BOARD MEETING DATE: March 17, 2000 AGENDA NO. 36

REPORT: Annual RECLAIM Audit Report for the 1998 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 fifth year of this program.

COMMITTEE: Stationary Source, February 25, 2000, 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. This report presents the annual audit for the 1998 compliance year, which was the program's fifth 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 1998 compliance year. In particular, the analysis demonstrates that:

- Aggregate actual emissions from RECLAIM facilities were below Allocations during the 1998 compliance year.

- The RECLAIM universe consisted of 326 facilities as of the end of the 1997 compliance year. There was a net change of five additional facilities in the RECLAIM universe included during the 1998 compliance year. Thus, there were 331 facilities in the RECLAIM Universe at the end of the 1998 compliance year.

- An active trading market for RTCs has developed. More than $103 million in RTCs have been traded since the adoption of RECLAIM, with over $24 million in trades occurring in Calendar Year 1999. Sufficient RTCs were 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), were well below the backstop price of $15,000 per ton established in Rule 2015. Average prices during 1998 and 1999 are summarized below:

1998	1999
• $451 per ton for 1998 NOx RTCs	• $1,827 per ton for 1999 NOx RTCs
• $1,971 Per ton for 2003 NOx RTCs	• $4,115 Per ton for 2003 NOx RTCs
• $1,859 per ton for 2010 NOx RTCs	• $4,114 per ton for 2010 NOx RTCs
• $303 per ton for 1998 SOx RTCs	• $784 per ton for 1999 SOx RTCs
• $1,760 Per ton for 2003 SOx RTCs	• $1,548 Per ton for 2003 SOx RTCs
• $1,760 per ton for 2010 SOx RTCs	• $1,548 per ton for 2010 SOx RTCs

- Once again, the vast majority of RECLAIM facilities complied with their Allocations during the 1998 compliance year. Twenty-seven 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 1998 compliance year, as in previous years. Three facilities attributed RECLAIM with generating one job each. Three facilities that experienced a job loss reported that RECLAIM was one of a number of factors contributing to its lost positions, but could not quantify the extent of RECLAIM's contribution. Eleven facilities shut down or went out of business in 1998. One of these shutdown facilities claimed that RECLAIM was the cause for it to cease operation. However, the facility was not in operation for more than five years even though the facility permit was kept active. The operator decided to officially cease operations permanently at this location in 1998 and inactivated the permit. The plating facility that this facility supplied steam to was destroyed in a fire

in March 1999; therefore, the demand for the product from this facility no longer existed.

AQMD 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 1998 Compliance Year

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Annual RECLAIM Audit Report for the 1998 Compliance Year

March 17, 2000

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SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

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EXECUTIVE OFFICER:

BARRY WALLERSTEIN, D. Env.

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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 1998 compliance year (January 1998 through June 1999).

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, 1998, 18 facilities were included into the program, 61 were excluded from the program, and 25 facilities ceased operation. Thus, the RECLAIM universe consisted of 326 facilities on July 1, 1998. During Compliance Year 1998, there were 16 new facilities created due to the taking over partial operations of existing facilities, one existing facility opted to join RECLAIM, two facilities were consolidated under one existing facility, and 11 facility shutdowns. These changes resulted in a net increase of five facilities in the universe, bringing the total number of facility to 331 facilities at the end of the 1998 compliance year. All changes occurred in the NOx RECLAIM Universe and none in the SOx Universe. In addition, no change was made to the NOx Allocations since the new facilities were not issued any Allocations. The shutdown facilities retained their RECLAIM Trading Credits (RTCs). Therefore, changes in the universe resulted in no impact on both NOx and SOx allocations.

AQMD staff completed review of annual emissions reports from facilities reporting four or more tons of NOx and SOx emissions during at least one of the years 1992, 1993, July 1994 through June 1995, and July 1995 through June 1996. As a result, 39 additional facilities were included into the RECLAIM program in Compliance Year 1999.

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. No changes were made to the total NOx or SOx Allocations during the 1998 compliance year.

RTC trading markets were more active in 1999. 541 RTCs transactions were registered in 1999 compared to 441 transactions in 1998. More than $24 million in trades occurred during the 1999 calendar year.

Prices for all NOx RTCs increased dramatically in 1999, while prices for SOx RTCs decreased during the same period. However, market price trends for NOx and SOx RTCs are similar to prior years, with low prices for current year RTCs and higher prices for future years RTCs. Average prices for NOx RTC traded in 1999 ranged from $1,827 per ton for 1999 RTCs to $4,553 per ton for 2001 RTCs. Average prices for SOx RTCs traded in 1999 ranged from $784 per ton for 1999 RTCs to $1,649 per ton for 2005 RTCs. These prices are below the backstop price of $15,000 per ton. The supply of RTCs offered for sale on the market has been adequate to meet the demand of RECLAIM facilities.

Chapter 3: Emissions Reductions

Aggregate emissions from RECLAIM facilities were below aggregate allocations for the first five compliance years (1994 through 1998), indicating that RECLAIM is achieving its emission reduction goals. Aggregate allocations issued to the RECLAIM facilities reflect an emission level comparable to that projected for implementation of the AQMP traditional command-and-control requirements that RECLAIM subsumed.

Analysis of the 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 1998 compliance year shows that one existing facility joined the RECLAIM program. However, there was no NSR activity at this facility. Furthermore, 40 existing RECLAIM facilities incurred NSR emission increases due to expansions or modifications. This 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 of a 1.2-to-1 offset ratio for NOx and SOx emission increases on a programmatic basis. In the 1998 compliance year, the RECLAIM offset ratios were 73-to-1 for NOx and 451-to-1 for SOx on an aggregate basis, demonstrating federal equivalency. In addition, RECLAIM requires application of Best Available Control Technologies for all new or modified sources with emission increases. Compliance with the federally required offset ratio also demonstrates compliance with the state requirement of no net emissions increases from new or modified sources.

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 audits reveal that the overall RECLAIM emissions goal was met for this compliance year, as it was each previous year of the program.

For the 1998 compliance year, preliminary audits of 103 Cycle 1 facilities show that 27 facilities exceeded their annual allocations. At the time, similar to 1997, the main cause of allocation exceedances was failure to reconcile emissions with the amount of credits held. Other reasons included calculation errors, use of incorrect emission factors, and application of Missing Data Procedures (MDP).

Chapter 6: Job Impacts

Job impacts resulting from the RECLAIM program during the 1998 compliance year continue to be negligible when compared to the overall employment in the basin. Three RECLAIM facilities attributed one job gain each to RECLAIM for a new employee for each facility to handle RECLAIM compliance issues. Three facilities cited RECLAIM as one of many contributing factors to their job losses. However, the specific number of job losses resulting from RECLAIM cannot be quantified. Furthermore, 11 RECLAIM facilities shut down or went out of business in 1998. Only one of these shutdown facilities claimed that RECLAIM was the cause for it to cease operations. AQMD records showed this facility had not been operating for five years and that it had provided steam to a plating facility destroyed in a fire in March 1999.

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: emissions trends, seasonal fluctuations, geographic distribution of emissions, per capita exposures, and toxics impact.

The emissions reported by RECLAIM facilities from 1989 through 1999 are found to be below allocations. Although there is no significant difference in SOx emissions seasonally, there was a slight peak in NOx emissions during the months of July to September 1998. Furthermore, analysis of the geographical distribution of emissions during the first five 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 (CCAA) 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 1999 shows that the Basin has already achieved the December 2000 target for ozone.

Air toxic health risk is primarily caused by volatile organic compound (VOC) emissions, 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 fifth compliance year (January 1, 1998 through June 30, 1999), also known as the 1998 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 1998 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, 1998, 18 facilities were included into the program, 61 were excluded from the program, and 25 facilities ceased operation. Thus, the RECLAIM universe consisted of 326 facilities on July 1, 1998. During Compliance Year 1998, there were 16 new facilities created due to the taking over partial operations of existing facilities, one existing facility opted to join RECLAIM, two facilities were consolidated under one existing facility, and 11 facility shutdowns. These changes resulted in a net increase of five facilities in the universe, bringing the total number of facility to 331 facilities at the end of the 1998 compliance year. All changes occurred in the NOx RECLAIM Universe and none in the SOx Universe. In addition, no change was made to the NOx Allocations since the new facilities were not issued any Allocations. The shutdown facilities retained their RECLAIM Trading Credits (RTCs). Therefore, changes in the universe resulted in no impact on both NOx and SOx allocations.

AQMD staff completed review of annual emissions reports from facilities reporting four or more tons of NOx and SOx emissions during at least one of the years 1992, 1993, July 1994 through June 1995, and July 1995 through June 1996. As a result, 39 additional facilities were included into the RECLAIM program in Compliance Year 1999.

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, 1998 include eighteen facility inclusions, sixty-one facility exclusions, and twenty-five facility shutdowns. Thus, the net change in the RECLAIM universe during the first four compliance years was a decrease from 394 to 326 facilities. During Compliance Year 1998, there were 16 new facilities created due to the taking over partial operations of existing facilities, one existing facility opted to join RECLAIM, two facilities were consolidated under one existing facility, and 11 facility shutdowns. These changes brought the total universe up to 331 facilities.

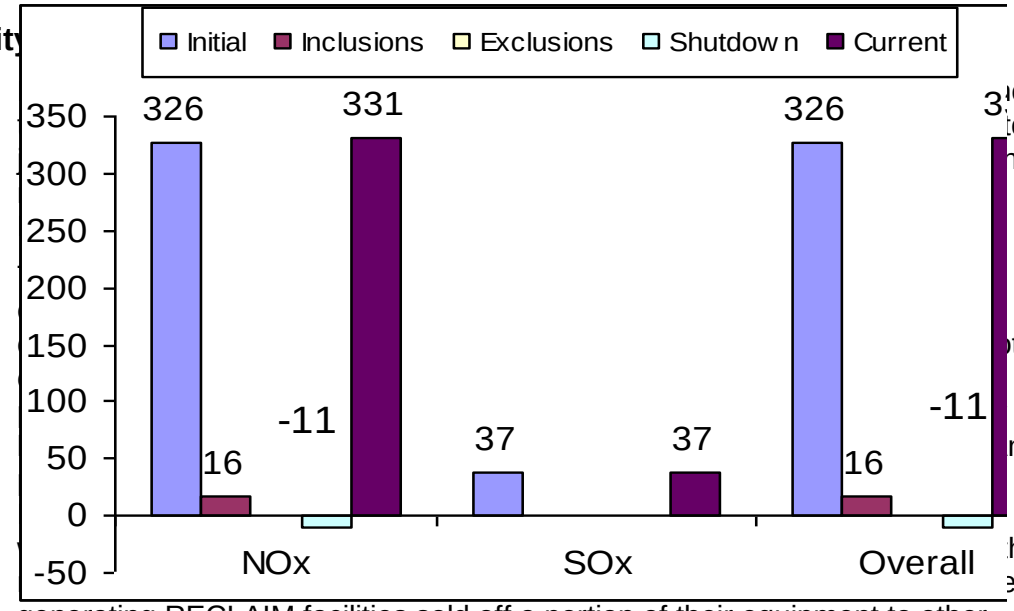
Table 1-1 summarizes the changes in the RECLAIM universe between the start of Program and the end of Compliance Year 1998.

Table 1-1
RECLAIM Universe Changes

	NOx Facilities	SOx Facilities	Total Facilities
Start of Program	**392**	**41**	**394**
Inclusions—1994-1997	18	5	18
Exclusions—1994-1997	60	4	61
Shutdowns—1994-1997	24	5	25
End of 1997 Compliance year	**326**	**37**	**326**
Inclusions—1998	16	0	16
Exclusions—1998	0	0	0
Shutdowns—1998	11	0	11
End of 1998 Compliance year	**331**	**37**	**331**

Figure 1-1 illustrates the changes that occurred during Compliance Year 1998. Appendix A lists the facilities in the RECLAIM universe as of June 30, 1999.

Figure 1-1
Universe Changes during Compliance Year 1998



Facility

generating RECLAIM facilities sold off a portion of their equipment to other entities. In addition, a major aerospace facility went through a partial change of operator. These equipment transfers resulted in sixteen new facilities in the RECLAIM universe. These new facilities have either obtained RTCs from the facilities they were splitting from or purchased RTCs from the RTC trading market to offset their emissions.

The facility that requested to enter the RECLAIM program was not eligible to be issued RECLAIM Allocations because the facility commenced operation after January 1, 1993 and, when it was initially permitted pursuant to Regulation XIII – New Source Review, no external offsets were provided by the facility. The facility is required to purchase sufficient NOx RTCs to offset their annual emissions.

Two separate corporations operated two adjacent RECLAIM facilities at the beginning of Compliance Year 1998. These two corporations were merged into one of the existing corporations. Therefore, the two facilities were also merged into one single facility.

Facilities Permanently Ceasing Operations

Eleven NOx RECLAIM facilities permanently ceased operations and went out of business between July 1, 1998 and June 30, 1999. These facilities have the option to retain or sell their RTCs. Only one of the facilities cited RECLAIM as a contributing factor in their decision to cease operation. However, according to AQMD records, the facility has been not been operated for at least five years even though the permit was kept active. The operator decided to officially cease operations at this location in 1998 and inactivated the permit. This was a cogenaration facility which produces steam for use at a plating facility. The plating facility had a fire and was burned down in March of 1999. As a result, the

demand for steam no longer exists. Appendix C lists the shutdown facilities and brief descriptions of the known reasons for closing down operations.

The above changes to the RECLAIM universe do not involve any SOx facility. In summary, there was no impact on the total NOx or SOx Allocations.

Other Inclusion Activities

Rule 2001(b) directs the Executive Officer to include in the RECLAIM program all facilities that submit emissions fee billing (EFB) data with four or more tons of NOx or SOx emissions for the year 1990 or any subsequent year unless they meet one of the exclusion criteria.

In 1998, AQMD staff performed an analysis of EFB data for the years 1992, 1993, 1994-95, and 1995-96 (the EFB reporting period changed from calendar year to fiscal year in 1994) to determine if there are any additional facilities that should be included in the RECLAIM program. The analysis included a notification letter, a survey, and two public information meetings to review the requirements of the RECLAIM program. After evaluating all pertinent information, AQMD determined that 39 facilities met the inclusion criteria. These facilities were incorporated into the RECLAIM program for the 1999 compliance year.

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. No changes were made to the total NOx or SOx Allocations during the 1998 compliance year.

RTC trading markets were more active in 1999. 541 RTCs transactions were registered in 1999 compared to 441 transactions in 1998. More than $24 million in trades occurred during the 1999 calendar year.

Prices for all NOx RTCs increased dramatically in 1999, while prices for SOx RTCs decreased during the same period. However, market price trends for NOx and SOx RTCs are similar to prior years, with low prices for current year RTCs and higher prices for future years RTCs. Average prices for NOx RTC traded in 1999 ranged from $1,827 per ton for 1999 RTCs to $4,553 per ton for 2001 RTCs. Average prices for SOx RTCs traded in 1999 ranged from $784 per ton for 1999 RTCs to $1,649 per ton for 2005 RTCs. These prices are below the backstop price of $15,000 per ton. The supply of RTCs offered for sale on the market has been adequate to meet the demand of RECLAIM facilities.

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 of entering the RECLAIM program and each subsequent year. The Allocations will 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

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, 16 new facilities and one opt-in facility were included into the RECLAIM NOx universe during the 1998 compliance year. No RTCs were issued to these facilities. Additionally, two facilities were merged into one and 11 facilities shut down. No change to RTC were made as a result of these facility changes. The RECLAIM SOx universe remained the same as previous year. Therefore, no changes were made to the total NOx or SOx Allocations. Figures 2-1 and 2-2 illustrated the total NOx and SOx supply, respectively.

