
BOARD MEETING DATE: March 12, 1999

AGENDA NO. 47

REPORT: RECLAIM Audit Report for the 1997 Compliance Year

SYNOPSIS: The annual report on the NO_x and SO_x 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 fourth year of this program.

COMMITTEE: Stationary Source, February 19, 1999, Reviewed

RECOMMENDED ACTION:
Approve the attached report.

Barry R. Wallerstein, D.Env.
Executive Officer

CC:CM:MH: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 emissions 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 au-

dit for the 1997 compliance year, which was the program’s fourth 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 1997 compliance year. In particular, the analysis demonstrates that:

- RECLAIM is continuing to meet its emissions reduction goals. As in previous years, aggregate actual emissions from RECLAIM facilities were below allocations during the 1997 compliance year.
- The RECLAIM Universe consisted of 329 facilities as of June 30, 1997. There were two facility inclusions from July 1, 1997 through June 30, 1998. Additionally, five facilities shut down during this period. RECLAIM was not cited as a contributing factor by any of the closed facilities. Thus, there were 326 facilities in the RECLAIM Universe at the end of the 1997 compliance year.
- An active trading market for RTCs has developed. More than \$79 million in RTCs have been traded since the adoption of RECLAIM with over \$21 million in trades occurring in calendar year 1997 and more than \$36 million during 1998. Sufficient RTCs were available to meet the demand of RECLAIM facilities. Average prices, excluding RTCs, which 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 1997 and 1998 are summarized below:

1997	1998
<ul style="list-style-type: none"> • \$227 per ton for 1997 NOx RTCs • \$1,915 Per ton for 2003 NOx RTCs • \$1,880 per ton for 2010 NOx RTCs • \$64 per ton for 1997 SOx RTCs • \$2,385 Per ton for 2003 SOx RTCs • \$2,385 per ton for 2010 SOx RTCs 	<ul style="list-style-type: none"> • \$451 per ton for 1998 NOx RTCs • \$1,971 Per ton for 2003 NOx RTCs • \$1,859 per ton for 2010 NOx RTCs • \$303 per ton for 1998 SOx RTCs • \$1,760 Per ton for 2003 SOx RTCs • \$1,760 per ton for 2010 SOx RTCs

- Once again, the vast majority of RECLAIM facilities complied with their allocations during the 1997 compliance year. Preliminary audit results show that nineteen facilities exceeded their allocations during this compliance year. Failure to reconcile emissions with RTCs held was the leading cause of exceedance, rather than application of Missing Data Procedures (the leading cause during the 1995 and 1996 compliance years) or lack of familiarity with program requirements (the leading cause

during the 1994 compliance year). Notices of Violation have been issued to nine of the 19 facilities that exceeded their allocations. Staff is finalizing the review of emissions reported by the remaining facilities. As the allocation exceedances are confirmed, additional Notices of Violation will be issued.

- RECLAIM had minimal impact on employment during the 1997 compliance year, as in previous years. Two facilities attributed RECLAIM with generating one job each. One facility which experienced a job loss of eight positions 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. Another facility shut down, resulting in 153 lost jobs. This facility reported that RECLAIM was a minor contributor to the decision to close, but did not quantify the extent of the contribution.

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

RECLAIM Audit Report for the 1997 Compliance Year

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SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

**Annual RECLAIM Audit Report for the
1997 Compliance Year**

March 12, 1999

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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 which 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. In addition, Health & Safety Code §40440.2 directs AQMD to present a progress report based upon the annual audits to its Governing Board. This document constitutes the Rule 2015 annual audit for the 1997 compliance year (January 1997 through June 1998) and the Health & Safety Code §40440.2 progress report for the same period.

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. Sixteen facilities were included into the program, sixty-one were excluded from the program, and twenty facilities ceased operations between program adoption and June 30, 1997. Thus, the RECLAIM universe consisted of 329 facilities on July 1, 1997. From July 1, 1997 through June 30, 1998 there were an additional two inclusions and five facility shutdowns but no exclusions, bringing the universe to 326 facilities at the end of the 1997 compliance year. The inclusions resulted in no impact on NO_x allocations, but a net allocation increase of 0.1 ton/day of compliance year 2003 SO_x RTCs. This increase represents 0.9 percent of the total SO_x allocations for compliance year 2003. This small change did not have a significant impact on RECLAIM's ability to establish a viable emissions trading market.

AQMD staff is currently working with facilities which have exceeded four tons of NO_x emissions during at least one of the years 1992, 1993, July 1994 through June 1995, and July 1995 through June 1996. It is anticipated that between 40 and 50 such facilities will be included into the RECLAIM universe during the 1999 compliance year.

Chapter 2: RTC Allocations and Trading

Allocations are issued to RECLAIM facilities based on their historical activity levels and applicable emissions controls specified in the AQMP. These Allocations establish emission reduction goals and are the trading resources for the RECLAIM program. In 1998, an adjustment was made to one facility's NOx Allocation based on new information, which resulted in minimal change to the total NOx Allocations.

The RTC trading markets continued to be active in 1998 with no direct regulation of the market by AQMD. More than \$36 million in trades occurred during the 1998 calendar year, compared to over \$21 million in 1997.

Market price trends for NOx and SOx RTCs remain similar to prior years, with low prices for current year RTCs and higher prices for future RTCs in anticipation of a declining supply. In 1998, average prices for NOx RTCs ranged from \$451 per ton for 1998 RTCs to \$2,093 per ton for 2001 RTCs. Average prices for SOx RTCs were as low as \$303 per ton for 1998 RTCs to \$1,760 per ton for 2010 RTCs. These prices are well below the backstop price of \$15,000 per ton, as well as the prices projected at the time of program adoption. 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 four compliance years (1994 through 1997), indicating that RECLAIM is achieving its emission reduction goals. Annual RECLAIM emissions are also exhibiting a declining trend, especially for NOx, demonstrating that RECLAIM is on track to achieve the targeted emission goals by 2000.

Analysis of the emissions data also suggests that the impact of Missing Data Procedures (MDP) on reported emissions is declining as well. Although the number of facilities applying MDP has not decreased, the impact from such occurrences is becoming less significant as the higher availability of the monitoring systems allows facilities to substitute with calculated emissions that are more representative of actual emissions.

Chapter 4: New Source Review Activity

As part of the annual program audit, New Source Review (NSR) activity from RECLAIM facilities is examined to verify that RECLAIM is complying with the federal and state NSR requirements while providing flexibility to facilities in managing their operations.

Review of 1997 NSR activity revealed that one existing facility that joined the RECLAIM program and 44 existing RECLAIM facilities experienced NSR emissions increases of RECLAIM pollutants due to expansions or modifications. These data indicate that the RECLAIM program has not prevented RECLAIM facilities from constructing and operating new or modified equipment at their facilities according to their operational needs.

RECLAIM provided offset ratios of 106-to-1 for NOx and 63-to-1 for SOx on an aggregate basis during the 1997 compliance year. These ratios far exceed the

federal NSR requirement of a 1.2-to-1 offset ratio for NO_x and SO_x emissions 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 conducted a comprehensive emissions audit of each RECLAIM facility for the compliance year. The results of the audits reveal that the overall RECLAIM emissions goal was met for the compliance year, as it was each previous year of the program.

For the 1997 compliance year, preliminary audit results show that 19 facilities exceeded their annual allocations. Failure to reconcile emissions with the amount of credits held was the leading cause of allocation exceedances, surpassing application of Missing Data Procedures (MDP) and misunderstanding of RECLAIM's requirements, the primary causes of exceedances during the 1995 and 1996 compliance years and during the 1994 compliance year, respectively. Overall, the emissions for the 1997 compliance year were well below the targeted emissions in both the 1994 and 1997 AQMPs.

Chapter 6: Job Impacts

Job impacts resulting from the RECLAIM program during the 1997 compliance year continue to be negligible when compared to the overall employment in the basin. Two RECLAIM facilities attributed one job gain each to RECLAIM for a new employee for each facility to handle RECLAIM compliance issues. Two 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, five RECLAIM facilities shut down or went out of business in 1997. None of these shutdown facilities cited RECLAIM as a contributing factor in their decision to cease operation.

Chapter 7: Air Quality and Public Health Impacts

To assess impacts on air quality and public health resulting from RECLAIM, Rule 2015 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 1997 are found to be in an overall downward trend. However, it is too early in the program to discern any conclusive actual emission reduction trend when analyzing the emissions for the past four years. There is no significant shift in emissions seasonally, as shown in the analysis of quarterly emissions for 1997 as well as the previous year. Furthermore, analysis of the geographical distribution of emissions during the first four 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 1997 shows that the Basin has already achieved the December 2000 target for ozone.

Air toxic health risk is primarily caused by volatile organic compounds (VOC) emissions, rather than NO_x or SO_x 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.

Chapter 8: Conclusions and Recommendations

RECLAIM continues to meet all of the design criteria, as demonstrated through the review of the fourth year of program implementation. This program has resulted in emissions reductions below the level targeted by the applicable RECLAIM rules. Therefore, implementation of RECLAIM is not likely to result in a delay of compliance with the federal Clean Air Act or the California Clean Air Act. Furthermore, these emissions reductions are likely achieved at less cost than anticipated under the command-and-control regulatory approach, as illustrated by the high volume of low-price RTC transactions recorded.

The success of the RECLAIM trading market is measured on its simplicity, accessibility, and enforceability. The market should also be efficient (minimal transaction cost), be liquid (trades completed quickly), and be capable of disseminating accurate, timely transaction information. The RECLAIM trading market has generally met these measures to date. The monitoring elements of RECLAIM are being implemented effectively, although there were some delays in certifying CEMS. Appropriate rule amendments and technical working groups were implemented to equitably address these difficulties. In addition, RECLAIM's enforcement audits have been successful at maintaining a high level of compliance. Thus, overall, the annual audit results indicate that the implementation of RECLAIM during the 1997 compliance year was highly successful at achieving program goals.

