have evaluated ambient PM data for San Diego County. ARB's report is presented in Attachment C. PM-related information is also provided in ARB's *California Almanac of Emissions and Air Quality (2005 Edition).*[22] Primary findings are discussed below.

3.5.1 PM Air Quality Trends

PM10

The trend in annual average PM10 concentrations throughout San Diego County is illustrated in Figure 3. PM10 concentrations have changed very little over the past 12 years.

[22]Available on ARB's website at http://www.arb.ca.gov/aqd/almanac/almanac05/almanac05.htm.

FIGURE 3

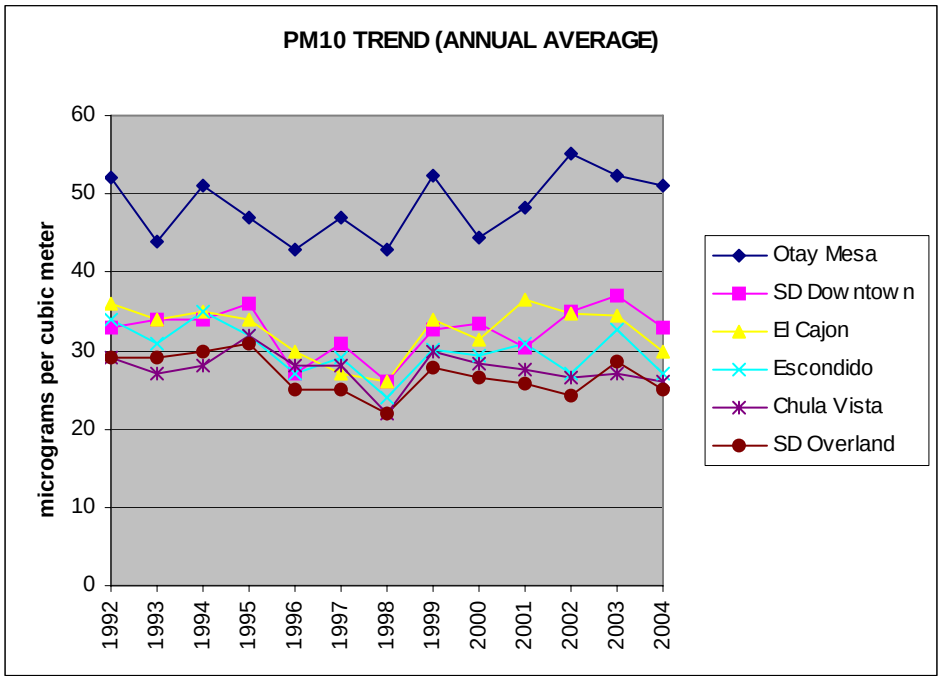
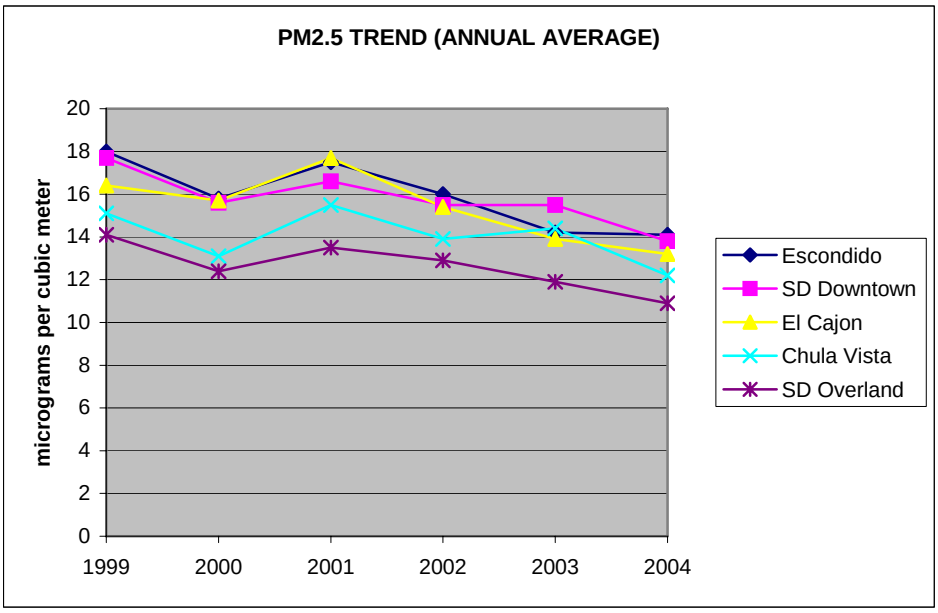


Figure 3 shows the highest annual average PM10 concentrations have consistently occurred at the region's southernmost monitoring site in Otay Mesa, located very near the commercial truck-crossing terminal at the U.S.-Mexico port of entry. Several thousand border-crossing trucks passing near the monitor each day heavily impact PM measurements at this location. To better gauge ambient PM10 concentrations throughout the Otay Mesa area as a whole, a second monitor was recently established in Otay Mesa, two miles north of the existing monitor. The additional monitor is not unduly influenced by specific local PM sources. The data for this second monitor are not yet available.

PM2.5

The trend in annual average PM2.5 concentrations throughout San Diego County is illustrated in Figure 4. All monitor locations show improvement trends. This is consistent with reduced emissions from combustion sources, the predominant source of PM2.5 in San Diego County.

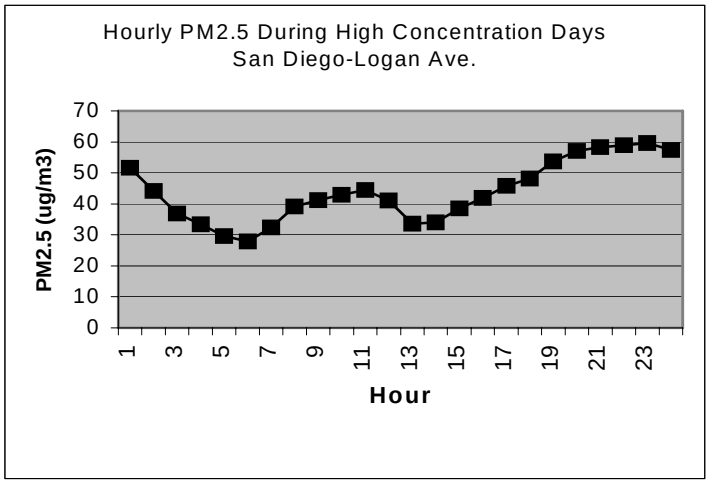
FIGURE 4



3.5.2 Hourly Variation

Figure 5 presents the average hourly variation in PM2.5 levels at downtown San Diego on days in Year 2000 with elevated PM2.5 concentrations. PM2.5 levels are highest during the late evening with a smaller peak in mid-morning. Peak evening concentrations likely result from increased traffic activity and lowering temperature inversions that trap pollutants closer to the surface. In winter months, residential wood combustion also contributes to elevated PM levels. Morning peaks appear to reflect activity from commute traffic.

FIGURE 5
DAILY VARIATION IN AMBIENT PM2.5 CONCENTRATIONS

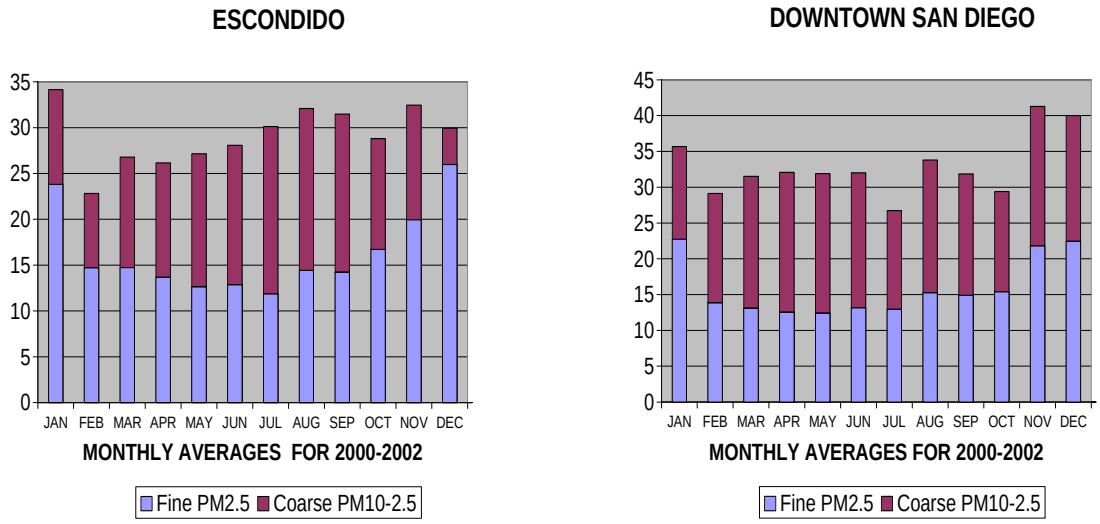


Source: ARB Report, *Characterization of Ambient PM10 and PM2.5 in California*, June 2005.

3.5.3 Monthly Variation

Figure 6 illustrates the monthly variation in PM10 and PM2.5 levels in 2000-2002 at Escondido and downtown San Diego. The total height of the bars represents monthly average PM10 concentrations, while the height of the lower blue bars represents the fine PM2.5 fraction and the upper red portion of the bars represents the coarse fraction (particles between 2.5 μm to 10 μm).[23] On an annual average basis PM2.5 comprises 48% of ambient PM10 at both sites.

FIGURE 6
MONTHLY VARIATION IN AMBIENT PM10 AND PM2.5 CONCENTRATIONS
(micrograms per cubic meter)



PM2.5 levels are highest during November-January at both sites. Cool temperatures, humid conditions, and low inversion layers that occur during winter months are conducive to the formation of secondary fine nitrates and sulfates and the buildup of PM2.5. Increased residential wood combustion and associated carbon emissions can also contribute to higher PM levels during winter months. Due to the high PM2.5 fraction, PM10 concentrations are also highest during November-January at both sites. However, at Escondido, PM10 is also high in the summer months.

The coarse fraction is highest during the summer at Escondido while coarse particles at downtown San Diego exhibit no distinct seasonal pattern. Dry weather and windy conditions generally cause higher coarse PM emissions, resulting in elevated PM10 concentrations. Emission sources are activities that resuspend dust, such as construction and travel on unpaved and paved roads. Sea salt may also contribute to coarse PM in the coastal region.

[23]The coarse fraction was estimated by subtracting the PM2.5 averages from the PM10 averages.

4.0 ADOPTED MEASURES THAT REDUCE PM

Many local, state, and federal regulations and programs are already in place to reduce PM. These measures address directly emitted PM as well as precursor gases (NOx, SOx, and VOC).

4.1 EMISSION CONTROL RESPONSIBILITIES

No single agency has regulatory authority over all sources of air pollution. Primary responsibility for controlling emission sources in San Diego County is shared by the District, ARB, and U.S. EPA, according to federal and state law and regulation.

Pursuant to state law,[24] the District is responsible for controlling emissions from nonvehicular sources (i.e., stationary and area sources). Examples include industrial sources such as power plants and factories; commercial sources such as gas stations, dry cleaners, and paint spray booth operations; and residential sources such as water heaters, furnaces, and house paints. ARB is responsible for controlling emissions from motor vehicles, other mobile sources (except where federal law preempts ARB's authority), consumer products (such as hairspray, cleaners, and aerosol paints), developing fuel specifications, and adopting statewide control measures for toxic air contaminants. U.S. EPA is responsible for controlling emissions from interstate cars and trucks registered outside California, farm and construction equipment (such as bulldozers and tractors), and aircraft, marine vessels, and locomotives based in this country.

Fair-share emission reductions from all source categories are needed to meet and maintain clean air objectives. District staff are participating at national and statewide levels to prompt U.S. EPA to take appropriate actions and fulfill its responsibilities for emission reductions from federal sources. District staff are also working to ensure that projected emission reductions from sources under state jurisdiction (motor vehicles and consumer products) are achieved.

4.2 EXISTING DISTRICT MEASURES

4.2.1 District Rules

The District has adopted control measures addressing most PM sources under District jurisdiction. District Rules and Regulations[25] contain an open burning rule, 13 rules controlling directly emitted PM, five rules concerning SOx emissions, 10 rules controlling NOx emissions, and 34 rules focusing on control of VOC sources.

The NOx and VOC control measures were adopted pursuant to state and federal requirements to attain ozone standards and contain feasible control measures for sources of ozone precursors (NOx and VOC) under District jurisdiction.[26] Thus, all feasible NOx and VOC control measures have already been adopted or scheduled in the Regional Air Quality Strategy (RAQS), the District's state ozone attainment plan.

[24]HSC sections 39002 and 40000.
[25]Available at http://www.sdapcd.org/rules/rules/randr.html.
[26]Pursuant to HSC section 40914.

In the decade since the RAQS was initially adopted (1992), the District has implemented eight NOx control measures (Table 6) providing 14 tons/day of NOx reductions (24 tons on a peak day), and 16 VOC control measures (Table 7) providing over 10 tons/day of VOC emission reductions. These totals reflect only reductions attributed to adoption or amendment of rules since 1993 and do not include emission reductions from earlier versions of these rules or from other rules adopted prior to 1993.

TABLE 6
NOx CONTROL MEASURES ADOPTED 1993 – 2003

Control Measure	Rule Number	Adoption Date	Year of Full Implementation	Emission Reductions (tons/day)
Electrical Generating Steam Boilers	69	1/18/94 12/12/95	2003	10 annual avg 20 peak day
Industrial and Commercial Boilers BARCT*	69.2	9/27/94	1998	0.32
Stationary Combustion Turbines RACT**	69.3	9/27/94	1995	0†
Stationary Engines RACT**	69.4	9/27/94	1995	1
Low-NO_X Water Heaters	69.5	6/17/98	2009	0.87
Low-NO_X Furnaces	69.6	6/17/98	2009	0.30
Stationary Combustion Turbines BARCT*	69.3.1	12/16/98	2002	0.07
Stationary Engines BARCT*	69.4.1	11/15/00	2003	1.32

* Best Available Retrofit Control Technology.
** Reasonably available control technology.
† All sources already complied at time of adoption, but state or federal law required rules.

TABLE 7
VOC CONTROL MEASURES ADOPTED 1993 – 2003

Control Measure	Rule Number	Adoption Date	Year of Full Implementation	Emission Reductions (tons/day)
Further Control of Polyester Resin	67.12	4/6/93	1993	0.29
Further Control of Aerospace Coating	67.9	11/2/93 4/30/97	1994 1997	0.16 <0.01
Coatings and Printing Inks Manufacturing	67.19	6/7/94	1995	0.09
Foam Blowing and Plastics Expanding	67.22	6/7/94	1995	0*
Bakery Ovens RACT†	67.24	6/7/94	1995	0.3
Further Control of Kelp Processing and Bio-Polymer Manufacturing	67.10	6/15/94 6/25/97	1997 1999	3.71 1.2
Further Control of Marine Coating	67.18	12/13/94	1995	0*
Further Control of Can Coating	67.4	7/25/95	1995	0.07
Groundwater Decontamination	1200	6/12/96	1996	<0.01
Underground Storage Tank Decommissioning and Soil Decontamination	1200	6/12/96	1996	0.37
Automotive Refinishing	67.20	11/13/96	1997	2.00
Adhesives	67.21	12/16/98	1998	0.76
Further Control of Transfer of VOC to Mobile Transport Tanks	61.2	7/26/00	2000	0*
Bulk Gasoline Storage Tank Degassing	By Permit	8/8/01	2001	0-0.71
Further Control of Architectural Coatings	67.0	12/12/01	2004	1.5
Wood Products Coating RACT†	67.11.1	9/25/02	2003	0*

* All sources already complied at time of adoption, but state or federal law required rules.
† Reasonably available control technology.

4.2.2 Incentive Programs

In addition to regulatory controls, the District has implemented several financial incentive programs to introduce cleaner technology and reduce in-use emissions. The incentive programs implemented in San Diego County are:

- Carl Moyer Memorial Air Quality Attainment Program;
- Vehicle Registration Fund Program;
- Lower Emission School Bus Replacement and Retrofit Program;
- Emission Reduction Credit Bank For Peaking Powerplants Program;

- Heavy-Duty Diesel Vehicle Retrofit Program;
- Backup Generator Mitigation Funds Program;
- New Power Plants Mitigation Funds Program;
- Existing Power Plants Mitigation Funds Program;
- Lawn Mower Exchange Program; and
- Congestion Mitigation and Air Quality Improvement (CMAQ) Program.[27]

Projects funded over the 2000-2003 timeframe provided 44 tons/year reduction of directly emitted PM10, and 901 tons/year of combined NOx and VOC reductions.

4.3 EXISTING ARB MEASURES

ARB's Staff Report, "Proposed List of Measures to Reduce Particulate Matter – PM10 and PM2.5"[28] includes summaries of existing ARB rules, regulations, and programs that reduce PM. Measures are identified in the following categories: 1) diesel-fueled engines and vehicles, 2) smoke management, 3) non-diesel mobile sources, 4) non-diesel fuels, 5) consumer products, 6) vapor recovery, and 7) distributed generation guidelines for electrical generation technologies. Some of ARB's diesel measures have been adopted as airborne toxic control measures (ATCMs) to directly reduce the diesel component of PM as part of the Diesel Risk Reduction Program. The Staff Report also identifies measures that ARB has proposed for future development as part of the Diesel Risk Reduction Program and the California State Implementation Plan.

4.4 EXISTING U.S. EPA MEASURES

Table 8 identifies U.S. EPA's major emission control programs that have contributed to reductions in PM since 1995.

[27]CMAQ is locally administered by the San Diego Association of Governments.
[28]Available on ARB's website at http://www.arb.ca.gov/pm/pmmeasures/pmmeasures.htm.

TABLE 8
FEDERAL EMISSION CONTROL PROGRAMS
CONTRIBUTING TO PM REDUCTIONS, 1995-2015

Program	Sector	Direct PM[a] Reductions	PM Precursors SO_2 Reductions	PM Precursors NO_x Reductions	PM Precursors VOC Reductions	Implementation Date
Clean Air Nonroad Diesel Rule	Mobile sources	X	X	X		1996-2015
Clean Air Interstate Rule (proposed December 2003)	Electric Utilities	X	X	X		2010-2015
Acid Rain Program	Electric Utilities		X	X		1995-2010
NO_x SIP Call	Electric Utilities		X	X		2004
Regional Haze Rule/ Best Available Retrofit Technology	Electric Utilities[b]	X	X	X		2013-2015
$PM_{2.5}$ Implementation[c]	Stationary/Area/ Mobile sources	X	X	X	X	2008-2015
PM_{10} SIPs (e.g., San Joaquin Valley)	Stationary/Area/ Mobile sources	X	X	X	X	Ongoing
Maximum Achievable Control Technology (MACT) Standards[d]	Stationary/Area/ Mobile sources	X			X	1996-2003
Various Mobile Source Programs[e]	Mobile Sources	X	X	X	X	Ongoing

[a] Includes elemental and organic carbon, metals, and other direct emissions of PM.

[b] Also applies to industrial boiler and the other source categories also covered under Prevention of Significant Deterioration (PSD).

[c] Includes Reasonably Available Control Technology (RACT) and Reasonably Available Control Measures (RACM).

[d] Includes a variety of source categories such as Boilers and Process heaters, Pulp and Paper, Petroleum Refineries, various minerals and ores, and others. While these standards are for hazardous air pollutants (HAPs) such as metals, measures to reduce HAPs in many cases also reduce PM emissions.

[e] Includes such programs as onroad diesel and gasoline engines, nonroad gasoline engines, Low Sulfur Diesel and Gasoline Fuel Limits for onroad and offroad engines, Motorcycles, Land-based recreational vehicles, and Marine diesel engines.

