BOARD MEETING DATE: March 16, 2001 AGENDA NO.

REPORT: Annual RECLAIM Audit Report for the 1999 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 sixth year of this program.

COMMITTEE: Stationary Source, February 23, 2001, Reviewed

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 with the goal of providing facilities with added flexibility in meeting emission reductions requirements while lowering the cost of compliance. 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 requires annual audits focusing on specific issues, as well as a more comprehensive three-year audit. The three-year audit was presented to the Governing Board May 8, 1998 and the most recent annual audit was presented March 17, 2000. Additionally, staff prepared a report thoroughly reviewing the RECLAIM program in support of the Governing Board's October 20, 2000 public hear-

ing to ratify certain findings pertaining to the program as required by California Health and Safety Code Section 39616(e). The October report was a retrospective look at RECLAIM's performance. Staff also prepared a "White Paper" that looked forward to the future of the program and made recommendations for stabilization of NOx RTC prices. The White Paper was presented to the Governing Board at its January 19, 2001 meeting. The attached report presents the annual audit for the 1999 compliance year, which was the program's sixth compliance year. Pursuant to Rule 2015, the audit report is presented for a public hearing and will be included in AQMD's annual performance report to the California Legislature.

Audit Findings

The audit findings indicate that RECLAIM met its objectives during the 1999 compliance year. In particular, the analysis demonstrates that:

- Aggregate actual emissions from RECLAIM facilities were below Allocations during the 1999 compliance year.

- The RECLAIM universe consisted of 331 facilities as of the end of the 1998 compliance year. There was a net change of thirty additional facilities in the RECLAIM universe included during the 1999 compliance year. Thus, there were 361 facilities in the RECLAIM Universe at the end of the 1999 compliance year.

- An active trading market for RTCs has developed. More than $278 million in RTCs have been traded since the adoption of RECLAIM, of which over $182 million occurred in Calendar Year 2000. Although aggregate NOx emissions were slightly below aggregate allocations, there were not sufficient NOx RTCs available to meet the demand of RECLAIM facilities. Average prices, excluding RTCs that were transferred with a price of $0 (such as transfers between facilities of common ownership), for NOx transactions occurring in calendar year 2000 exceeded the backstop price of $15,000 per ton established in Rule 2015. The average prices for NOx transactions occurring in all other years and for SOx transactions in all years were well below $15,000 per ton. Average prices during 1998, 1999, and 2000 are summarized below:

1998	1999	2000
• $451 per ton for 1998 NOx RTCs • $1,971 Per ton for 2003 NOx RTCs • $1,859 per ton for 2010 NOx RTCs • $303 per ton for 1998 SOx RTCs • $1,760 Per ton for 2003 SOx RTCs • $1,760 per ton for 2010 SOx RTCs	• $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

- Once again, the vast majority of RECLAIM facilities complied with their Allocations during the 1999 compliance year. Thirty-one facilities exceeded their Allocations during this compliance year. Failure to reconcile emissions with RTCs held was the leading cause of exceedance.

- RECLAIM had minimal impact on employment during the 1999 compliance year, as in previous years. Nine facilities attributed RECLAIM with generating a total of eleven jobs. Two facilities experienced a total of six jobs lost. One of these facilities indicated that both of its two lost jobs were due to RECLAIM and the other facility attributed an unspecified portion of its four jobs lost to RECLAIM. Twenty RECLAIM facilities shut down or went out of business in 1999. None of the operators of these facilities indicated that RECLAIM contributed to their decisions to cease operations.

AQMD staff plans to propose amendments to RECLAIM at the Governing Board's May 2001 meeting. The purpose of the proposed amendments will be to stabilize the price of NOx RTCs at a reasonable level and to encourage facilities to plan their compliance strategies in advance. Staff will continue to monitor and assess the performance of the RECLAIM program and work closely with RECLAIM participants to ensure continued program success.

Attachment
Annual RECLAIM Audit Report for the 1999 Compliance Year

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Annual RECLAIM Audit Report for the 1999 Compliance Year

March 16, 2001

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SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

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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 1999 compliance year (January 1999 through June 2000).

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, 1999, 19 facilities were included into the program, 16 new RECLAIM facilities were created through partial change of ownership of existing RECLAIM facilities, 61 were excluded from the program, 36 facilities ceased operation, and two neighboring facilities were consolidated into one. Thus, the RECLAIM universe consisted of 331 facilities on July 1, 1999. During Compliance Year 1999, 36 existing facilities were included into the RECLAIM universe, eight existing facilities opted to join RECLAIM, two facilities were consolidated under one existing facility, and 20 facilities shutdown. These changes resulted in a net increase of twenty-three facilities in the universe, bringing the total number of facilities to 354 at the end of the 1999 compliance year. One of the facilities that shutdown was in both the NOx and SOx markets; all other universe changes occurred in the NOx RECLAIM Universe only. Some of the facilities that were included and opted into RECLAIM were issued NOx allocations based upon their historical activity levels. These allocations totaled 192 tons of 1999 RTCs, 171 tons of 2000 RTCs, and 131 tons of 2003 RTCs. The shutdown facilities retained their RECLAIM Trading Credits (RTCs).

Chapter 2: RTC Allocations and Trading

RECLAIM Allocations incorporated emission reduction requirements in AQMD rules and the control measures and projections specified in the Air Quality Management Plan (AQMP). These Allocations are the tools for compliance determination, the trading resource, and guidelines of emission reduction goals.

The primary source of RTCs available for trade is the aggregate of all RECLAIM facilities' Allocations.

RTC trading markets were more active in 2000. Nine hundred forty RTC transactions were registered in 2000 compared to 541 transactions in 1999. More than $182 million in trades occurred during the 2000 calendar year. This amount is in excess of half of the total $286 million in transactions that have occurred since the start of the program.

Prices for all NOx RTCs increased dramatically in 2000, while prices for SOx RTCs increased by a much more modest amount during the same period. RECLAIM participants experienced a sharp and sudden increase in NOx RTC prices for both 1999 and 2000 compliance year RTCs sold during the second half of 2000. However, market price trends for SOx RTCs were similar to prior years, with low prices for current year RTCs and higher prices for future years RTCs. The average price 1999 NOx RTCs traded in 2000 was $15,369 per ton, which was almost ten times the average price of $1,827 per ton of NOx RTCs traded in 1999 for the same compliance year. More significantly, the average price for NOx RTCs for compliance year 2000 RTCs traded during 2000 increased to $45,609 per ton, compared with the average price of $4,284 per ton of 2000 RTCs traded in 1999. This sharp increase in the price of NOx RTCs closely parallels the approach of annual NOx emissions to the total annual NOx RTC supply. Average prices for SOx RTCs traded in 2000 ranged from $1,336 per ton for 1999 RTCs to $2951 per ton for 2003 RTCs. Thus, NOx RTC prices were well above the backstop price of $15,000 per ton and SOx RTC prices were well below the backstop price.

Chapter 3: Emissions Reductions

Aggregate emissions from RECLAIM facilities were below aggregate allocations for the first six compliance years (1994 through 1999), indicating that RECLAIM is achieving its emission reduction goals. Aggregate allocations issued to the RECLAIM facilities reflect an emission level comparable to implementation of the existing command-and-control requirements and AQMP control measures that RECLAIM subsumed.

Aggregate emissions during the 1999 compliance year were comparable to aggregate allocations. Auditing of 1999 compliance year reported emissions, which is currently underway, is likely to result in changes to aggregate emissions. Analysis of emissions data also suggests that the impact of Missing Data Procedures (MDP) on reported emissions is declining, especially for NOx emissions. The declining trend is reflective of the improvement in availability of the monitoring systems which allows facilities to substitute with calculated emissions that are more representative of actual emissions.

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 1999 compliance year shows that 47 existing facilities joined the

RECLAIM program. Seven of these facilities experienced NSR NOx emission increases due to expansions or modifications. Furthermore, 70 existing RECLAIM facilities also experienced 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 1999 compliance year, the RECLAIM provided an offset ratio of 276-to-1 for NOx on an aggregate basis, demonstrating federal equivalency. Offset ratio did not apply to RECLAIM SOx during the 1999 compliance year because there were no RECLAIM SOx NSR increases during that year. 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

Emissions monitoring is the tool to demonstrate allocation compliance under RECLAIM. Specific monitoring approaches were built into the RECLAIM structure to assure a high level of confidence in emissions quantification. In order to determine compliance status, AQMD staff conducts a comprehensive emissions audit of each RECLAIM facility for each compliance year. Preliminary results of the compliance year 1999 audits reveal that the overall RECLAIM emissions goal was met for this compliance year, as it was each previous year of the program. However, not all facilities complied with their individual allocations.

For the 1999 compliance year, preliminary audit results show that 31 facilities exceeded their annual allocations. All exceedances occurred in the NOx universe. Similar to 1998, the main cause of allocation exceedances was failure to purchase sufficient RTCs to reconcile their emissions.

Chapter 6: Job Impacts

Job impacts resulting from the RECLAIM program during the 1999 compliance year continue to be negligible when compared to the overall employment in the basin. Seven RECLAIM facilities attributed one job gain each to RECLAIM. One facility attributed an unknown portion of four jobs lost to RECLAIM. Furthermore, 20 RECLAIM facilities shut down or went out of business in 1999. However, none of the shutdown facilities claimed that RECLAIM was the reason it ceased operations.

Chapter 7: Air Quality and Public Health Impacts

To assess impacts on air quality and public health resulting from RECLAIM, Rule 2015 – Backstop Provisions, requires AQMD to evaluate the following issues as part of each annual program audit: emission trends, seasonal fluctuations, geographic distribution of emissions, per capita exposures to ozone, and impact on toxic emissions.

The emissions reported by RECLAIM facilities from 1989 through the 1999 compliance year 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 1999. Furthermore, analysis of the geographical distribution of emissions during the first six 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% 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 compound (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 toxics 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 sixth compliance year (January 1, 1999 through June 30, 2000), also known as the 1999 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 1999 compliance year.
2. RTC Allocations and Trading
   This chapter summarizes changes in emissions allocations in the

RECLAIM universe, RTC trading activity, and the 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.
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 toxics 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, 1999, 19 facilities were included into the program, 16 new RECLAIM facilities were created through partial change of ownership of existing RECLAIM facilities, 61 were excluded from the program, 36 facilities ceased operation, and two neighboring facilities were consolidated into one. Thus, the RECLAIM universe consisted of 331 facilities on July 1, 1999. During Compliance Year 1999, 36 existing facilities were included into the RECLAIM universe, eight existing facilities opted to join RECLAIM, two facilities were consolidated under one existing facility, and 20 facilities shutdown. These changes resulted in a net increase of twenty-three facilities in the universe, bringing the total number of facilities to 354 at the end of the 1999 compliance year. One of the facilities that shutdown was in both the NOx and SOx markets; all other universe changes occurred in the NOx RECLAIM Universe only. Some of the facilities that were included and opted into RECLAIM were issued NOx allocations based upon their historical activity levels. These allocations totaled 192 tons of 1999 RTCs, 171 tons of 2000 RTCs, and 131 tons of 2003 RTCs. The shutdown facilities retained their RECLAIM Trading Credits (RTCs).

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 ceases to belong to an exempt category; or

- The facility 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, 1999 include nineteen facility inclusions, sixty-one facility exclusions, thirty-six facility shutdowns, sixteen new facilities created by partial change of ownership of existing RECLAIM facilities, and consolidation of two neighboring RECLAIM facilities into one. Thus, the net change in the RECLAIM universe during the first five compliance years was a decrease from 394 to 331 facilities. During Compliance Year 1999, thirty-six existing facilities were included into the RECLAIM universe, eight existing facilities opted to join RECLAIM, two facilities were consolidated under one existing facility, and twenty facilities were shutdown[1]. These changes brought the total universe up to 354 facilities.

Table 1-1 summarizes the changes in the RECLAIM universe between the start of Program and the end of Compliance Year 1999.

[1] The twenty shutdown facilities include 12 facilities that were shutdown prior to the 1999 compliance year but have not yet been accounted for in a RECLAIM audit.

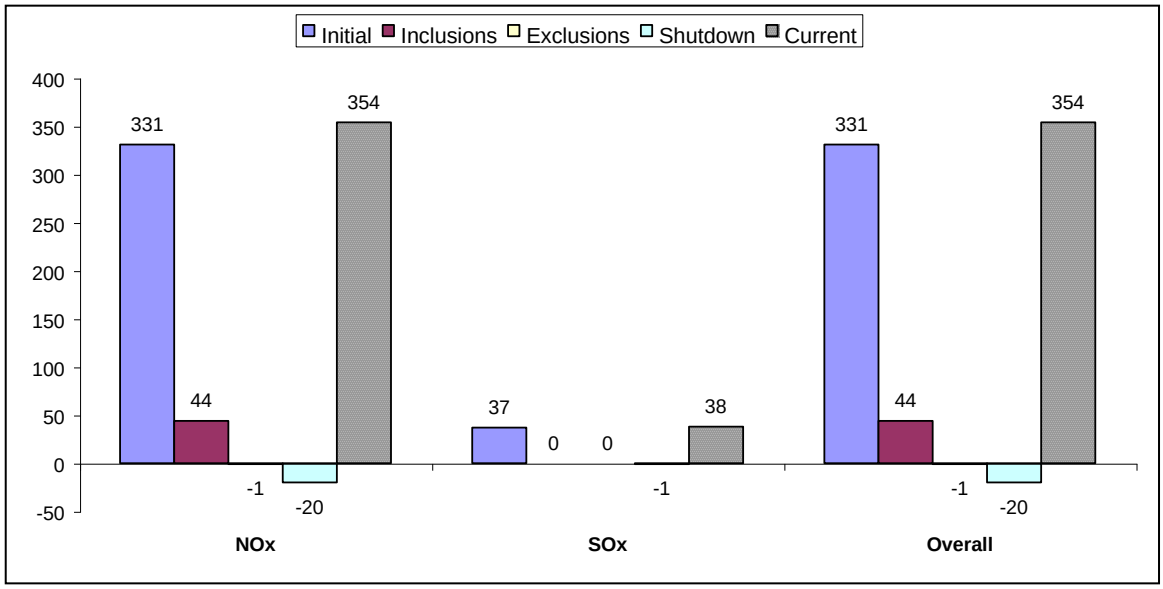
Table 1-1
RECLAIM Universe Changes

	NOx Facilities	SOx Facilities	Total Facilities
Start of Program	**392**	**41**	**394**
Inclusions—1994-1998	34	5	34
Exclusions—1994-1998	60	4	61
Shutdowns—1994-1998	35	5	36
End of 1998 Compliance year	**331**	**37**	**331**
Inclusions—1999	44	0	44
Exclusions—1999	1[1]	0	1[1]
Shutdowns—1999	20	1	20
End of 1999 Compliance year	**354**	**36**	**354**

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

Figure 1-1 illustrates the changes that occurred during Compliance Year 1999. Appendix A lists the facilities in the RECLAIM universe as of June 30, 2000.

Figure 1-1
Universe Changes during Compliance Year 1999



Facility Inclusions and Exclusions

During Compliance Year 1999, 36 existing facilities were included into the RECLAIM market and eight existing facilities opted to join RECLAIM. On the other hand, two separate corporations operated two adjacent RECLAIM facilities at the beginning of Compliance Year 1999. These two corporations were

merged into one of the existing corporations. Therefore, the two facilities were also merged into one single facility. This consolidation accounts for the one exclusion identified in Table 1-1. The net result of these changes and the shutdowns discussed below is the addition of 23 facilities in the RECLAIM Universe.

Facilities Permanently Ceasing Operations

Seven NOx and one NOx and SOx RECLAIM facilities permanently ceased operations and went out of business between January 1, 1999 and June 30, 2000 and an additional twelve NOx facilities shutdown prior to July 1999 but were not accounted for in previous RECLAIM audits. These facilities have the option to retain or sell their RTCs. None 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.

One of the facilities that ceased operation was in both the NOx and SOx markets. None of the other universe changes impacted the SOx market.

CHAPTER 2
RTC ALLOCATIONS AND TRADING

Summary

RECLAIM Allocations incorporated emission reduction requirements in AQMD rules and the control measures and projections specified in the Air Quality Management Plan (AQMP). These Allocations are the tools for compliance determination, the trading resource, and guidelines of emission reduction goals. The primary source of RTCs available for trade is the aggregate of all RECLAIM facilities' Allocations.

RTC trading markets were more active in 2000. Nine hundred forty RTC transactions were registered in 2000 compared to 541 transactions in 1999. More than $182 million in trades occurred during the 2000 calendar year. This amount is in excess of half of the total $286 million in transactions that have occurred since the start of the program.

Prices for all NOx RTCs increased dramatically in 2000, while prices for SOx RTCs increased by a much more modest amount during the same period. RECLAIM participants experienced a sharp and sudden increase in NOx RTC prices for both 1999 and 2000 compliance year RTCs sold during the second half of 2000. However, market price trends for SOx RTCs were similar to prior years, with low prices for current year RTCs and higher prices for future years RTCs. The average price 1999 NOx RTCs traded in 2000 was $15,369 per ton, which was almost ten times the average price of $1,827 per ton of NOx RTCs traded in 1999 for the same compliance year. More significantly, the average price for NOx RTCs for compliance year 2000 RTCs traded during 2000 increased to $45,609 per ton, compared with the average price of $4,284 per ton of 2000 RTCs traded in 1999. This sharp increase in the price of NOx RTCs closely parallels the approach of annual NOx emissions to the total annual NOx RTC supply. Average prices for SOx RTCs traded in 2000 ranged from $1,336 per ton for 1999 RTCs to $2951 per ton for 2003 RTCs. Thus, NOx RTC prices were well above the backstop price of $15,000 per ton and SOx RTC prices were well below the backstop price.

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.

RTC trades are most active during the reconciliation periods because facilities are more confident of their amount of allocation surplus or of their credit needs after they determine their annual emissions. The price of expiring RTCs has consistently declined during the reconciliation period commencing at the end of their period of validity (e.g., in July and August 1998 for RTCs valid July 1997 through June 1998) in all years prior to the 1999 compliance year. However, the price of RTCs for both cycles of the 1999 compliance year increased during their respective reconciliation periods. This change in price trends indicates that the demand for RTCs began to approximate the supply during the 1999 compliance year.

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 ERCs owned by RECLAIM and non-RECLAIM facilities, and conversion of mobile source ERCs make up the total RTC supply in the program.

As stated in Chapter 1 – RECLAIM Universe, 39 new facilities were included into the RECLAIM NOx universe and nine additional facilities elected to enter the NOx market during the 1999 compliance year. Additionally, two facilities were merged into one and 14 facilities shut down. One of the facilities that shutdown was also in the SOx universe. There were no other changes to the SOx universe. Some of the 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. 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)[1]. Table 2-1 summarizes the RTCs that were issued in as a result of these changes. Figures 2-1 and 2-2 illustrate the total NOx and SOx RTC supplies, respectively.

Table 2-1
NOx RTCs issued during the 1999 compliance year (ton/year)

Source	1999	2000	2001	2002	2003+
Universe changes	192	171	157	144	131
ASC conversion[2]	0	68	68	0	0
MSERC conversion[2]	0	150	10	0	0
Activity corrections	4.3	3.1	2.8	2.5	2.2
RFG[1]	0	101	101	101	101
Total	196	425	339	316	234

[1] RTCs issued for increased emissions resulting from the production of reformulated gasoline are subject to change from year to year to compensate only for actual emissions.
[2] MSERC and ASC conversion data from credits issued in calendar year 2000.

Table 2-2
SOx RTCs issued during the 1999 compliance year (ton/year)

Source	1999	2000	2001	2002	2003+
RFG	0	53	53	53	53
Total	0	53	53	53	53

[1] Rule 2002 provides refineries with RTCs to compensate for actual emissions directly related to the production of RFG. The amount of RTCs issued was based on historical production data. 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 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.).

