CHAPTER 4

EMISSION CONTROL MEASURES

4. EMISSION CONTROL MEASURES

4.1 INTRODUCTION

This chapter evaluates adopted and proposed ***stationary source*** control measures in order to make progress toward attaining the state one-hour ozone standard and identifies additional measures for further study. The APCD promulgates these ROC and NO_x control measures to meet the requirements in Section 40914 of the state Health and Safety Code. This chapter also addresses the plan assessment and update requirements specified in Health and Safety Code Sections 40924 and 40925. Chapter 5 discusses local transportation-related control measures.

The control measures presented in this chapter are founded on the following plans:

- 1989 Air Quality Attainment Plan
- 1991 Air Quality Attainment Plan
- 1993 Rate-Of-Progress Plan
- 1994 Clean Air Plan
- 1998 Clean Air Plan
- 2001 Clean Air Plan

Control measures are evaluated and classified as *adopted*, *proposed*, or *further study*, based on an analysis of the measures applicability to Santa Barbara County, potential emission reductions, and the implementation of similar measures in other areas of California. The following describes the control measure classes:

- ***Adopted*** control measures are those that the APCD has formally adopted as APCD rules for the purpose of attaining the state one-hour ozone standard. Table 4-1 lists the control measures adopted before 2001 and Table 4-2 identifies the control measures adopted or modified within the reporting period (2001 to 2003) for this 2004 Plan.

- ***Proposed*** control measures are those that the APCD plans to adopt for the purpose of attaining the state one-hour ozone standard. These measures are scheduled as either near-term (2004 - 2006), mid-term (2007 - 2009), or long-term (2010 - 2012). Table 4-3 shows the proposed control measures for this 2004 Plan.
- ***Further study*** measures are emission reduction techniques that the APCD plans to investigate further before making a commitment to adopt them in our next triennial plan update and revision. Tables 4-4 and 4-5 identify the control measures for further study.

Through a public process, the APCD Board of Directors adopts control measures as local rules. Once the APCD Board adopts a rule, the APCD is responsible to ensure that the affected parties comply with the rule. Some rules impose emission limits and other requirements on businesses and industry. Other rules require manufacturers and retailers to comply with requirements that limit emissions.

Section 4.2, Emission Control Measure Mandates, discusses the legal mandates that this 2004 Plan must address when evaluating and proposing emission control measures. Section 4.3 contains information on rules adopted before 2001 and Section 4.4 discusses the rules adopted or modified during the reporting period (2001 - 2003) for this plan. Section 4.5, Proposed Control Measures, includes details on the proposed new and modified control measures that the APCD recommends for adoption. Rules slated for further study are discussed in Section 4.6.

4.2 EMISSION CONTROL MEASURE MANDATES

The air pollution control strategy identified in this chapter is proposed to meet the California Clean Air Act requirements. No federal Clean Air Act requirements are addressed in this 2004 Plan. The 2001 Clean Air Plan addresses all applicable federal planning requirements for Santa Barbara County.

Under Health and Safety Code Section 40914(b), each district in the state that is nonattainment for the California one-hour ozone standard must demonstrate a five percent reduction in

emissions per year or adopt every feasible measure available to that district. The APCD has taken the approach of evaluating and adopting every feasible measure since the 1991 AQAP failed to produce the state mandated five percent per year emission reductions and was approved by ARB under the every feasible measure option.

In addition, California Code of Regulations, Title 17, Section 70600(b)(4)(A) requires Santa Barbara County to adopt every feasible measure in order in order to mitigate our downwind impacts on ozone concentrations in the South Coast Air Basin. This is due to ARB analysis that indicated the potential for significant contributions from Santa Barbara County to the South Coast Air Basin. As discussed in Chapter 2, however, current ARB analysis indicates that the Santa Barbara County upwind contributions to the South Coast Air Basin from 2000 to 2003 were inconsequential. Therefore, the transport requirements of Title 17 no longer apply in addition to the every feasible measure requirements under Health and Safety Code Section 40914(b).

To ensure that the APCD has adopted or has proposed to adopt every feasible measure, staff:

1. Compared the APCD's rules to rules of other California air districts using ARB's document titled, "Identification of Performance Standards," April 1999, which evaluates emission control measures adopted throughout the state.

2. Reviewed and considered information provided in the California Air Pollution Control Officer Association document titled, "Potential All Feasible Measures," September 2003.

4.3 EMISSION CONTROL MEASURES ADOPTED BEFORE 2001

Table 4-1 identifies the APCD emission control measures adopted before 2001.

