BOARD MEETING DATE: March 1, 2002 AGENDA NO. 42

REPORT: Annual RECLAIM Audit Report for 2000 Compliance Year

SYNOPSIS: The annual report on the NOx and SOx RECLAIM program is prepared in accordance with Rule 2015 - Backstop Provisions. The report assesses emission reductions, average annual price and availability of RECLAIM Trading Credits (RTCs), job impacts, compliance issues, and other measures of performance for the seventh year of this program.

COMMITTEE: Stationary Source, February 22, 2002

RECOMMENDED ACTION:
Approve the attached report.

Barry R. Wallerstein, D.Env.
Executive Officer

CC:CM:DL:scs

Background

The AQMD Governing Board adopted the RECLAIM program on October 15, 1993 to provide a more flexible compliance program for RECLAIM facilities, representing the largest emitters of NOx and SOx. RECLAIM was designed to meet all state and federal requirements for clean air programs and a variety of performance criteria to ensure protection of public health, air quality improvement, effective enforcement, implementation costs, and minimal job impacts.

RECLAIM represents a significant departure from traditional command-and-control regulations. Therefore, the RECLAIM rules provide for annual program audits to verify that the program objectives are being met. Rule 2015 – Backstop Provisions, requires AQMD to conduct an annual program audit to assess various aspects of the program to verify that the program objectives are being met. AQMD staff completed the audit of

RECLAIM Compliance Year 2000. The audit results showed that California's energy crisis during this time period had significant impact on the RECLAIM program. The increased production levels at the power producing facilities in response to energy demands in California had caused aggregate emissions in the RECLAIM program to exceed allocations by more than five percent, and drove up the price of NOx RTCs to the levels above $15,000 per ton.

In October 2000, the Board directed staff to form an advisory committee to examine the program and recommend changes to stabilize prices. This effort led staff to develop a RECLAIM White Paper, which was presented to the Board in January 2001. The White Paper recommended measures to stabilize NOx RTC prices, as well as suggested control measures to reduce emissions from RECLAIM facilities. Acting expeditiously to correct the problems, the Board amended RECLAIM rules in May 2001 adopting several staff recommendations in the White Paper. The NOx RTCs prices declined sharply after the rule amendments. Additionally, all of the power producing facilities and a number of RECLAIM facilities installed additional air pollution control equipment or submitted plans to install air pollution control equipment in the near future. At the time of this report NOx RTCs are being offered in the market at less than $3 per pound. The attached report presents the annual audit for Compliance Year 2000. Pursuant to Rule 2015, this report will also be included in the AQMD's annual performance report to the California Legislature.

Audit Findings
The audit of the Compliance Year 2000 RECLAIM program indicates that:

- Aggregate SOx emissions from RECLAIM facilities continue to be below allocations. However, increased production levels at power producing facilities, in response to California's energy crisis, caused aggregate NOx emissions to exceed allocations by more than five percent. The analysis shows that emissions from non-power producing facilities were well below their initial allocations for Compliance Year 2000.

- The RECLAIM universe consisted of 354 facilities at of the end of the 1999 compliance year. There was a net decrease of 19 facilities in the RECLAIM universe during the 2000 compliance year. Thus, there were 335 facilities in the RECLAIM Universe at the end of the 2000 compliance year.

- Activity in the RTC trading market increased significantly. More than $600 million in RTCs have been traded since the adoption of RECLAIM, of which more than $316 million occurred in Calendar Year 2001. The annual average NOx RTCs prices for Compliance Years 2000 through 2003 exceeded the backstop prices of $15,000.

However, the average prices for NOx RTCs for all other years and for SOx RTCs for all years were below $15,000 per ton. Average prices during 1999, 2000, and 2001 are summarized below:

1999	2000	2001
• $1,827 per ton for 1999 NOx RTCs • $4,115 Per ton for 2003 NOx RTCs • $4,114 per ton for 2010 NOx RTCs • $784 per ton for 1999 SOx RTCs • $1,548 Per ton for 2003 SOx RTCs • $1,548 per ton for 2010 SOx RTCs	• $45,609 per ton for 2000 NOx RTCs • $13,809 Per ton for 2003 NOx RTCs • $4,915 per ton for 2010 NOx RTCs • $2,426 per ton for 2000 SOx RTCs • $2,951 Per ton for 2003 SOx RTCs • $2,951 per ton for 2010 SOx RTCs	• $59,199 per ton for 2000 NOx RTCs • $17,064 Per ton for 2003 NOx RTCs • $9,510 Per ton for 2010 NOx RTCs • $5,669 Per ton for 2001 SOx RTCs • $3,503 Per ton for 2003 SOx RTCs • $3,503 per ton for 2010 SOx RTCs

- The rule amendments in May 2001 are having a definite impact in reducing RTC prices. Actual NOx RTC prices traded have been on a steady decline. The price for Compliance Year 2001 Cycle 1 NOx RTCs had dropped under $6,000 per ton at the time this report was being prepared.

- The vast majority of RECLAIM facilities complied with their Allocations during the 2000 compliance year. Forty-three facilities exceeded their Allocations during this compliance year. Failure to obtain sufficient RTCs to reconcile with emissions was the leading cause of exceedance.

- RECLAIM had minimal impact on employment during the 2000 compliance year, as in previous years. Six facilities attributed RECLAIM with generating a total of forty-seven jobs. Thirteen facilities attributed 510 jobs lost to RECLAIM. Most of these job losses (445) were attributable to two facilities that experienced other difficulties. Twenty-two RECLAIM facilities shut down or went out of business in 2000. Two of the operators of these facilities indicated that RECLAIM contributed to their decisions to cease operations.

Attachment
Annual RECLAIM Audit Report for the 2000 Compliance Year

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Annual RECLAIM Audit Report for the 2000 Compliance Year

March 1, 2002

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EXECUTIVE SUMMARY

Introduction

The South Coast Air Quality Management District (AQMD) Governing Board adopted the Regional Clean Air Incentives Market (RECLAIM) program on October 15, 1993. The RECLAIM program represents a significant departure from traditional command-and-control regulations. RECLAIM's objective is to provide facilities with added flexibility in meeting emissions reduction requirements while lowering the cost of compliance. This is accomplished by establishing facility-specific emissions reduction targets without being prescriptive regarding the method of attaining compliance with the targets; each facility may determine for itself the most cost-effective approach to reducing emissions, including purchasing emission credits from facilities that reduce emissions below their target levels.

Rule 2015 - Backstop Provisions, includes provisions for annual program audits focusing on specific topics, as well as a more comprehensive three-year audit to ensure that RECLAIM is meeting all state and federal requirements and other performance criteria. This document constitutes the Rule 2015 annual audit for the 2000 compliance year (January 2000 through June 2001).

Chapter 1: RECLAIM Universe

When RECLAIM was adopted in October 1993, 394 facilities were identified as the initial "universe" of sources subject to the requirements of RECLAIM. Between program adoption and June 30, 2000, 79 facilities were included into the program, 63 were excluded from the program, and 56 facilities ceased operation. Thus, the RECLAIM universe consisted of 354 facilities on July 1, 2000. During Compliance Year 2000, five facilities were included into the RECLAIM universe, two were excluded from the program, and 22 facilities shutdown. These changes resulted in a net decrease of 19 facilities in the universe, bringing the total number of facilities to 335 at the end of Compliance Year 2000. Two of the facilities that shut down were in both the NOx and SOx universe; the remaining facilities are in the NOx universe only.

Chapter 2: RTC Allocations and Trading

The trading market in Calendar Year 2001 was very active. A record 1,255 RTC transactions were registered in Calendar Year 2001 compared to 940 transactions in Calendar Year 2000. During Calendar Year 2001, $316 million of RTCs were traded. This amount is more than the total dollar amount traded in the first seven years of the program. Since the start of RECLAIM in 1994 to Calendar Year 2000, $285.3 million in trades has occurred comparing to the $316 million in Calendar Year 2001 alone.

Due to the California energy crisis, RECLAIM participants experienced a sudden increase in NOx RTC prices in Calendar Year 2000. The annual average price for Compliance Year 2000 NOx RTCs traded in Calendar Year 2000 was

$45,609 per ton. The price hike continued in the first part of Calendar Year 2001 and declined significantly after the rule amendment to stabilize NOx RTC Prices was adopted in May 2001. For Compliance Year 2000 NOx RTCs traded in Calendar Year 2001, the average prices were $69,400 and $28,440 per ton during the first and second half of the year. The annual average prices for SOx RTCs also increased, but by a more modest amount during the same period. Average prices for SOx RTCs traded in Calendar Year 2001 ranged from $3,440 per ton for Compliance Year 2000 RTCs to $5,669 per ton for Compliance Year 2001 RTCs. The measures adopted in the May 2001 rule amendments have made definite strides toward reducing RTCs prices. RTC prices for Compliance Year 2001 Cycle 1 NOx RTCs dropped below $6,000 per ton at the time this report was prepared in February 2002.

Chapter 3: Emissions Reductions

Aggregate NOx and SOx emissions from RECLAIM facilities continued to decrease from the inception of RECLAIM through Compliance Year 2000. Aggregate SOx emissions from all RECLAIM facilities continued to be below allocations during this compliance year. Similarly, aggregate NOx emissions from non-power producing facilities continued to be below their initial allocations at the start of RECLAIM. However, due to California's energy crisis during Compliance Year 2000, NOx emissions from power producing facilities increased significantly above their initial allocations. Furthermore, more than 2,000 tons of NOx RTCs for Compliance Year 2000 were traded from the non-power producing facilities to power producing facilities causing the total amount of RTCs held by non-power producing facilities at the end of Compliance Year 2000 to be below their emissions. Consequently, NOx emissions from all RECLAIM facilities in Compliance Year 2000 exceeded allocations, in aggregate, by more than five percent. Excess emissions are being deducted from the facilities' future compliance year allocations to ensure benefits to the environment.

Rule 2015 – Backstop Provisions, requires the Executive Officer to propose amendments to the RECLAIM program upon the discovery that actual emissions from RECLAIM sources exceeded allocations for any annual period by five percent or greater. AQMD staff began this effort in conjunction with an effort to stabilize NOx RTC prices in October 2000. Under the direction of the Board, AQMD staff formed an advisory committee to examine the program and recommend changes to stabilize prices. That led staff to develop a RECLAIM White Paper in January 2001. The white paper recommended NOx emission reduction strategies as well as program adjustments to stabilize prices. The efforts culminated in the amendments to the RECLAIM program in May 2001. The amendments included:

- Temporarily separating power producing facilities from the RECLAIM trading market;
- Requiring power producing facilities to install best available retrofit air pollution controls;
- Requiring major non-power producing facilities to submit compliance plans demonstrating that future RECLAIM allocations can be met, either through installation of controls, purchase of credits, or other qualified emission reduction strategies; and

- Establishing a temporary mitigation fee program using the fees collected to seek emission reductions from mobile, area and stationary sources to offset emissions from power producing facilities.

Chapter 4: New Source Review Activity

The annual program audit assesses New Source Review (NSR) activity from RECLAIM facilities in order to ensure that RECLAIM is complying with the federal and state NSR requirements while providing flexibility to facilities in managing their operations and allowing new sources into the program. Review of NSR activity in the Calendar Year 2000 shows that two existing facilities joined the NOx program and two existing facilities joined the SOx program. These four facilities reported no NSR activities during this period. However, 41 existing RECLAIM facilities reported NSR NOx emission increases due to expansions or modifications. These data indicate that the RECLAIM program does not inhibit expansion and/or modification of sources at RECLAIM facilities.

RECLAIM is required to comply with federal NSR requirements for a 1.2-to-1 offset ratio for NOx and SOx emission increases on a programmatic basis. In the Calendar Year 2000, the RECLAIM provided an offset ratio of 175-to-1 for NOx on an aggregate basis, demonstrating federal equivalency. However, there were no NSR increases for RECLAIM SOx during the Calendar Year 2000. Compliance with the federally required offset ratio also demonstrates compliance with the state requirement of no net emissions increases from new or modified sources. In addition, RECLAIM requires application of Best Available Control Technologies for all new or modified sources with emission increases.

Chapter 5: Compliance

During Compliance Year 2000, 356 RECLAIM facilities were in the RECLAIM program. Of these 356 facilities, 315 facilities (88 percent) complied with their annual allocations, while all of the 37 SOx facilities complied with their annual allocations. NOx emissions in excess of individual facility allocations totaled 1,089 tons, of which 76% was from two power producing facilities. The sum of excess emissions from all facilities is significantly less than the programmatic exceedance of 3,294 tons presented in Chapter 3. This is because in determining programmatic compliance, aggregate emissions in Compliance Year 2000 are compared only to allocations in the same compliance year. On the other hand, individual facilities can reconcile their emissions in Compliance Year 2000 by acquiring RTCs that are valid during the compliance year. As a result, RECLAIM facility can use RTCs for Compliance Years 1999 or 2001 that are also valid during the overlapping periods in Compliance Year 2000 due to the two-cycle structure in RECLAIM. These extra RTCs are not included in the programmatic evaluation. The three main reasons for allocation exceedances were failure to purchase sufficient RTCs to reconcile their emissions, emission calculation errors and failure to follow missing data procedures.

Chapter 6: Job Impacts

Job impacts resulting from the RECLAIM program during the Compliance Year 2000 continue to be negligible when compared to the overall employment in the

Basin. Six RECLAIM facilities attributed 47 job gains due to RECLAIM. Thirteen facilities claimed the RECLAIM program caused a total of 510 job losses. The bulk of these job losses (445) were reported by two facilities that experienced other difficulties. Furthermore, 22 RECLAIM facilities shut down or went out of business during Compliance Year 2000. Two facilities attributed their ceasing operations in part to RECLAIM.

Chapter 7: Air Quality and Public Health Impacts

The emissions reported by RECLAIM facilities from Compliance Years 1989 through 2000 are found to be in an overall downward trend. Although there is no significant difference in SOx emissions seasonally, there was a slight peak in NOx emissions during the months of July through September in 2000. As mentioned in the previous chapter, the high emission levels during this period coincide with peak energy demands during the California energy crisis. Furthermore, analysis of the geographical distribution of emissions during the first seven years of the program on a quarterly basis does not show any distinct shift in the geographical distribution of emissions.

The California Clean Air Act requires a 50 percent reduction in population exposure to ozone by December 31, 2000. Analysis of per capita exposure (the length of time each person is exposed) to ozone in 1998 and 2000 shows that the Basin achieved the December 2000 target for ozone well before the deadline. In fact, Los Angeles County, Orange County, and the South Coast Air Basin overall achieved attainment with the December 2000 target prior to 1994 and Riverside and San Bernardino counties achieved attainment in 1996.

Air toxic health risk is primarily caused by emissions of volatile organic compounds (VOC) and metals, rather than NOx or SOx emissions. Additionally, RECLAIM facilities are subject to the same air toxic regulations as other sources in the Basin. Therefore, it can be concluded that there is no toxic impact due to the implementation of the RECLAIM program beyond what would have occurred pursuant to the rules and control measures RECLAIM subsumed.

INTRODUCTION

The South Coast Air Quality Management District's Regional Clean Air Incentives Market program (RECLAIM) was adopted in October 1993 and replaces certain command-and-control regulations with a new market incentives program for facilities that meet the inclusion criteria. The goal of RECLAIM is to provide facilities with added flexibility in meeting emissions reduction requirements and to lower the cost of compliance. The RECLAIM program was designed to meet all state and federal requirements for clean air programs, as well as other performance criteria such as equivalent air quality improvement, equivalent enforcement, lower implementation costs, lower job impacts, and no adverse public health impacts.

Since RECLAIM represents a significant change from traditional command-and-control regulations, the RECLAIM rules include provisions for program audits in order to verify that the RECLAIM objectives are being met. The rules provide for both annual audits and a more comprehensive audit of the first three years of program implementation. The audit results are used to help determine whether any program modifications are appropriate.

The RECLAIM Program Three-Year Audit and Progress Report was presented to the Governing Board May 8, 1998. This report presents the annual audit and progress report of RECLAIM's seventh compliance year (January 1, 2000 through June 30, 2001), also known as the 2000 compliance year. As required by Rule 2015(b)(1), this audit assesses:

- Emission reductions;
- Per capita exposure to air pollution;
- Facilities permanently ceasing operation of all sources;
- Job impacts;
- Average annual price of each type of RTC;
- Availability of RTCs;
- Toxic risk reductions;
- New Source Review permitting activity;
- Compliance issues;
- Emission trends/seasonal fluctuations; and
- Emission control requirement impacts on stationary sources in the program compared to other stationary sources identified in the AQMP.

The Annual Audit is organized into the following chapters:

1. RECLAIM Universe
   This chapter discusses changes in the universe of RECLAIM sources that occurred during the 2000 compliance year.
2. RTC Allocations and Trading
   This chapter summarizes changes in emissions allocations in the

RECLAIM universe, RTC trading activity, and the average annual price, availability, and supply of RTCs.

3. Emissions Reductions
   This chapter assesses emissions trends and reductions for RECLAIM sources and emissions control requirement impacts on these sources compared to other stationary sources.

4. New Source Review Activity
   This chapter summarizes NSR activity at RECLAIM facilities.

5. Compliance
   This chapter discusses compliance activities and the compliance status of RECLAIM facilities and evaluates the effectiveness of AQMD's compliance program and the NOx and SOx monitoring, reporting, and recordkeeping protocols.

6. Job Impacts
   This chapter addresses job impacts.

7. Air Quality and Public Health Impacts
   This chapter discusses air quality trends in the South Coast Air Basin, seasonal and geographic emission trends for RECLAIM sources, per capita exposure to air pollution, and the toxic impacts of RECLAIM sources.

CHAPTER 1
RECLAIM UNIVERSE

Summary

When RECLAIM was adopted in October 1993, 394 facilities were identified as the initial "universe" of sources subject to the requirements of RECLAIM. Between program adoption and June 30, 2000, 79 facilities were included into the program, 63 were excluded from the program, and 56 facilities ceased operation. Thus, the RECLAIM universe consisted of 354 facilities on July 1, 2000. During Compliance Year 2000, five facilities were included into the RECLAIM universe, two were excluded from the program, and 22 facilities shutdown. These changes resulted in a net decrease of 19 facilities in the universe, bringing the total number of facilities to 335 at the end of Compliance Year 2000. Two of the facilities that shut down were in both the NOx and SOx universe; the remaining facilities are in the NOx universe only.

Background

The RECLAIM program replaced the traditional "command-and-control" rules for a defined list of facilities participating in the program (the RECLAIM "universe"). The criteria for inclusion in the RECLAIM program are specified in Rule 2001 – Applicability. Facilities are generally subject to RECLAIM if they have NOx or SOx emissions greater than or equal to four tons in 1990 or any subsequent year, although certain facilities are categorically excluded from RECLAIM. The categorically excluded facilities include restaurants, police and fire fighting facilities, potable water delivery operations, and all facilities located in the Riverside County and Los Angeles County portions of the Mojave Desert Air Basin and the Salton Sea Air Basin. Furthermore, there are other categories of facilities that are not automatically subject to RECLAIM, but individual facilities in these categories have the option to enter the program at their discretion. These categories include ski resorts, prisons, hospitals, and publicly owned municipal waste-to-energy facilities. An initial universe of 394 RECLAIM facilities was developed using these criteria based on 1990, 1991 and 1992 facility emissions data.

A facility that is not categorically excluded from the program may voluntarily join RECLAIM, regardless of its emission level. Additionally, a facility may be required to enter the RECLAIM universe if:

- It increases its emissions above the four-ton threshold; or
- It ceases to belong to an exempt category; or
- It is discovered by AQMD staff to meet the applicability requirements of RECLAIM, but was initially misclassified as not subject to RECLAIM.

The facilities in the RECLAIM universe were issued an annually declining allocation of emission credits ("RECLAIM Trading Credits" or "RTCs") that constitutes an annual emissions budget. RTCs may be bought or sold as the facilities deem appropriate.

RECLAIM facilities that permanently go out of business after January 1, 1994 (Cycle 1) or after July 1, 1994 (Cycle 2) are removed from the active emitting RECLAIM universe, but may retain their RTCs and participate in the trading market.

Universe Changes

The RECLAIM rules include several mechanisms to exclude facilities originally included in the universe and to add new facilities to the universe. The overall changes to the RECLAIM universe from the date of adoption through June 30, 2000 were: inclusion of 79 facilities (63 facilities were included and 16 facilities were created by partial change of ownership of existing RECLAIM facilities), exclusion of 63 facilities (61 facilities were excluded and consolidation of two pairs of adjacent RECLAIM facilities into two facilities), and 56 facility shutdowns. Thus, the net change in the RECLAIM universe during the first five compliance years was a decrease from 394 to 354 facilities. During Compliance Year 2000, five facilities were added to the RECLAIM universe (one existing facility was included into the RECLAIM universe, one existing facility opted to join RECLAIM, and three facilities were created by partial change of ownership), two were excluded and 22 facilities were shut down[1]. These changes brought the total number of facilities in the RECLAIM universe to 335 facilities.

Table 1-1 summarizes the changes in the RECLAIM universe between the start of program and the end of Compliance Year 2000. Additionally, the most current list of facilities in the RECLAIM universe as of June 30, 2001 is shown in Appendix A.

Table 1-1
RECLAIM Universe Changes

	NOx Facilities	SOx Facilities	Total Facilities
Start of Program	392	41	394
Inclusions—1994-1999	79	5	79
Exclusions—1994-1999	62[a]	4	63[a]
Shutdowns—1994-1999	55	6	56
End of Compliance Year 1999	354	36	354
Inclusions—2000	5	3	5
Exclusions—2000	2	0	2
Shutdowns—2000	22	2	22
End of Compliance Year 2000	335	37	335

[a] Consolidation of two pairs of adjacent facilities into two facilities. No equipment shutdown or removed from the RECLAIM Universe

[1] The twenty-two shutdown facilities include one facility that was shutdown prior to the 2000 compliance year but had not yet been accounted for in a previous RECLAIM annual audit report.

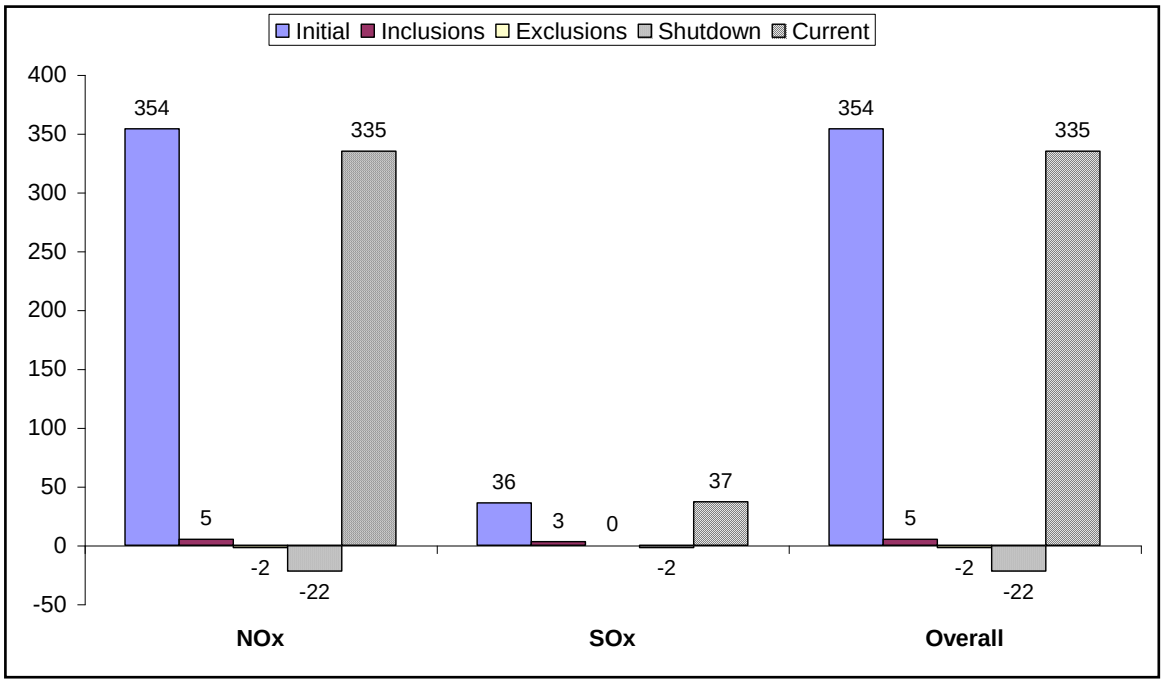
Facility Inclusions and Exclusions

During Compliance Year 2000, one existing facility was included into the RECLAIM market, one existing facility opted to join RECLAIM, and three were created from partial changes in ownership. One of the three facilities that was created from partial change in ownership was a NOx and SOx facility. The remaining facilities that were added to RECLAIM in Compliance Year 2000 were all NOx facilities. On the other hand, two NOx facilities were excluded due to revisions in emission fee billing data below four tons. These changes and the shutdowns discussed below together resulted in a net reduction of 19 facilities in the RECLAIM Universe.

In addition to the inclusion and exclusions of facilities described above, two facilities had voluntarily opted into the RECLAIM SOx universe. These two facilities are existing RECLAIM facilities in the NOx universe.

A list of facilities included or excluded from the RECLAIM universe during Compliance Year 2000 is shown in Appendix B. Additionally, overall changes to the RECLAIM universe that occurred during Compliance Year 2000 for both NOx and SOx facilities are illustrated in Figure 1-1.

Figure 1-1
Universe Changes during Compliance Year 2000



Facilities Permanently Ceasing Operations

Twenty NOx RECLAIM facilities and two NOx and SOx RECLAIM facilities permanently ceased operations between January 1, 2000 and June 30, 2001. One of the NOx RECLAIM facilities was inadvertently omitted from the previous RECLAIM annual reports. The remaining 21 facilities ceased operation during

Compliance Year 2000. Shutdown facilities have the option to retain or sell their RTCs. Two of the facilities cited RECLAIM as a contributing factor in their decision to cease operation. Appendix C lists the shutdown facilities and brief descriptions of the known reasons for closing down operations.

CHAPTER 2
RTC ALLOCATIONS AND TRADING

Summary

The trading market in Calendar Year 2001 was very active. A record 1,255 RTC transactions were registered in Calendar Year 2001 compared to 940 transactions in Calendar Year 2000. During Calendar Year 2001, $316 million of RTCs were traded. This amount is more than the total dollar amount traded in the first seven years of the program. Since the start of RECLAIM in 1994 to Calendar Year 2000, $285.3 million in trades has occurred comparing to the $316 million in Calendar Year 2001 alone.

Due to the California energy crisis, RECLAIM participants experienced a sudden increase in NOx RTC prices in Calendar Year 2000. The annual average price for Compliance Year 2000 NOx RTCs traded in Calendar Year 2000 was $45,609 per ton. The price hike continued in the first part of Calendar Year 2001 and declined significantly after the rule amendment to stabilize NOx RTC Prices was adopted in May 2001. For Compliance Year 2000 NOx RTCs traded in Calendar Year 2001, the average prices were $69,400 and $28,440 per ton during the first and second half of the year. The annual average prices for SOx RTCs also increased, but by a more modest amount during the same period. Average prices for SOx RTCs traded in Calendar Year 2001 ranged from $3,440 per ton for Compliance Year 2000 RTCs to $5,669 per ton for Compliance Year 2001 RTCs. The measures adopted in the May 2001 rule amendments have made definite strides toward reducing RTC prices. RTC prices for Compliance Year 2001 Cycle 1 NOx RTCs dropped below $6,000 per ton at the time this report was prepared in February 2002.

Background

Based on the facility's operational history and the methodology specified in Rule 2002 – Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx), each RECLAIM facility is issued Allocations in terms of NOx and/or SOx RTCs for the compliance year it enters the RECLAIM program and each subsequent year. The Allocations decline annually through the 2003 compliance year, then remain constant for all subsequent years.

Allocations are issued as RTCs, denominated in pounds of NOx or SOx within a specific year. Each RTC may only be used for emissions occurring within the term of the RTC. The RECLAIM program has two staggered compliance cycles – Cycle 1 for compliance period of January 1 through December 31 of each year and Cycle 2 for compliance period of July 1 of each year through June 30 of the following year. Each RECLAIM facility is assigned to either Cycle 1 or Cycle 2 and issued RTCs with corresponding periods of validity.

The issuance of Allocations for future years provides RECLAIM facilities guidance to their future emission reduction requirements. Facilities can plan their compliance strategies by reducing actual emissions or securing required

RTCs through trades (or a combination of the two), based on their operational needs.

Through trading, RECLAIM facilities may acquire RTCs issued for either cycle and apply them to emissions provided that the RTCs are used for emissions occurring within their period of validity and the trades are made during the appropriate time period. In addition, RECLAIM facilities have a 60-day reconciliation period after the end of each compliance year to account for their total annual emissions and to secure adequate RTCs.

Unlike other chapters in this report where data pertain to Compliance Year 2000, RTC prices discussed in this chapter are for Calendar Year 2001. RTC Prices during Calendar Year 2000 were presented in the previous Annual RECLAIM Audit Report submitted to the Governing Board in March 2001. NOx RTC prices presented in that report showed significant increase comparing to the average prices traded in Calendar Year 1999. Such trend continued in Calendar Year 2001 due to the energy crisis and decreasing supply.

RTC Allocations and Supply

The methodology for determining RTC Allocations is stated in Rule 2002 – Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx). The calculation of Allocations is based on each facility's historical operation and the emission reduction requirements under the command-and-control rules and the AQMP control measures subsumed by RECLAIM. The aggregate of all RECLAIM facilities' Allocations, conversions of emission reduction credits (ERCs) owned by RECLAIM and non-RECLAIM facilities, and conversion of ERCs from mobile sources and area sources make up the total RTC supply in the program.