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

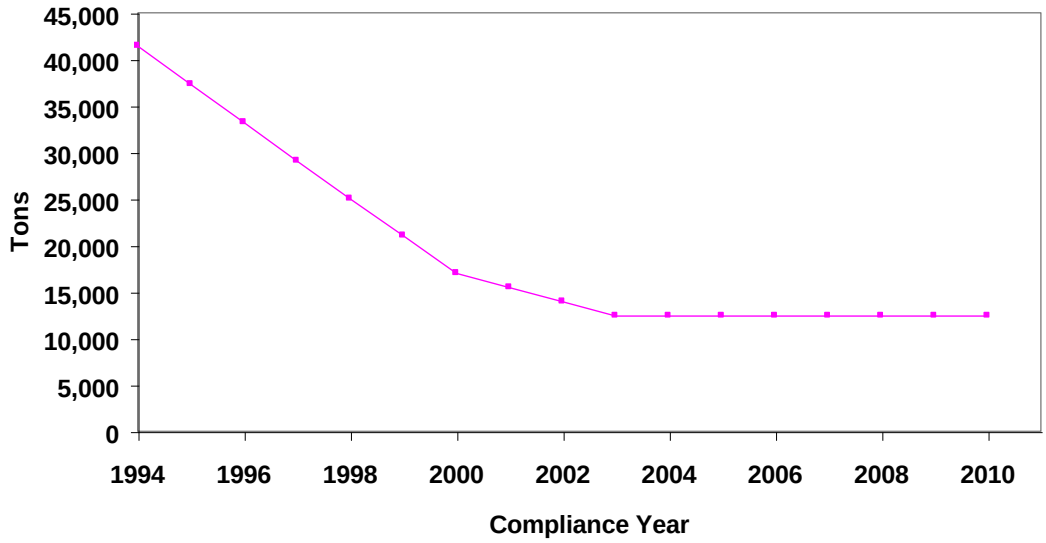
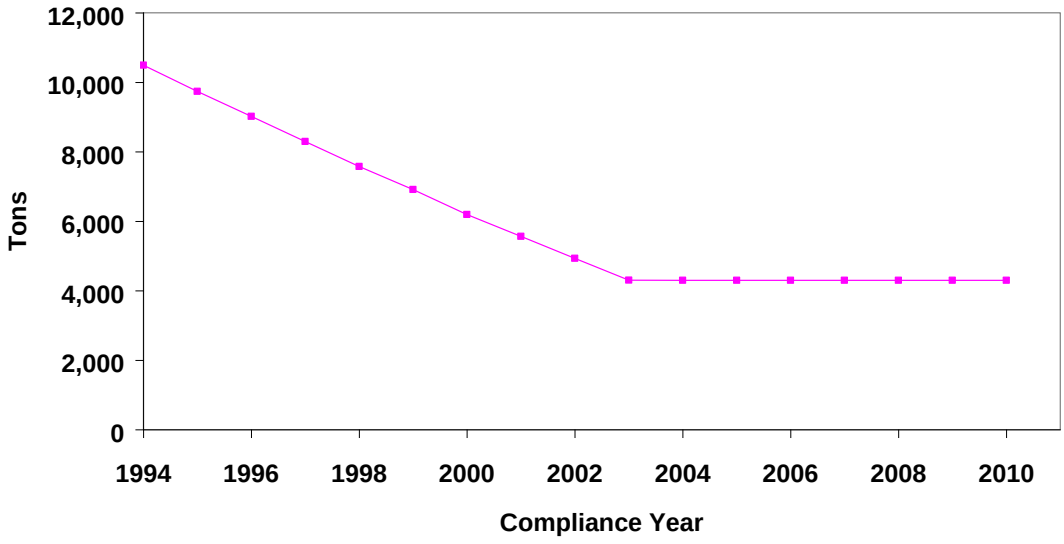


Figure 2-2
SOx RTC Supply (tons/year)

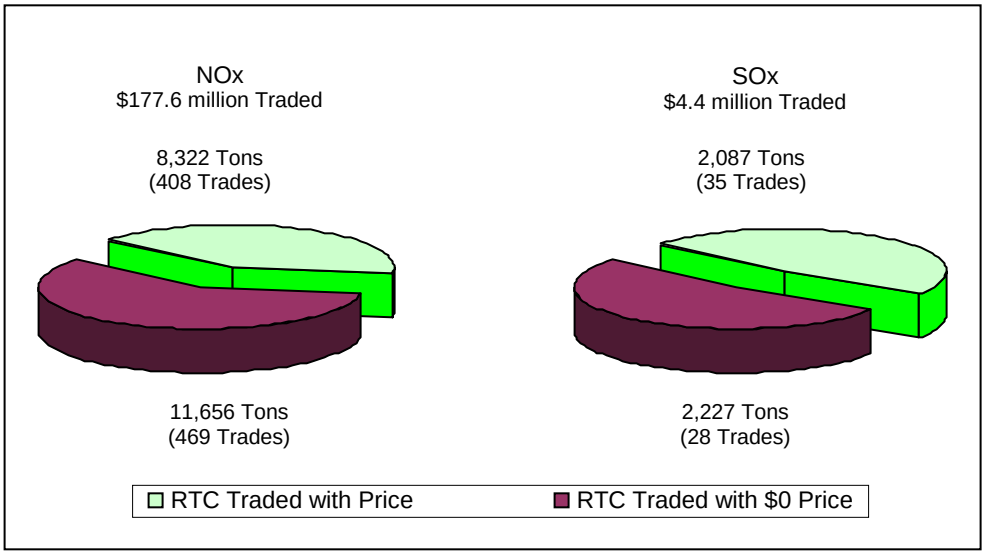


RTC Trading Activity

Activities in the RTC trading market increased in 2000. 940 trades totaling over 24,291 tons of NOx and SOx RTCs were transferred during the 2000 calendar year. This is a significant increase from the 541 trades in the 1999 calendar

year. In terms of the number of registrations, the total of 940 trades is the highest annual activity since the start of the RTC trading market. These trades included both RTCs traded with prices and transfers with $0 price. The total of all reported prices for RTCs traded in 2000 exceeded $182 million. Excluding trades without price, 71,904 tons of NOx RTCs have been traded with a total price of more than $260 million and 18,716 tons of SOx have been traded with a total price more than $25 million since program inception in 1994. Figure 2-3 summarizes 1999 trading activity by pollutant.

Figure 2-3
2000 Trading Activity



Brokers conducted most of the trades with prices. Trades with prices are also common among transfers directly between RECLAIM facilities. In 2000, 443 trades (408 for NOx and 35 for SOx) totaling 8,322 tons of NOx and 2,087 tons of SOx were traded with prices. Power generators were the primary purchasers of NOx RTCs in 2000. The total values of all 2000 trades were $177.6 million and $4.4 million, respectively. These trades included activity for both current-year and future-year RTCs. Electric utilities accounted for 62 percent of the 3140 tons of 2000 RTCs purchased during calendar year 2000. These purchases of 2000 RTCs on the part of electric utilities accounted for approximately 68 percent of the $89.5 million spent on 2000 RTCs during calendar year 2000.

Trades with $0 price generally occur when a seller transfers RTCs to a broker, when there is a transfer between brokers, or 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 observed in 2000. In addition to trading with prices, facilities traded RTCs of different pollutants where one facility transferred NOx RTCs to a second facility with $0 price. In return, the second facility transferred SOx RTCs to the first facility with $0 price. There were also trades with $0 price in which facilities traded current-year NOx RTCs for a greater quantity of future-year NOx RTCs. Figures 2-4 and 2-5 illustrate tons of NOx and SOx traded, respectively.

These figures show trades with and without prices in 2000 and compare them with trading activity in the prior years.

Figure 2-4
Total Tons of NOx Traded

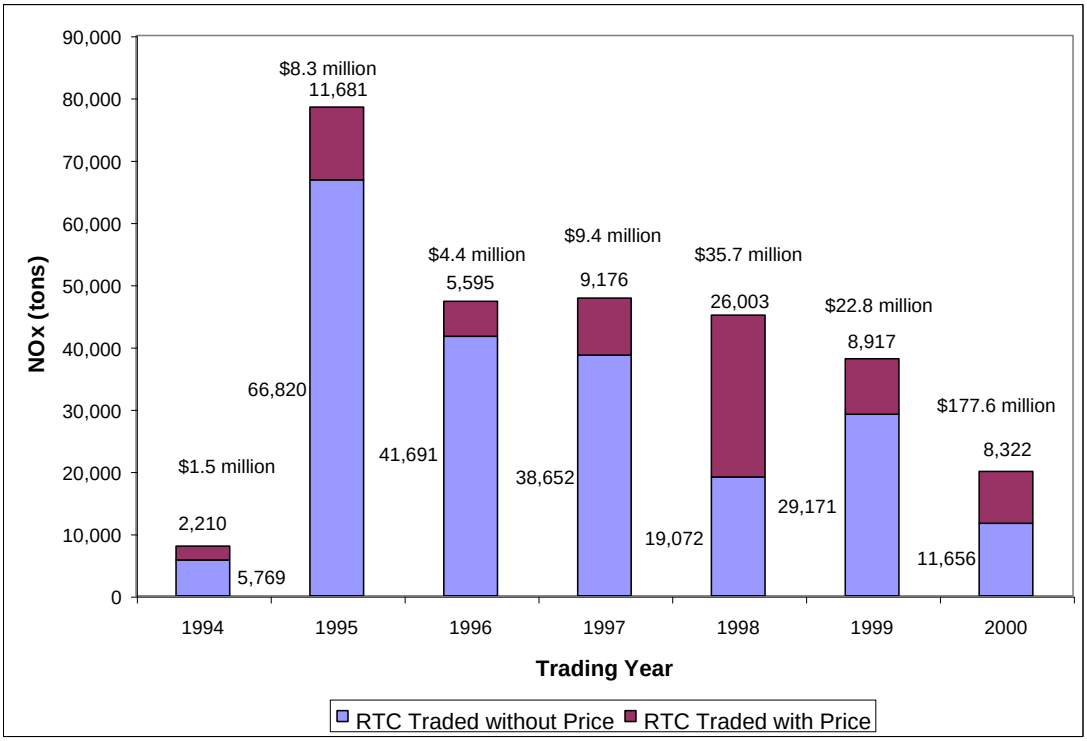
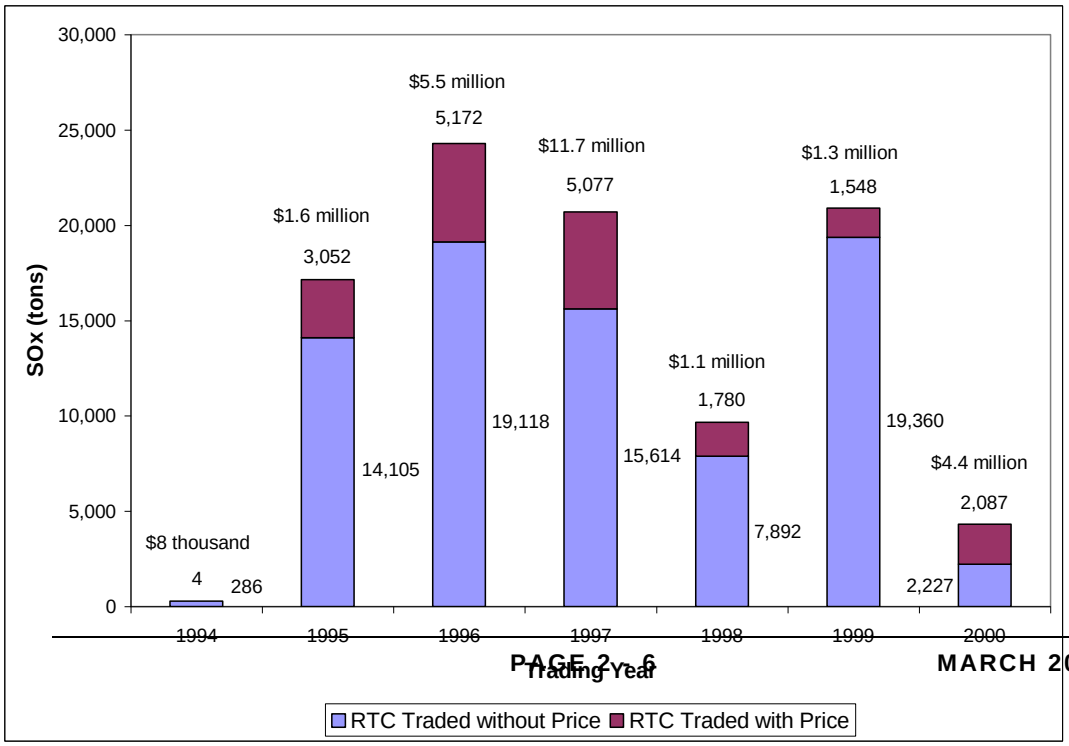


Figure 2-5
Total Tons of SOx Traded



Comparison of 2000 Trading Activity to Previous Years

Total number of trades registered with AQMD in 2000 were more than any previous years. However, the total quantity of RTCs traded in 2000 is less than the volumes traded in years 1995 through 1999. Prices for NOx RTCs have increased dramatically which resulted in over $177.6 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 decreased compared to the years 1995 through 1999.

The total quantity of SOx RTCs traded in 2000 decreased compared to 1995 through 1999. There were ten trades with price that involved future year RTCs. Prices for SOx RTCs with expiration dates of year 2003 and beyond are higher than the average market prices for all previous years.

RTC Prices

Prices for all NOx RTCs increased dramatically in 2000; RECLAIM participants experienced a sharp and sudden increase in NOx RTC prices for both 1999 and 2000 compliance year RTCs sold during the second half of 2000. The average price of 1999 NOx RTCs traded in 2000 was $15,369 per ton, which was almost ten times the average price of $1,827 per ton of NOx RTCs traded in 1999 for the same compliance year. More significantly, the average price for NOx RTCs for compliance year 2000 traded during 2000 increased to $45,609 per ton, compared with the average price of $4,284 per ton of 2000 RTCs traded in 1999. Finally, the average price for compliance year 2001 NOx RTCs traded in 2000 was $25,950 per ton. This sharp increase in the price of NOx RTCs closely parallels the approach of annual NOx emissions to the total annual NOx RTC supply. SOx RTC prices in 2000 continued in a trend similar to previous years, with lower prices for the current year credits and higher prices for the future years. The average price for SOx RTCs increased overall in 2000, with average prices ranging from $1,336 per ton for 1999 RTCs to $2,951 per tons for RTCs expiring in 2003 and beyond. Thus, NOx RTC prices were well above the backstop price of $15,000 per ton and SOx RTC prices were well below the backstop price. Figures 2-6 and 2-7 show the changes in average prices for NOx and SOx RTCs respectively.

As a result of the price of NOx RTCs exceeding $15,000 per ton, AQMD staff prepared a “White Paper” that addressed stabilizing the prices of RTCs. This paper was submitted the Governing Board on January 19, 2001. Preparation of proposed rule amendments implementing the solutions presented in the “White Paper” is under way. Exceedance of the backstop price also triggers an evaluation and review of the compliance and enforcement aspects of the RECLAIM program.

Since the start of the RECLAIM program in 1994, prices have generally been lower as the expiration date of the RTCs approaches. Prices are even lower during the 60-day reconciliation period after the expiration date of the RTCs. However, in 1999 and 2000, the price trend for current-year NOx RTCs has been reversed, and prices for these expiring RTCs increased as the expiration date approached.

Figure 2-6
Yearly Average Prices for NOx RTCs

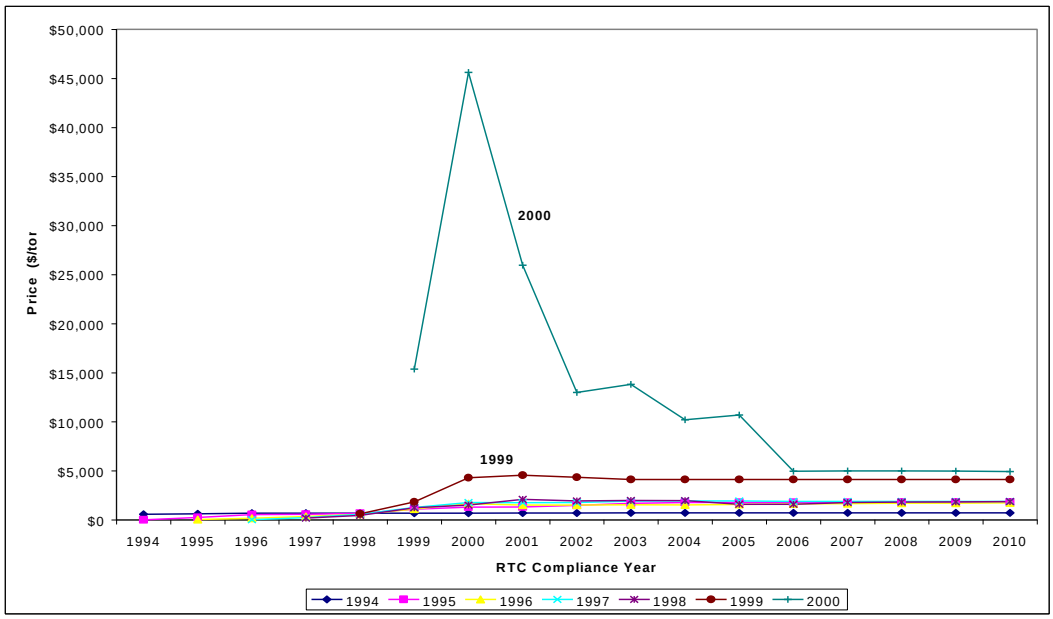
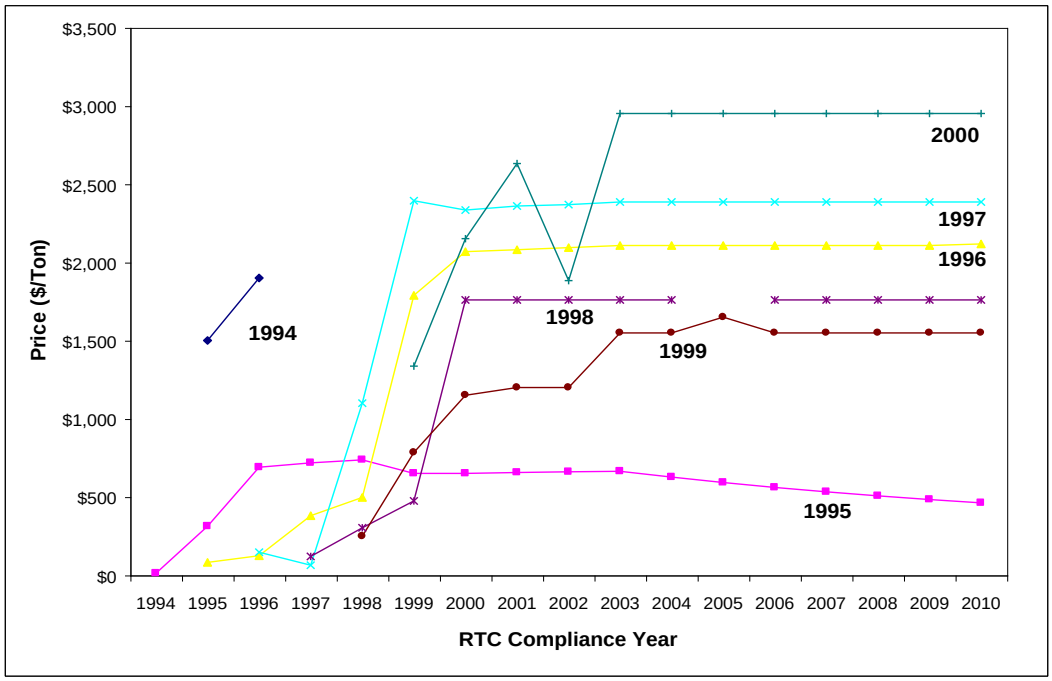


Figure 2-7
Yearly Average Prices for SOx RTCs



As in previous years, post-2010 RTCs are traded as if they were collectively tied to the 2011 RTCs; all trades involving post-2010 RTCs have been executed in blocks extending infinitely forward in time with a single aggregate price.

RTC Availability

All RECLAIM facilities that were in operation prior to January 1, 1993 were allocated RECLAIM Trading Credits based upon their historical (pre-recession) activity levels and emission factors established in Rule 2002 – Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx). The allocated RTCs decline annually through 2003, then remain constant at the 2003 level for each subsequent year, as illustrated in Figures 2-1 and 2-2. Additional RTCs were generated in 2000 through various means, including conversion of Emission Reduction Credits, Mobile Source Credits, and Area Source Credits; adjustment of certain emission factors based upon rule-required technology assessments; Clean Fuel adjustments associated with production of Phase II Reformulated Gasoline; and corrections to reported historical activity levels, as identified in Tables 2-1 and 2-2.

Due to the declining nature of the overall RTC supply, it is necessary for overall emissions (i.e., RTC demand) to decrease so that there are sufficient RTCs to reconcile emissions each year. Figures 3-1 and 3-2 illustrate that during the first few years of the program there was an ample supply of RTCs to reconcile emissions. These figures also show that the program has matured to the point that there is an immediate need for significant emission reductions to prevent aggregate reported emissions from exceeding the total supply of RTCs. Unfortunately, even though AQMD has published figures analogous to Figures 3-1 and 3-2 at least once each year starting in January 1996[2]; the majority of RECLAIM facilities have relied on purchasing inexpensive RTCs to bring their RTC holdings up to the level of their emissions rather than reducing their emissions to the level of their RTC holdings by making capital expenditures on emissions controls. This approach worked well through the 1999 compliance year, which concluded June 30, 2000. However, despite various reports presented to the Governing Board in 1996, 1997, 1998, and 1999 that consistently and clearly indicated that supplies of both NOx and SOx RTCs would decline to the level of RECLAIM emissions in or around the 1999 compliance year, aggregate 1999 NOx emissions (20,775 ton) were very close to aggregate NOx RTCs (21,013 ton). The market forces of supply and demand drove up the price of 1999 and 2000 NOx RTCs dramatically, as discussed previously in this chapter. The recent high NOx RTC prices indicate that the supply of RTCs was insufficient to meet demand, which is consistent with the fact that aggregate emissions were approximately equal to aggregate allocations. The high price of RTCs and their scarcity should prompt emission reduction projects in the near term.

The supply of SOx RTCs, on the other hand, has thus far been sufficient to meet demand. This is evidenced by the reasonably consistent price of credits, as discussed earlier in this chapter. Total 1999 SOx emissions (6525 tons) represented 94 % of the supply (6911 tons). Clearly, reductions in SOx emissions are also needed in the near term to avoid depletion of the SOx RTC supply and skyrocketing prices similar to those observed recently for NOx RTCs.

[2] Such figures are included in each Annual Audit Report (January 1996, February 1997, March 1998, March 1999, March 2000), Three-Year Audit and Progress Report (May 1998), Review of RECLAIM Findings (October 2000), and White Paper on Stabilization of NOx RTC Prices (January 2001).

Sixty-six air pollution control projects were proposed in 2000[3], some of which have received permits and the remainder under evaluation by AQMD staff. Thirty-seven of these projects were implemented in 2000 and the remaining 29 are expected to be in operation in 2001. Assuming continuation of 1999 production levels, these projects are expected to reduce NOx RTC demands by 1,100 tons in 2001 and by 3,880 tons in 2002 and beyond. These projects are summarized in Table 2-3.