TABLE 4-1

EMISSION CONTROL MEASURES ADOPTED BEFORE 2001

Rule	CAP Control Measure ID	Description	Rule Adoption Date	Full Implementation Date
316	R-PM-1	Gasoline Bulk Plants	November 1990	1992
316	R-PM-2	Gasoline Dispensing Phase I Vapor Recovery	November 1990	1992
316	R-PM-3	Gasoline Dispensing Phase II Vapor Recovery	November 1990	1992
320	R-SL-1	Petroleum Solvent Dry Cleaners	June 1979	1985
321	R-SL-2	Solvent Cleaning (Degreasers)	July 1997	1998
323	R-SC-1	Architectural Coatings	February 1990	1994
325	R-PT-2	Crude Oil Production and Separation	January 1994	1996
326	R-PT-2	Storage of Reactive Organic Compound Liquids	December 1993	1995
329	R-SL-3	Cutback and Emulsified Asphalt	February 1992	1992
330	R-SC-2	Surface Coating of Metal Parts and Products	November 1990	1992
331	R-PG-1	Fugitive Emissions I & M	December 1991	1992 (1995 OCS)
333	N-IC-1	IC Engines (Gas-Fired)	December 1991	1994 (1995 OCS)
333	N-IC-3	IC Engines (Diesel-Fired)	December 1991	1994 (1995 OCS)
337	R-SC-2	Surface Coating of Aircraft or Aerospace vehicle Parts and Products	July 1990	1992
339	R-SC-4	Motor Vehicle and Mobile Equipment Coating Operations	May 1994	1994
341 / 901	R-GN-1	Landfill Gas Emissions	September 1997	2001
342	N-XC-4	Small Industrial and Commercial Boilers	March 1992	1996
342	N-XC-5	Large Industrial and Commercial Boilers	March 1992	1996
342	N-XC-6	Process Heaters	March 1992	1996
343	R-PT-1	Petroleum Storage Tank Degassing	December 1993	1995
344	R-PP-1	Petroleum Sumps, Pits, and Well Cellars	November 1994	1998
346	R-PP-9	Loading of Organic Liquid Cargo Vessels	October 1992	1995
349	R-SL-5	Polyester Resin Operations	April 1993	1994
351	R-SC-5	Surface Coating of Wood Products	August 1998	2005
352	N-XC-1	Residential Water Heaters	September 1999	2000
352	N-XC-3	Natural-Gas Fired Fan-Type Central Furnaces	September 1999	2000
353	R-SL-9	Adhesives and Sealants	August 1999	2000
354	R-SL-7	Graphic Arts – Rotogravure/Flexographic Printing	June 1994	1995
359	N-XC-8	Petroleum Flares & Relief Gas Oxidizers	June 1994	1999

As seen in Table 4-1, the APCD has adopted a wide range of control measures that reduced ROC and NOx emissions both onshore and on the outer continental shelf.

4.4 EMISSION CONTROL MEASURES ADOPTED DURING THE REPORTING PERIOD (2001 - 2003)

The APCD is on schedule with adopting and implementing the proposed control measures identified in the 2001 CAP, with the following exceptions:

- The modifications of control measures N-IC-1 and N-IC-3 (amended Rule 202, Permit Exemptions, and amended Rule 333, Control of Emissions from Reciprocating Internal Combustion Engines) has been delayed. The APCD anticipates accomplishing the modifications to these control measures in the 2004 - 2006 term.
- The APCD decided to reclassify the *proposed* control measure (N-IC-2) for Gas-Fired Turbines to be a *further study* control measure because the 2001 CAP identified no emission reductions for the proposed measure.

During the 2001 - 2003 reporting period for this plan, the Board adopted modifications to Rule 323, Architectural Coatings, and the new Rule 360, Emissions of Oxide of Nitrogen from Large Water Heaters and Small Boilers. The 2001 CAP identified the adoption of these proposed control measures (R-SC-1 and N-XC-2) for the near-term period of 2001 - 2003 of the 2001 CAP.

Health and Safety Code Section 40924(b)(2) requires the APCD to identify the *expected* emission reductions that were in the 2001 CAP and the current *revised* emission reductions for each measure scheduled for adoption during the reporting period. Table 4-2 provides information on the rules adopted during the 2001 to 2003 reporting period of this plan to fulfill this requirement.