Although implementation of RECLAIM has met all program goals, AQMD is continuously striving to provide program enhancements. As a result, staff recommends that AQMD continue to pursue additional program enhancements in the following three broad areas: Trading; Monitoring, Reporting, and Recordkeeping; and Compliance.

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 which 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. In addition, Health and Safety Code §40440.2 directs AQMD to present a progress report based upon the annual audits to its Governing Board.

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 fourth compliance year (January 1, 1997 through June 30, 1998), also known as the 1997 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 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 which occurred during the 1997 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 NO_x and SO_x 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.
8. **Recommendations**
This chapter summarizes the audit conclusions and presents recommendations based on the audit results.

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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. Sixteen facilities were included into the program, sixty-one were excluded from the program, and twenty facilities ceased operations between program adoption and June 30, 1997. Thus, the RECLAIM universe consisted of 329 facilities on July 1, 1997. From July 1, 1997 through June 30, 1998 there were an additional two inclusions and five facility shutdowns but no exclusions, bringing the universe to 326 facilities at the end of the 1997 compliance year. The inclusions resulted in no impact on NOx allocations, but a net allocation increase of 0.1 ton/day of compliance year 2003 SOx RTCs. This increase represents 0.9 percent of the total SOx allocations for compliance year 2003. This small change did not have a significant impact on RECLAIM’s ability to establish a viable emissions trading market.

AQMD staff is currently working with facilities which have exceeded four tons of NOx emissions during at least one of the years 1992, 1993, July 1994 through June 1995, and July 1995 through June 1996. It is anticipated that between 40 and 50 such facilities will be included into the RECLAIM universe during the 1999 compliance year.

Background

The RECLAIM program takes the place of traditional “command-and-control” rules for a defined list of facilities participating in the program (the RECLAIM “universe”). The facilities in the RECLAIM universe were issued an annually declining allocation of emission credits (“RECLAIM Trading Credits” or “RTCs”) which constitutes an annual emissions budget. RTCs may be bought or sold as the facilities deem appropriate. The criteria for inclusion in the RECLAIM program, which are specified in Rule 2001 - Applicability, were established to exclude smaller facilities because the intricacies of this trading program and the level of emissions monitoring and reporting it entails make it unsuitable for them.

Facilities are generally subject to RECLAIM if they have NOx or SOx emissions greater than 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 which 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 which 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.

On the other hand, RECLAIM facilities which 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

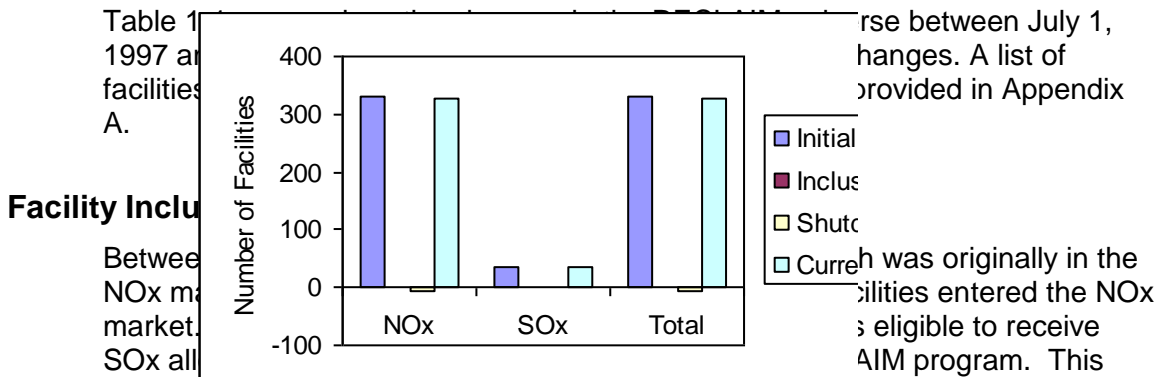
The RECLAIM rules include several mechanisms to exclude facilities originally included in the universe and to add new facilities to the universe. The overall changes to the RECLAIM universe from the date of adoption through June 30, 1997 include sixteen facility inclusions, sixty-one facility exclusions, and twenty facility shutdowns. Thus, the net change in the RECLAIM universe during the first three compliance years was a decrease from 394 to 329 facilities. Between July 1, 1997 and June 30, 1998, the universe changed by two inclusions, five facility shutdowns, and no exclusions. These changes brought the total universe to 326 facilities. Furthermore, one facility, which was already in the NOx universe, was included into the SOx universe.

**Table 1-1
RECLAIM Universe Changes**

	NOx Facilities	SOx Facilities	Total Facilities
Start of Program	392	41	394
Inclusions—1994-1996	16	4	16
Exclusions—1994-1996	60	4	61
Shutdowns—1994-1996	19	4	20
End of 1996 Compliance year	329	37	329
Inclusions ¹ —1997	2	1	2
Exclusions—1997	0	0	0
Shutdowns—1997	5	1	5
End of 1997 Compliance year	326	37	326

¹ One facility which was in the NOx universe was included into the SOx universe.

**Figure 1-1
Universe Changes from July 1, 1997 through June 30, 1998**



Facility Inclusion

Table 1-1 shows the changes in the number of facilities in the RECLAIM universe between July 1, 1997 and June 30, 1998. The total number of facilities in the RECLAIM universe increased from 330 to 330. The number of facilities that were initially in the RECLAIM universe but were no longer included by June 30, 1998 was zero. The number of facilities that were included in the RECLAIM universe by June 30, 1998 was zero. The number of facilities that were shut down between July 1, 1997 and June 30, 1998 was zero. The number of facilities that were currently in the RECLAIM universe by June 30, 1998 was 330. The increase in the number of facilities in the RECLAIM universe between July 1, 1997 and June 30, 1998 was zero. A list of facilities that were included in the RECLAIM universe by June 30, 1998 is provided in Appendix A.

Facilities that were originally in the RECLAIM universe but were no longer included by June 30, 1998 were not eligible to receive RECLAIM allocations because they commenced operations after the start of the RECLAIM program. This requirement is analogous to non-RECLAIM facilities providing Emission Reduction Credits (ERCs).

Pending Inclusions

Rule 2001(b) directs the Executive Officer to include in the RECLAIM program all facilities which submit emissions fee billing (EFB) data showing 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. EFB data from 1990, 1991, and 1992 were used in developing the original RECLAIM universe.

AQMD staff performed an analysis of more recent EFB data to determine if there are any additional facilities that should be included in the RECLAIM program. All facilities that are not currently in the RECLAIM universe and that reported emissions of four or more tons per year of NOx or SOx for the years 1992, 1993, 1994-95, or 1995-96 (the EFB reporting period changed from calendar year to fiscal year in 1994) were evaluated. Pursuant to Rule 2001, the emissions totals used in this analysis excluded emissions from mobile equipment and from equipment exempt from written permits.

On January 20, 1998 a letter and survey form were sent to each of the facilities identified for possible inclusion. The letter explained the basis for potential inclusion and the survey requested the facilities to verify that the emissions data they had submitted were accurate or to make appropriate corrections and also allowed them to claim exemption per Rule 2001(i) if they met any of the exemption criteria. Furthermore, a public information meeting was held for the affected facilities on March 11, 1998 to review the requirements of the RECLAIM program. AQMD is currently finalizing the determination of which of these facilities meet the inclusion criteria. The facilities which are determined to meet the inclusion criteria will be incorporated into the RECLAIM program during 1999. AQMD anticipates that between forty and fifty facilities will be affected.

Facilities Permanently Ceasing Operations

Four NO_x and one NO_x/SO_x RECLAIM facilities permanently ceased operations and went out of business between July 1, 1997 and June 30, 1998. These facilities have the option to retain or sell their RTCs. None of the shutdown facilities cited RECLAIM as contributing to the decision to shutdown. These facilities and the reasons cited for closing down are included in Appendix C.

CHAPTER 2

RTC ALLOCATIONS AND TRADING

Summary

Allocations are issued to RECLAIM facilities based on their historical activity levels and applicable emissions controls specified in the AQMP. These Allocations establish emission reduction goals and are the trading resources for the RECLAIM program. In 1998, an adjustment was made to one facility's NOx Allocation based on new information, which resulted in minimal change to the total NOx Allocations.

The RTC trading markets continued to be active in 1998 with no direct regulation of the market by AQMD. More than \$36 million in trades occurred during the 1998 calendar year, compared to over \$21 million in 1997.

Market price trends for NOx and SOx RTCs remain similar to prior years, with low prices for current year RTCs and higher prices for future RTCs in anticipation of a declining supply. In 1998, average prices for NOx RTCs ranged from \$451 per ton for 1998 RTCs to \$2,093 per ton for 2001 RTCs. Average prices for SOx RTCs were as low as \$303 per ton for 1998 RTCs to \$1,760 per ton for 2010 RTCs. These prices are well below the backstop price of \$15,000 per ton, as well as the prices projected at the time of program adoption. The supply of RTCs offered for sale on the market has been adequate to meet the demand of RECLAIM facilities.

Background

Trading RTCs and reducing actual emissions are the two avenues for RECLAIM facilities to comply with RECLAIM's emissions reduction requirements. Based on its unique operational needs, a RECLAIM facility can choose either strategy or a combination to effectively meet its emissions reduction goals.