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

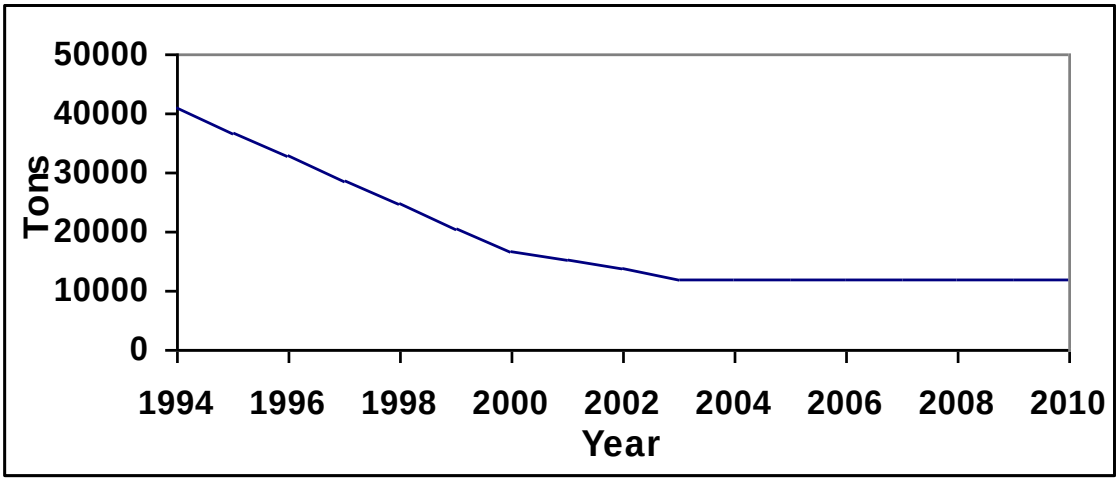


Figure 2-2
SOx: Allocations and RTC Supply (tons/year)

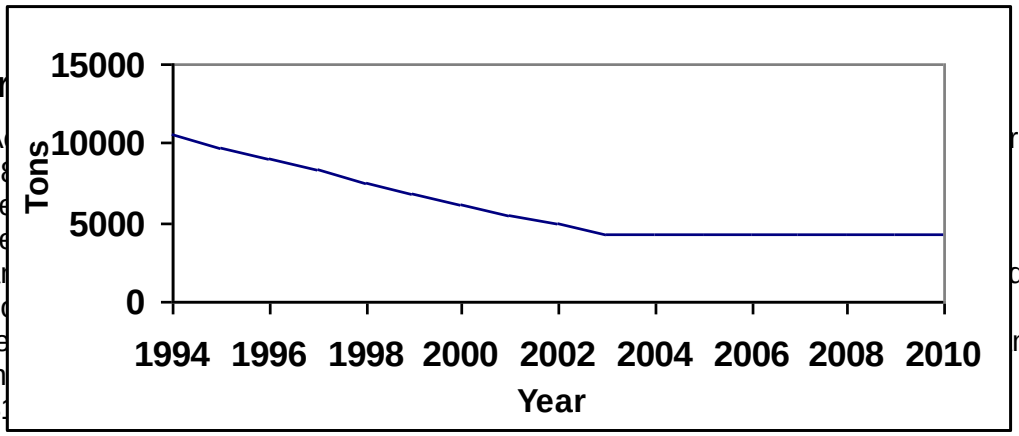
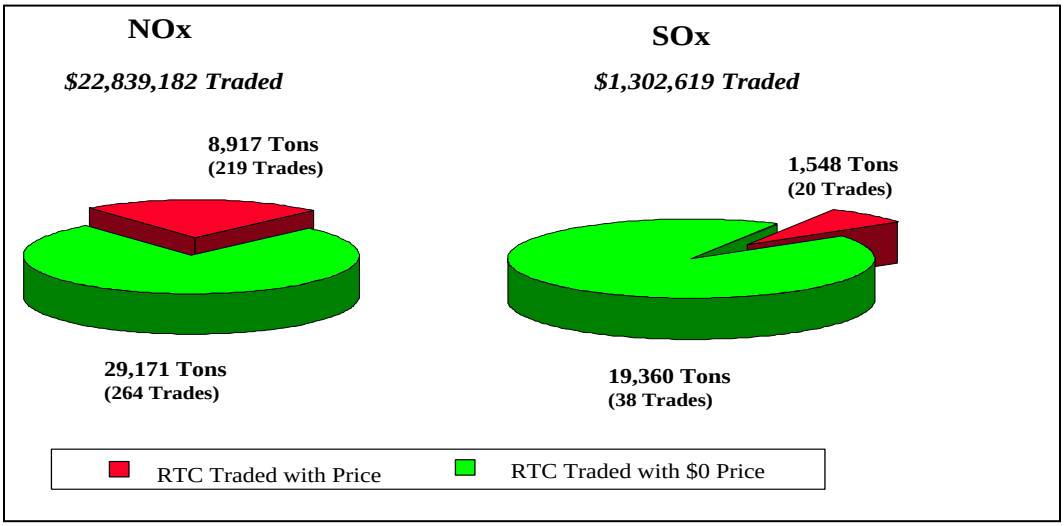


Figure 2-3
1999 Trading Activity



Trades with prices indicated the demand for RTCs. Brokers conducted most of these trades. Trades with prices are also common among transfers directly between RECLAIM facilities. In 1999, 239 trades (219 for NOx and 20 for SOx) totaling 8,917 tons of NOx and 1,548 tons of SOx were traded with prices. The total values of these trades were $22,839,182 and $1,302,619, respectively. These trades included activity for both current-year and future-year RTCs.

Trades with $0 prices generally occur when a seller transfer 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. In 1999, trades with $0 prices also occurred when facilities traded by 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. Figures 2-4 and 2-5 illustrate tons of NOx and SOx traded, respectively. These figures show trades with and without prices in 1999 and compare them with trading activity in the prior years.

Figure 2-4
Tons of NOx Traded

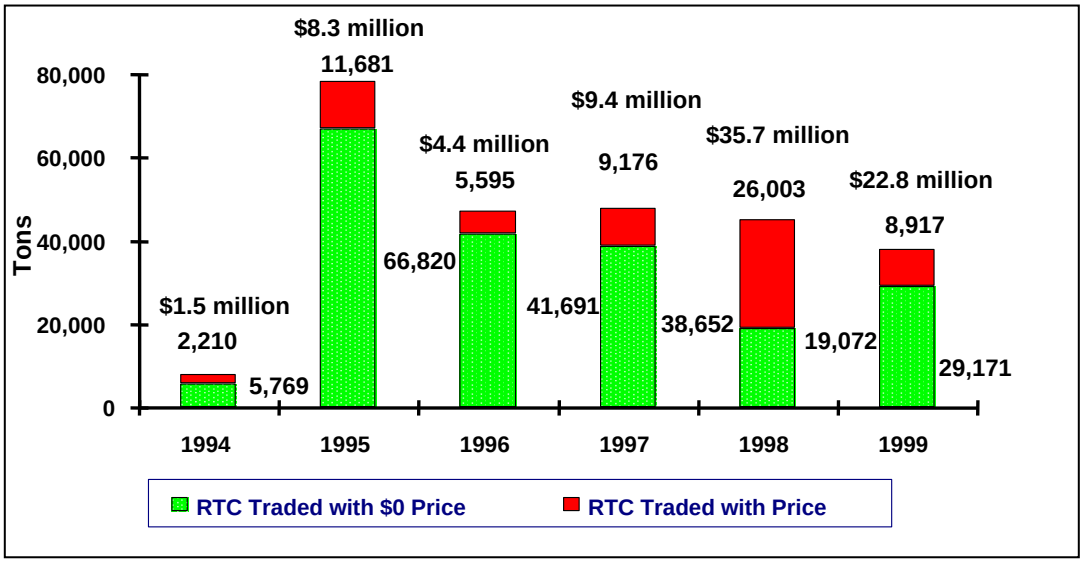
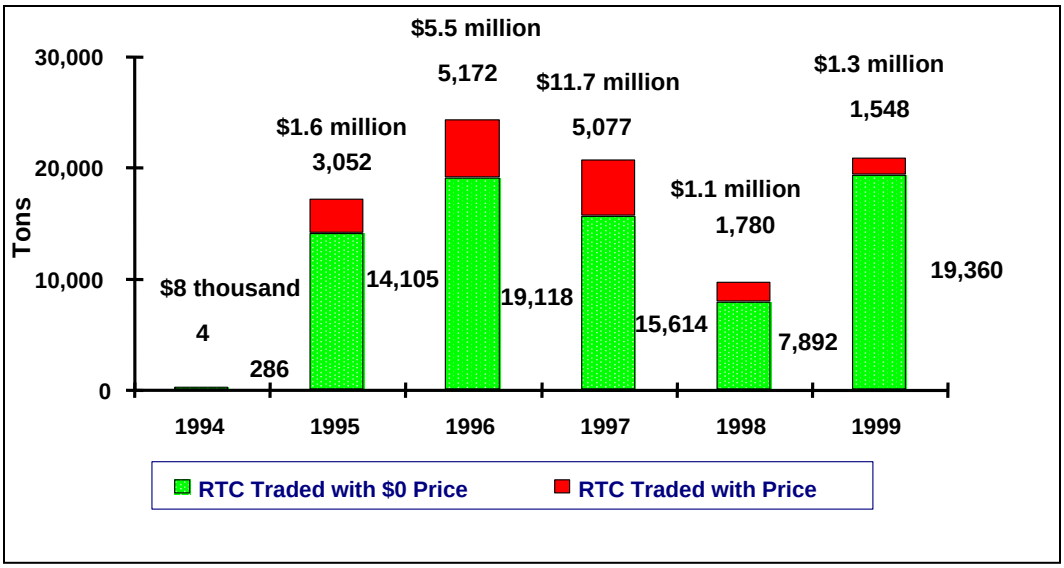


Figure 2-5
Tons of SOx Traded



Comparison of 1999 Trading Activity to Previous Years

Total number of trades registered with AQMD in 1999 were more than any previous years. However, the total quantity of RTCs traded in 1999 is less when compared to the activities in years 1995, 1996, 1997. For NOx RTCs, 1999 activities also decreased when compared to 1998, especially those RTCs traded with prices. (1998 activities included change of ownership trades of electric utility facilities). Prices for NOx RTCs have increased dramatically which resulted in over $22.8 million traded. The quantity of NOx RTCs traded with $0 price increased compared to 1998.

The total quantity of SOx RTCs traded in 1999 increased compared to 1998 but are still less than the peak activity year in 1996. Majority of the SOx RTCs traded with prices are for current year compliance use. There were three trades with prices that involved future year RTCs. Only one of these trades involved RTCs with expiration dates of year 2001 and 2002. Prices for SOx RTCs with an expiration of year 2000 and beyond are lower than the average market prices for years 1996, 1997, and 1998.

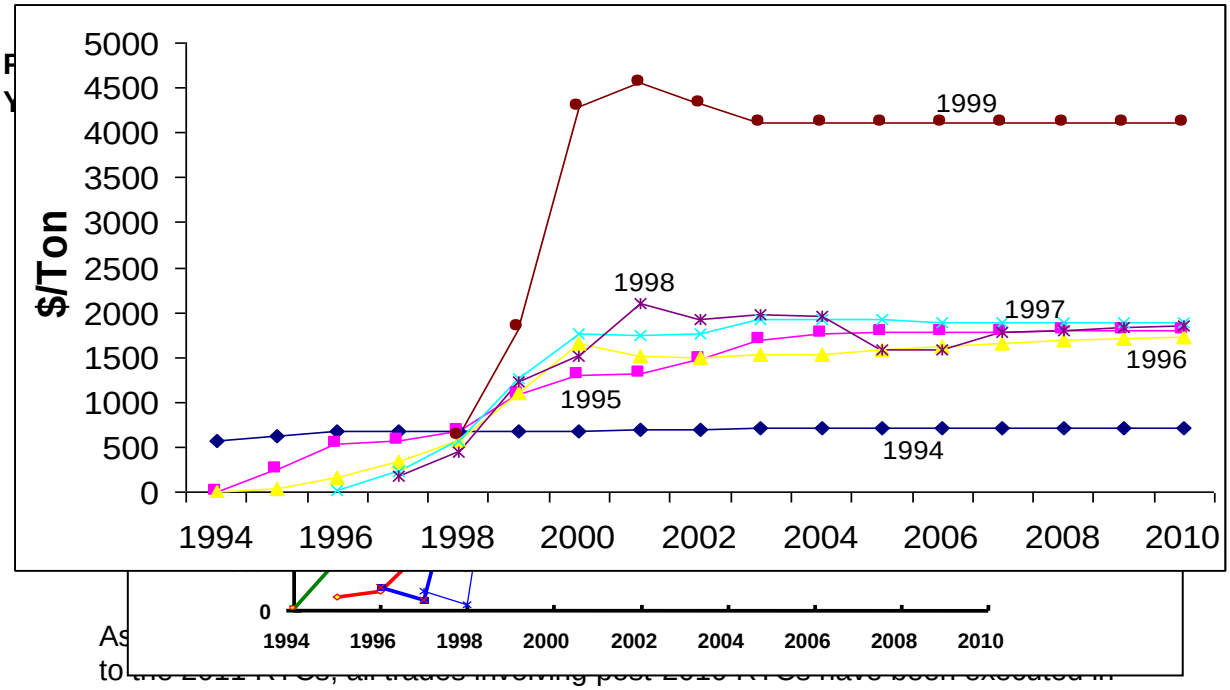
RTC Prices

In 1999, RTC prices continued in the similar trend as previous years, with lower prices for the current year credits and higher prices for the future years. When compared to prior years, the average prices for NOx RTCs increased significantly in 1999, while average prices for SOx RTCs are below the average prices for RTCs traded in 1996, 1997, and 1998. Average prices for NOx RTCs

traded in 1999 ranged from $1,827 per ton for current-year RTCs to $4,553 per ton for year 2001 RTCs. Average prices for SOx RTCs traded ranged from $784 per ton for current-year credits to $1,649 per tons for year 2005 RTCs. Figures 2-6 and 2-7 show the changes in average prices for NOx and SOx RTCs respectively.

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, the price trend for current-year RTCs has been reversed, and prices for these expiring RTCs have been increasing as the expiration date approaches.

Figure 2-6
Yearly Average Prices for NOx RTCs



blocks extending infinitely forward in time with a single aggregate price.

Trading prices for NOx and SOx RTCs in all years have been lower than the backstop price of $15,000 per ton as stated in Rule 2015 which would trigger an evaluation and review of the compliance and enforcement aspects of the RECLAIM program.

RTC Availability

Based on the RTC transaction registrations from January 1, 1994 through December 31, 1999, the total quantity of RTCs offered for sale (supply) was greater than the total quantity of RTCs purchased by RECLAIM facilities (market demand) for the same period. This indicates that there were sufficient RTCs in the market to meet the market demand. Future year RTCs were also available for purchase. However, the supply of NOx RTCs expiring in year 2000 and after

is much less due to allocation reductions. Figures 2-8 and 2-9 show the availability of NOx and SOx RTCs, respectively. There were sufficient RTCs available for those facilities that wished to purchase RTCs for compliance use.

Figure 2-8
NOx RTC Availability

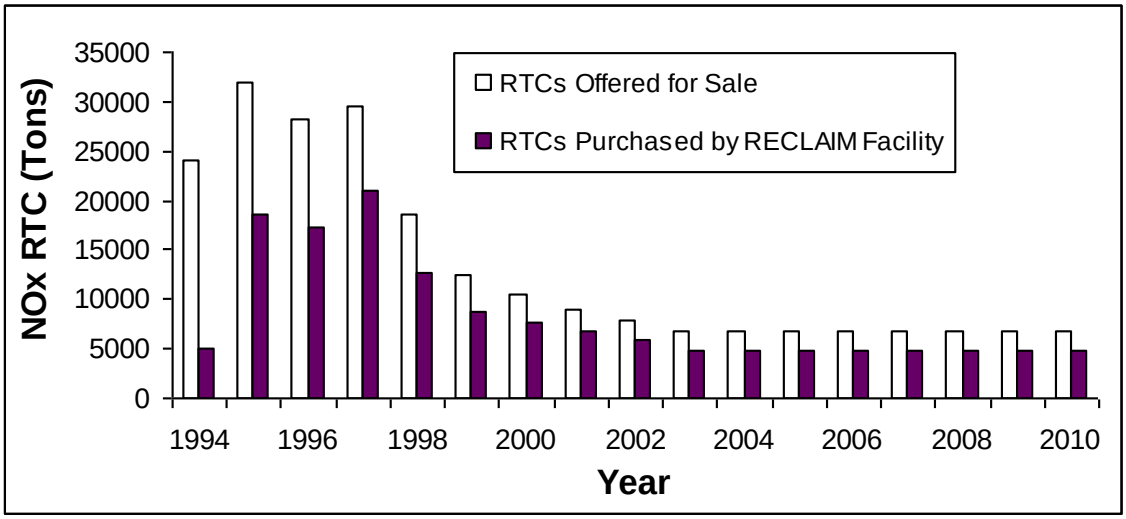
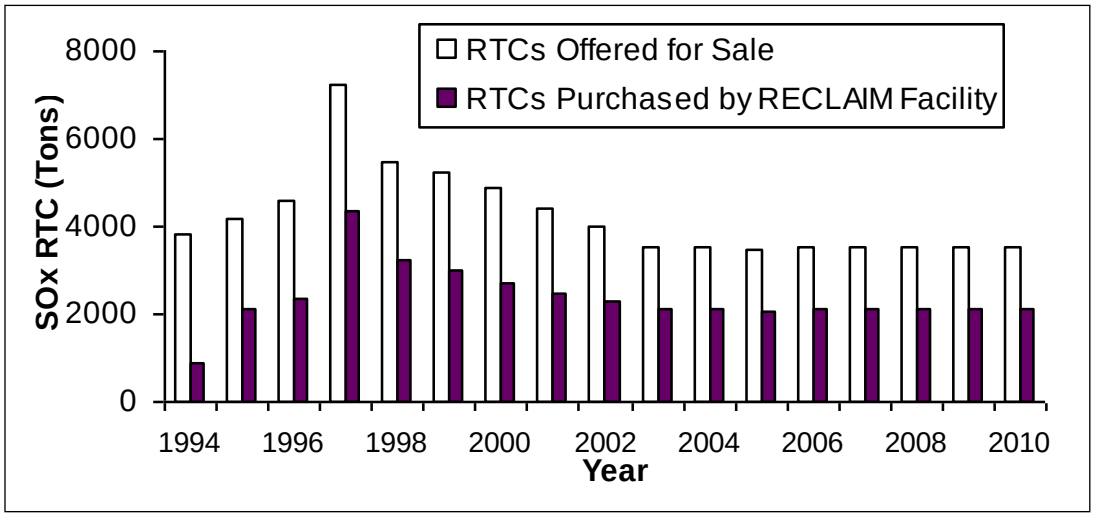


Figure 2-9
SOx RTC Availability



CHAPTER 3
EMISSION REDUCTIONS

Summary

Aggregate emissions from RECLAIM facilities were below aggregate allocations for the first five compliance years (1994 through 1998), indicating that RECLAIM is achieving its emission reduction goals. Aggregate allocations issued to the RECLAIM facilities reflect an emission level comparable to that projected for implementation of the AQMP traditional command-and-control requirements that RECLAIM subsumed.