TABLE 4-2

EMISSION CONTROL MEASURES ADOPTED DURING THE REPORTING PERIOD (2001 - 2003)

Rule #	CAP Control Measure ID	Description	Rule Adoption Date	Full Implementation Date	Pollutant	2001 CAP EXPECTED EMISSION REDUCTIONS (Tons/Day)				REVISED EMISSION REDUCTIONS (Tons/Day)			
						2005	2010	2015	2020	2005	2010	2015	2020
323	R-SC-1	Architectural Coatings	November 2001	2003	ROC	0.0998	0.1049	0.1092	[a]	0.1836	0.1925	0.2014	0.2102
333	N-IC-1 N-IC-3	Control of Emissions from Reciprocating Internal Combustion Engines (Revisions to Rules 202 and 333, change permit exemption from 100 to 50 bhp, address other EPA deficiencies.)	Revisions not adopted.	Revisions not adopted.	ROC	0.0008	0.0005	0.0003	[a]	0.0000[b]	--0.0034[b]	-0.0031[b]	-0.0029[b]
333	N-IC-1 N-IC-3	Same as above.	Revisions not adopted.	Revisions not adopted.	NOx	0.0129	0.0089	0.0062	[a]	0.0000[b]	0.0152[b]	0.0140[b]	0.0129[b]
360	N-XC-2	Large Water Heaters and Small Boilers	October 2002	October 2003	NOx	0.0033	0.0068	0.1333	[a]	0.0004	0.0017	0.0024	0.0029
					TOTALS FOR ROC	0.1006	0.1054	0.1095	[a]	0.1836	0.1891	0.1983	0.2073
					TOTALS FOR NOx	0.0162	0.0157	0.1395	[a]	0.0004	0.0169	0.0165	0.0158

[a] The 2001 CAP did not project emission reduction figures for 2020.

[b] These have been revised from earlier emission reduction estimates due to equipment removal.

4.5 PROPOSED EMISSION CONTROL MEASURES

The proposed control measures are summarized in Table 4-3.

TABLE 4-3

PROPOSED EMISSION CONTROL MEASURES

Rule (Status)	CAP Control Measure ID	Description	Adoption Schedule	Emission Reductions (Tons per Day) from the Control Measure When Fully Implemented (Unless Otherwise Specified)	
				ROC	NO_X
321 (Revised)	R-SL-2	Solvent Cleaning Operations to become Solvent Degreasers	Near-Term: 2004 – 2006	0.1604	
362 (New)	R-SL-10	Solvent Cleaning Operations	Near-Term: 2004 – 2006	0.6141	
333 (Revised)	N-IC-1 N-IC-3	Stationary Internal Combustion Engines (Revisions to Rules 333 and 202 – change from 100 to < 50 bhp exemption, correct EPA deficiencies)	Near-Term: 2004 – 2006	-0.0034[a]	0.0152[a]
330 (Revised) 337 (Revised)	R-SC-2	Surface Coating of Metal Parts and Products; Surface Coating of Aircraft or Aerospace Vehicle Parts and Products (Revisions)	Near-Term: 2004 – 2006	0.0586	
339 (Revised)	R-SC-4	Motor Vehicle and Mobile Equipment Coating Operations	Mid-Term: 2007 – 2009	0.0751	
358 (New)	R-SL-4	Electronic Industry - Semiconductor Manufacturing	Mid-Term: 2007 – 2009	0.0000[b]	
361 (New)	N-XC-4	Small Industrial and Commercial Boilers, Steam Generators, and Process Heaters (2 MMBtu/hr to < 5 MMBtu/hr)	Mid-Term: 2007 – 2009		0.0019[c]

[a] These have been revised from earlier emission reduction estimates due to equipment removals.

[b] This is included in Table 4-3 for consistency with the 2001 CAP. However, a reassessment of the emission reductions from the control measure show that the companies performing the negative photoresist process have either left Santa Barbara County or switched over to the positive photoresist process. Furthermore, the majority of the previously assessed emission reductions attributed to this control measure should be obtained through R-SL-2 or R-SL-10. This rule will not need to be adopted if there are no negative photoresist processes in Santa Barbara County and R-SL-2 and R-SL-10 obtain the emission reductions previously identified under this rule by 2007.

[c] This 2015 figure is based upon a point of sale type rule with 5 percent replacement of the existing units. If a retrofit type rule is adopted, the estimated NOx emission reduction for 2015 becomes 0.0385 tons per day (about 14 TPY).

TABLE 4-3

PROPOSED EMISSION CONTROL MEASURES (cont.)