Upon entry into the program, each RECLAIM facility is issued NOx and/or SOx RTCs for the compliance year of entry and each subsequent year, based on the facility's operational history and the methodology specified in Rule 2002. The allocations decline annually through the 2003 compliance year, then remain constant for all subsequent years. By knowing their future emissions reductions requirements, a RECLAIM facility operator can plan for future operations and determine their compliance strategies, either reducing actual emissions or securing required RTCs through trades (or a combination of the two).

There are two staggered compliance cycles in the RECLAIM program. Each RECLAIM facility is assigned to either Cycle 1 or Cycle 2 and issued RTCs with corresponding periods of validity. Cycle 1 RTCs are valid from January 1 through December 31 of each year and Cycle 2 RTCs are valid from July 1 of each year through June 30 of the following year. Facilities may acquire RTCs issued for either cycle and apply them to emissions provided that the trades are made during the appropriate time period and the RTCs are used for emissions occurring within their period of validity. 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. Since the start of the RECLAIM program in 1994, prices have generally been lower during the reconciliation periods because of supply increases in the market and the understanding that expiring RTCs will be lost if left unused. This price trend may reverse itself if the supply of credits reduces or demand increases.

RTC Allocations and Supply

Allocations are issued to RECLAIM facilities based on their historical activity levels and the relative control required by AQMP. The methodology for determining these Allocations is stated in Rule 2002 – Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx). 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, one facility was included into the RECLAIM SOx universe during the 1997 compliance year. This inclusion resulted in a minor increase in SOx Allocations (0.1 ton per day for compliance year 2003). In 1998, an adjustment was made to one NOx facility's Allocation, which resulted in minimal impact on the total program NOx Allocations (0.0008 tons per day Allocation increase for compliance year 2000 and 0.0001 ton per day Allocation decrease for compliance year 2003).

In addition, one request was submitted for the conversion of mobile source ERCs to RTCs. This conversion resulted in an addition of 0.14 tons of NOx RTCs to the RTC supply for the 1999 compliance year. Figures 2-1 and 2-2 illustrated the total NOx and SOx supply, respectively.

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

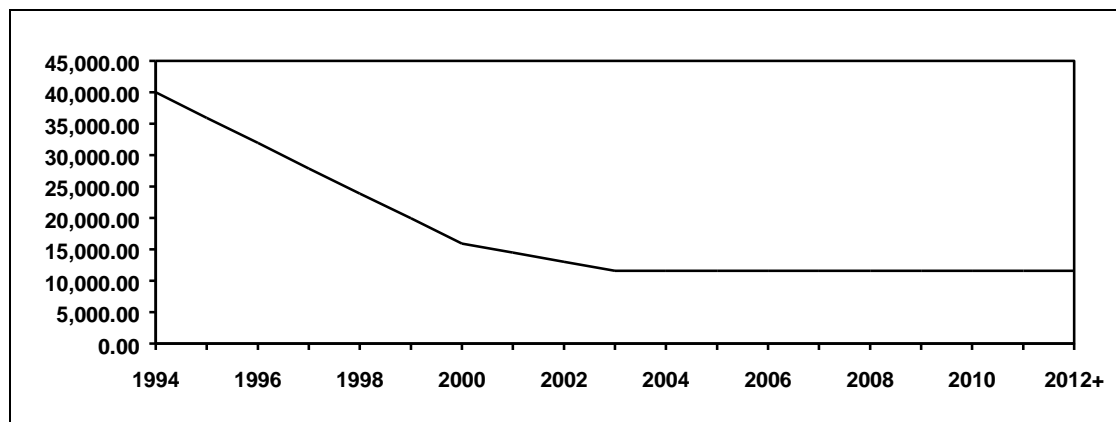
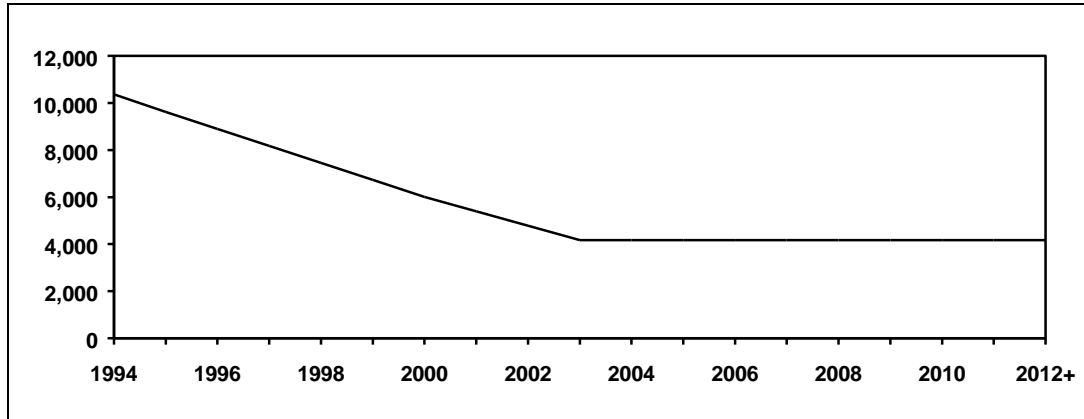


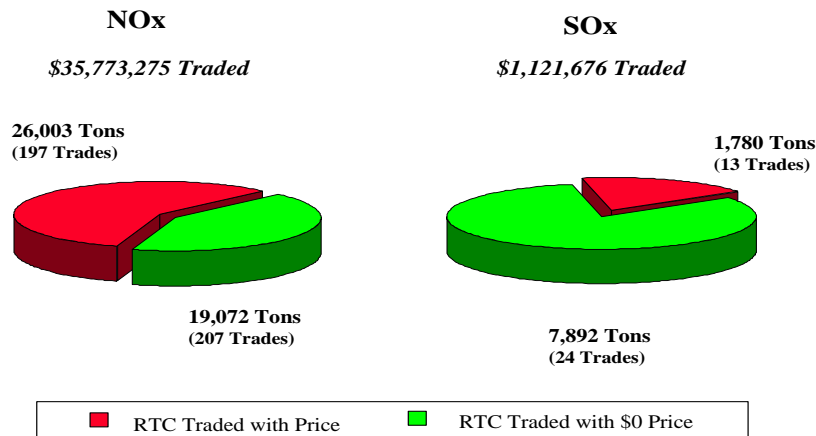
Figure 2-2
SOx: Allocations and RTC Supply (tons/year)



RTC Trading Activity

The RTC trading market continued to be active in 1998. More than 440 trades totaling over 54,700 tons of NOx and SOx RTCs were transferred during the 1998 calendar year. These trades included both RTCs traded with prices and transfers with \$0 price, such as transactions between two facilities under common ownership. The total of all reported prices for RTCs traded in 1998 exceeded \$36.8 million. This includes \$26.3 million from the change of ownership of electric utility facilities, which resulted from restructuring of the electricity industry in California. Since program inception 298,000 tons have been traded with a total price over \$79 million. Figure 2-3 summarizes 1998 trading activity by pollutant.

Figure 2-3
1998 Trading Activity



Trades with prices, which represent sales either directly between facilities or between facilities via brokers, are indicative of the level of active demand for RTCs. In turn, this demand indicates that some facilities have made the business decision to make use of RECLAIM's flexibility to invest in emission-reducing technologies at the most cost-effective time and participate in the trading market to maintain compliance during the interim. On the other hand, trades with \$0 price reflect the sum of several categories of transactions: trades from facilities to brokers (reflecting the supply of available RTCs), trades from brokers to facilities (reflecting the return to the supplying facilities of RTCs offered for sale but not sold), trades between brokers (reflecting market dynamics), trades between facilities under common ownership (reflecting credit consolidation and management strategies), and transfers associated with facility changes of ownership. Clearly, transactions associated with the supply and demand of RTCs are an important element of RECLAIM. The aggregate trade activity indicates credit prices well below the threshold values identified in Rule 2015 and a supply adequate to meet the demand.

Figures 2-4 and 2-5 illustrate tons of NOx and SOx traded, respectively. These figures show trades with and without prices in 1998 and compare them with trading activity in the prior years.