Analysis of the 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 five 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 four compliance years, including emissions quantified pursuant to MDP. At the time of preparation of this report, approximately 80 percent of the compliance year 1998 APEP reports submitted by Cycle 1 facilities had been completed. Emissions data 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 1998 Compliance Years

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

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. 1998 emissions are not fully audited; 103 out of 157 Cycle 1 facilities were audited. For the remaining facilities, APEP emissions are substituted where a facility audit is not completed.
3. Total RTCs = Allocations + Converted ERCs

Table 3-2
Annual SOx Emissions[1] for the 1994 through 1998 Compliance Years

	1994	1995	1996	1997	1998[2]
Annual Emissions (ton)	7,232	8,064	6,484	6,464	6793
% Change from 1994	0%	+11.5%	-10.3%	-10.6%	-6.1%
Total RTCs[3] (ton)	10,365	9,612	8,894	8,169	7,577
Unused RTCs (ton)	3,133	1,548	2,410	1,705	784
% Unused RTCs	30%	16%	27%	21%	10%

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. 1998 emissions are not fully audited; 103 out of 157 Cycle 1 facilities were audited. For the remaining facilities, APEP emissions are substituted where a facility audit is not completed.
3. Total RTCs = Allocations + Converted ERCs

As shown in the above tables, RECLAIM facilities have not exceeded their allocations on an aggregate basis during any of the five completed compliance

years (1994 through 1998). 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 1998 is less than the rate of annual allocation reduction. This is an indication that the aggregate NOx emissions are approaching the level of the allocations. Overall, NOx emissions have dropped 17.1 percent from 25,314 tons in 1994 to 20,982 tons in 1998.

Table 3-2 shows that there is a slight increase in SOx emissions for compliance year 1998 compared to those reported in 1997. SOx emissions are still in a decline and have decreased 6.1 percent from 7,232 tons in 1994 to 6,793 tons in 1998. 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

1998 emissions presented in this figure are based on preliminary audited data

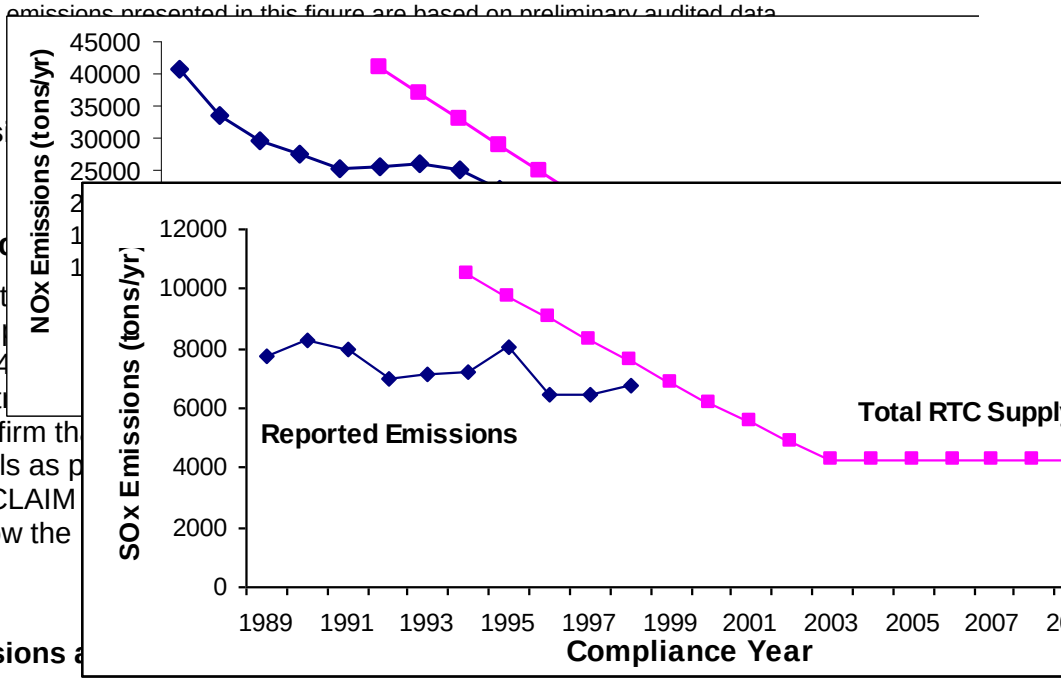


Figure 3-2
SOx Emiss

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Figure 3-3
NOx Emissions a

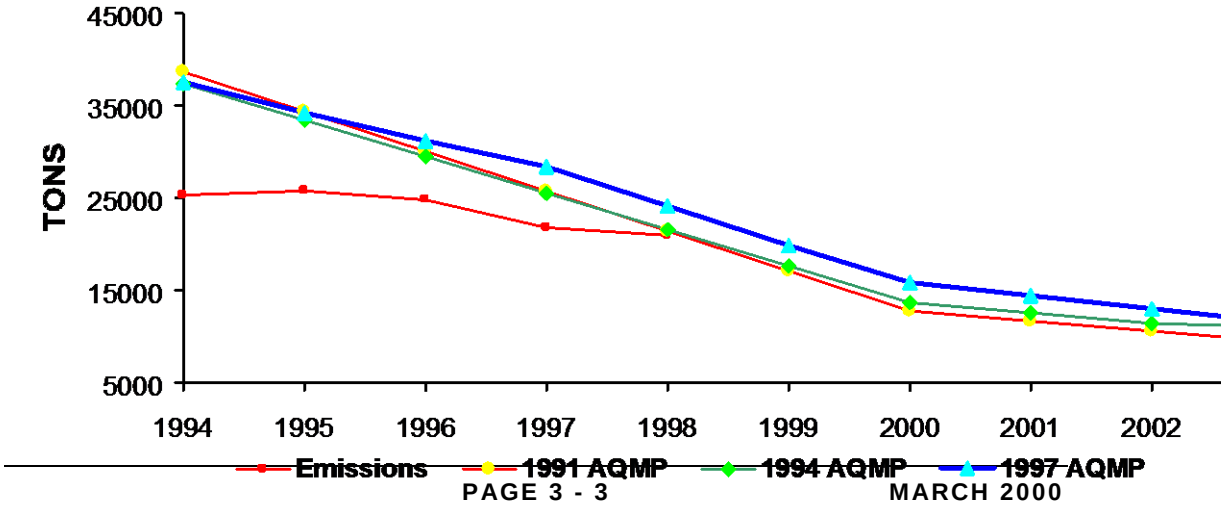
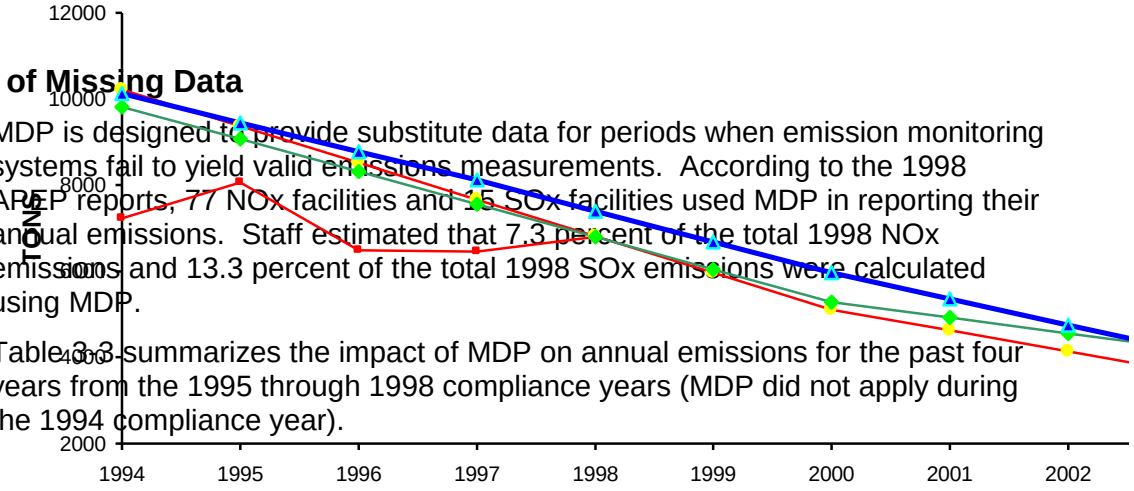


Figure 3-4
SOx Emissions and AQMP Projections



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 1998 APEP reports, 77 NOx facilities and 15 SOx facilities used MDP in reporting their annual emissions. Staff estimated that 7.3 percent of the total 1998 NOx emissions and 13.3 percent of the total 1998 SOx emissions were calculated using MDP.

Table 3-3 summarizes the impact of MDP on annual emissions for the past four years from the 1995 through 1998 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**
NOx	23 % (65)	20 % (61)	18.4 % (83)	7.3% (77)
SOx	40 % (12)	16 % (11)	16 % (17)[2]	13.3% (15)

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. 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 duration of 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, 77 facilities reported NOx emissions using MDP in 1998. Although 16 more facilities reported NOx emissions using MDP in 1998 than in 1996, the impact of MDP is estimated to be smaller in 1998 (7.3 percent of 1998 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 7.3 percent of NOx annual emissions were reported using MDP in 1998. This does not mean that 7.3 percent of 1998 reported NOx emissions were not real. A portion of the 7.3 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.

Impact of Changing Universe

As discussed in Chapter 1, changes to the NOx RECLAIM Universe included 16 new facilities due to partial change of operators, one opt-in facility, two facilities merged into one, and 11 facilities ceased operations. There were no changes to the SOx RECLAIM 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.

The 16 new RECLAIM facilities that were created in Compliance Year 1998 were all results of new operators taking over partial operations of existing facilities. This is similar to change of ownership of an existing facility except that the original operator retained some of the operations and remained at the same location. Therefore, similar to change of ownership, the new facilities did not receive new allocations. Instead, they would have to acquire RTCs from the existing operator or from the open market. Moreover, the operations at these facilities are not expected to change appreciably. Therefore, there is no impact anticipated as a result of these changes of operators.

Table 3-4 summarizes 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 1998.

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

	1994		1995		1996		1997		1998	
	NOx	SOx	NOx	SOx	NOx	SOx	NOx	SOx	NOx	SOx
Emissions from New Facilities[1]	4.5	0	57.6	0	0	0	0	0	0	0
Emissions from Shutdown Facilities	83.5	0	15.4	0	0	0	2.9	0	80	0
Emissions from Excluded Facilities[2]	N/A	N/A	N/A	N/A	0	0	0	0	0	0
Emission from Included Facilities	79.0	0	0	57.4	0	0	2.5	42.0	0	0
Total Annual Emissions from RECLAIM Univ (tons)	25,314	7,232	25,764	8,064	24,796	6,484	21,789	6,464	20,982	6,793

1. Two new facilities entered RECLAIM in 1994. However, one of these two facilities did not start operation until 1995.
2. Not available because excluded facilities were not required to submit APEP reports.

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 1998 compliance year shows that one existing facility joined the RECLAIM program. However, there was no NSR activity at this facility. Furthermore, 40 existing RECLAIM facilities incurred NSR emission increases due to expansions or modifications. This 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 of a 1.2-to-1 offset ratio for NOx and SOx emission increases on a programmatic basis. In the 1998 compliance year, the RECLAIM offset ratios of 73-to-1 for NOx and 451-to-1 for SOx on an aggregate basis, demonstrating federal equivalency. In addition, RECLAIM requires application of Best Available Control Technologies for all new or modified sources with emission increases. Compliance with the federally required offset ratio also demonstrates compliance with the state requirement of no net emissions increases from new or modified sources.

Background

Emissions increases from the construction of new or modified stationary sources in non-attainment areas are regulated by both federal and state NSR requirements in order 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 while allowing facilities 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 ratio on an aggregate basis. The annual reductions of the 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 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 1998 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 1998 compliance year indicated that RECLAIM continue to successfully expand or modify their operation while meeting the NSR requirements. One existing facility joined the program. However, there is no NSR activity at this facility. 40 RECLAIM facilities experienced 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

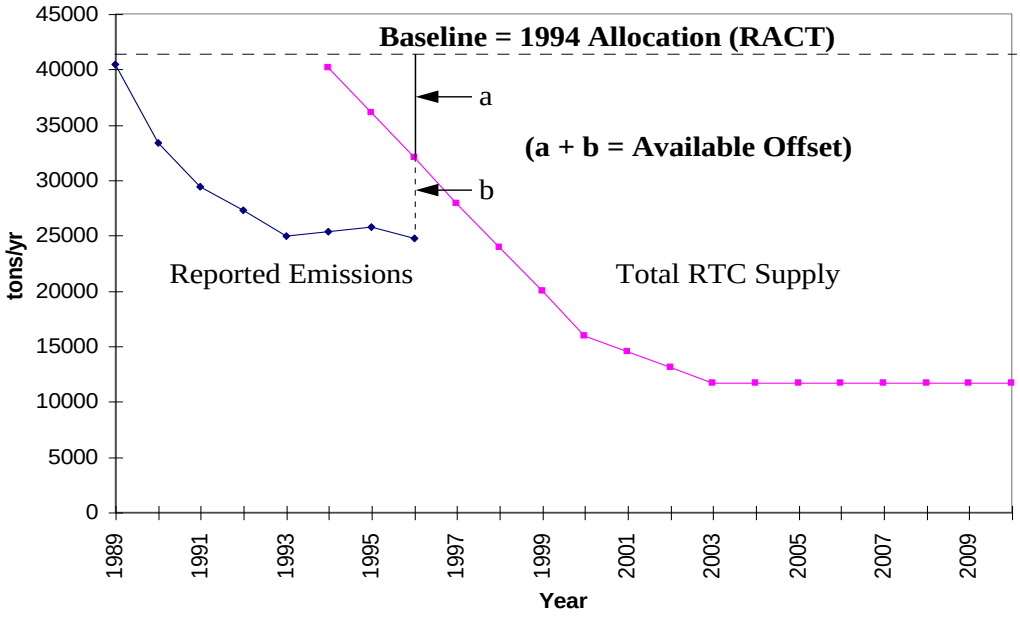
Facility Type	1994	1995	1996	1997	1998
New Facility	2	0	0	0	0
Existing RECLAIM Facility with Expansions or Modifications	41	114	50	44	40

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 the federal RACT requirements, any emissions reductions beyond the initial allocations can be considered 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 summarized 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 table, the aggregate offset ratios for RECLAIM facilities are 73:1 for NOx and 451:1 for SOx in the 1998 compliance year.

The offset ratio for SOx in the 1998 compliance year is much higher than the offset ratios in the previous years. This is because the 1998 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

	1994		1995		1996		1997		1998	
	NOx	SOx	NOx	SOx	NOx	SOx	NOx	SOx	NOx	SOx
NSR Emission Increase (tons)	66	37	393	42	174	63	318	62	275	8
Offsets Available (tons)	11,028	2,242	14,253	2,299	18,341	3,901	15,331	3,881	19,753	3,698
Offset Ratio	168:1	62:1	37:1	56:1	106:1	63:1	49:1	64:1	73:1	451:1

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 RECLAIM facilities installing new equipment or modified existing sources that resulted in emissions increases of RECLAIM pollutants. 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 1998 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 audits reveal that the overall RECLAIM emissions goal was met for this compliance year, as it was each previous year of the program.

For the 1998 compliance year, preliminary audit results show that 27 facilities exceeded their annual allocations. Similar to 1997, the main cause of allocation exceedances was failure to reconcile emissions with the amount of credits held. Other reasons included calculation errors, use of incorrect emission factors, and application of Missing Data Procedures (MDP).

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 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, 103 the 157 Cycle 1 facilities had been audited. Five of the 199 Cycle 2 facilities audits are completed. Preliminary audit results for the 1998 compliance year revealed that the overall RECLAIM emission goals were met and that the facilities showed a high level of compliance with their Allocations. Figure 5-1 illustrates the Allocation compliance status - 92 percent of NOx facilities complied with their allocations for the 1998 compliance year. Although the audit results indicate that 27 facilities exceeded their NOx annual Allocations, this number is likely to decrease once the facilities have the opportunity to provide additional information. No facility exceeded its SOx annual Allocation during the 1998 compliance year. Staff is finalizing the audits and review of emissions reported by the remaining facilities. As the allocation exceedances are confirmed, Notices of Violations will be issued.

Figure 5-1
NOx Allocation Compliance Rate During 1998 Compliance Year

Of the 27 facilities [illegible] cilities failed to reconcile their RT[illegible]. Figure 5-2 breaks out the various re[illegible] For some facilities, more than one of [illegible] es.

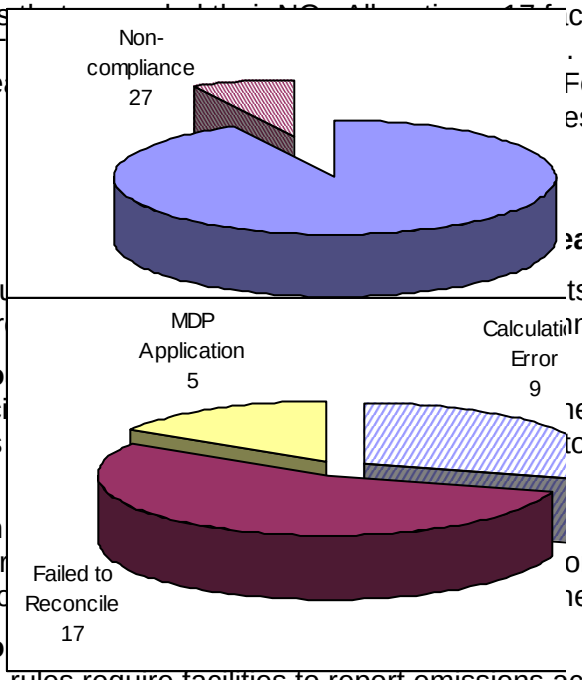


Figure 5-2
Reasons for Allocation [illegible] ear

Based on the resu[illegible] ts conducted by AQMD staff, the r[illegible] marized as follows:

- **Failure to** These faci[illegible] heir reported emissions [illegible] to reconcile their Allocation
- **Emission** Typical err[illegible] or, incorrectly applying lo[illegible] he calculations.
- **Failure to** RECLAIM rules require facilities to report emissions according to MDP when valid data are not obtained from the monitoring equipment or when daily emission reports for major sources are not submitted on time. MDP may yield a higher quantity of emissions.