Table 2-3
Projected Emission Reductions from Projects Proposed in 2000

Number of Projects	Process Equipment	Control Technology	Expected Reductions (tons/yr) Based on 1999 Reported Emissions	Expected Year of Operation
3	Oven	Concentration Limit Change	1.7	2000
9	Kiln	Concentration Limit Change	4.7	2000
10	Heater	Low NOx Burner	260.3	2000
4	Furnace	Concentration Limit Change	0.9	2000
1	CO Boiler	Combustion Modification	386.0	2000
3	Boiler	Low NOx Burner	0.5	2000
1	Gas Turbine	Selective Catalytic Reduction	N/A	2000
1	I.C. Engines	Concentration Limit Change	N/A	2000
4	Furnace	Concentration Limit Change	N/A	2000
1	FCCU	Selective Catalytic Reduction	440	2000
17	Utility Boiler	Selective Catalytic Reduction	2,670	2001
1	Heater	Low NOx Burner	85.7	2001
3	IC Engine	Staged Combustion	28.8	2001
1	Heater	Low NOx Burner	N/A	2001
1	Heater	Selective Catalytic Reduction	N/A	2001
2	Heater	Steam Injection	N/A	2001
4	IC Engine	Non-selective Catalytic Reduction	N/A	2001

On the other hand, there are currently three proposals to expand power generation capacity within the South Coast Air Basin: construction of a new large power plant, expansion of generation capacity at an existing power plant, and retooling two retired boilers at an existing power generation facility to increase the facility's generation capability. These three projects could add

[3] This data was generated in August 2000.

approximately 520[4] tons of NOx RTC demand per year commencing in 2002. It is currently unclear what portion of the generating capacity resulting from these three projects will be needed in the future.

NOx emissions need to be reduced 28 percent in 2000, 34 percent in 2002, and 41 percent in 2003 relative to 1999 emission levels to maintain compliance with aggregate allocations. Assuming continued operation at 1999 levels plus the addition of full use of the new power generation capacity as described above and implementation of the above-described emission reduction projects, these numbers become 28 percent, 32 percent, and 29 percent in 2001, 2002, and 2003, respectively. Fortunately, a number of cost-effective NOx control technologies are available to achieve the needed emission reductions, as summarized in Tables 2-4. NOx emissions need to be reduced 23.3 tons per day from the 1999 level to achieve compliance with aggregate 2003 allocations.

Table 2-4
Possible Reductions in Emissions (Preliminary Estimates Using Known Technologies)

Source Type	Control Technology*	Achievable Level
Utility Boilers	SCR	5-8 ppm
Boilers > 20 mmBtu	SCR	7 ppmv at 3% O_2
Boilers > 40 mmBtu (refineries)	ULNB	9 ppm
Boilers >= 20 mmBtu (except refinery heaters > 40 mmBtu)	ULNB	9 ppm
Boilers < 20 mmBtu	ULNB	9-12 ppm
Boilers	SCONOX	2+ ppmv at 3% O_2
Boilers	LTO	5-7 ppmv at 3% O_2
Process heaters > 40 mmBtu (refineries)	Low NOx burners	0.03 lb/mmBtu (~ 25 ppm)
Process heaters > 2 mmBtu (except refinery heaters > 40 mmBtu)	Low NOx burners	33 ppm
Process Heaters > 40 mmBtu (refineries)	SCR	5 ppmv at 3% O_2
Process Heaters > 40 mmBtu (refineries)	LNB	18 ppmv at 3% O_2
Gas turbines	SCR	3-9 ppm at 15% O_2
Gas Turbines	SCONOX	1 ppmv at 15% O_2
Gas Turbines	XONON	2.5 ppmv at 15% O_2
Diesel ICEs	SCR	44 ppm
ICE, Natural Gas	3-Way Catalyst	24-27 ppm
ICE, Natural Gas	NSCR	11 ppmv at 15% O_2
ICE, Diesel	NOx TEC	33 ppmv at 15% O_2
Dryer	ULNB	10 ppmv at 3% O_2
Dryer	LNB	30 ppmv at 3% O_2
Oven	LNB	30 ppmv at 3% O_2
Furnace	LNB	40 ppmv at 3% O_2
Furnace, metal melting	Oxy-fuel	9 ppmv at 3% O_2
Afterburner	LNB	30 ppmv at 3% O_2

[4] The estimate of 520 tons of NOx RTC demand per year is based upon operation at maximum capacity and utilization of Best Available Control Technology.

* SCR = Selective Catalytic Reduction
  ULNB = ultra low NOx burner
  LTO = low temperature oxidation
  NSCR = non-selective catalytic reduction
  Oxy-fuel = enriched oxygen fuel combustion

CHAPTER 3
EMISSION REDUCTIONS

Summary

Aggregate emissions from RECLAIM facilities were below aggregate allocations for the first six compliance years (1994 through 1999), indicating that RECLAIM is achieving its emission reduction goals. Aggregate allocations issued to the RECLAIM facilities reflect an emission level comparable to implementation of the existing command-and-control requirements and AQMP control measures that RECLAIM subsumed.

Aggregate emissions during the 1999 compliance year were comparable to aggregate allocations. Auditing of 1999 compliance year reported emissions, which is currently underway, is likely to result in changes to aggregate emissions. Analysis of emissions data also suggests that the impact of Missing Data Procedures (MDP) on reported emissions is declining, especially for NOx emissions. The declining trend is reflective of the improvement in availability of the monitoring systems which allows facilities to substitute with calculated emissions that are more representative of actual emissions.

Background

One of the major objectives of the RECLAIM program audits is to assess whether RECLAIM is achieving its targeted emission reductions. The annual allocations given to each RECLAIM facility for each year from 1994 reflect the required emission reductions mirroring the reductions projected to if the traditional command-and-control rules and control measures that RECLAIM subsumed had been implemented. Consequently, as long as aggregate emissions remain below aggregate allocations, it can be concluded that RECLAIM has achieved its targeted emission reductions.

Emissions Audit Process

AQMD has conducted annual audits on the data submitted by RECLAIM facilities for the past six 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 aggregate allocations. Allocations are based on projected emission levels 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 six compliance years, including emissions quantified pursuant to MDP. At the time of preparation of this report, auditing of approximately thirty percent of the compliance year 1999 APEP reports submitted by Cycle 1 facilities had been completed. Emissions data for compliance year 1999 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 the 1994 through 1999 Compliance Years

	1994	1995	1996	1997	1998	1999[2]
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[3] (ton)	40,127	36,031	32,017	27,919	24,678	21,013
Excess RTCs (ton)[4]	14,813	10,267	7,221	6,133	3,696	240
% Excess RTCs[4]	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. 1999 emissions are not fully audited; 99 out of 355 facilities were audited. For the remaining facilities, APEP 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.

Table 3-2
Annual SOx Emissions[1] for the 1994 through 1999 Compliance Years

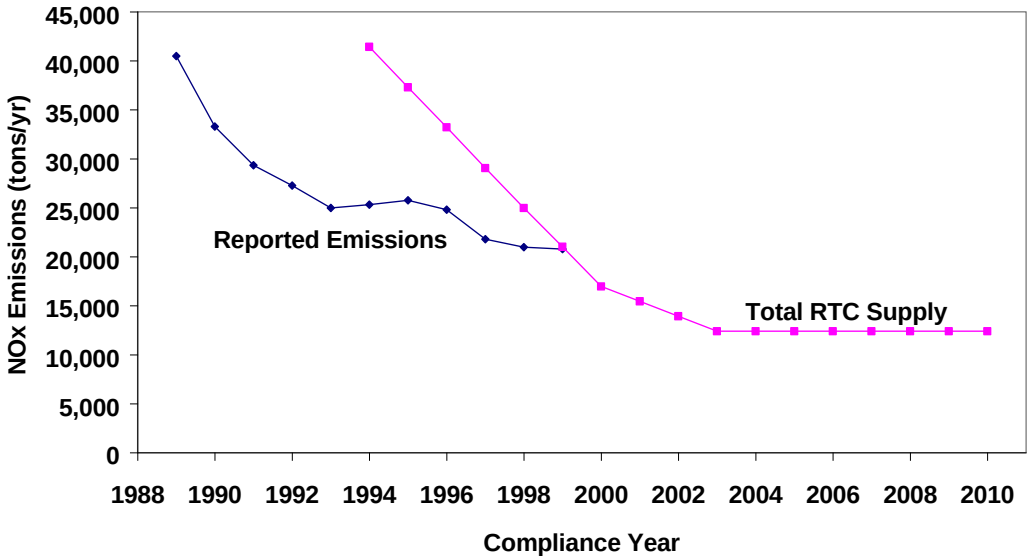
	1994	1995	1996	1997	1998	1999[2]
Annual Emissions (ton)	7,232	8,064	6,484	6,464	6,793	6,378
% Change from 1994	0 %	+11.5 %	-10.3 %	-10.6 %	-6.1 %	-11.8 %
Total RTCs[3] (ton)	10,365	9,612	8,894	8,169	7,577	6,911
Excess RTCs (ton)[4]	3,133	1,548	2,410	1,705	784	533
% Excess RTCs[4]	30 %	16%	27 %	21%	10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

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. 1999 emissions are not fully audited; 99 out of 355 facilities were audited. For the remaining facilities, APEP 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.

As shown in the above tables, RECLAIM facilities have not exceeded their allocations on an aggregate basis during any of the six completed compliance years (1994 through 1999). This indicates that RECLAIM met its programmatic emission reduction goals and demonstrated equivalency in emissions reduction compared to the traditional command-and-control measures. As indicated in Table 3-1, aggregate NOx emissions continue to be below allocations. However, the rate of decline from 1997 to 1999 is less than the rate of annual allocation reduction. This resulted in the aggregate NOx emissions approaching the level of the allocations. Overall, NOx emissions have dropped 18 percent from 25,314 tons in 1994 to 20,780 tons in 1999.

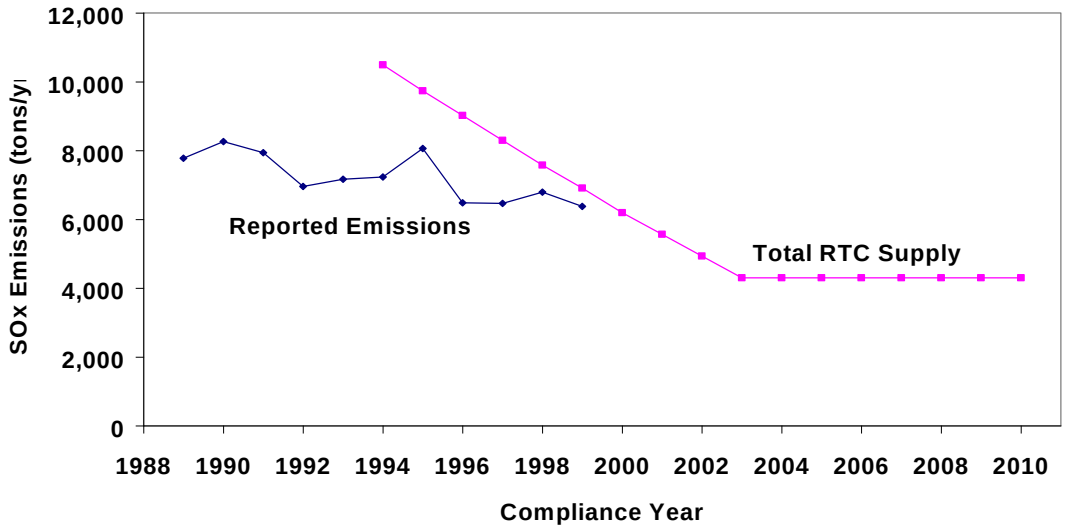
Table 3-2 shows that there is a slight increase in SOx emissions for compliance year 1998 compared to those reported in 1997. 1999 SOx emissions were comparable to 1997 SOx emissions. SOx emissions are still in a decline and have decreased 12 percent from 7,232 tons in 1994 to 6,378 tons in 1999. Figures 3-1 and 3-2, illustrates the comparisons of emissions and the RTC supply for NOx and SOx respectively.

Figure 3-1
NOx Emissions and Available RTCs



1999 emissions presented in this figure are based on preliminary audited data.

Figure 3-2
SOx Emissions and Available RTCs



1999 emissions presented in this figure are based on preliminary audited data.

Impact of Missing Data

MDP is designed to provide substitute data for periods when emission monitoring systems fail to yield valid emissions measurements. According to the 1999 APEP reports, 84 NOx facilities and 13 SOx facilities used MDP in reporting their annual emissions. In terms of mass emissions, 9.6 percent of the total 1999 NOx emissions and 19.9 percent of the total 1999 SOx emissions were

calculated using MDP.

Table 3-3 summarizes the impact of MDP on annual emissions for the past five years from the 1995 through 1999 compliance years (MDP did not apply during the 1994 compliance year).

Table 3-3
MDP Impact on Annual Emissions

	Percent of Reported Emissions Using Substituted Data[1]				
Emittants	**1995**	**1996**	**1997**	**1998**	**1999**
NOx	23 % (65)	20 % (61)	18 % (83)	7.3% (77)	9.6 % (84)
SOx	40 % (12)	16 % (11)	16 % (17)[2]	13% (15)	20 % (13)

1. Numbers in parenthesis represent the number of facilities that reported use of MDP in each compliance year.
2. Numbers have been updated from the 1997 compliance year Annual Report

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. MDP is applied in several 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, 84 facilities reported NOx emissions using MDP in 1999. Although 19 more facilities reported NOx emissions using MDP in 1999 than in 1995, the impact of MDP is smaller in 1999 (9.6 percent of 1999 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 in addition to the overestimated emissions due to MDP bias. For example, it is estimated that 9.6 percent of NOx annual emissions were reported using MDP in 1999. This does not mean that 9.6 percent of 1999 reported NOx emissions were not real. A portion of the 9.6 percent is the overestimated emissions due to MDP bias, but a significant portion of it could have been actual emissions from the sources. Unfortunately, the

extent to which actual emissions have been overestimated 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 (74 % of NOx and 89 % of SOx) was reported by refineries.

Impact of Changing Universe

As discussed in Chapter 1, changes to the NOx RECLAIM Universe during compliance year 1999 included 39 existing facilities were included into RECLAIM, nine opt-in facilities, two facilities merged into one, three facilities wre excluded, and 14 facilities ceased operations. One of the facilities that ceased operations was also in the SOx market; no other changes were made to the SOx universe. 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 that will have NOx or SOx emissions in excess of 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. 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.

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 each compliance year from 1994 through 1999.

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

Category	1999 NOx Emissions (tons)	1999 NOx Allocations (tons)	2000 NOx Allocations (tons)	2003 NOx Allocations (tons)
Shutdown Facilities	1,890	1,191	968	706
Included Facilities	286*	192	171	131
RECLAIM Universe	20,775	21,013	17,159	12,396

*Included facilities' emissions do not include those of two facilities that failed to report.

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

Category	1999 NOx Emissions (tons)	1999 NOx Allocations (tons)	2000 NOx Allocations (tons)	2003 NOx Allocations (tons)
Shutdown Facilities	0	6.59	6.31	4.29
Included Facilities	0	0	0	0
RECLAIM Universe	6,378	6,911	6,193	4,302

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 1999 compliance year shows that 47 existing facilities joined the RECLAIM program. Seven of these facilities experienced NSR NOx emission increases due to expansions or modifications. Furthermore, 70 existing RECLAIM facilities also experienced 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 1999 compliance year, the RECLAIM provided an offset ratio of 276-to-1 for NOx on an aggregate basis, demonstrating federal equivalency. Offset ratio did not apply to RECLAIM SOx during the 1999 compliance year because there were no RECLAIM SOx NSR increases during that year. 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 1999 compliance 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 1999 compliance year indicated that RECLAIM facilities continue to successfully expand or modify their operations while complying with NSR requirements. Forty-seven existing facilities joined the program. There was a total of 6.2 tons of NOx NSR activity (i.e., increases) at seven of these facilities. An additional 70 existing RECLAIM facilities experienced a total of 68.7 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

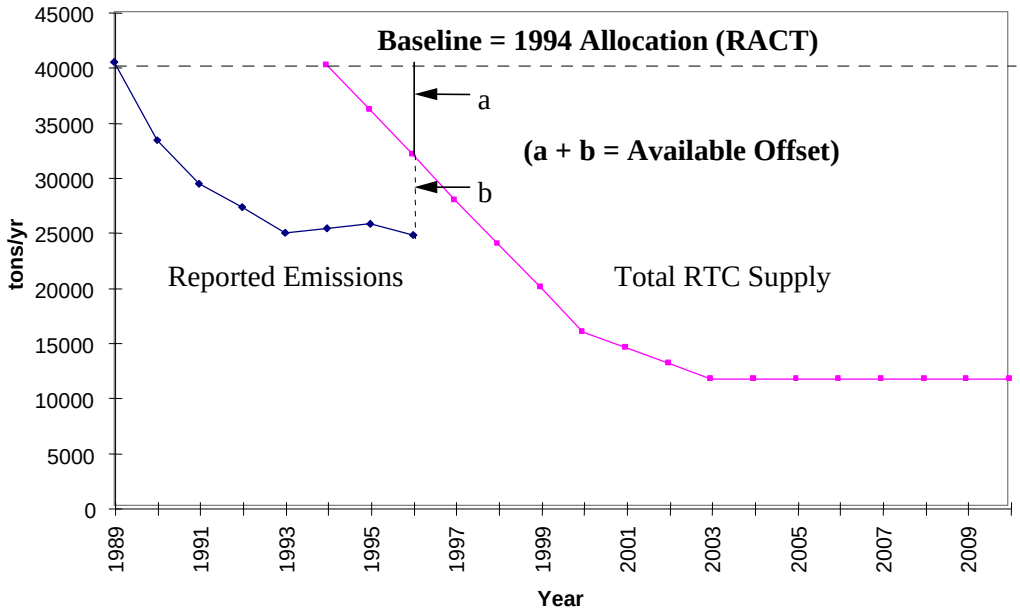
Facility Type	1994	1995	1996	1997	1998	1999
Facilities New to RECLAIM	2	0	0	0	0	7
Existing RECLAIM Facilities with Expansions or Modifications	41	114	50	44	40	70

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 compliance year since the start of the RECLAIM program in 1994. As noted in the tables, the aggregate offset ratio for RECLAIM facilities is 276:1 for NOx for the 1999 compliance year. Offset ratio does not apply to the SOx market for 1999 because there were no SOx NSR emission increases.

The offset ratio for SOx in the 1998 and 1999 compliance years is much higher than the offset ratios in the previous years. This is because the 1998 and 1999 total SOx NSR emission increases for the 1998 compliance year consisted only of SOx activities at facilities specifically identified as SOx RECLAIM facilities. In the previous years, the total SOx NSR emission increases included SOx activities at all RECLAIM facilities.

Table 4-2
Emission Reductions and Offset Ratios for NOx

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

Table 4-3
Emission Reductions and Offset Ratios for SOx

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

Emissions monitoring is the tool to demonstrate allocation compliance under RECLAIM. Specific monitoring approaches were built into the RECLAIM structure to assure a high level of confidence in emissions quantification. In order to determine compliance status, AQMD staff conducts a comprehensive emissions audit of each RECLAIM facility for each compliance year. Preliminary results of the compliance year 1999 audits reveal that the overall RECLAIM emissions goal was met for this compliance year, as it was each previous year of the program. However, not all facilities complied with their individual allocations.

For the 1999 compliance year, preliminary audit results show that 31 facilities exceeded their annual allocations. All exceedances occurred in the NOx universe. Similar to 1998, the main cause of allocation exceedances was failure to purchase sufficient RTCs to reconcile their emissions.

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 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 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 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 year. At the end of this reconciliation period, each facility is required to certify the emissions for the preceding 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 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.

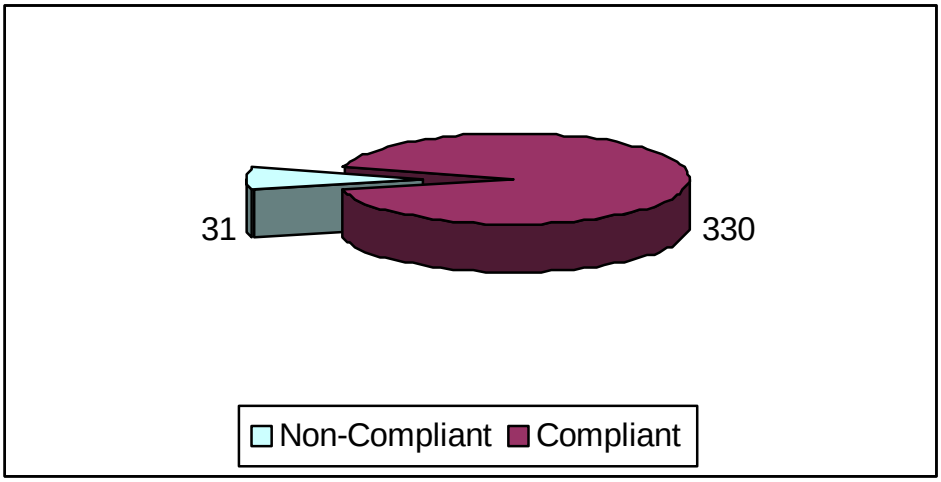
Whenever an audit revealed a facility to be in exceedance of its annual allocation, the facility was provided an opportunity to review the audit and to present additional data to further refine the audit results. Emissions data are ensured to be valid and reliable through this extensive and rigorous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

Compliance Status

At the time this report was compiled, 99 of the 354 RECLAIM facilities had been audited. Preliminary audit results for the 1999 compliance year revealed that the overall RECLAIM emission goals were met and that the level of compliance with Allocations was comparable to previous years. Figure 5-1 illustrates the allocation compliance status for NOx facilities—91 percent of NOx facilities complied with their allocations for the 1999 compliance year and 92 percent (27 facilities) complied in 1998. Of the 31 facilities that exceeded their allocations during the 1999 compliance year, 29 exceedances are attributed to failure to purchase sufficient RTCs to reconcile emissions. Of the two exceedances remaining, one was due to inadequately accounting for emissions using missing data procedures and the other resulted from a submitted RTC transaction being rejected because the seller did not hold sufficient RTCs to fund the trade. There were no SOx allocation exceedances in the 1998 or1999 compliance years. Although the audit results indicate that 31 facilities exceeded their NOx annual Allocations, this number is likely to change once the facilities have the opportunity to provide additional information. Staff is finalizing the audits and

review of emissions reported by the remaining facilities. Notices of Violation will be issued as the allocation exceedances are confirmed. However, total allocations were not exceeded because some facilities held RTCs that expired without being used.

Figure 5-1
NOx Allocation Compliance Rate During 1999 Compliance Year



Effects of Missing Data Procedures

MDP were designed to provide a method for determining emissions when an emissions 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.