As stated in Chapter 1 – RECLAIM Universe, one existing facility was included into the RECLAIM NOx universe, one additional facility elected to enter the NOx market, and one additional facility elected to enter the SOx market during Compliance Year 2000. Additionally, three facilities were created by partial change of ownership, two facilities were excluded from the program, and 22 facilities shut down. Two of the facilities that shutdown were both NOx and SOx RECLAIM facilities. There were no other changes to the SOx universe. The two facilities that were included into RECLAIM or opted in were issued allocations based upon their historical activity levels and the appropriate emission factors identified in Rule 2002. There was no change in the supply of RTCs caused by facilities shutting down or created by partial change of ownership in that the original facilities retain the ownership of the RTCs. Additional RTCs were issued as a result of conversion of Area Source Credits (ASC) and Mobile Source Emission Reduction Credits (MSERC), from adjustments resulting from corrections to historical emission levels, and as provided by Rule 2002 for facilities involved in production of California Phase II Reformulated Gasoline (RFG). Rule 2002 provides refineries with RTCs to compensate for actual emissions directly related to the production of RFG. The amount of RTCs eligible is based on actual emissions for the subject compliance year and historical production data. In Compliance Year 1999, the refineries were issued a baseline of 86.3 tons of NOx and 52 tons of SOx for Compliance Year 1999 and 101 tons of NOx and 52.9 tons of SOx for each subsequent compliance

year. However, these facilities are required to submit records to substantiate actual emission increases due solely to production of RFG on an annual basis. If actual emission increases for a subject year are different, the RTCs issued will be adjusted accordingly (i.e. excess RTCs issued will be decreased if emissions were less than the amount of RTCs issued; the reverse is also true.) Tables 2-1 and 2-2 summarize the changes in RTCs supply that occurred in Compliance Year 2000 as a result of these changes and compare them to the total pool of RTCs. Figures 2-1 and 2-2 illustrate the total NOx and SOx RTC supplies, respectively.

Table 2-1
Changes in total supply of NOx RTCs during Compliance Year 2000 (ton/year)

Source	1999	2000	2001	2002	2003 and on
Universe changes[1]	-2.0	-1.9	-1.7	-1.5	-1.3
ASC conversion	0.0	68.2	68.2	0.0	0.0
MSERC conversion	0.0	128.7	94.5	0.0	0.0
Activity corrections[2]	0.0	0.0	-2.5	-2.3	-2.0
RFG	-4.9	-13.6	0.0	0.0	0.0
Net change	-6.9	181.5	158.4	-3.8	-3.4
Total Supply of NOx RTCs	21,061	17,197	15,615	13,920	12,396

Table 2-2
Changes in total supply of SOx RTCs during Compliance Year 2000 (ton/year)

Source	1999	2000	2001	2002	2003 and on
Universe changes[1]	15.6	5.4	4.8	4.2	3.7
Activity corrections[2]	0.7	0.8	0.7	0.6	0.6
RFG	-12.5	-14.1	0.0	0.0	0.0
Net changes	3.8	-7.9	5.5	4.9	4.2
Total Supply of SOx RTCs	6,915	6,185	5,570	4,936	4,307

[1] Inclusion and exclusion of facilities participating in RECLAIM affect the total supply of RTCs. Inclusion increases RTCs supply and exclusion removes RTCs that were assigned to the excluded facilities.
[2] Allocations issued to a facility depend on historical production data. For various reasons, facilities file amendments to their historical prodcution data that, when approved, cause changes to the facilities' allocations.

Figure 2-1
NOx RTC Supply (tons/year)

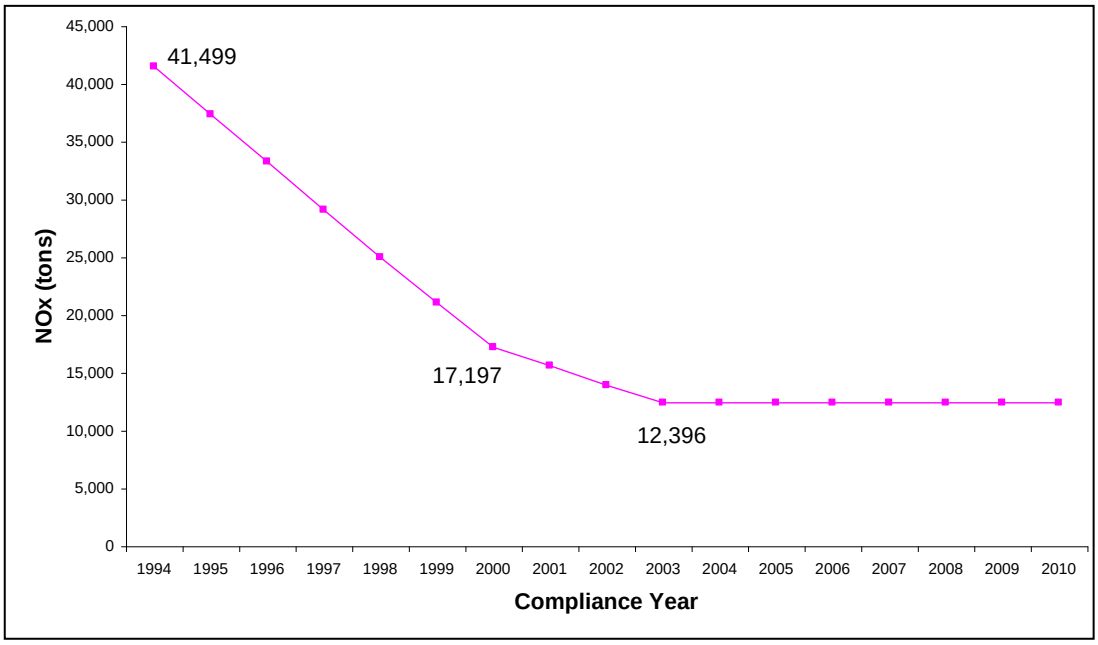
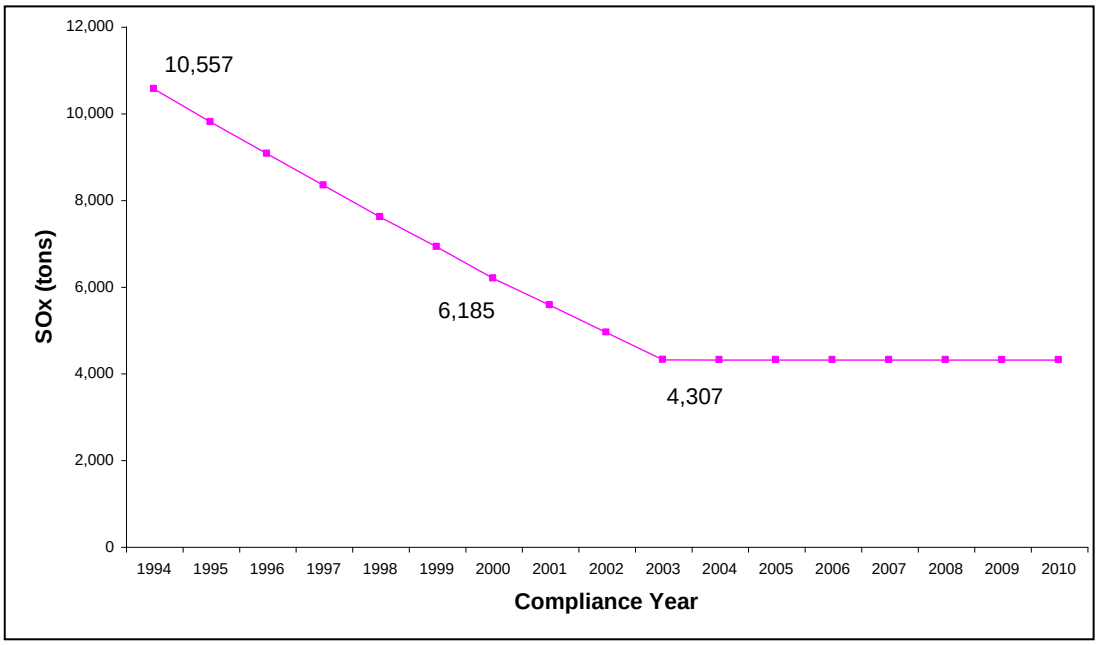


Figure 2-2
SOx RTC Supply (tons/year)

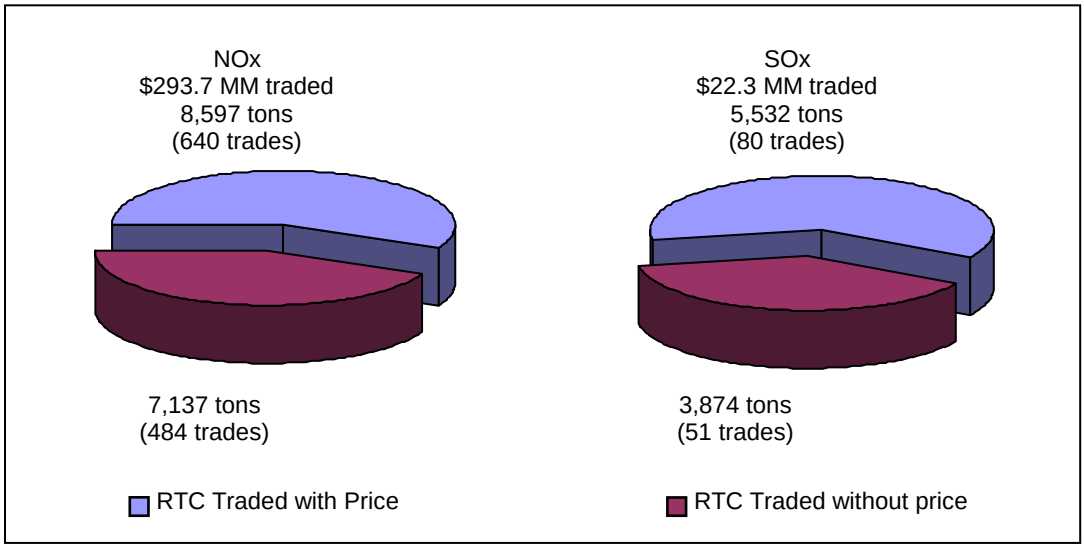


RTC Trading Activity

Activities in the RTC trading market continued to increase significantly in Calendar Year 2001. There were 1,255 trades totaling over 25,100 tons of NOx

and SOx RTCs were transferred during the Calendar Year 2001, compared with 541 trades in Calendar Year 1999 and 940 trades (totaling 24,200 tons) in Calendar Year 2000. The number of registrations of 1,255 outnumbered any year since the start of the program. These trades included both RTCs traded with prices and transfers with $0 price. The total of all reported prices for RTCs traded in Calendar Year 2001 equaled $316 million. Since program inception in 1994 and excluding trades without price, 80,501 tons of NOx RTCs and 24,248 tons of SOx RTCs have been traded with a total price of more than $600 million ($553 million for NOx and $48 million for SOx RTCs). Figure 2-3 summarizes trading activity in Calendar Year 2001 by pollutants.

Figure 2-3
2001 Trading Activity



Brokers conducted most of the trades with prices. Small quantities of trades with prices are also transferred directly between some RECLAIM facilities. The total values of all Calendar Year 2001 trades topped $316 million. In Calendar Year 2001, 720 trades (640 for NOx and 80 for SOx) totaling 8,597 tons of NOx and 5,532 tons of SOx were traded with prices. These trades included activity for both current and future year RTCs.

Trades with $0 price generally occur when a seller transfers RTCs to a broker, when there is a transfer between brokers, between facilities under common ownership, or between facilities that have gone through change of ownership. These trades are indicators of available RTC supply, market dynamics, and credit management strategies. Due to the increased demand, new variations of RTC trades were first observed in Calendar Year 2000 and continued in Calendar Year 2001. In addition to trading with prices, facilities traded RTCs of different pollutants where one facility transferred NOx RTCs to a second facility. In return, the second facility transferred SOx RTCs to the first facility. There were trades of current-year NOx RTCs for future-year NOx RTCs. There were also trades that involved payment of broker commission in the form of RTCs instead of money. Figures 2-4 and 2-5 illustrate tons of NOx and SOx traded,

respectively. These figures show trades with and without prices in Calendar Year 2001 and compare them with trading activity in the prior years.

Figure 2-4
Total Tons of NOx Traded

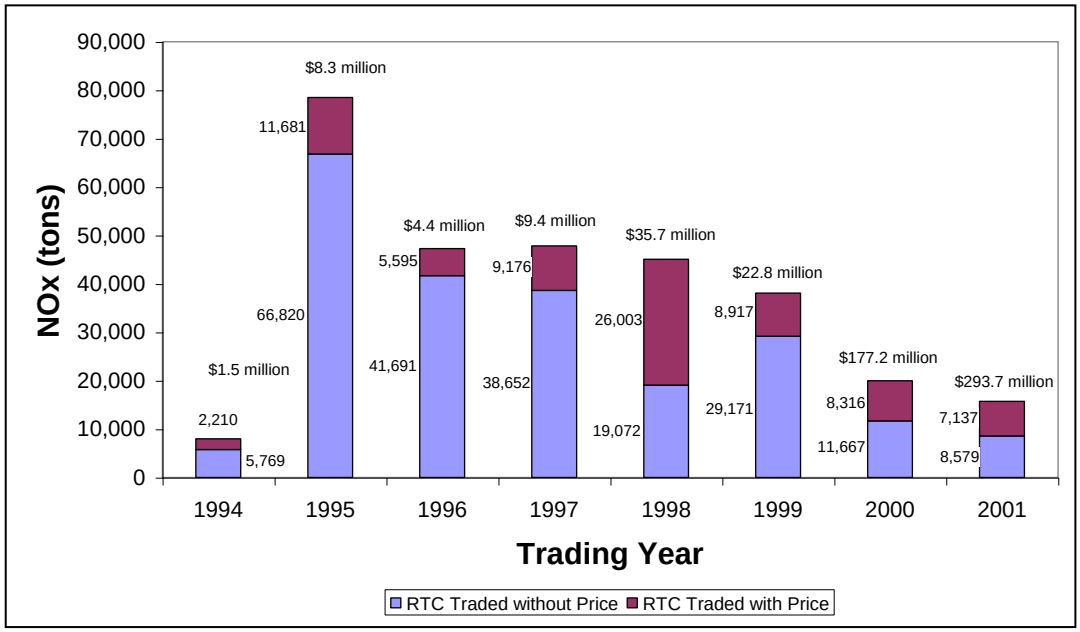
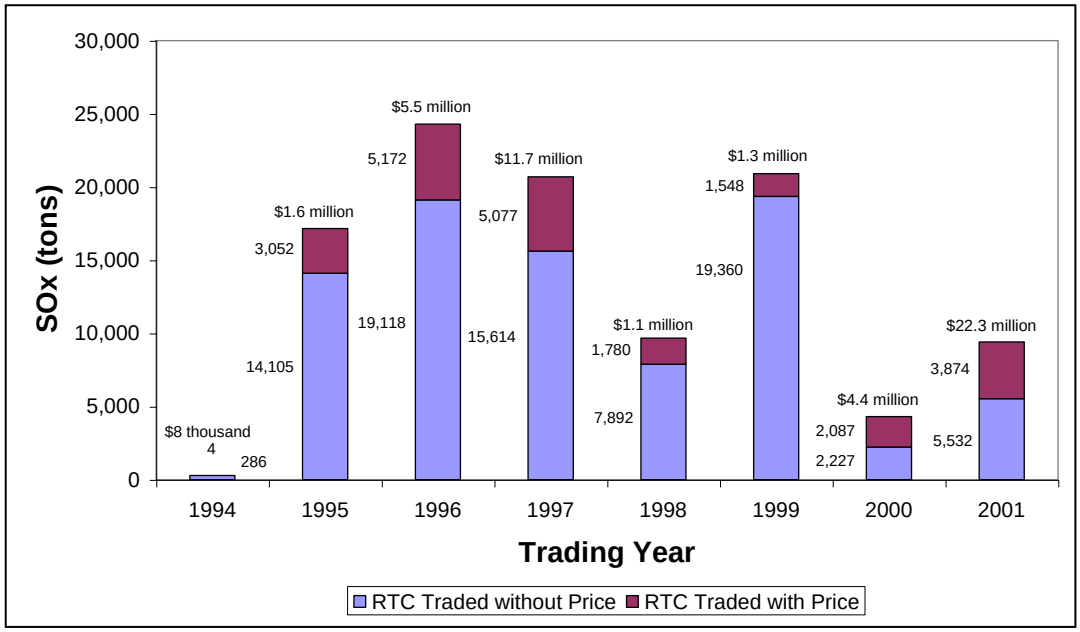


Figure 2-5
Total Tons of SOx Traded



Comparison of Calendar Year 2001 Trading Activity to Previous Years

Total number of trades registered with AQMD in Calendar Year 2001 was more than any previous years. Prices for NOx RTCs have increased dramatically which resulted in over $293 million traded. The combination of decreased trade volume and increased trade prices indicates that the supply of NOx RTCs was low relative to demand. The quantity of NOx RTCs traded with $0 price also decreased when compared to those trades in Calendar Years 1995 through 2000.

The total quantity of SOx RTCs traded in Calendar Year 2001 increased when compared to Calendar Year 2000. There were 24 trades with price that involved future year RTCs. Prices for SOx RTCs with expiration dates in Calendar Year 2001 and beyond are higher than the average market prices for all previous years.

RTC Prices

Prices for NOx RTCs increased dramatically in Calendar Year 2000 in response to a high demand for NOx RTCs from the power producing sector to offset the increased emissions due to the California energy crisis. For the first time since the program inception, the average price of NOx RTCs exceeded the backstop price of $15,000 per ton that was set in Rule 2015. The average prices for Compliance Year 2000 NOx RTCs traded in Calendar Years 2000 and 2001 were $45,609 and $59,199 per ton, respectively. In Calendar Year 2001, the high NOx RTC prices continued during the first half of the year. The maximum price paid for NOx RTCs reached a record of $62 per pound ($124,000 per ton) in late February 2001. Prices peaked in February of 2001 and began to drop slightly after the first effort to address the problem through the issuance of Executive Order #01-02 on February 6, 2001. The decline in NOx RTC prices accelerated after the Governing Board adopted the rule amendments in May 2001 to implement measures recommended in the White Paper (January 2001). The average price for Compliance Year 2000 NOx RTCs traded between January 1 and June 15, 2001 was $69,400 per ton. For the remainder of the calendar year, the same NOx RTCs traded at an average price of $28,440 per ton.

Prices for SOx RTCs also increased during Calendar Year 2001 but the average annual prices were still well below the $15,000 per ton level. However, there were a few trades of SOx RTCs at a price higher than $7.50 per pound. This indicates that the supply of SOx is also on a decline. As in previous years, post-Compliance Year 2010 RTCs are traded as if they were collectively tied to the Compliance Year 2010 RTCs; all trades involving post-Compliance Year 2010 RTCs have been executed in blocks extending infinitely forward in time with a single aggregate price. Figures 2-6 and 2-7 show annual average prices for NOx and SOx RTCs respectively traded each year since 1994.

Figure 2-6
Yearly Average Prices for NOx RTCs

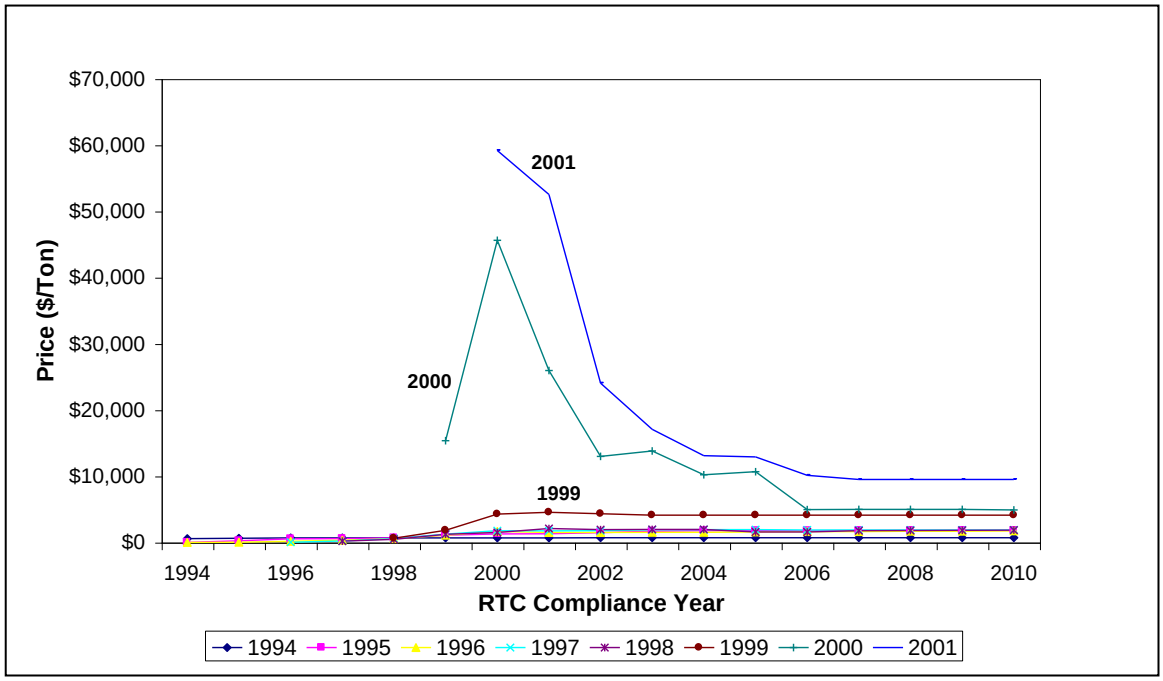
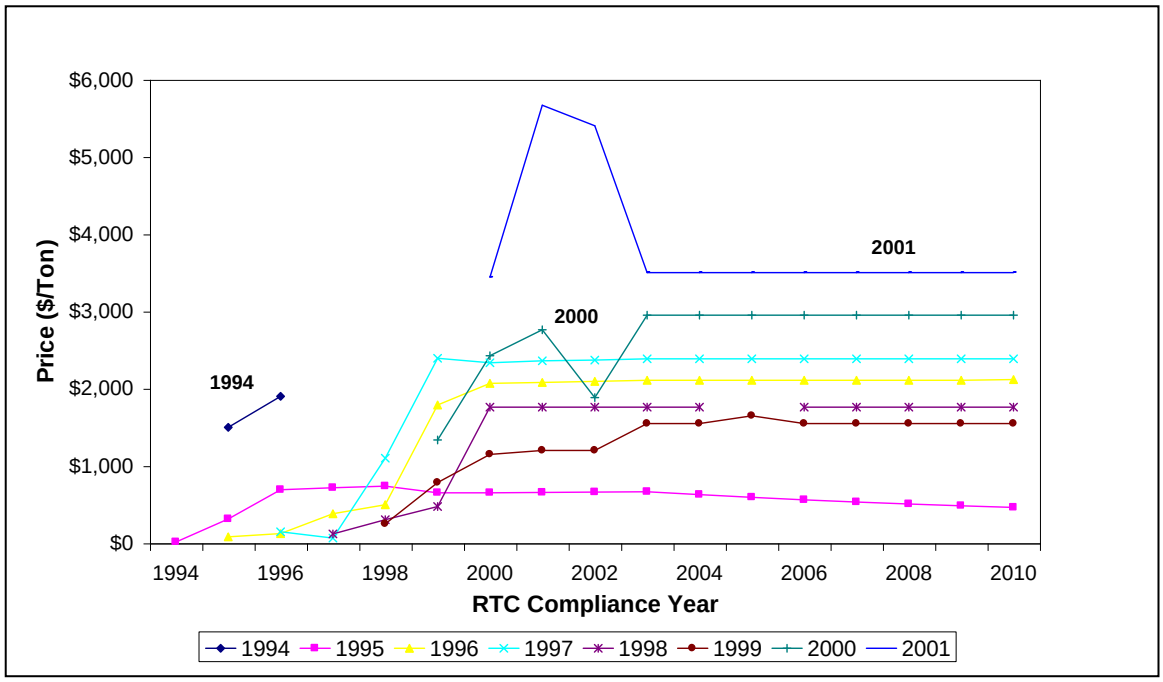


Figure 2-7
Yearly Average Prices for SOx RTCs

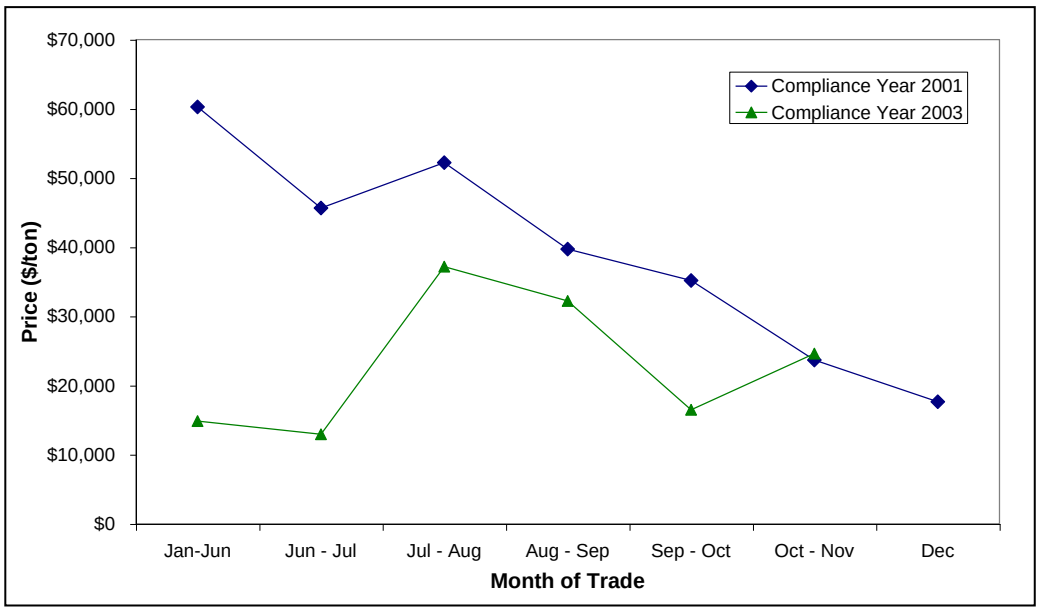


The effects of the May 2001 Rule Amendment on RTC Prices

In response to the price spike in 2000, the AQMD started review of the program in the second half of 2000. The White Paper on Stabilization of NOx Prices with recommended improvements was presented to the Governing Board for approval on January 11, 2001. RTC The details of that effort are presented in the next chapter. The first measure taken to stabilizing the price was the issuance of Executive Order #01-02 by the Executive Officer of the AQMD in February 2001 in response to the California energy crisis. Subsequently, the Governing Board adopted rule amendments in May 2001 to bifurcate the power producing facilities from the market and setting up emission reduction reserve for power producing facilities that choose to participate.

Figure 2-8 compares the monthly average NOx RTC prices during the first half of 2001 to the monthly average NOx RTC prices between June and December 2001 for Compliance Years 2001 and 2003 RTCs. The figure shows the effect of the rule amendments. Prices dropped once the demand for near term RTCs from power producing facilities was removed from the market through RECLAIM rule amendment. However, prices for Compliance Year 2003 NOx RTCs rose between July and September. One possibility for this increase may be due to the fact that major facilities were required under the amended RECLAIM rules to demonstrate compliance with their allocations through Compliance Year 2005. Under Rule 2009.1, the plan must be submitted by September 1, 2001. After this deadline, RTC prices for Compliance Year 2003 started to decrease. The measures implemented by the May rule amendments appear to gradually bring RTCs prices down significantly. At the time this report is being prepared in February 2002, prices for Compliance Year 2001 Cycle 1 NOx RTCs (expiring 12/2001) have dropped even further to a level below $3 per pound ($6,000 per ton).

Figure 2-8
Changes in Average Prices for NOx RTCs In Calendar Year 2001[1]



[1] There was no trade for Compliance Year 2003 NOx RTCs in December 2001.

CHAPTER 3
EMISSION REDUCTIONS

Summary

Aggregate NOx and SOx emissions from RECLAIM facilities continued to decrease from the inception of RECLAIM through Compliance Year 2000. Aggregate SOx emissions from all RECLAIM facilities continued to be below allocations during this compliance year. Similarly, aggregate NOx emissions from non-power producing facilities continued to be below their initial allocations at the start of RECLAIM. However, due to California's energy crisis during Compliance Year 2000, NOx emissions from power producing facilities increased significantly above their initial allocations. Furthermore, more than 2,000 tons of NOx RTCs for Compliance Year 2000 were traded from the non-power producing facilities to power producing facilities causing the total amount of RTCs held by non-power producing facilities at the end of Compliance Year 2000 to be below their emissions. Consequently, NOx emissions from all RECLAIM facilities in Compliance Year 2000 exceeded allocations, in aggregate, by more than five percent. Excess emissions are being deducted from the facilities' future compliance year allocations to ensure benefits to the environment.

Rule 2015 – Backstop Provisions, requires the Executive Officer to propose amendments to the RECLAIM program upon the discovery that actual emissions from RECLAIM sources exceeded allocations for any annual period by five percent or greater. AQMD staff began this effort in conjunction with an effort to stabilize NOx RTC prices in October 2000. Under the direction of the Board, AQMD staff formed an advisory committee to examine the program and recommend changes to stabilize prices. That led staff to develop a RECLAIM White Paper in January 2001. The white paper recommended NOx emission reduction strategies as well as program adjustments to stabilize prices. The efforts culminated in the amendments to the RECLAIM program in May 2001. The amendments included:

- *Temporarily separating power producing facilities from the RECLAIM trading market;*
- *Requiring power producing facilities to install best available retrofit air pollution controls;*
- *Requiring major non-power producing facilities to submit compliance plans demonstrating that future RECLAIM allocations can be met, either through installation of controls, purchase of credits, or other qualified emission reduction strategies; and*
- *Establishing a temporary mitigation fee program using the fees collected to seek emission reductions from mobile, area and stationary sources to offset emissions from power producing facilities.*

Background

One major objective of the RECLAIM program audit is to assess whether RECLAIM is achieving its targeted emission reductions. The annual allocations given to RECLAIM facilities reflect the required emission reductions mirroring the reductions anticipated under the command-and-control rules. As such, RECLAIM is designed to achieve by 2003 the same level of emissions reductions

as would have been achieved in aggregate by implementing the subsumed rules and command-and-control measures. From 2003 on, the level of allocation remains the same for each year thereafter. However, increased emissions from power producing facilities due to California energy crisis had significantly impacted the aggregate NOx emissions during Compliance Year 2000.