None of the exceedances were due to lack of available RTCs on the market. As discussed in Chapter 2 - RTC Allocations and Trading, the amount of NOx and SOx RTCs offered for sale was more than adequate to cover the demand by RECLAIM facilities.

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 1998 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 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 obtained 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.

For the 1998 compliance year, four facilities exceeded their Allocations 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

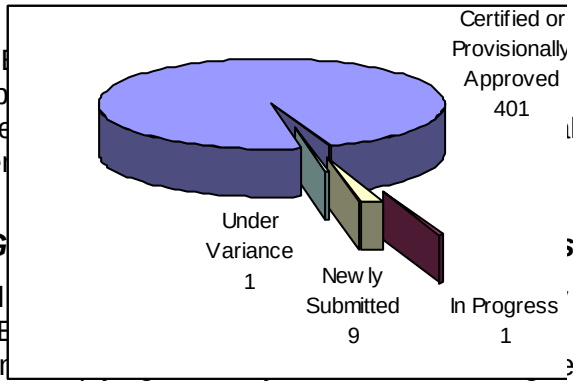
the RECLAIM universe, major sources, which are relatively few in number but represent a majority of the total emissions from all equipment.

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 1998, almost all facilities that were required to have CEMS had certified or provisionally approved their CEMS. As of January 1, 2000 there were 86 facilities in the RECLAIM universe requiring a total of 425 CEMS. Figure 5-3 shows the various CEMS certification statuses.

Figure 5-3
CEMS Certification



Of the eleven CE that are not certified or do not have p The CEMS that remain uncertifie lly confronted with technical proble

Standing Working G ssues (SWG)

CEMS technical CEMS, arose over the course of RE issues and further assist facilities in equirements, 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 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 existing issues are resolved. Table 5-2 lists the CEMS issues currently under review by the SWG.

Table 5-2
CEMS Proposals Under Review

Issue	Intent
Use alternative methods to determine stack moisture.	Increase accuracy, provide CEMS flexibility.
Use constant heat value for refinery fuel gas.	Provide CEMS flexibility.
QA/QC procedures for continuous gas chromatograph used in CEMS.	Improve CEMS data quality.
RATA requirements for fuel sulfur monitoring system.	Provide scheduling flexibility for RATA.
Alternative to CEMS 2-hour drift test.	Improve CEMS data quality.
Use of and limits on fuel meter calibration correction factor (K-factor).	Provide CEMS flexibility for cases where biases introduced primarily by physical constraints on meter installation configuration impact ability to meet current limits.
Alternative Annual RATA Incentive Criteria for Low Emitting Sources.	Provide incentive to install low concentration monitoring equipment.

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 LAP-approved source testing contractor. The relative accuracy performance requirements for the RATAs are ±20 percent for pollutant concentration, ±15 percent for stack flow rate, and ±20 percent for pollutant mass emission rate (the product of concentration and stack flow rate). The RATAs also determine whether CEMS data must be adjusted for low readings compared to the reference method (bias adjustment factor), and by how much. The RATA presents two pieces of data, the CEMS bias (how much it differs from the reference method on the average) and the CEMS confidence coefficient (how variable that bias or average difference is).

Table 5-3 summarizes passing rates for RATAs of certified CEMS, for NOx and SOx concentration, total sulfur in fuel gas concentrations, stack flow rate (in-stack monitors and F-factor based calculation), and NOx and SOx mass emissions through the 1998 calendar year.

Table 5-3
Passing Rates Based on Relative Accuracy Test Audits of Certified CEMS in 1998*

Concentration						Stack Flow Rate				Mass Emissions			
NOx		SO_2		Total Sulfur		In-Stack Monitor		F-Factor Based Calc.		NOx		SOx[1]	
No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass	No.	% Pass
373	100	73	99	10	90	53	98	381	99	371	100	34	100

1 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.

* All passing rates calculated from data submitted before January 1, 1999 and may exclude data from the 4th quarter of calendar year 1998.

Table 5-4 summarizes the 1999 calendar year passing rates for RATAs of certified CEMS, for NOx and SOx concentration, total sulfur in fuel gas concentrations, stack flow rate (in-stack monitors and F-factor based calculation), and NOx and SOx mass emissions.

Table 5-4
Passing Rates Based on Relative Accuracy Test Audits of Certified CEMS in 1999*

Concentration						Stack Flow Rate				Mass Emissions			
NOx		SO_2		Total Sulfur		In-Stack Monitor		F-Factor Based Calc.		NOx		SOx[1]	
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 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

* All passing rates calculated from data submitted before January 1, 2000 and may exclude data from the 4th quarter of calendar year 1999.

As indicated in Tables 5-3 and 5-4, the passing rates for NOx/SO_2 concentration, stack flow rate, and mass emissions were relatively high. Especially for 1999, all RATA reports received met the accuracy requirements. The passing rate for total sulfur concentration also substantially increased (from 90 percent in 1998 to 100 percent in 1999). 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 in order 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. However, there are a few facilities that reported problems that were not apparent prior to the beginning of the year. AQMD staff is working closely with these facilities to resolve the encountered problems.

Super Compliance Facility

On September 8, 1995, the Board amended the RECLAIM rules to allow qualifying facilities to reclassify major sources to NOx Super Compliant Large Sources or SOx Super Compliant Process Units which are not required to be monitored by CEMS. The qualifying facility must either have continuously operated under their year 2003 Allocations from the compliance year 1994 or modify equipment to operate below that level. The facility must also retire all RTCs in excess of its year 2003 Allocations. The deadline for filing for such status was December 2, 1996. A total of 9 NOx and 4 SOx facilities had filed for "Super Compliant" status.

These facilities were given time to make necessary modifications to the equipment and also conduct tests to substantiate emissions levels and confirm that a facility can maintain emissions at its 2003 Allocations level. The rule requires that a Super Compliant facility's total annual emissions, as reported in

its Annual Permit Emissions Program (APEP) report, be at a level at or below the facility's Compliance Year 2003 Allocation no later than the facility's 1998 Compliance Year. Three of the 13 facilities were shut down prior to the 1998 compliance year. At the time of compiling this report, seven facilities have reported emissions under their Super Compliant goals, two facilities are still under review and one was determined to have failed to meet the 2003 Allocations in Compliance Year 1998.

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 RECLAIM rules and protocols have been amended numerous times since program adoption, with the latest amendments adopted by the Governing Board on April 9, 1999. These amendments dealt mostly with the RECLAIM MRR protocols and were incorporated to:

- Extend due dates for monthly reports;
- Provide additional emissions determination methods for cases that were not previously addressed;
- Include corresponding new monitoring requirements; and
- Add new approaches to determine emissions from process units.

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 1998 compliance year continue to be negligible when compared to the overall employment in the basin. Three RECLAIM facilities attributed one job gain each to RECLAIM for a new employee for each facility to handle RECLAIM compliance issues. Three facilities cited RECLAIM as one of many contributing factors to their job losses. However, the specific number of job losses resulting from RECLAIM cannot be quantified. Furthermore, 11 RECLAIM facilities shut down or went out of business in 1998. Only one of these shutdown facilities claimed that RECLAIM was the cause for it to cease operations. AQMD records showed this facility had not been operating for five years and that it had provided steam to a plating facility destroyed in a fire in March 1999.

Background

AQMD staff has assessed RECLAIM's impacts on jobs in the regional economy every year. The assessment for this year was performed by examining job data submitted by RECLAIM facilities as part of their Annual Permit Emissions Program (APEP) reports for compliance year 1998.

The 1998 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 1998 compliance year, a total of 112 facilities reported 16,168 overall job gains while a total of 145 facilities reported 13,871 overall job losses, which resulted in 2,297 net job gains for RECLAIM facilities in the basin. This net job gain constituted a small percentage (1.63%) of the overall RECLAIM facility employment (143,039 jobs), and therefore is not expected to have any effect on the job market. The information gathered from 1998 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 1998 Compliance Year

Description	Manufacture	Sales of Products	Non-Manufacture	Total
Initial Jobs	78,853	1133	60,756	140,742
Overall Job Gain	4,523	304	11,341	16,168
Overall Job Loss	7,414	172	6,285	13,871
Final Jobs	75,962	1265	65,812	143,039
Net Job Change	-2,891	132	5,056	2,297
Percent (%) Job Change	-3.67%	11.65%	8.32%	1.63%
Facilities Reporting Job Gains	89	18	66	112
Facilities Reporting Job Losses	116	22	89	145

Table 6-1 also shows that during the 1998 compliance year, 132 jobs and 5,056 jobs were gained in “Sales of Products” and “Non-Manufacturing,” respectively, while 2,891 jobs were lost in “Manufacturing”. Furthermore, 11 RECLAIM facilities shut down or went out of business during the 1998 compliance year.

Only one of these shutdown facilities cited RECLAIM as a contributing factor in their decision to cease operation. This facility claimed that the reason for shutting down was to get out of the RECLAIM program. However, according to past AQMD audit records, the facility has not been operated for at least five years even though the facility permit was kept active. The operator decided to officially cease operations permanently at this location in 1998 and inactivated the permit. This was a cogenaration facility that produced steam for use at a plating facility. The plating facility had a fire and was burned down in March of 1999. As a result, the demand for steam no longer exists.

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 five facilities indicated in their APEP forms that they experienced job gains and/or job losses due to RECLAIM. Three facilities attributed one job gain each to RECLAIM. For each of these three facilities, an extra person had to be hired to specifically handle RECLAIM reporting and recordkeeping requirements.

Two facilities reported actual job losses due to a number of factors, of which RECLAIM was one. One of these facilities lost four jobs because they could not meet NOx Best Available Control Technology (BACT) requirements by incrementally retrofitting their ovens and boilers and contends that the RECLAIM program prevented them from expanding. However, BACT requirements would have applied even if the facility was not in the RECLAIM program. In fact, the facility would have been faced with the additional requirement of providing offsets under the traditional new source review rules. The second facility claimed that the costs of RECLAIM compliance reduces profitability and limits competitiveness in the marketplace for the company and their local customers, thereby, reducing their near term viability. However, AQMD staff learned that the company was faced with international competition that can sell products at a

price that is lower than the raw material cost to the facility itself. Two additional facilities also claimed to have job loss but failed to provide the actual number of jobs. These two facilities never provided employment data to the AQMD. Therefore, job loss at these two facilities could not even be estimated. The job gains/losses attributed to RECLAIM are summarized in Table 6-2.

Table 6-2
Job Gains/Losses Solely Attributed to RECLAIM During the 1998 Compliance Year

Description	No. of Jobs
Job Loss Attributed to RECLAIM	6*
Facilities with Job Loss Attributed to RECLAIM	4*
Job Gain Attributed to RECLAIM	3
Facilities with Job Gain Attributed to RECLAIM	3

*Two of facilities did not provide actual number of jobs lost.

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 1998 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: emissions trends, seasonal fluctuations, geographic distribution of emissions, per capita exposures, and toxics impact.

The emissions reported by RECLAIM facilities from 1989 through 1999 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 to September 1998. Furthermore, analysis of the geographical distribution of emissions during the first five 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 (CCAA) 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 1999 shows that the Basin has already achieved the December 2000 target for ozone.

Air toxic health risk is primarily caused by volatile organic compound (VOC) emissions, 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:

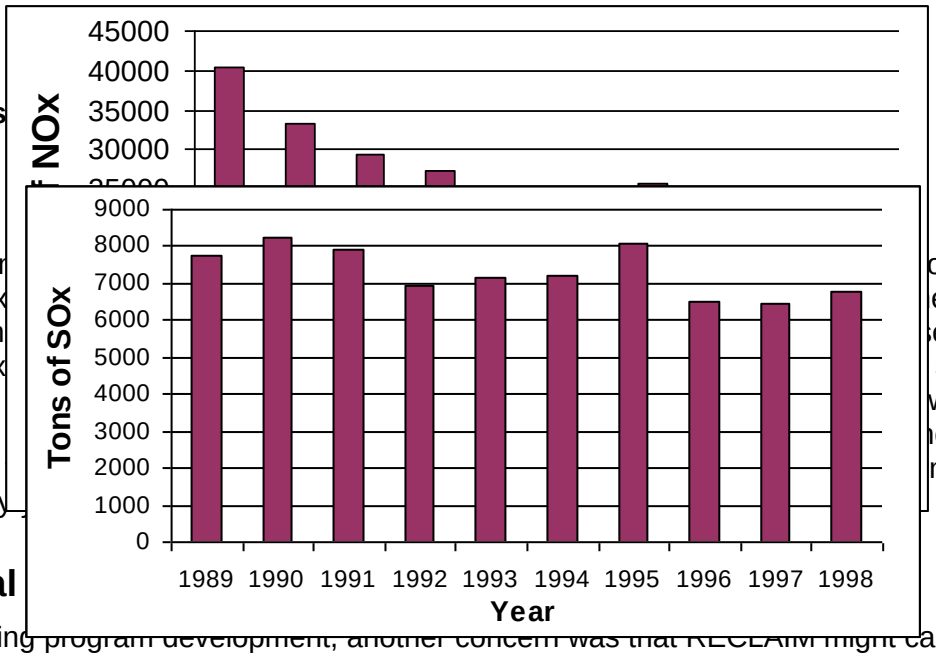
- Emission trends for RECLAIM facilities;
- Seasonal fluctuations in emissions;
- Geographic patterns of emissions;
- Per capita exposure to air pollution; and
- Toxics impacts.

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 1998.

Figure 7-1
NOx Emission Trend for RECLAIM Sources

Figure 7-2
SOx Emiss



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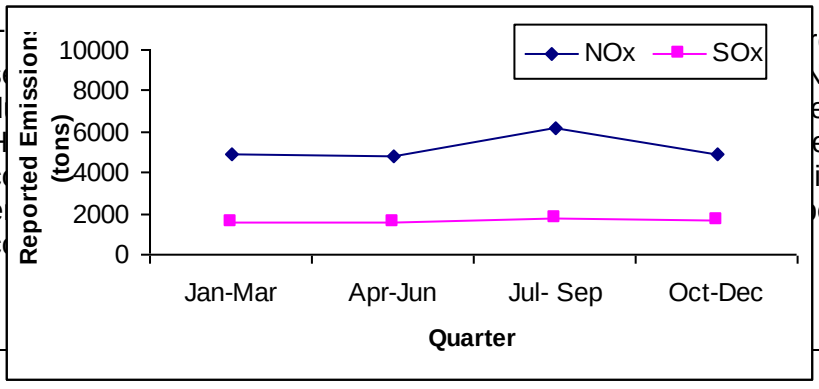
Seasonal

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 1998 to assess if there had been such a shift in emissions. The reported quarterly emissions data was used for this seasonal fluctuation analysis, as illustrated in Figure 7-3.

Figure 7-3
1998 NOx and SOx Quarterly Emissions



T re has been little
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d emissions.
H ee quarters. The
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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 1998 (all four quarters of 1998 and the first two quarters of 1999). 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 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 AQMP with the actual per capita exposure in the Basin for 1994 and 1997. Table 7-2 summarizes 1998 and 1999 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 two years. The 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
Days exceeding state standard	113	120
Days exceeding federal standard	62	42
Basin Maximum (pphm)	24	17

Table 7-3 compares the actual per capita exposures in 1998 to the exposure milestones as specified in the 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, the actual reduction in per capita exposure has not only met the 40 percent target scheduled for 1997, but also already achieved the 50 percent reduction target scheduled for 2000.