Source: U.S. EPA's *The Particle Pollution Report*, December 2004.

5.0 REVIEW OF PROPOSED DISTRICT MEASURES

The list of 103 potential air district measures compiled by ARB (Attachment B) is broad in scope due to the diversity in the nature and severity of PM problems throughout California. As specified in ARB's Staff Report, the list "provides a starting point or menu of control strategy options to address the many different types of PM problems." Air districts must "select an appropriate subset of measures from the air district list based on the severity and nature of the PM problem, and a feasibility and cost-effectiveness assessment specific to their area and sources."

5.1 LIST OF POTENTIAL MEASURES

ARB's list of potential air district measures includes both regulatory and non-regulatory measures affecting stationary sources, area sources, transportation-related programs, and incentive programs. The measures would reduce primary PM that is directly emitted into the air and/or secondary PM that is formed in the atmosphere from the reaction of gaseous precursors such as NOx, VOC, and SOx. The measures are grouped into the following categories:

A. *Wood-Burning Fireplaces and Heaters* (12 potential measures). These measures reduce directly emitted PM10 and PM2.5, and reduce NOx, VOC, CO, and air toxic emissions.

B. *Non-Agricultural Open Burning* (11 potential measures). These measures reduce directly emitted PM10 and PM2.5, and reduce NOx, VOC, CO, and air toxic emissions.

C. *Fugitive Dust* (21 potential measures). These measures reduce directly emitted PM10.

D. *Combustion Sources* (9 potential measures). These measures reduce NOx, VOC, CO, or directly emitted PM10 and PM2.5 emissions.

E. *Composting and Related Operations* (3 potential measures). These measures reduce VOC and ammonia emissions.

F. *Storage, Transfer, and Dispensing Operations* (2 potential measures). These measures reduce VOC emissions

G. *Leaks and Releases* (1 potential measure). This measure reduces VOC emissions.

H. *Product Manufacturing* (7 potential measures). These measures reduce VOC emissions.

I. *Coating Operations* (16 potential measures). These measures reduce VOC emissions.

J. *Solvent and Degreasing* (3 potential measures). These measures reduce VOC emissions.

K. *Miscellaneous* (3 potential measures). These measures reduce VOC, SOx, ammonia, or directly emitted PM10 and PM2.5 emissions.

L. *General Rules to Reduce Directly Emitted PM* (3 potential measures). These measures reduce directly emitted PM10 and/or PM2.5 emissions.

M. *Programs that Reduce PM Emissions from Mobile Sources* (12 potential measures). These measures primarily reduce directly emitted PM10, PM2.5, NOx, and VOC.

5.2 EVALUATION OVERVIEW

Pursuant to Health and Safety Code section 39614, the potential air district measures listed by ARB must be prioritized by each district based on "the effect individual control measures will have on public health, air quality, and emissions reductions, and on the cost effectiveness of each control measure." To address these factors, each potential measure was evaluated and subjected to four progressive evaluation criteria to determine its feasibility and priority in San Diego County:

- *Criterion 1*: Is the target emission source currently unaddressed in San Diego County?
- *Criterion 2*: Are the emissions significant?
- *Criterion 3*: Would the measure significantly reduce these emissions?
- *Criterion 4*: Would the emission reductions be cost-effective?

The evaluation criteria are progressive in that a measure "progresses" to the next criterion only if it meets all preceding criteria. Satisfying all criteria indicates a measure could be feasible for sources in San Diego County and therefore qualifies the measure for further detailed evaluation and potential future rule development or non-regulatory program development activities, as appropriate. Conversely, failure to meet any one criterion indicates a measure does not warrant further consideration. The evaluation criteria are discussed in more detail in Sections 5.3.1 through 5.3.4.

5.2.1 Results Summary

Results of the evaluation of each potential measure are tabulated in Attachment D. In summary, the evaluation indicates that:

- Fifty-nine (59) of the potential measures are already addressed in San Diego County by existing rules, regulations, or programs and therefore were removed from further consideration based on Criterion 1.
- Another 17 of the potential measures address source categories that are not a significant source of emissions in San Diego County and therefore were removed from further consideration based on Criterion 2.
- Another 8 of the potential measures would not significantly reduce emissions in San Diego County and therefore were removed from further consideration based on Criterion 3.
- The remaining 19 potential measures were each determined to have the potential for cost-effective emission reductions, satisfying Criterion 4.

Nineteen (19) potential measures, addressing residential wood combustion and fugitive dust sources, satisfy these evaluation criteria. The District proposes to further evaluate these measures in greater detail and, if appropriate, develop proposed rules (or non-regulatory

programs) for future consideration by the District Board. . These measures and the proposed evaluation schedule are listed below in Table 9. A brief description of each measure follows Table 9 and additional information is provided in Attachment B.

During the future rule development phase as specific local regulatory proposals are developed, the District will further evaluate technical feasibility, cost-effectiveness, and emission reduction potential for affected sources in San Diego County. Stakeholders will be consulted during rule development and at least one public workshop will be held on each proposed rule before final proposed rules are presented for adoption by the District Board. This process ensures opportunities for affected persons and businesses to consider and comment on rule proposals. This may result in additional information and subsequent findings that a measure, or portions of a measure, are not technically feasible or cost-effective or sufficiently beneficial and therefore should not be recommended for adoption.

TABLE 9
SCHEDULE OF PM CONTROL MEASURES
FOR FURTHER EVALUATION AND CONSIDERATION FOR ADOPTION

No.*	Source Type	Measure	Year
1	Wood-Burning Fireplaces/Heaters	Public Information Program (Non-regulatory)	2005
10	Wood-Burning Fireplaces/Heaters	Replace Non-certified Appliances Upon Sale of Property	2006
11	Wood-Burning Fireplaces/Heaters	Control of Wood Moisture Content	2006
12	Wood-Burning Fireplaces/Heaters	Prohibit Inappropriate Fuel Types	2006
24	Fugitive Dust	Construction: Earthmoving	2007
25	Fugitive Dust	Construction: Demolition	2007
26	Fugitive Dust	Construction: Grading Operations	2007
27	Fugitive Dust	Inactive Disturbed Land	2007
28	Fugitive Dust	Bulk Materials: Handling/Storage	2007
30	Fugitive Dust	Carryout and Trackout: Removal	2007
31	Fugitive Dust	Carryout and Trackout: Clean-Up Methods	2007
32	Fugitive Dust	Disturbed Open Areas	2007

No.*	Source Type	Measure	Year
36	Fugitive Dust	Unpaved Parking Lots/Staging Areas	2007
37	Fugitive Dust	Unpaved Roads: Control Requirements	2007
39	Fugitive Dust	Windblown Dust: Definitions	2007
40	Fugitive Dust	Windblown Dust: Construction /Earth Moving	2007
41	Fugitive Dust	Windblown Dust: Disturbed Areas	2007
42	Fugitive Dust	Windblown Dust: Bulk Materials/Storage Piles	2007
43	Fugitive Dust	Windblown Dust: Open Areas	2007

*Corresponds to the measure number assigned by ARB in its broad list of potential district measures.

5.2.2 Measures Addressing Residential Wood Combustion

Pursuant to SB 656, the District proposes to further evaluate control measures for residential wood combustion; implement a non-regulatory public information program in 2005; and develop a proposed Residential Wood Combustion Rule in 2006 to reduce directly emitted PM10 and PM2.5 (as well as NOx, VOC, CO, and air toxic emissions) from woodstoves[29] and wood-burning fireplaces. Similar measures are currently being implemented in other California air districts as described in ARB's Staff Report. During the future rule development phase, the local measures will be tailored to the nature of sources and feasibility of controls in San Diego County, and therefore may not exactly match the requirements summarized below and described in Attachment B. (Note: the Measure number identified below refers to the designation that appeared in ARB's statewide list of potential measures.)

Measure 1/Public Information Program
Inform the public about the air quality impacts of residential wood combustion and encourage better residential wood burning practices and voluntary use of lower-emitting heating devices. This information would be added to the District's ongoing public information program, in which the District distributes public education materials at community health events, school events, and through its website.

Measure 10/Replace Non-Certified Appliances Upon Sale of Property
Require existing woodstoves and fireplace inserts[30] that do not meet U.S. EPA emission certification standards to be replaced with U.S. EPA-certified appliances upon sale or transfer of real property containing non-certified appliances. This requirement would not apply to

[29]A woodstove is an enclosed, wood-burning appliance capable of and intended for space heating.
[30]A fireplace insert is a woodstove designed to be installed (retrofitted) within or partly within the firebox area of a conventional open-hearth fireplace.

conventional open-hearth fireplaces. Federal regulation already requires EPA-certified units for new or replacement installations of woodstoves and fireplace inserts.

Measure 11/Control of Wood Moisture Content
Prohibit any person from selling, offering for sale, or supplying any wood that is represented to be "seasoned wood" unless the wood has been sufficiently dried so as to contain 20% or less moisture by weight. Moisture contents higher than 20% lead to smoldering and additional smoke emissions.

Measure 12/Prohibit Inappropriate Fuel Types
Prohibit burning of materials not intended by a manufacturer for use as a fuel in wood-burning fireplaces and heaters. Prohibited materials would include garbage, treated wood, plastic or rubber products, and paints and paint solvents.

Enforcement
A proposed future Residential Wood Combustion Rule may require affected parties (such as suppliers of seasoned firewood and sellers of residences containing non-certified woodstoves and fireplace inserts) to provide documentation of compliance to the District. The District will retain the documents and utilize its air quality complaint program to identify potential compliance problems and focus enforcement efforts.

5.2.3 Measures Addressing Fugitive Dust

The District proposes to further evaluate control measures addressing fugitive dust and to develop a proposed Fugitive Dust Control Rule in 2007 to reduce directly emitted PM10 from sources such as construction sites, unpaved roads, and open areas.[31] Most local jurisdictions in San Diego County regulate construction activities to minimize fugitive dust through grading ordinances and permits, stormwater pollution prevention plans, and mitigation measures imposed pursuant to the California Environmental Quality Act. Nevertheless, despite local municipal requirements the District continues to receive numerous dust-related air quality complaints (see section 5.3.2), indicating the need for improved compliance tools and possible additional control requirements.

During the future rule development phase, District staff will further evaluate primary fugitive dust sources and existing local requirements for fugitive dust control. A proposed District rule will be developed reflecting existing local requirements, with possible additional requirements if deficiencies in local requirements are found. The District will consider establishing a range of fugitive dust control techniques as compliance options, allowing project owners to select and implement the most suitable control options based on specific project characteristics. The existing "visible emissions" standard of District Rule 50 (Visible Emissions) will likely continue

[31]State law (HSC sections 39002 and 40000) establishes District authority to regulate air pollution from nonvehicular sources. While dust on roads and open areas may be entrained by vehicular movement, the roads and open areas—not the vehicles—are the sources of dust and the articles to be controlled or regulated as nonvehicular sources.

to apply. However, if more stringent visible emissions standards have been successfully implemented elsewhere, they will be evaluated during the rule development phase.

Fugitive dust control rules are currently being implemented in other California air districts as described in ARB's Staff Report. The local District measures will be tailored to the nature of sources and feasibility of controls in San Diego County and may not exactly match the requirements summarized below and described in Attachment B.

Measures 24, 25, 26/Control of Construction, Demolition, and Grading Operations
Require actions such as application of water or soil stabilizers to limit dust emissions from construction or demolition related disturbances of soil.

Measures 27, 32/Control of Inactive Lands and Open Areas
Require actions such as restricting vehicle access and application of water, soil stabilizers, or vegetative ground cover to limit dust emissions from inactive disturbed lands and disturbed open areas.

Measures 28, 42/Control of Bulk Materials
Require actions such as wind-fence installation and covering of outdoor storage piles to limit dust emissions from storage and handling of bulk materials.

Measures 30, 31/Control of Carryout and Trackout
Require actions such as truckload covers, wheel washing, and street sweeping to control and clean-up mud and dirt that adhere to vehicles and vehicle tires and is carried from a construction site and deposited onto a paved public road.

Measures 36, 37/Control of Unpaved Parking Lots and Roads
Require actions such as vehicle speed reduction and application of water, soil stabilizers, gravel, vegetative ground cover, or paving to limit dust emissions from unpaved parking lots and roads.

Measures 39, 40, 41, 43/Control of Windblown Dust
Require actions such as application of water, soil stabilizers, or vegetative ground cover to limit wind-driven fugitive dust.

Enforcement
A proposed Fugitive Dust Control Rule would streamline District efforts to respond to fugitive dust-related air quality complaints. Currently, the District must use District Rule 51 (Nuisance) to respond to fugitive dust complaints. A considerable number of persons must be impacted, and the District must verify the impacts, to constitute a public nuisance even when municipal dust control requirements are not being met. This can involve a lengthy and staff-intensive process that may not successfully determine a public nuisance pursuant to Rule 51. A Fugitive Dust Control Rule is now proposed for development to provide the District more immediate authority when responding to dust-related complaints to require mitigation of sources that violate fugitive dust prohibitions. The District will utilize its air quality complaint program to identify potential compliance problems and will coordinate enforcement efforts with local jurisdictions..

5.3 EVALUATION CRITERIA

5.3.1 Criterion 1: Unaddressed by Current Regulations and Programs

A potential measure satisfies this criterion if it, or a substantially similar measure, is not already being implemented in San Diego County by the District, ARB, U.S. EPA, or another responsible agency. In summary, 44 potential measures satisfied this criterion and consequently advanced to the next stage of the analysis (Criterion 2).

Criterion 1 removed 59 potential measures from further consideration because they are already in place in San Diego County primarily to address ozone air quality (see Section 4.2.1). Examples include existing District rules affecting stationary-source combustion sources, coating operations, degreasing operations, and open burning. Additionally, three measures targeting paved road dust were removed from further consideration because best management practices addressing road dust are already widely employed in the San Diego region pursuant to municipal stormwater run-off prevention requirements.[32] Lastly, one potential measure addressing woodstove and fireplace inserts was removed from further consideration because U.S. EPA is already implementing it pursuant to federal regulation.

5.3.2 Criterion 2: Significant Source of Emissions

For purposes of this analysis, an emissions source addressed by a potential control measure is considered significant if (1) it contributes significantly to ambient PM concentrations, or (2) there is a history of PM air quality complaints against the applicable emissions source category. In summary, 27 of the remaining 44 potential measures satisfied this evaluation criterion and therefore advanced to the next stage of the analysis (Criterion 3). Criterion 2 eliminated 17 potential measures from further consideration, for lack of significant sources in San Diego County.

Emissions Threshold

U.S. EPA guidance[33] indicates that the contribution of an emission source category is de minimis (and therefore not significant) if it causes an impact of less than 1 $\mu g/m^3$ for the annual mean PM10 concentration and less than 5 $\mu g/m^3$ for a 24-hour average. As part of their federal PM attainment planning efforts, the San Joaquin Valley air district calculated that a source category contributes significantly to ambient PM concentrations in that region if it contributes more than 0.9 ton/day of PM10. Similarly, a significance threshold of 0.9 ton/day of PM10 or PM2.5 emissions is being used by the District for SB 656 implementation in San Diego County.[34] This

[32]Confirmed by communication with staffs of cities, the County, Caltrans, and a contractor serving these agencies.

[33]*State Implementation Plans for Serious PM-10 Non-Attainment Areas, and Attainment Date Waivers for PM-10 Non-Attainment Areas Generally; Addendum to the General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*, Federal Register, Vol. 59, No. 157, August 16, 1994.

[34]Thresholds for VOC and NOX emissions are not needed because every feasible control measure addressing these pollutants is being implemented pursuant to state ozone planning requirements (Section 4.2.1). Thresholds for SOx emissions are not needed because there are no substantial sources of SOx emissions in San Diego County—total SOx emissions from all sources in San Diego County (less than 3 tons/day) are equivalent to the de minimis threshold determined by San Joaquin for a single source category of SOx emissions.

threshold is considered conservative because San Diego County has better PM air quality than San Joaquin Valley.

PM Air Quality Complaints

The District's air quality complaint database was also considered when determining whether PM emissions from a particular source category are significant. The District receives several hundred air quality complaints each year regarding a variety of emission sources. Each complaint is investigated by District compliance staff and, for sources subject or possibly subject to existing District regulation, complaints are logged in a computer database by source type.

For purposes of this analysis, source categories with a history of PM air quality complaints are considered significant sources and therefore satisfy this evaluation criterion even if they do not exceed the 0.9-ton/day emission threshold described above. Based on review of the air quality complaint database and discussions with District compliance staff that respond to complaints, fugitive dust sources and residential wood combustion each meet this criterion. Twenty-five percent (175 per year) of logged air quality complaints received by the District over the 2000-01 through 2003-04 timeframe involved fugitive dust sources, primarily construction projects in or near existing residential areas. Similarly, the District receives many complaints regarding smoke emissions from residential wood combustion and residential burning of other materials.

5.3.3 Criterion 3: Significant Emission Reductions

The third evaluation criterion concerns whether the potential measure would provide significant emission reductions. In summary, 19 of the remaining 27 potential measures have the potential to satisfy this evaluation criterion and therefore advanced to the final stage of the analysis (Criterion 4). Criterion 3 eliminated 8 potential measures from further consideration.

For purposes of this analysis, emission reductions provided by a potential measure are considered significant if they could exceed 0.9 ton/day of PM10, PM2.5, or SOx emissions reductions upon full implementation of the measure *or* the measure would facilitate mitigation of potential PM air quality complaints from a source category with a history of such complaints. This dual threshold was selected for the same reasons as discussed for Criterion 2.

5.3.4. Criterion 4: Cost-Effective Emission Reductions

For purposes of this analysis, a measure is considered cost-effective if the initial estimated cost per ton of PM emissions reduced would not exceed $12,000.[35] Cost-effectiveness data were provided by ARB and are based upon analyses done by other California air districts where the measures have been adopted.

Of the 19 measures that advanced to this final stage of analysis, none were eliminated due to poor cost-effectiveness. All 19 measures passed the evaluation criteria and therefore are being proposed for further detailed evaluation and, if appropriate, future rule development, adoption,

[35]This threshold is consistent with the District's current cost-effectiveness reference level for ozone-precursor control measures.

and implementation in San Diego County. The rule development evaluation will further refine the portions of measures that are most feasible and cost-effective for affected activities in San Diego County. These measures are identified in Table 9 and described in Sections 5.2.2 and 5.2.3.

Senate Bill No. 656

CHAPTER 738

An act to add and repeal Section 39614 of the Health and Safety Code, relating to air quality.

[Approved by Governor October 8, 2003. Filed with Secretary of State October 9, 2003.]

LEGISLATIVE COUNSEL'S DIGEST

SB 656, Sher. Air quality: particulate matter.

(1) Existing law designates the State Air Resources Board as the state agency charged with coordinating efforts to attain and maintain ambient air quality standards. Existing law designates the state board as the state agency with the primary responsibility for the control of vehicular air pollution, and air pollution control districts and air quality management districts with the primary responsibility for the control of air pollution from all sources other than vehicular sources. Existing law requires district plans for attaining state ambient air quality standards to assess the cost-effectiveness of available and proposed emission control measures.

This bill would require the state board, not later than January 1, 2005, in consultation with the districts, and after at least one public workshop, to identify, develop, and adopt at a public meeting a list of the most readily available, feasible, and cost-effective, as defined, proposed control measures, based on rules, regulations, and programs existing as of January 1, 2004, that could be employed by the state board and the districts to reduce emissions of PM 2.5 and PM 10, as defined, from new and existing stationary, mobile, and area sources. The bill would also require the state board and each district to adopt an implementation schedule, as defined, for the most cost-effective measures on that list after prioritizing the measures based on specified factors. The bill would require the state board and each district, in carrying out those requirements, to adopt and implement control measures to reduce PM 2.5 and PM 10 from stationary, area, and mobile sources, and to make progress toward attainment of state and federal particulate matter standards. The bill would require the state board, by January 1, 2009, to prepare, and make available to the public, a report on the actions taken by the state and districts to comply with the requirements of the bill. The bill would repeal these provisions on January 1, 2011. The additional duties for districts required by the bill would impose a state-mandated local program.