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. As the availability of quality assured data increases, emissions resulting from MDP are more representative of actual emissions because the calculations are based on actual emissions previously quantified by the monitoring equipment.

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.

Only one facility exceeded its RTC holdings during the 1999 compliance year because emissions were not properly calculated pursuant to MDP. The portions of emissions attributed to MDP are described in detail in Chapter 3, Emission Reductions.

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 5-1 shows the monitoring requirements applicable to each of these categories.

Table 5-1
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 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. 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 Subcommitttee to address CEMS testing requirements;
- Post-certification Subcommittee to address Relative Accuracy Test Audit (RATA) requirements, such as gas stratification and alternative stack gas moisture determination; and
- 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 5-2 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 1999 calendar year.

Table 5-2
Passing Rates Based on Relative Accuracy Test Audits of Certified CEMS in 1999[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
284	100	77	100	5	100	50	100	301	100	281	100	46	100

1. All passing rates calculated from data submitted before January 1, 2000 and may exclude data from the 4th quarter of calendar year 1999.
2. Does not include SOx emissions calculated from total sulfur analyzers; the number of mass emission RATA's is significantly greater than SO_2 concentration RATA's because multiple emission sources may be associated with a single SO_2 analyzer.

Table 5-3 summarizes the 2000 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 5-3
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 RATA's is significantly greater than SO_2 concentration RATA's because multiple emission sources may be associated with a single SO_2 analyzer

As indicated in Tables 5-2 and 5-3, 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 CEMS technology and reporting schemes employed under RECLAIM are heavily reliant on computers and electronic communication. The well-publicized computer problem in relation to the change in year to 2000 (commonly known as "Y2K") did not materialized within the majority of the RECLAIM facilities. Early in 1999, AQMD notified RECLAIM facilities of the need to test and prevent catastrophic failure of the monitoring and reporting systems. AQMD also required RECLAIM facilities to either certify system compliant or submit plan to become Y2K compliant by the end of September 1999. This may have raised the level of awareness and helped minimize the problem where it did occur.

Protocol Review

Even though it is only required for the first three years of the RECLAIM program, staff continues to review the effectiveness of enforcement and 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 has developed proposed amendments to RECLAIM's MRR requirements. The proposed amendments are intended to implement the MRR Task Force's recommendations pertaining to RECLAIM as well as satisfy the California Health and Safety Code Section 39616(c)(5) requirement for 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 proposed amendment to the RECLAIM rules seeks to provide an alternative to strip chart recorders that will have, at a minimum, the same degree of signal path security as with existing strip chart recorder systems. These amendments are scheduled to be presented to the Governing Board at a Public Hearing in March 2001.

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 1999 compliance year continue to be negligible when compared to the overall employment in the basin. Seven RECLAIM facilities attributed one job gain each to RECLAIM. One facility attributed an unknown portion of four jobs lost to RECLAIM. Furthermore, 20 RECLAIM facilities shut down or went out of business in 1999. However, none of the shutdown facilities claimed that RECLAIM was the reason it ceased operations.

Background

AQMD staff has assessed RECLAIM's impacts on jobs in the regional economy each year of the program. The assessment for compliance year 1999 was performed by examining job data submitted by RECLAIM facilities as part of their compliance year 1999 Annual Permit Emissions Program (APEP) reports.

The 1999 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 1999 compliance year, a total of 126 facilities reported 10,007 overall job gains while a total of 157 facilities reported 21,831 overall job losses, which resulted in 11,824 net job losses for RECLAIM facilities in the basin. This net job loss constituted eight percent of the overall RECLAIM facility employment (141,098 jobs). The information gathered from 1999 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 1999 Compliance Year

Description	Manufacture	Sales of Products	Non-Manufacture	Total
Initial Jobs	78,551	1,353	61,194	141,098
Overall Job Gain	4,890	161	4,956	10,007
Overall Job Loss	10,008	181	11,642	21,831
Final Jobs	73,433	1,333	54,508	129,274
Net Job Change	-5,118	-20	-6,686	-11,824
Percent (%) Job Change	-7 %	-1 %	-11 %	-8 %
Facilities Reporting Job Gains	98	26	79	126
Facilities Reporting Job Losses	129	31	103	157

Table 6-1 also shows that during the 1999 compliance year, 5,118 "Manufacturing" jobs, 20 "Sales of Products" jobs, and 6,686 "Non-Manufacturing" jobs were lost (net). Furthermore, 20 RECLAIM facilities shut down or went out of business during the 1999 compliance year. None of the facilities that shut down attributed their ceasing operations 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 eight facilities indicated in their APEP forms that they experienced job gains and/or job losses due to RECLAIM. Seven facilities attributed one job gain each to RECLAIM. One facility attributed an unknown portion of its four jobs lost to RECLAIM. The job gains/losses attributed to RECLAIM are summarized in Table 6-2.

Table 6-2
Job Gains/Losses Attributed Solely to RECLAIM During the 1999 Compliance Year

Description	No. of Jobs
Job Loss Attributed to RECLAIM	4
Facilities with Job Loss Attributed to RECLAIM	1
Job Gain Attributed to RECLAIM	7
Facilities with Job Gain Attributed to RECLAIM	7

As indicated in Table 6-2, the RECLAIM-related job gains and losses are negligible when compared to the overall employment data included in Table 6-1. The detailed information for facilities that reported job gains and losses in APEP forms for compliance year 1999 are summarized in Appendix D. It should also be noted that the analyses 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 RECLAIM program.

CHAPTER 7
AIR QUALITY AND PUBLIC HEALTH IMPACTS

Summary

To assess impacts on air quality and public health resulting from RECLAIM, Rule 2015 – Backstop Provisions, requires AQMD to evaluate the following issues as part of each annual program audit: emission trends, seasonal fluctuations, geographic distribution of emissions, per capita exposures to ozone, and impact on toxic emissions.

The emissions reported by RECLAIM facilities from 1989 through the 1999 compliance year 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 1999. Furthermore, analysis of the geographical distribution of emissions during the first six 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% 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 compound (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 toxics 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 years 1989 through 1999.

Figure 7-1
NOx Emission Trend for RECLAIM Sources

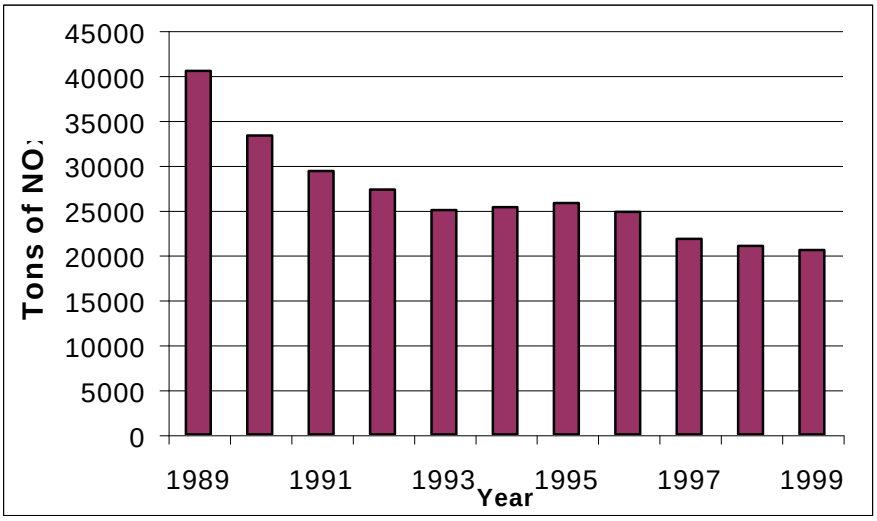
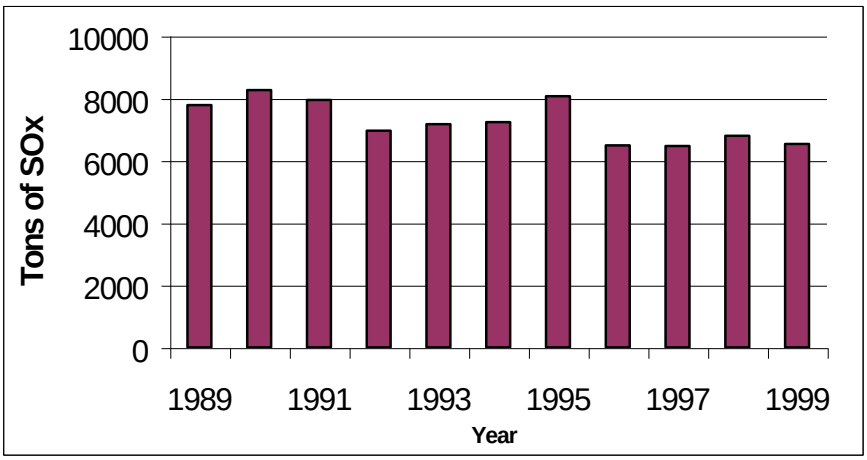


Figure 7-2
SOx Emission Trend for RECLAIM Sources

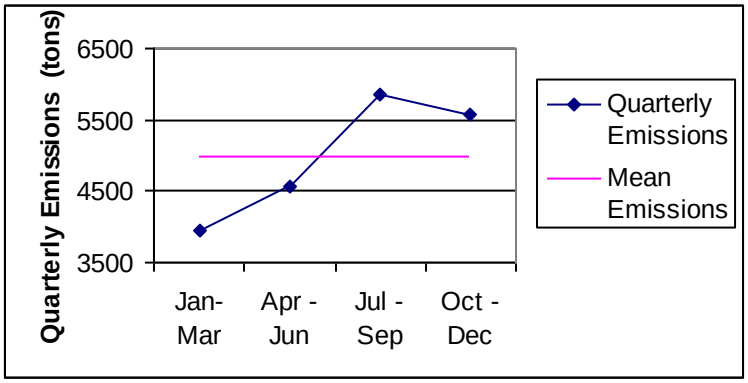


As indicated in Figures 7-1 and 7-2, there is an overall downward trend in both NOx and SOx emissions from RECLAIM facilities over this time period. When comparing SOx emissions for 1997 through 1999, there is a slight increase in SOx emissions in 1998, with 1999 SOx emissions comparable to 1997. The magnitude of the increase (approximately five percent) is not significant and may be attributed to normal fluctuation. Overall, the figures clearly show that RECLAIM facilities did not increase their aggregate emissions during the first five compliance years, 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 for 1999 to assess if there had been such a shift in emissions. The reported quarterly emissions (Quarterly Certification of Emissions Report) data was used for this seasonal fluctuation analysis, as illustrated in Figure 7-3 for NOx. Quarterly SOx emissions are not presented graphically because there was essentially no seasonal fluctuation observed for SOx, as has been the case in previous years.

Figure 7-3
1999 NOx Quarterly Emissions



The quarterly NOx emissions for 1999 demonstrate an increasing trend. Quarterly emissions vary about their mean with maximum deviations of 17 percent (July through September) and –21 percent (January through March). There are slight peaks in NOx emissions during the summer months of July through September of both years. Analysis of emissions from individual facilities indicates that there was significant increase of emissions from power generating facilities. The power generation facilities collectively experienced substantial growth over the course of 1999 (approximately 270 percent), with a peak in emissions during the third quarter (July through September).

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 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.

Quarterly emissions for both NOx and SOx were mapped for the compliance year 1999 (all four quarters of 1999 and the first two quarters of 2000). These maps are included in Appendices E and F. These quarterly emission maps do not show any distinct shift in the geographic pattern of emissions. AQMD will continue to review additional quarterly maps as the information becomes available and assess the geographic patterns of emissions.

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 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 1997 and 2000.

Table 7-1 compares the projected 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 1994 and 1997. Table 7-2 summarizes 1998, 1999, and 2000 ozone data in terms of the number of days that exceeded the state and federal ambient ozone standards and the Basin maximum concentration during each of the three years. These two tables in combination show that actual per capita exposure during all the years mentioned continue to be well under the projected exposure in the 1991 AQMP.

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

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 1998 and 1999 Ozone Data

	1998	1999	2000
Days exceeding state standard	113	120	125
Days exceeding federal standard	62	42	40
Basin Maximum (pphm)	24	17	18.5

Table 7-3 compares the actual per capita exposures in 1994 through 1998 and 2000 to the exposure milestones as specified in the California Clean Air Act (CCAA). The CCAA establishes specific milestones for achieving reductions in overall population exposure to severe nonattainment pollutants in the Basin. These milestones are 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 1986-88 baseline. Analysis of the per capita

exposures in 1998 indicates that the four counties, and the Basin overall, have made substantial progress toward continuous attainment of the state standard. As indicated in Table 7-3, actual reductions in per capita exposure have gone well beyond the 50 percent reduction target scheduled for 2000.

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

Location	1986-88 baseline[1]	1994 actual	1995 actual	1996 actual	1997 actual	1998 actual	2000 actual	1997 target[2]	2000 target[3]
Basin	80.5	37.6	27.7	20.3	5.9	12.1	3.8	48.3	40.2
Los Angeles	75.8	26.5	20.0	13.2	3.0	7.9	2.6	45.5	39.9
Orange	27.2	9.0	5.7	4.0	0.6	3.1	0.7	16.3	13.6
Riverside	94.1	71.1	48.8	42.8	13.9	25.2	8.5	56.5	47.0
San Bernardino	192.6	124.9	91.9	70.0	24.5	40.2	11.4	115.6	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

It should 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.

Toxics 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 toxics 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 toxics 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 measures it subsumes is 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 1999 compliance year is provided below.

Facility ID	Cycle	Facility Name	Market
16395	2	AAA GLASS CORP	NOx
73635	1	ABLESTIK LABORATORIES	NOx
23752	2	AEROCRAFT HEAT TREATING CO INC	NOx
115394	1	AES ALAMITOS	NOx
115389	2	AES HUNTINGTON BEACH	NOx
42676	2	AES PLACERITA INC	NOx
115536	1	AES REDONDO BEACH	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
3704	2	ALL AMERICAN ASPHALT, UNIT NO.01	NOx
114264	1	ALL AMERICAN ASPHALT/IRWINDALE	NOx
800003	2	ALLIED SIGNAL INC	NOx
21290	1	ALPHA BETA COMPANY, FOOD 4 LESS	NOx
17840	2	ALPHA THERAPEUTIC CORP	NOx
800196	2	AMERICAN AIRLINES INC	NOx
52517	1	AMERICAN NATIONAL CAN COMPANY	NOx
45527	2	AMERICAN RACING EQUIPMENT INC	NOx
60540	1	AMERICAN RACING EQUIPMENT INC, PLNT #2	NOx
61970	2	ANAHEIM MILLS CORP	NOx
10141	2	ANGELICA HEALTHCARE SERVICES GROUP INC	NOx
21598	2	ANGELICA HEALTHCARE SERVICES GROUP INC	NOx
74424	2	ANGELICA HEALTHCARE SERVICES GROUP INC	NOx
16642	1	ANHEUSER-BUSCH INC.(LA BREWERY)	NOx/SOx
117140	2	AQC, LLC	NOx
800012	2	ARCO	NOx/SOx
47232	1	ARCO CQC KILN	NOx/SOx
11640	1	ARLON ADHESIVE SYSTEM/DECORATIVE FILMS	NOx
12155	1	ARMSTRONG WORLD INDUSTRIES, INC.	NOx
100130	2	ARTESIA SAWDUST PRODUCTS, INC.	NOx
16737	2	ATKINSON BRICK CO	NOx
10094	2	ATLAS CARPET MILLS INC	NOx
800205	2	BA PROPERTIES	NOx
800016	2	BAKER COMMODITIES INC	NOx
108701	1	BALL FOSTER GLASS PACKAGING CORP.	NOx
117785	1	BALL METAL BEVERAGE CONTAINER CORP	NOx
106797	1	BALL-FOSTER GLASS CONTAINER	NOx/SOx
40034	1	BENTLEY MILLS INC.	NOx

Facility ID	Cycle	Facility Name	Market
119907	1	BERRY PETROLEUM	NOx
14472	2	BHP COATED STEEL (SUPRACOTE INC)	NOx
19390	1	BLUE DIAMOND MATERIALS, SUN VALLEY PLANT	NOx
117290	2	BRAUN MEDICAL INC.	NOx
10340	1	BREA CANON OIL COMPANY, BREA	NOx
6714	2	BREA CITY	NOx
98159	2	BREITBURN ENERGY	NOx
25638	2	BURBANK, CITY OF	NOx
2443	2	CAL INDUSTRIAL PROCESSING CO	NOx
22607	2	CALIFORNIA MILK PRODUCERS	NOx
800181	2	CALIFORNIA PORTLAND CEMENT CO	NOx/SOx
36363	1	CALIFORNIA SPORTS INC/GREAT WESTERN FORUM	NOx
800344	1	CALIFORNIA STATE, AIR NATL.GUARD	NOx
46268	1	CALIFORNIA STEEL INDUSTRIES, INC.	NOx
119104	1	CALMAT	NOx/SOx
107653	2	CALMAT CO.	NOx
107654	2	CALMAT CO.	NOx
107655	2	CALMAT CO.	NOx
107656	2	CALMAT CO.	NOx
107657	2	CALMAT CO.	NOx
8791	2	CAL-PACIFIC DYEING & FINISHING CORP	NOx
104013	2	CALRESOURCES LLC, BREA	NOx
104017	1	CALRESOURCES LLC, HB	NOx
104015	2	CALRESOURCES LLC, YORBA LINDA	NOx
104012	1	CALRESOURCES OCS	NOx
67945	2	CANADA MALTING CO LTD,GREAT WESTERN MALT	NOx/SOx
9141	1	CANNERS STEAM COMPANY, INC.	NOx/SOx
94930	1	CARGILL INC	NOx
22911	2	CARLTON FORGE WORKS	NOx
118406	1	CARSON COGENERATION CO	NOx
25016	2	CASTAIC CLAY MFG CO., INC	NOx
800373	1	CENCO REFINING COMPANY	NOx/SOx
11034	2	CENTRAL PLANTS INC., CENTURY CITY	NOx
16575	1	CENTRAL PLANTS INC., DISNEYLAND	NOx
11197	2	CENTRAL PLANTS INC., HUNTINGTON BEACH	NOx
9053	1	CENTRAL PLANTS INC., LA	NOx
9217	1	CENTRAL PLANTS, INC., COLLEGE PARK	NOx
119920	1	CENTURY CAST PLATE	NOx
40764	1	CENTURY LAMINATORS,INC.	NOx
75479	1	CES ENERGY ALBERHILL LTD	NOx
4451	1	CHERRY TEXTRON	NOx
800030	2	CHEVRON U.S.A. INC	NOx/SOx
95212	1	CHROMA SYSTEMS PARTNERS	NOx
56940	1	CITY OF ANAHEIM	NOx
16978	2	CLOUGHERTY PACKING CO,FARMER JOHN MEATS	NOx
55349	2	COLOR AMERICA TEXTILE PROCESSING INC	NOx
69677	2	COLUMBIA PACIFIC ALUMINUM CORPORATION	NOx

Facility ID	Cycle	Facility Name	Market
110982	1	COMMONWEALTH ALUMINUM	NOx
122822	2	CONSOLIDATED FILM, INC., L.L.C.	NOx
38440	2	COOPER & BRAIN - BREA	NOx
68042	2	CORONA ENERGY PARTNERS, LTD	NOx
109879	1	CPC BAKING BUSINESS	NOx
117581	1	CRIMSON RESOURCE MANAGEMENT CORP	NOx
117572	1	CRIMSON RESOURCES	NOx
65384	1	CRITERION CATALYST COMPANY L.P.	NOx
18648	1	CROWN CITY PLATING COMPANY	NOx
3950	1	CROWN CORK & SEAL COMPANY, INC.	NOx
15982	2	CUSTOM ALLOY SALES INC	NOx
63180	1	DARLING-DELAWARE COMPANY, INC.	NOx
3721	2	DART CONTAINER CORP OF CALIFORNIA	NOx
7411	2	DAVIS WIRE CORP	NOx
47771	1	DELEO CLAY TILE COMPANY	NOx
800037	2	DEMENNO/KERDOON	NOx
800189	1	DISNEYLAND RESORT	NOx
38872	1	DOANE PRODUCTS CO	NOx
103618	1	DOSKOCIL SPECIALTY BRANDS FOOD	NOx
113160	2	DOUBLETREE HOTEL	NOx
800038	2	DOUGLAS AIRCRAFT CO	NOx
104571	2	E & J TEXTILES	NOx
800264	2	EDGINGTON OIL COMPANY	NOx/SOx
115663	1	EL SEGUNDO POWER	NOx
10873	1	ELSINORE READY-MIX COMPANY, INC.	NOx
105356	2	ENVIRONMENTAL CHEMICAL CORP	NOx
117247	1	EQUILON ENTERPRISES	NOx/SOx
800370	1	EQUILON ENTERPRISES	NOx/SOx
800372	2	EQUILON ENTERPRISES	NOx/SOx
8439	2	EXXON MOBIL CORP.	NOx
112365	2	FALCON FOAM CORPORATION	NOx
22047	1	FANSTEEL/CALIFORNIA DROP FORGE	NOx
61210	1	FILTROL CORPORATION	NOx
800047	2	FLETCHER OIL & REF CO	NOx/SOx
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 INCORPORATED	NOx/SOx
800184	2	GOLDEN WEST REFINING CO	NOx/SOx
10055	2	G-P GYPSUM CORP	NOx
40196	2	GUARDIAN INDUSTRIES INC	NOx/SOx
109208	2	HANYOUNG AMERICA	NOx
106325	2	HARBOR COGENERATION CO	NOx
15164	1	HIGGINS BRICK COMPANY	NOx
800066	1	HITCO	NOx
2912	2	HOLLIDAY ROCK CO INC	NOx