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

Location	86-88 baseline[1]	1998 actual	1997 target[2]	2000 target[3]
Basin	80.5	12.1	48.3	40.2
Los Angeles	75.8	7.9	45.5	39.9
Orange	27.2	3.1	16.3	13.6
Riverside	94.1	25.2	56.5	47.0
San Bernardino	192.6	40.2	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 will 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), 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. 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 1998 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
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
52517	1	AMERICAN NATIONAL CAN COMPANY	NOx
45527	2	AMERICAN RACING EQUIPMENT INC	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
12155	1	ARMSTRONG WORLD INDUSTRIES, INC.	NOx
16737	2	ATKINSON BRICK CO	NOx
10094	2	ATLAS CARPET MILLS INC	NOx
800326	1	AVERY DENNISON, FASSON BASE MATERIALS	NOx
17400	1	AVERY FASSON-MPD	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
119907	1	BERRY PETROLEUM	NOx
14472	2	BHP COATED STEEL (SUPRACOTE INC)	NOx
14445	2	BLUE DIAMOND MATERIALS, FONTANA PLANT	NOx
19390	1	BLUE DIAMOND MATERIALS, SUN VALLEY PLANT	NOx
117290	2	BRAUN MEDICAL INC.	NOx
10340	1	BREA CANON OIL COMPANY, BREA	NOx

Facility ID	Cycle	Facility Name	Market
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
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
22911	2	CARLTON FORGE WORKS	NOx
118406	1	CARSON COGENARATION CO	NOx
25016	2	CASTAIC CLAY MFG CO., INC	NOx
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
57818	1	CES ENERGY CORONA, LTD.	NOx
800273	2	CHEMOIL REF CORP	NOx
4451	1	CHERRY TEXTRON	NOx
800030	2	CHEVRON U.S.A. INC	NOx/SOx
95212	1	CHROMA SYSTEMS PARTNERS	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
110982	1	COMMONWEALTH ALUMINUM	NOx
11790	2	CONSOLIDATED FILM INDUSTRIES	NOx
68042	2	CORONA ENERGY PARTNERS, LTD	NOx
109879	1	CPC BAKING BUSINESS	NOx
13179	1	CRESCENT CRANES INC.	NOx
117572	1	CRIMSON RESOURCES	NOx
65384	1	CRITERION CATALYST COMPANY L.P.	NOx

Facility ID	Cycle	Facility Name	Market
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
99588	2	DOMTAR GYPSUM	NOx/SOx
103618	1	DOSKOCIL SPECIALTY BRANDS FOOD	NOx
113160	2	DOUBLETREE HOTEL	NOx
800038	2	DOUGLAS AIRCRAFT CO	NOx
800039	2	DOUGLAS AIRCRAFT CO, TORR FAC	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
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
79015	2	GEOPETROLEUM 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
101039	2	GRANITE CONSTRUCTION	NOx
40196	2	GUARDIAN INDUSTRIES INC	NOx/SOx
109208	2	HANYOUNG AMERICA	NOx
106325	2	HARBOR COGENERATION CO	NOx
800295	1	HENKEL CORP., EMERY GROUP	NOx
15164	1	HIGGINS BRICK COMPANY	NOx
800066	1	HITCO	NOx
2912	2	HOLLIDAY ROCK CO INC	NOx
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
100291	2	IMCO RECYCLING OF CA	NOx
800240	2	INLAND CONTAINER CORP	NOx
113415	2	INLAND PAPERBOARD & PACKAGING	NOx
5830	1	INTERMETRO INDUSTRIES CORP.	NOx

Facility ID	Cycle	Facility Name	Market
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
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
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
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
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
14855	1	MILLER BREWING COMPANY	NOx
800088	2	MINNESOTA MINING & MFG CO	NOx
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
115778	1	MOUNTAINVIEW POWER	NOx
16274	2	NABISCO BRANDS INC	NOx
12428	2	NATIONAL GYPSUM CO	NOx
40483	2	NELCO PROD. INC	NOx
16531	2	NEVILLE CHEM CO	NOx
800099	1	NI IND INC, NORRIS DIV	NOx
82022	2	NORRIS PLUMBING FIXTURES,MANSFIELD PLUMB	NOx

Facility ID	Cycle	Facility Name	Market
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
50813	2	O'BRIEN CALIF COGEN LTD	NOx
104018	2	ODEBRECHT CONTRACTORS OF CALIF	NOx
89248	2	OLD COUNTRY MILLWORK INC	NOx
47781	1	OLS ENERGY-CHINO C/O ENERGY INITIATIVES	NOx
42577	2	ONTARIO COGEN (IPT ENERGY)	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
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
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
800103	1	POWERINE OIL COMPANY	NOx/SOx
7416	1	PRAXAIR (UNION CARBIDE)	NOx
42630	1	PRAXAIR (UNION CARBIDE)	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
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
15544	2	REICHHOLD CHEMICALS INC	NOx
115315	1	RELIANT ENERGY ETIWANDA, LLC	NOx
114801	1	RHODIA, INC.	NOx/SOx
61722	2	RICOH ELECTRONICS INC	NOx

Facility ID	Cycle	Facility Name	Market
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
800113	2	ROHR IND INC	NOx
18455	2	ROYALTY CARPET MILLS 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
14052	1	SCE, REDONDO	NOx
1026	1	SCE, SAN BERNARDINO	NOx
15504	2	SCHLOSSER FORGE CO	NOx
23907	2	SCHULLER INTERNATIONAL INC	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

Facility ID	Cycle	Facility Name	Market
112164	2	STOCKER RESOURCES, INC	NOx
34055	2	SULLY-MILLER CONTRACTING CO,BLUE DIAMOND	NOx
55711	1	SUNLAW COGENERATION PARTNERS I	NOx
55714	1	SUNLAW COGENERATION PARTNERS I	NOx
2083	1	SUPERIOR INDUSTRIES INTERNATIONAL	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
68117	2	TIDELANDS OIL PRODUCTION CO	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
109229	1	TORCH OPERATING CO	NOx
800362	1	TOSCO	NOx/SOx
800363	2	TOSCO	NOx/SOx
800192	2	TRANS WORLD AIRLINES INC	NOx
55865	2	TRANSAMERICAN PLASTICS CORP	NOx
10057	2	TREASURE CRAFT	NOx
11674	1	TRI-ALLOY INC.	NOx
800218	1	TRW INC.	NOx
800219	2	TRW INC.	NOx
800026	1	ULTRAMAR INC.	NOx/SOx
118618	2	UNI-PRESIDENT	NOx
60342	2	UNITED STATES CAN CO	NOx
1073	1	UNITED STATES TILE COMPANY	NOx
800149	2	US BORAX & CHEM CORP	NOx
800153	2	US GOVT, NAVY DEPT LB SHIPYARD	NOx
6281	2	US GOVT,MARINE CORPS AIR STATION,EL TORO	NOx/SOx
800150	1	US GOVT., AF DEPT, MARCH AFB	NOx
800154	1	US GOVT., MARINE CORPS AIR STATION	NOx
12185	2	US GYPSUM CO	NOx/SOx
18695	1	US GYPSUM CO	NOx
73022	2	USAIR INC	NOx
61589	2	VANGUARD ENERGY SYSTEMS	NOx
14502	2	VERNON CITY, LIGHT & POWER DEPT	NOx
14495	2	VISTA METALS CORPORATION	NOx

Facility ID	Cycle	Facility Name	Market
93346	1	WAYMIRE DRUM CO.,INC.	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 16 facilities were included into the NOx market of the RECLAIM universe for the 1998 compliance year. One facility opted to join RECLAIM, sixteen facilities were created through partial change of operator, and two facilities were merged into one. These facilities are identified below.

ID	Cycle	Facility Name	Market	Reason
96587	1	TEXOLLINI INC	NOx	Opt-in at facility request
114997	1	RAYTHEON SYSTEMS	NOx	Partial C/O
115002	1	RAYTHEON SYSTEMS	NOx	Partial C/O
115040	1	RAYTHEON SYSTEMS	NOx	Partial C/O
115041	1	RAYTHEON SYSTEMS	NOx	Partial C/O
115241	1	HUGHES SPACE & COMM. CO.	NOx	Partial C/O
115172	2	RAYTHEON SYSTEMS	NOx	Partial C/O
117485	2	PORT OF LONG BEACH	NOx	Partial C/O
115778	1	MOUNTAINVIEW POWER	NOx	Partial C/O
115536	1	AES REDONDO BEACH	NOx	Partial C/O
115666	2	RIVERSIDE CANAL POWER	NOx	Partial C/O
115663	1	EL SEGUNDO POWER	NOx	Partial C/O
115314	2	LONG BEACH GENERATION LLC	NOx	Partial C/O
115315	1	RELIANT ENERGY ETIWANDA, LLC	NOx	Partial C/O
115394	1	AES ALAMITOS	NOx	Partial C/O
115389	2	AES HUNTINGTON BEACH	NOx	Partial C/O
114138	2	RIPON COGENERATION	NOx	Partial C/O
101145	2	BHP STEEL USA INC	NOx	Merged with adjacent facility (Consolidated under ID 14772)

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 1998 compliance year. The reasons for shutdown cited below are based on AQMD staff's best available information.

Facility ID	502
Facility Name	BLUE DIAMOND MATERIALS, CORONA PLANT
City and County	Corona, Riverside County
SIC	2951
Pollutants	NOx
1994 Allocation	10,850 lbs.
Reason for Shutdown	The plant moved operation to its East Coast division.

Facility ID	102299
Facility Name	BMCA INSULATION PRODUCTS
City and County	Ontario, San Bernardino
SIC	2899
Pollutants	NOx
1994 Allocation	57,426 lbs. (Original facility ID 54183)
Reason for Shutdown	The equipment was sold and the last day of operation was November 5, 1998.

Facility ID	800329
Facility Name	BREA CANON OIL, CARSON
City and County	Compton, Los Angeles
SIC	1311
Pollutants	NOx
1994 Allocation	172,766 lb.
Reason for Shutdown	This facility’s last day of operation was October 31, 1998. Manufacturing, production, or raw material costs were too high to continue operations.

Facility ID	92019
Facility Name	BREA CANON OIL, ALBERT LEVINSON
City and County	Compton, Los Angeles County
SIC	1311
Pollutants	NOx
1994 Allocation	37,930 lb.
Reason for Shutdown	This facility’s last day of operation was October 31, 1998. There was a more attractive utility of land or resources.

Facility ID	800337
Facility Name	CHEVRON USA, INC., LA HABRA
City and County	La Habra, Orange County
SIC	1311
Pollutants	NOx
1994 Allocation	129,160 lb.
Reason for Shutdown	Unknown

Facility ID	5268
Facility Name	DIESEL RECON CO.
City and County	Santa Fe Springs, Los Angeles
SIC	3519
Pollutants	NOx
1994 Allocation	10,398 lb.
Reason for Shutdown	Unknown

Facility ID	41582
Facility Name	LA DYE & PRINT WORKS, INC.
City and County	Los Angeles, Los Angeles
SIC	2257
Pollutants	NOx
1994 Allocation	11,988 lb.
Reason for Shutdown	This facility consolidated sites. Last day of operations was January 10, 1997.

Facility ID	95524
Facility Name	LOMITA GASOLINE COMPANY, INC.
City and County	Long Beach, Los Angeles
SIC	4925
Pollutants	NOx
1994 Allocation	525,920 lb.
Reason for Shutdown	This facility consolidated sites within the same city and county. Last day of operations was January 29, 1999.

Facility ID	20564
Facility Name	PACIFIC CLAY BRICK PRODUCTS
City and County	Corona, Riverside County
SIC	3259
Pollutants	NOx
1994 Allocation	105,864 lb.
Reason for Shutdown	Unknown

Facility ID	7940
Facility Name	SWEETHEART CUP COMPANY, INC.
City and County	Riverside, Riverside County
SIC	3089
Pollutants	NOx
1994 Allocation	2,904 lb.
Reason for Shutdown	This facility consolidated operations in Las Vegas, Nevada and another out-of-state site. Last day of operation was in September 1998.

Facility ID	54723
Facility Name	VANGUARD ENERGY SYSTEMS
City and County	Anaheim, Orange County
SIC	9511
Pollutants	NOx
1994 Allocation	14,858 lb.
Reason for Shutdown	This facility claimed that the reason for shutting down was to get out of the RECLAIM program. . However, according to past AQMD audit records, the facility has been not been operated for at least five years even though the facility permit was kept active. The operator decided to officially cease operations permanently at this location in 1998 and inactivated the permit. This was a cogenaration facility that produced steam for use at a plating facility. The plating facility had a fire and was burned down in March of 1999. As a result, the demand for steam no longer exists.

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 1998 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 1998 is summarized below:

Facilities with actual job gains or losses attributed to RECLAIM:

Facility ID	7427
Facility Name	Owens-Brockway Glass Container
City and County	Los Angeles, Los Angeles County
SIC	3221
Pollutant(s)	NOx/SOx
Cycle	1
Job Gain	1 (1 attributed to RECLAIM)
Job Loss	31 (none attributed to RECLAIM)
Comments	Owens-Brockway Glass Container added one full time environmental engineer to control RECLAIM activities.

Facility ID	43436
Facility Name	TIMCO
City and County	Fontana, San Bernardino County
SIC	3341
Pollutant(s)	NOx
Cycle	1
Job Gain	1 (1 attributed to RECLAIM)
Job Loss	8 (none attributed to RECLAIM)
Comments	TIMCO created one environmental coordinator position.

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	81 (None attributed to RECLAIM)
Comments	An extra half person-day was required to maintain new FCC CEMS.

Facility ID	800295
Facility Name	Henkel Corp, Chemicals Group
City and County	Los Angeles, Los Angeles County
SIC	2819
Pollutant(s)	NOx
Cycle	1
Job Gain	0
Job Loss	2 (2 attributed to RECLAIM)
Comments	According to the APEP report filed, the costs of RECLAIM compliance reduces profitability and limits competitiveness in the marketplace for the company and their local customers, thereby reducing their near-term viability. However, to the best knowledge of AQMD staff, the main cause might have been economics. Henkel had lost its customer base. In addition, its raw material were of higher cost than the cost of similar end products.

Facility ID	60531
Facility Name	Pacific Fabric Finishing
City and County	Vernon, Los Angeles County
SIC	2262
Pollutant(s)	NOx
Cycle	2
Job Gain	0
Job Loss	4 (4 attributed to RECLAIM)
Comments	This facility claimed that it could not incrementally clean up from their ovens and boilers through retrofit because they could not meet the requirements under Best Available Control Technology (BACT). The facility concluded that it could not expand under RECLAIM. However, the BACT requirement is applicable to any modified equipment that has increased emissions. Therefore, the same requirement would have been applicable even if the facility was not under the RECLAIM Program.

Facilities with "unknown" job gains or losses attributed to RECLAIM:

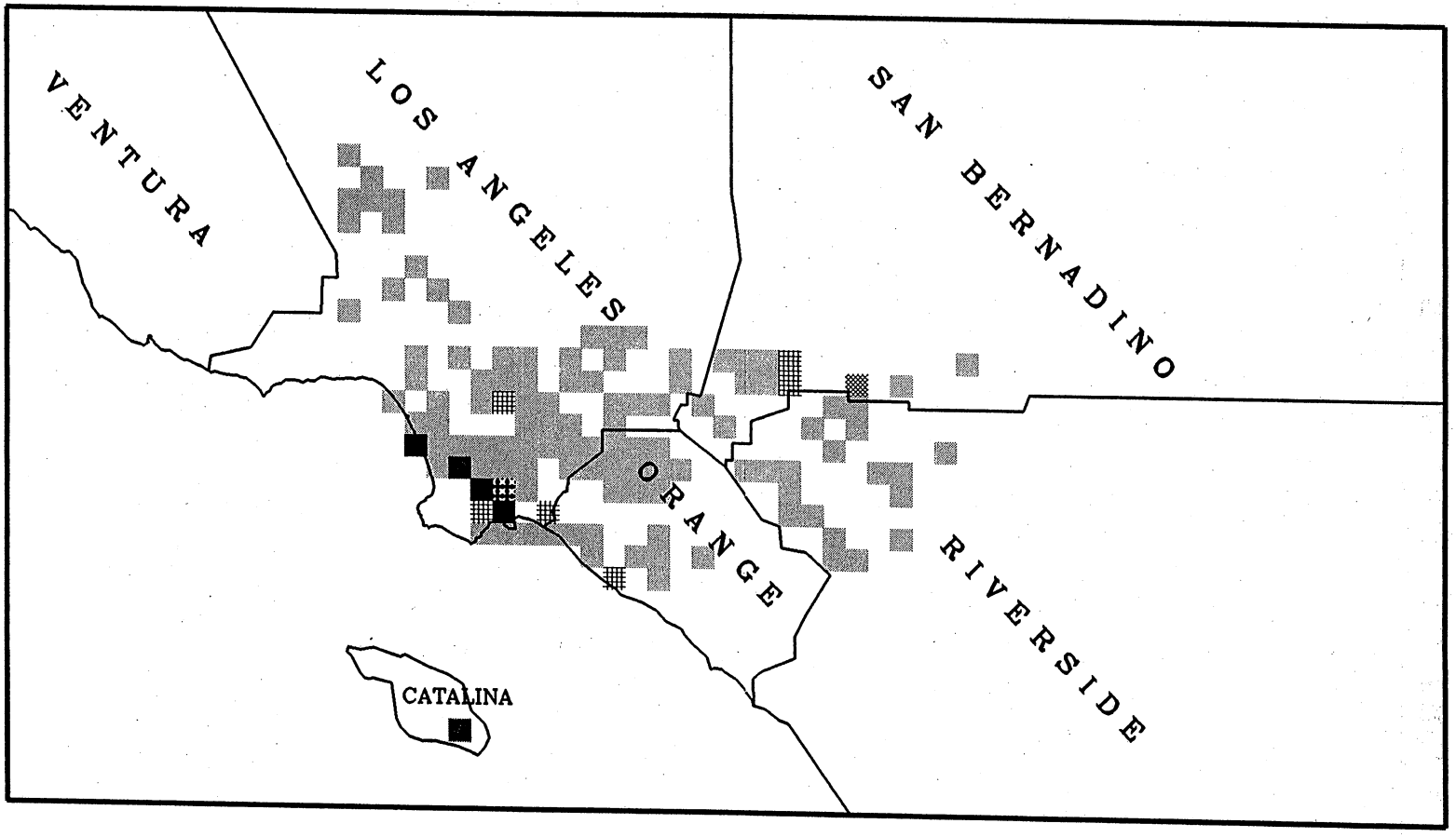
Facility ID	61589
Facility Name	Vanguard Energy Systems
City and County	Gardena, Los Angeles County
SIC	3825
Pollutant(s)	NOx
Cycle	2
Job Gain	0
Job Loss	Estimated 5 (5 attributed to RECLAIM)
Comments	This facility has failed over the years to provide employment data under their APEP Reports. Even for this compliance year, the employment data on the APEP report for this compliance year were not completed. The facility simply estimated five job losses without providing any explanation. Since the employment data used for evaluating job impact never contained jobs for this company, the job loss estimate provided has no impact on the employment figure provided in this report. In addition, according to AQMD records, the facility has been not been operated for at least five years.