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(2) Existing law makes a violation of any rule, regulation, permit or order of the state board or a district a misdemeanor.

By expanding the scope of a crime, this bill would impose a state-mandated local program.

(3) The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement, including the creation of a State Mandates Claims Fund to pay the costs of mandates that do not exceed $1,000,000 statewide and other procedures for claims whose statewide costs exceed $1,000,000.

This bill would provide that with regard to certain mandates no reimbursement is required by this act for a specified reason.

With regard to any other mandates, this bill would provide that, if the Commission on State Mandates determines that the bill contains costs so mandated by the state, reimbursement for those costs shall be made pursuant to the statutory provisions noted above.

The people of the State of California do enact as follows:

SECTION 1. (a) The Legislature finds and declares all of the following:

(1) The body of scientific evidence demonstrating health effects related to particulate matter exposure has grown tremendously over the past 10 years, and presents a compelling public health case for reducing emissions and exposures.

(2) Both coarse and fine particulate matter (PM 10 and PM 2.5, respectively) are linked in scientific literature to a range of serious health impacts, including premature mortality, acute and chronic bronchitis, asthma attacks and emergency room visits, upper respiratory illnesses, and days with work loss.

(3) Exposure to particulate pollution is particularly dangerous for sensitive groups including, but not limited to, the elderly, individuals with asthma and other lung illnesses, infants, and children.

(4) Recent scientific literature on particulate matter demonstrates serious health impacts in infants and children including, but not limited to, mortality, reduced birth weight, premature birth, asthma exacerbation, and acute respiratory infections.

(5) The state board recently reviewed the particulate matter air quality standard pursuant to the Children’s Environmental Health Protection Act (Chapter 731 of the Statutes of 1999) and based on that review, tightened the existing PM 10 annual standard and added a stringent new PM 2.5 annual standard.

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(6) The state board has adopted a statewide risk reduction plan for reducing diesel particulate matter emissions by 2010, however it is necessary to ensure the prompt implementation of that plan and its particulate reduction goals.

(7) One component of particulate matter pollution, diesel particulate matter, has been identified as a toxic air contaminant by the state board based upon the cancer risk posed by public exposure to this pollutant. In order to be effective, control measures to reduce particulate pollution need to control not only diesel particulate and other directly emitted PM 10 and PM 2.5, but also control precursors that contribute to formation of particulate matter, including, but not limited to, oxides of nitrogen, sulfur oxide, reactive organic gases and ammonia.

(8) Data from the existing air monitoring network, emission inventory, and other scientific studies should be used to identify sources of particulate pollution and prioritize control measures for that pollution and its precursors.

(9) The United States Environmental Protection Agency has recently begun the process to implement the federal fine particulate standard and to designate area attainment status. However, attainment of the federal standards is at least a decade in the future and the federal standard is less stringent and protective of public health than the state particulate standard.

(b) The Legislature therefore declares that it is essential that the state board and the districts take readily available, feasible, and cost-effective measures to reduce the public's exposure to PM 2.5 and PM 10.

(c) It is the intent of the Legislature that the State Air Resources Control Board, and each air quality management district and air pollution control district in the state consider the impact of proposed control measures for PM 2.5 and PM 10 on other criteria pollutants when adopting the implementation schedule pursuant to Section 39614 of the Health and Safety Code.

SEC. 2. Section 39614 is added to the Health and Safety Code, to read:

39614. (a) For the purposes of this section, the following terms have the following meanings:

(1) ''Cost-effective'' or ''cost-effectiveness'' means either of the following, as applicable:

(A) For the state board, a determination using the standards, formulas, and criteria used by the state board to calculate cost-effectiveness for other regulations.

(B) For a district, a determination using the standards and process described in Section 40922.

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(2) ''Implementation schedule'' means a schedule that specifies dates for final adoption, implementation, and sequencing of control measures pursuant to this section.

(3) ''Measures'' means any of the following:

(A) Emissions limits, control technologies, or performance standards designed to limit emissions for a source or source category.

(B) Examples of adopted state or local district regulations.

(C) Examples of programs.

(4) ''PM 2.5'' means particulate matter of 2.5 microns and smaller in size.

(5) ''PM 10'' means particulate matter of 10 microns and smaller in size.

(6) ''Programs'' means any state or local program that reduces either of the following:

(A) Smoke from agricultural or wood burning sources.

(B) Diesel emissions.

(b) On or before January 1, 2005, the state board, in consultation with the districts, and after at least one public workshop, shall develop and adopt at a public meeting a list of the most readily available, feasible, and cost-effective proposed control measures, based on rules, regulations, and programs existing in California as of January 1, 2004, that could be employed by the state board and the districts to reduce PM 2.5 and PM 10 and make progress toward attainment of state and federal PM 2.5 and PM 10 standards. The list shall include measures to reduce emissions from new and existing stationary, mobile, and area sources, and shall indicate whether those measures apply to new, modified, or existing sources. In developing the list, the state board shall take into account information it determines to be appropriate and relevant from emissions inventories, air monitoring data, and other scientific studies, including, but not limited to, information associated with compliance with the federal ambient air standards for particulate matter. The list shall include control measures for all of the following emission source categories:

(1) Stationary combustion sources.

(2) Woodstoves and fireplaces.

(3) Commercial grilling operations.

(4) Agricultural burning.

(5) Construction and grading operations.

(6) Diesel-powered engines used in stationary and mobile applications, including, but not limited to, control measures that do any of the following:

(A) Reduce heavy-duty vehicle idling.

(B) Require the use of ultra low-sulfur diesel fuel.

(C) Encourage, and require to the extent authorized by law, fleet turnover or the pull-ahead of new technology.

(D) Use public funds, including, but not limited to, Congestion Mitigation and Air Quality Improvement Program (CMAQ) funds to upgrade, retrofit, or replace heavy-duty engines with less polluting alternatives.

(E) Promote increased purchase and use by government agencies of low-emission heavy-duty vehicles and equipment.

(c) The state board shall specify in the list adopted pursuant to subdivision (a) whether a proposed control measure is intended to reduce emissions of PM 2.5, PM 10, or both, and whether it is a proposed control measure for adoption by the state board or by a district. The state board and the districts shall adopt and implement only those control measures within their respective jurisdictions in accordance with applicable provisions of state law.

(d) (1) Not later than July 31, 2005, after at least one public workshop and a noticed public hearing, and in a manner otherwise in accordance with this section, the state board shall adopt an implementation schedule for the state measures on the list developed pursuant to subdivision (b) and each district shall adopt an implementation schedule for the most cost-effective local measures from the list for that district after prioritizing the measures based on the factors identified in subparagraph (A) of paragraph (2). The state board and each district, in carrying out the requirements of this section, shall adopt and implement control measures to reduce PM 2.5 and PM 10 from stationary, area, and mobile sources, and to make progress toward attainment of state and federal PM 2.5 and PM 10 standards.

(2) In developing an implementation schedule pursuant to this subdivision, the state board and each district shall do all of the following:

(A) Prioritize adoption and implementation of proposed control measures based on the effect individual control measures will have on public health, air quality, and emission reductions, and on the cost-effectiveness of each control measure.

(B) Strive to integrate the scheduling of control measures with the federal planning process for attainment of the federal ambient air quality standards for particulate matter in an efficient manner, to the extent that integration does not delay the adoption of control measures.

(3) An implementation schedule adopted by a district pursuant to this subdivision may not include a control measure that meets any of the following criteria:

(A) Is substantially similar to a control measure already adopted by the district, as determined by the district.

ATTACHMENT A

(B) Is substantially similar to a control measure scheduled for adoption by the district within two years of the adoption of the implementation schedule, as determined by the district.

(C) The district has determined there is a readily available, feasible, and cost-effective alternative control measure that will achieve an equivalent or greater emission reduction.

(D) Is intended to reduce emissions of a precursor to PM 2.5 or PM 10, if the district has adopted and implemented the measure or scheduled the measure for adoption within two years of the adoption of the implementation schedule as part of the district's ozone attainment plan pursuant to subdivision (a) or (b) of Section 40914.

(4) If a district determines that a readily available, feasible, and cost-effective alternative control measure exists as described in subparagraph (C) of paragraph (3), the district shall adopt that measure.

(e) Nothing in this section requires a district to adopt a control measure to further regulate emissions from any source that operates under, or requires a district to modify, either of the following programs:

(1) A market-based incentive program that complies with Section 39616.

(2) An interchangeable emission reduction credit program that is consistent with the methodology adopted by the state board pursuant to Section 39607.5.

(f) Nothing in this section is intended to alter or affect any of the following:

(1) The authority of the state board or a district to adopt a control measure for PM 2.5 and PM 10 pursuant to this division.

(2) The authority of the state board or a district over diesel-powered engines established pursuant to this division.

(3) The authority of a district to modify either of the programs described in paragraphs (1) or (2) of subdivision (e).

(4) The authority of a district to adopt measures necessary to attain state or federal air quality standards.

(g) In identifying control measures for woodstoves and fireplaces pursuant to paragraph (2) of subdivision (b), the state board shall include a consideration of rules and regulations encouraging the use of wood fuel appliances that meet the standards established in Subpart AAA of Part 60 of Title 40 of the Code of Federal Regulations.

(h) In adopting the list and implementation schedule pursuant to this section, the state board is not subject to the rulemaking provisions of Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code.

(i) Not later than January 1, 2009, the state board shall prepare a report, and make available to the public, on the actions taken by the state

board and local districts to comply with this section. The report shall include, but is not limited to, all of the following:

(1) Adopted and proposed rules.

(2) Regulations and programs.

(3) Air quality and public health impacts of state and district actions taken pursuant to this section.

(4) Cost-effectiveness of rules, regulations, and programs implemented pursuant to this section.

(5) Recommendations for further actions to assist in achieving state air quality standards for particulate matter.

(j) This section shall remain in effect only until January 1, 2011, and as of that date is repealed, unless a later enacted statute, that is enacted before January 1, 2011, deletes or extends that date.

SEC. 3. No reimbursement is required by this act pursuant to Section 6 of Article XIII B of the California Constitution for certain costs that may be incurred by a local agency or school district because in that regard this act creates a new crime or infraction, eliminates a crime or infraction, or changes the penalty for a crime or infraction, within the meaning of Section 17556 of the Government Code, or changes the definition of a crime within the meaning of Section 6 of Article XIII B of the California Constitution.

However, notwithstanding Section 17610 of the Government Code, if the Commission on State Mandates determines that this act contains other costs mandated by the state, reimbursement to local agencies and school districts for those costs shall be made pursuant to Part 7 (commencing with Section 17500) of Division 4 of Title 2 of the Government Code. If the statewide cost of the claim for reimbursement does not exceed one million dollars ($1,000,000), reimbursement shall be made from the State Mandates Claims Fund.

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SB 656 List of Air District Measures that Reduce Particulate Matter

A. Wood-Burning Fireplaces and Wood-Burning Heaters

(wood-burning heaters include woodstoves and fireplace inserts)

Measures reduce directly emitted PM10 and PM2.5, and as an added benefit reduce NOx, VOC, CO, and air toxic emissions.

	Strategy	Source Type	District, Rule, and Adoption Date*
1.	**Public Awareness Program** Informs the public about the indoor wood combustion control program. The program covers three areas: program effectiveness and tracking; key program elements; and communication strategy. The goal is to inform the public about potential health hazards of wood smoke and to encourage better wood burning practices or use of heating devices (e.g. some programs recommend use of manufactured firelogs instead of wood in fireplaces).	Existing	SJVAPCD Rule 4901 7/17/03
	Curtailment During Periods with Predicted High PM Levels		
2.	***Mandatory*** a) Restricts use of wood-burning fireplaces and heaters during periods when atmospheric conditions and the level of wood burning activity are predicted to result in high PM concentrations. Exempts households that use wood as primary sole source of heat and households in areas where natural gas service is not available.	Existing	SJVAPCD Rule 4901 7/17/03
	b) Prohibits use of wood-burning appliances during periods when atmospheric conditions and the level of wood burning activity are predicted to result in high PM concentrations. Exempts U.S. EPA certified wood-burning appliances. A secondary source of heat is required in all dwellings.	Existing	GBUAPCD for the Town of Mammoth Lakes Rule 431 12/7/90
3.	***Voluntary*** Informs the public about periods predicted to have high PM concentrations and encourages public to refrain from using wood-burning fireplaces and heaters during such periods. Some air districts exempt U.S. EPA certified wood-burning appliances from curtailment.	Existing	SCAQMD, YSAQMD SLOAPCD Programs

*Date when rule was adopted or last amended

Note: The specific air district rules included on the list represent guidance or appropriate example measures in terms of scope and level of emission control. There may be other district rules which may also represent similar, suitable levels of control.

	Strategy	Source Type	District, Rule, and Adoption Date*
	Require All Specified Wood-Burning Devices Installed be U.S. EPA-Certified, Phase II or Equivalent		
4.	***Wood-Burning Heaters*** Prevents the sale and installation of wood-burning heaters that are not U.S. EPA-certified or equivalent. These wood-burning heaters must meet Phase II standards established in Subpart AAA of Part 60 of Title 40 of the Code of Federal Regulations. Phase II devices are designed to achieve more efficient combustion and lower particulate emissions than conventional devices.	New and modified	SJVAPCD Rule 4901 7/17/03
5.	***Wood-Burning Heaters and Wood-Burning Fireplaces*** Prevents the sale and installation of wood-burning heaters and wood-burning fireplaces that emit PM in higher concentrations than specified for U.S. EPA certified Phase II wood heaters. Allowable wood-burning appliances must be air district or U.S. EPA certified. The requirement also applies to masonry fireplaces.	New and modified	NSoCAPCD Reg. 4-1-400 2/2/93 and SLOAPCD Rule 504 10/19/93
6.	***Prohibits the Installation of Non-EPA Certified Wood-Burning Appliances & Wood-Burning Fireplaces (except pellet stoves)*** Prohibits the installation of any non-U.S. EPA certified wood-burning appliance in dwellings, except for pellet stoves. Prohibits the installation of wood-burning fireplaces, including low emission fireplaces that are exempt from U.S. EPA testing.	New and modified	GBUAPCD for the Town of Mammoth Lakes Rule 431 12/7/90
	Number of Units		
7.	***New Residential Developments*** Limits the number of wood-burning fireplaces and wood-burning heaters that may be installed in new residential developments.	New	SJVAPCD Rule 4901 7/17/03
8.	***New Nonresidential Properties*** Limits the number of wood-burning appliances that may be installed in new nonresidential properties.	New	GBUAPCD for the Town of Mammoth Lakes Rule 431 12/7/90

*Date when rule was adopted or last amended

Note: The specific air district rules included on the list represent guidance or appropriate example measures in terms of scope and level of emission control. There may be other district rules which may also represent similar, suitable levels of control.

	Strategy	Source Type	District, Rule, and Adoption Date*
9.	**Number of Units (continuation)** **Additional Units in Existing Properties** Limits the number of additional wood-burning appliances that may be installed in existing residential and nonresidential properties.	New	GBUAPCD for the Town of Mammoth Lakes Rule 431 12/7/90
10.	**Replacement of Non-Certified Appliances Upon Sale of Property** a) Assures that each wood-burning heater included in real property upon sale or transfer is U.S. EPA Phase II certified or equivalent. Non-complying devices must be removed or rendered inoperable. b) Requires replacing, removing or rendering inoperable any non-U.S. EPA certified wood-burning appliance upon sale of a dwelling (excluding pellet stoves, but including fireplaces).	Existing Existing	SJVAPCD Rule 4901 7/17/03 GBUAPCD for the Town of Mammoth Lakes Rule 431 12/07/90
11.	**Control of Wood Moisture Content** Sets moisture standard for “seasoned wood” offered for sale, since burning dry wood increases heating performance.	New, existing, and modified	SJVAPCD Rule 4901 7/17/03
12.	**Prohibit Fuel Types** Prohibits the burning of materials not intended for use in wood-burning fireplaces and wood-burning heaters (e.g., garbage, treated wood, and plastic products).	New, existing, and modified	SJVAPCD Rule 4901 7/17/03

*Date when rule was adopted or last amended
Note: The specific air district rules included on the list represent guidance or appropriate example measures in terms of scope and level of emission control. There may be other district rules which may also represent similar, suitable levels of control.

B. Non-Agricultural Open Burning

Measures reduce directly emitted PM10 and PM2.5, and as an added benefit reduce VOC, NOx, CO, and air toxic emissions.

	Strategy	Source Type	District, Rule, and Adoption Date*
	Prohibition of Residential Open Burning		
13.	***Of All Outdoor Residential Open Burning*** Prohibits outdoor residential open burning. Limits open burning to permitted activities (e.g., agricultural burning, infectious disease, wildland vegetation management) or exempted activities (ceremonial fires, recreational fires, cooking fires, etc.)	Existing	SJVAPCD Rules 4103 & 4106 6/21/01
14.	***Where Waste Service is Available*** Prohibits burning of greenwaste if served by an organized waste disposal service. No other residential waste may be burned anywhere.	Existing	MBUAPCD Rule 438 4/16/03
15.	***In Specified Highly Populated Areas*** Prohibits outdoor burning of green waste in populated areas in specified geographical locations.	Existing	SMAQMD Rule 407 6/4/98
16.	***Within Small Lots and Setbacks*** Prohibits outdoor burning of natural vegetation from the premises on lots smaller than one acre in size, where the burn pile is less than 100 feet from neighboring residence, or where greenwaste collection is offered by a franchise hauler.	Existing	LCAQMD Rule 433 10/15/02
	Mandatory Curtailment of Non-Agricultural Open Burning		
17.	***During Periods with Predicted High PM or Ozone Levels*** Prohibits planned burning or further ignitions during days when atmospheric conditions and the level of open burning are predicted to result in high PM or ozone concentrations (can prohibit additional burns on burn days.	Existing	MBUAPCD Rule 438 4/16/03

*Date when rule was adopted or last amended

Note: The specific air district rules included on the list represent guidance or appropriate example measures in terms of scope and level of emission control. There may be other district rules which may also represent similar, suitable levels of control.

	Strategy	Source Type	District, Rule, and Adoption Date*
	Control Smoke Production		
18.	***Limits during Burn Days in Smoke Sensitive Areas*** Requires Fire Chief to grant permit and limit burns to 25 per day in specific Smoke Sensitive Area (defined by rule); permit is only valid with daily authorization number.	Existing	MBUAPCD Rule 438 4/16/03
19.	***Emission Limits for Mechanized Burners*** Sets emission limits for mechanized burners not to equal or exceed No. 1 on Ringelmann Chart published by the U.S. Bureau of Mines for periods aggregating more than 30 minutes in any eight-hour period. Requires burning permit.	Existing	ShCAQMD Rule 2.6 9/24/02
	Performance Standards for Allowed Burns		
20.	***Drying Times*** Establishes minimum drying times for any green waste to be burned and pile size limits. Sets bounds on time of day for ignition and completion.	Existing	BAAQMD Regulation V 11/2/94
21.	***Burn Duration*** Restricts ignition hours and requires smoldering fires to be extinguished.	Existing	LCAQMD Rules 431-433.5 10/15/02
22.	***Preparation of Fuels & Management of Burns*** a) Sets requirements for burn piles (e.g. stack to ignite quickly, burn with minimum of smoke, ignite only for burn within same day, avoid public nuisance) prior and during burning.	Existing	MaCAPCD Rule 300 et. seq. 7/19/88
	b) Sets requirements for burns on land to be cleared for residential or commercial development. APCO can restrict or prohibit the burning of poison oak	Existing	MBUAPCD Rule 438 4/16/03
23.	***Permits Required*** Requires permits for all types of outdoor burning.	Existing	NCUAQMD Regulation 2 7/18/02

*Date when rule was adopted or last amended
Note: The specific air district rules included on the list represent guidance or appropriate example measures in terms of scope and level of emission control. There may be other district rules which may also represent similar, suitable levels of control.