Rule (Status)	CAP Control Measure ID	Description	Adoption Schedule	Emission Reductions (Tons per Day) from the Control Measure When Fully Implemented (Unless Otherwise Specified)	
				ROC	NO_X
351 (Revised)	R-SC-5	Surface Coating of Wood Products	Mid-Term: 2007 – 2009	0.0055	
349 (Revised)	R-SL-5	Polyester Resin Operations	Mid-Term: 2007 – 2009	0.0056	
353 (Revised)	R-SL-9	Adhesives and Sealants	Mid-Term: 2007 – 2009	0.3589	
354 (Revised)	R-SL-7	Graphic Arts (Revisions to Include Solvent Cleaning plus Additional Requirements for Rotogravure, Flexographic, Lithographic, and Letterpress Printing)	Long-Term: 2010 – 2012	0.1499	
352 (Revised)	N-XC-6	Residential Water Heaters; Residential and Commercial Space Heaters	Long-Term: 2010 – 2012		0.0289[a]
323 (Revised)	R-SC-1	Architectural Coatings (Revision to Regulate the Cleaning of Application Equipment used in Architectural Coating Applications)	Long-Term: 2010 – 2012	0.1885	
Total for the local control measures				1.6133	0.0461

As shown in Table 4-3, we have included proposed control measures for revising Rules 330, 337, 339, 349, 351, and 353 in the near- and mid-term. In addition, we have included a revision to Rule 354 in the long-term. Modifying these rules to address new solvent cleaning requirements was mentioned in the 2001 CAP under the description for Rule 362, Solvent Cleaning Operations. However, the APCD has decided to incorporate the revised solvent cleaning requirements within the existing rules that apply to specific operations or equipment categories. Therefore, to accomplish the integration of the revised solvent requirements, the APCD has included Rules 330, 337, 339, 349, 353, and 354 in Table 4-3.

Through the process of developing the proposed control measures for this 2004 CAP, the APCD reviewed the ARB's "Identification of Performance Standards," CAPCOA's "Potential All

[a] This is the NOx emissions reductions in year 2020 with approximately 50 percent implementation.

Feasible Measures," and control measures adopted by other APCDs and AQMDs. Because of the commitment to adopt control measures in the 2001 CAP, those measures are being carried forward into this plan, with the addition of the rules mentioned above that contain solvent cleaning requirement components. The 2001 CAP control measures are now listed in Table 4-3 as *near-term* or *mid-term* control measures.

As seen in Table 4-3, the following *long-term* control measures are being proposed for inclusion into the plan:

1. Rule 354, R-SL-7, Graphic Arts – Staff propose revising the rule to be similar to the South Coast AQMD Rule 1130, Graphic Arts, with the addition of the South Coast AQMD Rule 1171, Solvent Cleaning Operations, solvent cleaning requirements applicable to graphic arts operations. Notwithstanding that the 1991 AQAP identified *graphic arts* as a proposed control measure, the APCD adopted the existing Rule 354 to meet EPA reasonably available control technology requirements. The existing rule resulted in very minimal emission reductions. A rule revision is necessary to raise the requirements to an *all feasible* level of control.

   The major changes would be to 1) increase the rule applicable to apply to lithographic and letterpress printing, 2) eliminate the 300 pounds per month exemption, 3) establish new standards for fountain solutions, adhesives, and porous flexographic printing ink, 4) set a grams per liter limit on the cleaning of adhesive application equipment used in a graphic arts operation, and 5) limit the grams per liter of solvent used for the cleaning of various ink application equipment used in graphic arts operations. Concurrent with the Rule 354 revision, the APCD will revise the Rule 202 permit exemptions to make the printing exemptions similar to those in South Coast AQMD Rule 219.

2. Rule 352, N-XC-6, Natural Gas-Fired Fan-Type Central Furnaces and Residential Water Heaters – The APCD proposes revising the rule to be similar to the South Coast AQMD Rule 1121. This would result in decreasing the allowable NOx emissions for natural gas-

fired water heaters from 0.0930 to 0.0465 pounds per million British thermal units (output). The rule will remain a *point of sale* type rule.

3. Rule 323, R-SC-1, Architectural Coatings – Staff propose a rule revision to incorporate the South Coast AQMD Rule 1171 requirements for the cleaning of coatings application equipment. This would result in use of low-ROC solvents for the cleaning of spray application equipment.

4.6 EMISSION CONTROL MEASURES FOR FURTHER STUDY

Additional potential control measures and existing control measures that merit further study are shown in Table 4-4 (Further Study – New Rules) and Table 4-5 (Further Study – Existing Rules). Some of the further study control measures are being carried forward from the 2001 CAP. Others were identified through reviews of the September 2003 CAPCOA, "Potential All Feasible Measures Report," the April 1999 CARB document, "Identification of Performance Standards," other APCD/AQMD rules, and Santa Barbara County Air Pollution Control District staff suggestions.