Facility ID	54723
Facility Name	Vanguard Energy Systems
City and County	Anaheim, Orange County
SIC	9511
Pollutant(s)	NOx
Cycle	2
Job Gain	0
Job Loss	Unknown
Comments	This facility has failed over the years to provide employment data under their APEP Reports. Even for this compliance year, the employment data on the APEP report for this compliance year were not completed. Even though the facility claimed that it has to shut down to get out of the RECLAIM program, it provided no actual number of job losses.

APPENDIX E
QUARTERLY NOx EMISSION MAPS

RECLAIM Facilities

Certified NOx Emissions (Tons) From 1/98 To 3/98



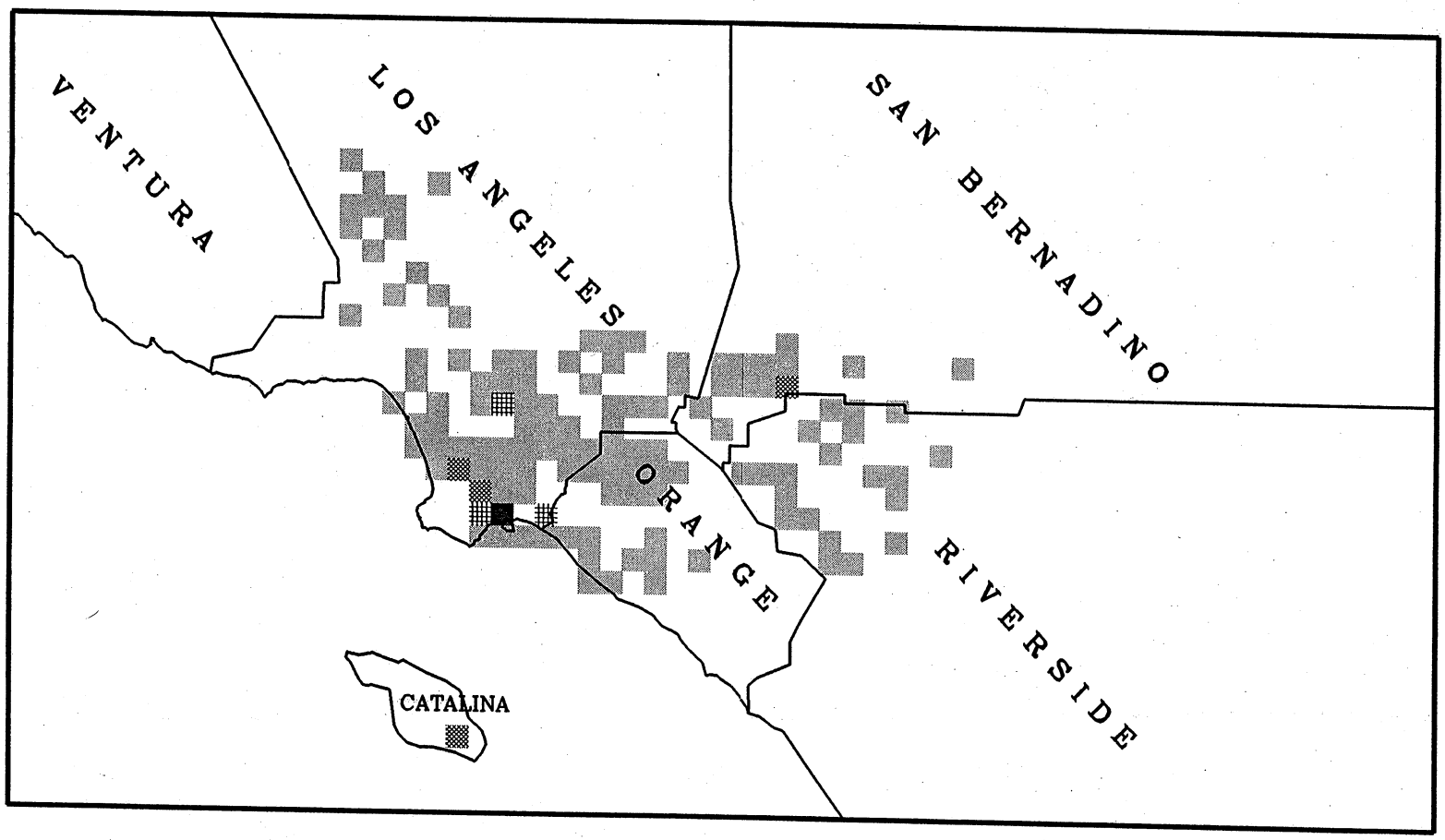
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 1568 tons

Generated on 2/_, 0

RECLAIM Facilities

Certified NOx Emissions (Tons) From 4/98 To 6/98



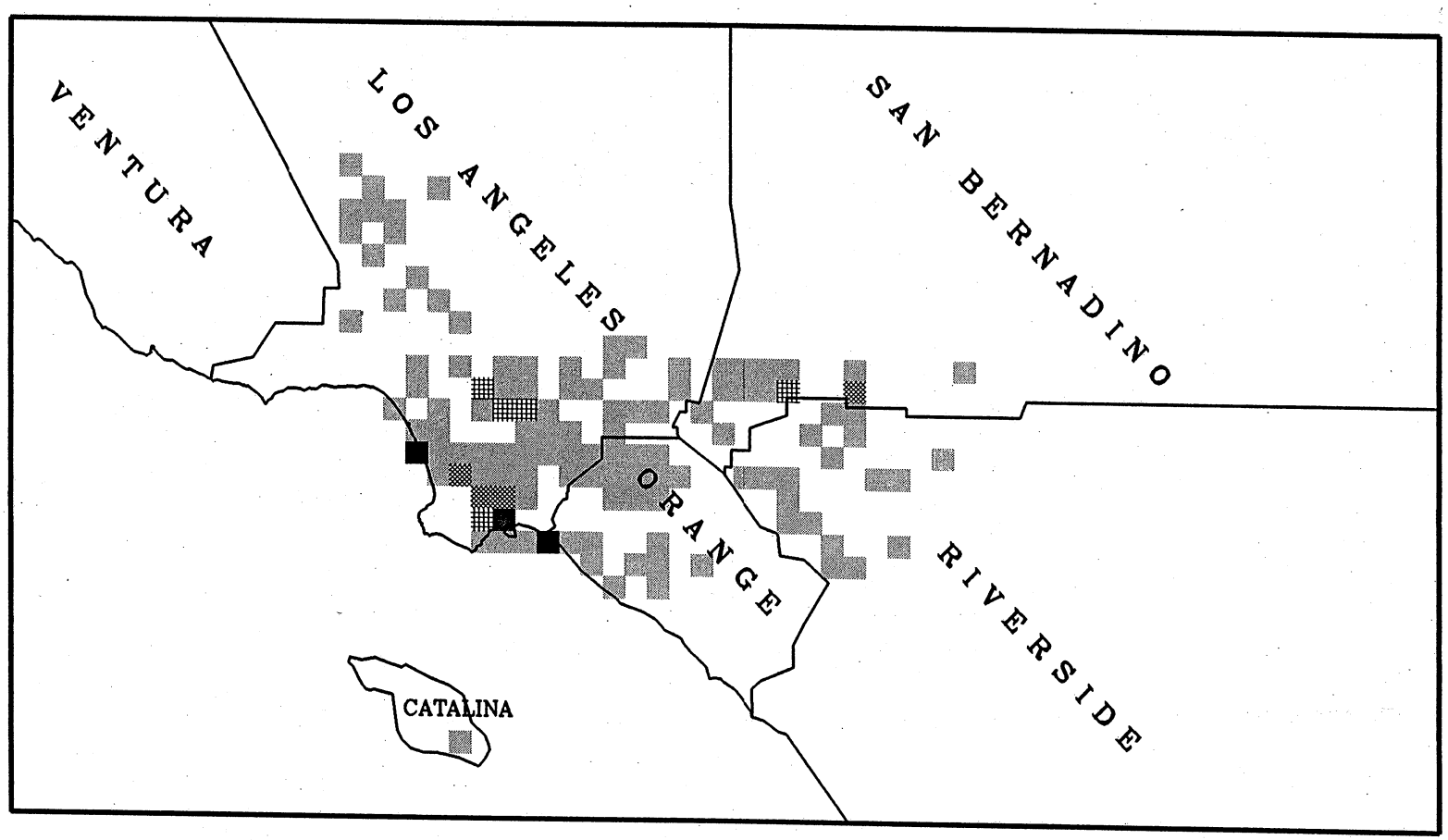
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 499 tons

Generated on 2/15/ 0

RECLAIM Facilities

Certified NOx Emissions (Tons) From 7/98 To 9/98



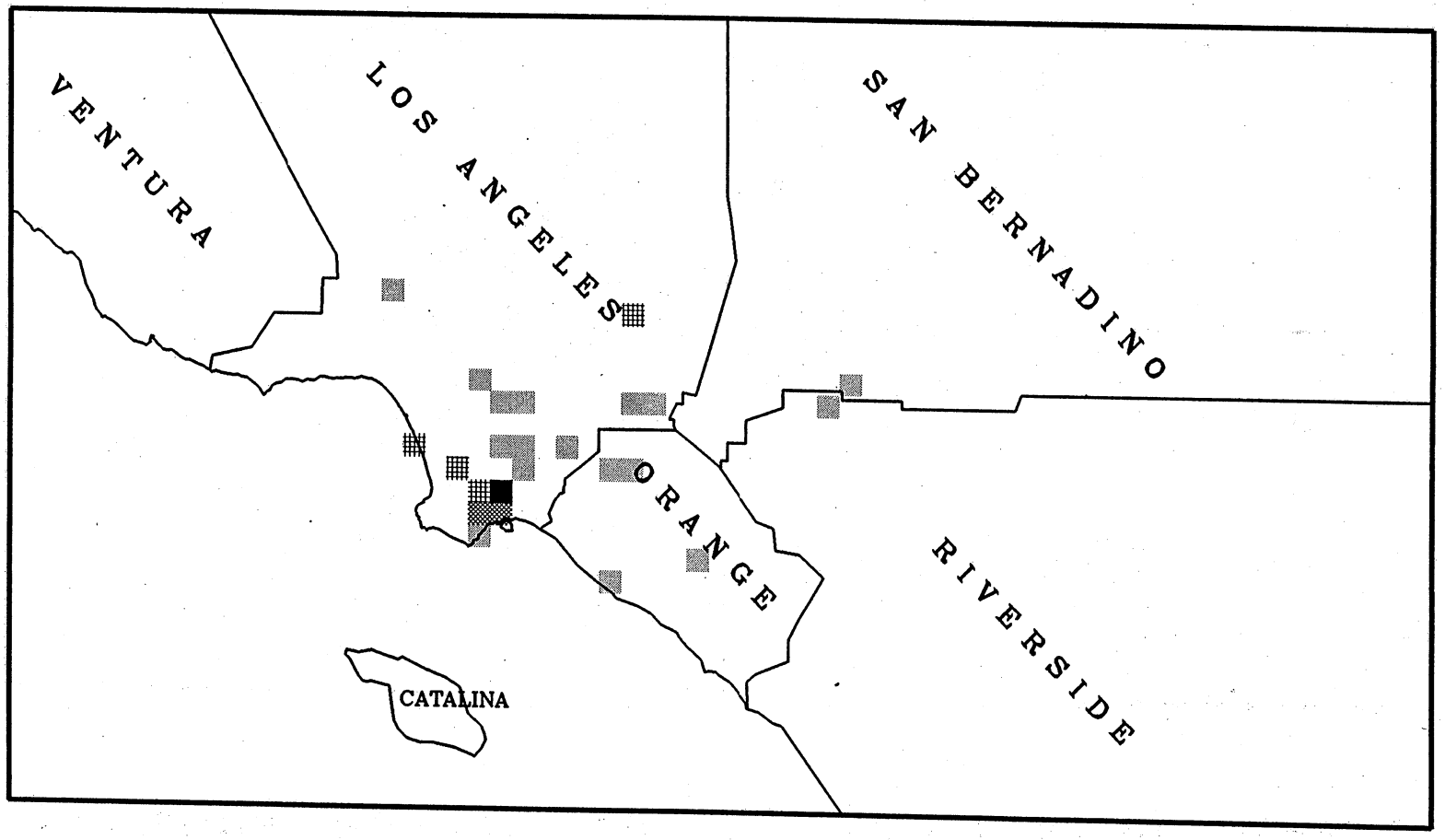
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 1103 tons

Generated on 2/[illegible], 0

RECLAIM Facilities

Certified SOx Emissions (Tons) From 10/98 To 12/98



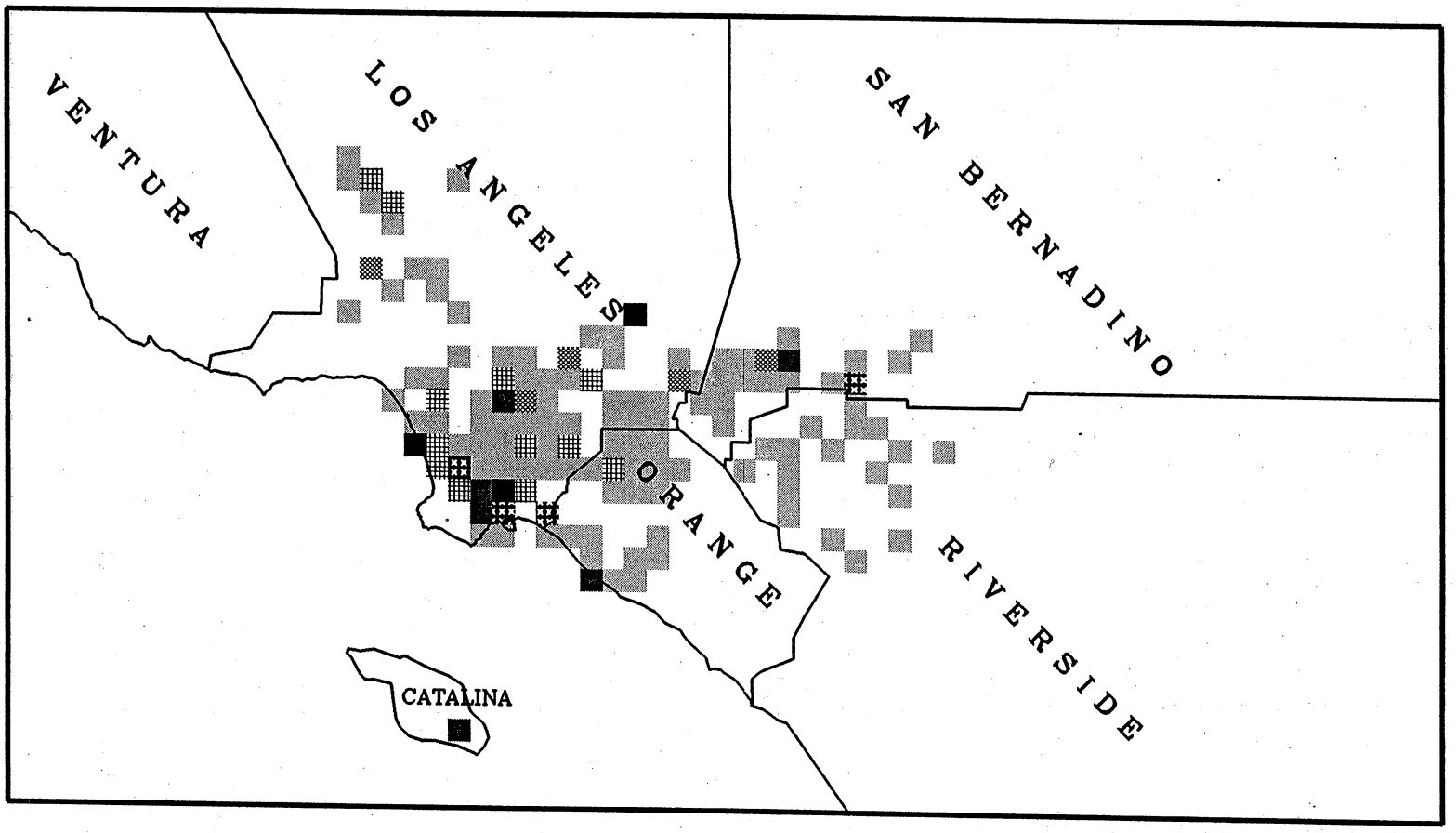
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 925 tons