Figure 2-4
Tons of NOx Traded

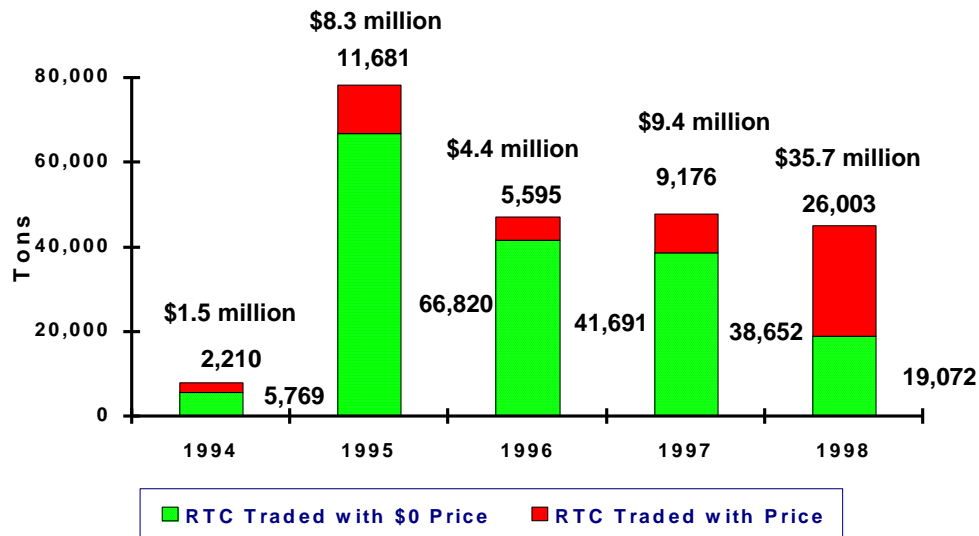
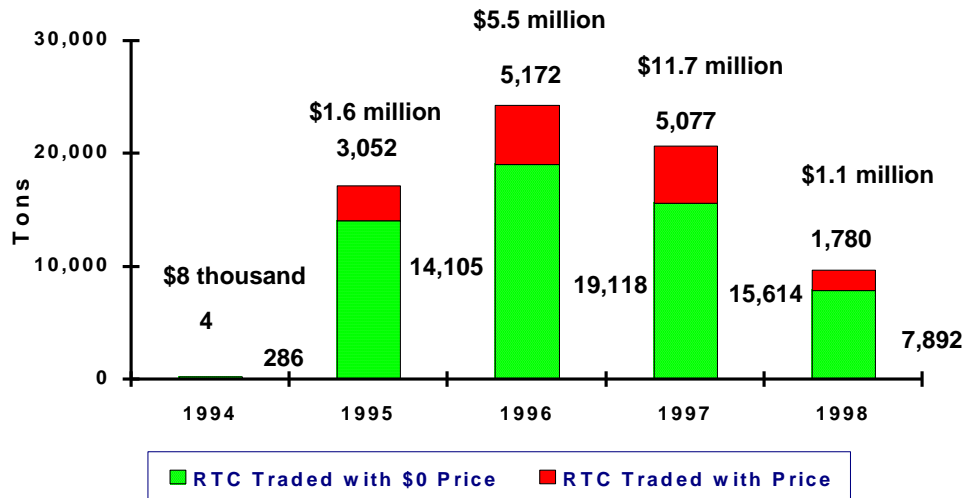


Figure 2-5
Tons of SO_x Traded



Trades with Prices

More than 200 trades were recorded with prices (197 for NO_x and 13 for SO_x) during 1998. Brokers coordinated most of these trades. There are actually two trading transactions involved when RTCs are traded through a broker: the RTCs are first transferred from the seller to the broker (without price), then from the broker to the purchaser (with price). Trades with prices are also common when RTCs are transferred directly between RECLAIM facilities. Reporting of the price is required when the buyer and the seller register the trade with AQMD. Price data provide indications of the market value of RTCs and allow AQMD to monitor and evaluate compliance costs of RECLAIM and the applicability of backstop provisions specified by Rule 2015.

A total of 26,003 tons of NO_x and 1,780 tons of SO_x were traded with price in 1998. The total values of these trades were \$35,773,275 and \$1,121,676, respectively. These trades included substantial activity for both current-year and future-year RTCs.

Eight RECLAIM facilities formerly owned by a local electrical utility experienced changes in ownership during 1998 as a result of restructuring of the electricity industry in California. RTC transactions from the existing utility to the new owners accounted for a significant portion of the NO_x RTC transactions recorded with price (18,121 tons at a total cost of \$26,312,904). Thus, these transactions accounted for approximately seventy percent of the NO_x RTCs traded with price and approximately seventy-five percent of the total cost of NO_x RTCs sold.

Trades Without Price

RTC trades with \$0 price occur when RTCs are transferred between facilities under common ownership (intra-company trades), from sellers to brokers or auctioneers, between brokers, from brokers or auctioneers back to the facilities which provided them for sale (return of unsold RTCs), and in many cases of change of ownership. In past years, trades without price were the predominant type of trades in terms of tonnage traded. However, in 1998, the quantity of RTCs traded without price was less than those traded with price. This change in trading trend resulted from trades with prices associated with electric utility facility changes of ownership.

The amount of RTCs traded without prices is exaggerated as a result of “doubled-counting” associated with trades involving brokers. In order for a seller to transfer RTCs to a buyer with a broker’s assistance, the RTCs must be transferred twice, the first time from the seller to the broker (without price) and the second from the broker to the buyer (with price). Similarly, there is no price associated with trades between brokers. Furthermore, in some cases RTCs are transferred to brokers to offer for sale but no sale results and the RTCs are subsequently transferred back to the original owner because no buyer was found. Such occurrences result in two trades with no price without having a net effect on RTC holdings. A similar situation arises when a company with multiple RECLAIM facilities consolidates RTCs from these facilities into a holding account, then later transfers them back to the individual facilities for compliance needs. Although these trades have no explicit monetary value, trades without prices provide insight into the operation of the trading markets. Intra-company trades provide facilities under the same ownership the flexibility to plan and optimize their emissions reduction strategies. Trades between sellers and intermediaries are important indicators of the availability of RTCs in the market.

Comparison of 1998 Trading Activity to Previous Years

The quantity of RTCs traded in 1998 decreased compared to trading activity in 1995, 1996, and 1997, especially for SO_x RTCs. The majority of the SO_x RTCs traded with price are for current year compliance use. Only one trade with price involved SO_x RTCs with expiration of year 2001 and beyond. Therefore, prices for these RTCs are based only on this one trade and are lower than the average market prices for 1996 and 1997.

Setting aside the change of ownership trades of electric utility facilities, the quantity of NO_x RTCs traded with price in 1998 also decreased compared with 1997. However, the prices of these RTCs have increased significantly which resulted in over \$9.4 million traded, comparable to the 1997 value. The quantity of NO_x RTCs traded with \$0 price continued to decrease from 1997 to 1998.

RTCs with expiration dates after compliance year 2010 were also traded in 1998. These RTCs were traded in lump sums (identified as RTCs with expiration date of All Years After 2010). Some of these “beyond 2010 RTC” trades were the transfer of RTCs associated with previous transfers of credits through 2010 which the trading partners had agreed to extend when and if RECLAIM was extended.

RTC Prices

The RTCs traded in 1998 follow a similar price trend as the previous years, with lower prices for current-year RTCs and higher prices for future years due to anticipated shortages. Average prices for NOx RTCs traded were as low as \$451 per ton for current-year RTCs and as high as \$2,093 per ton for 2001 RTCs, while average prices for SOx RTCs traded ranged from \$303 per ton for current-year credits and \$1,760 per tons for RTCs with expiration dates after 2000. Figures 2-6 and 2-7 show the changes in average prices for NOx and SOx RTCs respectively.

Figure 2-6
Yearly Average Prices for NOx RTCs

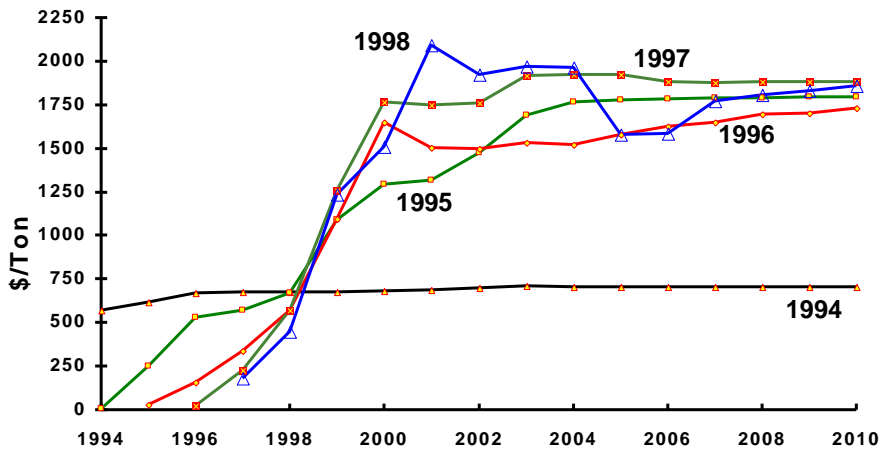
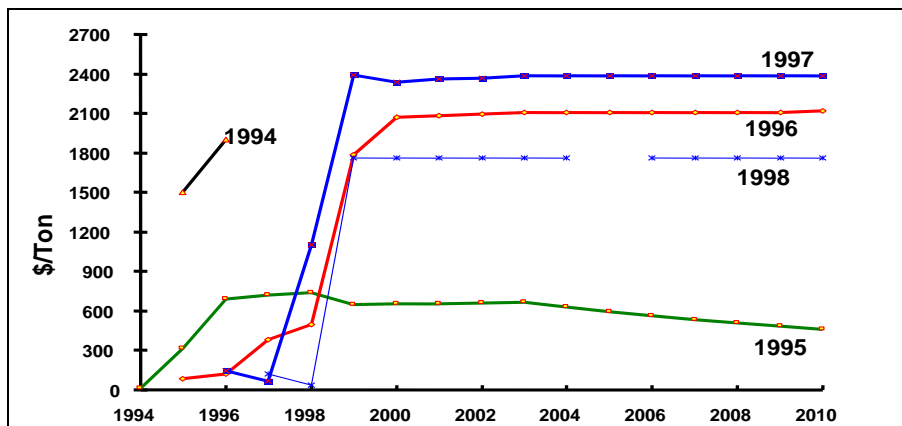
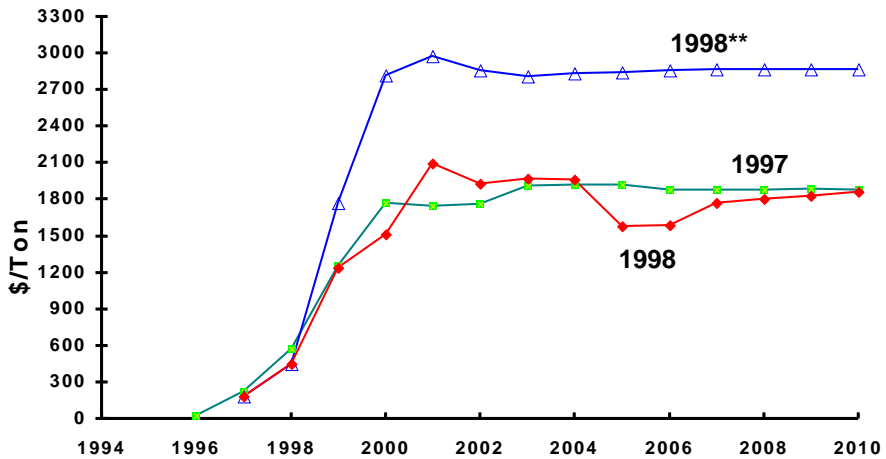