Emissions Audit Process

AQMD has conducted annual audits on the data submitted by RECLAIM facilities for the past seven compliance years to ensure the integrity and reliability of the data. The process begins when each facility submits a comprehensive Annual Permit Emissions Program (APEP) report within sixty days of the end of each compliance year. AQMD staff then reviews the APEP reports to assess the accuracy of reported emissions. This process includes field inspections to check the equipment, monitoring devices, and operational records. It also involves verification of emissions data reported during the course of the year (daily, monthly, quarterly, and annually).

These audits have revealed that some facilities have made errors in quantifying their emissions, such as arithmetic errors, use of inappropriate emission factors, or inappropriate use of missing data substitution. Consequently, the reported emissions in the APEP reports for those facilities were adjusted to correct the errors. When AQMD staff made any adjustments to the emissions data in the APEP reports, facilities were provided an opportunity to review the changes and to present additional data or arguments supporting the data in their APEP reports. This kind of rigorous audit process reinforces RECLAIM's emissions monitoring and reporting requirements and enhances the validity and reliability of the reported emissions data.

Emission Trends and Analysis

RECLAIM achieves its emission reduction goals on an aggregate basis by ensuring that aggregate annual emissions are below allocations. Allocations are based on projected emission levels in 2003 if the rules and control measures identified in the AQMP that RECLAIM subsumed were implemented.

Tables 3-1 and 3-2 summarize emissions from RECLAIM facilities for each of the first seven compliance years. At the time of preparation of this report, auditing of approximately seventy-five percent of the Compliance Year 2000 APEP reports submitted by all RECLAIM facilities has been completed. Emissions data for Compliance Year 2000 contained in this report have been compiled based on the available audited emissions combined with emissions extracted from the APEP reports for those facilities with audits still under review. The resultant emissions are presented under Tables 3-1 and 3-2.

Table 3-1
Annual NOx Emissions[1] for Compliance Years 1994 through 1999

	1994	1995	1996	1997	1998	1999
Annual Emissions (ton)	25,314	25,764	24,796	21,786	20,982	20,775
% Change from 1994	0 %	+1.8 %	-2.0 %	-13.9 %	-17.1 %	-17.9 %
Total RTCs[2] (ton)	40,127	36,031	32,017	27,919	24,678	21,013
Excess RTCs (ton)[3]	14,813	10,267	7,221	6,133	3,696	238
% Excess RTCs[3]	37 %	28 %	23 %	22 %	15 %	1.1 %

1. The RECLAIM universe is divided into two cycles with compliance schedules staggered by six months. Compliance years for Cycle 1 facilities run from January 1 through December 31 and Cycle 2 compliance years are from July 1 through June 30.
2. Total RTCs = Allocations + Converted ERCs
3. This presentation of excess RTCs is not a strict indicator of programmatic compliance because it neglects the two-cycle nature of RECLAIM.

As shown in the Table 3-1, RECLAIM facilities have not exceeded their NOx allocations on an aggregate basis for first six compliance years (1994 through 1999).

During Compliance Year 2000, power producing facilities operated at a production level significantly higher than their historical operation levels due to California's energy crisis. Table 3-2 illustrates the impact of NOx emissions from the power producing facilities on the overall RECLAIM NOx allocations. Although they were initially allocated 2,302 tons of NOx RTCs for Compliance Year 2000 based on their historical operations, these facilities emitted 6,788 tons of NOx in Compliance Year 2000. To offset emissions increases, power producing facilities acquired 2,550 tons of NOx RTCs from other RECLAIM participants.

In contrast, Compliance Year 2000 NOx emissions of 13,703 tons from the non-power producing facilities were well below their initial allocations of 14,985 tons for that year. However, a large quantity of Compliance Year 2000 NOx RTCs were transferred from this group to the power producing facilities, resulting in a reduced quantity of RTCs held by these facilities to 12,345 tons. When emissions from both power producing facilities and non-power producing facilities are considered together, NOx emissions in Compliance Year 2000 exceeded allocations in aggregate by more than five percent. AQMD is in the process of deducting excess emissions from facilities' future compliance year allocations to ensure benefits to the environment.

Table 3-2
Impact of NOx Emissions from Power Producing Facilities on the Overall NOx Allocations for Compliance Year 2000

	Non-Power Producing Facilities (a)		Power Producing Facilities (b)		All Facilities (a) + (b)
	RTCs Held in CY 2000	Initial Allocations	RTCs Held in CY 2000	Initial Allocations	
Allocations (tons)	12,345	14,895	4,852	2,302	17,197
Emissions (tons)	13,703		6,788		20,491
Difference (Exceedance)	(1,358)	1,192	(1,936)	(4,486)	(3,294)

Table 3-2 shows the overall programmatic exceedance by comparing Compliance Year 2000 emissions only to the allocations for the same compliance year. However, when evaluated individually, the total amount of emissions in excess of allocations held by individual facilities is only 1,089 tons (see Chapter 5) which is substantially less than 3,294 tons as presented in Table 3-2. RECLAIM facilities are divided in two cycles and are allowed to acquire and use RTCs from either cycles. The two cycles overlap each other by six months. This structure allows facilities to use RTCs that are valid in Compliance Years 1999 and 2000 to offset emissions in Compliance Year 2000 during the overlapping six-months of each of the two years.

As shown in the Table 3-3, RECLAIM facilities have not exceeded their SOx allocations on an aggregate basis during any of the seven completed compliance years (1994 through 2000). This indicates that RECLAIM met its programmatic emission reduction goals and demonstrated equivalency in emissions reduction compared to the traditional command-and-control measures. Table 3-3 shows that there is a slight increase in SOx emissions for Compliance Year 1998 compared to those reported in 1997. Compliance Year 1999 SOx emissions were comparable to 1997 SOx emissions. SOx emissions in Compliance Year 2000 continued the declining trend and decreased approximately 17 percent from 7,232 tons in 1994 to 6,009 tons in 2000. Figures 3-1 and 3-2, illustrates the comparisons of emissions and the RTC supply for NOx and SOx respectively.

Table 3-3
Annual SOx Emissions[1] for the 1994 through 2000 Compliance Years

	1994	1995	1996	1997	1998	1999	2000[2]
Annual Emissions (ton)	7,232	8,064	6,484	6,464	6,793	6,378	6,009
% Change from 1994	0 %	+11.5 %	-10.3 %	-10.6 %	-6.1 %	-11.8 %	-16.9 %
Total RTCs[3] (ton)	10,365	9,612	8,894	8,169	7,577	6,911	6,185
Excess RTCs (ton)[4]	3,133	1,548	2,410	1,705	784	533	176
% Excess RTCs[4]	30 %	16%	27 %	21%	10 %	8 %	3 %

1. The RECLAIM universe is divided into two cycles with compliance schedules staggered by six months. Compliance years for Cycle 1 facilities run from January 1 through December 31, and Cycle 2 compliance years are from July 1 through June 30.
2. 2000 emissions are not fully audited; 259 out of 356 facilities were audited. For the remaining facilities, APEP or QCER emissions are substituted where a facility audit is not completed.
3. Total RTCs = Allocations + Converted ERCs
4. This presentation of excess RTCs is not a strict indicator of programmatic compliance because it neglects the two-cycle nature of RECLAIM.

Figure 3-1
NOx Emissions and Available RTCs

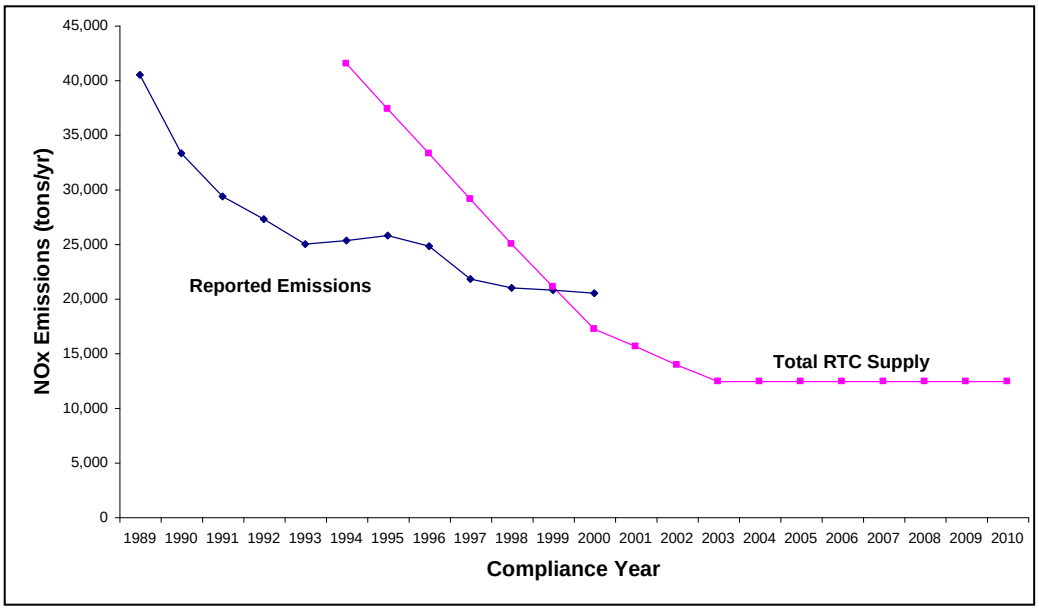
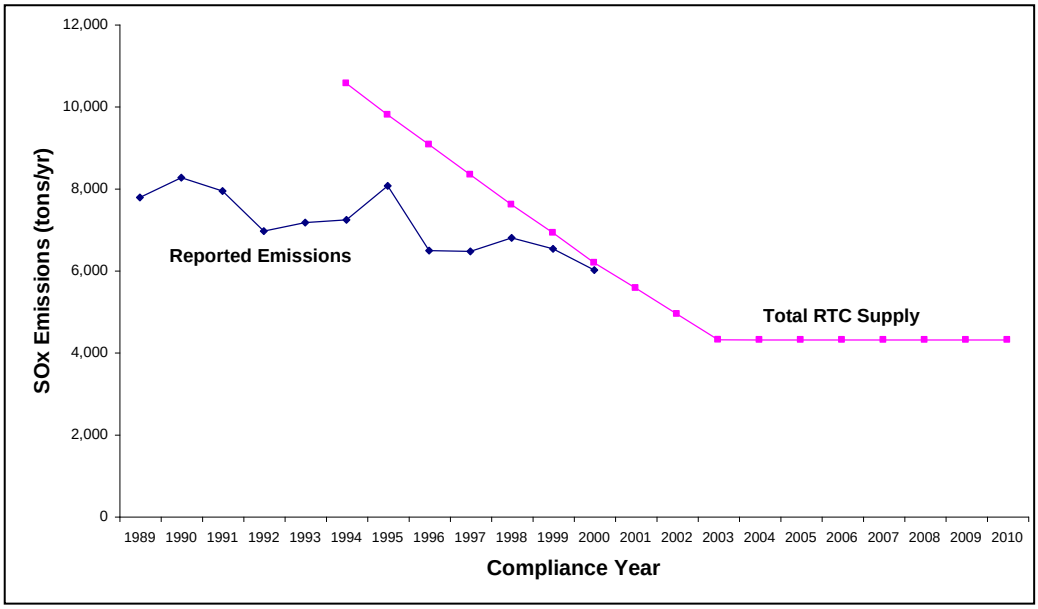


Figure 3-2
SOx Emissions and Available RTCs



Comparison to Command and Control Rules

As mentioned previously, RECLAIM subsumed a number of command and control rules[1], and sought to achieve equivalent reductions as these subsumed rules. RECLAIM facilities are exempt from the requirements of these rules as they are applicable to NOx or SOx emissions. Among the subsumed rules, Rule 431.2 – Sulfur Content of Liquid Fuels, Rule 1146 - Emissions of NOx from Boilers, Steam Geneartors, and Process Heaters, and some rules in Regulation XIII – New Source Review were amended during Compliance Year 2000. Rule 431.2 was amended in September 2000 to lower sulfur content in diesel fuel. The amended requirements were equally applicable to both RECLAIM and non-RECLAIM sources. Rule 1146 is applicable to boilers, steam generators, and process heaters with rating of 5 million BTU per hour or higher. The main focus of the amendments to Rule 1146 were to limit emissions from subjected equipment from 40 ppm to 30 ppm NOx. Although allocations issued to RECLAIM facilities were based on the 40-ppm limit in the Rule at the time of RECLAIM adoption, the programmatic reduction in NOx allocations (28 percent overall) between Compliance Years 2000 and 2003 will bring RECLAIM emissions to par with the amended rule by 2003.

Changes to Regulation XIII that impacted NOx and SOx occurred in October 2000, and April 2001. The October 2000 amendment was made to define Minor Source BACT and change the BACT guidelines. The amended requirements are applicable to RECLAIM and non-RECLAIM facilities. The April 2001 rule amendments were made to Regulation XIII as well as Rule 2005 – New Source Review for RECLAIM to change modeling requirements. The amended requirements are comparable under both sets of rules. Therefore, amendments to command and control rules adopted by the Board in Compliance Year 2000

[1] See Tables 1 and 2 of Rule 2001

did not result in significant difference in requirements between RECLAIM and non-RECLAIM sources.

Program Amendments

Rule 2015 – Backstop Provisions requires that the AQMD review the program and implement necessary measures to amend the program whenever aggregate emissions exceed the allocations by five percent or more or whenever the average price of RTCs exceed $15,000 per ton. As mentioned in Chapter 2 – RTC Allocations and Trading, RTC prices started to increase in early spring of 2000. Upon recognizing the sudden jump in RTCs prices, the District initiated review of the program and embarked on evaluating options to stabilize RTC prices. A working group was assembled consisting of representatives from the regulated industries, RTCs traders and brokers, environmental groups, the California Air Resources Board, and the US Environmental Protection Agency to develop strategies to reduce RTCs prices and to affect installation of air pollution control equipment. The discussions were summarized in the White Paper on Stabilization of NOx RTC Prices that was presented to the Governing Board on January 19, 2001. Recommendations in the White Paper included measures to stabilize RTC prices as well as the requirements for additional control measures. The Governing Board directed staff to initiate rule amendment process to implement recommendations contained in the White Paper. Amendments to the RECLAIM rules were adopted by the Governing Board on May 11, 2001 to implement the following key backstop measures:

- Isolating power producing facilities from the rest of the RECLAIM facilities;
- Requiring power producing facilities to submit compliance plans delineating schedule for installation of Best Available Retrofit Technology on electric generating facilities by the end of 2003;
- Requiring facilities with 50 tons or more NOx emissions to submit compliance plans specifying approaches to complying with the facility allocations;
- Requiring facilities with NOx emissions between 25 and 50 tons to submit forecast reports projecting allocations Compliance for Years 2002 through 2005;
- Require timely registration of RTCs trades to provide RECLAIM facilities with better price information;
- Creating a Mitigation Fee Program to provide a means for power producing facilities to comply with annual allocations;
- Creating an Air Quality Investment Program to provide small RECLAIM facilities with needs for additional emission reduction credits;
- Creating a reserve of emission reductions to support the Mitigation Fee Program and Air Quality Investment Program.

The compliance plans were due by September 1, 2001. Table 3-4 summarizes emission reductions that were contained in the submitted compliance plans. Based on the data from the compliance plans, power producing facilities will be able to meet their allocations by Compliance Year 2003 based on Compliance Year 2000 production rate. They will need emission reductions from the

Mitigation Fee Program in 2001 and 2002. Non-power producing facilities subject to compliance plans are expected to meet the aggregate allocations held by these facilities through Compliance Year 2005. Expected compliance with allocations for power producing and non-power producing sectors through Compliance Year 2005 is discussed in the report presented to the Governing Board on November 9, 2001.

Table 3-4
Projected Emission Reductions from Compliance Plans

Facility Category	Compliance Year				
	2001	2002	2003	2004	2005
Emission Reductions from Power Producing Facilities (tons)	2,559	3,414	4,896	5,373	5,494
Emission Reductions from RECLAIM Facilities with annual emissions greater than 50 tons of NOx emissions (tons)	6,855	6,949	7,539	8,122	8,147
Total (tons)	9,414	10,363	12,435	13,495	13,641

The forecast reports were due by December 31, 2001. Staff evaluation of these reports is being finalized. Preliminary results are summarized in Table 3-5. The table shows RECLAIM facilities with annual NOx emissions between 25 and 50 tons will have an aggregate surplus of RTCs between 2001 and 2005.

Table 3-5
Preliminary Summary of Forecast Reports from Facilities with Annual NOx Emissions between 25 and 50 tons

Facility Category	Compliance Year				
	2001	2002	2003	2004	2005
Aggregate Allocations held (tons)	740	687	622	600	600
Projected Emissions (tons)	500	464	457	457	457
Projected Excess RTCs (tons)	240	223	165	143	143

The above data indicates that RECLAIM facilities with annual NOx emissions greater than 25 but less than 50 tons will be able to achieve NOx emission reduction goals set by the program if the schedules for installing air pollution control as specified under the individual compliance plans and forecast reports are adhered to. The rule amendments in May 2001 also require a program review to be conducted by July 2003 to determine if the RECLAIM market will be adversely impacted by allowing power producing facilities to rejoin the program. Power producing facilities will only be allowed to rejoin if the Governing Board determines that there will not be any adverse impact to the rest of the RECLAIM

program.

Rule 1612.1 – Mobile Source Credit Generation Pilot Program

Under Rule 1612.1, the AQMD staff is required to complete a program review of the credit generation and use activities of Rule 1612.1. In the resolution for adoption of Rule 1612.1, the Governing Board directed staff to include the Rule 1612.1 program review as part of the annual RECLAIM audit report. Rule 1612.1 is applicable to on-road heavy-duty Class 7 and 8 diesel-fueled trucks and yard hostlers. To date, no projects have been submitted to the AQMD for credit generation for the source categories applicable under Rule 1612.1. As a result, no NOx emission reductions have been generated or used as RTCs in the RECLAIM program.

Impact of Changing Universe

As discussed in Chapter 1, changes to the NOx RECLAIM universe during Compliance Year 2000 were: one existing facility was included into RECLAIM, one existing facility opted in, three were created from partial change of ownerships, two facilities were excluded, and 22 facilities ceased operations. Changes to the SOx RECLAIM universe included two existing facilities in the RECLAIM NOx universe opting to join the SOx RECLAIM universe, one created from partial change of ownership, and two facilities ceased operations. Staff conducted an analysis to evaluate the impact on emissions reductions due to such changes in the RECLAIM universe.

When a new facility is constructed and its NOx or SOx emissions exceeded four tons per year, it is brought into the RECLAIM universe. Such facilities are required to obtain sufficient RTCs to offset their NOx or SOx emissions. These RTCs must be obtained through the trading market and are not issued to the facility (external offsets used, if any, to obtain permits are converted to RTCs). Such facilities increase the overall demand for the fixed supply of RTCs because they increase total RECLAIM emissions without increasing the total supply of RTCs.

The shutdown of a RECLAIM facility results in a reduction in actual emissions. The shutdown facility retains its RTC holdings, which it may continue to hold as an investment, transfer to another facility under common ownership, or trade on the market. Therefore, although the facility is no longer emitting, its RTCs may be used at another facility. This has the opposite effect on the RTC market as does a new facility—in this case the overall demand for RTCs is reduced while the supply remains constant.

A facility is excluded from the Universe if it is determined that the circumstance that caused the inclusion changed or was found to be inaccurate. The RTCs that were issued to the facility for the future years are also withdrawn. This also decreases the supply of RTCs.

Some facilities that did not initially meet the inclusion criteria subsequently chose to enter the program. These facilities were issued RTC allocations based upon their operational history using the same methodology as was used for the facilities in the initial universe. Inclusions shift the accounting of emissions from the universe of non-RECLAIM sources to the universe of RECLAIM sources without actually changing the overall emissions inventory. They also change the rules and requirements that apply to the affected facilities.

In short, new facilities and shutdown facilities change the demand for RTCs without changing the supply while exclusions and inclusions make corresponding changes to both the demand and the supply, thereby mitigating their own impact on the markets.

Tables 3-4 and 3-5 summarize emissions from new facilities and facilities that were shut down, excluded from the program, or included into the program for the Compliance Year 2000.

Table 3-4
NOx Emissions Impact from the Changes in Universe (Tons)

Category	2000 NOx Emissions (tons)	2000 NOx Allocations (tons)	2003 NOx Allocations (tons)
Shutdown Facilities	51.5	165.3	120.8
Excluded Facilities[1]	NA	0.2	0.2
Included Facilities	58.1	54.0	39.0
RECLAIM Universe	20,491	17,197	12,396

1. Not available because excluded facilities were not required to submit APEP reports.

Table 3-5
SOx Emissions Impact from the Changes in Universe (Tons)

Category	2000 NOx Emissions (tons)	2000 NOx Allocations (tons)	2003 NOx Allocations (tons)
Shutdown Facilities	0.0	32.2	22.0
Included Facilities	1.1	5.4	3.7
RECLAIM Universe	6,009	6,185	4,307

CHAPTER 4
NEW SOURCE REVIEW ACTIVITY

Summary

The annual program audit assesses New Source Review (NSR) activity from RECLAIM facilities in order to ensure that RECLAIM is complying with the federal and state NSR requirements while providing flexibility to facilities in managing their operations and allowing new sources into the program. Review of NSR activity in the Calendar Year 2000 shows that two existing facilities joined the NOx program and two existing facilities joined the SOx program. These four facilities reported no NSR activities during this period. However, 41 existing RECLAIM facilities reported NSR NOx emission increases due to expansions or modifications. These data indicate that the RECLAIM program does not inhibit expansion and/or modification of sources at RECLAIM facilities.

RECLAIM is required to comply with federal NSR requirements for a 1.2-to-1 offset ratio for NOx and SOx emission increases on a programmatic basis. In the Calendar Year 2000, the RECLAIM provided an offset ratio of 175-to-1 for NOx on an aggregate basis, demonstrating federal equivalency. However, there were no NSR increases for RECLAIM SOx during the Calendar Year 2000. Compliance with the federally required offset ratio also demonstrates compliance with the state requirement of no net emissions increases from new or modified sources. In addition, RECLAIM requires application of Best Available Control Technologies for all new or modified sources with emission increases.

Background

Emissions increases from the construction of new or modified stationary sources in non-attainment areas are regulated by both federal and state New Source Review (NSR) requirements to ensure that progress towards attainment of ambient air quality standards is not hampered. RECLAIM is designed to comply with federal and state NSR requirements without hindering facilities' ability to expand or modify their operations.

Sources in extreme non-attainment areas such as the South Coast Air Basin are required by Title 42, U.S.C. §7511a(e) to mitigate their emissions increases by providing emissions offsets at a 1.2-to-1 ratio or higher. Although RECLAIM allows a 1-to-1 offset ratio for emissions increases, RECLAIM complies with the federal offset requirement by demonstrating compliance with the 1.2-to-1 offset requirement on an aggregate basis. The annual reductions of aggregate allocations generates sufficient excess emissions reductions to mitigate the difference between the RECLAIM emissions offset ratio and the higher offset ratios required under federal law.

RECLAIM requires Best Available Control Technology (BACT) analysis for new or modified sources with emissions increases of RECLAIM pollutants. This provision demonstrates compliance with both the state and federal requirements regarding control technologies. In addition to offset and BACT requirements, RECLAIM subjects those RTC trades, which are conducted to mitigate emissions

increases over the sum of the facility's starting allocation and non-tradable credits, to trading zone restrictions to ensure net ambient air quality improvement within the sensitive zone as established in Health and Safety Code §40410.5. This annual audit report assesses NSR permitting activities for the 2000 calendar year to verify that programmatic compliance of RECLAIM with state and federal NSR requirements has been maintained.

NSR Activity

Evaluation of NSR data for the Calendar Year 2000 indicated that RECLAIM facilities continue to successfully expand or modify their operations while complying with NSR requirements. Two existing facilities joined the NOx program and two existing facilities joined the SOx program. There was no NOx or SOx NSR activity (i.e., increases) at these facilities. An additional 41 existing RECLAIM facilities experienced a total of 121 tons of NOx NSR emission increases due to expansion or modification. Table 4-1 shows the NSR activity for RECLAIM facilities since the program inception in 1994.

Table 4-1
RECLAIM Facilities with NSR Activity

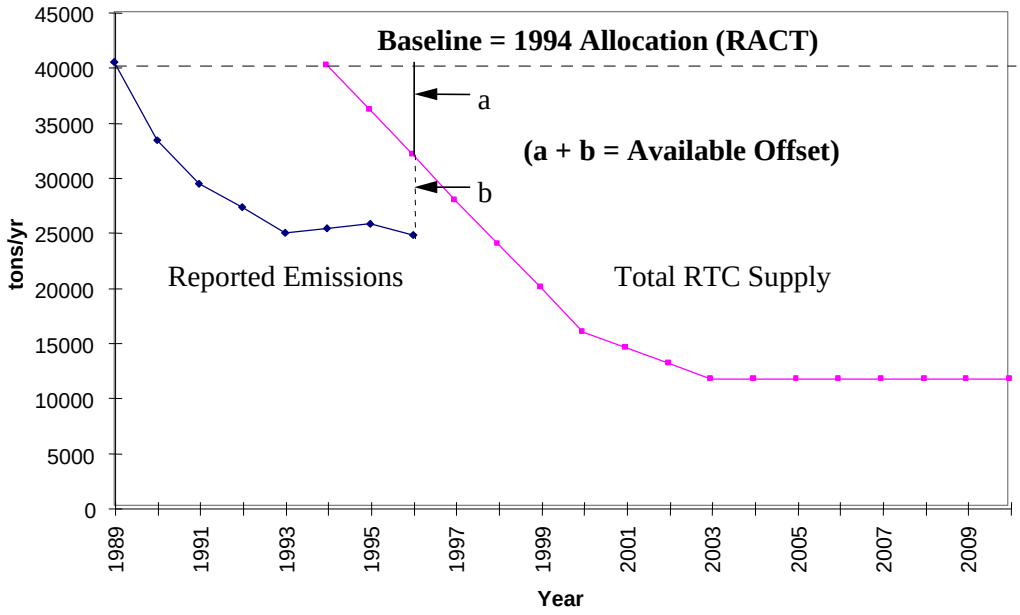
Facility Type	1994	1995	1996	1997	1998	1999	2000
Facilities New to RECLAIM	2	0	0	0	0	7	0
Existing RECLAIM Facilities with Expansions or Modifications	41	114	50	44	40	70	41

NSR Compliance Demonstration

RECLAIM is designed to comply with the federal NSR offset requirements. Meeting the NSR requirement (offset ratio of 1.2-to-1) also indicates compliance with the state requirement of no net emission increases from new or modified sources. Section 173 (c) of the federal Clean Air Act (Act) states that only emissions reductions beyond the requirements of the Act, such as Reasonably Available Control Technology (RACT), shall be considered creditable as emissions reductions for offset purposes. Since the initial allocations (total RTC supply in compliance year 1994) already met federal RACT requirements, any emissions reductions beyond the initial allocations are available for NSR offset purposes.

The methodology for determining the available offsets for NSR emissions increases from RECLAIM facilities are illustrated in Figure 4-1. In the figure, the solid line indicated by the letter "a" represents the programmatic reductions beyond the 1994 allocation level (baseline) via declining allocations. The dotted line referred to by the letter "b" accounts for the unused RTCs (allocations - reported emissions) which also qualify as available NSR offsets. Consequently, the combined total of "a" and "b" is considered the total available offset for calculating the offset ratio to demonstrate compliance with federal NSR requirements.

Figure 4-1
Available Offsets for NSR Emissions Increase



To determine the NSR offset ratio, the available offset for each year is compared to the NSR emission increase for the same year according to the following methodology:

1. Offset Available = 1994 Initial Allocation (all available RTCs) - Annual Emission Reported (RTC used); "a" + "b" as shown in Figure 4-1
2. Offset Ratio = [1 + (Offset Available/NSR Emission Increase)] to 1
   (One is added to "Offset Available/NSR Emission Increase" to reflect the fact that the NSR Emission Increase is included in reported emissions and, therefore, offset at a 1-to-1 ratio by the RTCs used to offset reported emissions)

Table 4-2 and Table 4-3 summarize the NSR emission increases and the offset ratios calculated based on the above methodology for each calendar year since the start of the RECLAIM program in 1994. As noted in the tables, the aggregate offset ratio for RECLAIM facilities is 175-to-1 for NOx for the 2000 calendar year. There were no SOx NSR emission increases during Calendar Year 2000.

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Table 4-2
Emission Reductions and Offset Ratios for NOx

	1994	1995	1996	1997	1998	1999	2000
NSR Emission Increase (tons)	66	393	174	318	275	75	121
Offsets Available (tons)	11,028	14,253	18,341	15,331	19,753	20,648	21,008
Offset Ratio	168:1	37:1	106:1	49:1	73:1	276:1	175:1

Table 4-3
Emission Reductions and Offset Ratios for SOx

	1994	1995	1996	1997	1998	1999	2000
NSR Emission Increase (tons)	37	42	63	62	8	0	0
Offsets Available (tons)	2,242	2,299	3,901	3,881	3,698	4,113	4,548
Offset Ratio	62:1	56:1	63:1	64:1	451:1	N/A	N/A

RECLAIM continues to generate sufficient excess emissions reductions to provide greater than 1.2-to-1 offset ratios as required by federal law. This compliance with the federal offset requirements is built into the design of the RECLAIM program through the annual reductions of the allocations assigned to RECLAIM facilities.