Generated on 2/15/ 0

RECLAIM Facilities

Certified NOx Emissions -- From 1/98 To 12/98



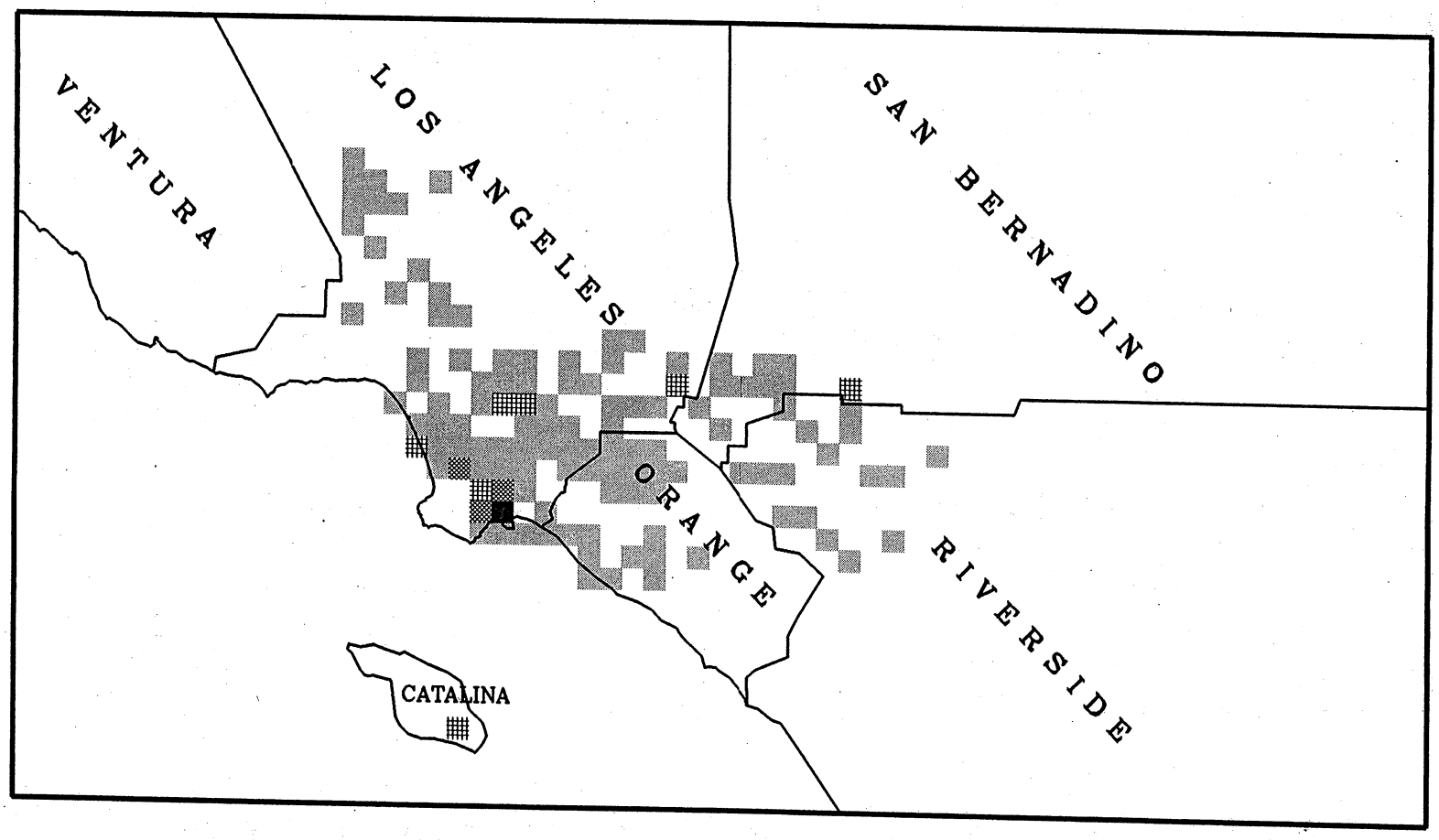
>0 – 100 | 100 – 200 | 200 – 400 | 400 – 800 | 800 –1600 | over 1600

max. emissions = 2368 tons

Generated on 2/16/ 0

RECLAIM Facilities

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



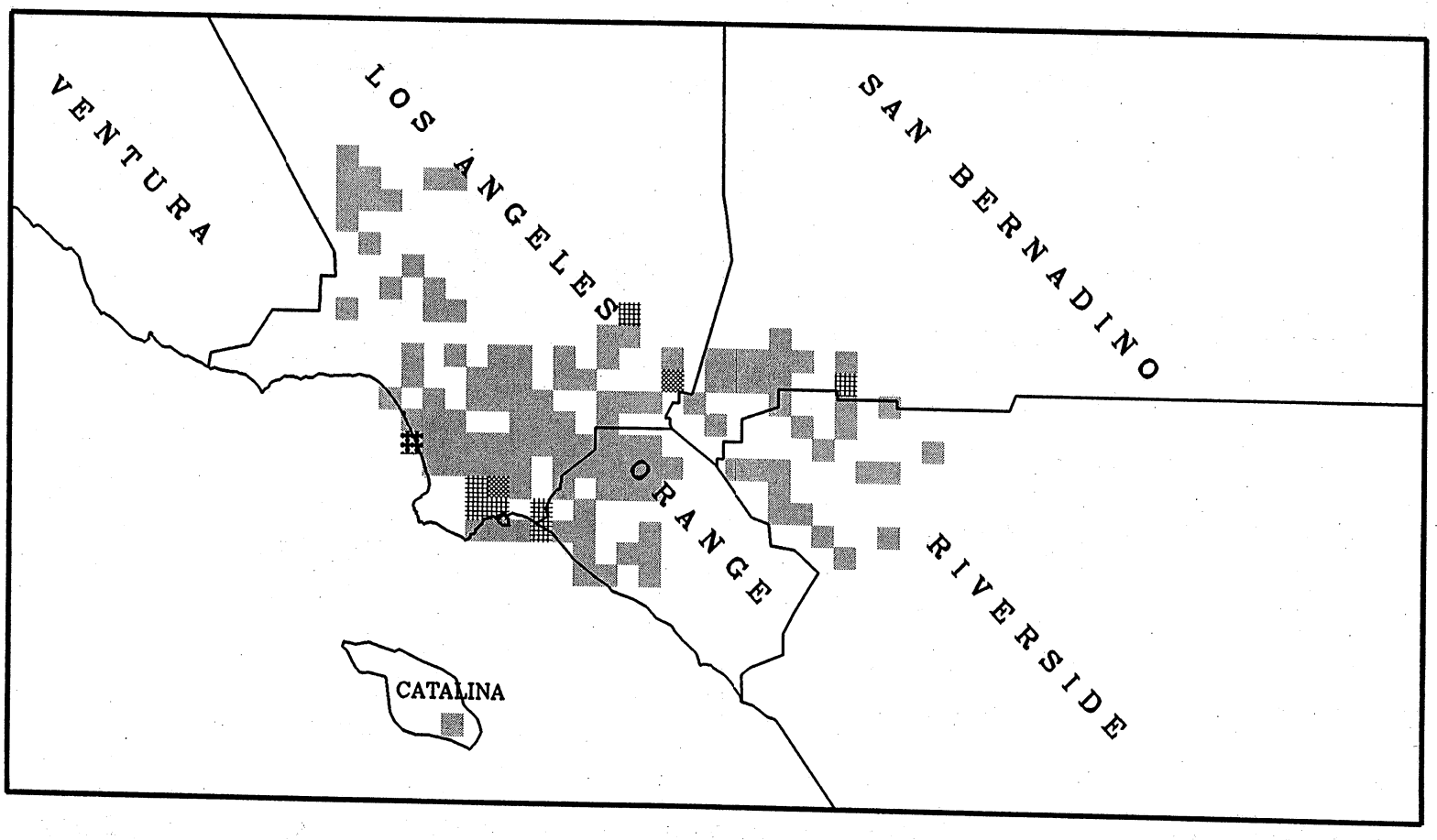
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 468 tons

Generated on 2/11/ 0

RECLAIM Facilities

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



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

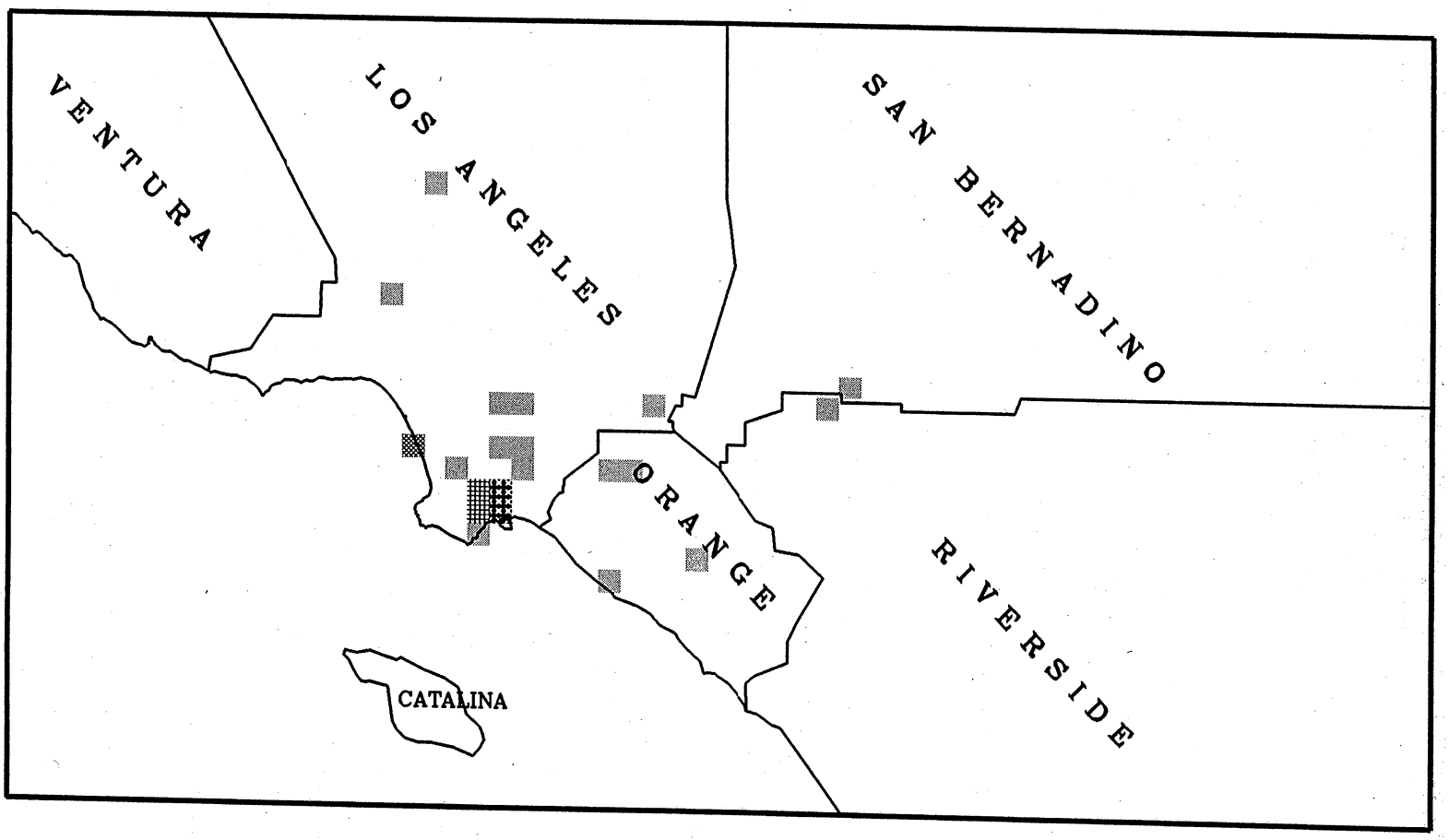
max. emissions = 648 tons

Generated on 2/1 0

APPENDIX F
QUARTERLY SOx EMISSION MAPS

RECLAIM Facilities

Certified SOx Emissions (Tons) From 1/98 To 3/98



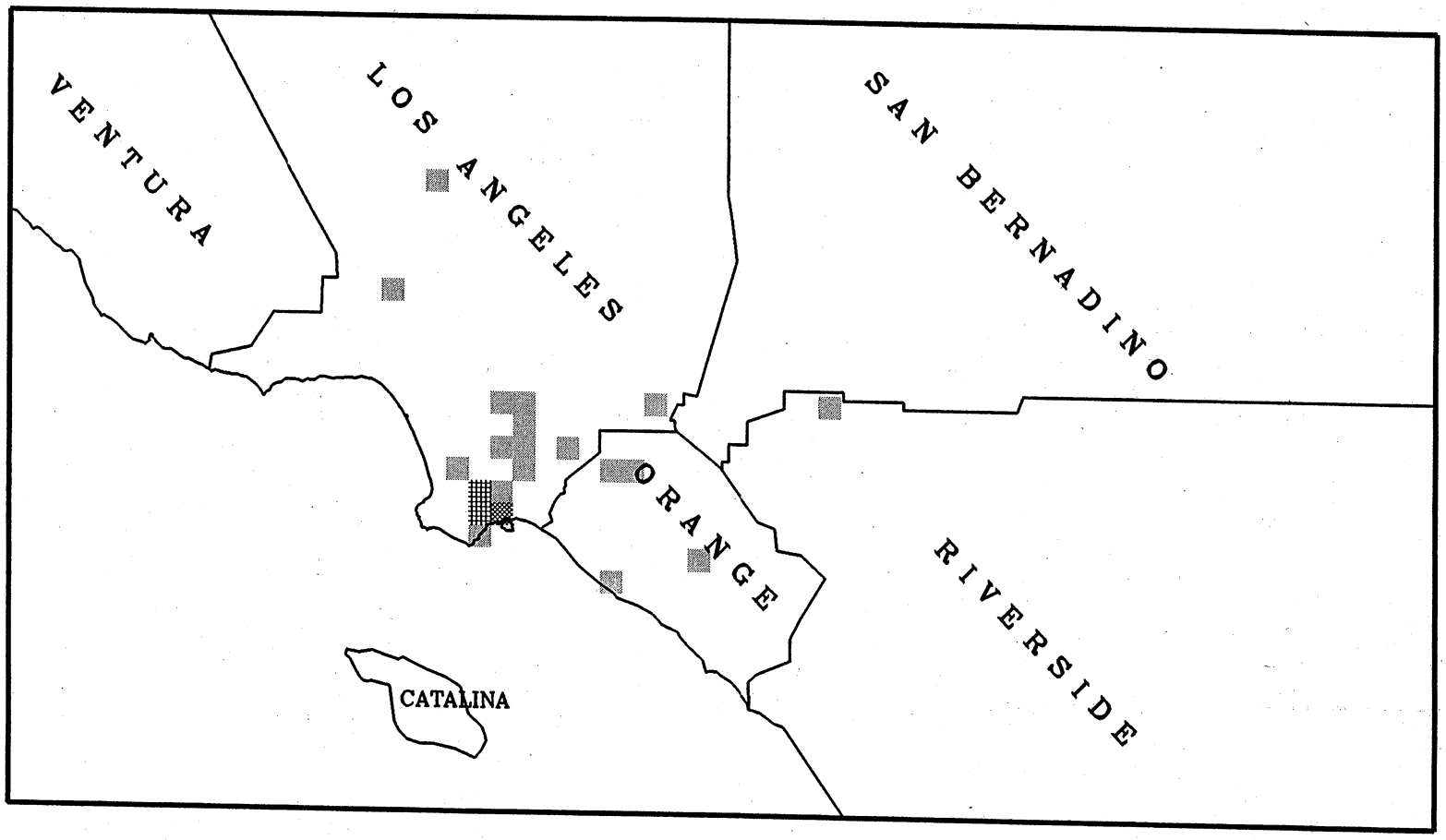
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 742 tons

Generated on 2/10/ 0

RECLAIM Facilities

Certified SOx Emissions (Tons) From 4/98 To 6/98



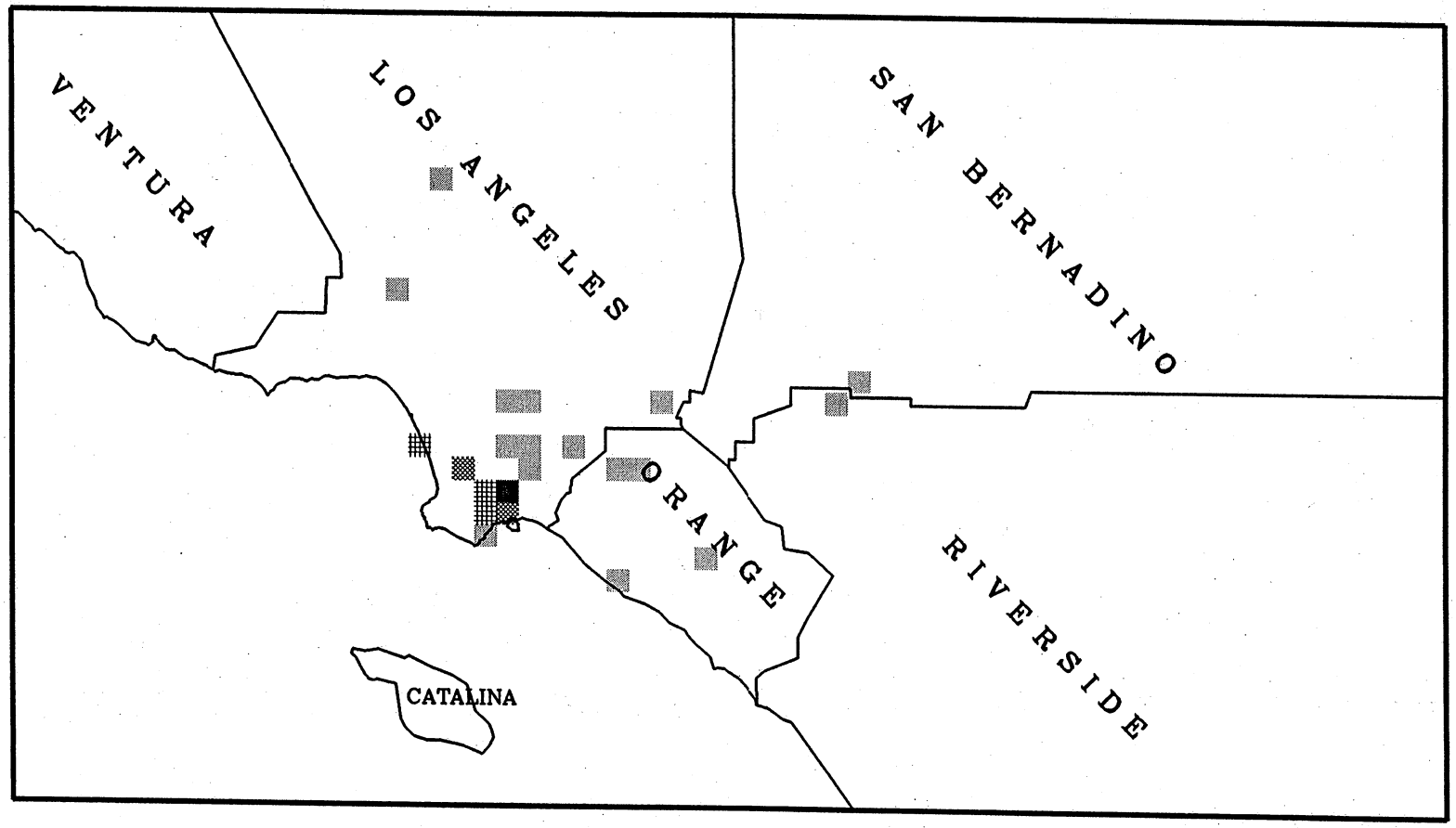
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 307 tons