Facility ID	Cycle	Facility Name	Market
800343	2	HUGHES AIRCRAFT CO, EDSG	NOx
115241	1	HUGHES SPACE & COMM	NOx
800067	1	HUGHES SPACE & COMM.CO.-HUGHES AIRCRAFT	NOx
800070	1	HUNTWAY REFINING COMPANY	NOx
113240	2	INDECK ONTARIO, L.L.C.	NOx
800240	2	INLAND CONTAINER CORP	NOx
5830	1	INTERMETRO INDUSTRIES CORP.	NOx
106810	2	INTERSTATE BRANDS	NOx
23589	2	INTL EXTRUSION CORP	NOx
22373	1	JEFFERSON SMURFIT	NOx
16338	1	KAISER ALUMINUM & CHEMICAL CORP	NOx
18865	2	KAL KAN FOODS INC	NOx
11142	2	KEYSOR-CENTURY CORP	NOx
21887	2	KIMBERLY-CLARK CORP	NOx/SOx
1744	2	KIRKHILL RUBBER CO	NOx
57329	2	KWIKSET CORP	NOx
90307	1	L A DYE & PRINT WORKS INC.	NOx
800335	2	LA CITY, DEPT OF AIRPORTS	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 STN.	NOx
800193	2	LA CITY, DWP; VALLEY STM PLANT	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
115277	1	LAFAYETTE	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
7931	1	LOS ANGELES PAPER BOX & BOARD MILLS	NOx
13976	1	LUCKY STORES INC.	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 CALIF. PROPERTIES	NOx
115563	1	METAL COATERS OF CALIFORNIA, INC.	NOx
94872	2	METAL CONTAINER CORP	NOx
14855	1	MILLER BREWING COMPANY	NOx
800088	2	MINNESOTA MINING & MFG CO	NOx

Facility ID	Cycle	Facility Name	Market
12372	1	MISSION CLAY PRODUCTS	NOx
115211	2	MISSION DYEING AND FINISHING	NOx
25058	2	MOBIL OIL CORP, WEST COAST PIPELINES DIV	NOx
800094	1	MOBIL OIL CORP., NEWHALL STATION	NOx
17344	1	MOBIL OIL CORP.,WEST COAST PIPELINES DIV	NOx
800089	1	MOBIL OIL CORPORATION	NOx/SOx
115315	1	MOUNTAIN VISTA POWER GENERATION	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
40483	2	NELCO PROD. INC	NOx
16531	2	NEVILLE CHEM CO	NOx
800167	2	NORTHROP CORP	NOx
62897	2	NORTHROP CORP, B-2 DIV	NOx
18294	1	NORTHROP CORP., AIRCRAFT DIV.	NOx
112853	2	NP COGEN	NOx
104018	2	ODEBRECHT CONTRACTORS OF CALIF	NOx
45471	2	OGLEBAY NORTON INDUSTRIAL SANDS INC	NOx
89248	2	OLD COUNTRY MILLWORK INC	NOx
47781	1	OLS ENERGY-CHINO C/O ENERGY INITIATIVES	NOx
7427	1	OWENS-BROCKWAY GLASS CONTAINER	NOx/SOx
35302	2	OWENS-CORNING FIBERGLASS	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
24887	2	PACIFIC TUBE CO	NOx
800208	2	PAPER PAK PROD. INC	NOx
89429	2	PARADISE TEXTILE CO	NOx
800183	1	PARAMOUNT PETROLEUM CORPORATION	NOx/SOx
19989	2	PARKER HANNIFIN AEROSPACE CORP	NOx
20899	2	PERCEPTION LAMINATES	NOx
9729	1	PGP INDUSTRIES, INC.	NOx
115449	1	PLAYA PHASE I COMMERCIAL LAND	NOx
117151	2	POMONA PAPER	NOx
117485	2	PORT OF LONG BEACH	NOx
7416	1	PRAXAIR (UNION CARBIDE)	NOx
42630	1	PRAXAIR (UNION CARBIDE)	NOx
2640	2	PRECISION METAL FINISHING CO	NOx
75411	1	PRECISION SPECIALTY METALS INC.(PSM)	NOx
136	2	PRESS FORGE CO	NOx
22808	2	PRICE PFISTER INC	NOx
55221	2	PROGRESSIVE CUSTOM WHEEL	NOx
102969	2	QUEEN CARPET CORP., TUFTEX CARPET DIVISION	NOx
8547	1	QUEMETCO INC.	NOx/SOx

Facility ID	Cycle	Facility Name	Market
19167	2	R J NOBLE COMPANY	NOx
3585	2	R. R. DONNELLEY & SONS CO, LA MFG DIV	NOx
20604	2	RALPHS GROCERY CO	NOx
800371	2	RAYTHEON	NOx
114997	1	RAYTHEON SYSTEMS	NOx
115002	1	RAYTHEON SYSTEMS	NOx
115040	1	RAYTHEON SYSTEMS	NOx
115041	1	RAYTHEON SYSTEMS	NOx
115172	2	RAYTHEON SYSTEMS	NOx
346	1	RECOT, INC.	NOx
20543	1	REDCO II	NOx
15544	2	REICHHOLD CHEMICALS INC	NOx
114801	1	RHODIA, INC.	NOx/SOx
61722	2	RICOH ELECTRONICS INC	NOx
108113	1	RIDGEWOOD/CALIFORNIA POWER PARTNERS, LP	NOx
114138	2	RIPON COGENERATION	NOx
115666	2	RIVERSIDE CANA POWER	NOx
800182	1	RIVERSIDE CEMENT COMPANY	NOx/SOx
98812	2	RMS FOUNDATION INC	NOx
800210	2	ROCKWELL INTERNATIONAL	NOx
14736	2	ROCKWELL INTERNATIONAL, ISC DIV	NOx
800259	1	ROCKWELL INTERNATIONAL, ROCKETDYNE DIV.	NOx
800110	2	ROCKWELL INTL	NOx
800111	2	ROCKWELL INTL CORP	NOx
42079	1	ROD'S FOOD PRODUCTS	NOx
800113	2	ROHR IND INC	NOx
69690	1	ROOFING DEVELOPMENT CO INC, & SIERRA TIL	NOx
18455	2	ROYALTY CARPET MILLS INC	NOx
84223	1	RUBBERMAID INC	NOx
93073	1	SABA PETROLEUM INC.	NOx
4242	2	SAN DIEGO GAS & ELECTRIC	NOx
101499	1	SANOFI BIO-INDUSTRIES	NOx
117227	2	SANTA MONICA BEACH HOTEL	NOx
8582	1	SC GAS CO., PLAYA DEL REY	NOx
800128	1	SC GAS CO., ALISO CANYON	NOx
800127	1	SC GAS CO., MONTEBELLO	NOx
14926	1	SC GAS CO., MONTEREY PARK	NOx
11119	1	SC GAS CO., PICO RIVERA	NOx
5973	1	SC GAS CO., VALENCIA	NOx
800125	1	SCE, ALAMITOS	NOx
800123	2	SCE, DOMINGUEZ HILLS	NOx
18763	1	SCE, EL SEGUNDO	NOx
800224	1	SCE, ETIWANDA	NOx
15872	2	SCE, HIGHGROVE	NOx
800126	2	SCE, HUNTINGTON BEACH	NOx
800124	2	SCE, LONG BEACH	NOx
4477	1	SCE, PEBBLY BEACH	NOx

Facility ID	Cycle	Facility Name	Market
14052	1	SCE, REDONDO	NOx
1026	1	SCE, SAN BERNARDINO	NOx
15504	2	SCHLOSSER FORGE CO	NOx
23907	2	SCHULLER INTERNATIONAL INC	NOx
20203	2	SCOPE PRODUCTS INC, DEXT CO	NOx
37603	1	SGL TECHNIC INC, POLYCARBON DIV.	NOx
16639	1	SHULTZ STEEL COMPANY,GORDON W.SHULTZ DBA	NOx
54402	2	SIERRA ALUMINUM COMPANY	NOx
85943	2	SIERRA ALUMINUM COMPANY	NOx
101977	1	SIGNAL HILL PETROLEUM	NOx
82727	2	SMURFIT NEWSPRINT CORPORATION	NOx
9114	1	SOMITEX PRINTS OF CALIFORNIA	NOx
14871	2	SONOCO PRODUCTS CO	NOx
800338	2	SPECIALTY PAPER MILLS INC.	NOx
23449	2	STANDARD CONCRETE PROD,INC, MOBILE SAND	NOx
861	1	STAR-KIST FOODS INC.(CAN MAKING PLANT)	NOx
1634	2	STEELCASE INC, WESTERN DIV	NOx
83753	1	STOCKER RESOURCES INC.	NOx
112164	2	STOCKER RESOURCES, INC	NOx
105277	2	SULLY MILLER CONTRACTING CO	NOx
34055	2	SULLY-MILLER CONTRACTING CO,BLUE DIAMOND	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	NOx
800310	1	TA INDUSTRIES, INC.	NOx
3968	1	TABC INC.	NOx
18931	2	TAMCO	NOx
56427	1	TANDEM INDUSTRIES	NOx
14944	1	TECHALLOY COMPANY, INC.	NOx/SOx
110671	1	TELEVISION CITY COGEN	NOx
96587	1	TEXOLLINI INC	NOx
11435	2	THE PQ CORP	NOx/SOx
97081	1	THE TERMO COMPANY	NOx
7053	1	THERMO ELECTRON CORP., CAL-DORAN	NOx
800330	1	THUMS LONG BEACH COMPANY	NOx
68118	2	TIDELANDS OIL PRODUCTION CO	NOx
68122	2	TIDELANDS OIL PRODUCTION CO	NOx
800325	2	TIDELANDS OIL PRODUCTION CO	NOx
43436	1	TIMCO	NOx
800213	2	TIMES MIRROR CO	NOx
55758	1	TISSURAMA INDUSTRIES INC.	NOx
108616	1	TORCH OPERATING CO	NOx
108763	2	TORCH OPERATING CO	NOx
109198	2	TORCH OPERATING CO.	NOx
109192	2	TORCH PLATFORM, ESTHER	NOx
109207	2	TORCH PLATFORM, EVA	NOx

Facility ID	Cycle	Facility Name	Market
800362	1	TOSCO	NOx/SOx
800363	2	TOSCO	NOx/SOx
800192	2	TRANS WORLD AIRLINES INC	NOx
55865	2	TRANSAMERICAN PLASTICS CORP	NOx
115130	1	TREASURE CHEST ADVERTISING CO., 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	NOx
9755	2	UNITED AIRLINES INC	NOx
60342	2	UNITED STATES CAN CO	NOx
1073	1	UNITED STATES TILE COMPANY	NOx
800258	1	UNOCAL CORP., HARTLEY CENTER	NOx
800149	2	US BORAX & CHEM CORP	NOx
6281	2	US GOVT,MARINE CORPS AIR STATION,EL TORO	NOx/SOx
800150	1	US GOVT., AF DEPT, MARCH AFB	NOx
18695	1	US GYPSUM CO	NOx
12185	2	US GYPSUM CO	NOx/SOx
73022	2	USAIR INC	NOx
111415	2	VAN CAN CO.	NOx
61589	2	VANGUARD ENERGY SYSTEMS	NOx
14502	2	VERNON CITY, LIGHT & POWER DEPT	NOx
101369	2	VINTAGE PETROLEUM INC	NOx
14495	2	VISTA METALS CORPORATION	NOx
50098	1	WEST COAST RENDERING COMPANY	NOx
42775	1	WEST NEWPORT OIL COMPANY	NOx/SOx
40102	2	WESTERN DYE HOUSE INC	NOx
17956	1	WESTERN METAL DECORATING COMPANY	NOx
45953	1	WESTERN WHEELS CORPORATION	NOx
1962	2	WEYERHAEUSER PAPER CO	NOx
51620	1	WHEELABRATOR NORWALK ENERGY COMPANY	NOx

APPENDIX B
FACILITY INCLUSIONS

As discussed in Chapter 1, a net of 25 facilities were included into the NOx market of the RECLAIM universe for the 1999 compliance year. A total of 48 new facilities were included into RECLAIM, of which 9 facilities opted to join RECLAIM, one was mistakenly placed out-of-business in a previous year, two facilities were merged into one. Three facilities were excluded after initially entering RECLAIM during the same compliance year. These facilities are identified below.

Facility ID	Cycle	Facility Name	Market	Date	Reason
3417	1	Air Prod & Chem Inc.	NOx	09/10/1998	Opt-in at facility request
101656	2	Air Products Hycal Co L.P., Air Prod & Chem	NOx	07/01/1999	Include
800196	2	American Airlines Inc	NOx	07/01/1999	Opt-in at facility request
60540	1	American Racing Equipment Inc, Plnt #2	NOx	01/01/1999	Include
11640	1	Arlon Adhesive System/Decorative Films	NOx	01/01/1999	Include
100130	2	Artesia Sawdust Products, Inc.	NOx	07/01/1999	Include
72351	1	Cajoleben Inc., Galasso's Bakery	NOx	01/01/1999	Include (excluded again)
36363	1	California Sports Inc/Great Western Forum	NOx	01/01/1999	Include
94930	1	Cargill Inc	NOx	01/01/1999	Include
47012	1	Cast Alloys Inc	NOx	01/01/1999	Include (excluded again)
56940	1	City Of Anaheim	NOx	01/01/1999	Opt-in at facility request
38440	2	Cooper & Brain - Brea	NOx	07/01/1999	Include
117581	1	Crimson Resource Management Corp	NOx	01/01/1999	Include
38872	1	Doane Products Co	NOx	01/01/1999	Include
104571	2	E & J Textiles	NOx	07/01/1999	Include
8439	2	Exxon Mobil Corp.	NOx		Placed O/B in prior year
112365	2	Falcon Foam Corporation	NOx	07/01/1999	Include
70913	2	L & A Juice Co Inc	NOx	07/01/1999	Include (excluded again)
90307	1	L A Dye & Print Works Inc.	NOx	01/01/1999	Opt-in at facility request
550	1	LA Co, Internal Service Dept.	NOx	01/01/1999	Include
57892	2	Life-Like Products Inc.	NOx	07/01/1999	Include
17623	2	Los Angeles Athletic Club	NOx	07/01/1999	Include
115563	1	Metal Coaters Of California, Inc.	NOx	01/01/1999	Include
94872	2	Metal Container Corp	NOx	07/01/1999	Include
11887	2	NASA Jet Propulsion Lab	NOx	07/01/1999	Include

Facility ID	Cycle	Facility Name	Market	Date	Reason
45471	2	Oglebay Norton Industrial Sands Inc	NOx	07/01/1999	Include
59618	1	Pacific Continental Textiles, Inc	NOx	01/01/1999	Include
89429	2	Paradise Textile Co	NOx	07/01/1999	Include
2640	2	Precision Metal Finishing Co	NOx	07/01/1999	Include
20543	1	REDCO II	NOx	01/01/1999	Include
42079	1	Rod's Food Products	NOx	01/01/1999	Include
69690	1	Roofing Development Co Inc, & Sierra Til	NOx	01/01/1999	Include
84223	1	Rubbermaid Inc	NOx	01/01/1999	Include
20203	2	Scope Products Inc, Dext Co	NOx	07/01/1999	Include
37603	1	SGL Technic Inc, Polycarbon Div.	NOx	01/01/1999	Include
105277	2	Sully Miller Contracting Co	NOx	07/01/1999	Include
23196	2	Sunkist Growers, Inc	NOx	07/01/1999	Include
800310	1	TA Industries, Inc.	NOx	01/01/1999	Include
109192	2	Torch Platform, Esther	NOx	07/01/1999	Opt-in at facility request
109207	2	Torch Platform, Eva	NOx	07/01/1999	Opt-in at facility request
115130	1	Treasure Chest Advertising Co., Inc.	NOx	01/01/1999	Include
53729	1	Trend Offset Printing Services, Inc	NOx	01/01/1999	Include
83738	1	U.S. Dyeing & Finishing Inc.	NOx	01/01/1999	Opt-in at facility request
9755	2	United Airlines Inc	NOx	07/01/1999	Include
800258	1	Unocal Corp., Hartley Center	NOx	01/01/1999	Include
111415	2	Van Can Co.	NOx	07/01/1999	Opt-in at facility request
101369	2	Vintage Petroleum Inc	NOx	07/01/1999	Include

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	800326
Facility Name	Avery Dennison
City and County	Monrovia, Los Angeles County
SIC	2672
Pollutants	NOx
1994 Allocation	30,280 lbs.
Reason for Shutdown	This facility last operated on September 9, 1999. The company consolidated this facility's operations with another plant out of state.

Facility ID	17400
Facility Name	Avery Fasson-MPD
City and County	Rancho Cucamonga, Los Angeles County
SIC	2672
Pollutants	NOx
1994 Allocation	12,356 lbs.
Reason for Shutdown	This facility last operated on February 29, 2000. The company consolidated this facility's operations with another plant out of state.

Facility ID	14445
Facility Name	Blue Diamond Materials
City and County	Fontana, San Bernardino County
SIC	2951
Pollutants	NOx
1994 Allocation	11,830 lbs.
Reason for Shutdown	Facility shutdown in October, 1996. Equipment removed and shipped out of country.

Facility ID	57818
Facility Name	CES Energy Corona, Ltd.
City and County	Corona, Riverside County
SIC	4931
Pollutants	NOx
1994 Allocation	16,308 lbs.
Reason for Shutdown	Facility last operated in July, 1998. Cogeneration plant lost

customer.

Facility ID	800273
Facility Name	Chemoil Refining Corp
City and County	Signal Hill, Los Angeles County
SIC	2911
Pollutants	NOx
1994 Allocation	21,498 lbs.
Reason for Shutdown	Facility last operated on June 30, 1997. Facility shutdown due to financial difficulties.

Facility ID	13179
Facility Name	Crescent Cranes Inc.
City and County	Torrance, Los Angeles County
SIC	5084
Pollutants	NOx
1994 Allocation	8,348 lbs.
Reason for Shutdown	Reason unknown

Facility ID	99588
Facility Name	Domtar Gypsum
City and County	Vernon, Los Angeles County
SIC	2630
Pollutants	NOx/SOx
1994 Allocation	24,736 lbs.
Reason for Shutdown	Facility shutdown on 6/27/1997 due to the property being sold.

Facility ID	800039
Facility Name	Douglas Products Division
City and County	Torrance, Los Angeles County
SIC	3721
Pollutants	NOx
1994 Allocation	44,824 lbs.
Reason for Shutdown	This facility consolidated sites within the same city and county. Last day of operation was June 30, 2000.

Facility ID	79015
Facility Name	Geopetroleum Inc
City and County	Commerce, Los Angeles County
SIC	1310
Pollutants	NOx.
1994 Allocation	6,398 lbs.
Reason for Shutdown	Reason unknown.

Facility ID	101039
Facility Name	Granite Construction
City and County	San Juan Capistrano, Orange County
SIC	2951
Pollutants	NOx
1994 Allocation	0 lbs.
Reason for Shutdown	Construction project completed in October 1996.

Facility ID	800295
Facility Name	Henkel Corp., Emery Group
City and County	Los Angeles, Los Angeles County
SIC	2819
Pollutants	NOx
1994 Allocation	28,116 lbs.
Reason for Shutdown	The last day of operation was March 31, 1999. Shutdown were due to declining demand for products and manufacturing, production, or raw material cost too high.

Facility ID	100291
Facility Name	IMCO Recycling Of California
City and County	Corona, Riverside County
SIC	3340
Pollutants	NOx
1994 Allocation	33,006 lbs.
Reason for Shutdown	Facility last operated on October 3, 1996. Shutdown was due to the lack of recycling materials to process.

Facility ID	82022
Facility Name	Mansfield Plumbing Products
City and County	Carson, Los Angeles County
SIC	3261
Pollutants	NOx
1994 Allocation	43,616 lbs.
Reason for Shutdown	Last day of Operation was January 28, 2000. Declining demand for its products.

Facility ID	800099
Facility Name	NI Ind. Inc, Norris Division
City and County	Vernon, Los Angeles County
SIC	3469
Pollutants	NOx
1994 Allocation	34,829 lbs.
Reason for Shutdown	Facility inactivated all permits July 1999. Department of Army terminated contracts for military products.

Facility ID	50813
Facility Name	O'Brien Calif. Cogen Ltd
City and County	Artesia, Los Angeles County
SIC	4923
Pollutants	NOx
1994 Allocation	24,180 lbs.
Reason for Shutdown	Facility is to be demolished.

Facility ID	68117
Facility Name	Tidelands Oil Production Co
City and County	Long Beach, Los Angeles County
SIC	1311
Pollutants	NOx
1994 Allocation	200,248
Reason for Shutdown	Facility last operated in May, 1996. Operation consolidated with another plant in same city and county.

Facility ID	10057
Facility Name	Treasure Craft
City and County	Compton, Los Angeles County
SIC	3263
Pollutants	NOx
1994 Allocation	13,910 lbs.
Reason for Shutdown	Reason unknown

Facility ID	800154
Facility Name	US Govt., Marine Corps Air Station
City and County	Tustin, Orange County
SIC	9711
Pollutants	NOx
1994 Allocation	99,344 lbs.
Reason for Shutdown	Facility last operated in July 1999. Shutdown due to base decommission.

Facility ID	800153
Facility Name	US Govt., Navy Department. Shipyard
City and County	Long Beach, Los Angeles County
SIC	9711
Pollutants	NOx
1994 Allocation	207,094 lbs
Reason for Shutdown	Facility last operated in February 1998. Shutdown due to base decommission.

Facility ID	93346
Facility Name	Waymire Drum Co., Inc
City and County	S. El Monte
SIC	7699
Pollutants	NOx
1994 Allocation	8,580 lbs.
Reason for Shutdown	Bought by another company but was not operated.

APPENDIX D
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 of 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 1999 is summarized below:

Facilities with actual job gains or losses attributed to RECLAIM:

Facility ID	**108701**
Facility Name	Ball Foster Glass Container Co. – LLC
City and County	El Monte, Los Angeles County
SIC	3221
Pollutant(s)	NOx
Cycle	1
Job Gain	1 (1 part-time position attributed to RECLAIM)
Job Loss	4
Comments	Ball Foster Glass Container Co. added one-half time position for the maintenance of the required CEMS.

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	1 (1 position attributed to RECLAIM)
Job Loss	0
Comments	Breitburn Energy Corp. hired one consultant to prepare certain RECLAIM documentation.