BACT and modeling are also required for any RECLAIM facility that installs new equipment or modifies existing sources if the installation or modification results in an increase in emissions RECLAIM pollutants above the facility's original (1994) allocation plus Non-Tradable Credits. Furthermore, the RTC trading zone restrictions in Rule 2005 – New Source Review for RECLAIM limit trades conducted to mitigate emission increases over the sum of the facility's starting allocation and non-tradable credits to ensure net ambient air quality improvement within the sensitive zone as required by state law.

The result of the review of the NSR activity in Calendar Year 2000 shows that RECLAIM is in compliance with both state and federal NSR requirements. AQMD will continue to monitor NSR activity under RECLAIM in order to assure continued progress toward attainment of ambient air quality standards without hampering economic growth in the Basin.

CHAPTER 5
COMPLIANCE

Summary

During Compliance Year 2000, 356 RECLAIM facilities were in the RECLAIM program. Of these 356 facilities, 315 facilities (88 percent) complied with their annual allocations, while all of the 37 SOx facilities complied with their annual allocations. NOx emissions in excess of individual facility allocations totaled 1,089 tons, of which 76% was from two power producing facilities. The sum of excess emissions from all facilities is significantly less than the programmatic exceedance of 3,294 tons presented in Chapter 3. This is because in determining programmatic compliance, aggregate emissions in Compliance Year 2000 are compared only to allocations in the same compliance year. On the other hand, individual facilities can reconcile their emissions in Compliance Year 2000 by acquiring RTCs that are valid during the compliance year. As a result, RECLAIM facility can use RTCs for Compliance Years 1999 or 2001 that are also valid during the overlapping periods in Compliance Year 2000 due to the two-cycle structure in RECLAIM. These extra RTCs are not included in the programmatic evaluation. The three main reasons for allocation exceedances were failure to purchase sufficient RTCs to reconcile their emissions, emission calculation errors and failure to follow missing data procedures.

Background

RECLAIM facilities are provided with the flexibility to choose among compliance options, either trading RTCs or reducing emissions, to meet their annual allocations. However, this flexibility must be supported by standardized emission monitoring, reporting, and recordkeeping (MRR) requirements to ensure the reported emissions are real, quantifiable, and enforceable. In order to meet clean air goals, AQMD must ensure that the annual emissions targets for the RECLAIM facilities are being met. As a result, compliance is one of the most critical elements of the RECLAIM program.

The MRR requirements were designed to provide more accurate and up-to-date emissions reports. Once facilities install and complete the certification of the required monitoring and reporting equipment, they are relieved from command-and-control rule limits and requirements. Failures to obtain quality assured data from the monitoring equipment or failures to file daily emissions reports by the time due result in emissions determined by a rule prescribed methodology known as Missing Data Procedure (MDP). Depending on the performance of the monitoring equipment (i.e. availability of quality assured data), the MDP uses a tiered approach to calculate emissions. As availability of quality assured data increases, the calculated emissions become more representative of the actual emissions.

Allocation Compliance

Requirements

Upon entry to the RECLAIM program, each RECLAIM facility was issued annual allocations for the year of entry and subsequent years. With the knowledge of emission goals, RECLAIM facilities have the flexibility to decide how to manage their emissions in order to meet their Allocations in the most cost-effective manner. At the beginning of the program, each RECLAIM facility received an annual Allocation for each compliance year from 1994. Facilities may buy RTCs to increase their Allocations or sell unneeded RTCs.

At the end of each quarter and each compliance year, each facility must hold sufficient RTCs in its Allocation account to cover its emissions for the compliance year. Facilities may buy or sell RTCs from each other at any time of the year in order to ensure that their emissions are covered. In addition, after the end of each compliance year, there is a 60-day reconciliation period during which facilities have a final opportunity to buy or sell RTCs for that compliance year. At the end of this reconciliation period, each facility is required to certify the emissions for the preceding compliance year by submitting its Annual Permit Emissions Program (APEP) Report.

Compliance Audit

AQMD has conducted annual audits on the data submitted by RECLAIM facilities to ensure the integrity and reliability of the data each compliance year since the beginning of the program in 1994. The audit process includes field inspections to check the equipment, monitoring devices, and operational records, and to check emissions calculations to verify the emissions data reported to AQMD's Central Station or submitted in APEP reports. These inspections revealed that some facilities made errors in quantifying their emissions, such as arithmetic errors, use of inappropriate emission factors, or inappropriate use of missing data substitution. Therefore, some of the reported emissions in the APEP reports had to be adjusted after completion of the audits.

Whenever an audit revealed a facility to be in exceedance of its annual allocation, the facility was provided an opportunity to review the audit and to present additional data to further refine the audit results. Emissions data are ensured to be valid and reliable through this extensive and rigorous audit process.

Compliance Status

During Compliance Year 2000, 356 RECLAIM facilities were in the RECLAIM program. Of these 356 facilities, 315 facilities (88 percent) complied with their NOx allocations for the 2000 compliance year. This number is slightly lower than the compliance rate of 91 percent for Compliance Year 1999. Again, this increase is likely due to the unexpected California power crisis. Most of the NOx RTC available in the market during that period was purchased by power plants, resulting in a scarcity of NOx RTC supply for the remaining universe.

Based on APEP reports and completed AQMD audit results, 41 facilities did not reconcile their emissions with allocations. The amount of excess emissions from these facilities totaled 1,089 tons.[1] Of the 41 facilities, three were power producing facilities (one violated during the third quarter but acquired enough RTCs to reconcile with its annual allocations). The two power producing facilities together accounted for 76 percent (822 tons) of the total amount of emissions in excess of allocations. Of all the facilities that violated the annual allocations, 13 facilities exceeded their allocations by less than five percent and 16 facilities exceeded their allocations by less than 1,000 pounds.

Based upon the APEP reports, all facilities complied with their SOx annual allocations during this compliance year. Appendix D lists facilities that were unable to reconcile NOx emissions for Compliance Year 2000 based either on emissions from APEP reports or completed audits. Staff is finalizing the audits of emissions reported by the remaining facilities. Staff is maintaining and updating the list of facilities that exceeded their allocations. The up-to-date list is available to the public at the District Headquarters by contacting RECLAIM Administration Team staff. Additional cases of allocation violation may be identified after audits are finalized. All of the allocation exceedances occurred within the NOx RECLAIM universe.

Based on the results from annual RECLAIM compliance audits conducted by AQMD staff, the reasons for Allocation exceedances are summarized as follows:

- **Failure to Reconcile**
  Twenty-three facilities did not have sufficient RTCs to cover their reported emissions yet did not purchase any RTCs to reconcile their emissions. A number of facilities contacted AQMD at the end of the compliance year expressing concerns over the scarcity and the high RTCs prices of NOx RTCs. Three of these facilities eventually sought and obtained stipulated orders of abatement from the Hearing Board. The terms of the orders included installation of air pollution control equipment in an accelerated schedule and schemes to deduct their future allocations in an amount equal to the exceedance amount.

- **Emission Calculation Errors**
  Eight facilities exceeded their allocations due to emission calculation errors. Typical errors included using the wrong emission factor, incorrectly applying load factors, or making arithmetic errors in the calculations.

- **Failure to Follow Missing Data Procedures**
  RECLAIM rules require facilities to report emissions according to MDP when valid data are not obtained from the monitoring equipment or when daily emission reports for major sources are not submitted on time. MDP uses a conservative approach to estimate emissions. Five of the 14

[1] Note that this amount is much less than the total amount of emissions (3,294 tons) in excess of the programmatic allocations as presented in Chapter 3. The data presented in Chapter 3 compare emissions in Compliance Year 2000 only to allocations issued for Compliance Year 2000. However, there are two cycles in RECLAIM. This structure creates overlapping six-month overlapping periods wherein RTCs from different compliance years can be used to offset emissions. Many facilities complied with their annual allocations by acquiring used RTCs from different cycle to reconcile with emissions. These different cycle RTCs can be from Compliance Years 1999 and 2001.

facilities involved in this category applied MDP to major sources. The remaining nine facilities applied MDP to large sources and process units. Problems at these facilities involved maintaining fuel usage records and malfunctioning of fuel meters.

Impact of Missing Data Procedure

MDP were designed to provide a method for determining emissions when an emission monitoring system fails to yield valid emissions. These occurrences may be caused by failure of the monitoring systems or the data acquisition and handling system (DAHS) which is required for major sources. In addition, major sources are required to use MDP for determining emissions whenever daily emissions reports are not submitted by the applicable deadline. Different sets of MDP are defined for different source classifications.

In addition to MDP for major sources, there are also MDP defined in the RECLAIM rules for large sources and process units. These procedures are applicable when a process monitoring device fails or when the facility operators fail to record process rates or fuel usage. However, the resulting emissions reports are reasonably representative of the actual emissions because average or maximum emissions from previous operating periods are allowed to be used.

According to the Compliance Year 2000 APEP reports, 82 NOx facilities and 13 SOx facilities used MDP in reporting their annual emissions. In terms of mass emissions, 6.5 percent of the total 2000 NOx emissions and 10.7 percent of the total 2000 SOx emissions were calculated using MDP. Table 5-1 summarizes the impact of MDP on annual emissions for the past six years from the 1995 through 2000 compliance years (MDP did not apply during the 1994 compliance year).

Table 5-1
MDP Impact on Annual Emissions

	Percent of Reported Emissions Using Substituted Data[1]					
Emittants	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**
NOx	23 % (65)	20 % (61)	18 % (83)	7.3% (77)	9.6 % (84)	6.5 % (82)
SOx	40 % (12)	16 % (11)	16 % (17)	13% (15)	20 % (13)	10.7 % (13)

1. Numbers in parenthesis represent the number of facilities that reported use of MDP in each compliance year.

As indicated in the table, the impact of MDP on reported emissions has significantly decreased. In most of the cases where MDP was used, the substituted data were representative of actual emissions, as explained below. Based on past audits, the data seem to suggest that facilities have gained experience in the operation and maintenance of the monitoring equipment to achieve much higher quality emissions data over time.

Most of the issues associated with CEMS certifications were resolved prior to the 1999 compliance year. Very few facilities have had to submit emissions reports

based on the worst case scenario under MDP that considerably overstates the actual emissions from major sources. This scenario is applicable to sources that failed to have their CEMS certified in a timely manner where required, and therefore, no valid CEMS data can be used in the substitution. In cases where prior CEMS data is available, MDP is applied in tiers depending on the duration of missing data periods and the availability of monitoring systems. As the duration of missing data periods gets shorter and the historic availability of monitoring systems gets higher, the substitute data yielded by MDP become more representative of actual emissions.

As an example, most facilities that reported emissions using MDP in 1995 did so because they did not have their CEMS certified in time to report actual emissions. Since their CEMS had no prior data, MDP called for an application of the most conservative procedure to calculate substitute data by assuming continuous operation at the maximum rated capacity of their equipment, regardless of the actual operational level during the missing data periods. As a result, the calculation yielded substitute data which may have been much higher than the actual emissions. On the other hand, 82 facilities reported NOx emissions using MDP in 2000. Although 17 more facilities reported NOx emissions using MDP in 2000 than in 1995, the impact of MDP is much smaller in 2000 (6.5 percent of 2000 emissions vs. 23 percent of 1995 emissions). Since most CEMS have been certified and had been reporting actual emissions by the beginning of the 1997 compliance year, facilities that had to calculate substitute data were able to apply less conservative methods of calculating MDP for systems with high availability and shorter duration of missing data periods. Therefore, the substitute data they calculated for their missing data periods were more representative of the actual emissions.

It is important to note that the portions of annual emissions that are attributed to MDP include actual emissions from the sources as well as the possible overestimated emissions due to MDP bias. For example, it is estimated that 6.5 percent of NOx annual emissions were reported using MDP in 2000. This does not mean that 6.5 percent of 2000 reported NOx emissions were not real. A portion of the 6.5 percent may be overestimated emissions due to MDP bias, but a significant portion (or possibly all) of it could have been actual emissions from the sources. Unfortunately, the portion that represents the actual emissions cannot be readily estimated because the extent of this effect varies widely depending on source categories and operating parameters. As an example, refineries tend to operate at maximum capacity for 24 hours/day and 7 days/week, barring major breakdowns or other unforeseeable circumstances. Therefore, missing data emissions calculated for such facilities could be more reflective of the actual emissions than those calculated for facilities that do not operate on a continuous basis. On the other hand, MDP could significantly overestimate emissions from sources that operate intermittently. The majority of emissions data quantified using MDP (51 % of NOx and 84 % of SOx) was reported by refineries.

Emissions Monitoring

Overview

The accuracy of reported RECLAIM facility emissions—and thereby the enforceability of the RECLAIM program—is assured through a three-tiered hierarchy of monitoring, record keeping, and reporting (MRR) requirements. The MRR category into which equipment at a facility falls is based on what kind of equipment it is and on the level of emissions produced or potentially produced by the equipment. RECLAIM divides all NOx sources into major sources, large sources, process units, and equipment exempt pursuant to Rule 219 - Equipment Not Requiring a Written Permit Pursuant to Regulation II. All SOx sources are divided into major sources, process units, and equipment exempt pursuant to Rule 219. Table 5-2 shows the monitoring requirements applicable to each of these categories.

Table 5-2
Monitoring Requirements for RECLAIM Sources

Source Category	Major Sources (NOx and SOx)	Large Sources (NOx only)	Process Units and Rule 219 Equipment (NOx and SOx)
Monitoring Method	Continuous Emission Monitoring System (CEMS)	Fuel Meter or Continuous Process Monitoring System (CPMS)	Fuel Meter and/or Timer
Reporting Frequency	Daily	Monthly	Quarterly

Continuous Emission Monitoring Systems (CEMS)

Requirements

CEMS represent both the most accurate and the most reliable method for continuously monitoring all of the parameters necessary to directly determine mass emissions of NOx and SOx, as well as the most costly method. These attributes make CEMS the most appropriate method for the largest equipment in the RECLAIM universe, major sources, which are relatively few in number but represent a majority of the total emissions from all equipment.

Alternatives to CEMS, namely Alternative Continuous Emission Monitoring Systems (ACEMS), are allowed under the RECLAIM regulation. These are devices that do not directly monitor NOx or SOx mass emissions, instead, they correlate multiple process parameters to arrive at mass emissions. The requirements for ACEMS are that they must be determined by the AQMD to be equivalent to CEMS in relative accuracy, reliability, reproducibility, and timeliness.

Compliance Status

By the end of Calendar Year 1999, almost all facilities that were required to have CEMS had certified or provisionally approved their CEMS. The uncertified CEMS are for sources that recently became subject to major source reporting requirements or sources that modified their CEMS. It is expected that there will be a few new major sources each year. Therefore, there will continue to be a small number of CEMS in the certification process at any time. However, there are no longer any CEMS that have been in the process for a significant length of time but are experiencing delays due to unusual circumstances.

Standing Working Group on RECLAIM CEMS Technical Issues (SWG)

CEMS technical issues, which delayed certification of many CEMS, arose over the course of RECLAIM implementation. To address these issues and further assist facilities in complying with major source monitoring requirements, a Standing Working Group (SWG) on RECLAIM CEMS Technical Issues was formed to provide a forum in which facility representatives, consultants and AQMD staff could discuss and work out technically sound and reasonable solutions. The SWG meets quarterly to discuss progress and also bring up new issues. In addition, the following three subcommittees were created:

- Pre-certification Subcommittee to address CEMS testing requirements and Post-certification Subcommittee to address Relative Accuracy Test Audit (RATA) requirements have been combined. Issues being addressed are high oxygen content and stack flow monitoring.
- Sulfur Subcommittee to address fuel sulfur issues, such as Quality Assurance and Quality Control (QA/QC) procedures for gas chromatographs used in CEMS.

A significant number of the issues have been resolved through the diligent work of SWG. Issues were resolved as necessary through either AQMD clarifications, technical guidance documents (TGDs), or rule amendments. Additional issues are addressed as they arise (through TGDs to as great an extent as possible).

Semiannual and Annual Assessments of CEMS

RECLAIM facilities have been conducting the RATA of certified CEMS—using private sector testing laboratories approved under the AQMD Laboratory Approval Program (LAP)—at their prescribed intervals, either semiannually or annually depending on the most recent relative accuracy value (the sum of the average differences and the confidence coefficient). The interval is annual only when all relative accuracies are 7.5 percent or less.

To verify the quality of CEMS, this audit report compares the CEMS data to reference method data taken simultaneously by a Laboratory Approval Program-approved source testing contractor. The relative accuracy performance requirements for the RATAs are ±20 percent for pollutant concentration, ±15 percent for stack flow rate, and ±20 percent for pollutant mass emission rate (the product of concentration and stack flow rate). The RATAs also determine whether CEMS data must be adjusted for low readings compared to the reference method (bias adjustment factor), and by how much. The RATA

presents two pieces of data, the CEMS bias (how much it differs from the reference method on the average) and the CEMS confidence coefficient (how variable that bias or average difference is).

Table 5-3 summarizes passing rates for RATAs of certified CEMS, for NOx and SOx concentration, total sulfur in fuel gas concentrations, stack flow rate (in-stack monitors and F-factor based calculation), and NOx and SOx mass emissions through the 2000 calendar year.

Table 5-3
Passing Rates Based on Relative Accuracy Test Audits of Certified CEMS in 2000[1]

Concentration						Stack Flow Rate				Mass Emissions			
NOx		SO_2		Total Sulfur		In-Stack Monitor		F-Factor Based Calc.		NOx		SOx^2	
No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass
332	100	68	100	14	100	49	100	302	100	331	100	43	100

1. All passing rates calculated from data submitted before January 1, 2001 and may exclude data from the 4th quarter of calendar year 2000.
2. Does not include SOx emissions calculated from total sulfur analyzers; the number of mass emission RATAs is significantly greater than SO_2 concentration RATAs because multiple emission sources may be associated with a single SO_2 analyzer.

Table 5-4 summarizes the 2001 calendar year passing rates for RATAs of certified CEMS, for NOx and SOx concentration, total sulfur in fuel gas concentrations, stack flow rate (in-stack monitors and F-factor based calculation), and NOx and SOx mass emissions.

Table 5-4
Passing Rates Based on Relative Accuracy Test Audits of Certified CEMS in 2001[1]

Concentration						Stack Flow Rate				Mass Emissions			
NOx		SO_2		Total Sulfur		In-Stack Monitor		F-Factor Based Calc.		NOx		SOx^2	
No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass
303	100	55	100	12	100	45	100	279	100	303	100	42	100

1. All passing rates calculated from data submitted in electronic form before January 1, 2002 and may exclude some data from the 4th quarter of calendar year 2001. About 10 percent of test results are still submitted in paper form and are not included in this table.
2. Does not include SOx emissions calculated from total sulfur analyzers; the number of mass emission RATAs is significantly greater than SO_2 concentration RATAs because multiple emission sources may be associated with a single SO_2 analyzer

As indicated in Tables 5-3 and 5-4, the passing rates for NOx/SO_2 concentration, stack flow rate, and mass emissions were relatively high. There have been significant improvements with respect to the availability of reliable calibration gas, the reliability of the reference method, and an understanding of the factors that influence the ability to obtain valid total sulfur analyzer data. For this technical issue, the SWG process worked well in evaluating the problems and recommending the appropriate solutions to address them.

Electronic Data Reporting of RATA Results

Facility operating CEMS under RECLAIM are required to submit RATA results. Traditionally, these results are presented in formal source test reports. AQMD

with help of the SWG set up an electronic reporting system, known as Electronic Data Reporting (EDR) System, to allow RATA results to be submitted on diskettes or by electronic mail using a standardized format. This system minimizes the amount of material the facility has to submit to the AQMD and also facilitates the RATA review process.

Emissions Reporting

Requirements

RECLAIM is designed to take advantage of electronic reporting technology to streamline reporting requirements for both facilities and AQMD, and to help automate tracking compliance. Under RECLAIM, facilities report their emissions electronically on a per device basis to the AQMD's Central Station computer as follows:

- Major sources must use a Remote Terminal Unit (RTU) to telecommunicate rule compliance data to the AQMD Central Station. The RTU collects data, performs calculations, generates the appropriate data files, and transmits the data to the Central Station.
- Rule compliance data for large sources and process units may be transmitted via RTU. Alternatively, RECLAIM facilities may compile the data manually for large sources and process units and transmit it to the Central Station via modem. The data may be transmitted directly from the facility or through a third party.

Compliance Status

The main concern for emission reporting is the timely submittal of daily reports from major sources. If daily reports are not submitted within the specified deadlines, RECLAIM rules may require that emissions from CEMS be ignored and the emissions be calculated using MDP. Daily emission reports are submitted by the remote terminal unit (RTU) of the CEMS to the AQMD Central Station via telephone lines. Often communication errors between the two points are not readily detectable by the facility operators. Undetected errors will cause the facility operators to believe that the daily reports were submitted when they were not received by the AQMD. In order to provide operators a means to confirm the receipt of the reports, the AQMD set up an internet based application (known as Web Access to Electronic Reporting System, WATERS) to view the electronic reports that were submitted to and received by the Central Station. This system helps to reduce the instances where MDP had to be used for late or missing daily reports in that the operators can re-submit the daily reports if there was communication errors.

Protocol Review

Even though it is only required for the first three compliance years of the RECLAIM program, staff continues to review the effectiveness of enforcement and MRR protocols. Based on such review, appropriate revisions to the protocols may be needed to achieve improved measurement and enforcement of

RECLAIM emission reductions while minimizing administrative cost to the District and RECLAIM participants.

Since the program was adopted, staff has produced rule interpretations and implementation guidance documents to clarify and resolve specific concerns about the protocols raised by RECLAIM participants. In situations where staff could not make interpretations to existing rule requirements to adequately address the issues at hand, the protocols or rules have been amended.

The Governing Board established the Monitoring, Recordkeeping, and Reporting Task Force (MRR Task Force) in April 2000 to develop recommendations on how to streamline the MRR requirements for facilities subject to certain AQMD regulations including RECLAIM. The MRR Task Force submitted its recommendations on streamlining RECLAIM monitoring requirements at the April 2000 Governing Board meeting, at which time the Governing Board directed staff to implement the recommendations.

Therefore, staff developed proposed amendments to RECLAIM's MRR requirements. The proposed amendments implemented the MRR Task Force's recommendations pertaining to RECLAIM as well as satisfied the requirement under California Health and Safety Code Section 39616(c)(5), which requires the AQMD to "endeavor to provide [RECLAIM] sources with the option to keep records by way of electronic or computer data storage systems, rather than mechanical devices such as strip chart recorders." The amendments provided an alternative to strip chart recorders that have, at a minimum, the same degree of signal path security as with existing strip chart recorder systems. These amendments were presented to and adopted by the Governing Board in March 2001.

In addition, the amendments to the RECLAIM rules in May 2001 also contained clauses that further address difficulties experienced by operators during weekends when the facility is not fully staffed. The amendments allow the operator to have an extension of the submittal deadline of 96 hours three times a year. This allows time for cases where the CEMS experienced difficulties and the technical person for the plant is not available. In order to avoid use of MDP, the facilities must have retained the CEMS data and submitted within 96 hours of the original deadline for submittal. Additional language was also added to the rules to extend the submittal deadline whenever the AQMD Central Station experienced system problem that prevented the receipt of electronic reports. In such instances, the deadline for submittal is extended to 48 hours after the AQMD Central Station return to normal operation. A communication system was set up to alert operators via e-mails of any occurrence of such problem and also at the time when the Central Station is returned to normal operation.

AQMD will continue to work closely with RECLAIM participants to resolve their issues and concerns in the most timely and appropriate manner.

CHAPTER 6
JOB IMPACTS

Summary

Job impacts resulting from the RECLAIM program during the Compliance Year 2000 continue to be negligible when compared to the overall employment in the Basin. Six RECLAIM facilities attributed 47 job gains due to RECLAIM. Thirteen facilities claimed the RECLAIM program caused a total of 510 job losses. The bulk of these job losses (445) were reported by two facilities that experienced other difficulties. Furthermore, 22 RECLAIM facilities shut down or went out of business during Compliance Year 2000. Two facilities attributed their ceasing operations in part to RECLAIM.

Background

AQMD staff has assessed RECLAIM's impacts on jobs in the regional economy each year of the program. The assessment for Compliance Year 2000 was performed by examining job data submitted by RECLAIM facilities as part of their Compliance Year 2000 Annual Permit Emissions Program (APEP) reports.

The Compliance Year 2000 APEP reports include the number of manufacturing, non-manufacturing, and sale of products jobs at each facility at the beginning of the compliance year. In addition to the numbers of jobs at the beginning of the compliance year, the APEP reports asked for the number of job increases and decreases (as opposed to the net change), which occurred during the compliance year, the extent to which any increase or decrease in the number of jobs was attributable to the RECLAIM program, and a brief explanation of the job increases or decreases attributed to RECLAIM.

Job Impacts

During the Compliance Year 2000, a total of 87 facilities reported 11,258 overall job gains while a total of 109 facilities reported 11,327 overall job losses, which resulted in 69 net job losses for RECLAIM facilities in the basin. This net job loss constituted a little more than five one-hundredths of a percent (0.05%) of the overall RECLAIM facility employment (130,448 jobs). The information gathered from Compliance Year 2000 APEP forms regarding overall employment and RECLAIM job impacts are tabulated and summarized in Table 6-1.

Table 6-1
Job Impacts at RECLAIM Facilities during the 2000 Compliance Year

Description	Manufacture	Sales of Products	Non-Manufacture	Total
Initial Jobs	69,256	1,336	59,925	130,517
Overall Job Gain	4,717	106	6,435	11,258
Overall Job Loss	7,109	278	3,940	11,327
Final Jobs	66,864	1,164	62,420	130,448
Net Job Change	-2,392	-172	2,495	-69
Percent (%) Job Change	-3%	-13%	4%	0.05%
Facilities Reporting Job Gains	72	21	62	87
Facilities Reporting Job Losses	94	29	64	109

Table 6-1 also shows that during the Compliance Year 2000, 2,392 "Manufacturing" jobs, 172 "Sales of Products" jobs were lost (net). For the same period, 2,495 "Non-Manufacturing" jobs were gained (net). Furthermore, 22 RECLAIM facilities shut down or went out of business during the Compliance Year 2000. Two of the facilities that shut down attributed their ceasing operations in part to RECLAIM.

To properly assess RECLAIM's impacts on jobs in the regional economy, AQMD staff has identified and reviewed the APEP forms from those facilities that reported job losses specifically due to the RECLAIM program. A total of 19 facilities indicated in their APEP forms that they experienced job gains and/or job losses due to RECLAIM. Six facilities attributed forty-seven job gains due to RECLAIM while thirteen facilities attributed a total of 510 jobs lost to RECLAIM. Out of the number of jobs lost, the majority of jobs (445) lost was reported by two facilities. Both facilities appeared to have experienced other difficulties in addition to RECLAIM that contributed to the job losses. According to statements from facility representatives to AQMD inspectors, one facility cited high utility costs and had newer and more efficient equipment at another facility located out of state for the decision to shut down; the other facility lost a major contract to supply their products. The detailed information for facilities that reported job gains and losses in APEP forms for Compliance Year 2000 are summarized in Appendix E.

The job gains/losses attributed to RECLAIM are summarized in Table 6-2. As indicated in Table 6-2, the RECLAIM-related job gains and losses are negligible when compared to the total number of jobs at RECLAIM facilities as listed in Table 6-1.

Table 6-2
Job Gains/Losses Attributed Solely to RECLAIM During the 2000 Compliance Year

Description	No. of Jobs	No. of Facilities
Gain Attributed to RECLAIM	47	6
Loss Attributed to RECLAIM	510	13

It should also be noted that the analysis of job impacts is confined to job gains and losses that occurred at RECLAIM facilities. It does not address jobs created or eliminated in the economy outside of RECLAIM facilities as a result of the RECLAIM program.

CHAPTER 7
AIR QUALITY AND PUBLIC HEALTH IMPACTS

Summary

The emissions reported by RECLAIM facilities from Compliance Years 1989 through 2000 are found to be in an overall downward trend. Although there is no significant difference in SOx emissions seasonally, there was a slight peak in NOx emissions during the months of July through September in 2000. As mentioned in the previous chapter, the high emission levels during this period coincide with peak energy demands during the California energy crisis. Furthermore, analysis of the geographical distribution of emissions during the first seven years of the program on a quarterly basis does not show any distinct shift in the geographical distribution of emissions.

The California Clean Air Act requires a 50 percent reduction in population exposure to ozone by December 31, 2000. Analysis of per capita exposure (the length of time each person is exposed) to ozone in 1998 and 2000 shows that the Basin achieved the December 2000 target for ozone well before the deadline. In fact, Los Angeles County, Orange County, and the South Coast Air Basin overall achieved attainment with the December 2000 target prior to 1994 and Riverside and San Bernardino counties achieved attainment in 1996.

Air toxic health risk is primarily caused by emissions of volatile organic compounds (VOCs) and metals, rather than NOx or SOx emissions. Additionally, RECLAIM facilities are subject to the same air toxic regulations as other sources in the Basin. Therefore, it can be concluded that there is no toxic impact due to the implementation of the RECLAIM program beyond what would have occurred pursuant to the rules and control measures RECLAIM subsumed.

Background

RECLAIM is designed to achieve the same or a higher level of benefits in terms of air quality and public health as would have been achieved from implementation of the control measures and command-and-control rules that RECLAIM subsumed. Therefore, as a part of each annual program audit, AQMD evaluates per capita exposure to air pollution, toxic risk reductions, emission trends, and seasonal fluctuations in emissions. AQMD also maintains quarterly emissions maps depicting the geographic distribution of RECLAIM emissions. This chapter addresses:

- Emission trends for RECLAIM facilities;
- Seasonal fluctuations in emissions;
- Geographic patterns of emissions;
- Per capita exposure to air pollution; and
- Toxics impacts.

Emission Trends for RECLAIM Sources

Concerns were expressed during program development that RECLAIM might cause sources to increase their aggregate emissions during the early years of the program due to perceived over-allocations of emissions. The analysis of emissions from RECLAIM sources indicates that this did not occur. Figures 7-1 and 7-2 show NOx and SOx emissions for RECLAIM sources for the Compliance Years 1989 through 2000.