Generated on 2/15/ 0

RECLAIM Facilities

Certified SOx Emissions (Tons) From 7/98 To 9/98



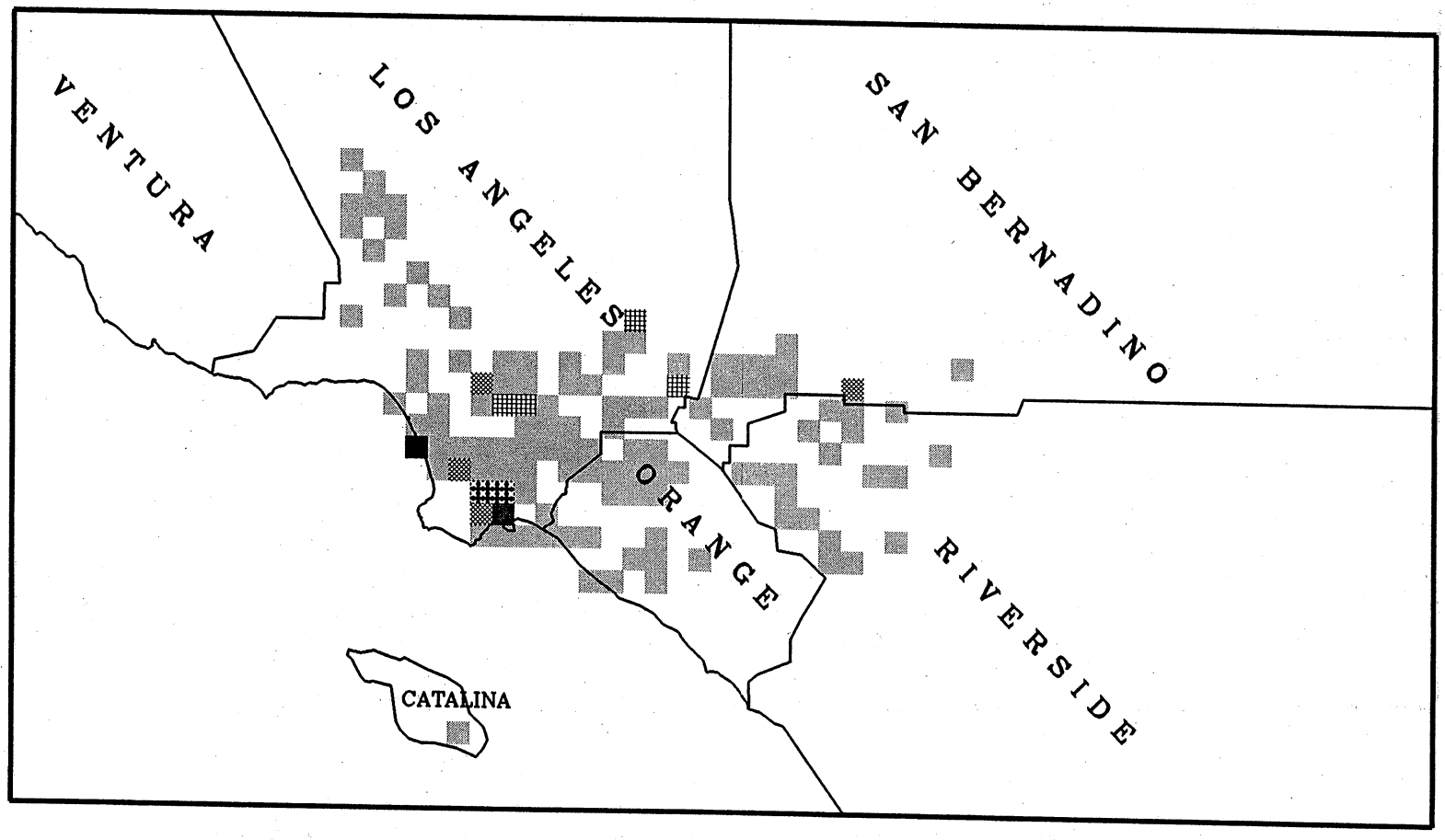
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 520 tons

Generated on 2/.., 0

RECLAIM Facilities

Certified NOx Emissions (Tons) From 10/98 To 12/98



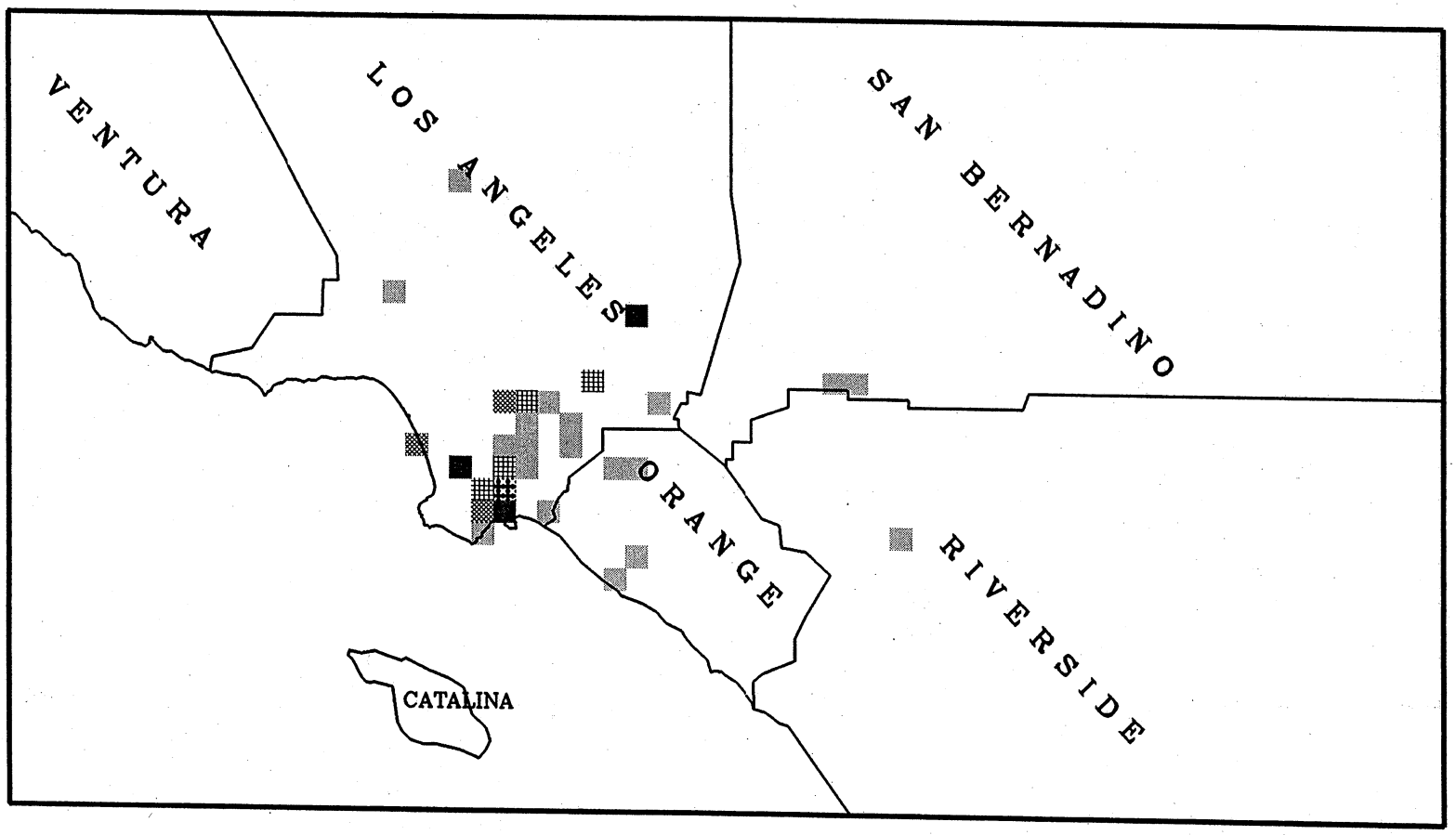
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 939 tons

Generated on 2/15/ 0

RECLAIM Facilities

Certified SOx Emissions -- From 1/98 To 12/98



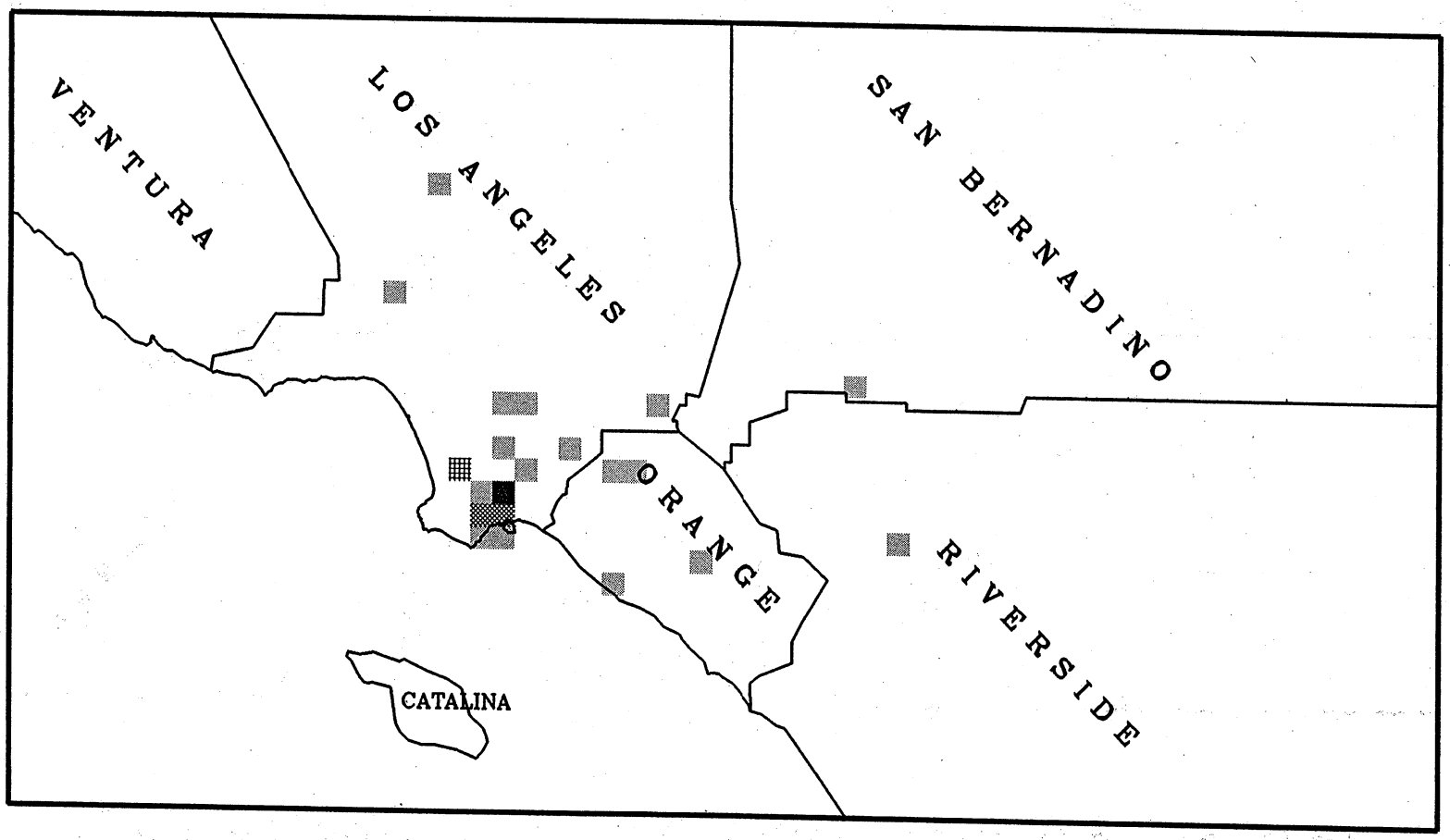
>0 – 100 | 100 – 200 | 200 – 400 | 400 – 800 | 800 –1600 | over 1600

max. emissions = 1588 tons

Generated on 2/[illegible], 0

RECLAIM Facilities

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



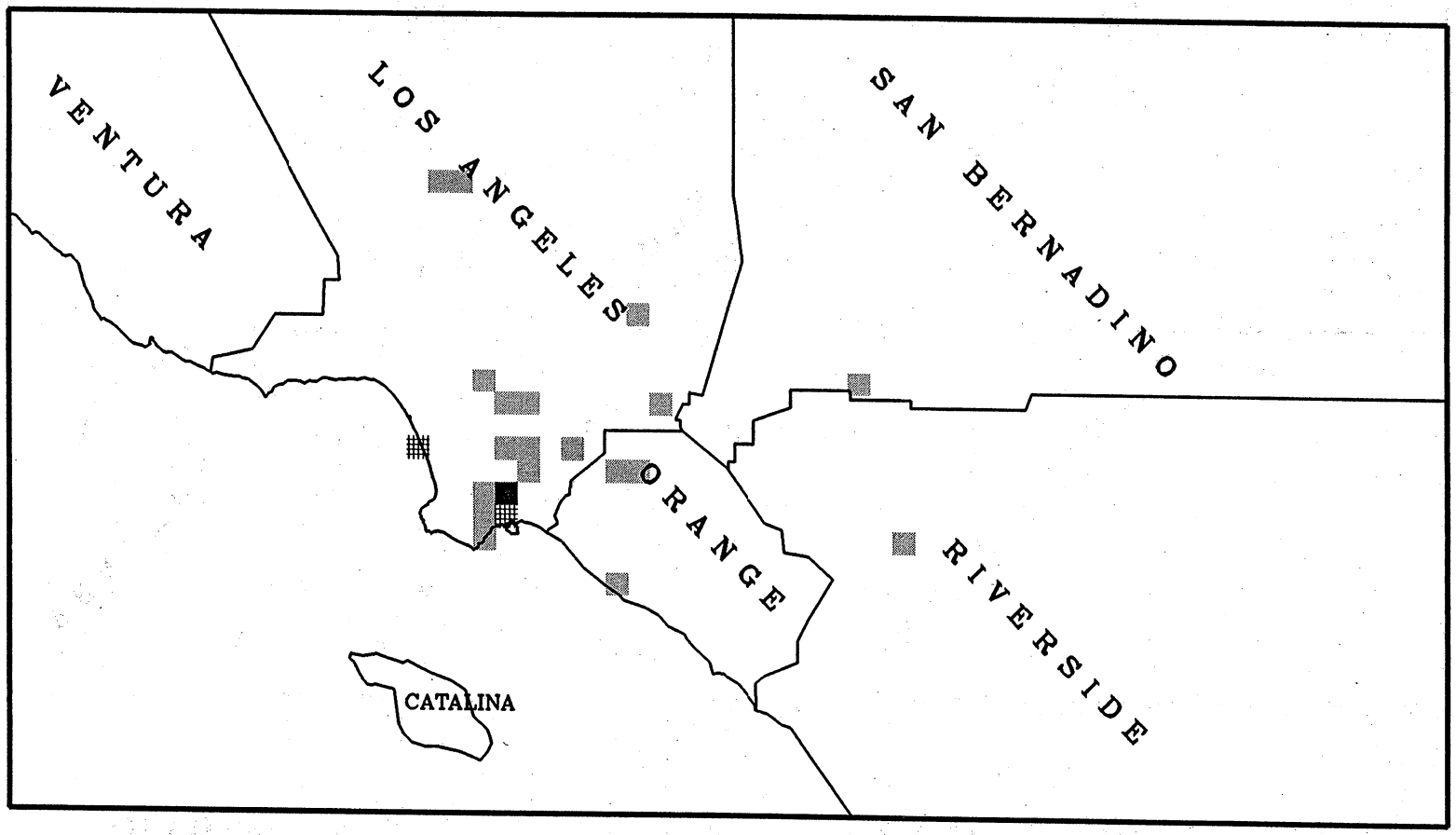
>0 – 150 | 150 – 300 | 300 – 450 | 450 – 600 | 600 – 750 | over 750

max. emissions = 494 tons

Generated on 2/11/ 0

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/ /0