C. Fugitive Dust

Measures reduce directly emitted PM10.

	Strategy	Source Type	District, Rule, and Adoption Date*
24.	**Construction: Earthmoving**		
	a) Requires water or chemical stabilizers/dust suppressants be applied, in conjunction with optional wind barriers, to limit visible dust emissions (VDE) to 20% opacity. Specifies that a Dust Control Plan must be submitted for areas of 40 acres or larger where earth movement of 2500 cubic yards or more on at least 3 days is intended. Note: This rule was amended August 19, 2004.	Existing	SJVAPCD Rule 8021 11/15/01
	b) Prohibits VDE beyond property line and an upwind/downwind PM10 differential of more than 50 µg/m^3. Requires implementation of Best Available Control Measures (BACM) for all sources such that visible emissions do not exceed this limit 100 feet from the point of origin of earth-moving activities. List of BACM is contained in the Rule 403 Implementation Handbook. Specifies that a Dust Control Plan or a commitment to implement Table 1 and 2 control measures through a large operation notification (LON) is required for large operations projects with a disturbed surface area 100 acres or larger, or projects with daily earth movement of 10,000 cubic yards or more. Note: This rule was amended April 2, 2004. The amendments incorporate a new list of BACM and implements new requirements (project signage, dust control supervisor) for large operations (now defined as 50 acres or 5,000 cubic yards of daily earth-movement).	Existing	SCAQMD Rule 403 2/14/97
25.	**Construction: Demolition**		
	a) Requires application of dust suppressants to limit VDE to not more than 20% opacity. Sets bulk material and track-out requirements. Note: This rule was amended August 19, 2004.	Existing	SJVAPCD Rule 8021 11/15/01
	b) Prohibits VDE beyond property line. Requires application of BACM. Specifies that upwind-downwind PM10 levels must not exceed 50 ug/m^3. Sets track-out requirements. Note: This rule was amended April 2, 2004. The amendments require track-out control device for projects greater than 5 acres or 100 cubic yards of daily	Existing	SCAQMD Rule 403 2/14/97

*Date when rule was adopted or last amended

Note: The specific air district rules included on the list represent guidance or appropriate example measures in terms of scope and level of emission control. There may be other district rules which may also represent similar, suitable levels of control.

	Strategy	Source Type	District, Rule, and Adoption Date*
	Construction: Demolition (continuation) import/export and lowers track-out clean-up prohibitions from 50 to 25 feet.		
26.	**Construction: Grading Operations** a) Requires pre-watering to limit VDE to 20% opacity. Requires phasing of work to reduce disturbed soil. Note: This rule was amended August 19, 2004. b) Requires water application to increase moisture content to proposed cut, and grading each phase separately to coincide with the construction phase. Specifies that chemical stabilizers are to be applied to graded areas where construction will not begin for more than 60 days after grading. Note: This rule was amended April 2, 2004. The amendments require new Table 1 BACM (e.g., pre-application of water to depth of proposed cuts, reapplication of water as necessary to ensure that visible emissions do not extend more than 100 feet from the sources, and stabilization of soils once earth-moving is complete).	Existing Existing	SJVAPCD Rule 8021 11/15/01 SCAQMD Rule 403 2/14/97
27.	**Inactive Disturbed Land** a) Requires restricting vehicle access. Specifies that water/dust suppressants must be applied to meet stabilized surface definition; if area is greater than 0.5 acres and the area is inactive more than 7 days, must comply with stabilized soil definition. Note: This rule was amended August 19, 2004 b) Prohibits VDE beyond property line and an upwind/downwind PM10 differential of more than 50 µg/m^3. Requires BACM (e.g., chemical stabilization, frequent watering, and revegetation) at all times and high wind measures (e.g., chemical stabilization to maintain a stabilized surface or watering three times per day) under high wind conditions. Note: This rule was amended April 2, 2004. The amendments clarify new Table 1 BACM.	Existing Existing	SJVAPCD Rule 8021 11/15/01 SCAQMD Rule 403 2/14/97

*Date when rule was adopted or last amended

Note: The specific air district rules included on the list represent guidance or appropriate example measures in terms of scope and level of emission control. There may be other district rules which may also represent similar, suitable levels of control.

	Strategy	Source Type	District, Rule, and Adoption Date*
28.	**Bulk Materials: Handling/Storage** a) Establishes wind barrier and watering or stabilization requirements to limit VDE to 20% opacity. Specifies bulk materials must be stored in accordance with the definition for stabilized surface. Requires outdoor materials be covered with tarps, plastic, etc. Note: This rule was amended August 19, 2004.	Existing	SJVAPCD Rule 8031 11/15/01
	b) Prohibits VDE beyond property line and an upwind/downwind PM10 differential of more than 50 $\mu g/m^3$. Requires use of BACM (e.g., wind sheltering, watering, chemical stabilizers, altering load-in/load-out procedures, or coverings). Note: This rule was amended April 2, 2004. The amendments establish new Table 1 BACM (control measures 09-1 though 09-5) for importing/exporting of bulk materials.	Existing	SCAQMD Rule 403 2/14/97
29.	**Storage, Handling, and Transport of Petroleum Coke, Coal, and Sulfur** Limits opacity from operations to ½ Ringelmann; ensures enclosure of all coke piles including compliance schedule; requires District approved plan or Best Available Control Measures (BACM) for any open piles of coal or sulfur; requires street-sweeping or limits silt loading on roads and truck exteriors with quarterly testing; requires paving and maintenance of roads; requires covers or slot-tops for transport trucks.	New, existing, and modified	SCAQMD Rule 1158 6/11/99
30.	**Carryout and Track-out** a) Requires track-out removal at the end of the workday, if the track-out is less than 50 feet; or removal as soon as possible if the track-out exceeds 50 feet. Specifies a track-out control device must be installed at all access points to public roads. Requires maintaining sufficient length of paved interior roads to allow dirt/mud to drop off before leaving site and mud/dirt removal from interior paved roads with sufficient frequency to prevent track-out Note: This rule was amended August 19, 2004. (continued on next page)	Existing	SJVAPCD Rule 8041 11/15/01

*Date when rule was adopted or last amended

Note: The specific air district rules included on the list represent guidance or appropriate example measures in terms of scope and level of emission control. There may be other district rules which may also represent similar, suitable levels of control.

	Strategy	Source Type	District, Rule, and Adoption Date*
	Carryout and Track-out (continuation) b) Requires removing any track-out within one hour; or selecting a Table 3 track-out prevention option and removing track-out at the end of the workday, if the track-out is less than 50 feet, and removing track-out as soon as possible, if it exceeds 50 feet. Table 3 track-out options include road surface paved or chemically stabilized from point of intersection with a public paved road to distance of at least 100 feet by 20 feet, or installation of track-out control device from point of intersection with a public paved road to a distance of at least 25 feet by 20 feet. Note: This rule was amended April 2, 2004. Beginning January 1, 2005, the amendments require sites greater than five acres or those with more than 100 cubic yards of daily import/export to install a track-out control device (four options provided) and prohibits material from .extending more than 25 feet from a site entrance	Existing	SCAQMD Rule 403 2/14/97
31.	**Carryout and Track-out: Clean-Up Methods** Requires manual sweeping; sweeping with a rotary brush/broom with sufficient wetting to limit VDE to 20% opacity; or operating a PM10 street sweeper with 80% efficiency per SCAQMD Rule 1186. Note: This rule was amended August 19, 2004.	Existing	SJVAPCD Rule 8041 11/15/01
32.	**Disturbed Open Areas** a) Applies to non-agricultural areas of 3 acres or larger which have been unused for 7 days or more. Requires water/dust suppressants application to unvegetated areas sufficient to limit VDE to 20% opacity. Specifies vegetation must be established to limit VDE to 20% opacity. Requires paving, applying gravel, or applying stabilizers to limit VDE to 20% opacity. Upon evidence of trespass, requires posting of “no trespass” signs or installing barriers to prevent access to area. Note: This rule was amended August 19, 2004. (continued on next page)	Existing	SJVAPCD Rule 8051 11/15/01

*Date when rule was adopted or last amended
Note: The specific air district rules included on the list represent guidance or appropriate example measures in terms of scope and level of emission control. There may be other district rules which may also represent similar, suitable levels of control.

	Strategy	Source Type	District, Rule, and Adoption Date*
	Disturbed Open Areas (continuation) b) Applies to non-agricultural areas of one-half acre or larger for residential use; and all non-residential areas. Requires application of chemical stabilizers; watering with sufficient frequency to establish a surface crust, or establishing drought-resistant vegetation as quickly as possible. Note: This rule was amended April 2, 2004. The amendments clarify new Table 1 BACM and remove exemption for residential properties less than one-half acre.	Existing	SCAQMD Rule 403 2/14/97
33.	**Paved Road Dust: New/Modified Public and Private Roads** a) Requires paved shoulders for all roads with average daily vehicle trips (ADVT) of 500 or more. If ADVT is 500-3000, then average shoulder width is at least 4 feet. If ADVT is greater than 3000, then average shoulder width is at least 8 feet. Curbing adjacent to and contiguous with a paved lane or shoulder can be used in lieu of shoulder width requirements. Intersections, auxiliary entry and exit lanes may be constructed adjacent to and contiguous with a paved roadway in lieu of shoulder requirements. Specifies if ADVT is 500 or greater, and medians are part of the roadway, then medians are to be constructed with minimum 4-foot shoulder widths adjacent to traffic lanes. Where speed limits are below 45 mph, medians are to be constructed with curbing. Specifies medians are to be landscaped to meet stabilized surface requirements. As an option to shoulder paving or vegetation requirements, oils or chemical dust suppressants can be used, according to the specified widths, and must be maintained to limit VDE to 20% opacity. Specifies requirements for contingency notification. Note: This rule was amended August 19, 2004. b) Establishes curbing or paved shoulder requirements in the event of a contingency notification: For ADVT of 500 or more, curbing or paved shoulders are required, for ADVT of 500-3000, shoulder widths shall be at least 4 feet, for ADVT greater than 3000, shoulder widths shall be at least 8 feet. Establishes median requirements in the event of a contingency notification. For medians with ADVT of 500 or more, must pave median area with	Existing Existing	SJVAPCD Rule 8061 11/15/01 SCAQMD Rule 1186 2/14/97

*Date when rule was adopted or last amended

Note: The specific air district rules included on the list represent guidance or appropriate example measures in terms of scope and level of emission control. There may be other district rules which may also represent similar, suitable levels of control.

	Strategy	Source Type	District, Rule, and Adoption Date*
	Paved Road Dust: New/Modified Public and Private Roads (continuation) typical roadway materials, unless speed limits less than 45 mph, or medians are landscaped with ground cover and there is curbing, or medians are treated with chemical stabilizers to maintain stabilized surface. Note: This rule was amended April 2, 2004. The amendments invoke contingency requirements for new / widened roads, beginning January 1, 2006.		
34.	**Paved Road Dust: Street Sweeping** Requires use of certified PM10 efficient street sweepers by governmental agencies or their street sweeping contractors where the contract date, purchase date, or lease date is after January 1, 2000. Specifies certified sweepers are to be used for all routine street sweeping except roads with curbs, paved road shoulders greater than 4 feet width, within 1000 feet of an unpaved road, and provided documentation of such is provided. Certified sweepers are to be maintained according to manufacturer's specifications. Note: This rule was amended April 2, 2004. The amendments remove certified equipment exemption.	Existing	SCAQMD Rule 1186 9/10/99
35.	**Paved Road Dust: Street Sweeping Sand & Cinders Used for Anti-skid Material on Icy Roads, VMT Limit, & Free Bus** Requires vacuum-street sweeping on roads to remove sand and cinders that were placed on the road during winter storms as an anti-skid material. Street sweeping is required after the roads dry sufficiently for the street sweepers to remove the material. This rule also limits the peak daily VMT (vehicle miles traveled) projected with future development, and encourages the use of a free bus system to reduce VMT.	Existing	GBUAPCD for the Town of Mammoth Lakes Rule 431 12/7/90

*Date when rule was adopted or last amended
Note: The specific air district rules included on the list represent guidance or appropriate example measures in terms of scope and level of emission control. There may be other district rules which may also represent similar, suitable levels of control.

	Strategy	Source Type	District, Rule, and Adoption Date*
36.	**Unpaved Parking Lots/Staging Areas** Requires, for days with 75 or more vehicle trips, limiting VDE to 20% opacity and implementing at least one of the following control measures: 1) applying water, 2) applying uniform layer of washed gravel, 3) applying chemical/organic dust suppressant, 4) using vegetative materials, 5) paving, 6) using any other method to limit VDE to 20% opacity. Requires, for days with 100 or more vehicle trips, limiting VDE to 20% opacity, complying with requirements for stabilized surface, or implementing at least one of the following control measures: 1) applying water, 2) applying chemical/organic dust suppressant, 3) applying road mix, 4) paving, 5) using any other method that results in a stabilized surface. Sets as an option to the above, obtaining a Fugitive PM10 Management Plan that: 1) achieves at least 50% control efficiency, 2) describes location, length, and area of unpaved traffic areas, 3) describes traffic conditions (vehicle trips per unit time, types of vehicles), 4) describes control measures used and application details, and 5) describes expected results of road surface condition. Note: This rule was amended August 19, 2004.	Existing	SJVAPCD Rule 8061 11/15/01
37.	**Unpaved Roads: Control Requirements** a) Requires, for days with 75 or more vehicle trips, limiting VDE to 20% opacity and implementing at least one of the following control measures: 1) applying water, 2) applying uniform layer of washed gravel, 3) applying chemical/organic dust suppressant, 4) using vegetative materials, 5) paving, or 6) using any other method to limit VDE to 20% opacity. Requires, for days with 100 or more vehicle trips, limiting VDE to 20% opacity, complying with requirements for stabilized surface, or implementing at least one of the following control measures: (continued on next page)	Existing	SJVAPCD Rule 8061 11/15/01

*Date when rule was adopted or last amended
Note: The specific air district rules included on the list represent guidance or appropriate example measures in terms of scope and level of emission control. There may be other district rules which may also represent similar, suitable levels of control.

	Strategy	Source Type	District, Rule, and Adoption Date*
	Unpaved Roads: Control Requirements (continuation) 1) applying water, 2) applying chemical/organic dust suppressant, 3) applying roadmix, 4) paving, or 5) using any other method that results in stabilized surface. Sets as option to above, obtaining a Fugitive PM10 Management Plan that: 1) achieves at least 50% control efficiency, 2) describes location, length, and area of unpaved traffic areas, 3) describes traffic conditions (vehicle trips per unit time, vehicle types), 4) describes controls measures used and application details, and 5) describes expected results of road surface condition. Note: This rule was amended August 19, 2004. b) Sets applicability standard: unpaved road must be more than 50 feet wide at all points or must not be within 25 feet of property line, or have more than 20 vehicle trips per day. Specifies all roads with ADT greater than the average ADT of all unpaved roads within its jurisdiction must be treated. Requires annual treatment of unpaved public roads beginning in 1998 and continuing for each of 8 years thereafter by implementing one of the following: 1) paving at least one mile with typical roadway material, 2) applying chemical stabilizers to at least two miles to maintain stabilized surface, 3) implementing at least one of the following on at least three miles of road surface: a) installing signage at ¼ mile intervals limiting speed to 15 mph, b) installing speed control devices every 500 feet, or c) maintaining roadway in a manner which limits speed to 15 mph. Note: This rule was amended April 2, 2004. The amendments clarify 20% opacity standard that was previously in the definition of a stabilized surface and reference test methods in Rule 403 Implementation Handbook.	Existing	SCAQMD Rule 1186 2/14/97

*Date when rule was adopted or last amended
Note: The specific air district rules included on the list represent guidance or appropriate example measures in terms of scope and level of emission control. There may be other district rules which may also represent similar, suitable levels of control.

	Strategy	Source Type	District, Rule, and Adoption Date*
38.	**Weed Abatement Activities** a) Sets pre-activity requirements: 1) pre-watering to limit VDE to 20% opacity, or 2) phasing work to reduce amount of disturbed surface area. Requires, during active operations, applying water to limit VDE to 20% opacity. Sets stabilization requirements during periods of inactivity: 1) restricting vehicle access to area, or 2) applying water or chemical stabilizers to meet conditions of a stabilized surface. Note: This rule was amended August 19, 2004.	Existing	SJVAPCD Rule 8021 11/15/01
	b) Specifies weed abatement activities are subject to standards of Rule 403, unless: 1) mowing or cutting is used, instead of discing, and stubble is maintained at least three inches above the soil, or 2) if discing is used, there is a determination of a potential fire hazard. Specifies that after discing, the requirement for taking action on disturbed surface areas applies. Note: This rule was amended April 2, 2004. The amendments require pre-application of watering if disking for weed abatement.	Existing	SCAQMD Rule 403 7/9/93
39.	**Windblown Dust: Definitions** Defines windblown dust as any visible emissions from any disturbed surface area which is generated by wind action alone. Specifies wind gusts as maximum instantaneous wind speed. Note: This rule was amended April 2, 2004 to specify that high wind conditions are when instantaneous wind speeds exceed 25 mph.	Existing	SCAQMD Rule 403 7/9/93
40.	**Windblown Dust: Construction/Earth Moving** Requires, for earthmoving, ceasing all active operations, applying water to soil not more than 15 minutes prior to moving such soil if subject to large operation requirements or if seeking an exemption from property line or upwind/downwind standard. Requires, for unpaved roads at construction sites, applying chemical stabilizers prior to a wind event, applying water twice per hour during active operations, stopping all vehicular traffic if subject to large operation requirements or if seeking an exemption from property line or upwind/downwind standard. Note: This rule was amended April 2, 2004.	Existing	SCAQMD Rule 403 2/14/97

*Date when rule was adopted or last amended

Note: The specific air district rules included on the list represent guidance or appropriate example measures in terms of scope and level of emission control. There may be other district rules which may also represent similar, suitable levels of control.