TABLE 4-4

FURTHER STUDY - NEW RULES

Description	Comments	APCD/AQMD Rule that could be used to model a SBCAPCD Rule
Gas Turbines	Staff reclassified this category from *proposed* (as listed in the 2001 CAP) to a *further study* control measure. This action is based on the 2001 CAP showing no emission reductions from adopting gas turbine control requirements and the need for more analyses to determine the potential onshore and offshore gas turbine emission reductions to be realized through the adoption of an *all feasible* control measure.	Ventura Rule 74.23 and San Joaquin Rule 4703
Natural Gas Fuel Specifications	The SBCAPCD wants to set a *higher heating value* limit on natural gas to eliminate: 1) potential equipment problems associated with engines designed for low-Btu gas that are fueled by "hot gas," and 2) to prohibit increased emissions from the use of or disposal of "hot gas." The South Coast AQMD included this control measure in their 2003 AQMP.	Future South Coast AQMD rule
Pleasure Craft Fuel Transfer	According to ARB, this measure should be retained pending technology development and ARB action in this category.	None
Wineries and Breweries	Carried forward from the 2001 CAP.	Possibly a new rule being developed by the San Joaquin Valley APCD

Table 4.5 shows APCD rules currently in the rulebook that have been implemented in a more stringent fashion elsewhere in the state.

TABLE 4-5

FURTHER STUDY - EXISTING RULES

Rule	CAP Control Measure ID	Description	Comments	APCD/AQMD Rule that could be used to model a SBCAPCD Rule
342	N-XC-4 and N-XC-5	Boilers, Steam Generators and Process Heaters	Could modify the NOx limits to be: 1) 20 MMBtu/hr and greater: 9 ppmv @ 3% O2 and 2) < 20 MMBtu/hr: 15 ppmv @ 3% O2	San Joaquin Valley APCD 4306
331	R-PG-1	Fugitive Emissions Inspection and Maintenance	This is an ARB-identified performance standard and a CAPCOA-identified AFM category. The South Coast AQMD and Bay Area AQMD rules have lower thresholds for leaks.	South Coast AQMD 1173 and Bay Area AQMD 8-18
333	N-IC-3	IC Engines (Diesel-Fired)	Possibly change NOx limit for CI ICEs to 600 ppmv (or less).	San Joaquin Valley APCD Rule 4702 and South Coast AQMD Rule 1110.2
333	N-IC-1	IC Engines (Gas-Fired)	Possibly change NOx limit for cyclically-loaded ICEs from 300 to 50 ppmv.	San Joaquin Valley APCD Rule 4702
320	R-SL-1	Petroleum Solvent Dry Cleaners	Carried forward from the 2001 CAP. The South Coast rule requires the phase-out of transfer-type machines.	South Coast AQMD Rule 1102.
362	R-SL-10	Solvent Cleaning Operations	This is a CAPCOA-identified AFM category that the SBCAPCD needs to revise to be an all feasible measure. That is, we would need to change the rule limit from 50 to 25 grams per liter.	South Coast AQMD Rule 1171 and Ventura 74.6
321	R-SL-2	Solvent Degreasers	This is a CAPCOA-identified AFM category that the SBCAPCD needs to revise to be an all feasible measure. That is, we would need to change the rule limit from 50 to 25 grams per liter.	South Coast AQMD Rule 1122 and Sac 454
326	R-PT-2	Storage of Reactive Organic Compound Liquids	The Bay Area Rule 8-5 applies to tanks 264 gallons or greater and the San Joaquin Rule 4602 applies to tanks 1,100 gallons or greater, whereas the SBCAPCD rule exempts tanks that are less than or equal to 5,000 gallons capacity.	Bay Area 8-5 San Joaquin 4602

4.7 CONCLUSIONS

The APCD, SBCAG, county, cities, and ARB have developed a comprehensive air pollution control strategy for Santa Barbara County. This strategy is updated in this 2004 CAP and identifies every feasible measure available to make progress toward attainment of the state ozone 1-hour standard. Staff considered the ARB-identified performance standards, the CAPCOA-identified potential all feasible measures, the commitments in the 2001 CAP, and other APCD and AQMD rules to derive the proposed control measures and control measures for further study.

The 2004 CAP control measures include controls on all inventory categories contributing ROC and NO_x emissions: industrial processes, combustion sources, petroleum handling, solvent use, consumer products, waste burning, and mobile sources. The control measures evaluated and identified in this chapter, combined with the emissions reductions expected from on-road mobile sources in Chapter 5, show that Santa Barbara County is making significant progress in reducing emissions from sources subject to our control.