Figure 2-7
Yearly Average Prices for SOx RTCs



In 1998, average prices for NOx RTCs are comparable to prior years. When comparing to 1997, years 2001 through 2004 RTCs were trading at higher prices, while credits for years beyond 2004 were traded at lower prices. However, these average prices included the prices reported with the changes of ownership trades for the electric utility facilities. These changes of ownership trades greatly affected the average prices for NOx RTCs because the total quantity of RTCs traded in these transactions made up seventy percent of all RTCs traded with price and the transaction prices were significantly lower than the market prices at the time of the registration. After excluding these changes of ownership trades, average prices for NOx RTCs changed as much as \$1,276 per ton of year 2006 RTCs. Figure 2-8 compares the average NOx prices with the change of ownership trades for the electric utility facilities and the average NOx prices without these trades.

Figure 2-8
1998 Average Prices for NOx RTCs



1998** Exclude utility facilities changes of ownership trades

Average prices for future year SOx RTCs traded in 1998 have decreased significantly when compared to 1996 and 1997. However, only one SOx trade with price involved trading of 2001 RTCs and beyond. There are no prices reported for the trading of 2005 RTCs.

NOx and SOx prices in all years have been lower than the threshold value identified in Rule 15 (\$15,000 per ton) which would trigger an evaluation and review of the compliance and enforcement aspects of the RECLAIM program.

Post-2010 RTCs have also been traded in the market. As in the previous year, trading of these post-2010 RTCs treated each facility's post 2010 RTCs as if they were collectively tied to the 2011 RTCs; all trades involving post-2010 RTCs

have been executed in blocks extending indefinitely forward in time with a single aggregate price.

RTC Availability

RTC trading market activities indicate that the supply in the RTC markets is sufficient to meet the market demand. RTC supply is the total quantity of RTCs offered for sale based on RTC transaction registrations from January 1, 1994 through December 31, 1998. Market demand is the total quantity of RTCs purchased by RECLAIM facilities during the same period. For RTCs with expiration dates before 1998, RTC supplies are much higher than the demand. This is because the data included the transactions during reconciliation periods where expiring RTCs are traded to avoid being left unused. Future year RTCs are also available for purchase. However, the supply of such RTCs is much less due to allocation reductions and the uncertainty of RTC needs. Figures 2-9 and 2-10 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 2-9
NOx RTC Availability**

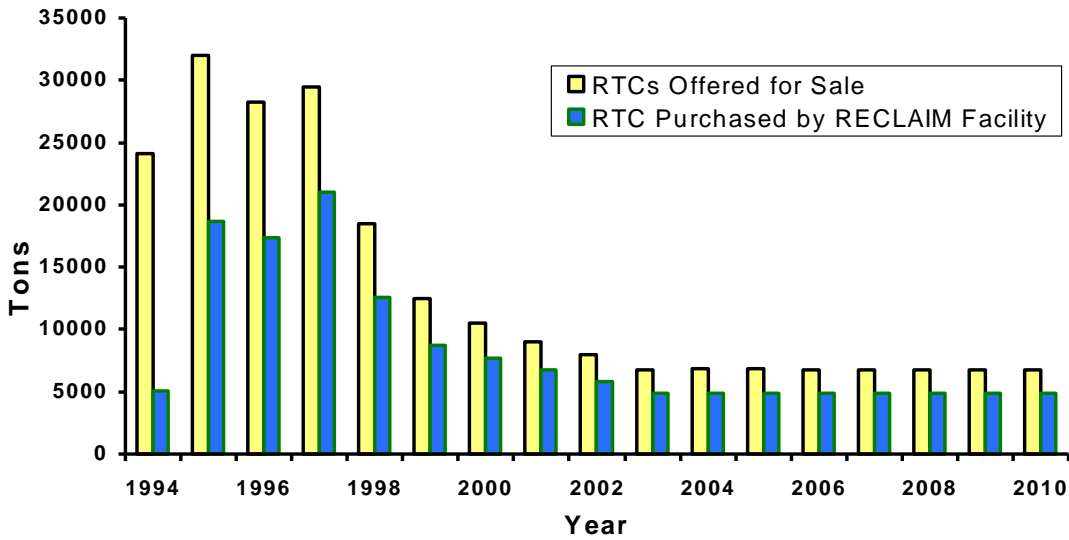
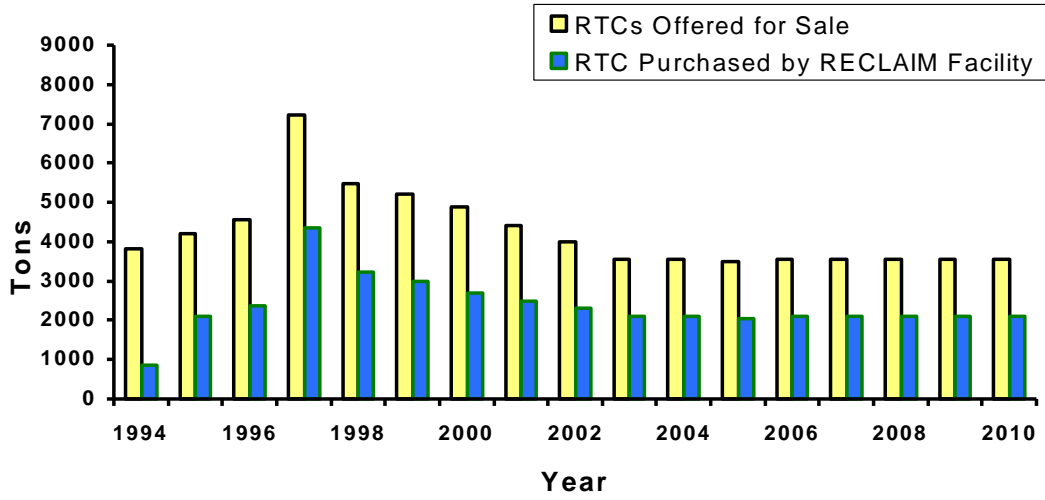


Figure 2-10
SOx RTC Availability



CHAPTER 3 EMISSION REDUCTIONS

Summary

Aggregate emissions from RECLAIM facilities were below aggregate allocations for the first four compliance years (1994 through 1997), indicating that RECLAIM is achieving its emission reduction goals. Annual RECLAIM emissions are also exhibiting a declining trend, especially for NOx, demonstrating that RECLAIM is on track to achieve the targeted emission goals by 2000.

Analysis of the emissions data also suggests that the impact of Missing Data Procedures (MDP) on reported emissions is declining as well. Although the number of facilities applying MDP has not decreased, the impact from such occurrences is becoming less significant as the higher availability of the monitoring systems 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 which 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 four 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 original 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. Tables 3-1 and 3-2 summarize emissions from RECLAIM facilities for each of the first four compliance years, including emissions quantified pursuant to missing data procedures (MDP). All compliance year 1997 audits have been completed for Cycle 1 facilities but some APEP reports for Cycle 2 facilities are still pending review by AQMD staff. Because the Cycle 2 emissions have not been fully audited for 1997, the APEP emissions for Cycle 2 have been substituted for the 1997 annual emissions in Tables 3-1 and 3-2, as indicated in their footnotes.

Table 3-1
Annual NO_x Emissions¹ for the 1994 through 1997 Compliance Years

	1994NO _x	1995NO _x	1996NO _x	1997NO _x ²
Annual Emissions (ton)	25,314	25,764	24,796	21,786
% Change from 1994	0%	+1.8%	-2.0%	-13.9%
Total RTCs³ (ton)	40,127	36,031	32,017	2,7919
Unused RTCs (ton)	14,813	10,267	7,221	6,133
% Unused RTCs	37%	28%	23%	22%

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. 1997 Cycle 2 emissions are not fully audited, therefore APEP emissions are substituted for Cycle 2. In addition, the Cycle 2 APEP emissions have been adjusted higher by 8.9% to reflect the potential increase after the emissions have been fully audited. The adjustment factor is based on the difference between the APEP and audited emissions for Cycle 1.
3. Total RTCs = Allocations + Converted ERCs