Figure 7-1
NOx Emission Trend for RECLAIM Sources

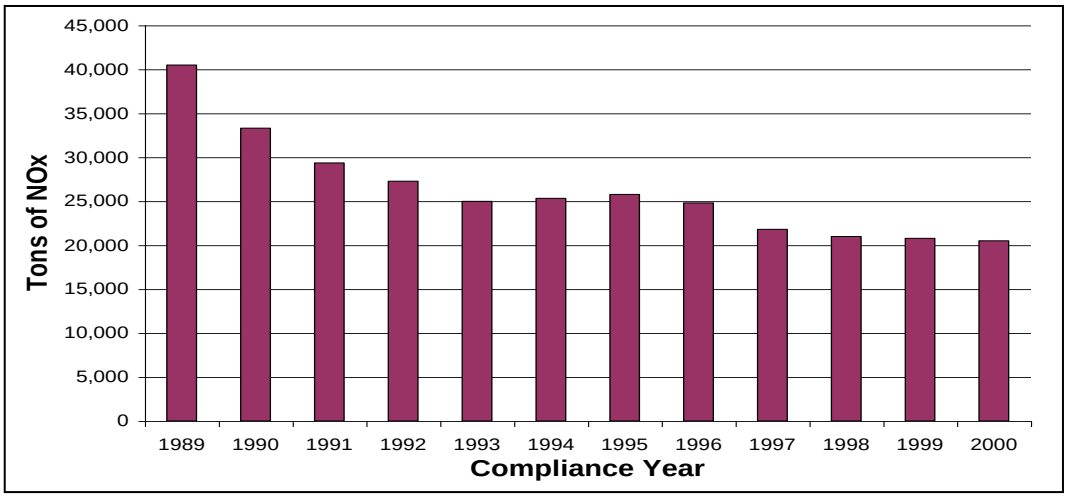
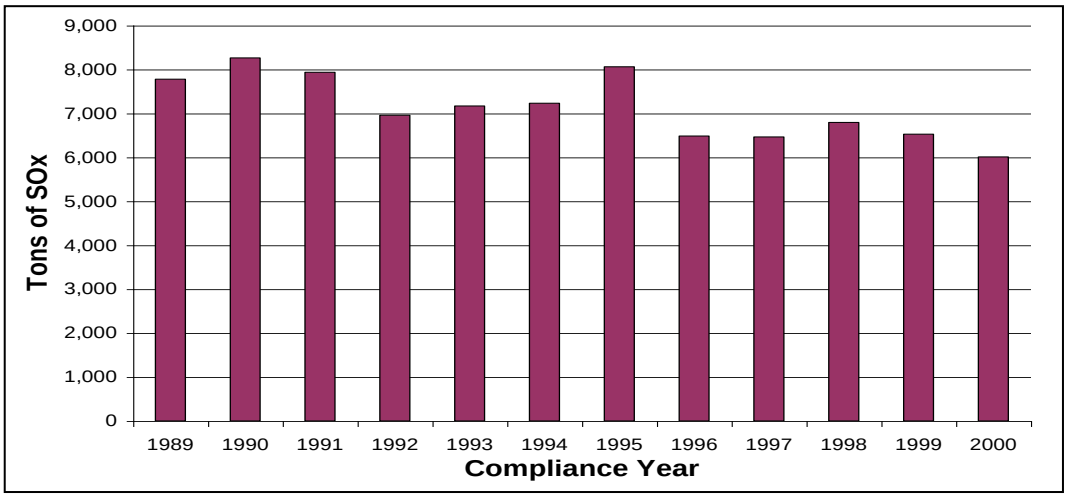


Figure 7-2
SOx Emission Trend for RECLAIM Sources



As indicated in Figures 7-1 and 7-2, there is an overall downward trend in both NOx and SOx emissions. When comparing SOx emissions for Compliance Years 1997 through 2000, there was a slight increase in SOx emissions in Compliance Year 1998, with Compliance Year 1999 SOx emissions comparable to Compliance Year 1997. The decrease of SOx emissions continued from Compliance Years 1999 to 2000. Overall, the figures clearly show that RECLAIM facilities did not increase their aggregate emissions during the earlier years of the program, dispelling the concerns about higher emissions in the early years.

Seasonal Fluctuation in Emissions for RECLAIM Sources

During program development, another concern was that RECLAIM might cause facilities to shift emissions from the winter season into the summer ozone season, thus exacerbating air quality. To address this concern, AQMD staff analyzed quarterly emissions during calendar year 2000 to assess if there had been such a shift in emissions. Where available, audited quarterly emissions data was used for this analysis. Where audited emissions were unavailable, emissions as reported by the facility (either under the Annual Permitted Emissions Program or the Quarterly Certification of Emissions Report) were used.

Figure 7-3
Calendar Year 2000 NOx Quarterly Emissions

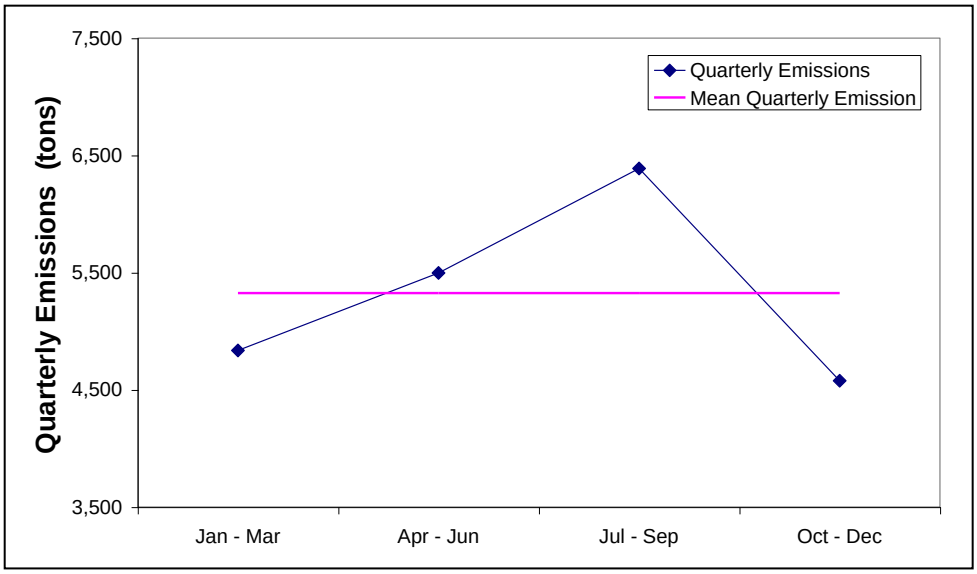
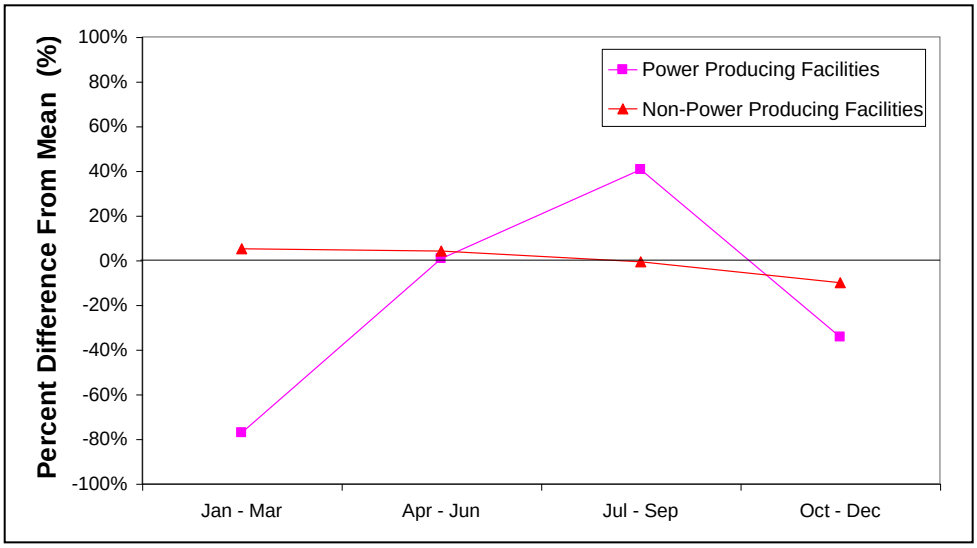


Figure 7-3 shows that there was a peak in emissions during the third quarter of Calendar Year 2000. Figure 7-3 also shows the mean quarterly emission, which is the average of the four quarterly emissions. Quarterly emissions vary about the mean quarterly emission with maximum percent differences in the third quarter (July through September) of 17 percent above the mean and 16 percent below the mean in the fourth quarter (October through December). The peak in quarterly emissions is also reflective of the increased production at power

producing facilities in response to the California power crisis. Figure 7-4[1] illustrates the impact of emissions from power producing facilities on fluctuation in quarterly emissions. When isolated from the rest of the facilities, emissions from power producing facilities during the summer months are markedly higher than those in winter months. On the other hand, there is no discernable difference in quarterly emissions from non-power producing facilities. Quarterly SOx emissions are not presented graphically because there was essentially no seasonal fluctuation observed for SOx, as has been the case in previous calendar years.

Figure 7-4
Calendar Year 2000 NOx Quarterly Emissions from Power Producing Facilities and Non-power Producing Facilities



Geographic Distribution of Emissions

As part of this program audit, AQMD staff examined the quarterly emissions maps, which were developed pursuant to Rule 2015(b)(2), for any notable changes in the geographic distribution of emissions. RECLAIM facilities have the flexibility to increase emissions as much as they need to, as long as they can provide RTCs to offset the emissions exceeding their Allocations; however, there are New Source Review implications if they increase above their Compliance Year 1994 Allocation including non-tradable credits. Because of this flexibility and the ability of RECLAIM facilities to purchase RTCs from other facilities, some people were concerned that RECLAIM could alter the geographic distribution of emissions in the Basin and adversely affect air quality in certain areas.

[1] This figure shows the percent difference from the mean quarterly emission for each of the two corresponding groups of facilities. The individual mean quarterly emission is derived by averaging the four quarterly emissions from each of the two groups of facilities.

Quarterly emissions for both NOx and SOx were mapped for Compliance Year 2000 (all four quarters of 2000 and the first two quarters of 2001). These maps are included in Appendices F and G. The quarterly emission maps do not show any distinct shift in the geographic pattern of emissions. AQMD will continue to review additional quarterly maps and assess the geographic patterns of emissions as the information becomes available.

Per Capita Exposure to Pollution

The predicted effects of RECLAIM on air quality and public health were thoroughly analyzed through modeling during program development. The results were compared to projected impacts from the continuation of the traditional command-and-control regulations and implementation of control measures in the 1991 AQMP. One of the criteria examined in the analysis was per capita population exposure.

Per capita population exposure reflects the length of time each person is exposed to unhealthful air quality. The modeling performed in the analysis projected that the reductions in per capita exposure under RECLAIM in Calendar Year 1994 would be nearly identical to the reductions projected for implementation of the control measures in the 1991 AQMP, and the reductions resulting from RECLAIM would be greater in Calendar Years 1997 and 2000.

Table 7-1 compares the projected Calendar Years 1994 and 1997 per capita exposures to ozone based upon continuation of the command-and-control regulatory approach and the implementation of the control measures in the 1991 AQMP with the actual per capita exposure in the Basin for Calendar Years 1994 and 1997. Table 7-2 summarizes Calendar Years 1998 through 2001 ozone data in terms of the number of days that exceeded the state and federal ambient ozone standards and the Basin's maximum concentration during each of the four calendar years.

Table 7-1
Comparison of Per Capita Exposures Over State Standard for Ozone
1991 AQMP Projection Vs Actual Exposures

Calendar Year	Projected Per Capita Exposure based on 1991 AQMP (hrs)	Actual Per Capita Exposure (hrs)
1994	38.6	37.6
1997	32.0	5.9

Table 7-2
Summary of Ozone Data

	Calendar Year			
	1998	1999	2000	2001
Days exceeding state standard	113	120	125	121
Days exceeding federal standard	62	42	40	36
Basin Maximum (pphm)	24	17	18.5	19.1

Table 7-3 compares the actual per capita exposures to the exposure milestones as specified in the California Clean Air Act (CCAA) for Calendar Years 1997 and 2000. The CCAA establishes specific milestones for achieving reductions in overall population exposure to severe non-attainment pollutants in the Basin. These milestones include a 25 percent reduction by December 31, 1994, a 40 percent reduction by December 31, 1997, and a 50 percent reduction by December 31, 2000, relative to a Calendar Years' 1986-88 baseline. The data presented in Table 7-3 for actual per capita exposure in both Calendar Years 1997 and 2000 for the four counties, and the Basin overall, have shown substantial progress toward continuous attainment of the state standard. As indicated in Table 7-3, actual reductions in per capita exposure in Calendar Year 1997 have gone well beyond the 50 percent reduction target scheduled for Calendar Year 2000.

Table 7-3
Per Capita Exposure to Ozone above the State Standard of 0.09 ppm (hours)

Calendar Year	Basin	Los Angeles	Orange	Riverside	San Bernardino
1986-88 baseline[1]	80.5	75.8	27.2	94.1	192.6
1994 actual	37.6	26.5	9	71.1	124.9
1995 actual	27.7	20	5.7	48.8	91.9
1996 actual	20.3	13.2	4	42.8	70
1997 actual	5.9	3	0.6	13.9	24.5
1998 actual	12.1	7.9	3.1	25.2	40.2
2000 actual	3.8	2.6	0.7	8.5	11.4
2001 actual	1.73	0.88	0.15	6	5.68
1997 target[2]	48.3	45.5	16.3	56.5	115.6
2000 target[3]	40.2	37.9	13.6	47	96.3

1. Average over three years, 1986 through 1988
2. 60% of the 1986-88 baseline exposures
3. 50% of the 1986-88 baseline exposures

The three tables (Tables 7-1, 7-2, and 7-3) in combination show that actual per capita exposure during all the years mentioned continues to be well under the projected exposure in the 1991 AQMP. It should also be noted that air quality in the Basin is a complex function of meteorological conditions and an array of different emission sources, including mobile, area, RECLAIM stationary sources, and non-RECLAIM stationary sources. Therefore, the reduction of per capita

exposure beyond the projected level is not necessarily attributable to implementation of the RECLAIM program. It is possible that actual per capita exposure might have been as low, if not lower, with continuation of command-and-control regulations.

Toxic Impacts

Based on a comprehensive toxic impact analysis performed during program development, it was concluded that RECLAIM would not result in any significant impacts on air toxic emissions. Nevertheless, to ensure that the implementation of RECLAIM does not result in adverse toxic impacts, each annual program audit is required to assess any increase in the public health exposure to toxics as a result of RECLAIM.

RECLAIM sources are subject to the same air toxic regulations (i.e. AQMD Regulation XIV, State AB 2588, Federal NESHAP, etc.) as other sources in the Basin. These regulations further ensure that RECLAIM does not result in adverse air toxic health impacts. In addition, air toxic health risk is primarily caused by emissions of volatile organic compounds (VOC) and certain metals, rather than NOx or SOx emissions. The majority of VOC sources at RECLAIM facilities are subject to source-specific command-and-control rules, in addition to the applicable toxics requirements described above. Similarly, sources of toxic metals emissions are also subject to the above-identified regulations pertaining to toxic emissions. As a result, implementation of NOx and SOx RECLAIM is not expected to significantly impact air toxic emissions. That is, the substitution of NOx and SOx RECLAIM for the command-and-control rules and the measures RECLAIM subsumes are not relevant to toxic emissions; the same toxics requirements and VOC rules and control measures apply in either case. However, AQMD will continue to monitor and assess toxic risk reduction as part of future annual audits.

APPENDIX A
RECLAIM UNIVERSE OF SOURCES

The RECLAIM universe of sources as of the end of the 2000 compliance year is provided below.

Facility ID	Cycle	Facility Name	Market
16395	2	AAA GLASS CORP	NOx
73635	1	ABLESTIK LABORATORIES	NOx
104012	1	AERA ENERGY LLC	NOx
104013	2	AERA ENERGY LLC	NOx
104015	2	AERA ENERGY LLC	NOx
104017	1	AERA ENERGY LLC	NOx
23752	2	AEROCRAFT HEAT TREATING CO INC	NOx
115394	1	AES ALAMITOS, LLC	NOx
115389	2	AES HUNTINGTON BEACH, LLC	NOx/SOx
42676	2	AES PLACERITA INC	NOx
115536	1	AES REDONDO BEACH, LLC	NOx
3417	1	AIR PROD & CHEM INC	NOx
101656	2	AIR PRODUCTS HYCAL CO L.P.,AIR PROD&CHEM	NOx
5998	1	ALL AMERICAN ASPHALT	NOx
114264	1	ALL AMERICAN ASPHALT	NOx
3704	2	ALL AMERICAN ASPHALT, UNIT NO.01	NOx
21290	1	ALPHA BETA CO./RALPH GROCERY CO.	NOx
17840	2	ALPHA THERAPEUTIC CORP	NOx
800196	2	AMERICAN AIRLINES INC	NOx
45527	2	AMERICAN RACING EQUIPMENT INC	NOx
60540	1	AMERICAN RACING EQUIPMENT INC, PLNT #2	NOx
10141	2	ANGELICA TEXTILE SERVICES	NOx
21598	2	ANGELICA TEXTILE SERVICES	NOx
74424	2	ANGELICA TEXTILE SERVICES	NOx
16642	1	ANHEUSER-BUSCH INC., (LA BREWERY)	NOx/SOx
117140	2	AOC, LLC	NOx
47232	1	ARCO CQC KILN	NOx/SOx
124808	2	ARCO POLYPROPYLENE LLC	NOx/SOx
800012	2	ARCO PRODUCTS CO	NOx/SOx
11640	1	ARLON ADHESIVE SYSTEM/DECORATIVE FILMS	NOx
12155	1	ARMSTRONG WORLD INDUSTRIES INC	NOx
100130	2	ARTESIA SAWDUST PRODUCTS, INC.	NOx
121190	2	ASTORIA METAL CORPORATION - LONG BEACH	NOx
16737	2	ATKINSON BRICK CO	NOx
10094	2	ATLAS CARPET MILLS INC	NOx
117290	2	B BRAUN MEDICAL, INC	NOx
800016	2	BAKER COMMODITIES INC	NOx

Facility ID	Cycle	Facility Name	Market
117785	1	BALL METAL BEVERAGE CONTAINER CORP.	NOx
800205	2	BANK OF AMERICA NT & SA, BREA CENTER	NOx
40034	1	BENTLEY MILLS INC	NOx
119907	1	BERRY PETROLEUM COMPANY	NOx
109879	1	BESTFOODS BAKING CO	NOx
113240	2	BLACK HILLS ONTARIO LLC	NOx
19390	1	BLUE DIAMOND MATERIALS, SUN VALLEY PLANT	NOx
115241	1	BOEING SATELLITE SYSTEMS INC	NOx
800067	1	BOEING SATELLITE SYSTEMS INC	NOx
800343	2	BOEING SATELLITE SYSTEMS, INC	NOx
10340	1	BREA CANYON OIL CO INC	NOx
6714	2	BREA CITY	NOx
98159	2	BREITBURN ENERGY CORP	NOx
25638	2	BURBANK CITY, PUB SERV DEPT	NOx
800344	1	CALIFORNIA AIR NATIONAL GUARD, MARCH AFB	NOx
22607	2	CALIFORNIA DAIRIES, INC	NOx
800181	2	CALIFORNIA PORTLAND CEMENT CO	NOx/SOx
46268	1	CALIFORNIA STEEL INDUSTRIES INC	NOx
107653	2	CALMAT CO	NOx
107654	2	CALMAT CO	NOx
107655	2	CALMAT CO	NOx
107656	2	CALMAT CO	NOx
119104	1	CALMAT CO	NOx/SOx
8791	2	CAL-PACIFIC DYEING & FINISHING CORP	NOx
9141	1	CANNERS STEAM CO INC	NOx/SOx
94930	1	CARGILL INC	NOx
22911	2	CARLTON FORGE WORKS	NOx
118406	1	CARSON COGENERATION COMPANY	NOx
25016	2	CASTAIC CLAY MFG CO., INC	NOx
800373	1	CENCO REFINING COMPANY	NOx/SOx
40764	1	CENTURY LAMINATORS INC	NOx
75479	1	CES ENERGY ALBERHILL LTD	NOx
800030	2	CHEVRON PRODUCTS CO.	NOx/SOx
95212	1	CHROMA SYSTEMS PARTNERS	NOx
56940	1	CITY OF ANAHEIM/COMB TURBINE GEN STATION	NOx
16978	2	CLOUGHERTY PACKING CO, FARMER JOHN MEATS	NOx
62281	2	COASTCAST CORP	NOx
110982	1	COMMONWEALTH ALUMINUM CONCAST	NOx
800210	2	CONEXANT SYSTEMS INC	NOx
122822	2	CONSOLIDATED FILM INDUSTRIES, LLC	NOx
38440	2	COOPER & BRAIN - BREA	NOx
68042	2	CORONA ENERGY PARTNERS, LTD	NOx
117572	1	CRIMSON RESOURCE MANAGEMENT CORP	NOx
117581	1	CRIMSON RESOURCE MANAGEMENT CORP	NOx
65384	1	CRITERION CATALYST CO L.P.	NOx
18648	1	CROWN CITY PLATING CO.	NOx
3950	1	CROWN CORK & SEAL CO INC	NOx

Facility ID	Cycle	Facility Name	Market
15982	2	CUSTOM ALLOY SALES INC	NOx
50098	1	D&D DISPOSAL INC,WEST COAST RENDERING CO	NOx
63180	1	DARLING INTERNATIONAL INC	NOx
3721	2	DART CONTAINER CORP OF CALIFORNIA	NOx
7411	2	DAVIS WIRE CORP	NOx
47771	1	DELEO CLAY TILE CO INC	NOx
800037	2	DEMENNO/KERDOON	NOx
800189	1	DISNEYLAND RESORT	NOx
38872	1	DOANE PRODUCTS CO	NOx
800038	2	DOUGLAS PRODUCTS DIVISION	NOx
121746	2	DUKESOLUTIONS HUNTINGTON BEACH, LLC	NOx
104571	2	E & J TEXTILE GROUP, INC	NOx
800264	2	EDGINGTON OIL COMPANY	NOx/SOx
115663	1	EL SEGUNDO POWER, LLC	NOx
10873	1	ELSINORE READY-MIX CO INC	NOx
117247	1	EQUILON ENTERPRISES, LLC	NOx/SOx
800370	1	EQUILON ENTERPRISES, LLC	NOx/SOx
800372	2	EQUILON ENTERPRISES, LLC	NOx/SOx
122295	2	FALCON FOAM, A DIV OF ATLAS ROOFING CORP	NOx
22047	1	FANSTEEL/CALIFORNIA DROP FORGE	NOx
61210	1	FILTROL CORP	NOx
11716	1	FONTANA PAPER MILLS INC	NOx
2418	2	FRUIT GROWERS SUPPLY CO	NOx
5814	1	GAINEY CERAMICS INC	NOx
11016	2	GEORGIA-PACIFIC CORP	NOx
44551	1	GNB TECHNOLOGIES INC	NOx/SOx
800184	2	GOLDEN WEST REF CO	NOx/SOx
10055	2	G-P GYPSUM CORP	NOx
67945	2	GREAT WESTERN MALTING CO., INC.	NOx/SOx
40196	2	GUARDIAN INDUSTRIES CORP.	NOx/SOx
861	1	H J HEINZ, L P	NOx
109208	2	HANYOUNG AMERICA, INC.	NOx
106325	2	HARBOR COGENERATION CO	NOx
45953	1	HAYES LEMMERZ INTERNATIONAL CAL INC	NOx
15164	1	HIGGINS BRICK CO	NOx
113160	2	HILTON COSTA MESA	NOx
800066	1	HITCO CARBON COMPOSITES INC	NOx
2912	2	HOLLIDAY ROCK CO INC	NOx
800003	2	HONEYWELL INTERNATIONAL INC	NOx
800070	1	HUNTWAY REFINING CO	NOx
123087	2	INDALEX WEST INC	NOx
800240	2	INLAND PAPERBOARD AND PACKAGING INC	NOx
5830	1	INTERMETRO INDUSTRIES CORP	NOx
23589	2	INTERNATIONAL EXTRUSION CORP	NOx
106810	2	INTERSTATE BRANDS CORP	NOx
119134	2	ITW CALIFORNIA INDS PRODS, LLC/STAMPINGS	NOx
22373	1	JEFFERSON SMURFIT CORPORATION (U.S.)	NOx

Facility ID	Cycle	Facility Name	Market
16338	1	KAISER ALUMINUM & CHEM CORP	NOx
18865	2	KAL KAN FOODS INC	NOx
11142	2	KEYSOR-CENTURY CORP	NOx
21887	2	KIMBERLY-CLARK WORLDWIDE INC.-FLTN MILL	NOx/SOx
1744	2	KIRKHILL RUBBER CO	NOx
90307	1	L A DYE & PRINT WORKS INC	NOx
800335	2	LA CITY, DEPT OF AIRPORT	NOx
800170	1	LA CITY, DWP HARBOR GENERATING STATION	NOx
800074	1	LA CITY, DWP HAYNES GENERATING STATION	NOx
800075	1	LA CITY, DWP SCATTERGOOD GENERATING STA	NOx
800193	2	LA CITY, DWP VALLEY GENERATING STATION	NOx
61962	1	LA CITY, HARBOR DEPT	NOx
550	1	LA CO., INTERNAL SERVICE DEPT	NOx
40030	1	LA DYE & PRINT WORKS INC	NOx
51949	1	LA DYE & PRINT WORKS INC	NOx
7931	1	LA PAPER BOX & BOARD MILLS	NOx
115277	1	LAFAYETTE TEXTILE IND LLC	NOx
12912	2	LIBBEY GLASS INC	NOx/SOx
57892	2	LIFE-LIKE PRODUCTS INC.	NOx
83102	2	LIGHT METALS INC	NOx
31046	2	LISTON BRICK COMPANY OF CORONA	NOx
115314	2	LONG BEACH GENERATION LLC	NOx
14229	2	LORBER INDUSTRIES OF CALIFORNIA	NOx
17623	2	LOS ANGELES ATHLETIC CLUB	NOx
58622	2	LOS ANGELES COLD STORAGE CO	NOx
125015	2	LOS ANGELES TIMES COMMUNICATIONS LLC	NOx
13976	1	LUCKY STORES INC, #952	NOx
800080	2	LUNDAY-THAGARD OIL CO	NOx
14049	2	MARUCHAN INC	NOx
3029	2	MATCHMASTER DYEING & FINISHING INC	NOx
2825	1	MCP FOODS INC	NOx
101843	1	MCWHORTER TECHNOLOGIES INC	NOx
100844	2	MEDALLION CALIFORNIA PROPERTIES CO	NOx
115563	1	METAL COATERS OF CALIFORNIA	NOx
94872	2	METAL CONTAINER CORP	NOx
14855	1	MILLER BREWING CO	NOx
800088	2	MINNESOTA MINING & MFG CO	NOx
12372	1	MISSION CLAY PRODUCTS	NOx
115211	2	MISSION DYE HOUSE LLC	NOx
800089	1	MOBIL OIL CORP	NOx/SOx
800094	1	MOBIL OIL CORP, NEWHALL STA	NOx
17344	1	MOBIL OIL CORP, WEST COAST PIPELINES DIV	NOx
25058	2	MOBIL OIL CORP, WEST COAST PIPELINES DIV	NOx
121737	1	MOUNTAINVIEW POWER COMPANY LLC	NOx
16274	2	NABISCO BRANDS INC	NOx
11887	2	NASA JET PROPULSION LAB	NOx
12428	2	NATIONAL GYPSUM CO	NOx

Facility ID	Cycle	Facility Name	Market
40483	2	NELCO PROD. INC	NOx
16531	2	NEVILLE CHEM CO	NOx
84223	1	NEWELLRUBBERMAID INC	NOx
800167	2	NORTHROP GRUMMAN CORP	NOx
18294	1	NORTHROP GRUMMAN CORP, AIRCRAFT DIV	NOx
62897	2	NORTHROP GRUMMAN CORP, MASD	NOx
112853	2	NP COGEN INC	NOx
45471	2	OGLEBAY NORTON INDUSTRIAL SANDS INC	NOx
89248	2	OLD COUNTRY MILLWORK INC	NOx
47781	1	OLS ENERGY-CHINO C/O GPU INT'L., INC.	NOx
35302	2	OWENS CORNING	NOx/SOx
7427	1	OWENS-BROCKWAY GLASS CONTAINER INC	NOx/SOx
17953	1	PACIFIC CLAY PRODUCTS INC	NOx
45746	2	PACIFIC COAST BLDG PRODS INC,PABCO PAPER	NOx/SOx
59618	1	PACIFIC CONTINENTAL TEXTILES, INC.	NOx
60531	2	PACIFIC FABRIC FINISHING	NOx
2946	1	PACIFIC FORGE INC	NOx
800208	2	PAPER PAK PROD. INC	NOx
89429	2	PARADISE TEXTILE CO	NOx
800183	1	PARAMOUNT PETR CORP	NOx/SOx
800168	1	PASADENA CITY, DWP	NOx
119920	1	PECHINEY CAST PLATE INC	NOx
20899	2	PERCEPTION LAMINATES	NOx
9729	1	PGP INDUSTRIES INC	NOx
115449	1	PLAYA PHASE I COMMERCIAL LAND, LLC	NOx
117151	2	POMONA PAPER COMPANY	NOx
117485	2	PORT OF LONG BEACH	NOx
7416	1	PRAXAIR INC	NOx
42630	1	PRAXAIR INC	NOx
75411	1	PRECISION SPECIALTY METALS INC (PSM)	NOx
136	2	PRESS FORGE CO	NOx
22808	2	PRICE PFISTER INC	NOx
102969	2	QUEEN CARPET CORP, TUFTEX CARPET DIV	NOx
8547	1	QUEMETCO INC	NOx/SOx
19167	2	R J NOBLE COMPANY	NOx
3585	2	R. R. DONNELLEY & SONS CO, LA MFG DIV	NOx
20604	2	RALPHS GROCERY CO	NOx
114997	1	RAYTHEON SYSTEMS COMPANY	NOx
115002	1	RAYTHEON SYSTEMS COMPANY	NOx
115041	1	RAYTHEON SYSTEMS COMPANY	NOx
115172	2	RAYTHEON SYSTEMS COMPANY	NOx
800371	2	RAYTHEON SYSTEMS COMPANY - FULLERTON OPS	NOx
346	1	RECOT, INC.	NOx
20543	1	REDCO II	NOx
15544	2	REICHHOLD INC	NOx
115315	1	RELIANT ENERGY ETIWANDA, LLC.	NOx
52517	1	REXAM PLC, REXAM BEVERAGE CAN COMPANY	NOx