	Strategy	Source Type	District, Rule, and Adoption Date*
41.	**Windblown Dust: Disturbed Areas** Requires, if operations remain inactive for not more than 4 consecutive days, application of water and chemical stabilizers in sufficient concentrations to maintain a stabilized surface for 6 months traffic if subject to large operation requirements or if seeking an exemption from property line or upwind/downwind standard. Requires application of chemical stabilizers prior to wind event; applying water 3 times per day; if evidence of wind driven fugitive dust, increasing watering to 4 times per day; or establish vegetative ground cover within 21 days after active operations have ceased traffic if subject to large operation requirements or if seeking an exemption from property line or upwind/downwind standard. Note: This rule was amended April 2, 2004.	Existing	SCAQMD Rule 403 2/14/97
42.	**Windblown Dust: Bulk Materials/Storage Piles** a) Requires application of water twice per hour or installation of temporary coverings if subject to large operation requirements or if seeking an exemption from property line or upwind/downwind standard. Note: This rule was amended April 2, 2004.	Existing	SCAQMD Rule 403 2/14/97
	b) Additional bulk material control requirements for Coachella Valley sources. Note: This rule was amended April 2, 2004.	Existing	SCAQMD Rule 403.1 1/15/93
43.	**Wind Blown Dust: Open Areas** Requires 50% vegetation cover, or 75% wet or saturated water cover, or 4-inch deep gravel on open areas that may cause or contribute to an exceedance of the federal PM-10 standard.	Existing	GBUAPCD for Owens Lake Board Order #981116-01 11/16/98

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	Strategy	Source Type	District, Rule, and Adoption Date*
44.	**Agricultural Operations**		
	a) Limits fugitive dust from off-field agricultural sources such as unpaved roads with more than 75 trips/day and bulk materials handling by requiring producers to draft and implement a Fugitive Dust Management Plan with district approved control methods. Note: This rule was amended September 16, 2004.	Existing	SJVAPCD Rule 8081 11/15/01
	b) Producers that voluntarily implement district approved conservation practices and complete and maintain the self-monitoring plan can maintain an exemption from the Rule 403 general requirements. Note: This rule was amended April 2, 2004, extending applicability to the Coachella Valley.	Existing	SCAQMD Rule 403 2/14/97
	c) Cease tilling/mulching activities when wind speeds are greater than 25 mph (Coachella Valley). Note: This rule was amended April 2, 2004. The program is implemented through Rule 403.	Existing	SCAQMD Rule 403.1 1/5/93
	d) Limits fugitive dust from paved and unpaved roads and livestock operations by requiring: 1) ceasing all hay grinding activities between 2 and 5 p.m. if visible emissions extend more than 50 feet from a hay grinding source, and 2) treating all unpaved access connections to livestock operations and unpaved feed lane access areas with either pavement, gravel (maintained to a depth of 4 inches), or asphaltic road-base. Note: This rule was amended April 2, 2004.	Existing	SCAQMD Rule 1186 2/14/97
	e) Reduces fugitive dust from livestock feed yards by requiring a dust plan that contains procedures assuring moisture factor between 20% and 40% for manure in the top three inches of occupied pens and outlines manure management practices, including removal.	Existing	ICAPCD Rule 420 8/13/02

*Date when rule was adopted or last amended
Note: The specific air district rules included on the list represent guidance or appropriate example measures in terms of scope and level of emission control. There may be other district rules which may also represent similar, suitable levels of control.

D. Combustion Sources

Measures reduce NOx, SOx, VOC, CO, or PM10 and PM2.5.

	Strategy	Source Type	District, Rule, and Adoption Date*
45.	**Boilers, Steam Generators, and Process Heaters** (NOx)		
	a) Limits NOx emissions from gaseous fuel or liquid fuel fired boilers, steam generators, or process heaters with a total rated heat input greater than 5 million Btu/hr to between 5-40 ppmv depending on fuel type, use, and burner capacity.	New, existing and modified	SJVAPCD Rule 4306 9/18/03
	b) Limits NOx emissions from any petroleum refinery boiler or process heater with a maximum rated capacity greater than 40 million Btu/hr to 0.03 pound per million BTU of heat input (25 ppmv) when firing at the maximum rated capacity. Alternative Emission Control Plans allowed which result in equivalent emissions. All units subject to this rule are now under the SCAQMD's RECLAIM Program.	New and existing	SCAQMD Rule 1109 3/12/84
	c) Limits NOx emissions from gaseous fuel or liquid fuel fired boilers, steam generators, or process heaters with a total rated heat input greater than 5 million Btu/hr to between 30-40 ppmv depending on fuel type.	New, existing and modified	SMAQMD Rule 411 7/22/99 and SCAQMD Rule 1146 11/17/00
	d) Limits NOx emissions from gaseous, liquid, or solid fossil fuel fired boilers, steam generators, or process heaters with a total rated heat input starting at 2 million Btu/hr up to 5 million Btu/hr used in any industrial, institutional, or commercial operation to 30 ppmv or 0.037 pounds per million Btu of heat input.	New, existing and modified	SCAQMD Rule 1146.1 5/13/94
	e) Limits NOx emissions from any boilers, steam generators, or process heater with a total rated heat input starting at 1 million Btu/hr up to 5 million Btu/hr to 30 ppmv.	New, existing and modified	VCAPCD Rule 74.15.1 6/13/00
	(continued on next page)		

*Date when rule was adopted or last amended

Note: The specific air district rules included on the list represent guidance or appropriate example measures in terms of scope and level of emission control. There may be other district rules which may also represent similar, suitable levels of control.

	Strategy	Source Type	District, Rule, and Adoption Date*
	Boilers, Steam Generators, and Process Heaters (continuation)		
	f) Limits NOx emissions from new and existing natural gas-fired large (commercial) water heaters, small (industrial) boilers, and process heaters that have a rated heat input starting at 75,000 Btu/hr up to and including 2 million Btu/hr to between 30-55 ppmv depending on burner size. Exempts residential and low use units.	New, existing and modified	SCAQMD Rule 1146.2 1/9/98
	g) Limits NOx emissions from new natural gas-fired large (commercial) water heaters, small (industrial) boilers, and process heaters that have a rated heat input starting at 75,000 Btu/hr up to and including 2 million Btu/hr to between 30-55 ppmv depending on burner size. Exempts residential and low use units.	New	SBAPCD Rule 360 10/17/02 and VCAPCD Rule 74.11.1 9/14/99
46.	**Turbines** (NOx)		
	a) Limits NOx emissions to the atmosphere from the operation of stationary gas turbines to between 9-65 ppmv depending on turbine operating capacity, yearly run time, and fuel type. Exemptions include emergency standby and laboratory units.	New, existing and modified	SMAQMD Rule 413 5/1/97
	b) Limits NOx emissions to the atmosphere from the operation of stationary gas turbines to between 3-65 ppmv depending on turbine operating capacity, yearly run time, and fuel type. Exemptions include emergency standby and laboratory units.	New, existing and modified	SJVAPCD Rule 4703 4/25/02
	c) Limits NOx emissions from the operation of gas turbines to 9-25 ppm for turbines in size range of 2.9 to 10 MW. Note: Ammonia slip limits for gas turbines in power plants are listed in: 1) ARB's May 2004 Report to the Legislature on Gas-Fired Power Plant NOx Emission Controls and Related Environmental Impacts Reference: http://www.arb.ca.gov/energy/noxlegrpt.htm 2) ARB's September 1999 Guidance for Power Plant Siting and Best Available Control Technology Reference: http://www.arb.ca.gov/energy/powerpl/guidocfi.pdf	New and existing	SCAQMD Rule 1134 8/8/97

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	Strategy	Source Type	District, Rule, and Adoption Date*
47.	**IC Engines** (NOx, VOC)		
	a) Limits NOx emissions from gaseous- and liquid-fueled stationary and portable engines over 50 bhp to 36 ppm or higher and VOC to 250 ppm or higher depending on use category of engine (i.e. portable, stationary, oil field, fired by sewage digester gas, etc.)	New, existing and modified	SCAQMD Rule 1110.2 11/14/97
	b) Limits NOx emissions from spark ignited internal combustion engines over 50 bhp to 25-75 ppmv, VOC emissions to 250-750 ppmv, and CO emissions to 2000 ppmv depending on engine type and size.	New, existing and modified	SJVAPCD Rule 4702 8/21/03
	c) Limits NOx emissions from spark ignited internal combustion engines over 50 bhp from 25-125 ppmv depending on engine type and size and NMHC to 250-750 ppmv depending on engine size.	New, existing and modified	SMAQMD Rule 412 6/1/95
48.	**Lime Kilns** (NOx)		
	Limits NOx emissions from lime kilns to between 0.10-0.20 lbs/MM Btu depending on fuel type.	New, existing and modified	SJVAPCD Rule 4313 3/27/03
49.	**Cement Kilns** (NOx, PM10, PM2.5)		
	a) Limits NOx emissions from cement kilns during periods of operation other than start-up or shut-down to between 6.4-7.2 lb/ton clinker produced averaged over a 30 day period depending on kiln type. Additional limits are specified for start-up and shut-down periods.	New, existing, and modified	MDAQMD Rule 1161 3/25/02
	b) Limits NOx emissions from cement kilns to 11.6 lbs/ton of clinker produced averaged over any 24 consecutive hour period and to 6.4 lbs/ton of clinker produced averaged over a 30 day period.	New and existing	KCAPCD Rule 425-3 10/13/94
	c) Limits PM emissions to 30 pounds per hour for kiln feed rates of 75 tons per hour or greater. Limits PM emissions to 0.40 pound per ton of kiln feed for kiln feed rates less than 75 tons per hour.	New and existing	SCAQMD Rule 1112.1 2/7/86

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	Strategy	Source Type	District, Rule, and Adoption Date*
50.	**Petroleum Coke Calcining Operations** (SOx) Does not allow operation of petroleum coke calcining equipment unless the uncontrolled emissions of oxides of sulfur from such basic equipment, expressed as sulfur dioxide (SO2), are reduced by at least 80 percent.	New, existing, and modified	SCAQMD Rule 1119 3/2/79
51.	**Furnaces** (NOx) a) Glass Melting Furnaces Sets NOx emission limits of 4.0 pounds per ton of glass pulled for glass melting furnaces. Sets NOx emission limits of 5.5 pounds per ton of glass pulled for glass melting furnaces. b) Central Furnaces Sets a NOx emission limit of 40 ng/joule for gas fired residential units with rating less than 175,000 Btu/hr.	New and existing New and existing New and existing	SCAQMD Rule 1117 1/6/84 BAAQMD Rule 9-12 1/19/94 SCAQMD Rule 1111 7/8/83 and SDAPCD Rule 69.6 6/17/98
52.	**Residential Water Heaters** (NOx) a) Limits NOx emissions from water heaters with heat input rates equal to or less than 75,000 Btu per hour to 20 ng/joule of heat output and sets future limit to 10 ng/joule of heat output. b) Limits NOx emissions from water heaters with heat input rates equal to or less than 75,000 Btu per hour to 40 ng/joule of heat output.	New New	SCAQMD Rule 1121 12/10/99 SJVAPCD Rule 4902 6/17/93

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	Strategy	Source Type	District, Rule, and Adoption Date*
53.	**Commercial Charbroiling Operations** (VOC, PM10, PM2.5) Requires new and existing chain driven charbroilers to be equipped with a catalytic oxidizer control device.	New and existing	SJVAPCD Rule 4692 3/21/02 and SCAQMD Rule 1138 11/14/97
E. Composting and Related Operations Measures reduce ammonia and VOC.			
54.	**General Administrative Requirements** Requires composting and chipping and grinding facilities to register and provide facility and throughput information including, general facility information, type and amount of feedstock, products generated and process description. Annual updates also required.	New, existing, and modified	SCAQMD Rule 1133 1/10/03
55.	**Chipping and Grinding Operations** (Ammonia, VOC) Prevents inadvertent decomposition associated with stockpiling of green and/or food wastes by establishing holding or processing time requirements for chipping and grinding activities.	New, existing, and modified	SCAQMD Rule 1133.1 1/10/03
56.	**Composting** (Ammonia, VOC) Requires co-composting operations (biosolids and/or manure combined with bulking agents) to reduce VOC and ammonia emissions by 80% by conducting active composting within a total permanent enclosure and conducting curing using an aeration system that operates under negative pressure for a least 90% of its operating cycle and venting of VOC and ammonia emissions to a control device (biofilter). As an alternative, facilities subject to this rule may also submit a compliance plan that presents and demonstrates an alternative method of compliance. The rule requires recordkeeping and source testing which includes the submittal of a testing protocol. Exemptions are also provided for facilities that meet certain specific requirements.	New, existing, and modified	SCAQMD Rule 1133.2 1/10/03

*Date when rule was adopted or last amended

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	Strategy	Source Type	District, Rule, and Adoption Date*
F. Storage, Transfer, and Dispensing Operations Measures reduce VOC.			
57.	**Gasoline Transfer and Dispensing Facilities** Limits emissions of VOC from gasoline dispensing facilities through equipment and operational requirements. For equipment and testing requirements see ARB Executive Orders.	New, existing and modified	BAAQMD Rule 8-7 11/6/02
58.	**Organic Liquid Storage** a) Limits VOC emissions from storage tanks with a capacity of 264 gallons and greater through operational and equipment requirements.	New, existing and modified	BAAQMD Rule 8-5 11/27/02
	b) Limits VOC emissions from any above-ground stationary tank with a capacity of 75,00 liters (19,815 gallons) or greater used for storage of organic liquids, and any above-ground tank with a capacity between 950 liters (251 gallons) and 75,000 liter (19,815 gallons) used for storage of gasoline by setting tank roof, other performance, and self-inspection requirements. Sets forth conditions for the cleaning and degassing of aboveground and underground stationary tanks, reservoirs, or other containers storing or last used to store VOC.	New, existing, and modified	SCAQMD Rule 463 3/11/94 in combination with SCAQMD Rule 1149 7/14/95
G. Leaks and Releases Measures reduce VOC			
59.	**Equipment Leaks (Valves and Flanges)** a) Limits VOC and methane emissions from leaking equipment at petroleum refineries, chemical plants, bulk plants, and bulk terminals including, but not limited to: valves, connectors, pumps, compressors, pressure relief devices, diaphragms, hatches, sight-glasses, fittings, sampling ports, meters, pipes, vessels, and refinery wastewater collection system components to between 100-500 ppm depending on equipment type. Note: This rule was amended January 21, 2004.	New, existing and modified	BAAQMD Rule 8-18 11/27/02

*Date when rule was adopted or last amended

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	Strategy	Source Type	District, Rule, and Adoption Date*
	Equipment Leaks (Valves and Flanges) (continuation) b) Limits VOC emissions from leaking equipment at petroleum facilities and chemical plants by setting forth leak standards and requirements for component identification, operator inspection, maintenance, and atmospheric pressure relief devices.	New, existing and modified	BAQQMD Rule 1173 12/6/02
H. Product Manufacturing Measures reduce VOC.			
60.	**Coatings and Ink Manufacturing** Sets forth operational and "housekeeping" requirements for coatings and ink manufacturing.	New, existing and modified	SCAQMD Rule 1141.1 11/17/00
61.	**Fiberboard Manufacturing** Limits VOC emissions from fiberboard manufacturing by requiring use of capture and control systems with specified efficiencies	New, existing, and modified	PCAPCD Rule 229 6/28/94
62.	**Food Product Manufacturing and Processing** Limits VOC emissions from solvents used in food product manufacturing and processing operations by limiting the VOC content of products used to between 120-400 g/l depending on product, or by the use of a control device.	New, existing and modified	SCAQMD Rule 1131 6/6/03
63.	**Pharmaceuticals and Cosmetics Manufacturing Operations** Sets forth equipment and operational requirements for pharmaceuticals and cosmetic manufacturing.	New, existing and modified	SCAQMD Rule 1103 3/12/99

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Note: The specific air district rules included on the list represent guidance or appropriate example measures in terms of scope and level of emission control. There may be other district rules which may also represent similar, suitable levels of control.

	Strategy	Source Type	District, Rule, and Adoption Date*
64.	**Polyester Resin Operations** Limits VOC emissions from all polyester resin operations that fabricate, rework, repair, or touch-up products through operational controls and by limiting the monomer content of products to between 28%-50% depending on product type.	New, existing and modified	SCAQMD Rule 1162 11/9/01
65.	**Polymeric Cellular Products (Foam)** a) Sets forth emission limits for polymeric cellular products manufacturing operations. All steps of the manufacturing operation and the storage of the final product for a maximum of 48 hours are subject to the requirements of this rule. b) Limits VOC emissions from the manufacture of foam products composed of polystyrene, polyethylene or polypropylene to between 2.4-2.8 lbs of VOC emissions per 100 lbs of product produced and by requiring emission abatement devices. A control device with at least 98% efficiency may be used in lieu of the above emissions requirements.	New, existing, and modified New, existing, and modified	SCAQMD Rule 1175 5/13/94 BAAQMD Rule 8-52 7/7/99
66.	**Surfactant Manufacturing** Requires the total emissions of VOC from the surfactant manufacturing equipment, before being vented to the atmosphere, be reduced to 0.5 pound per 1000 pounds of surfactant produced or by 95 percent (wt) or more; and all ports used for inspection, taking samples, or adding ingredients must be closed when not in use.	New, existing and modified	SCAQMD Rule 1141.2 1/11/02

*Date when rule was adopted or last amended
Note: The specific air district rules included on the list represent guidance or appropriate example measures in terms of scope and level of emission control. There may be other district rules which may also represent similar, suitable levels of control.

I. Coating Operations

Measures reduce VOC.

	Strategy	Source Type	District, Rule, and Adoption Date*
67.	**Adhesives and Sealants** a) Reduces VOC emissions from the application of adhesives, adhesive primers, sealants, sealant primers, or any other primers through operational controls and by limiting the VOC content of products to between 30-850 g/l depending on product type. Emission control equipment can be used in lieu of meeting VOC limits.	New, existing and modified	VCAPCD Rule 74.20 9/9/03
	b) Reduces VOC emissions from the application of adhesives, adhesive primers, sealants, sealant primers, or any other primers through operational controls and by limiting the VOC content of products to between 30-850 g/l depending on product type. Emission control equipment can be used in lieu of meeting VOC limits. This rule has more stringent standards for a few categories than the rule above.	New, existing and modified	SCAQMD Rule 1168 10/23/03
68.	**Architectural Coatings** Several districts have adopted regulations consistent with ARB's Suggested Control Measure (SCM) which limits the content of VOC in architectural coatings to between 100-730 g/l. ARB's SCM was adopted in June 22, 2000. For example see rules adopted by SJVAPCD, SDAPCD, SMAQMD, SBAPCD, TeCAPCD, MDAQMD, and AVAQMD. Note: The SCAQMD rule 1113 includes additional significantly more stringent future VOC limits.	New, existing and modified	AVAQMD Rule 1113 3/18/03
69.	**Glass Coatings** Limits VOC emissions from the coating of glass products by limiting the VOC content of coating products to between 2.3-6.7 lbs/gal, depending on the product, or installing control equipment.	New, existing and modified	SJVAPCD Rule 4610 4/17/03

*Date when rule was adopted or last amended

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	Strategy	Source Type	District, Rule, and Adoption Date*
70.	**Graphic Arts** Limits VOC emissions from graphic arts operations by limiting the VOC content of products to between 150-300 g/l or by installing a control device.	New, existing and modified	SCAQMD Rule 1130 10/8/99
71.	**Magnet Wire Coating Operations** This rule applies to all coating operations on magnet wire, where the wire is continuously drawn through a coating applicator. Under this rule, any person shall not use or apply any magnet wire coating which contains more than 200 grams VOC per liter (1.67 lb/gal) of coating, less water and exempt compounds. The rule also provides for use of approved emission control systems.	New, existing and modified	SCAQMD Rule 1126 1/13/95
72.	**Marine Coating Operations** Applies to coating operations of marine and fresh water vessels, oil drilling platforms, navigational aids and component parts; and structures intended for exposure to a marine environment. Limits VOC emissions from marine coatings by limiting VOC content of coatings to between 275-650 g/l depending on product. Requires use of non-VOC materials for surface preparation and equipment cleaning. Allows use of specified air pollution control equipment which captures VOC emissions associated with coating, cleaning , and surface preparation, in lieu of use of low-VOC coatings and non-VOC materials used in cleaning and surface preparation.	New, existing and modified	SDAPCD Rule 67.18 5/15/96
73.	**Metal Container, Closure, and Coil Coating Operations** Limits VOC emissions from metal container, metal closure and metal coil coating operations through operational controls and by limiting the VOC content of products up to 660 g/l depending on product type.	New, existing and modified	SCAQMD Rule 1125 1/13/95