Table 3-2
Annual SO_x Emissions¹ for the 1994 through 1997 Compliance Years

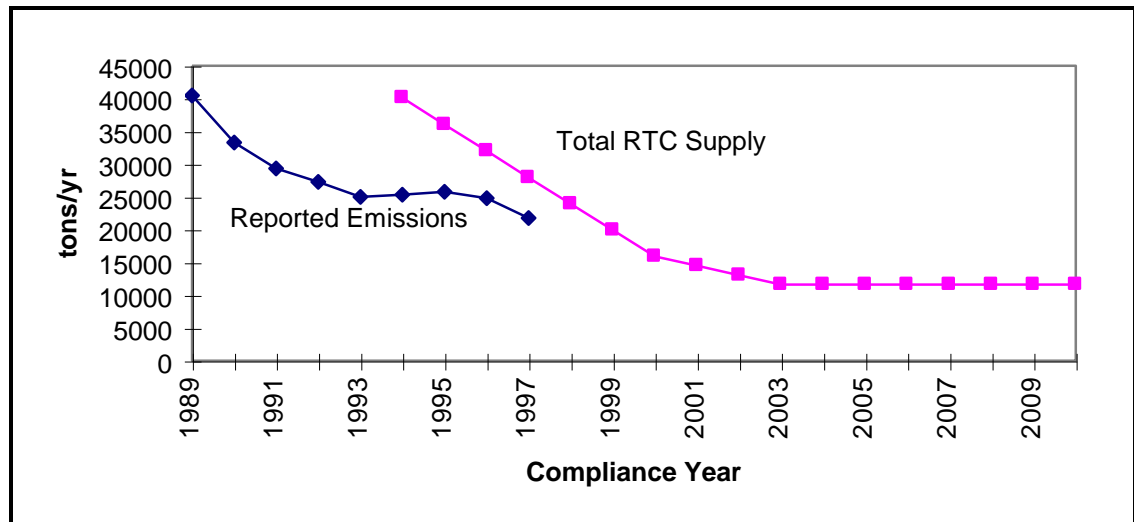
	1994SO _x	1995SO _x	1996SO _x	1997SO _x ²
Annual Emissions (ton)	7,232	8,064	6,484	6,464
% Change from 1994	0%	+11.5%	-10.3%	-10.6%
Total RTCs³ (ton)	10,365	9,612	8,894	8,169
Unused RTCs (ton)	3,133	1,548	2,410	1,705
% Unused RTCs	30%	16%	27%	21%

ANNUAL RECLAIM AUDIT

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. 1997 Cycle 2 emissions are not fully audited, therefore APEP emissions are substituted for Cycle 2. In addition, the Cycle 2 APEP emissions have been adjusted higher by 8.9% to reflect the potential increase after the emissions have been fully audited. The adjustment factor is based on the difference between the APEP and audited emissions for Cycle 1.
3. Total RTCs = Allocations + Converted ERCs

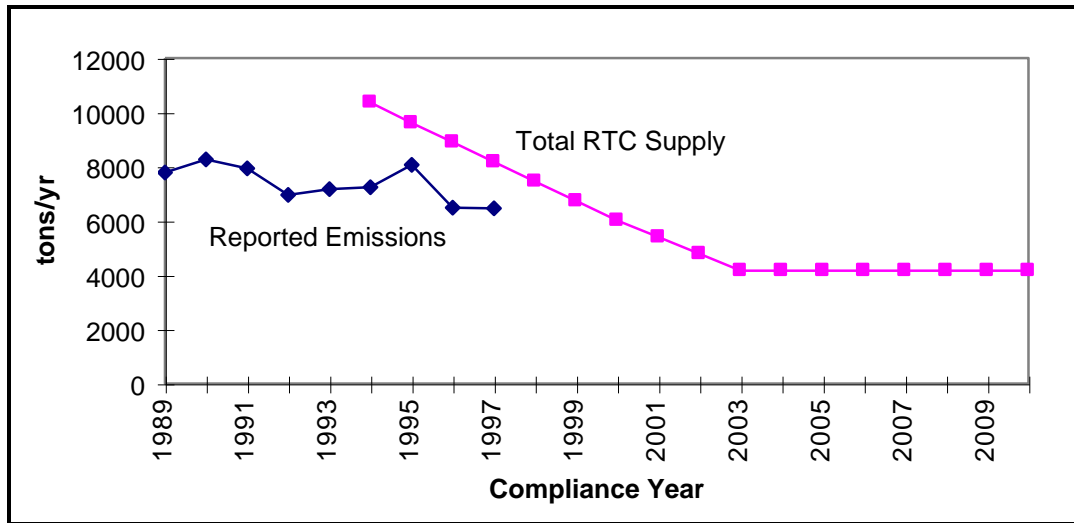
As shown in the above tables, RECLAIM facilities have not exceeded their allocations on an aggregate basis during any of the four completed compliance years (1994 through 1997). This indicates that RECLAIM met its programmatic emissions reduction goals and demonstrated equivalency in emissions reduction compared to the traditional command-and-control measures. In addition, as indicated in Tables 3-1 and 3-2, aggregate emissions have been in decline; NOx emissions have dropped 13.9% from 25,314 tons in 1994 to 21,786 tons in 1997. Similarly, SOx emissions have decreased 10.6% from 7,232 tons in 1994 to 6,464 tons in 1997. Given that the declining emissions trend continues, RECLAIM seems to be on track to achieve the targeted emissions reduction goals by year 2000 as illustrated in Figures 3-1 and 3-2.

Figure 3-1
NOx Emissions and Available RTCs



1997 emissions presented in this figure are based on a preliminary audited data.

Figure 3-2
SOx Emissions and Available RTCs



1997 emissions presented in this figure are based on a preliminary audited.

Comparison of Emissions to AQMP Projections

Continuing with the analysis conducted in the Three-Year Audit Report, staff compared reported annual emissions with the emission levels that the 1991, 1994 and 1997 AQMPs projected would occur if the subsumed command-and-control measures had been implemented rather than RECLAIM. This is to reaffirm that RECLAIM is achieving the comparable emissions reductions to the levels as projected in the AQMPs. This analysis revealed that aggregate RECLAIM emissions during the first four compliance years of the program were below the levels projected by these AQMPs, as illustrated by Figures 3-3 and 3-4.

Figure 3-3
NOx Emissions and AQMP Projections

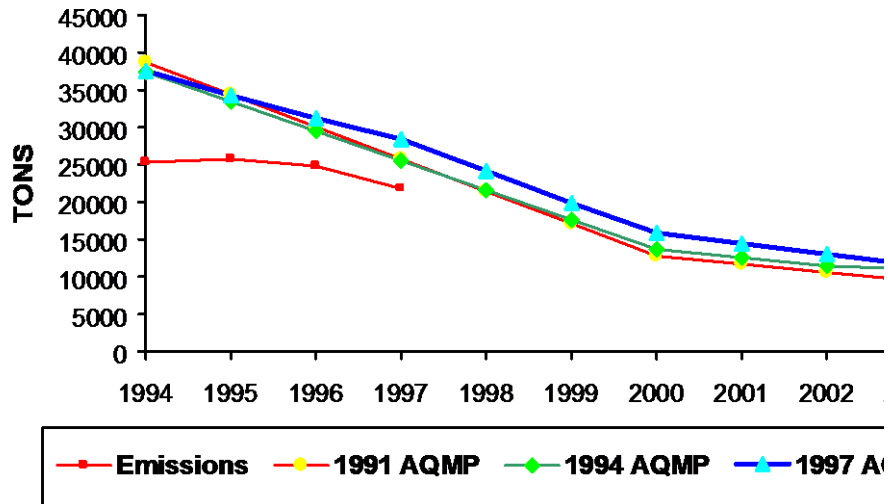


Figure 3-4
SOx Emissions and AQMP Projections

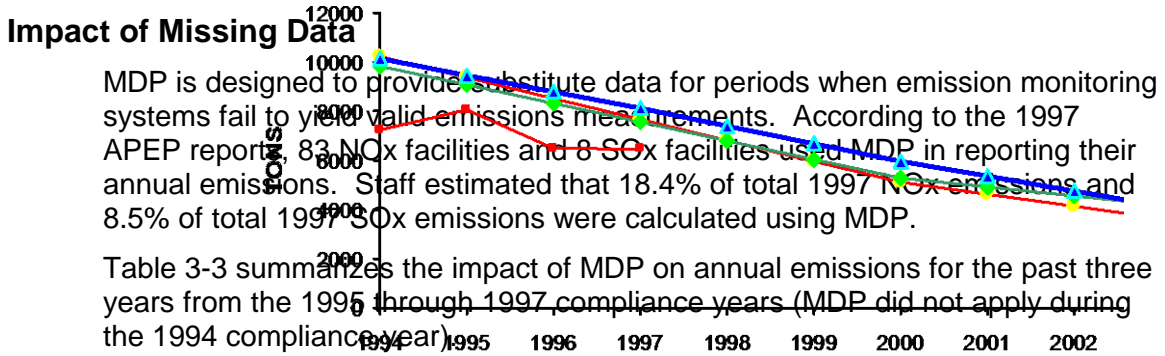


Table 3-3
MDP Impact on Annual Emissions

Emittants	Estimated MDP Impact ¹		
	1995	1996	1997
NOx	23 % (65)	20 % (61)	18.4 % (83)
SOx	40 % (12)	16 % (11)	8.5 % (8)

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

As indicated in the table, the impact of MDP on reported emissions seems to be declining with time. This is especially true for SOx emissions. Not only the percentage of annual emissions impacted by MDP has gone down but also the number of facilities that reported using MDP have decreased over the past three years from 1995 through 1997. As for NOx, although the number of facilities have gone up in 1997, the impact is estimated to have been less compared to the two previous years. This phenomenon can be attributed to the possibility that facilities are calculating substitute data that are more representative of actual emissions since the duration of missing data periods are shorter and the availability of their monitoring systems are higher in 1997 than in 1995 and 1996.

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, 83 facilities reported NOx emissions using MDP in 1997. Although 18 more facilities reported NOx emissions using

MDP in 1997 compared to in 1995, the impact of MDP is estimated to be smaller in 1997; 18.4% of 1997 emissions vs 23% of 1995 emissions. Since most CEMS have been certified and have 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 18.4% of NO_x annual emissions were reported using MDP in 1997. This does not mean that 18.4% of 1997 reported NO_x emissions were not real. A portion of the 18.4% 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 earlier in Chapter 1, two facilities entered RECLAIM's NO_x universe and one facility which was in the NO_x universe also entered the SO_x universe during the 1997 compliance year. In that period, five RECLAIM facilities ceased operations reducing the total universe from 329 to 326 facilities. 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 which will have NO_x or SO_x 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 NO_x or SO_x 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 which 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 which 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. 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 1997.