Facility ID	Cycle	Facility Name	Market
114801	1	RHODIA, INC.	NOx/SOx
61722	2	RICOH ELECTRONICS INC	NOx
108113	1	RIDGEWOOD/CALIFORNIA POWER PARTNERS, L.P.	NOx
114138	2	RIPON COGENERATION, INC.	NOx
115666	2	RIVERSIDE CANAL POWER COMPANY	NOx
800182	1	RIVERSIDE CEMENT CO	NOx/SOx
98812	2	RMS FOUNDATION INC	NOx
800113	2	ROHR,INC	NOx
18455	2	ROYALTY CARPET MILLS INC	NOx
93073	1	SABA PETROLEUM INC	NOx
108701	1	SAINT-GOBAIN CONTAINERS LLC	NOx/SOx
106797	1	SAINT-GOBAIN CONTAINERS LLC	NOx/SOx
4242	2	SAN DIEGO GAS & ELECTRIC	NOx
15504	2	SCHLOSSER FORGE CO	NOx
20203	2	SCOPE PRODUCTS INC, DEXT CO	NOx
9053	1	SEMPRA ENERGY SOLUTIONS/CENTRAL PLANTS	NOx
9217	1	SEMPRA ENERGY SOLUTIONS/CENTRAL PLANTS	NOx
11034	2	SEMPRA ENERGY SOLUTIONS/CENTRAL PLANTS	NOx
16575	1	SEMPRA ENERGY SOLUTIONS/CENTRAL PLANTS	NOx
37603	1	SGL TECHNIC INC, POLYCARBON DIVISION	NOx
117227	2	SHCI SM BCH HOTEL LLC, LOWES SM BCH HOTE	NOx
16639	1	SHULTZ STEEL CO	NOx
54402	2	SIERRA ALUMINUM COMPANY	NOx
85943	2	SIERRA ALUMINUM COMPANY	NOx
101977	1	SIGNAL HILL PETROLEUM INC	NOx
82727	2	SMURFIT NEWSPRINT CORPORATION	NOx
1026	1	SO CAL EDISON CO	NOx
4477	1	SO CAL EDISON CO	NOx
14052	1	SO CAL EDISON CO	NOx
15872	2	SO CAL EDISON CO	NOx
18763	1	SO CAL EDISON CO	NOx
800123	2	SO CAL EDISON CO	NOx
800124	2	SO CAL EDISON CO	NOx
800125	1	SO CAL EDISON CO	NOx
800126	2	SO CAL EDISON CO	NOx
800224	1	SO CAL EDISON CO	NOx
5973	1	SO CAL GAS CO	NOx
11119	1	SO CAL GAS CO	NOx
14926	1	SO CAL GAS CO	NOx
800127	1	SO CAL GAS CO	NOx
800128	1	SO CAL GAS CO	NOx
8582	1	SO CAL GAS CO/PLAYA DEL REY STORAGE FACI	NOx
9114	1	SOMITEX PRINTS OF CAL INC	NOx
14871	2	SONOCO PRODUCTS CO	NOx
103618	1	SPECIALTY BRANDS INC	NOx
800338	2	SPECIALTY PAPER MILLS INC	NOx
1634	2	STEELCASE INC, WESTERN DIV	NOx

Facility ID	Cycle	Facility Name	Market
126498	2	STEELSCAPE, INC	NOx
83753	1	STOCKER RESOURCES INC	NOx
112164	2	STOCKER RESOURCES, INC	NOx
34055	2	SULLY MILLER CONTRACTING CO	NOx
105277	2	SULLY MILLER CONTRACTING CO	NOx
23196	2	SUNKIST GROWERS, INC	NOx
55711	1	SUNLAW COGENERATION PARTNERS I	NOx
55714	1	SUNLAW COGENERATION PARTNERS I	NOx
2083	1	SUPERIOR INDUSTRIES INTERNATIONAL INC	NOx
800310	1	TA INDUSTRIES INC	NOx
3968	1	TABC, INC	NOx
18931	2	TAMCO	NOx
56427	1	TANDEM INDUSTRIES	NOx
14944	1	TECHALLOY CO., INC.	NOx/SOx
96587	1	TEXOLLINI INC	NOx
4451	1	TEXTRON AEROSPACE FASTENERS	NOx
14736	2	THE BOEING COMPANY	NOx
800110	2	THE BOEING COMPANY	NOx
800259	1	THE BOEING COMPANY	NOx
11435	2	THE PQ CORP	NOx/SOx
97081	1	THE TERMO COMPANY	NOx
7053	1	THERMO ELECTRON CORP, CAL-DORAN DIVISION	NOx
800330	1	THUMS LONG BEACH	NOx
800325	2	TIDELANDS OIL PRODUCTION CO	NOx
68118	2	TIDELANDS OIL PRODUCTION COMPANY ETAL	NOx
68122	2	TIDELANDS OIL PRODUCTION COMPANY ETAL	NOx
43436	1	TIMCO	NOx
55758	1	TISSURAMA INDUSTRIES INC	NOx
108616	1	TORCH OPERATING CO	NOx
109192	2	TORCH OPERATING COMPANY	NOx
109198	2	TORCH OPERATING COMPANY	NOx
109207	2	TORCH OPERATING COMPANY	NOx
800362	1	TOSCO REFINING COMPANY	NOx/SOx
800363	2	TOSCO REFINING COMPANY	NOx/SOx
800192	2	TRANS WORLD AIRLINES INC	NOx
53729	1	TREND OFFSET PRINTING SERVICES, INC	NOx
11674	1	TRI-ALLOY INC	NOx
800218	1	TRW INC	NOx
800219	2	TRW INC	NOx
83738	1	U.S. DYEING & FINISHING INC.	NOx
800026	1	ULTRAMAR INC	NOx/SOx
118618	2	UNI-PRESIDENT (U.S.A.) INC	NOx
9755	2	UNITED AIRLINES INC	NOx
60342	2	UNITED STATES CAN CO	NOx
800258	1	UNOCAL CORP., HARTLEY CENTER	NOx
73022	2	US AIRWAYS INC	NOx
800149	2	US BORAX INC	NOx

Facility ID	Cycle	Facility Name	Market
800150	1	US GOVT, AF DEPT, MARCH AFB	NOx
18695	1	US GYPSUM CO	NOx
12185	2	US GYPSUM CO	NOx/SOx
1073	1	US TILE CO	NOx
111415	2	VAN CAN COMPANY	NOx
61589	2	VANGUARD ENERGY SYS	NOx
14502	2	VERNON CITY, LIGHT & POWER DEPT	NOx
115130	1	VERTIS, INC	NOx
101369	2	VINTAGE PETROLEUM INC	NOx
122012	2	VINTAGE PETROLEUM, INC DEL VALLE OIL FLD	NOx
14495	2	VISTA METALS CORPORATION	NOx
126501	2	VOUGHT AIRCRAFT INDUSTRIES	NOx
42775	1	WEST NEWPORT OIL CO	NOx/SOx
17956	1	WESTERN METAL DECORATING CO	NOx
1962	2	WEYERHAEUSER COMPANY	NOx
51620	1	WHEELABRATOR NORWALK ENERGY CO INC	NOx

APPENDIX B
FACILITY INCLUSIONS

As discussed in Chapter 1, five facilities were added to the NOx market of the RECLAIM universe for the 2000 compliance year. Of these five, one existing facility was included, three new facilities were created by partial change of ownership of existing RECLAIM facilities, and one existing facility opted to join RECLAIM. Two existing RECLAIM facilities participating in the NOx market opted into the SOx market as well.

Facility ID	Cycle	Facility Name	Market	Date	Reason
115389	2	AES Huntington Beach, LLC	NOx/SOx	3/09/2001	Opt-in for SOx market at facility request.
124808	2	ARCO Propylene LLC	NOx/SOx	1/24/2001	Partial change of ownership.
121190	2	Astoria Metal Corporation - Long Beach	NOx	7/01/2000	Partial change of ownership.
62281	2	Coastcast Corp	NOx	8/01/2000	Include.
800168	1	Pasadena City, DWP	NOx	6/23/2000	Opt-in at facility request.
108701	1	Saint-Gobain Containers, LLC	NOx/SOx	12/27/2000	Opt-in for SOx market at facility request.
126501	2	Vought Aircraft Industries	NOx	4/4/2001	Partial change of ownership.

APPENDIX C
RECLAIM FACILITIES CEASING OPERATION

AQMD staff is aware of the following RECLAIM facilities that permanently ceased all operations and went out of business during the 1999 compliance year. The reasons for shutdown cited below are based on AQMD staff's best available information.

Facility ID	61970
Facility Name	Anaheim Mills Corp
City and County	Anaheim, Orange
SIC	2211
Pollutants	NOx
1994 Allocation	11,632 lbs.
Reason for Shutdown	Facility representative cited high cost of natural gas.

Facility ID	800111
Facility Name	The Boeing Company
City and County	Downey, Los Angeles
SIC	3721
Pollutants	NOx
1994 Allocation	20,866 lbs.
Reason for Shutdown	Operations consolidated with another plant in Orange County.

Facility ID	36363
Facility Name	California Sports Inc/Great Western Forum
City and County	Inglewood, Los Angeles
SIC	7941
Pollutants	NOx
1994 Allocation	19,068 lbs.
Reason for Shutdown	This facility had shut down and was sold to a new owner who applied for new permits as a totally new facility complying with New Source Review (NSR) requirements.

Facility ID	107657
Facility Name	Calmat Co.
City and County	Wilmington, Los Angeles
SIC	2951
Pollutants	NOx
1994 Allocation	0 lbs.
Reason for Shutdown	Condemnation by the Alameda Corridor Transportation Authority

Facility ID	55349
Facility Name	Color America Textile Processing Inc
City and County	Los Angeles, Los Angeles
SIC	2261
Pollutants	NOx
1994 Allocation	10,668 lbs.
Reason for Shutdown	Operations consolidated with another plant in Los Angeles County.

Facility ID	105356
Facility Name	Environmental Chemical Corp
City and County	Tustin, Orange
SIC	100
Pollutants	NOx
1994 Allocation	0 lbs.
Reason for Shutdown	Facility was shut down upon completion of project.

Facility ID	8439
Facility Name	Exxon Mobil Corp.
City and County	Long Beach, Los Angeles
SIC	1794
Pollutants	NOx
1994 Allocation	42,398 lbs.
Reason for Shutdown	Mineral resources depleted beyond economical level.

Facility ID	800047
Facility Name	Fletcher Oil & Ref Co
City and County	Carson, Los Angeles
SIC	2911
Pollutants	NOx/SOx
1994 Allocation	348,063 lbs. / 216,817 lbs.
Reason for Shutdown	According to AQMD staff, the facility was operating primarily as a storage facility. However, the storage tanks and pipelines were in poor condition and the facility decided to shut down. Furthermore, the land is owned by LA County Sanitation District, which wanted use of the land.

Facility ID	57329
Facility Name	Kwikset Corp
City and County	Anaheim, Orange
SIC	3499
Pollutants	NOx
1994 Allocation	18,518 lbs.
Reason for Shutdown	Reason for closure unknown.

Facility ID	104018
Facility Name	Odebrecht Contractors Of Calif.
City and County	Highland, San Bernardino
SIC	1620
Pollutants	NOx
1994 Allocation	0 lbs.
Reason for Shutdown	Facility was shut down upon completion of project.

Facility ID	24887
Facility Name	Pacific Tube Co
City and County	Los Angeles, Los Angeles
SIC	3317
Pollutants	NOx
1994 Allocation	8,068 lbs.
Reason for Shutdown	According to facility representative, the company was generating "inadequate margins to stay in business" and the company wishes to sell the land.

Facility ID	19989
Facility Name	Parker Hannifin Aerospace Corp
City and County	Irvine, Orange
SIC	3720
Pollutants	NOx
1994 Allocation	8,645 lbs.
Reason for Shutdown	All equipment was sold and removed from site.

Facility ID	55221
Facility Name	Progressive Custom Wheel
City and County	Riverside, Orange
SIC	3714
Pollutants	NOx
1994 Allocation	10,540 lbs.
Reason for Shutdown	Reason for closure unknown.

Facility ID	115040
Facility Name	Raytheon Systems
City and County	El Segundo, Los Angeles
SIC	3761
Pollutants	NOx
1994 Allocation	0 lbs.
Reason for Shutdown	Only permitted device was an internal combustion engine, which was removed from the site.

Facility ID	42079
Facility Name	Rod's Food Products
City and County	Rowland Heights, Los Angeles
SIC	2099
Pollutants	NOx
1994 Allocation	1,304 lbs.
Reason for Shutdown	This facility had shut down and was sold to a new owner who applied for new permits as a totally new facility complying with New Source Review (NSR) requirements.

Facility ID	101499
Facility Name	Sanofi Bio-Industries
City and County	Anaheim, Orange
SIC	2034
Pollutants	NOx
1994 Allocation	0 lbs.
Reason for Shutdown	Reason for closure unknown.

Facility ID	23907
Facility Name	Schuller International Inc
City and County	Corona, Riverside
SIC	3296
Pollutants	NOx
1994 Allocation	92,488 lbs.
Reason for Shutdown	Operations consolidated with another plant in Ohio. The facility cited the high utility cost, cost of manufacturing, production, or raw product, and the high cost of air pollution regulations, such as RTC and permit renewal fees.

Facility ID	23449
Facility Name	Standard Concrete Prod, Inc, Mobile Sand
City and County	Corona, Riverside
SIC	1440
Pollutants	NOx
1994 Allocation	8,678 lbs.
Reason for Shutdown	Mineral resources depleted beyond economical level.

Facility ID	110671
Facility Name	Television City Cogen, L.P.
City and County	Los Angeles, Los Angeles County
SIC	4830
Pollutants	NOx
1994 Allocation	0 lbs.
Reason for Shutdown	Shutdown, equipment sold.

Facility ID	55865
Facility Name	Transamerican Plastics Corp.
City and County	Ontario, San Bernardino County
SIC	3089
Pollutants	NOx
1994 Allocation	10,700 lbs.
Reason for Shutdown	This facility had shut down and was sold to a new owner who applied for new permits as a totally new facility complying with New Source Review (NSR) requirements.

Facility ID	6281
Facility Name	US Govt, Marine Corps Air Station, El Toro
City and County	Santa Ana, Orange
SIC	9700
Pollutants	NOx/SOx
1994 Allocation	407,060 lbs. / 17,940 lbs.
Reason for Shutdown	Shut down due to air base closure.

Facility ID	40102
Facility Name	Western Dye House Inc
City and County	Los Angeles, Los Angeles
SIC	5169
Pollutants	NOx
1994 Allocation	6,978 lbs.
Reason for Shutdown	Shut down in an earlier year, reason unknown.

APPENDIX D
Facilities that were Unable to Reconcile Emissions for Compliance Year 2000

The following is a list of facilities that were unable to reconcile their allocations with their NOx emissions in Compliance Year 2000 based on either emissions reported under the APEP report filed by the facility or completed audits conducted by AQMD staff. This list is being maintained and updated as audits are completed. The updated list is available by contacting the RECLAIM Administration Team at 21865 E. Copley Drive, Diamond Bar, CA 91765, (909) 396-3119.

AES Alamitos (ID# 115394)
AES Redondo Beach (ID# 115536)
American Airlines Inc (ID# 800196)
ARCO (ID# 800012)
Cherry Textron (ID# 4451)
Chroma Systems Partners (ID# 95212)
Crimson Resource Management Corp (ID# 117581)
Crimson Resources Management Corp (ID# 117572)
Crown Cork & Seal Company, Inc. (ID# 3950)
Darling-Delaware Company, Inc. (ID# 63180)
Deleo Clay Tile Company (ID# 47771)
Doane Products Co (ID# 38872)
Gainey Ceramics Inc. (ID# 5814)
Harbor Cogeneration Co (ID# 106325)
Hayes-Lemmerz International Inc. (ID# 45953)
Jefferson Smurfit (ID# 22373)
Lorber Industries Of California (ID# 14229)
McWhorter Technologies Inc. (ID# 101843)
Mountainview Power (ID# 115778) [1]
Owens-Brockway Glass Container (ID# 7427)
Pacific Continental Textiles, Inc (ID# 59618)
Pechiney Cast Plate (ID# 119920)
Playa Phase I Commercial Land, LLC (ID# 115449)
Praxair (Union Carbide) (ID# 42630)
Raytheon Systems (ID# 114997)
Redco II (ID# 20543)
Riverside Cement Company (ID# 800182)
Rubbermaid Inc (ID# 84223)
Shultz Steel Company, Gordon W. Shultz dba (ID# 16639)
TA Industries, Inc. (ID# 800310)
TAMCO (ID# 18931)
Television City Cogen (ID# 110671)
Thermo Electron Corp., Cal-Doran (ID# 7053)
Tissurama Industries Inc. (ID# 55758)
Tri-Alloy Inc. (ID# 11674)
U.S. Dyeing & Finishing Inc. (ID# 83738)
Ultramar Inc. (ID# 800026)
US Govt, Marine Corps Air Station, El Toro (ID# 6281)
Vanguard Energy Systems (ID# 61589)
Vista Metals Corporation (ID# 14495)
West Coast Rendering Company (ID# 50098)

[1] Emissions from this facility exceeded allocations at the end of the third quarter; the company later acquired additional RTCs to reconcile with its annual allocations at the end of the compliance year

APPENDIX E
JOB IMPACTS ATTRIBUTED TO RECLAIM

Each RECLAIM facility operator is requested to include in their Annual Permit Emissions Program (APEP) report an assessment of job increases and decreases that occurred during the compliance year and the extent to which any increase or decrease in the number of jobs is attributable to the RECLAIM program. The job impact resulting from the RECLAIM program during the 1999 compliance year was assessed by examining data in APEP reports submitted by RECLAIM facilities.

The detailed information for facilities that reported job gains and losses in their APEP forms for Compliance Year 2000 is summarized below:

Facilities with actual job gains or losses attributed to RECLAIM:

Facility ID	**98159**
Facility Name	Breitburn Energy Corp
City and County	Los Angeles, Los Angeles County
SIC	1310
Pollutant(s)	NOx
Cycle	2
Job Gain	0 (1 attributed to RECLAIM)
Job Loss	0
Comments	This facility hired a consultant for preparing certain documentation to comply with the RECLAIM program, but did not claim any overall job gains.

Facility ID	**18865**
Facility Name	Kal Kan Foods Inc
City and County	Vernon, Los Angeles County
SIC	2047
Pollutant(s)	NOx
Cycle	2
Job Gain	155 (6 attributed to RECLAIM)
Job Loss	0
Comments	According to the facility, recordkeeping, reporting and monitoring needs increased.

Facility ID	**550**
Facility Name	LA Co., Internal Service Dept
City and County	Los Angeles, Los Angeles County
SIC	9199
Pollutant(s)	NOx
Cycle	1
Job Gain	2 (2 attributed to RECLAIM)
Job Loss	26 (0 attributed to RECLAIM)
Comments	According to the facility, the job gains were due to "daily inspection, reports, repairs, and procurement requirements" of the RECLAIM program.

Facility ID	**17623**
Facility Name	Los Angeles Athletic Club
City and County	Los Angeles, Los Angeles County
SIC	7997
Pollutant(s)	NOx
Cycle	2
Job Gain	0 (1 attributed to RECLAIM)
Job Loss	0
Comments	The facility cited a job gain due to "additional work to make out forms and quarterly reports" of the RECLAIM program. However, the facility also did not claim any overall job gains.

Facility ID	**14926**
Facility Name	So Cal Gas Co
City and County	Monterey Park, Los Angeles County
SIC	4932
Pollutant(s)	NOx
Cycle	1
Job Gain	0 (4 attributed to RECLAIM)
Job Loss	0
Comments	The facility cited a job gain due to "meter reads, running reports, being audited, etc." However, the facility also did not claim any overall job gains.

Facility ID	**14495**
Facility Name	Vista Metals Corporation
City and County	Fontana, San Bernardino County
SIC	3341
Pollutant(s)	NOx
Cycle	2
Job Gain	12 (1 part-time position attributed to RECLAIM)
Job Loss	0
Comments	According to the facility, "additional time and manpower is required to maintain permits and testing, auditing."

Facility ID	**115394**
Facility Name	AES Alamitos, LLC
City and County	Long Beach, Los Angeles County
SIC	4911
Pollutant(s)	NOx
Cycle	1
Job Gain	0
Job Loss	20 (10 attributed to RECLAIM)
Comments	This facility claimed "increased compliance costs caused higher operating costs. Fewer employees hired to offset costs." This facility is a power plant. It appears that these are lost job opportunities instead of actual job losses.

Facility ID	**45527**
Facility Name	American Racing Equipment Inc
City and County	Rancho Dominguez, Los Angeles County
SIC	3714
Pollutant(s)	NOx
Cycle	2
Job Gain	22 (unknown number attributed to RECLAIM)
Job Loss	201 (200 attributed to RECLAIM)
Comments	Company stated in the annual report that jobs were lost due to “high NOx RTC cost.” A company representative indicated the company had lost a contract with a major automobile manufacturer.

Facility ID	**40764**
Facility Name	Century Laminators Inc.
City and County	Anaheim, Orange County
SIC	3672
Pollutant(s)	NOx
Cycle	1
Job Gain	0
Job Loss	126 (20 attributed to RECLAIM)
Comments	This company stated in the annual report that they “could not run equipment due to increased cost of staying within air compliance regulations.”

Facility ID	**15982**
Facility Name	Custom Alloy Sales Inc
City and County	Lynwood, Los Angeles County
SIC	3341
Pollutant(s)	NOx
Cycle	2
Job Gain	0
Job Loss	0
Comments	This facility claimed "RTC costs are so high that there are no funds left for plant expansion or operational improvements." However, the facility reported only job gains in the annual report. Therefore, it appears that these are lost job opportunities instead of actual job losses.

Facility ID	**50098**
Facility Name	D&D Disposal Inc, West Coast Rendering Co
City and County	Vernon, Los Angeles County
SIC	2077
Pollutant(s)	NOx
Cycle	1
Job Gain	0
Job Loss	0 (1 attributed to RECLAIM)
Comments	This facility claimed "In order to avoid greatly exceeding emission limits, additional raw materials have had to be turned down. Being able to accept these would have resulted in additional job openings." However, the facility did not report any job losses in the annual report. Therefore, it appears that these are lost job opportunities instead of actual job losses.

Facility ID	**105356**
Facility Name	Environmental Chemical Corp
City and County	Tustin, Orange County
SIC	9512
Pollutant(s)	NOx
Cycle	2
Job Gain	0
Job Loss	3 (3 attributed to RECLAIM)
Comments	Facility representatives claimed facility was shutdown upon completion of project. According to AQMD staff, facility representatives cited other business reasons and did not cite the RECLAIM program as the reason for closure.

Facility ID	**11716**
Facility Name	Fontana Paper Mills Inc
City and County	Fontana, San Bernardino County
SIC	2952
Pollutant(s)	NOx
Cycle	1
Job Gain	2 (unknown number attributed to RECLAIM)
Job Loss	19 (unknown number attributed to RECLAIM)
Comments	The annual report submitted by this company indicated that RECLAIM contributed to job losses, but did not quantify the number of losses due to RECLAIM program.

Facility ID	**40196**
Facility Name	Guardian Industries Corp.
City and County	Fullerton, Orange County
SIC	3211
Pollutant(s)	NOx/SOx
Cycle	2
Job Gain	0
Job Loss	14 (7 attributed to RECLAIM)
Comments	The company stated “the cost of operation puts the facility at a competitive disadvantage in a world economy”.

Facility ID	**45953**
Facility Name	Hayes Lemmerz International Cal Inc
City and County	La Mirada, Los Angeles County
SIC	3714
Pollutant(s)	NOx
Cycle	1
Job Gain	0
Job Loss	28 (10 attributed to RECLAIM)
Comments	The company attributed job losses due to “reduced production and operation of gas units.” The company filed for bankruptcy in 2001.

Facility ID	**23907**
Facility Name	Johns Manville Corp
City and County	Corona, Riverside County
SIC	3296
Pollutant(s)	NOx
Cycle	2
Job Gain	0
Job Loss	274 (245 attributed to RECLAIM)
Comments	The facility stated in the annual report "RECLAIM RTC pricing was an additional cost to the manufacturing operation that was not avoidable. Products are now made outside of SCAQMD (Ohio)." AQMD staff also was informed by facility representatives that the equipment at this facility was outdated and the company owns another facility with newer technology in another state. Therefore, the operation was relocated.

Facility ID	**112853**
Facility Name	NP Cogen Inc
City and County	City Of Commerce, Los Angeles County
SIC	4911
Pollutant(s)	NOx
Cycle	2
Job Gain	0
Job Loss	9 (9 attributed to RECLAIM)
Comments	According to the facility, the RECLAIM program was a "contributing factor in decision to cease operations indefinitely." This facility is a cogeneration plant that produced steam for use at a paper plant, which opted for another source of steam. AQMD staff also was informed the facility had not been paid for past electric generation, and as a result decided to allow their contract to expire and cease operations. Because the permit is still active, staff is uncertain if the facility will operate again in the future.

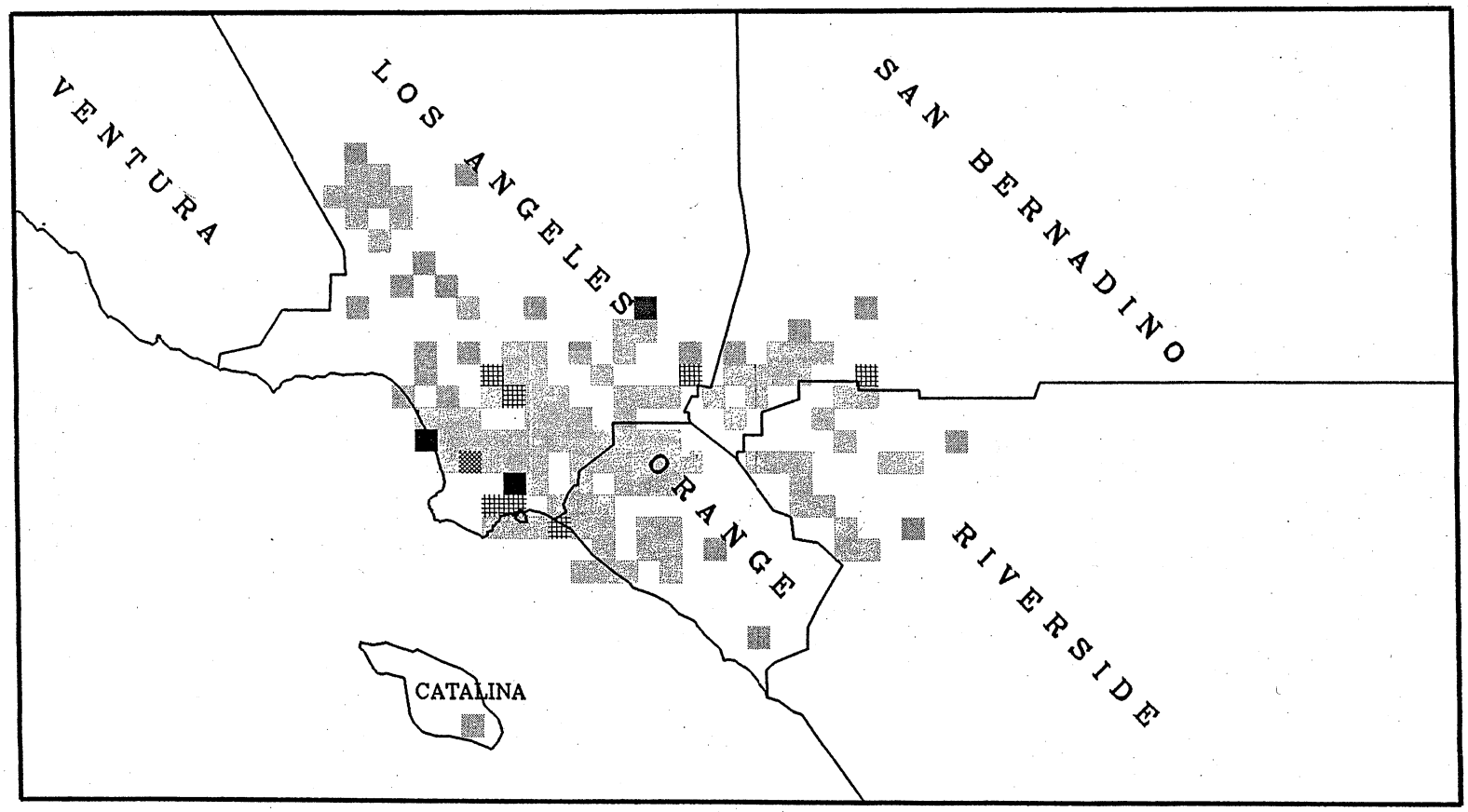
Facility ID	**83738**
Facility Name	U.S. Dyeing & Finishing Inc.
City and County	Garden Grove, Orange County
SIC	2260
Pollutant(s)	NOx
Cycle	1
Job Gain	0
Job Loss	5 (5 attributed to RECLAIM)
Comments	Facility stated "emissions in excess of our 2000 allocations did not result in an indirect increase in jobs. On the contrary, and coupled with the energy crisis, we anticipate further job layoffs and/or terminations. We are seriously analyzing the cost-effectiveness of surviving in the RECLAIM program. We look forward to the backstop provisions AQMD is considering."