Facility ID	**50098**
Facility Name	D&D Disposal Inc, West Coast Rendering
City and County	Vernon, Los Angeles County
SIC	2077
Pollutant(s)	NOx
Cycle	1
Job Gain	0
Job Loss	0 (1 or 2 attributed to RECLAIM)
Comments	This facility claims they had opportunity to process additional raw material, but did not in order to stay within their emission cap. As a result, they estimated "1 or 2" job loss due to RECLAIM. However, the facility did not report any job loss in the annual report. Therefore, it appears that these are lost job opportunities instead of actual job loss.

Facility ID	**63180**
Facility Name	Darling International Inc.
City and County	Los Angeles, Los Angeles County
SIC	2077
Pollutant(s)	NOx
Cycle	1
Job Gain	94 (none attributed to RECLAIM)
Job Loss	10 (4 attributed to RECLAIM)
Comments	Darling International Inc. stated that four losses in jobs were due to increased costs pertaining to rising environmental expenses.

Facility ID	**104571**
Facility Name	E & J Textile, Inc.
City and County	Hawthorne, Los Angeles County
SIC	2260
Pollutant(s)	NOx
Cycle	2
Job Gain	3 (1 attributed to RECLAIM)
Job Loss	5 (none attributed to RECLAIM)
Comments	None

Facility ID	**58622**
Facility Name	Los Angeles Cold Storage Co.
City and County	Los Angeles, Los Angeles County
SIC	4222
Pollutant(s)	NOx
Cycle	2
Job Gain	1 (1 part-time position attributed to RECLAIM)
Job Loss	0 (none attributed to RECLAIM)
Comments	Los Angeles Cold Storage Co. added a part-time position to handle the "recordkeeping, monitoring, and reports ".

Facility ID	**800089**
Facility Name	Mobil Oil Corporation
City and County	Torrance, Los Angeles County
SIC	2911
Pollutant(s)	NOx/SOx
Cycle	1
Job Gain	1 (1 attributed to RECLAIM)
Job Loss	0
Comments	Mobil Oil Corp. hired one contract engineer for SCR on FCCU.

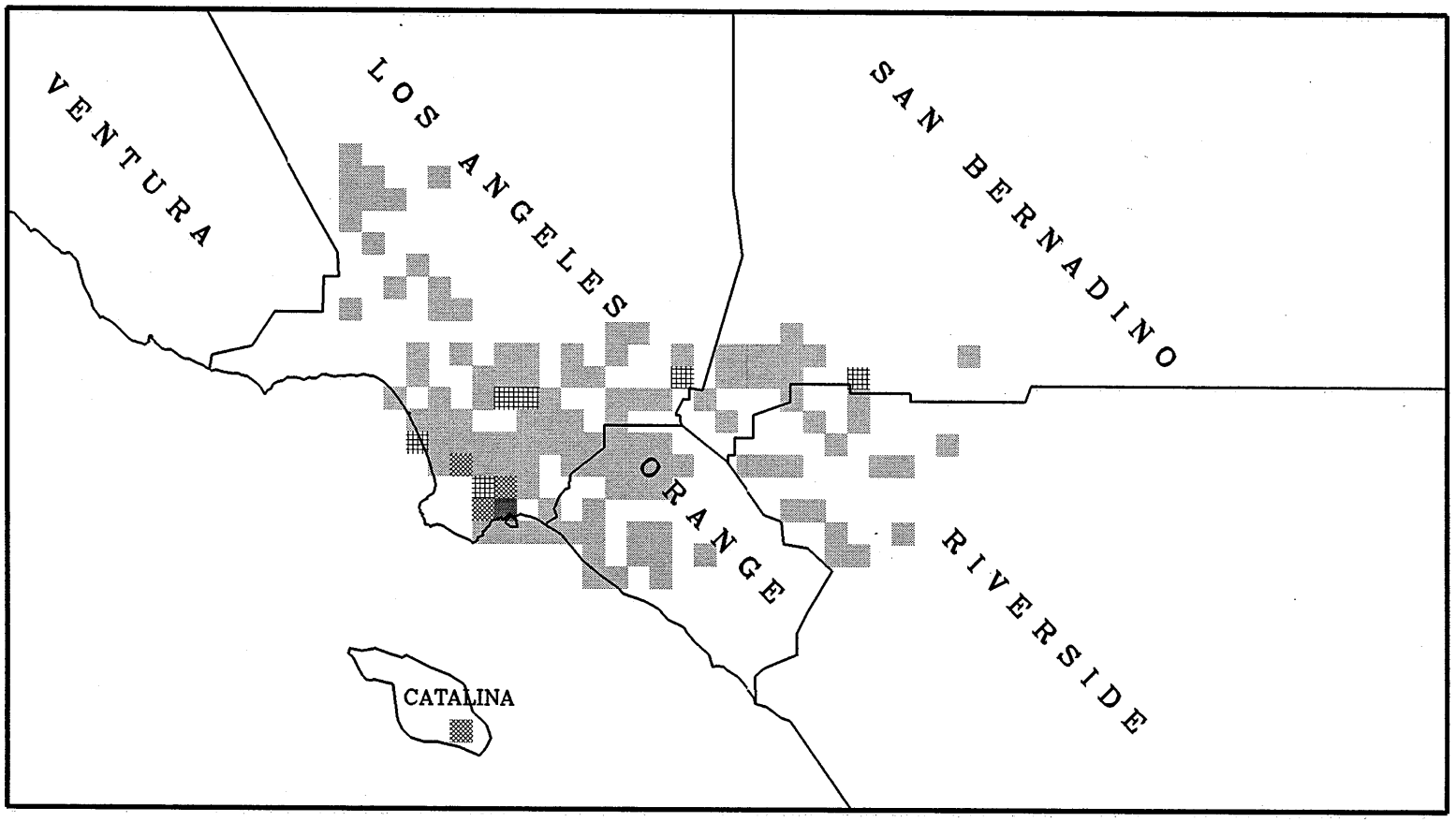
Facility ID	**109198**
Facility Name	Torch Operating Company
City and County	Brea, Orange County
SIC	1311
Pollutant(s)	NOx
Cycle	2
Job Gain	2 (1 attributed to RECLAIM)
Job Loss	0
Comments	Torch Operating Co. indicated that RECLAIM allowed facility to permit and construct an electrical turbine and therefore, one operator was hired.

Facility ID	**14495**
Facility Name	Vista Metals Corporation
City and County	Fontana, San Bernardino County
SIC	3341
Pollutant(s)	NOx
Cycle	2
Job Gain	120 (1 attributed to RECLAIM)
Job Loss	0
Comments	Vista Metals Corp. stated that one additional person was hired to handle the additional paper work, calculations, and filing created by RECLAIM.

APPENDIX E
QUARTERLY NOx EMISSION MAPS

RECLAIM Facilities

Certified NOx Emissions (Tons) From 01/99 To 03/99



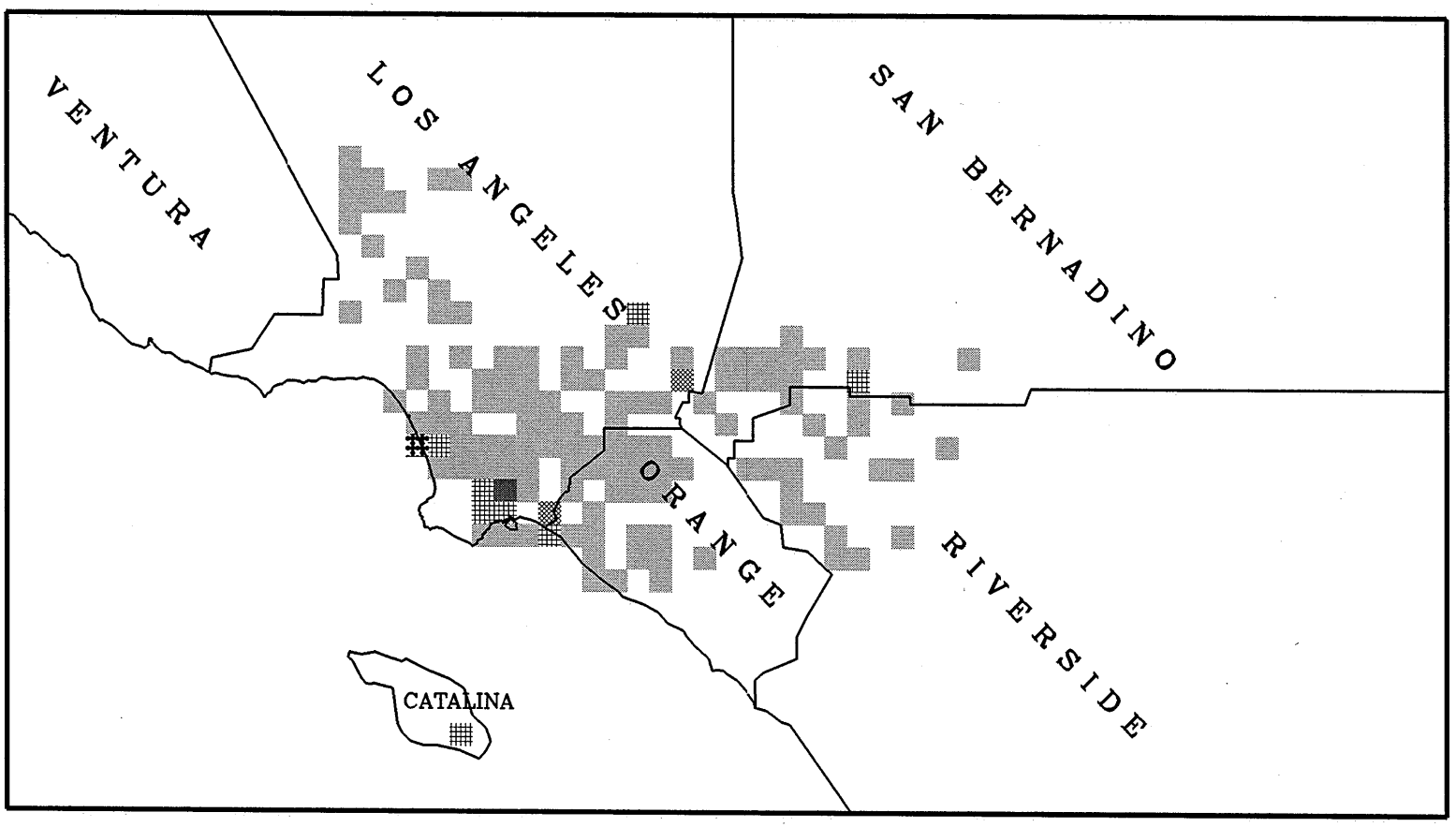
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 566 tons

Generated on 2/20/ 1

RECLAIM Facilities

Certified NOx Emissions (Tons) From 04/99 To 06/99



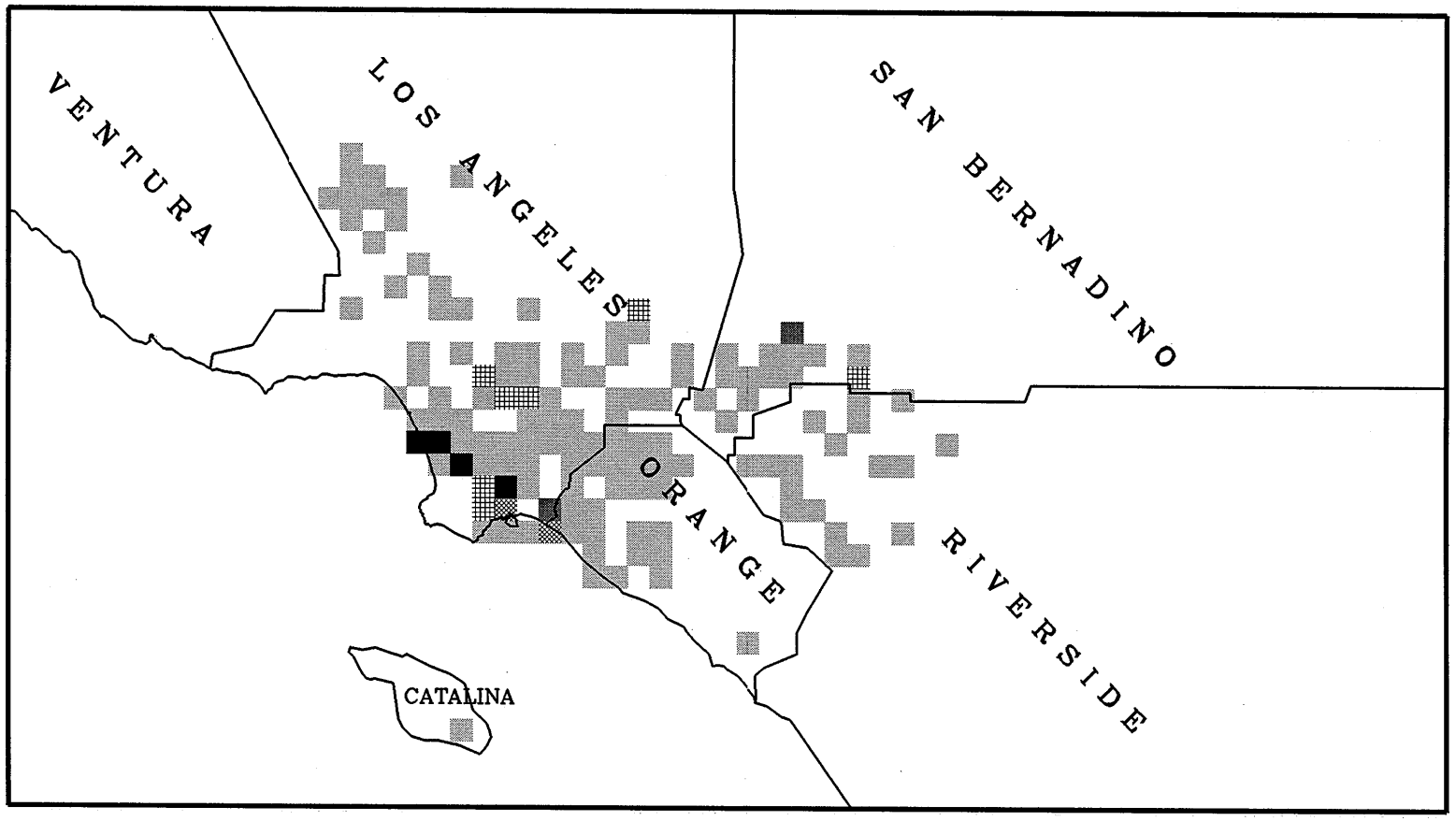
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 648 tons

Generated on 2/21/ 1

RECLAIM Facilities

Certified NOx Emissions (Tons) From 07/99 To 09/99



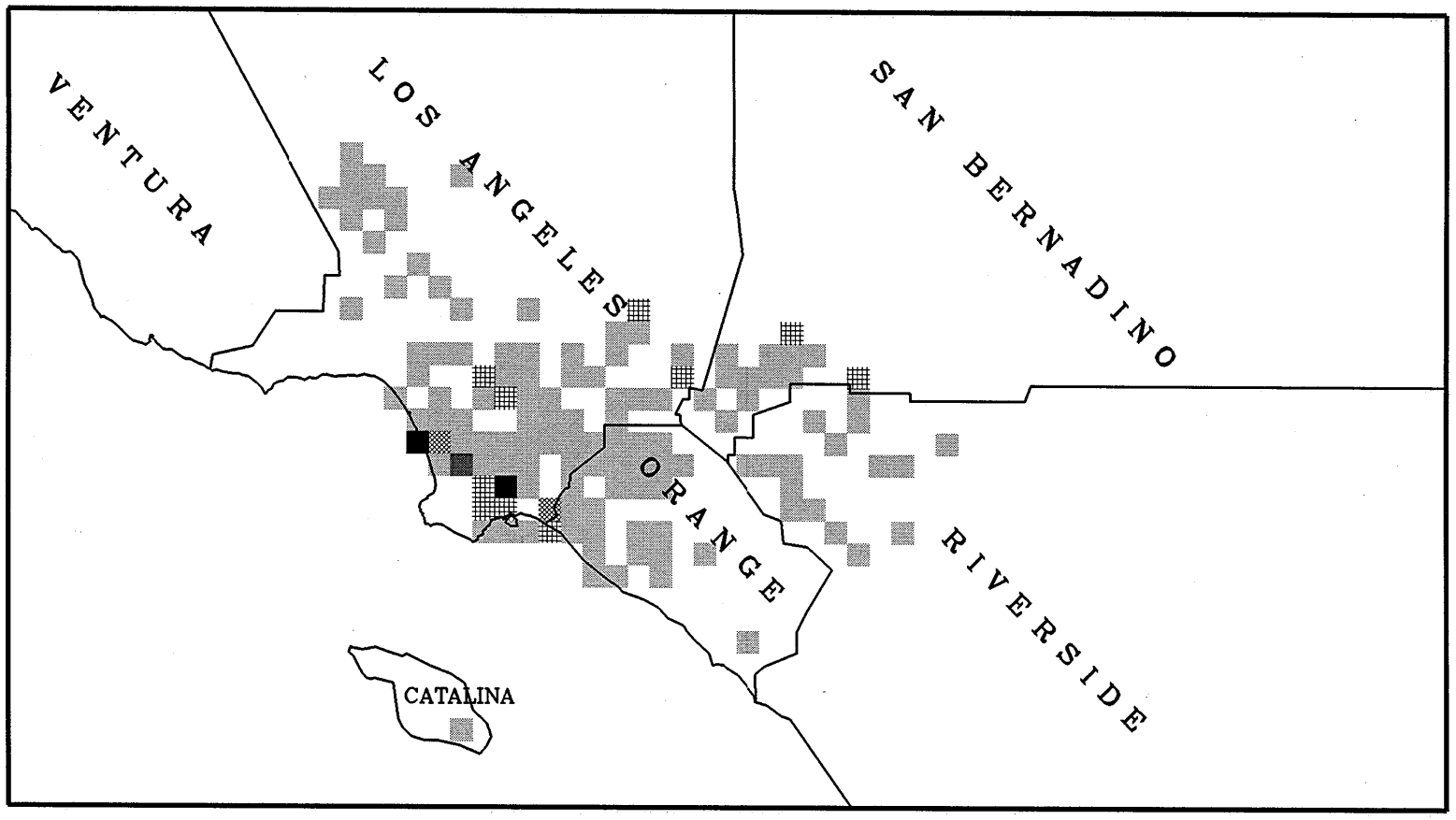
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 1016 tons

Generated on 2/21/ 1

RECLAIM Facilities

Certified NOx Emissions (Tons) From 10/99 To 12/99



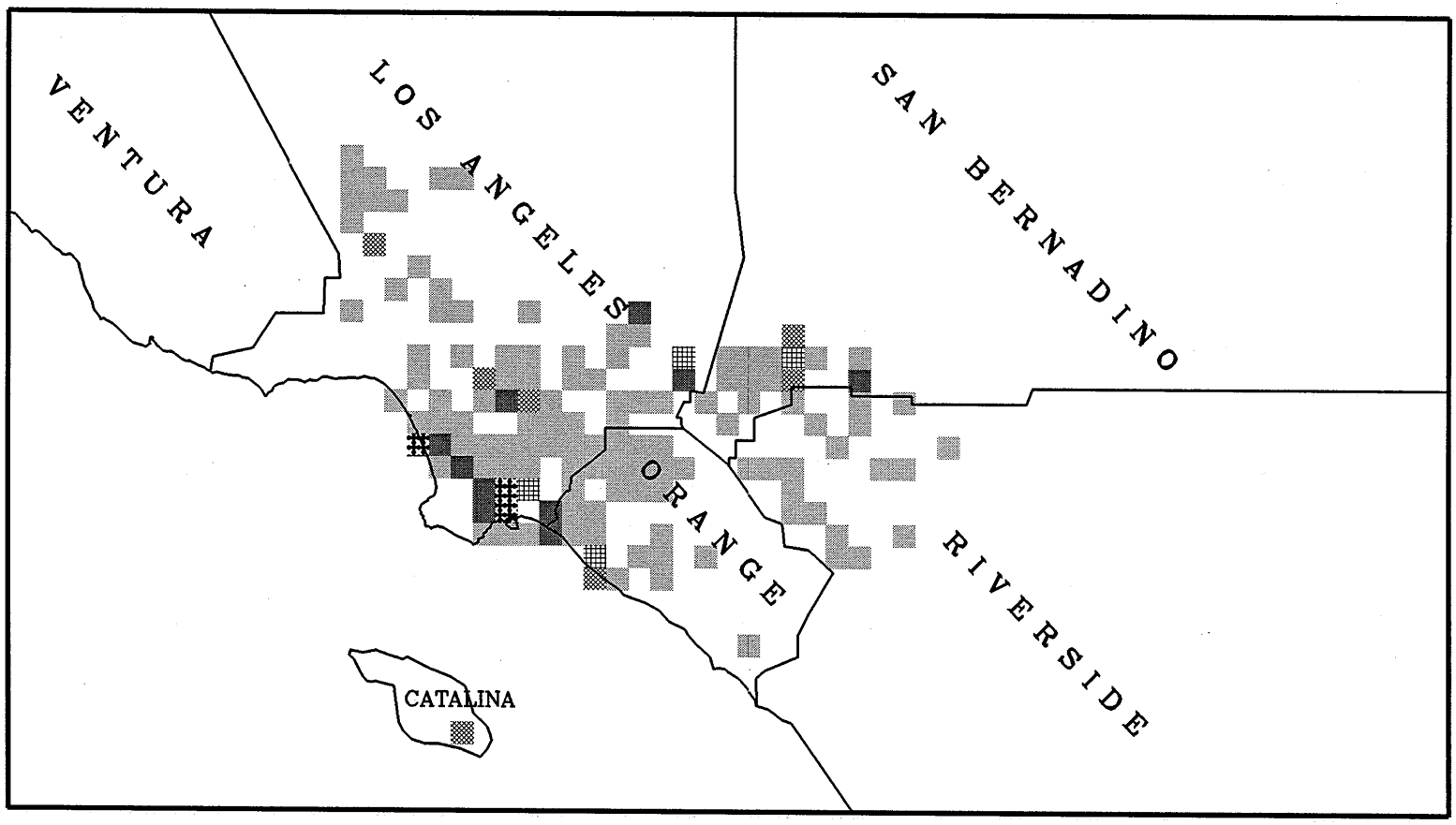
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 1195 tons