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

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

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

As part of the annual program audit, New Source Review (NSR) activity from RECLAIM facilities is examined to verify that RECLAIM is complying with the federal and state NSR requirements while providing flexibility to facilities in managing their operations.

Review of 1997 NSR activity revealed that one existing facility that joined the RECLAIM program and 44 existing RECLAIM facilities experienced NSR emissions increases of RECLAIM pollutants due to expansions or modifications. These data indicate that the RECLAIM program has not prevented RECLAIM facilities from constructing and operating new or modified equipment at their facilities according to their operational needs.

RECLAIM provided offset ratios of 106-to-1 for NO_x and 63-to-1 for SO_x on an aggregate basis during the 1997 compliance year. These ratios far exceed the federal NSR requirement of a 1.2-to-1 offset ratio for NO_x and SO_x emissions 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 1997 compliance year to verify that programmatic compliance of RECLAIM with state and federal NSR requirements has been maintained.

NSR Activity

As shown in Table 4-1 below, one existing facility joining the program and 44 RECLAIM facilities experienced NSR emissions increases due to expansions or modifications during the 1997 compliance year. These data indicate that RECLAIM has not inhibited the construction and operation of new or modified sources at the RECLAIM facilities in the Basin.

**Table 4-1
RECLAIM Facilities with NSR Activity**

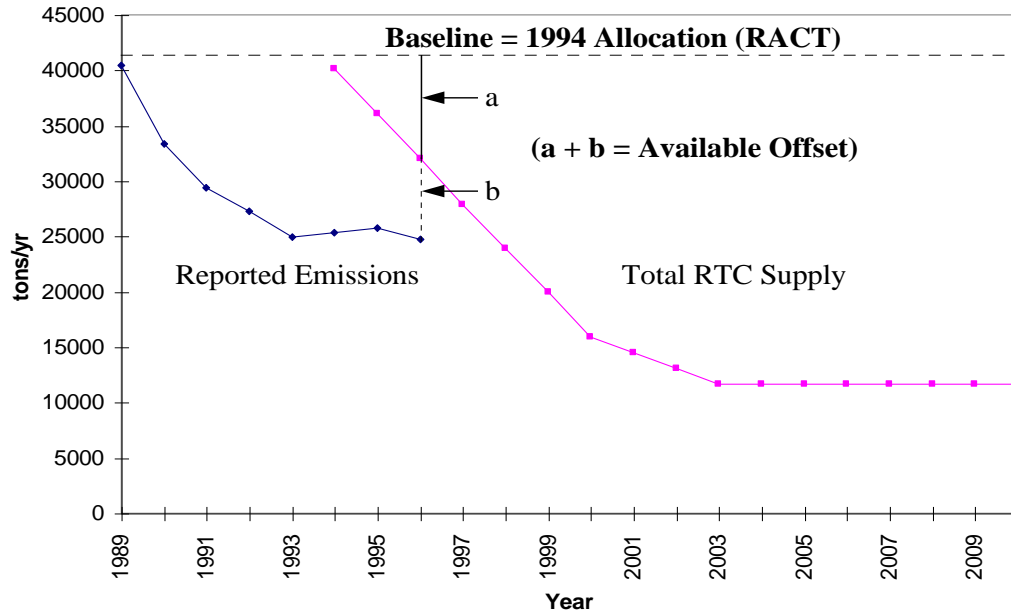
Facility Type	1994	1995	1996	1997
New Facility	2	0	0	0
Existing Facility Entering RECLAIM	3	4	0	1
Existing RECLAIM Facility with Expansions or Modifications	41	114	50	44

NSR Compliance Demonstration

Compliance with the federal NSR requirements is built into the design of the RECLAIM program. Compliance with the federally required offset ratio also indicates compliance with the state requirement of no net emission increases from new or modified sources. As specified in Section 173 (c) of the federal Clean Air Act (Act), only emissions reductions beyond the requirements of the Act, such as RACT, shall be considered creditable as emissions reductions for offset purposes. Since the initial allocations (1994 allocations) already met the federal RACT requirements, any emissions reductions beyond the initial allocations can be considered available for NSR offset purposes.

Figure 6-1 below illustrates how the available offsets are determined for NSR emissions increases from RECLAIM facilities. 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 - Annual Emission Reported (RTC used); "a" + "b" as shown in Figure 6-1
2. Offset Ratio = $[1 + (\text{Offset Available}/\text{NSR Emission Increase})]$ 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 one-to-one ratio by the RTCs used to offset reported emissions)
3. Because NSR analysis covers calendar years rather than compliance years, Cycle 2 allocations are prorated between the calendar years they overlap (e.g. fifty percent of the compliance year 1996 and fifty percent of the compliance year 1997 cycle 2 allocations were included in this analysis).

Based on the above methodology, NSR offset ratios are calculated and summarized in Table 4-2. As indicated in Table 4-2, RECLAIM far exceeded the required offset ratios for both NO_x and SO_x during the first four compliance years. RECLAIM provided programmatic offset ratios of 106:1 for NO_x and 63:1 for SO_x in 1997. These data clearly indicate that RECLAIM continues to generate sufficient excess emissions reductions to provide higher than 1.2-to-1 offset ratios as required by federal law. In fact, RECLAIM is designed to ensure compliance with the offset requirements through annual reduction of aggregate allocations assigned to RECLAIM facilities.

**Table 4-2
Emission Reductions and Offset Ratios for**

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

In addition to complying with the offset ratio requirements, RECLAIM requires Best Available Control Technology (BACT) and modeling for all new or modified sources with emissions increases of RECLAIM pollutants. Furthermore, RTC trades conducted to mitigate emission increases over the sum of the facility's starting allocation and non-tradable credits are subject to trading zone restrictions to ensure net ambient air quality improvement within the sensitive zone as required by state law.

The evaluation of NSR activity in 1997 clearly indicates 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 towards attainment of ambient air quality standards without inhibiting economic growth in the Basin.

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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 conducted a comprehensive emissions audit of each RECLAIM facility for the compliance year. The results of the audits reveal that the overall RECLAIM emissions goal was met for the compliance year, as it was each previous year of the program.

For the 1997 compliance year, preliminary audit results show that 19 facilities exceeded their annual allocations. Failure to reconcile emissions with the amount of credits held was the leading cause of allocation exceedances, surpassing application of Missing Data Procedures (MDP) and misunderstanding of RECLAIM's requirements, the primary causes of exceedances during the 1995 and 1996 compliance years and during the 1994 compliance year, respectively. Overall, the emissions for the 1997 compliance year were well below the targeted emissions in both the 1994 and 1997 AQMPs.

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 Missing Data Procedures (MDP). Dependent 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.

During initial years of RECLAIM implementation, problems with monitoring and reporting equipment caused frequent application of MDP to estimate emissions. In addition, misunderstandings of the application of MDP led to facilities exceeding their allocations. Both of these reasons made MDP the predominant

cause of exceedances of emissions allocations during the 1995 and 1996 compliance years.

Allocation Compliance

Requirements

The RECLAIM program provides facilities with 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 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 to verify the emissions data submitted in APEP reports. These inspections 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. Therefore, some of the reported emissions in the APEP reports had to be adjusted after completion of the audits. Some facilities also erred in determining their RTC holdings.

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

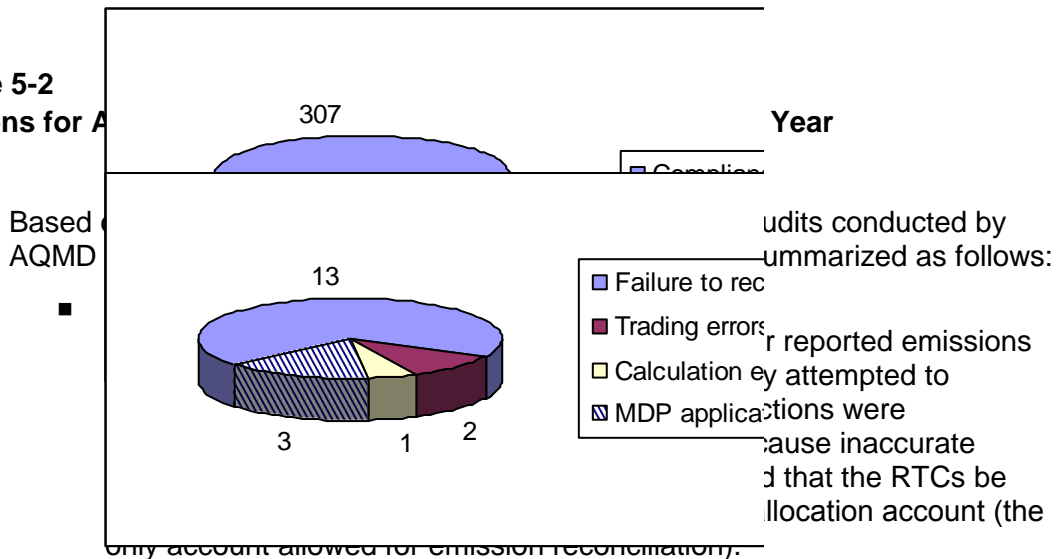
Facility audit results for the 1997 compliance year revealed that the overall RECLAIM emission goal was met. These results are preliminary for Cycle 2 facilities and final for Cycle 1 facilities. Although the audit results indicate that 19 facilities exceeded their NO_x annual allocations, this number is likely to decrease once Cycle 2 facilities have the opportunity to provide additional information. Therefore, it is probable that the compliance rate for the 1997 compliance year will exceed 94 %. No facility exceeded its SO_x annual allocation during the 1997

compliance year. Notices of Violation have been issued to nine of the 19 facilities that exceeded their allocations. Staff is finalizing the review of emissions reported by the remaining facilities. As the allocation exceedances are confirmed, additional Notices of Violation will be issued.