Facility ID	**17956**
Facility Name	Western Metal Decorating Co
City and County	Rancho Cucamonga, San Bernardino County
SIC	3411
Pollutant(s)	NOx
Cycle	1
Job Gain	0
Job Loss	6 (unknown number attributed to RECLAIM)
Comments	Facility stated “The facility decreased the number of jobs for new low NOx burners budgeted for over $100,000.”

APPENDIX F
QUARTERLY NOx EMISSION MAPS

RECLAIM Facilities

Certified NOx Emissions (Tons) From 01/00 To 03/00



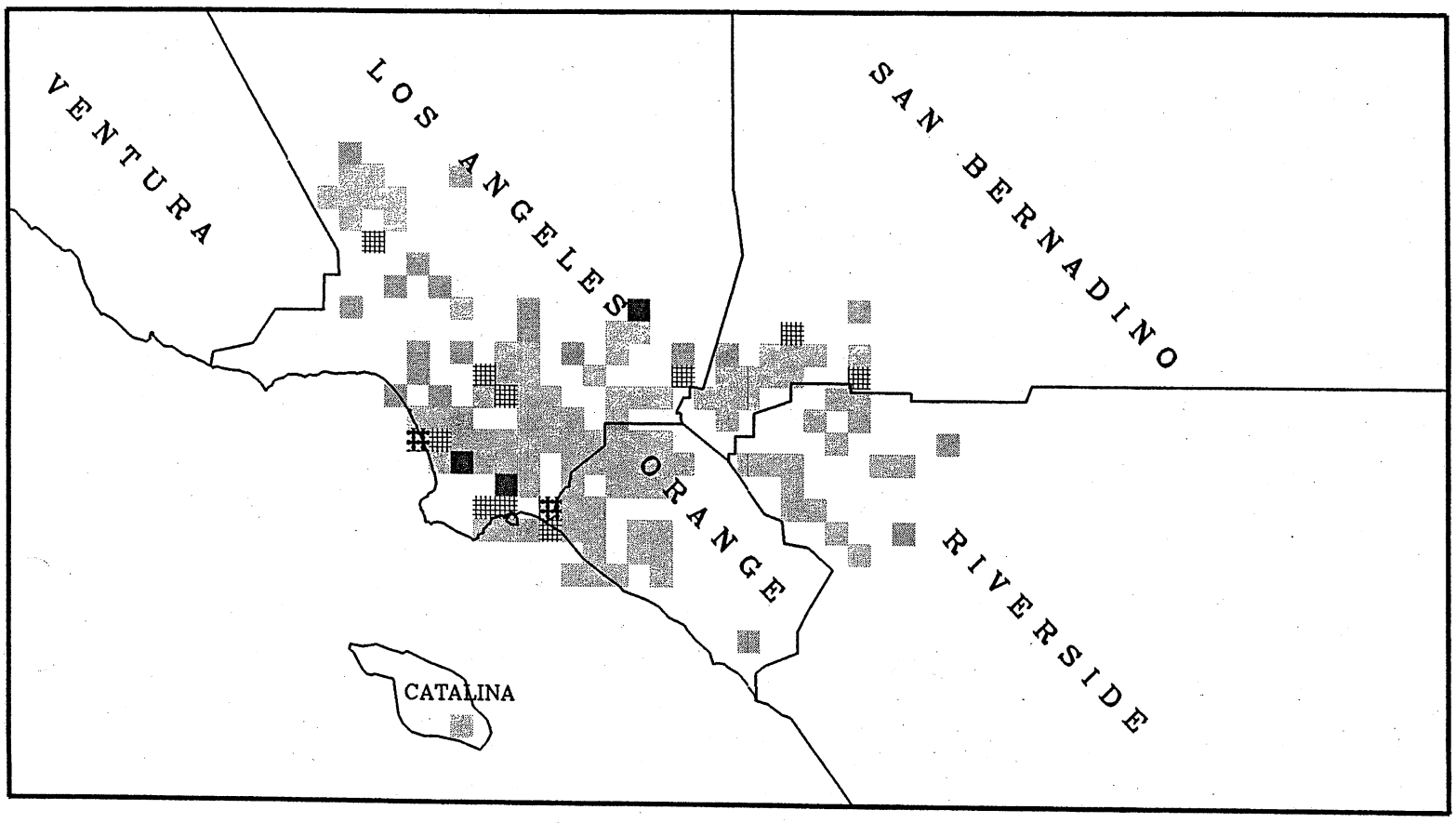
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 1067 tons

Generated on 2/20/ 2

RECLAIM Facilities

Certified NOx Emissions (Tons) From 04/00 To 06/00



>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 735 tons

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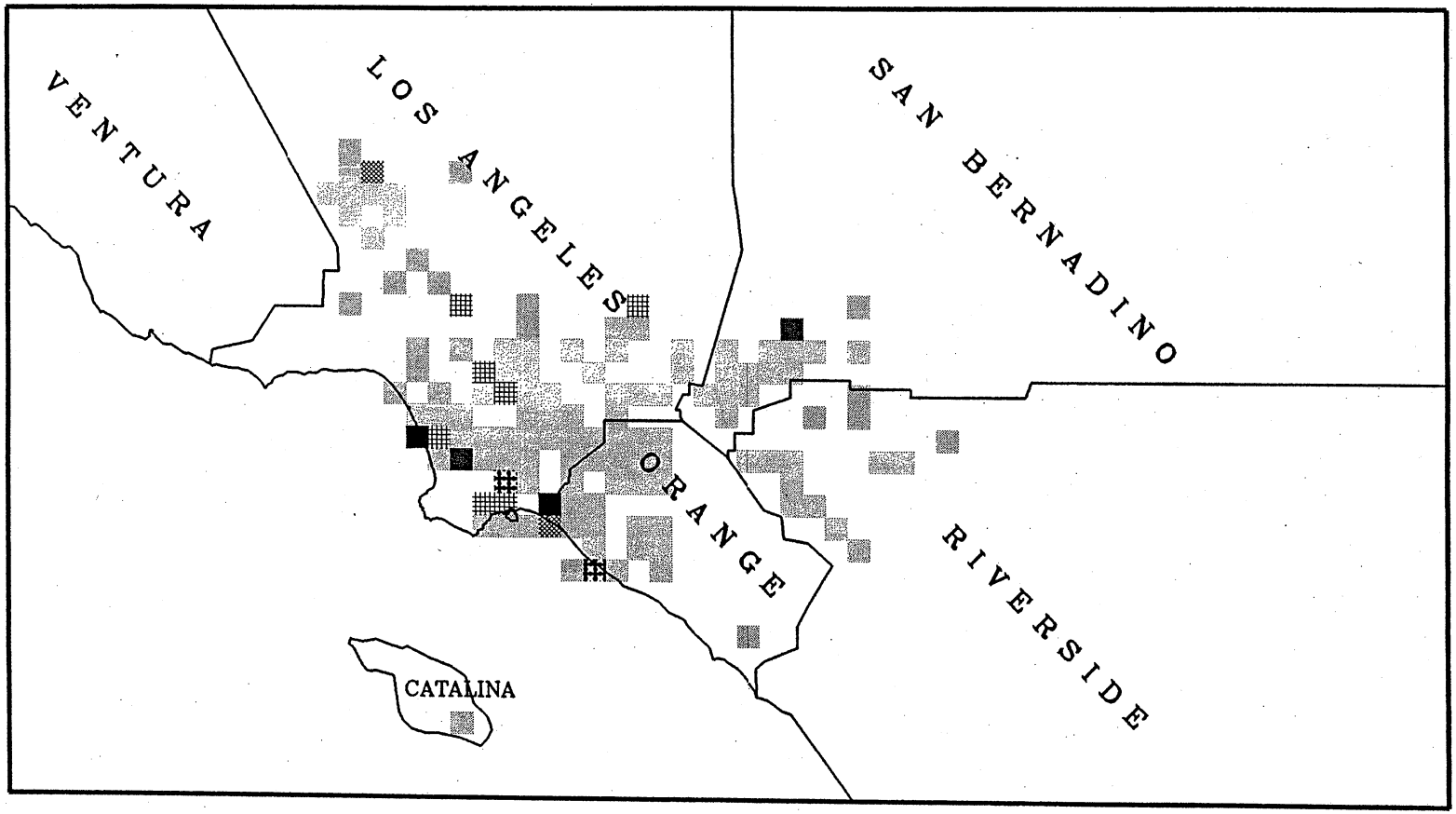
RECLAIM Facilities

Certified NOx Emissions (Tons) From 07/00 To 09/00



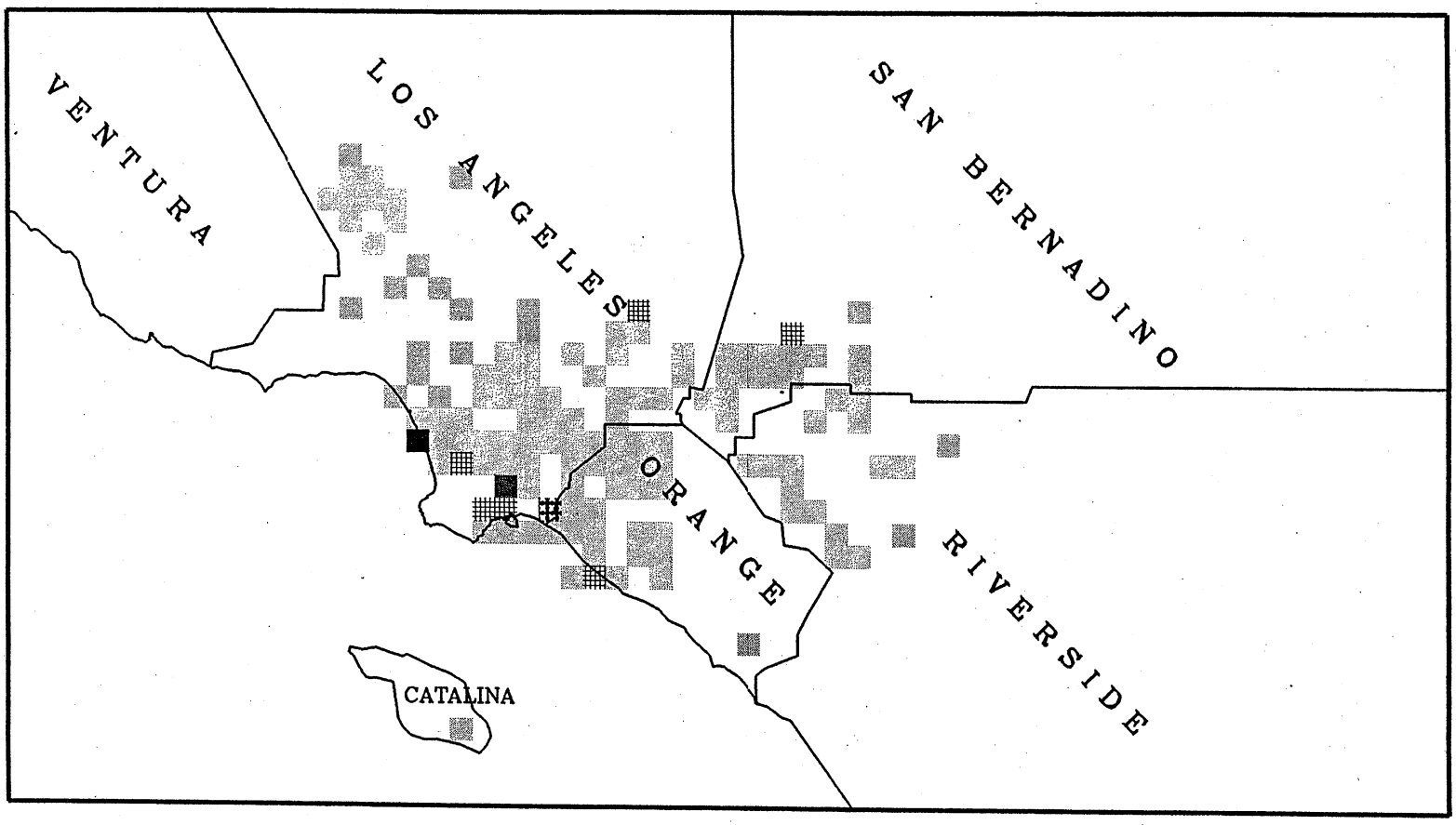
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 1053 tons

Generated on 2/20/ 2

RECLAIM Facilities

Certified NOx Emissions (Tons) From 10/00 To 12/00



>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 764 tons

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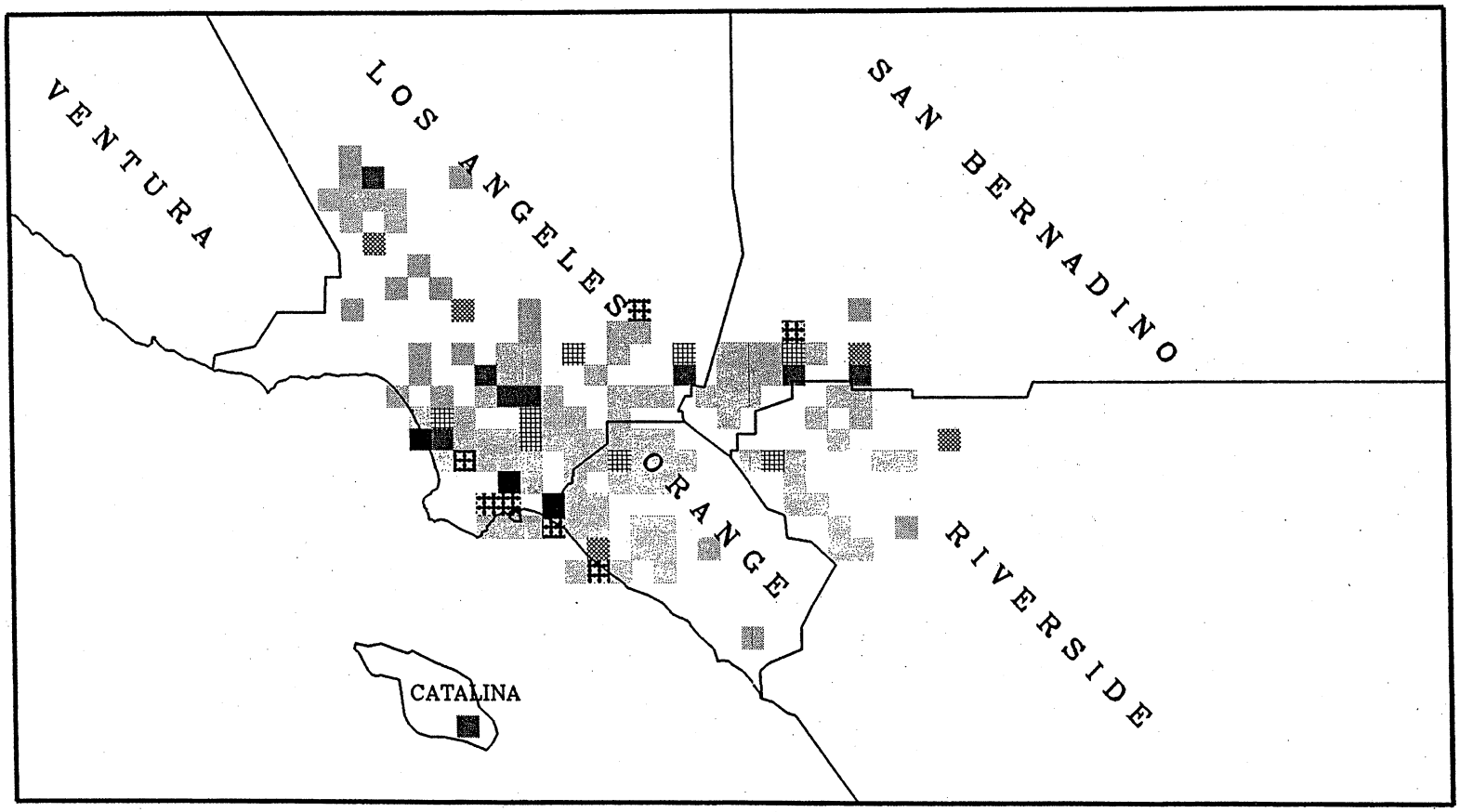
RECLAIM Facilities

Certified NOx Emissions (Tons) Year to date (12/00)



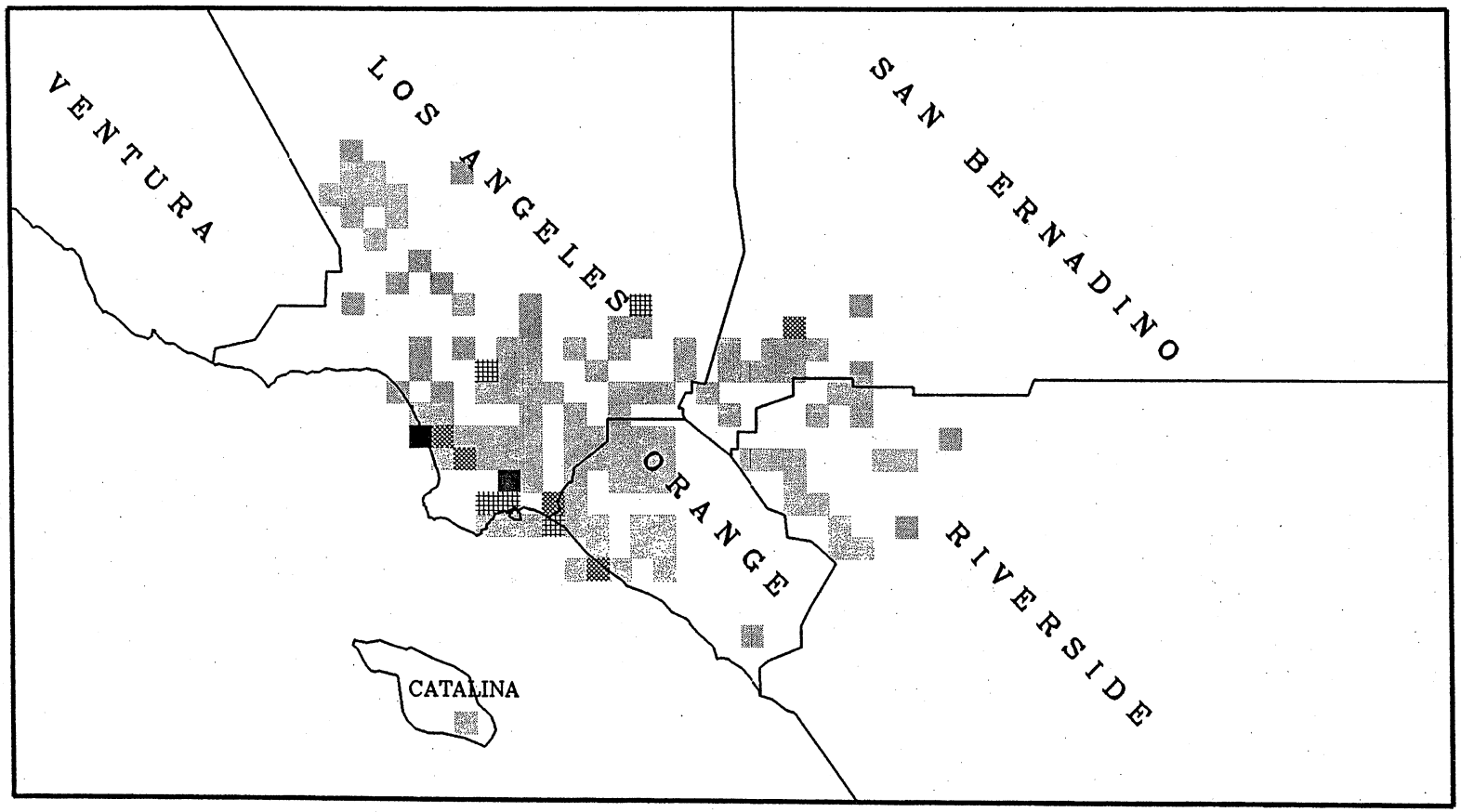
>0 – 100 | 100 – 200 | 200 – 400 | 400 – 800 | 800 –1600 | over 1600

max. emissions = 3436 tons

Generated on 2/20/ 2

RECLAIM Facilities

Certified NOx Emissions (Tons) From 01/01 To 03/01



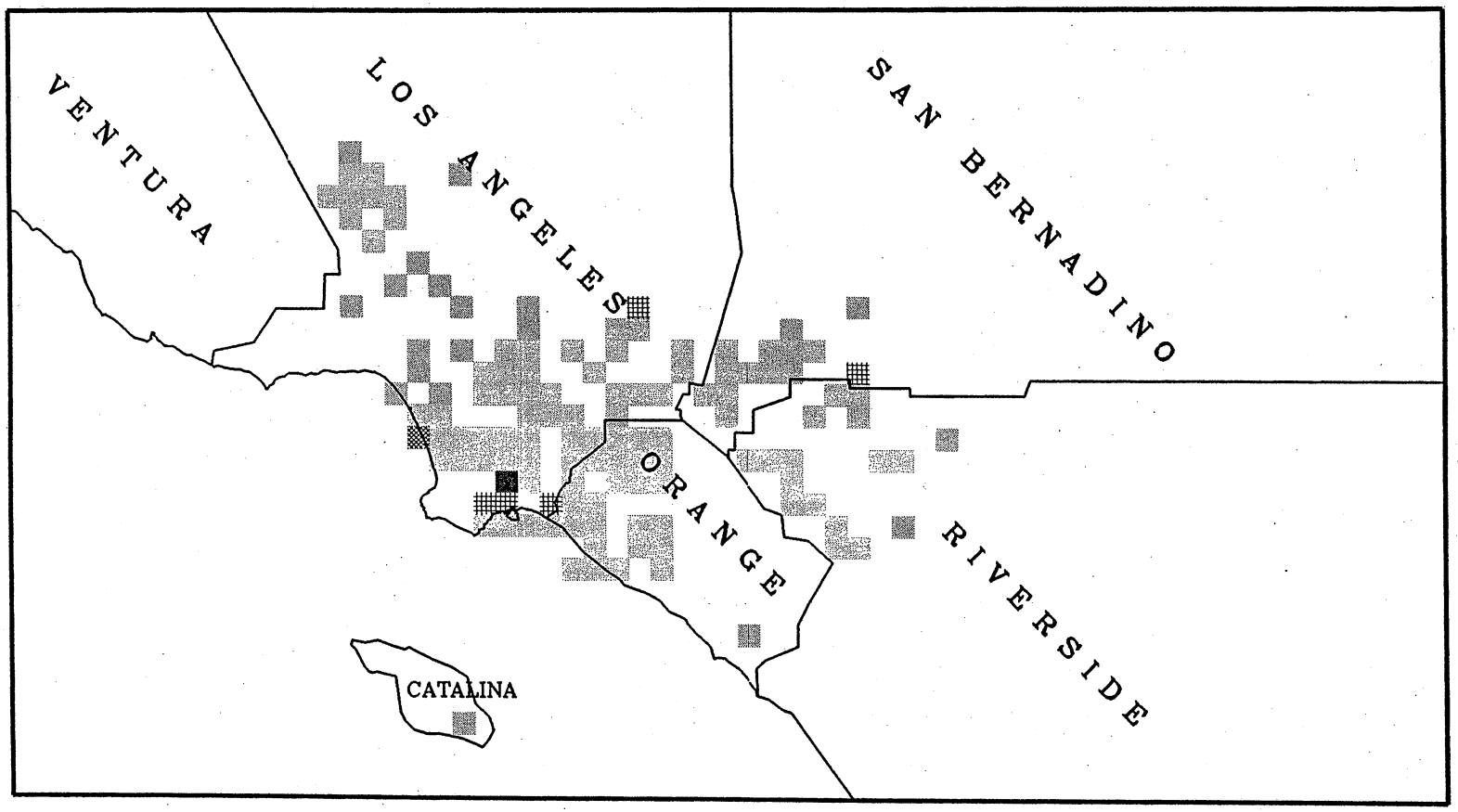
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 750 tons

Generated on 2/ / 2

RECLAIM Facilities

Certified NOx Emissions (Tons) From 04/01 To 06/01



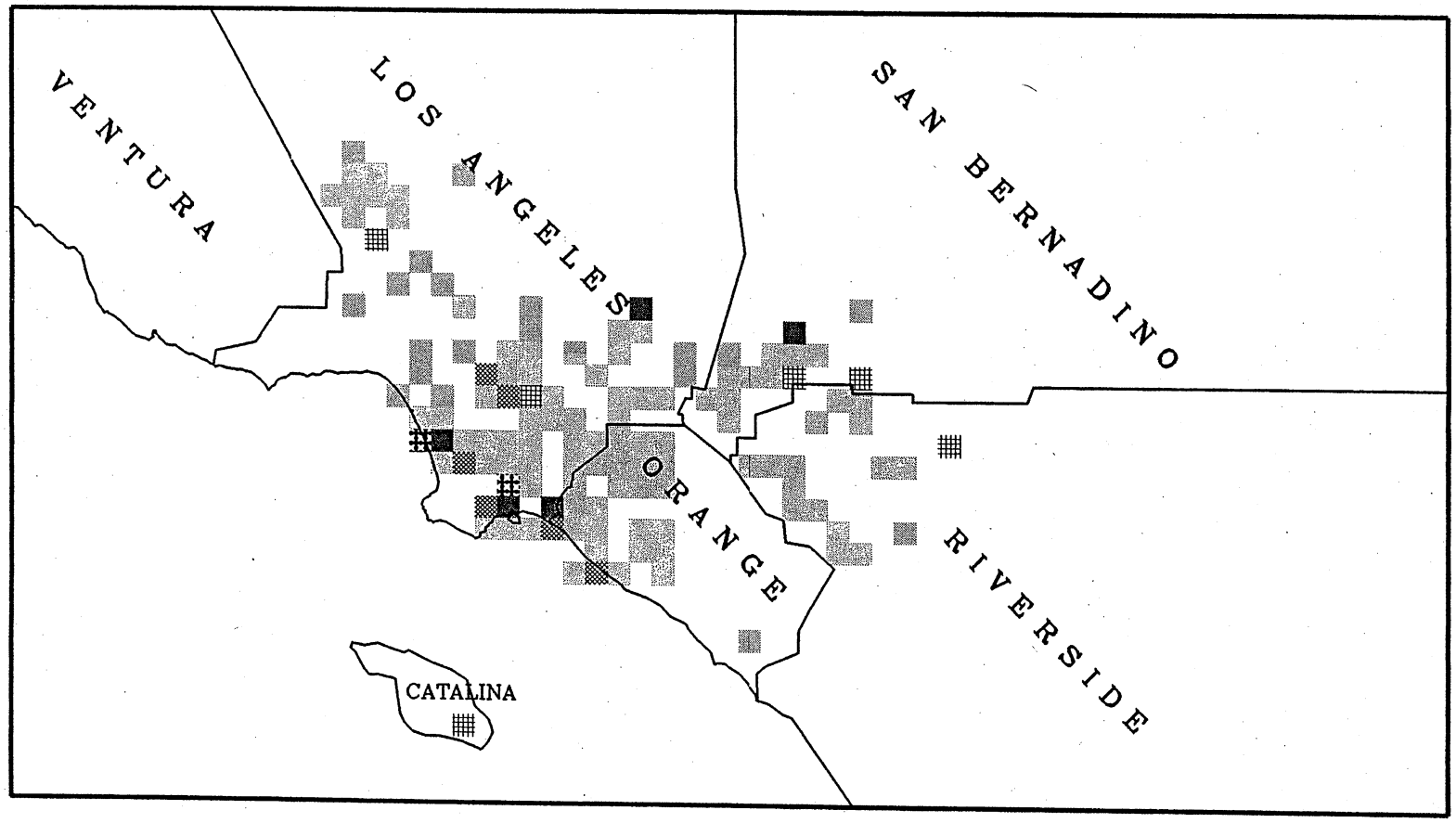
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 482 tons

Generated on 2/20/ 2

RECLAIM Facilities

Certified NOx Emissions (Tons) Year to date (6/01)