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	Strategy	Source Type	District, Rule, and Adoption Date*
74.	**Metal Parts and Products Coatings** Limits VOC emissions from the coating of metal parts and products not regulated by other specific regulations by limiting coating VOC content to between 2.3-3.5 lbs/gal depending on process and coating type.	New, existing and modified	SCAQMD Rule 1107 11/9/01
75.	**Motor Vehicle Assembly Line Coating Operations** Sets forth VOC emission limits and VOC content of motor vehicle coatings. This rule applies to all assembly line coating operations conducted during the manufacturing of new motor vehicles.	New, existing and modified	SCAQMD Rule 1115 5/12/95
76.	**Paper, Fabric, and Film Coating Operations** This rule applies to all persons applying coatings or wash primers to paper, fabric, or film substrates. The drying and curing processes covered under this rule include, but are not limited to, heated, forced-air dried, and non-heated processes. The rule specifies VOC content of applicable coatings and sets forth application method and cleaning requirements.	New, existing and modified	SCAQMD Rule 1128 3/8/96
77.	**Plastic, Rubber, and Glass Coatings** Specifies VOC content of coatings used on plastic, rubber, and glass and sets forth transfer efficiency requirements. The rule allows for use of an approved emission control system in lieu of VOC content limits.	New, existing and modified	SCAQMD Rule 1145 2/14/97
78.	**Screen Printing Operations** Specifies VOC content of screen printing materials and applies to persons performing screen printing operations or who sell, distribute, or require the use of screen printing materials.	New, existing and modified	SCAQMD Rule 1130.1 12/13/96

*Date when rule was adopted or last amended

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	Strategy	Source Type	District, Rule, and Adoption Date*
79.	**Spray Booth Facilities** Further reduces VOC emissions from spray coating or laminating operations in high VOC-emitting facilities. This rule applies to any spray booth facility, except petroleum industry facilities, that uses VOC-containing materials that amount to more than 40,000 pounds (20 tons) per year of VOC emissions in any emission inventory year and requires that emissions be reduced by 65% beyond applicable rule requirements through the use of a control device or low VOC product.	New, existing and modified	SCAQMD Rule 1132 1/19/01
80.	**Vehicle Refinishing** Limits VOC emissions from coatings applied on Group I vehicles and equipment and Group II vehicles through operating requirements and by limiting VOC content of products to between 2.8-7.0 lbs/gal.	New, existing and modified	SCAQMD Rule 1151 12/11/98
81.	**Wood Flat Stock Coatings** Limits VOC content of coatings, inks, and adhesives applied to wood flat stock for the purpose of manufacturing a finished wood panel intended for attachment to the inside walls of buildings, including, but not limited to, homes and office buildings, mobile homes, trailers, prefabricated buildings and similar structures, boats and ships, or a finished exterior wood siding intended for use in construction to 250 g/l. A control device may be installed in lieu of the VOC requirement.	New, existing and modified	SCAQMD Rule 1104 8/13/99
82.	**Wood Products Coatings** Specifies VOC content of wood products coatings between 275-760 g/l depending on product. Requires wood strippers to have a maximum VOC content of 350 g/l or a maximum vapor pressure of 2mm Hg. The rule allows for use of an approved emission control system in lieu of VOC content limits and also includes an averaging provision. Exempts facilities that use less than one gallon of coatings per day.	New, existing and modified	SCAQMD Rule 1136 6/14/96

*Date when rule was adopted or last amended
Note: The specific air district rules included on the list represent guidance or appropriate example measures in terms of scope and level of emission control. There may be other district rules which may also represent similar, suitable levels of control.

J. Solvent Cleaning and Degreasing

Measures reduce VOC.

	Strategy	Source Type	District, Rule, and Adoption Date*
83.	**Cleaning Operations**		
	a) Limits VOC emissions from solvent cleaning operations and activities by reducing VOC content of cleaning products to between 25 g/l-900 g/l depending on process.	New, existing, and modified	SCAQMD Rule 1171 11/7/03
	b) Limits VOC emissions from solvent cleaning operations and activities by reducing VOC content of cleaning products to between 50 g/l-900 g/l depending on process.	New, existing and modified	SMAQMD Rule 466 5/23/03 and SJVAPCD 4663 12/20/01
84.	**Degreasing Operations**		
	a) Limits VOC emissions from cold cleaners and vapor degreasers by limiting product VOC content to 25 g/l. Air-tight and airless cleaning systems can be used in lieu of meeting the VOC limit.	New, existing and modified	SCAQMD Rule 1122 12/6/02
	b) Limits VOC emissions from cold cleaners by limiting product VOC content to 25 g/l for (900g/l for exempted categories.)	New, existing, and modified	VCAPCD Rule 74.6 11/11/03
	c) Limits VOC emissions from batch-loaded vapor degreasers by setting equipment and operating requirements.	New, existing, and modified	VCAPCD Rule 74.6.1 11/11/03
	d) Limits VOC emissions from cold cleaners to 50 g/l. Limits VOC emissions from vapor degreasers by setting equipment requirements. Air-tight and airless cleaning systems can be used in lieu of meeting the VOC limit.	New, existing, and modified	SMAQMD Rule 454 5/23/02

*Date when rule was adopted or last amended

Note: The specific air district rules included on the list represent guidance or appropriate example measures in terms of scope and level of emission control. There may be other district rules which may also represent similar, suitable levels of control.

	Strategy	Source Type	District, Rule, and Adoption Date*
85.	**Use of Solvents** (VOC) Limits VOC emissions from VOC containing materials or equipment not subject to VOC limits in any other, specific district regulation to no more than 833 lbs/month. A control device may be used in lieu of the monthly throughput limit.	New, existing and modified	SCAQMD Rule 442 12/15/00
K. Miscellaneous Measures reduce VOC, SOX, ammonia, or PM10 and PM2.5.			
86.	**Soil Decontamination** (VOC) a) Limits the emissions of organic compounds from soil that has been contaminated by organic chemical or petroleum chemical leaks or spills, and requires description of an acceptable procedure for controlling emissions from underground storage tanks during removal or replacement through the use of operational requirements and by limiting the amount of soil to be processed daily.	New, existing and modified	BAAQMD Rule 8-40 12/15/99
	b) Limits VOC emissions from excavating, grading, handling and treating VOC contaminated soil as a result of leakage from storage or transfer operations, accidental spillage, or other deposition by requiring that soil with VOC concentrations above 1000 ppm be containerized, sealed, and shipped away for disposal.	New, existing and modified	SCAQMD Rule 1166 5/11/01
87.	**Solid Waste Landfills** (VOC**)** a) Limits VOC emissions from municipal solid waste landfills through installation of gas collection and control systems.	New, existing, and modified	SCAQMD Rule 1150.1 3/17/00
	b) Limits VOC emissions from the waste decomposition process at solid waste disposal sites through requirements for gas collection and control systems.	New, existing, and modified	BAAQMD Rule 8-34 10/6/99

*Date when rule was adopted or last amended
Note: The specific air district rules included on the list represent guidance or appropriate example measures in terms of scope and level of emission control. There may be other district rules which may also represent similar, suitable levels of control.

	Strategy	Source Type	District, Rule, and Adoption Date*
88.	**Woodworking Operations** (PM10) Requires any woodworking facility that uses a pneumatic conveyance system connected to woodworking equipment to vent sawdust emissions to a PM10 emissions control device, such that there are no visible emissions; to cover sawdust storage bins at all times; and to take measures to prevent visible emissions from waste disposal activities from crossing any property line.	New, existing, and modified	SCAQMD Rule 1137 2/1/02
L. General Rules to Reduce Directly Emitted PM from Stationary and Area Sources These rules are generic and apply to sources that may not be regulated through a specific rule or permit requirement. The rules are intended to reduce directly emitted PM10 and PM2.5.			
89.	**Visible Emission Limits** (PM10, PM2.5) Prohibits discharges into the atmosphere from any single source of emission of any air contaminant for a period or periods aggregating more than 3 minutes in any 1 hour which is: 1) as dark or darker in shade as that designated as No. 1 on the Ringlemann Chart (20% opacity), as published by the United States Bureau of Mines, or 2) of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in 1). Provides the option of exempting permitted outdoor residential burns. Note: Several districts have adopted similar rules (e.g., SMAQMD, BAAQMD, SCAQMD, SDAPCD).	New, existing and modified	MaCAPCD Rule 202 9/17/74
90.	**Combustion Contaminants** (PM10, PM2.5) Prohibits discharges into the atmosphere from the burning of fuel of combustion contaminants exceeding 0.23 gram per cubic meter (0.1 grain per cubic foot) of gas calculated to 12% of carbon dioxide at standard conditions averaged over a minimum of 25 consecutive minutes.	New, existing and modified	MDAQMD Rule 409 5/7/76

*Date when rule was adopted or last amended
Note: The specific air district rules included on the list represent guidance or appropriate example measures in terms of scope and level of emission control. There may be other district rules which may also represent similar, suitable levels of control.

	Strategy	Source Type	District, Rule, and Adoption Date*
91.	**Grain Loading** (PM10) Prohibits release or discharge into the atmosphere from any source or single processing unit, exclusive of sources emitting combustion contaminants only, PM emissions in excess of 0.1 grains per cubic foot of dry exhaust gas at standard conditions.	New, existing and modified	MaCAPCD Rule 207 11/9/76
M. Programs that Reduce PM Emissions from Mobile Sources Measures primarily reduce directly emitted PM10, PM2.5, NOx, and VOC.			
	Incentive Programs (PM10, PM2.5, NOx) A funding source is needed in order to rely on incentives programs.		
92.	***DMV Funds (AB 2766 Funds): Motor Vehicle Registration Fee Program (Many districts implement this program)*** State law authorizes air districts to assess motor vehicle registration fees of between $2-$4 (MV Fees) to reduce air pollution from motor vehicles and for related planning, monitoring, enforcement, and technical studies necessary for the implementation of the California Clean Air Act. Twenty-six air districts have implemented a motor vehicle registration fee program. ARB's guidance stresses funding cost-effective projects that help implement clean air plans and that reduce the most emissions per dollar spent. Example: SCAQMD's Mobile Source Air Pollution Reduction Review Committee; BAAQMD's Transportation Fund for Clean Air (vehicle buy-back clean school buses, vehicle incentives, etc.); SJVAPCD's REMOVE Program. Note: Legislation effective January 1, 2005, allows air districts to increase the fee to $6. Spending of the additional $2 is limited to four programs: 1) Carl Moyer, 2) Lower Emission School Buses, 3) accelerated vehicle retirement or repair program, and 4) previously unregulated agricultural sources. (continued on next page)	New or modified	SCAQMD BAAQMD SJVAPCD Programs

*Date when rule was adopted or last amended
Note: The specific air district rules included on the list represent guidance or appropriate example measures in terms of scope and level of emission control. There may be other district rules which may also represent similar, suitable levels of control.

	Strategy	Source Type	District, Rule, and Adoption Date*
	Incentive Programs (continuation)		
93.	***Heavy-Duty Engine Incentive Program*** a) Helps fleets pay for new lower emission heavy-duty engines, lower emission retrofits, and engine replacements. Public and private fleets are eligible if they use medium or heavy-duty on-road gas or diesel vehicles over 14,000 pounds gross weight or off-road commercial equipment including construction, agricultural, stationary agricultural water pump, commercial marine vessels, locomotives, forklifts, or airport ground support equipment. The program is funded by the air district and by the Carl Moyer Incentive Program sponsored by ARB. (continued on next page)	New or modified	SMAQMD Program
	b) Provides incentive funds for the differential cost associated with the reduced emission technology as compared with the cost of conventional technology. Eligible funding categories include heavy-duty on-road vehicles, off-road vehicles, locomotives, marine vessels, electric forklifts, electric airport ground support equipment and stationary agricultural irrigation pump engines. The SJVAPCD received $25 million in State transportation funds from special legislation for the Valley Emergency Clean Air Program (VECAP). The air district added the VECAP funds to the Heavy Duty Engine Incentive Program.	New or modified	SJVAPCD Program
94.	***Lower Emission School Bus Program*** The Lower-Emission School Bus Program provides financial incentives to school districts to replace older school buses using both air district and ARB grant funding.	New or modified	BAAQMD VCAPCD SCAQMD Programs
95.	***Moyer Program*** The Carl Moyer Memorial Air Quality Standards Attainment Program provides funds on an incentive-basis for the incremental cost of cleaner than required engines and equipment. Eligible projects include cleaner on-road, off-road, marine, locomotive and stationary agricultural pump engines, as well as forklifts, airport ground support equipment, and auxiliary power units. The program achieves near-term reductions in NOx and PM emissions. Most districts currently implement this program.	New or modified	Most Districts

*Date when rule was adopted or last amended

Note: The specific air district rules included on the list represent guidance or appropriate example measures in terms of scope and level of emission control. There may be other district rules which may also represent similar, suitable levels of control.

	Strategy	Source Type	District, Rule, and Adoption Date*
	Incentive Programs (continuation)		
96.	***Sacramento Emergency Clean Air Transportation (SECAT) Program*** Encourages cleanup of the existing HDD truck fleet by providing funds to pay for the cost of retrofitting existing engines with newer, cleaner engines or paying a significant amount of the cost of a newer vehicle. The goal is to reduce NOx emissions from HDD trucks by 3 tons per day by 2005 by upgrading 3,000 to 6,000 trucks. The program will disperse a total of $70 million by 2005 (from State transportation funds under special legislation plus funds from the federal Congestion Mitigation and Air Quality Improvement (CMAQ) Program.	New or modified	SMAQMD Program
97.	***Light and Medium Duty Vehicle Program*** Provides incentives for certain new on-road original equipment manufacturer (OEM) alternative fuel vehicles with a Gross Vehicle Weight Rating (GVWR) up to 14,000 pounds, including passenger cars, pick-up trucks, small buses, and vans. Vehicles must be certified by the ARB as achieving standards for ULEV, SULEV, or ZEV vehicles. With the exception of hybrid electric vehicles, no vehicles with the ability to operate on gasoline or diesel fuel are funded.	New	SJVAPCD Program
98.	***Lawn Mower Buy Back Program*** Encourages trading of gasoline-powered mowers, by providing funds to offset the purchase cost of electric mowers (e.g., in early 2004, the SMAQMD participated in a program that paid 50% of the purchase price for 700 mowers).	Existing	BAAQMD SJVAPCD SMAQMD SCAQMD Programs

*Date when rule was adopted or last amended

Note: The specific air district rules included on the list represent guidance or appropriate example measures in terms of scope and level of emission control. There may be other district rules which may also represent similar, suitable levels of control.

	Strategy	Source Type	District, Rule, and Adoption Date*
	Transportation Related Programs (PM10, PM2.5, NOx, VOC, CO)		
99.	***On-Road Motor Vehicle Mitigation Options*** Requires employers who employ 250 or more employees to implement a program to reduce mobile source emissions generated from employee commutes and meet an annual emission reduction target (ERT) for their worksite. Provides employers with a menu of emission reduction options including: old-vehicle scrapping, clean on-road vehicles, clean off-road vehicles, pilot credit generation program, and other specified credit programs. As an alternative to meeting a worksite ERT, allows employers to implement an employee commute reduction program. This is the only program of this type with emission reduction mandates. Other districts programs are in place that require reporting of average vehicle ridership, but they have no emission reduction mandates. Note: This rule was amended February 6, 2004.	New, existing, and modified	SCAQMD Rule 2202 1/1/02
100.	***Transportation Outreach Program*** Requires employers with 100 or more employees to register with the air district annually and collect survey data on their employee's commute distances and ridesharing participation every two years. This rule allows the air district to devote resources and efforts in assisting employers with their voluntary trip reduction efforts.	New, existing, and modified	VCAPCD Rule 211 8/11/98
101.	***Spare the Air Program*** Many air districts have implemented public outreach programs to encourage the general public and employers to take actions to reduce transportation related emissions. SMAQMD, SJVAPCD, and BAAQMD have implemented Spare the Air Programs. Spare the Air is a voluntary, summertime effort aimed at reducing air pollution (specifically, ground-level ozone). (continued on next page)	New, existing, and modified	SMAQMD, SJVAPCD, BAAQMD Programs

*Date when rule was adopted or last amended

Note: The specific air district rules included on the list represent guidance or appropriate example measures in terms of scope and level of emission control. There may be other district rules which may also represent similar, suitable levels of control.

	Strategy	Source Type	District, Rule, and Adoption Date*
	Transportation Related Programs (continuation)		
102.	***Public Awareness Programs*** Some air districts have implemented public awareness programs that: 1) support voluntary employer based trip reduction programs, 2) encourage alternative modes of transportation, 3) encourage cities and counties to incorporate air quality beneficial policies into local planning and development activities, 4) promote demonstrations of low emission vehicles and refueling infrastructure, and/or 5) continue public education by informing residents about air quality status, air pollutant health effects, sources of pollution, and actions individuals and communities can take to help improve air quality.	Existing and modified	BAAQMD SCAQMD SMAQMD SJVAPCD Programs
103.	***Leveraging Other Sources for Transportation Funding*** Some air districts apply for and receive money for transportation-related projects from federal, state, and local funding sources, the most notable being the federal Congestion Mitigation and Air Quality Improvement (CMAQ) program. The projects funded are usually small scale and include incentives, facilities, support services, and public awareness for carpools, vanpools, telecommuting, public transit, biking and walking.	New, existing, and modified	BAAQMD SCAQMD SMAQMD SJVAPCD SDAPCD Programs

Reference: *District rules and regulations can be obtained at http://www.arb.ca.gov/drdb/drdb.htm*

*Date when rule was adopted or last amended
Note: The specific air district rules included on the list represent guidance or appropriate example measures in terms of scope and level of emission control. There may be other district rules which may also represent similar, suitable levels of control.

K. San Diego Air Basin (San Diego County APCD)

The San Diego Air Basin is comprised of a single air district, the San Diego County APCD, which consists of San Diego County. The air basin is currently designated as nonattainment for both the 24-hour and the annual State PM10 standards. The air basin is also designated as nonattainment for the State annual PM2.5 standard.

Figure K-1 shows the location of the PM10 (a) and PM2.5 (b) monitoring sites throughout the air basin. All sites are located in the more densely populated western portion of the air basin.

Figure K-1. PM10 and PM2.5 Monitoring Sites throughout the Air Basin.

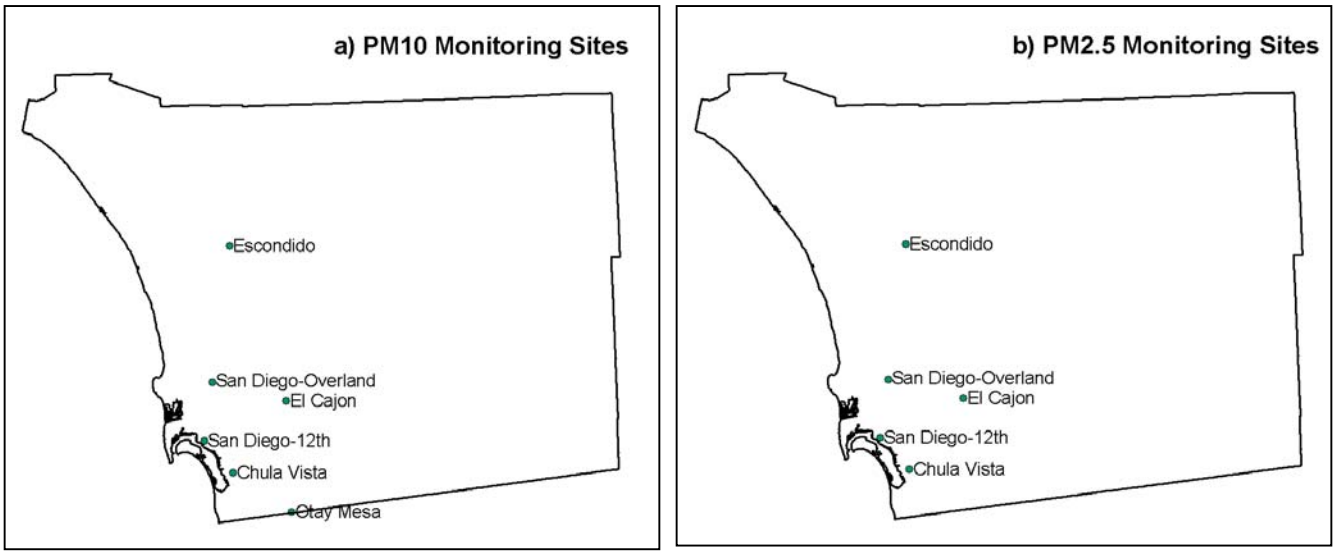


Table K-1 provides information on yearly variations in the highest PM10 and PM2.5 concentrations recorded across the San Diego County APCD in 2001 through 2003. During this period, PM10 levels exceeded the State 24-hour standard of 50 $\mu g/m^3$ an estimated four hundred and fifty-three times, and consistently exceeded the State annual PM10 standard of 20 $\mu g/m^3$. In 2002 and 2003, PM10 levels also exceeded the national annual PM10 standard of 50 $\mu g/m^3$. Particulate levels exceeded the State annual PM2.5 standard of 12 $\mu g/m^3$ in 2002 and 2003.