Generated on 2/21/ 1

RECLAIM Facilities

Certified NOx Emissions (Tons) Year to date (12/99)



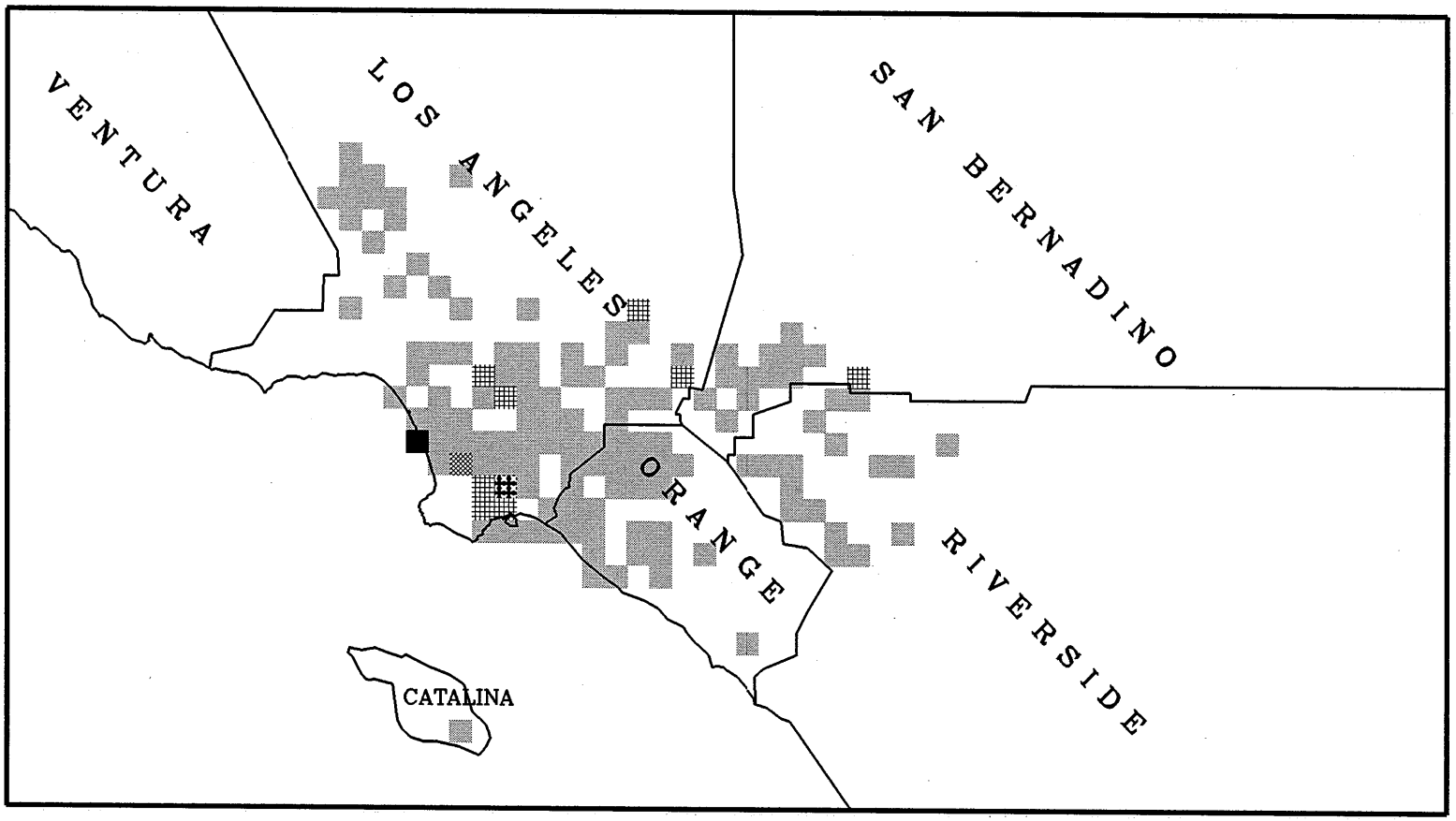
>0 – 100 | 100 – 200 | 200 – 400 | 400 – 800 | 800 –1600 | over 1600

max. emissions = 1565 tons

Generated on 2/21/ 1

RECLAIM Facilities

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



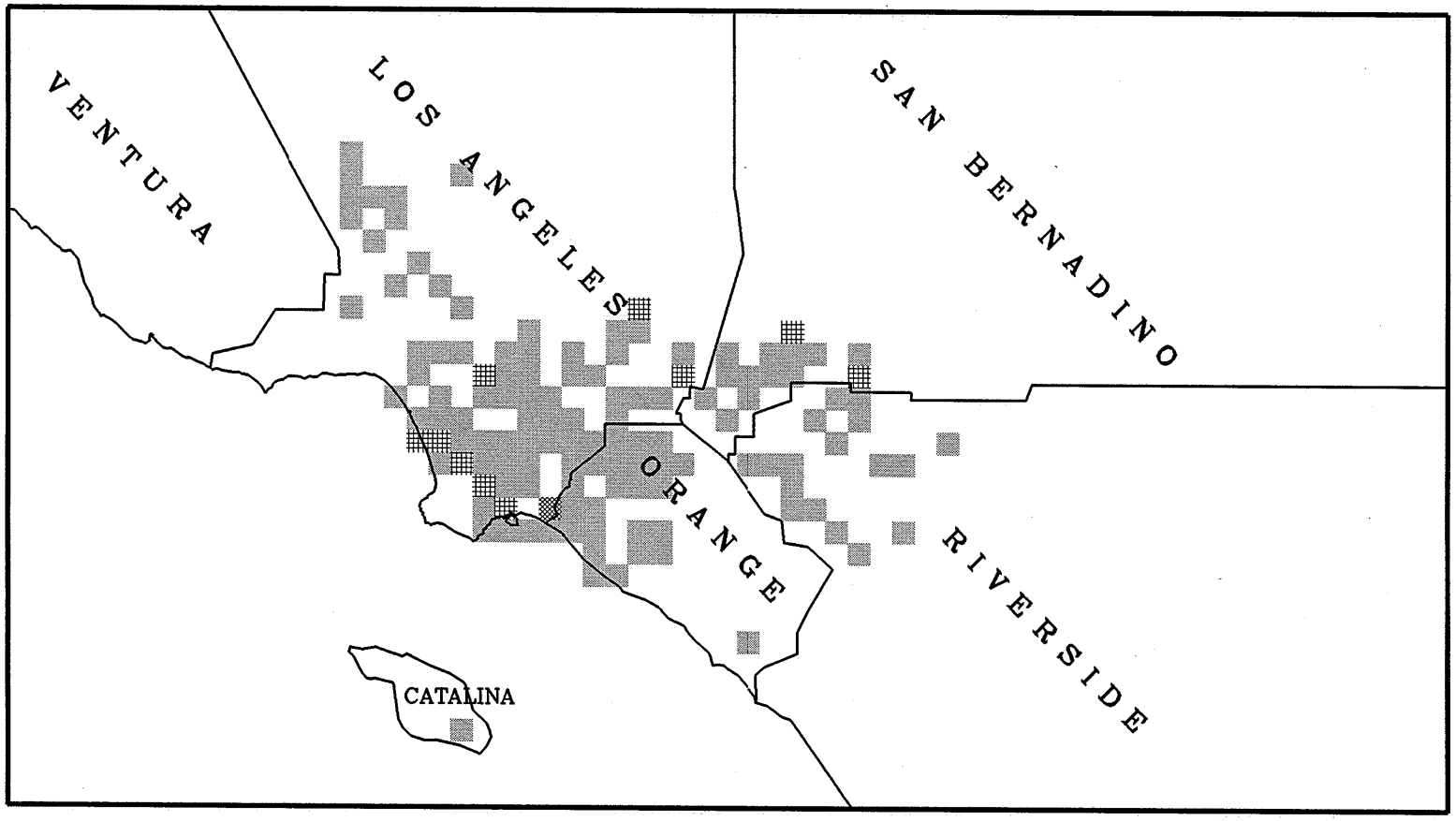
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 1067 tons

Generated on 2/21/ 1

RECLAIM Facilities

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



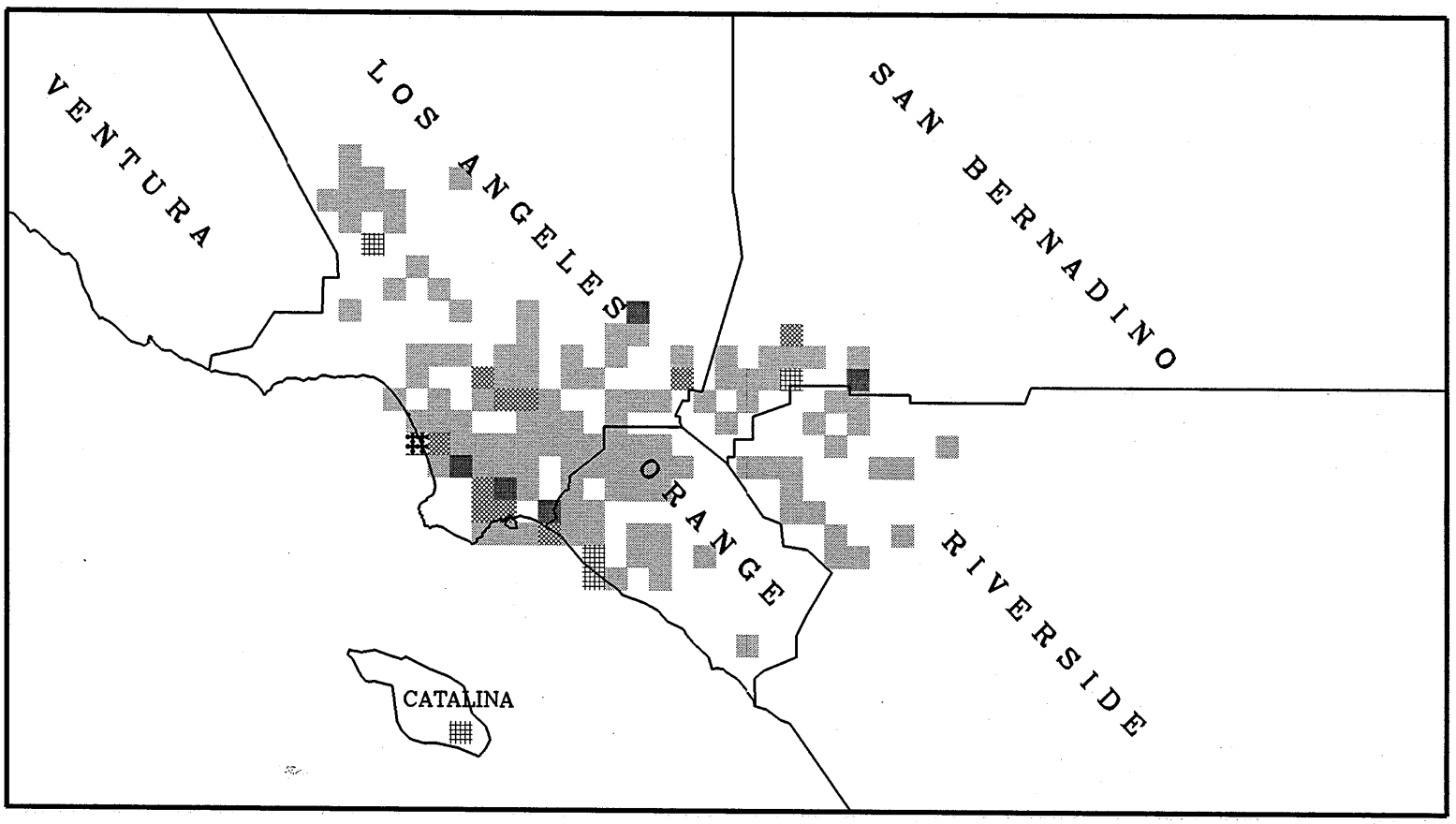
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 337 tons

Generated on 2/21/ 1

RECLAIM Facilities

Certified NOx Emissions (Tons) Year to date (6/00)



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

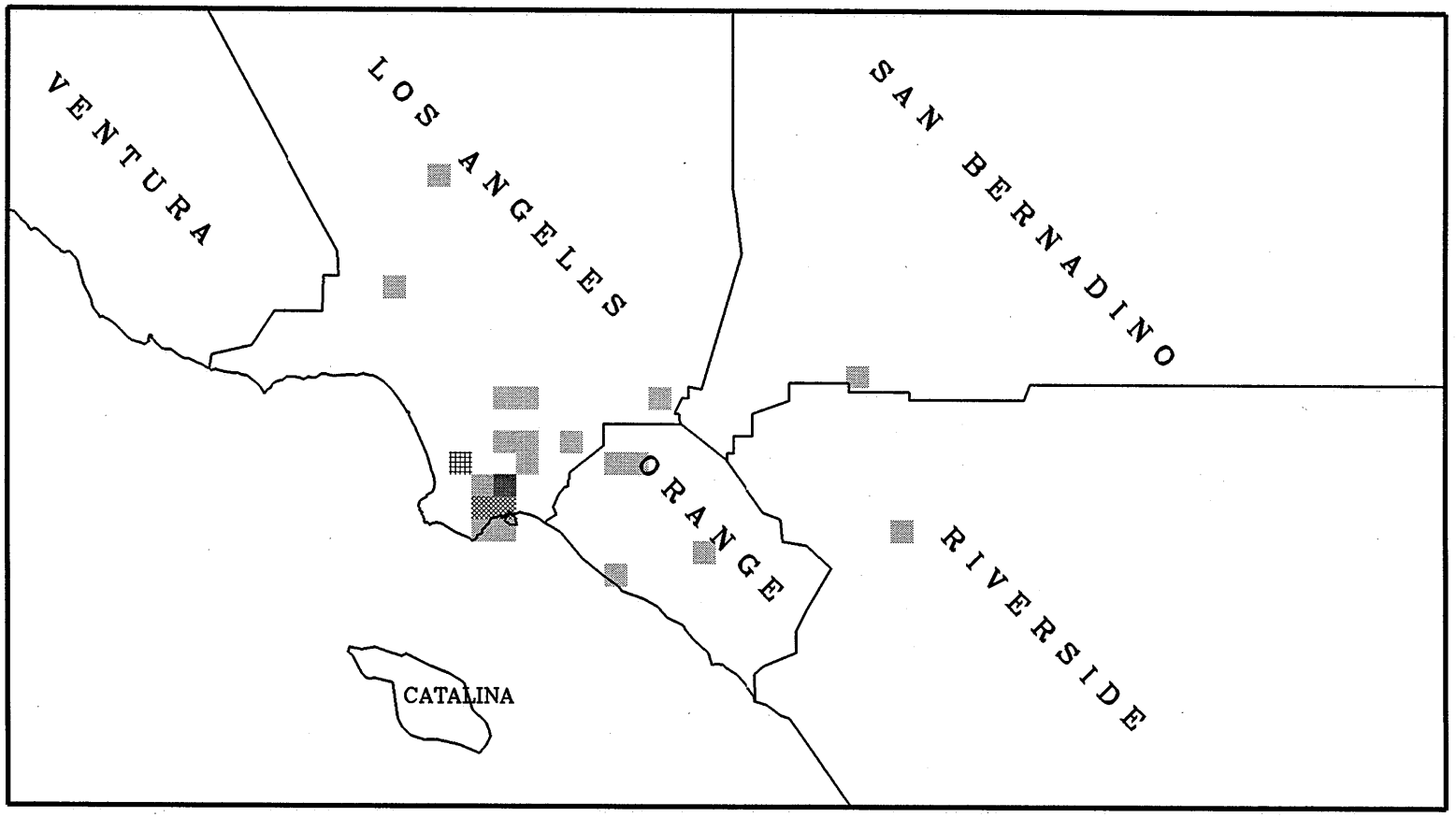
max. emissions = 1284 tons

Generated on 2/27/ 1

APPENDIX F
QUARTERLY SOx EMISSION MAPS

RECLAIM Facilities

Certified SOx Emissions (Tons) From 1/99 to 3/99



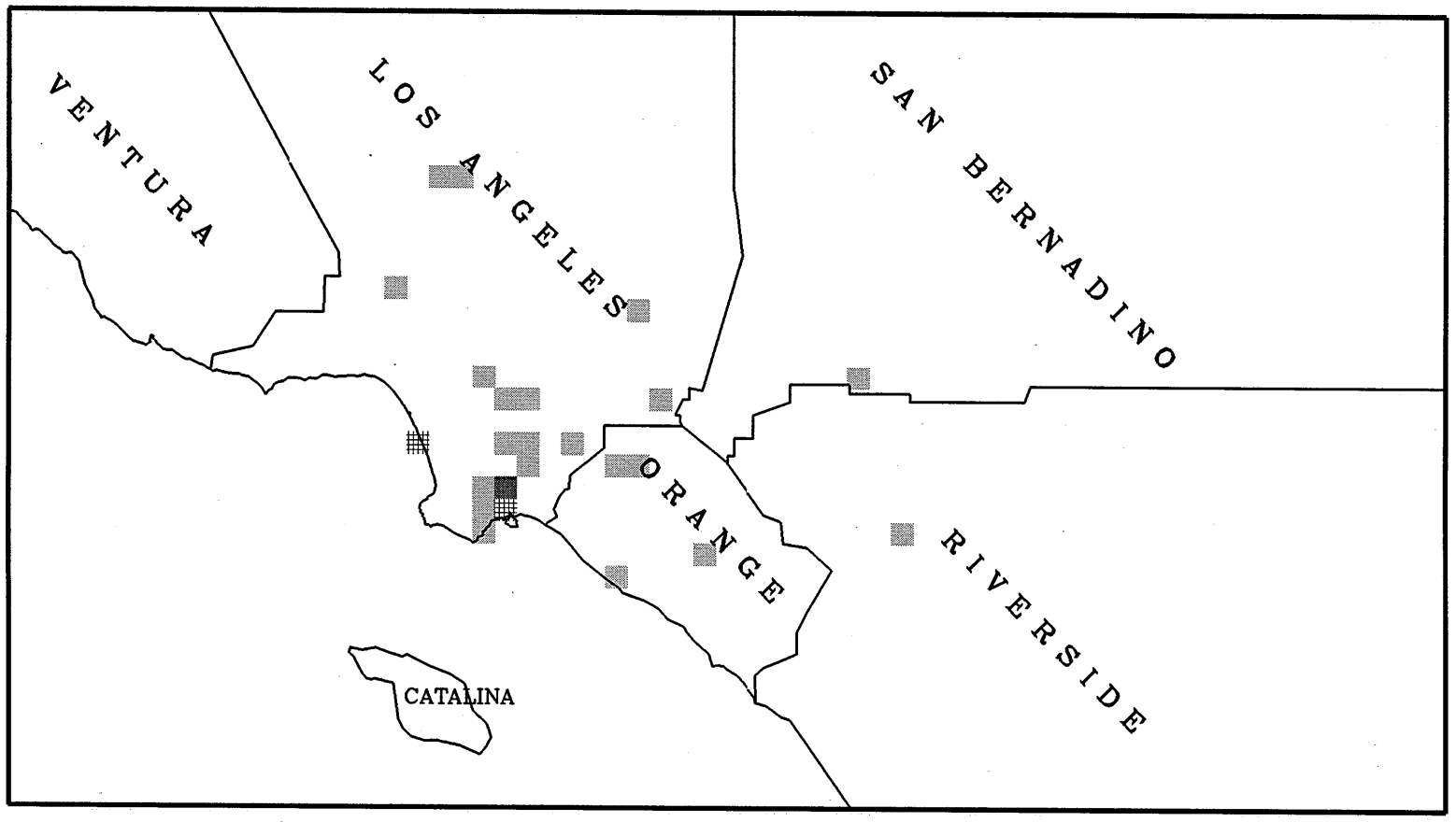
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 494 tons