>0 – 100 | 100 – 200 | 200 – 400 | 400 – 800 | 800 –1600 | over 1600

max. emissions = 1077 tons

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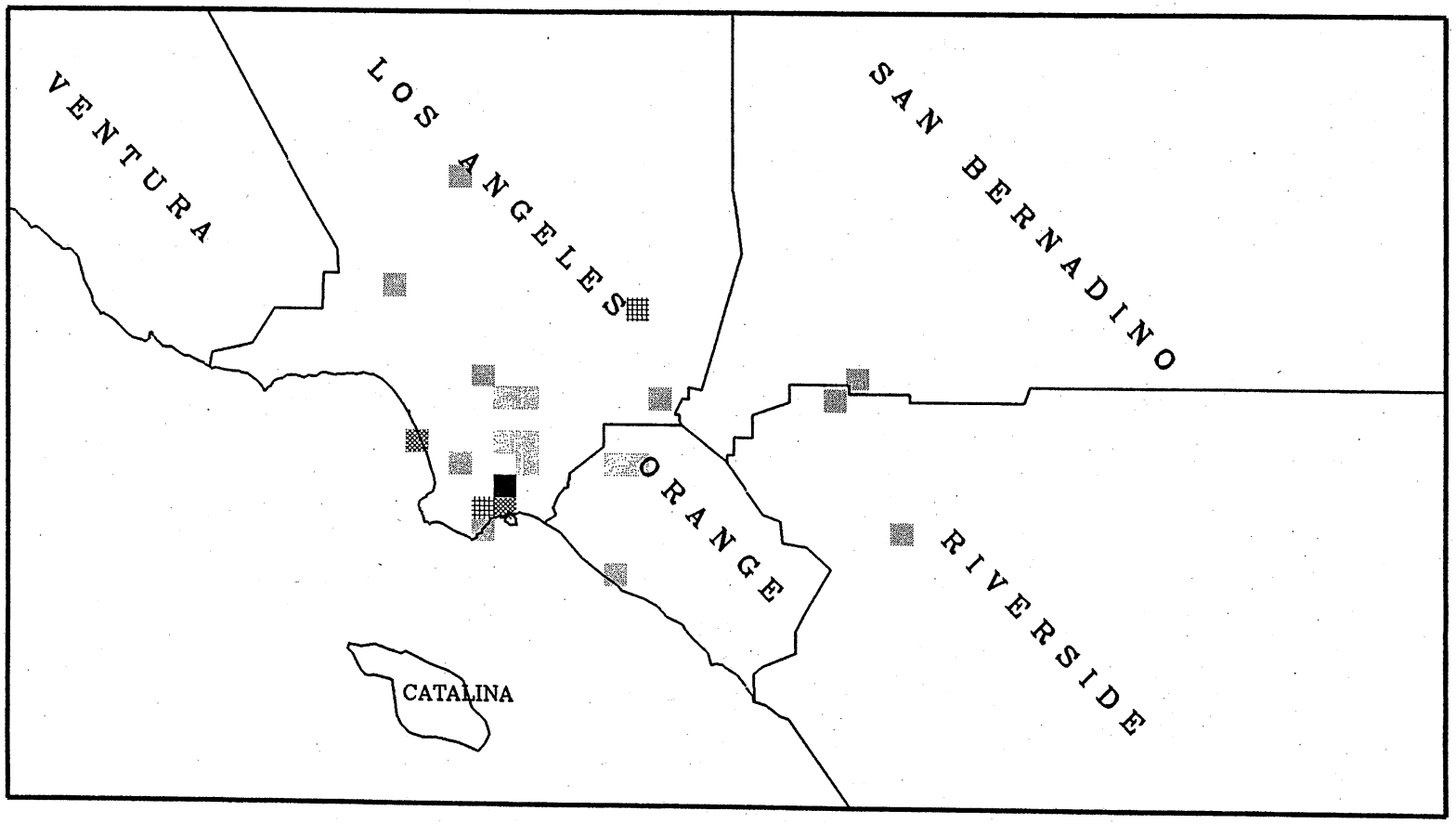
APPENDIX G
QUARTERLY SOx EMISSION MAPS

RECLAIM Facilities

Certified SOx Emissions (Tons) From 1/00 to 3/00



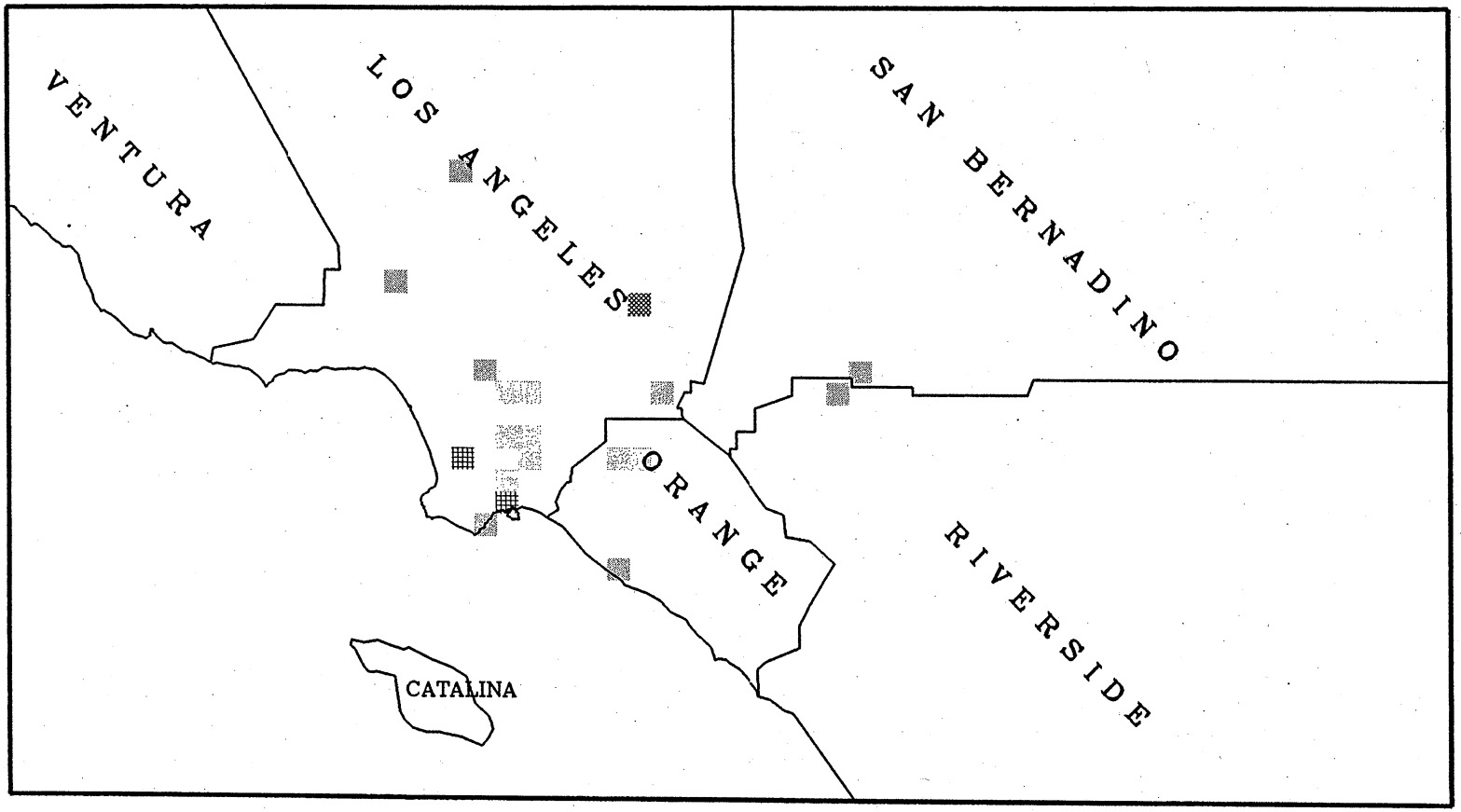
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 989 tons

Generated on 2/7 2

RECLAIM Facilities

Certified SOx Emissions (Tons) From 4/00 To 6/00



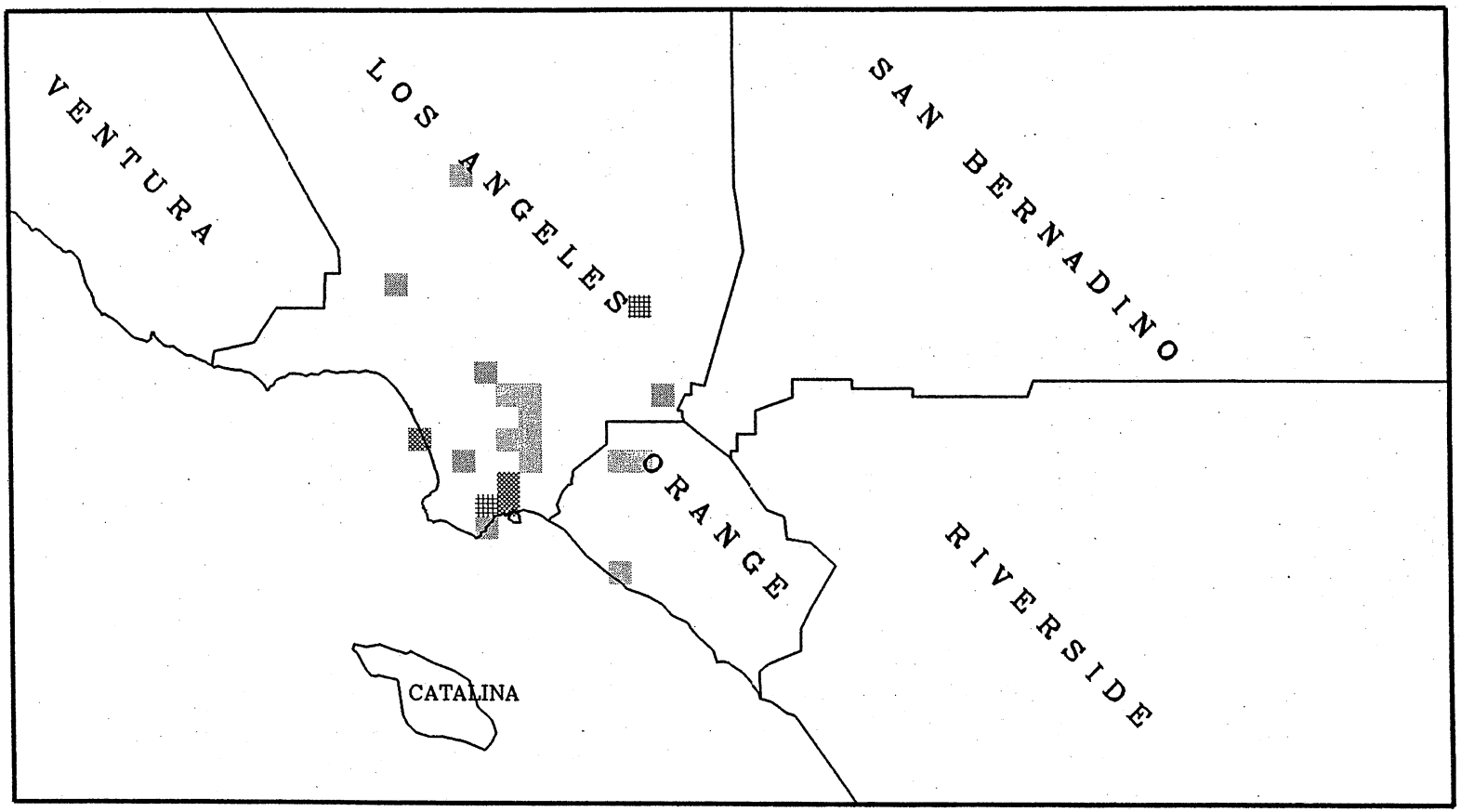
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 311 tons

Generated on 2/20/ 2

RECLAIM Facilities

Certified SOx Emissions (Tons) From 7/00 To 9/00



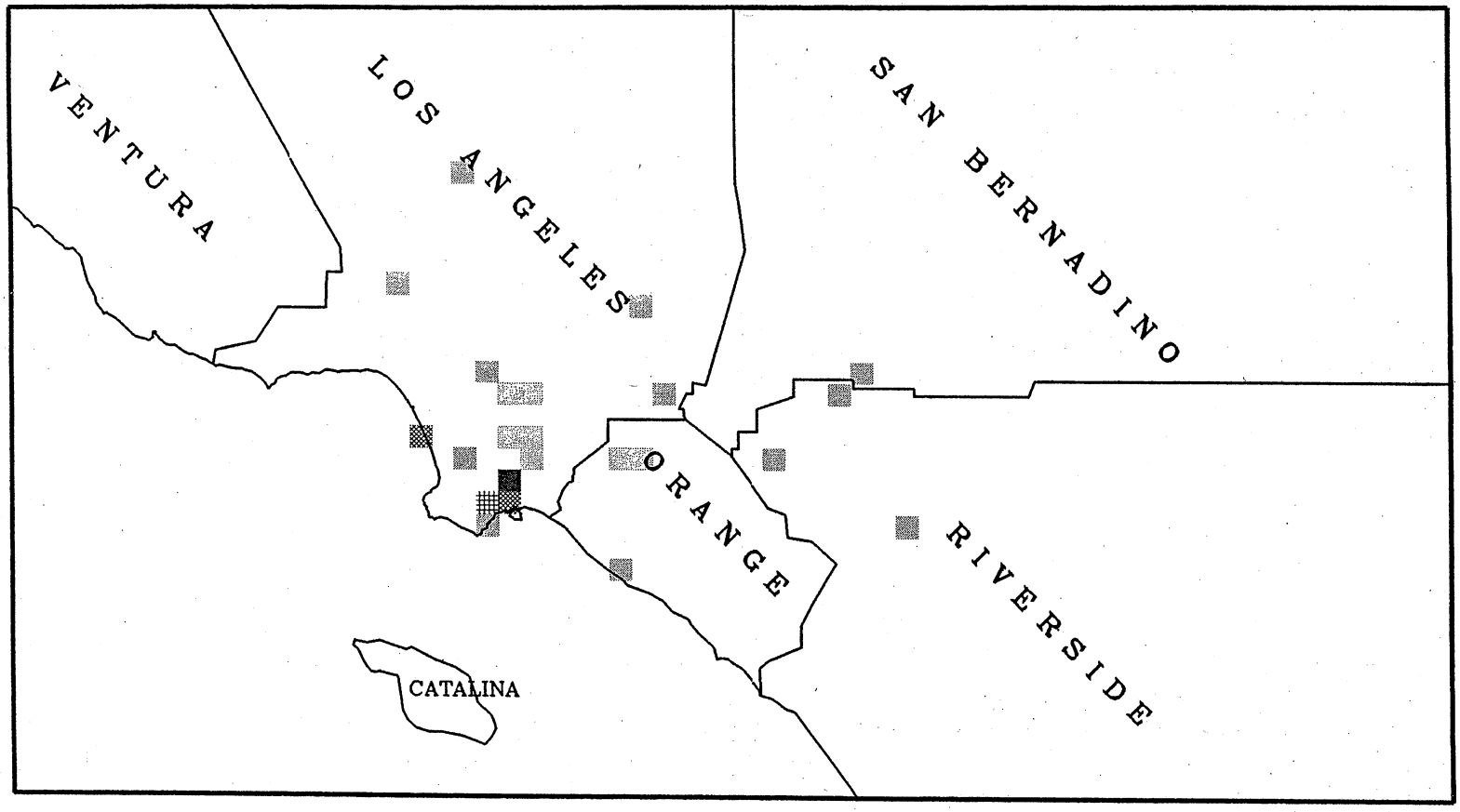
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 396 tons

Generated on 2 ·0/ 2

RECLAIM Facilities

Certified SOx Emissions (Tons) From 10/00 to 12/00



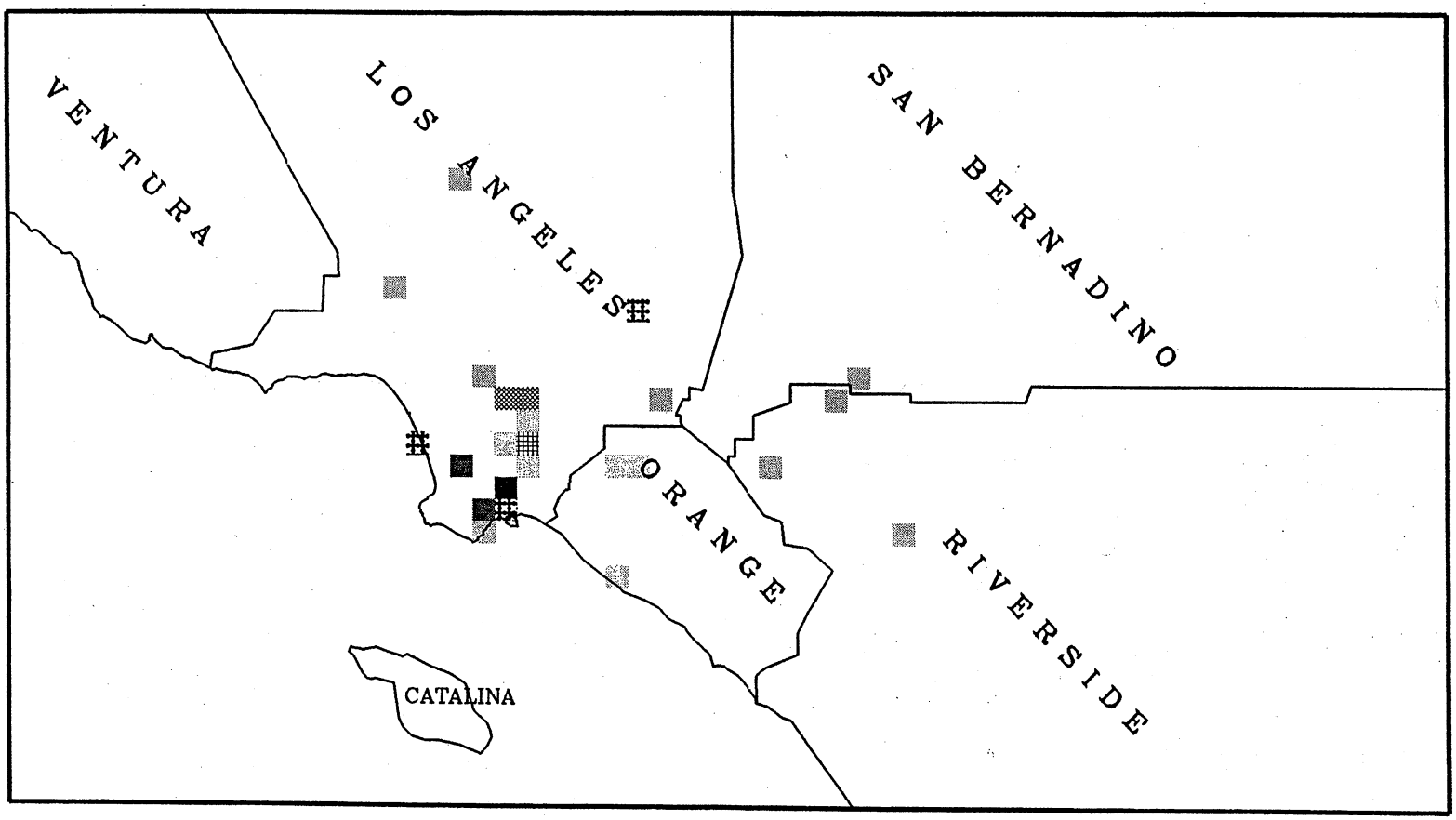
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 522 tons

Generated on 2/20/ 2

RECLAIM Facilities

Certified SOx Emissions (Tons) Year to date (12/00)



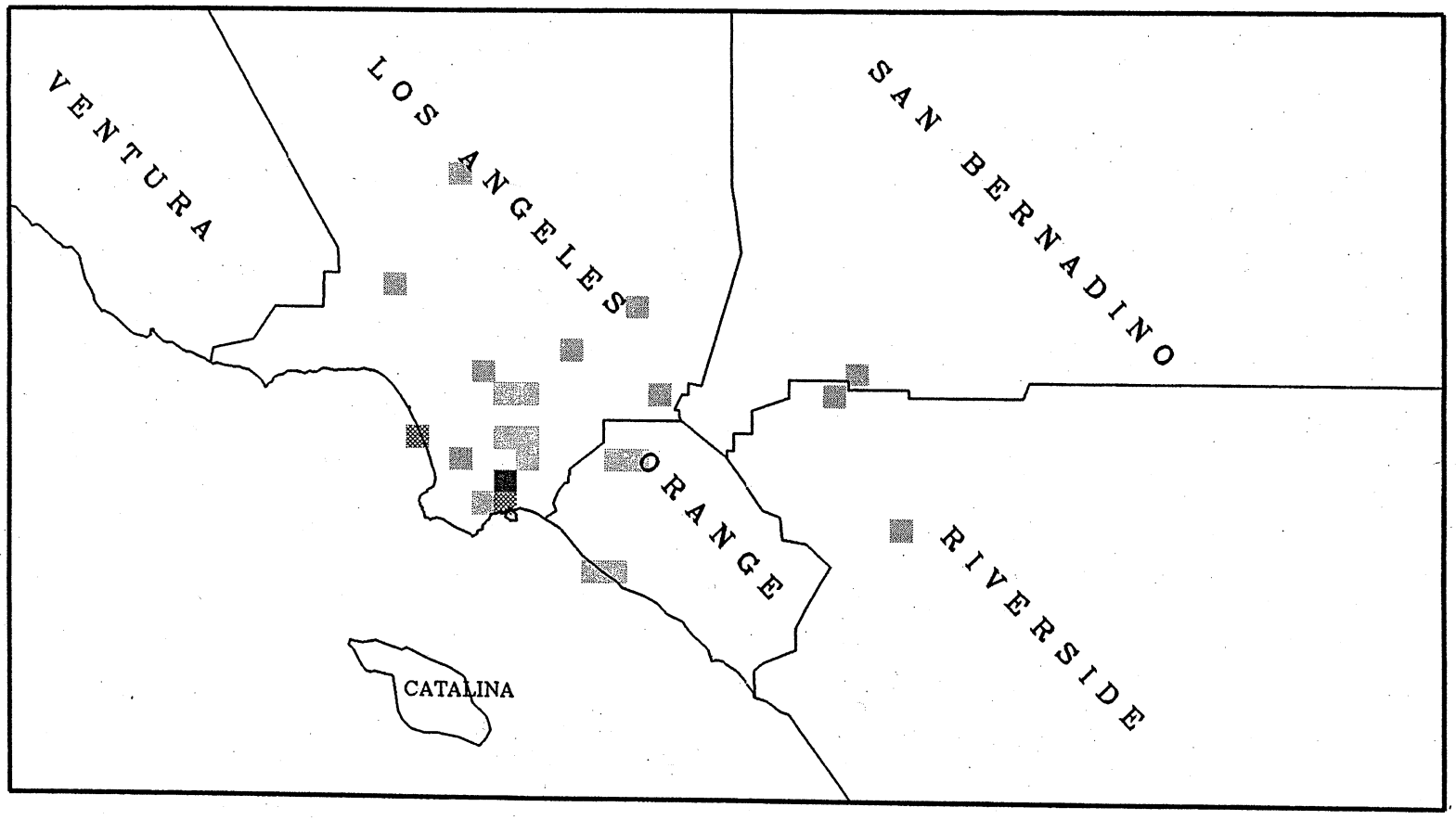
>0 – 100 | 100 – 200 | 200 – 400 | 400 – 800 | 800 –1600 | over 1600

max. emissions = 2007 tons

Generated on 2 / 2

RECLAIM Facilities

Certified SOx Emissions (Tons) From 1/01 to 3/01



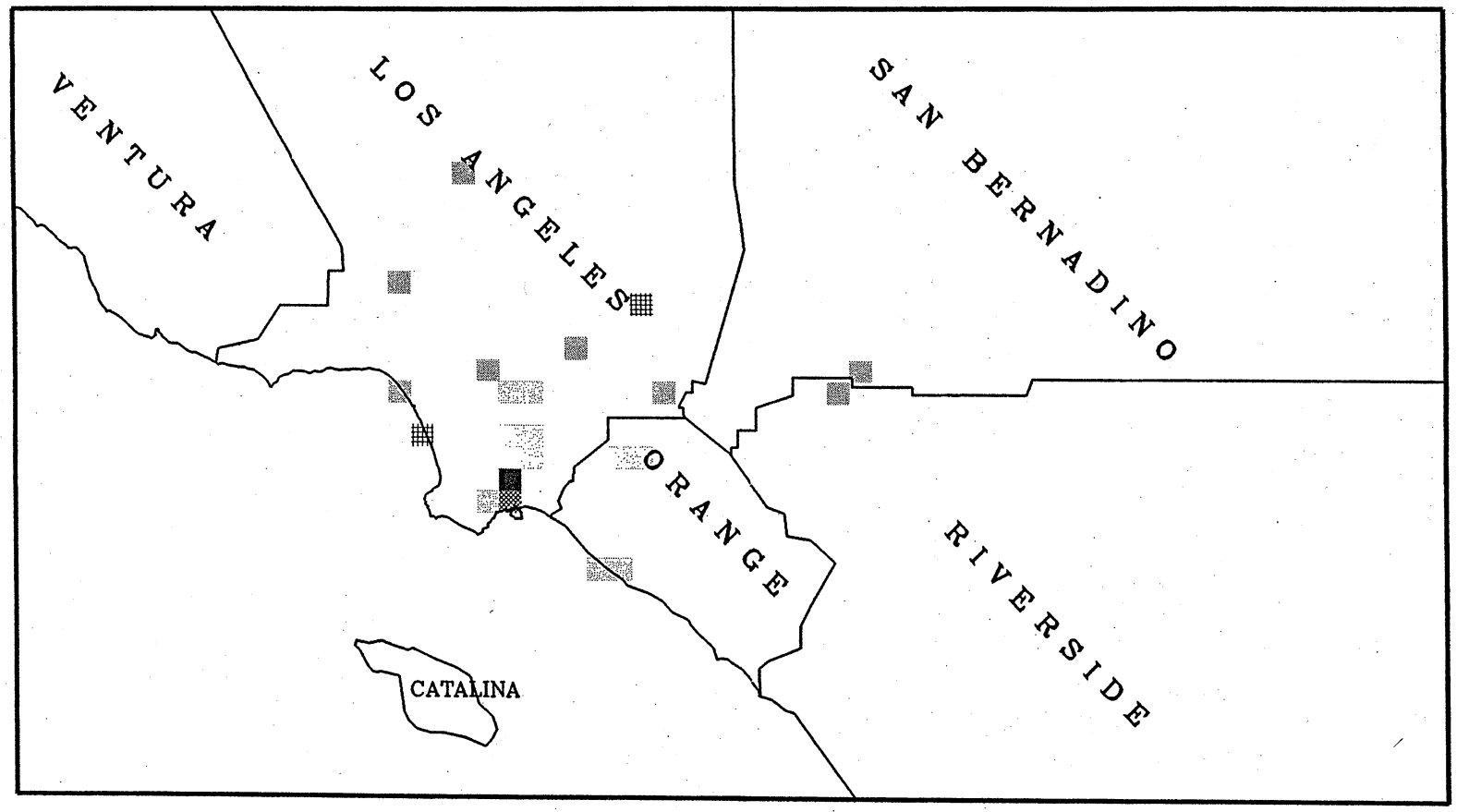
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 523 tons

Generated on 2/20/ 2

RECLAIM Facilities

Certified SOx Emissions (Tons) From 4/01 To 6/01



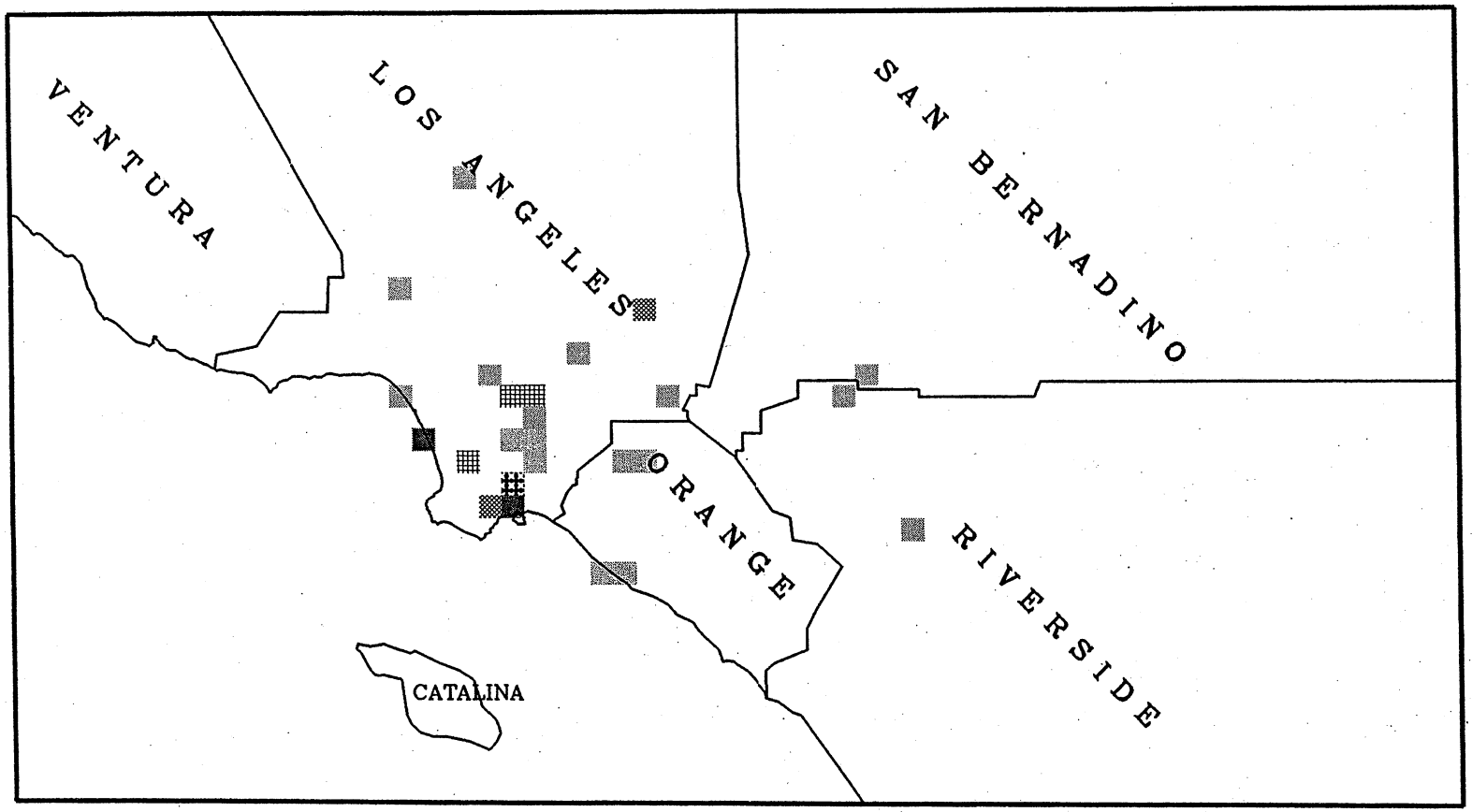
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 468 tons

Generated on ? ?/ 2

RECLAIM Facilities

Certified SOx Emissions (Tons) Year to date (6/01)



>0 – 100 | 100 – 200 | 200 – 400 | 400 – 800 | 800 –1600 | over 1600

max. emissions = 991 tons

Generated on 2/21/ 2