Table K-1. PM10 and PM2.5 Air Quality in San Diego County APCD.

Year	PM10 (ug/m^3)			PM2.5 (ug/m^3)	
	Calculated Days over State Std.	Max 24-hour (Std.=50)	Max Annual Average (Std.=20)	Max 24-hour*	Max Annual Average (Std.=12)
2001	129	106	48	60.	Incomplete Data
2002	173	131	52	54	16
2003	151	289**	53	239**	16

* The maximum 24-hour PM2.5 values are provided for information only.
** These values were excluded for determining attainment status. See text.

Table K-2 provides the 24-hour and annual designation values for the State standards for the 2001-2003 period. Designation values represent the highest 24-hour PM10 concentration measured during the three year period, after concentrations measured during highly irregular and infrequent events have been excluded, and the highest estimated PM10 and PM2.5 annual average in the same period. For example, the high 24-hour PM10 and PM2.5 concentrations in 2003 shown in Table K-1 were due to wildfires and were excluded in determining the designation values shown in Table K-2. The designation values are determined for each site, and the highest site is used for determining an area's designation. Based on these data, the San Diego County APCD currently is nonattainment for both the State 24-hour and annual average PM10 standards, as well as the State annual average PM2.5 standard.

Table K-2. Air District Level Designation Values* for the State PM10 and PM2.5 Standards (2001-2003 Period).

	PM10 (ug/m^3)		PM2.5 (ug/m^3)
	24-Hour (Std.=50)	Annual Average (Std.=20)	Annual Average (Std.=12)
Designation Value	133	53	16

* Designation value is the value used for determining attainment status. It is the highest measured value over three years after excluding highly irregular or infrequent events.

Table K-3 provides designation values for each monitoring site in the air district to provide further information on the geographic distribution of concentrations. Particulate levels exceeded both State PM10 standards consistently across the air district. Highest concentrations occurred at the most southern site of Otay Mesa, where annual average concentrations were significantly higher than concentrations at the remaining sites. PM2.5 levels at the San Diego-12th Street, Chula Vista, and Escondido monitors also exceeded the State annual PM2.5 standard.

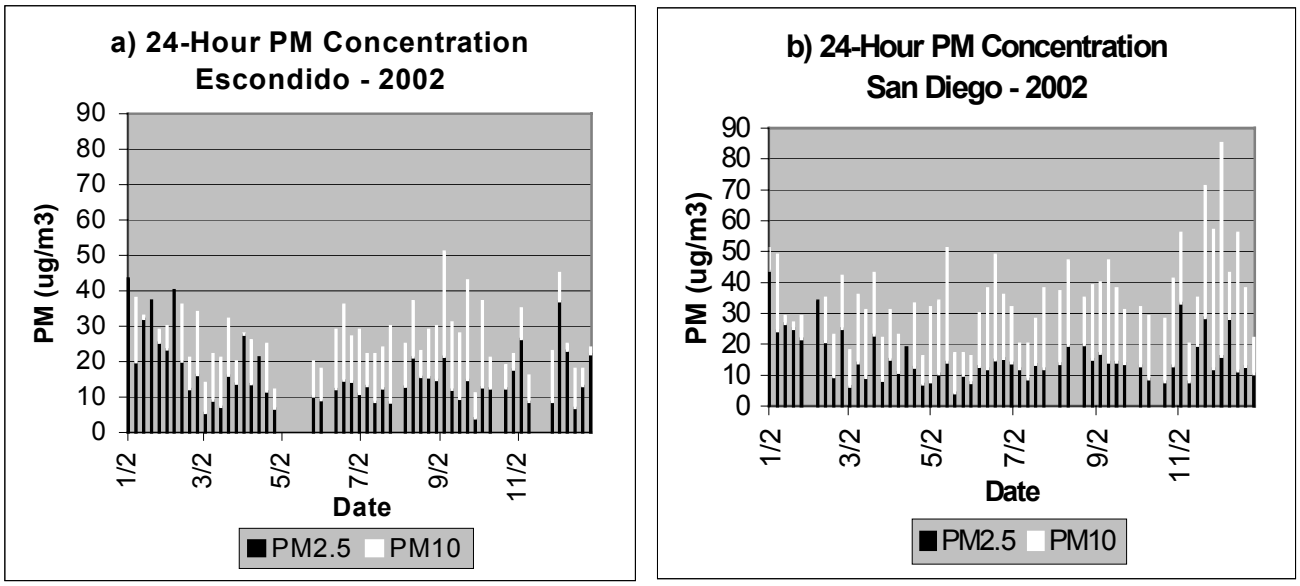
Table K-3. Monitoring Site Level Designation Values* for the State PM10 and PM2.5 Standards (2001-2003 Period).

Site	PM10 (ug/m^3)		PM2.5 (ug/m^3)
	24-Hour (Std.=50)	Annual Average (Std.=20)	Annual Average (Std.=12)
Chula Vista	68	29	14
El Cajon	87	38	Incomplete Data
Escondido	82	33	14
Otay Mesa	133	53	No Monitor
San Diego-12th St.	104	38	16
San Diego-Overland Ave.	90	29	Incomplete Data

* Designation value is the value used for determining attainment status. It is the highest measured value over three years after excluding highly irregular or infrequent events.

Figure K-2 illustrates the variation in PM10 and PM2.5 levels throughout 2002 at Escondido (a) and San Diego (b). The total height of the bars represents PM10 concentrations, while the height of the black portion of the bars represents the PM2.5 fraction. PM10 concentrations exhibit no distinct seasonal pattern at Escondido, but PM10 levels are highest during November and December at San Diego. PM2.5 concentrations are highest during the winter at both sites. The colder, more stagnant conditions during this time of the year are conducive to the buildup of PM and favor the formation of secondary ammonium nitrate. In addition, residential wood combustion activity may increase.

Figure K-2. Seasonal Variation in PM10 and PM2.5 Concentrations.



The coarse fraction (particles between PM2.5 and PM10 in size) is highest during the summer through early fall at Escondido and spring through late fall at San Diego. The coarse fraction is primarily due to activities that resuspend dust, such as emissions from paved and unpaved roads and construction. Sea salt may also contribute to the coarse fraction in some coastal areas.

Based on 2000-2003 data, we estimate that PM2.5 contributes approximately 60 percent of ambient PM10 at Escondido during the fall and winter, but only approximately 50 percent at San Diego. On an annual average basis, PM2.5 comprises approximately 48 percent of ambient PM10 at both sites.

Figure K-3. Hourly Variation in PM2.5 Concentrations.

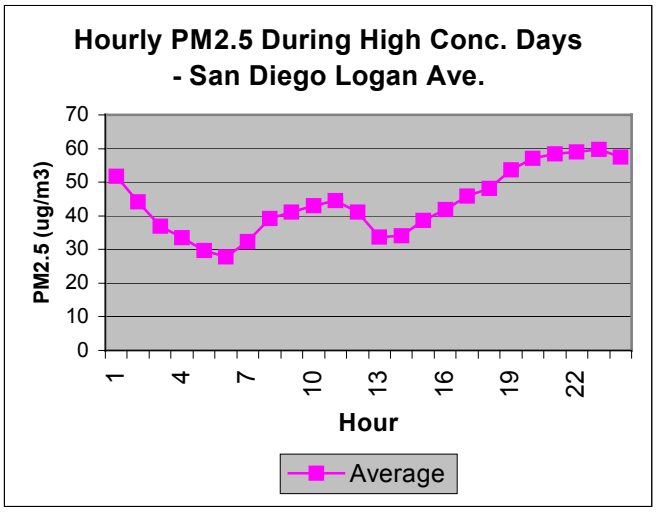
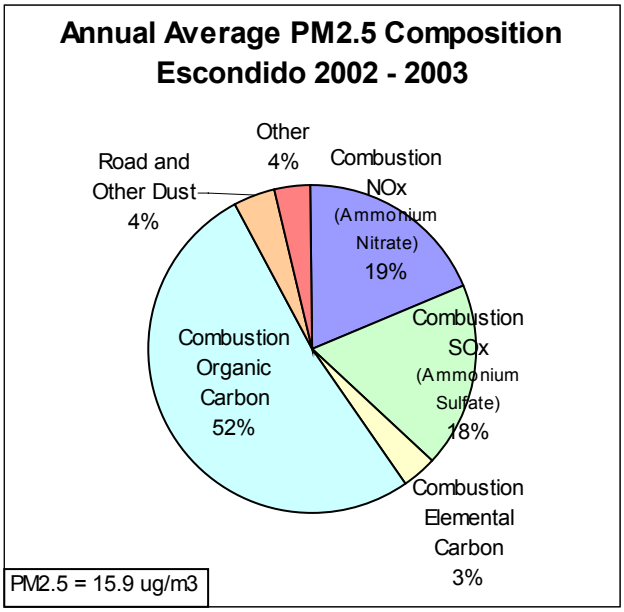


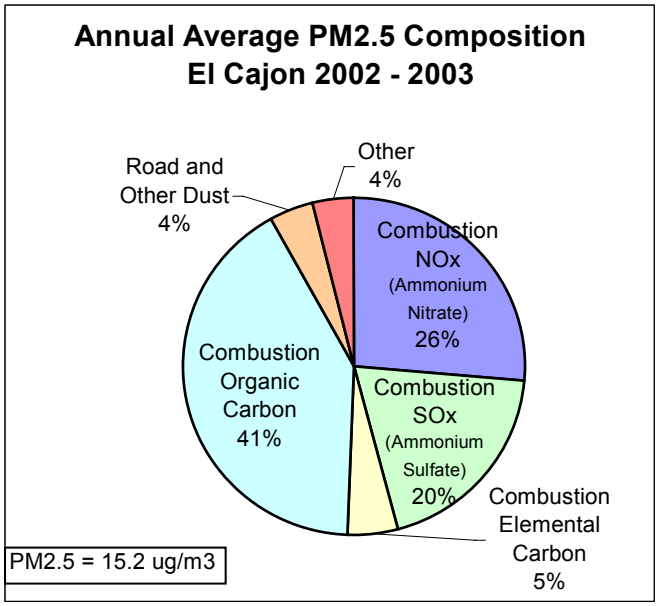
Figure K-3 presents the average hourly variation in PM2.5 for days within the year with the highest PM2.5 concentrations at San Diego-Logan. On most days, PM2.5 levels are highest during the late evening with a smaller peak from 8 a.m. to 12 p.m. Peak evening concentrations generally reflect the influence of lowering inversion heights which trap pollutants close to the surface, as well as increased activity from commute traffic and residential wood combustion in winter months. Morning peaks may reflect activity from commute traffic.

Data for Figure K-4 are from analysis of ambient PM2.5 data collected at Escondido (a) and El Cajon (b) from the State's PM2.5 speciation network. Chemical components have been associated with possible emission sources based on emission inventory information. The data show that on an annual average basis organic carbon is the major component of PM2.5 (approximately 40 to 50 percent).

Figure K-4. Chemical Composition of Annual Average PM2.5 and Link to Emission Source Type.

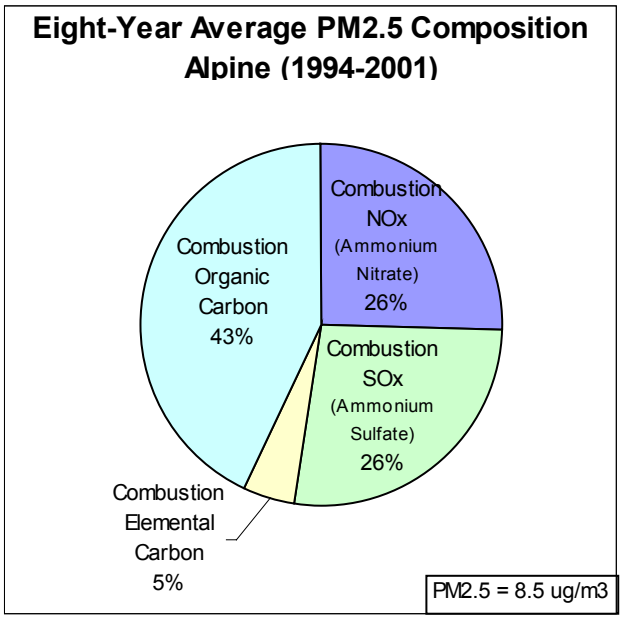
a) Escondido **b) El Cajon**





The majority of organic carbon is suspected to be due to directly emitted carbon from combustion sources. Key sources include vehicles, residential wood combustion, agricultural and prescribed burning, and stationary combustion sources. However, a fraction may be due to secondary organic aerosol formation from anthropogenic and biogenic VOC emissions. Ammonium nitrate and ammonium sulfate - formed in the atmosphere from chemical reactions of NOx and SOx from mobile and stationary source combustion processes - also contribute significantly to ambient PM2.5 (approximately 40 to 46 percent). Dust from roads and other dust producing activities and elemental carbon from combustion processes contribute to a lesser extent.

Figure K-5. Chemical Composition of Annual Average PM2.5 and Link to Emission Source Type at Alpine.



Data for Figure K-5 are from analysis of ambient PM2.5 data collected at Alpine as part of the Southern California Children's Health Study. The data show principal contributions from organic carbon (43 percent). Ammonium nitrate and ammonium sulfate also contribute significantly (approximately 52 percent) to ambient PM2.5. Elemental carbon from combustion processes contributes to a lesser extent.

Figures K-6 and K-7 illustrate the quarterly variation in PM2.5 levels and its chemical components expressed in $\mu g/m^3$ (a) and as percent of PM2.5 (b) at Escondido and El Cajon respectively for 2002-2003. As in the previous figures, chemical components have been associated with possible emission sources based on emission inventory information. At both places the higher PM2.5 concentrations in the fall and winter were due to increases in the organic carbon component. Increased levels of the ammonium sulfate component occurred during the spring and summer. The sunnier, warmer conditions during this time of the year are conducive to the formation of secondary ammonium sulfate through reactions in the atmosphere of SOx emitted from mobile and stationary combustion sources. Secondary organic aerosol formation may also be enhanced during warmer months.

Figure K-6. Chemical Composition of Average Quarterly PM2.5 and Link to Emission Source Type.

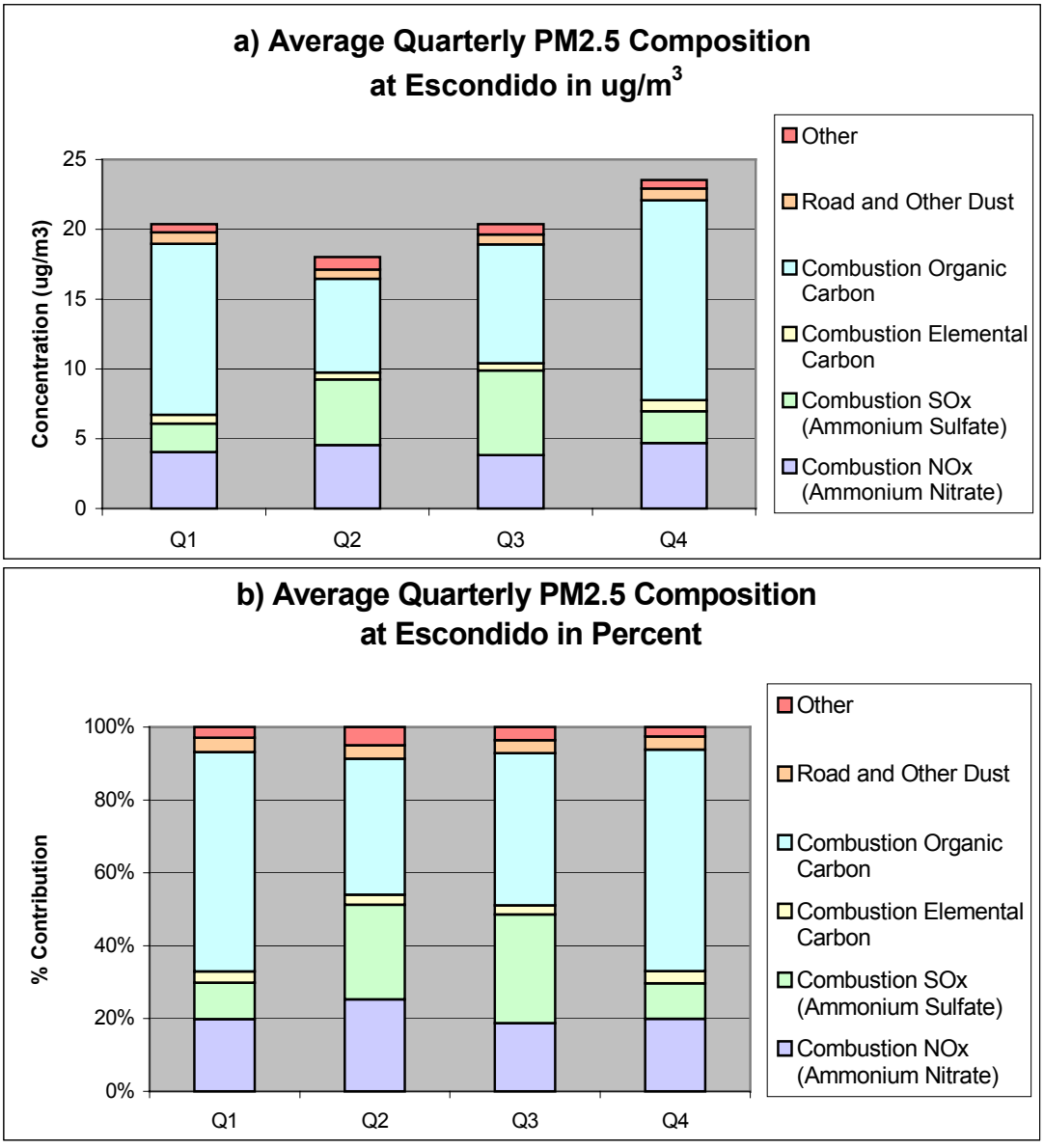
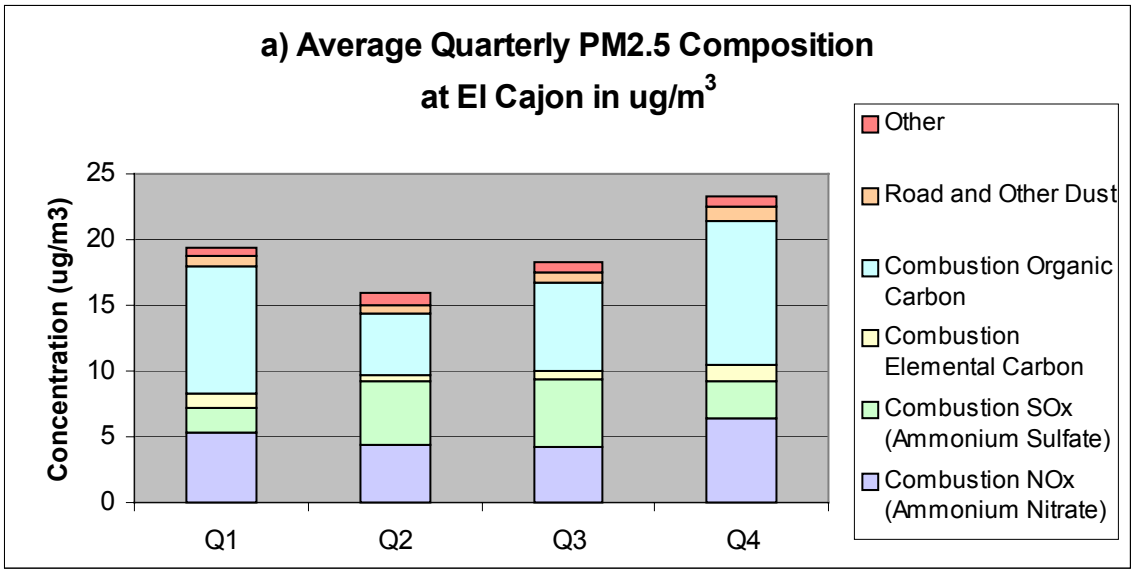
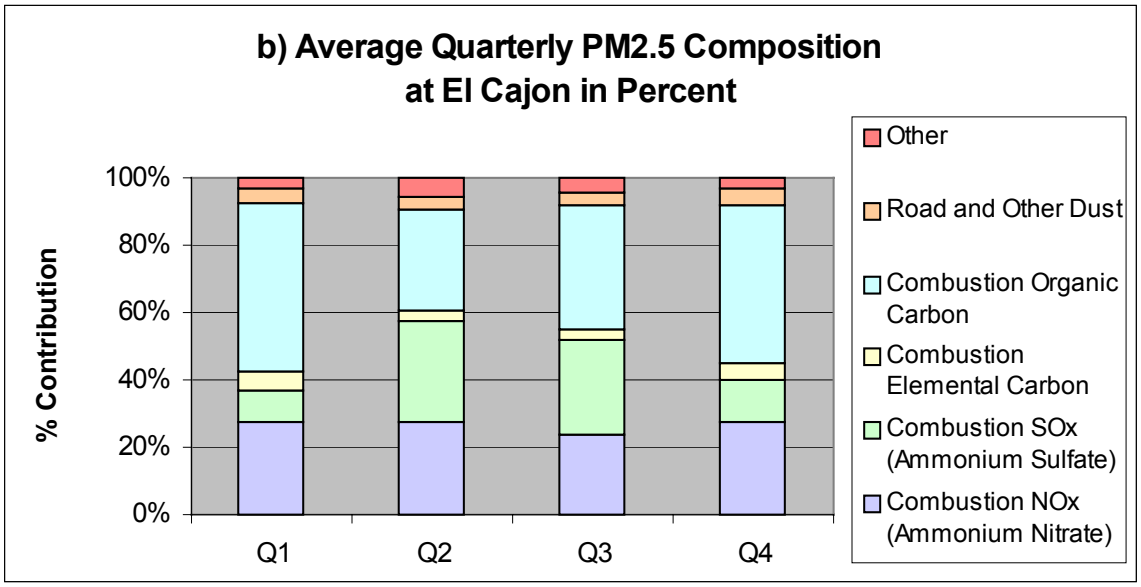