Generated on 2/21/ 1

RECLAIM Facilities

Certified SOx Emissions (Tons) From 4/99 To 6/99



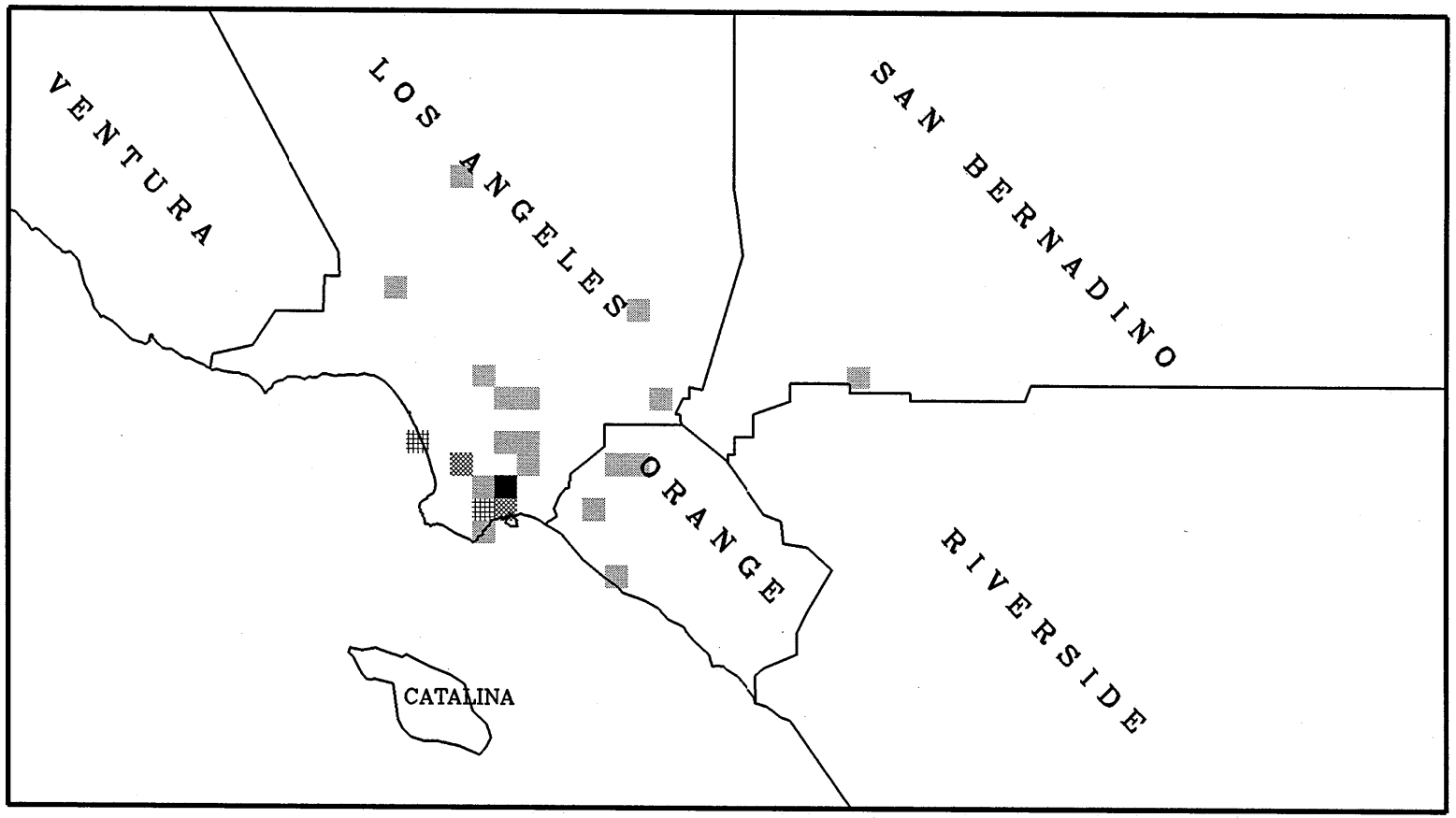
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 526 tons

Generated on 2/21/ 1

RECLAIM Facilities

Certified SOx Emissions (Tons) From 7/99 To 9/99



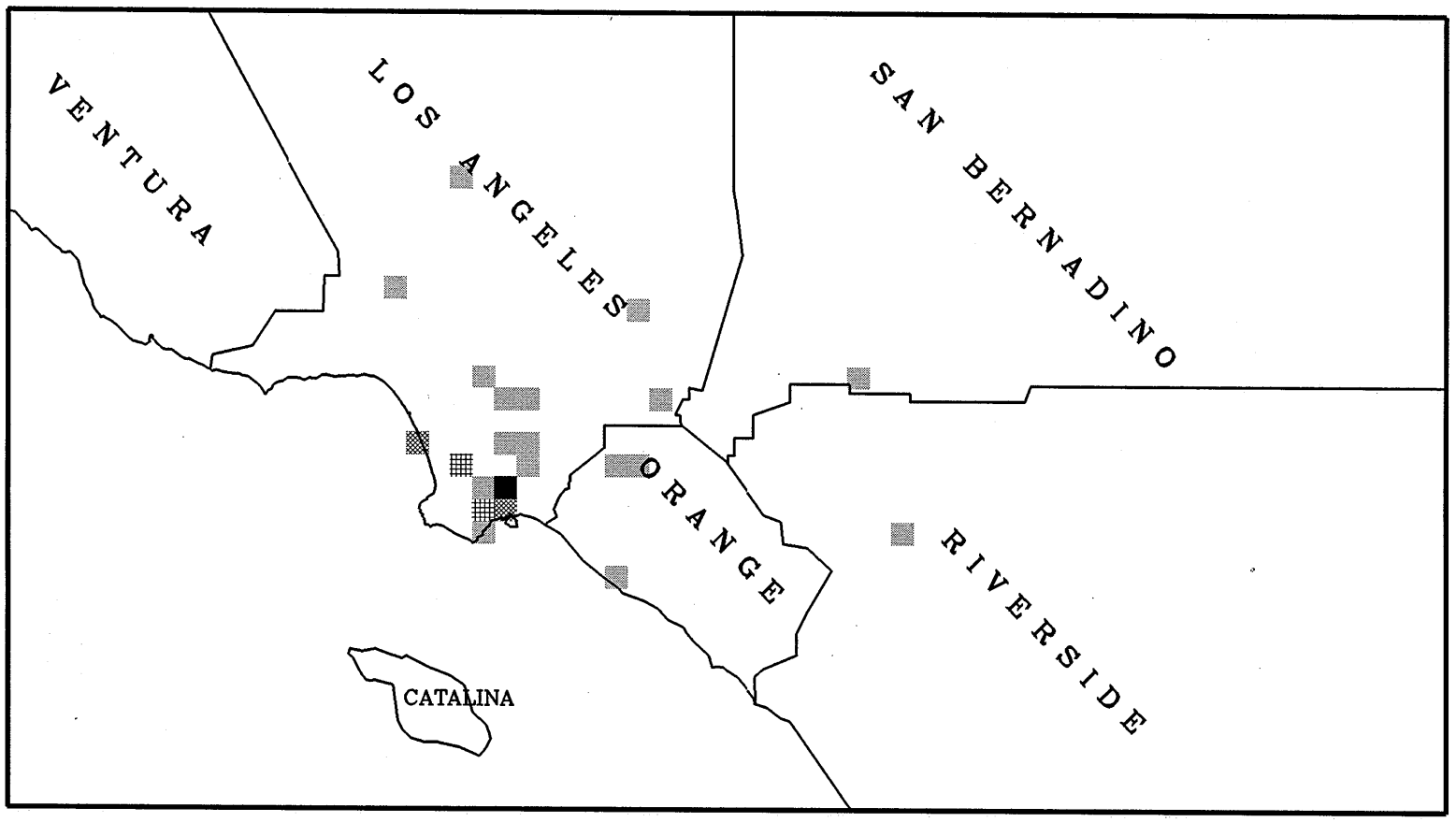
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 811 tons

Generated on 2/21/ 1

RECLAIM Facilities

Certified SOx Emissions (Tons) From 10/99 to 12/99



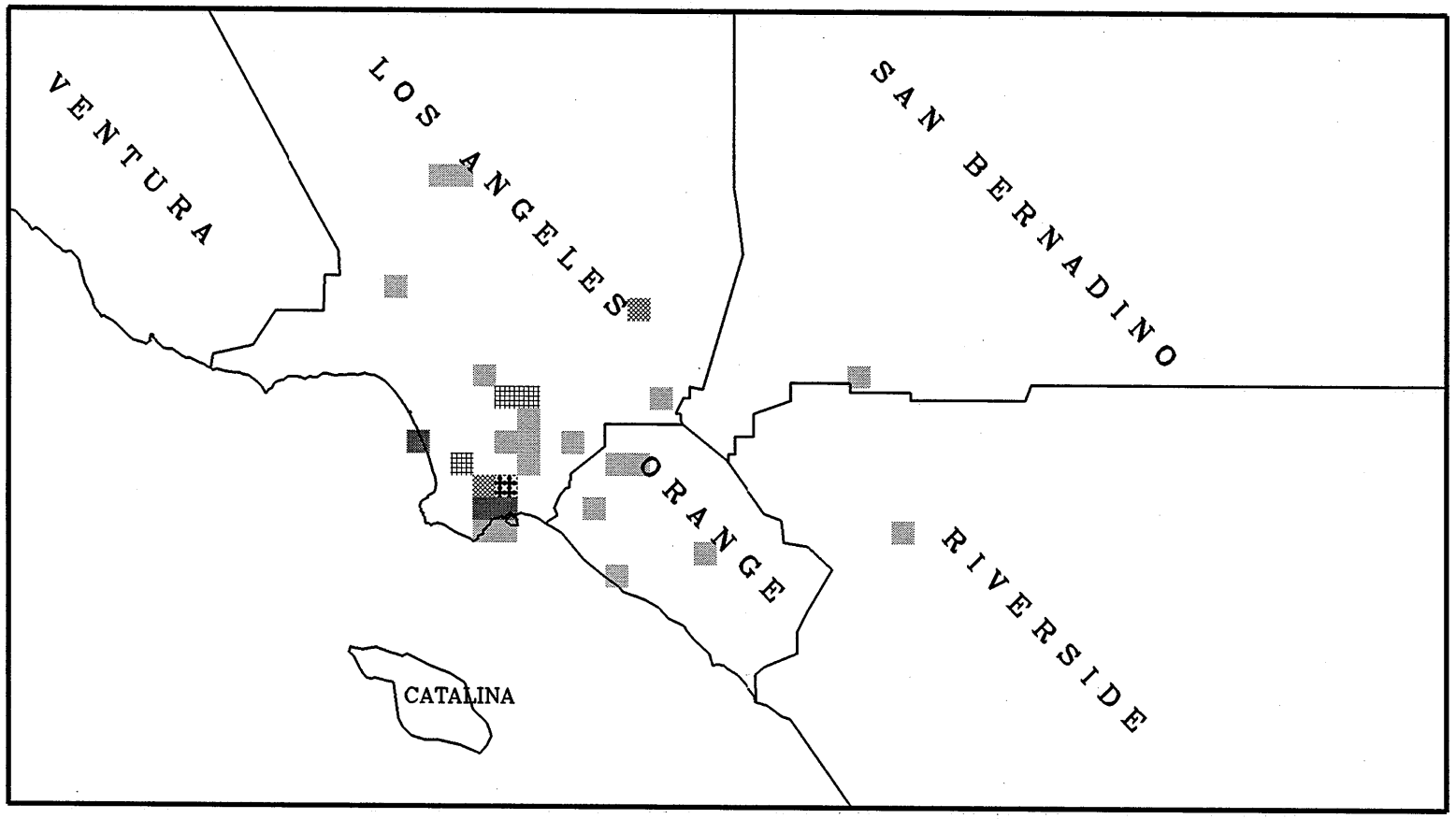
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 980 tons

Generated on 2/21/ 1

RECLAIM Facilities

Certified SOx Emissions (Tons) Year to date (12/99)



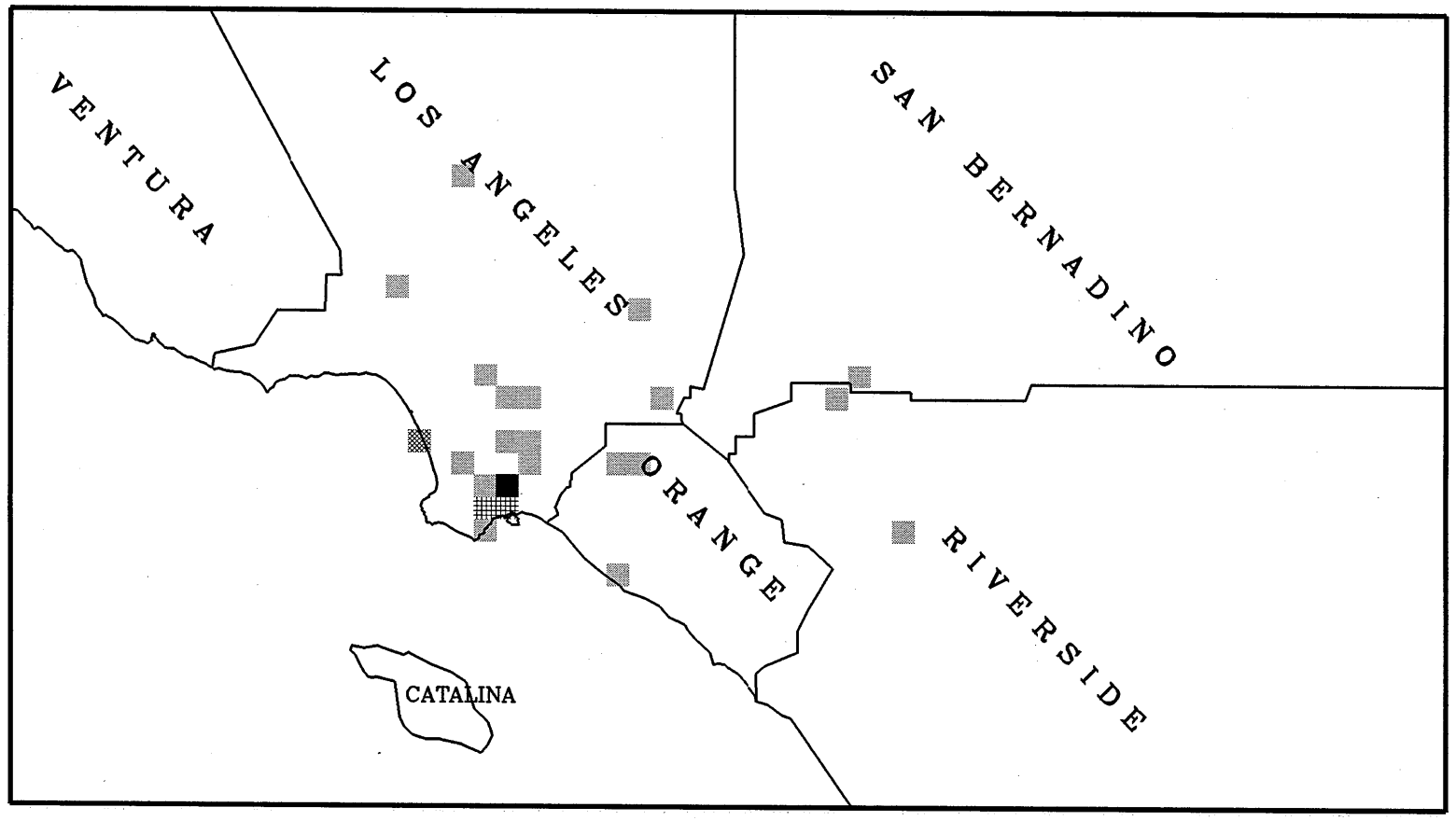
>0 – 100 | 100 – 200 | 200 – 400 | 400 – 800 | 800 –1600 | over 1600

max. emissions = 1466 tons

Generated on 2/21/ 1

RECLAIM Facilities

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



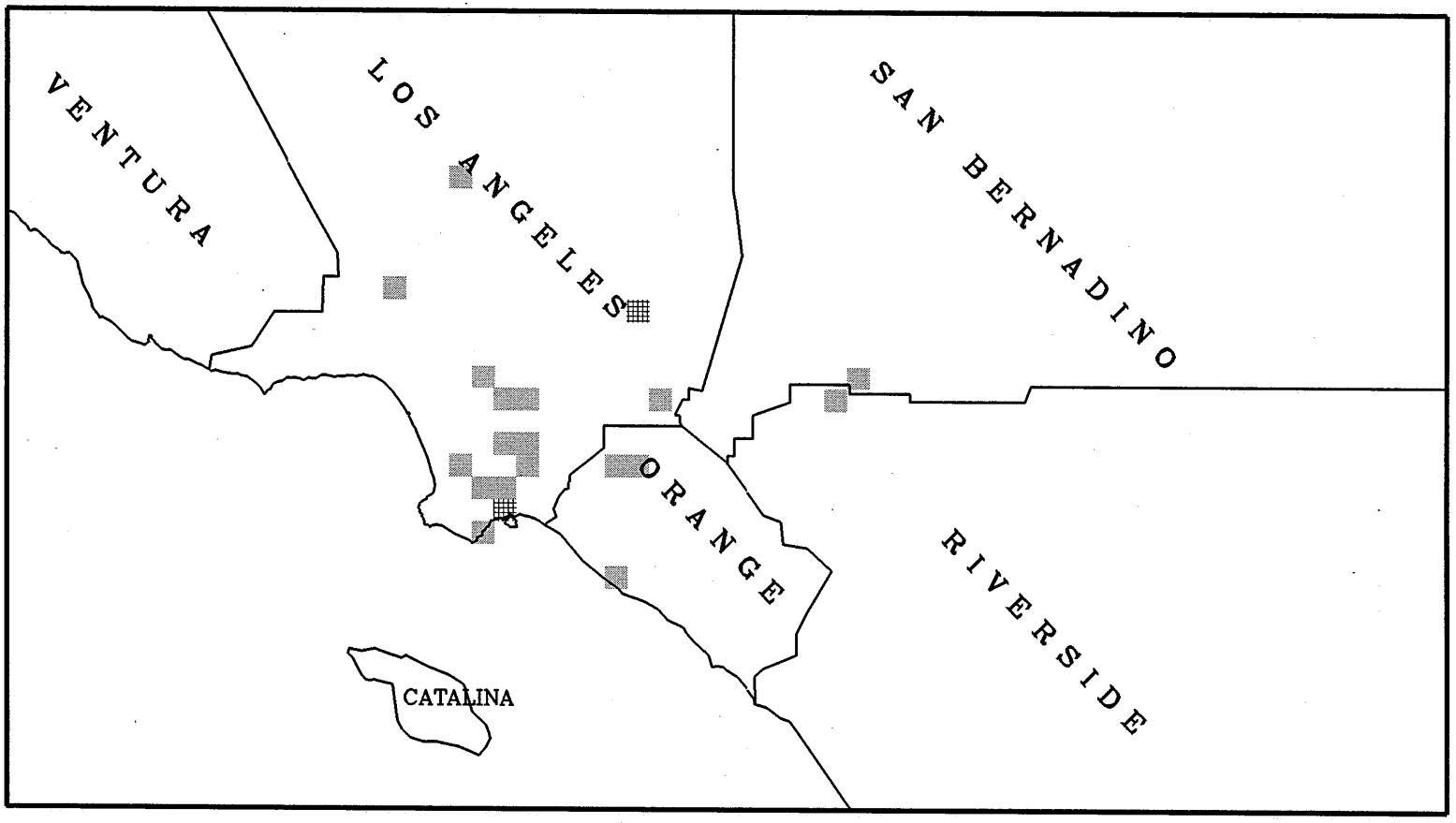
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 907 tons

Generated on 2/21/ 1

RECLAIM Facilities

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



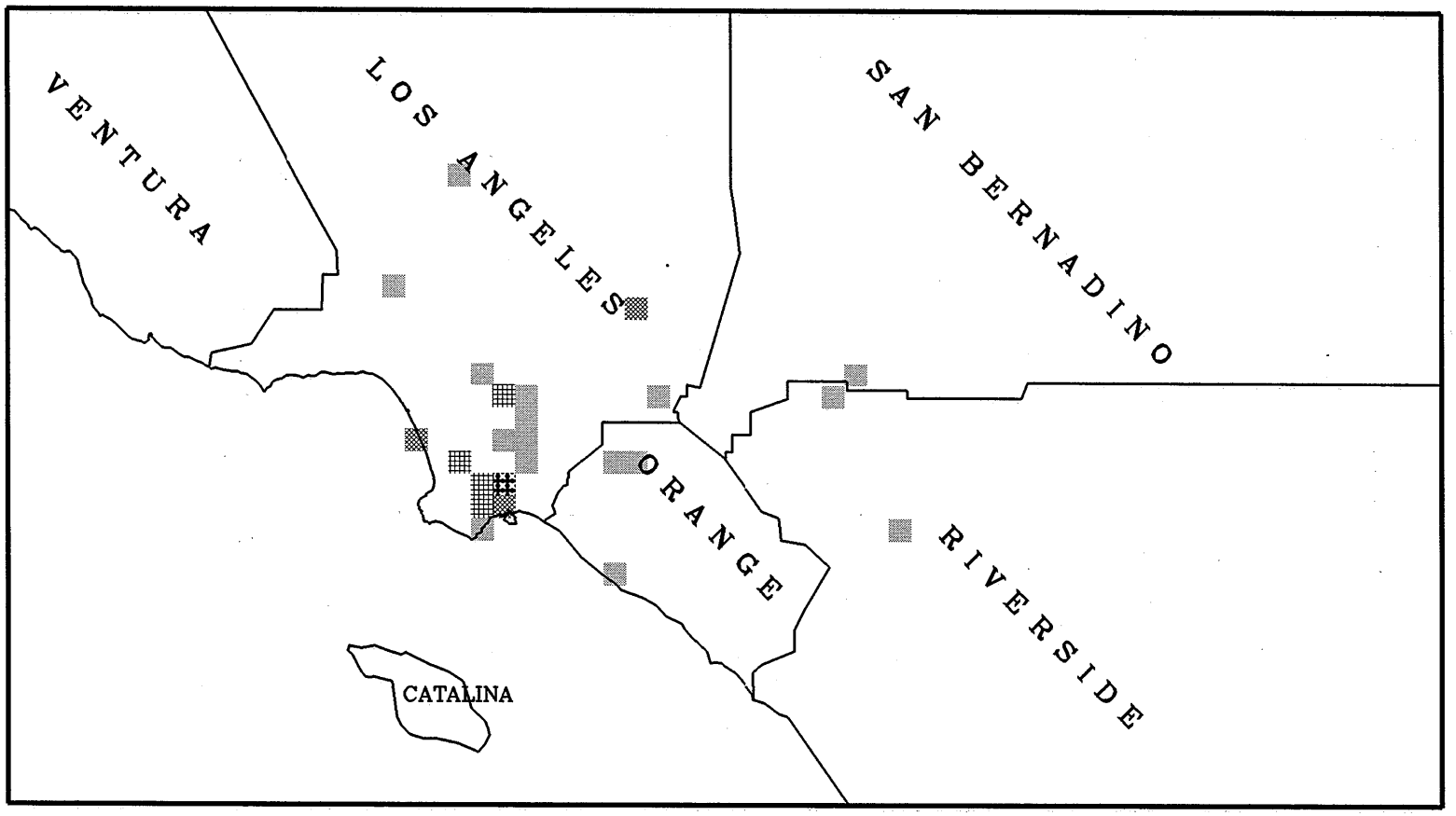
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 180 tons

Generated on 2/21/ 1

RECLAIM Facilities

Certified SOx Emissions (Tons) Year to date (6/00)



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

max. emissions = 948 tons

Generated on 2/27/ 1