Figure K-7. Chemical Composition of Average Quarterly PM2.5 and Link to Emission Source Type.





Attachment D
District Evaluation of Potential Local Measures Listed by ARB

Measure No.	Measure	Criterion 1: Currently Unaddressed **Threshold:** Unaddressed by an equivalent local, state, or federal regulation or program	Criterion 2: Significant Source **Threshold:** PM emissions > 0.9 ton/day or a history of PM air quality complaints	Criterion 3: Effective **Threshold:** PM reductions > 0.9 ton/day or facilitates mitigation of PM complaints	Criterion 4: Cost Effective [1] **Threshold:** Cost per ton reduced < $12,000	Proposed for Implementation	Additional Notes
WOOD-BURNING FIREPLACES AND WOOD-BURNING HEATERS							
1	Residential wood burning public awareness program	Yes	Yes	Yes – history of PM air quality complaints	Yes – costs negligible	Yes	Add to District's public information program
2	Mandatory curtailment of wood burning during periods with predicted high PM levels (Air Quality Index >150)	Yes	Yes	No – daily PM levels rarely approach AQI >150	--	No	--
3	Voluntary curtailment of wood burning during periods with predicted high PM levels (Air Quality Index > 150)	Yes	Yes	No – daily PM levels rarely approach AQI >150	--	No	--

[1] For measures advancing to this final stage of analysis (Criterion 4), cost information is listed where provided by ARB, as determined by other California air districts where the measure has been implemented.

Measure No.	Measure	Criterion 1: Currently Unaddressed **Threshold:** Unaddressed by an equivalent local, state, or federal regulation or program	Criterion 2: Significant Source **Threshold:** PM emissions > 0.9 ton/day or a history of PM air quality complaints	Criterion 3: Effective **Threshold:** PM reductions > 0.9 ton/day or facilitates mitigation of PM complaints	Criterion 4: Cost Effective [1] **Threshold:** Cost per ton reduced < $12,000	Proposed for Implementation	Additional Notes
4	Prohibit installation of non-EPA certified wood-burning heaters	No – addressed by federal regulation (40 CFR 60 Subpart AAA)	--	--	--	No	--
5	Prohibit installation of new wood-burning fireplaces[2]	Yes	Yes – emissions about 1.5 tons/day	No – reduces PM10 emissions by 0.2 ton/day after 10 years	--	No	--
6	Prohibit sale or installation of non-EPA certified appliance except pellet stoves	See Measure 5	See Measure 5	See Measure 5	--	No	--
7	Limit residential wood-burning devices in new residential	See Measure 5	See Measure 5	See Measure 5	--	No	--
8	Limit wood-burning devices in new nonresidential	See Measure 5	See Measure 5	See Measure 5	--	No	--
9	Limit additional burning units in existing properties	See Measure 5	See Measure 5	See Measure 5	--	No	--

[2] Measure 5 also included prohibition of non-EPA certified wood-burning heaters, which is addressed in Measure 4.

Measure No.	Measure	Criterion 1: Currently Unaddressed **Threshold:** Unaddressed by an equivalent local, state, or federal regulation or program	Criterion 2: Significant Source **Threshold:** PM emissions > 0.9 ton/day or a history of PM air quality complaints	Criterion 3: Effective **Threshold:** PM reductions > 0.9 ton/day or facilitates mitigation of PM complaints	Criterion 4: Cost Effective [1] **Threshold:** Cost per ton reduced < $12,000	Proposed for Implementation	Additional Notes
10	Replace non-certified appliances upon sale of real property[3]	Yes	Yes	Yes – estimated PM10 reduction of 1.3 ton/day by 2020	Yes – estimated cost is $5200/ton	Yes	--
11	Control of wood moisture content (require wood labeled "seasoned" to meet moisture content requirement)	Yes	Yes	Yes – history of PM air quality complaints	Yes – costs negligible	Yes	Burning moist wood produces more PM emissions
12	Prohibit fuel types not intended for fireplaces	Yes	Yes	Yes – history of PM air quality complaints	Yes – costs negligible	Yes	--
NON-AGRICULTURAL OPEN BURNING							
13	Prohibit residential open burning	No – addressed by District Rule 101	--	--	--	No	District Rule 101 was amended in 2002 to comply with revised state regulation
14	Prohibit greenwaste burning where waste service available	No – addressed by District Rule 101	--	--	--	No	--

[3] Fireplaces without an attached fireplace insert or woodstove, such as conventional open-hearth fireplaces primarily used for aesthetic effects, would not be affected by the candidate rule. A public information campaign is proposed to address emissions from conventional open-hearth fireplaces.

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15	Prohibit greenwaste burning in specified highly populated areas	No – addressed by District Rule 101	--	--	--	No	--
16	Prohibit greenwaste burning within small lots and setbacks	No – addressed by District Rule 101	--	--	--	No	--
17	Mandatory curtailment of non-agricultural open burning during high PM or ozone periods	No – addressed by District Rule 101	--	--	--	No	--
18	Limits during burn days in smoke sensitive areas	No – addressed by District Rule 101	--	--	--	No	--
19	Emission limits for mechanized burners	No – addressed by District Rule 101	--	--	--	No	--
20	Allowed burns: drying times	No – addressed by District Rule 101	--	--	--	No	--
21	Allowed burns: duration	No – addressed by District Rule 101	--	--	--	No	--
22	Allowed burns: preparation of fuels & management of burns	No – addressed by District Rule 101	--	--	--	No	--
23	Allowed burns: permits required	No – addressed by District Rule 101	--	--	--	No	--

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FUGITIVE DUST							
24	Construction: Earthmoving	Yes – only partially addressed by District Rule 50 and local construction ordinances	Yes	Yes	Yes ($198-$371/ton reduced; SCAQMD)	Yes	Proposed District rule will augment local ordinances
25	Construction: Demolition	Yes – only partially addressed by District Rule 50 and local ordinances	Yes	Yes	Yes ($198-$371/ton reduced; SCAQMD)	Yes	Proposed District rule will augment local ordinances
26	Construction: Grading Operations	Yes – only partially addressed by District Rule 50 and local ordinances	Yes	Yes	Yes ($198 to $371/ton reduced; SCAQMD)	Yes	Proposed District rule will augment local ordinances
27	Inactive disturbed land	Yes – only partially addressed by District Rule 50 and local ordinances	Yes	Yes	Yes (Watering = $7020/ton reduced; SJVAPCD)	Yes	Proposed District rule will augment local ordinances
28	Bulk materials: handling/storage	Yes	Yes	Yes	Yes (Handling: $1,151, Storage: $28,293[4]; SJVAPCD)	Yes	Proposed District rule will augment local ordinances

[4] The maximum value within this range exceeds the District's current cost-effectiveness reference level for control measures ($12,000/ton). The proposed District rule will establish compliance options to minimize costs.

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29	Handling of petroleum coke, coal, and sulfur	Yes	No	--	--	No	--
30	Carryout and track-out – Removal	Yes – only partially addressed by local ordinances	Yes	Yes	Yes (From $100 in SCAQMD to $186,000 in SJVAPCD, depending on method & extent). See fn. 4, pg. 5.	Yes	Proposed District rule will augment local ordinances
31	Carryout and track-out – Clean up methods	Yes – only partially addressed by local ordinances	Yes	Yes	Yes (a menu of options to minimize costs)	Yes	Proposed District rule will augment local ordinances
32	Disturbed open areas	Yes	Yes	Yes	Yes ($7,020; SJVAPCD)	Yes	Proposed District rule will augment local ordinances
33	Paved road dust: new/modified roads	No – almost all new roads comply with this measure, pursuant to local road standards	--	--	--	No	--

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34	Paved road dust: street sweeping	No – Implemented by local jurisdictions	--	--	--	No	All cities contacted have implemented this measure via local urban runoff Best Management Practice and use PM10-certified sweepers
35	Paved road dust: street sweeping, VMT limit & encourage free bus	No – Street-sweeping – see Measure 34; VMT limit – see Measure 100; Encourage free bus – see Measure 92	--	--	--	No	VMT limits are not practical, but District addresses this source through Measure 100
36	Unpaved parking lots/staging areas	Parking lots: Yes. Staging areas: Yes-partially addressed by local ordinance	Yes	Yes	Parking lots: Yes (Watering = $304/ton reduced; SJVAPCD)	Yes	Proposed District rule will augment local ordinances
37	Unpaved roads: control requirements	Yes	Yes	Yes	Yes ($56 - $5,920/ton; SJVAPCD)	Yes	Proposed District rule will augment local ordinances
38	Weed abatement activities	Yes	No	--	--	No	--

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39	Windblown dust: definitions	Yes – only partially addressed by District Rule 50 and local ordinances	Yes	Yes	N/A	Yes	Proposed District rule will augment local ordinances
40	Windblown dust: construction /earth moving	Yes – only partially addressed by District Rule 50 and local ordinances	Yes	Yes	Yes (See Measure 24)	Yes	Proposed District rule will augment local ordinances
41	Windblown dust: disturbed areas	Yes – only partially addressed by District Rule 50 and local ordinances	Yes	Yes	Yes (See Measure 27)	Yes	Proposed District rule will augment local ordinances
42	Windblown dust: bulk materials/storage piles	Yes – only partially addressed by District Rules 52 & 54 and local ordinances	Yes	Yes	Yes (See Measure 28)	Yes	Proposed District rule will augment local ordinances
43	Windblown dust: open areas	Yes – only partially addressed by District Rule 50 and local ordinances	Yes	Yes	Yes (See Measure 32)	Yes	Proposed District rule will augment local ordinances
44	Agricultural operations	Yes	No	--	--	No	--
COMBUSTION SOURCES							
45	Boilers, steam generators, and process heaters	No– addressed by District Rules 69 and 69.2	--	--	--	No	--

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46	Turbines	No– addressed by District Rules 69.3 and 69.3.1	--	--	--	No	--
47	IC Engines	No– addressed by District Rules 69.4 and 69.4.1	--	--	--	No	--
48	Lime Kilns	Yes	No	--	--	No	--
49	Cement Kilns	Yes	No	--	--	No	--
50	Petroleum coke calcining operations	Yes	No	--	--	No	--
51	Furnaces	No – addressed by District Rule 69.6	--	--	--	No	--
52	Residential Water Heaters	No – addressed by District Rule 69.5	--	--	--	No	--
53	Commercial Charbroiling Operations (chain driven)	Yes	No – emissions from chaindriven charbroilers are < 0.2 ton/day of PM10	--	--	No	--
COMPOSTING AND RELATED OPERATIONS							
54	General Administrative Requirements	Yes	No	--	--	No	--
55	Chipping and Grinding Operations	Yes – only partially addressed by District Rules 50, 51	No	--	--	No	--
56	Composting	Yes – only partially addressed by District Rules 50, 51	No	--	--	No	--

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STORAGE, TRANSFER, AND DISPENSING OPERATIONS							
57	Gasoline transfer and dispensing facilities	No – addressed by District Rules 61.3, 61.4, 61.5	--	--	--	No	--
58	Organic liquid storage	No – addressed by District Rule 61.7	--	--	--	No	--
LEAKS AND RELEASES							
59	Equipment leaks (valves and flanges)	No – addressed by District Rule 61.7	--	--	--	No	--
PRODUCT MANUFACTURING							
60	Coatings and ink manufacturing	No – addressed by District Rule 67.19	--	--	--	No	
61	Fiberboard manufacturing	Yes – only partially addressed by Rules 20.1-20.4, 66	No	--	--	No	--
62	Food product manufacturing and processing	Yes – only partially addressed by Rules 20.1-20.4, 66	No	--	--	No	--
63	Pharmaceuticals and cosmetics manufacturing operations	No – addressed by District Rule 67.15	--	--	--	No	--
64	Polyester resin operations	No – addressed by District Rule 67.12	--	--	--	No	--
65	Polymeric cellular products (foam)	No – addressed by District Rule 67.22	--	--	--	No	--

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66	Surfactant manufacturing	Yes – partially addressed by Rules 20.1-20.4, 66	No			No	--
COATING OPERATIONS							
67	Adhesives and sealants	No – addressed by District Rule 67.21	--	--	--	No	--
68	Architectural coatings	No – addressed by District Rule 67.0	--	--	--	No	--
69	Glass coatings	Yes	No			No	--
70	Graphic arts	No – addressed by District Rule 67.16	--	--	--	No	--
71	Magnet wire coating operations	Yes	No	--	--	No	--
72	Marine coating operations	No – addressed by District Rule 67.18 and federal regulation (40 CFR 63 Subpart II)	--	--	--	No	--
73	Metal container, closure, and coil coating operations	No – addressed by District Rule 67.4	--	--	--	No	--
74	Metal parts and products coatings	No – addressed by District Rule 67.3	--	--	--	No	--
75	Motor vehicle assembly line coating operations	Yes	No	--	--	No	--
76	Paper, fabric, and film coating operations	No – addressed by District Rule 67.5	--	--	--	No	--

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77	Plastic, rubber, and glass coatings	Yes	No	--	--	No	--
78	Screen printing operations	No – addressed by District Rule 67.16	--	--	--	No	--
79	Spray booth facilities	No – addressed by various District coatings rules	--	--	--	No	--
80	Vehicle refinishing	No – addressed by District Rule 67.21	--	--	--	No	--
81	Wood flat stock coatings	No – addressed by District Rule 67.11 and 67.11.1	--	--	--	No	--
82	Wood products coatings	No – addressed by District Rule 67.11 and 67.11.1	--	--	--	No	--
SOLVENT CLEANING AND DEGREASING							
83	Cleaning operations	No – addressed by District Rule 67.6[5] and various District coating rules	--	--	--	No	--
84	Degreasing operations	No – addressed by District Rule 67.6	--	--	--	No	--
85	Use of solvents	No – addressed by District Rule 66	--	--	--	No	--

[5] Proposed amendments to Rule 67.6 are being developed in a separate planning effort pursuant to state "all feasible control measures" ozone requirements.

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MISCELLANEOUS							
86	Soil decontamination	No – addressed by District Rules 1200; 20.1-20.3, 50, 51, 66	--	--	--	No	--
87	Solid waste landfills	No – addressed by District Rule 59 and 59.1, and federal regulation (40 CFR 60 Subpart WWW)	--	--	--	No	--
88	Woodworking operations	Yes – only partially addressed by District Rule 50	No			No	--
GENERAL RULES TO REDUCE DIRECTLY EMITTED PM FROM STATIONARY AND AREA SOURCES							
89	Visible emission limits	No – addressed by District Rule 50	--	--	--	No	--
90	Combustion contaminants	No – addressed by District Rule 53	--	--	--	No	--
91	Grain loading	No – addressed by District Rule 52	--	--	--	No	--
PROGRAMS THAT REDUCE PM EMISSIONS FROM MOBILE SOURCES							
92	Incentive Program: Mobile source reductions	No – addressed by District Vehicle Registration Fund Program	--	--	--	No	--

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93	Incentive Program: Heavy-duty engine	No – addressed by District Heavy Duty Diesel Vehicle Retrofit Program	--	--	--	No	--
94	Incentive Program: Low emission school buses	No – addressed by District Lower Emission School Bus Replacement and Retrofit Program	--	--	--	No	--
95	Incentive Program: Moyer program	No – addressed by District Carl Moyer Memorial Air Quality Attainment Program	--	--	--	No	--
96	Incentive Program: Sacramento Emergency Clean Air Transportation (SECAT) to reduce heavy-duty truck emissions	No. (See Measures 92-95)	--	--	--	No	SECAT established by legislation (AB 2511) addressing only Sacto; N/A in San Diego County
97	Incentive Program: Alternative-fueled or electric light- and medium-duty vehicles	No – Incentive funds available through District Vehicle Registration Fund Program	--	--	--	No	--
98	Incentive Program: Lawn mower buy-back	No – addressed by District Lawn Mower Exchange Program	--	--	--	No	--

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99	On-road vehicle mitigation options	No – addressed by SANDAG RideLink and Vanpool Programs	--	--	--	No	--
100	Transportation outreach	No – addressed by SANDAG RideLink and Vanpool Programs	--	--	--	No	--
101	Spare the Air	Yes – only partially addressed by District Public Information Program	Yes	No – Daily PM levels rarely approach AQI >150.	--	No	--
102	Public awareness	No – addressed by District Public Information and Indirect Source Programs	--	--	--	No	--
103	Leveraging other sources for transportation funding	No – addressed by District programs (e.g., EPA grants, CMAQ administered by SANDAG)	--	--	--	No	--