Figure 5-1 illustrates the fraction of facilities which exceeded their allocations during the 1997 compliance year and Figure 5-2 breaks out the various reasons facilities exceeded their allocations in the 1997 compliance year. Of the 19 facilities that exceeded their allocations, the majority failed to reconcile their RTC holding to cover their reported emissions. Notably, MDP application has been the leading cause of emission exceedances in previous compliance years but no longer in 1997.

Figure 5-1
Allocation Compliance Rate During 1997 Compliance Year

Figure 5-2
Reasons for Allocation Exceedance



- **Trading Errors**
 One of the facilities which exceeded its allocation during the 1997 compliance year submitted a trade request on the last day of the reconciliation period. The trade was rejected because the party supplying the RTCs for the trade did not hold sufficient credits to cover the transaction. Another facility exceeded its 1997 allocation because it purchased RTCs which were not valid during the time the emissions occurred.
- **Emission Calculation Errors**
 Typical errors included using the wrong emission factor or making arithmetic errors in the calculations.
- **Failure to Follow Missing Data Procedures**
 RECLAIM rules require facilities to report emissions according to MDP when valid data are not obtained from the monitoring equipment or when daily emission reports for major sources are not submitted on time. MDP may yield a higher quantity of emissions and several facilities failed to retain or buy sufficient RTCs.

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 during the 1997 compliance year. This has led to substantially fewer facilities which have had to submit emissions reports based on the worst case scenario under MDP which considerably overstates the actual emissions from major sources subject to CEMS requirements. This is because, 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 smaller sources known as 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.

The number of occurrences of facilities exceeding their allocations as a result of the application of MDP has diminished. For the 1997 compliance year, only three facilities exceeded their allocation because of 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

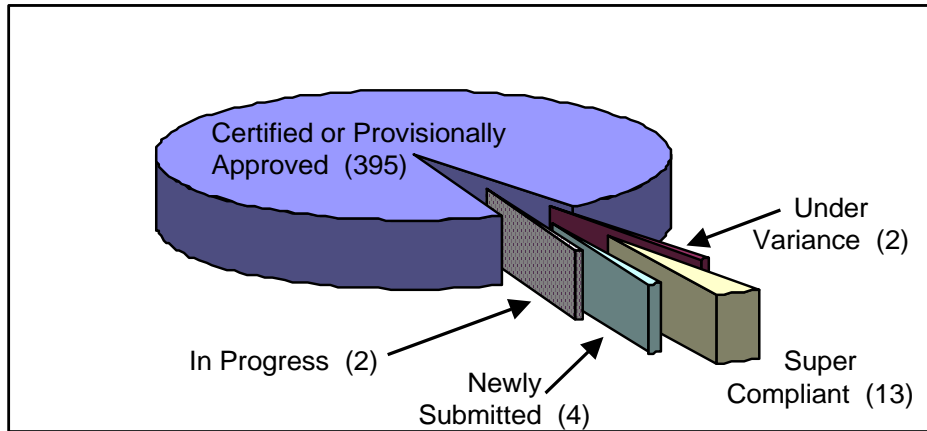
CEMS represent both the most accurate and the most reliable method for continuously monitoring all of the parameters necessary to directly determine mass emissions of NOx and SOx, as well as the most costly method. These attributes make CEMS the most appropriate method for the largest equipment in the 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 or ACEMS, are allowed under the RECLAIM regulation. These are devices that do not directly monitor NOx or SOx mass emissions, but, rather, correlate them to multiple process parameters. 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 are required to have CEMS had certified or provisionally approved their CEMS. As of January 1, 1999 there were 84 facilities in the RECLAIM universe requiring a total of 416 CEMS. Figure 5-3 shows the various CEMS certification statuses.

**Figure 5-3
CEMS Certification**



Of the eight of the CEMS (1.9 %) that are not certified or do not have provisional approval, four (1.0 %) are new sources. The CEMS that remain uncertified or without provisional approval are typically confronted with technical problems of one kind or another to overcome.

Standing Working Group on RECLAIM CEMS Technical Issues (SWG)

CEMS technical issues, which delayed certification of many CEMS, arose over the course of RECLAIM implementation. To address these issues and further assist facilities in complying with major source monitoring requirements, a Standing Working Group (SWG) on RECLAIM CEMS Technical Issues was formed to provide a forum in which facility representatives, consultants and AQMD staff could discuss and work out technically sound and reasonable solutions. Three subcommittees were created under the SWG to deal with issues related to:

- pre-certification testing and information requirements for CEMS;
- post-certification testing requirements for routine (foreseeable) repairs or replacements of portions of the CEMS, vendor pre-certification of analyzers, and data submittal formats for semiannual and annual assessment testing; and
- certification of total sulfur compound monitoring systems

The list of technical issues before the SWG has grown over the years. A significant number of the issues have been resolved through the diligent work of SWG. Some of the issues were resolved and technical guidance documents (TGDs) were issued to address these issues, as summarized in Table 5-2. Other issues were resolved and would be addressed in the upcoming rule amendments, as summarized in Table 5-3.

**Table 5-2
Resolved CEMS Issues with TGD Issued**

Issue	Intent
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Issue	Intent
Procedure for discarding RATA test runs that are outliers.	Provide testing flexibility.
QA/QC requirements for CEMS modification (replacement of "like" parts).	Provide CEMS flexibility, reduce cost.
QA/QC requirements for CEMS modification (replacement of "unlike" parts).	Provide CEMS flexibility, reduce cost.
CEMS testing requirements resulting from analyzer span range modification.	Provide CEMS flexibility.
Conduct 3 extended moisture (Method 4.1) runs instead of 9 shorter runs.	Increase accuracy, reduce cost.

**Table 5-3
Resolved CEMS Issues with Rule Amendments**

Issue	Intent
Alternative passing criteria for low NO _x sources.	Provide CEMS flexibility for cases where technical difficulty in meeting current limits inhibits implementation of more accurate monitoring.
Alternative passing criteria for low SO _x sources.	Provide CEMS flexibility for cases where technical difficulty in meeting current limits inhibits implementation of more accurate monitoring.
Alternative passing criteria for low stack flow sources.	Provide CEMS flexibility for cases where the precision/accuracy of current reference methods impacts the ability to meet current limits.
Alternative to multi-load RATA for certification.	Improve CEMS data quality.

There are still many remaining issues to be resolved. Table 5-4 lists the CEMS proposals that are still under review by the SWG.

**Table 5-4
CEMS Proposals Under Review**

Issue	Intent
Use historical data to determine stack moisture.	Increase accuracy, provide CEMS flexibility.
Use constant F-factor for refinery fuel gas.	Provide CEMS flexibility.
Alternative to periodic CEMS sample system bias test.	Improve CEMS data quality.
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

Issue	Intent
	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 Relative Accuracy Test Audit (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 % 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 % for pollutant concentration, ±15 % for stack flow rate, and ±20 % 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 5-5 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 1997 calendar year.

**Table 5-5
Passing Rates Based on Relative Accuracy Test Audits of Certified CEMS in 1997**

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
252	99	36	100	14	71	300	99	0	N/A	250	99	34	100

1 Does not include SOx emissions calculated from total sulfur analyzers; the number of mass emission RATA's is significantly greater than SO₂ concentration RATA's because multiple emission sources may be associated with a single SO₂ analyzer

Table 5-6 summarizes the 1998 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 5-6
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 SO₂ concentration RATA's because multiple emission sources may be associated with a single SO₂ analyzer

As indicated in Tables 5-5 and 5-6, the passing rates for NOx/SO₂ concentration, stack flow rate, and mass emissions were relatively high. The passing rate for total sulfur concentration also substantially increased (from 71% in 1997 to 90% in 1998). 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 Standing Working Group process worked well in evaluating the problems and recommending the appropriate solutions to address them.

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.

On February 14, 1997, the Governing Board adopted amendments to the RECLAIM Rules. In particular, a portion of these amendments revised reporting requirements for RECLAIM sources. These amendments were the result of lengthy discussions with industry and RTU providers within a working group on reporting issues. The amendments extended the grace period for reporting due to communication problems an additional 12 hours and significantly reduced the amount of raw data required to be stored. Additional report formats were also added to provide the flexibility to electronically amend or delete erroneous emissions reports, to allow reporting of emissions from various sources previously not supported (e.g. various location permits, and sources not yet

issued a permit), and to support fuel or source classification code (SCC) based reporting.

Compliance Status

The February 1997 amendments provided an implementation period of 10 months to allow facilities time to make necessary software changes. Most RECLAIM facilities also took this opportunity to update their RTU and reporting software to resolve any existing system problems in addition to adjusting to the new set of requirements. Generally, there has been less problems reported during the implementation of the new set of requirements. This is most likely due to the combination of prior experience and discussions between facilities and AQMD. However, there were some implementation problems.

A few facilities encountered problems in trying to establish a connection with the host computer during the first week of January 1998. This was caused by some other facilities repeatedly trying to send in incorrect files. This problem was most prevalent in the first three days of the year and gradually diminished. It has not been a widespread problem after the end of the first week.

The amended rule allowed facilities with sources using single fuel or performing a single process to retain the use of the old reporting formats. This approach was adopted to avoid unnecessary expenses to RECLAIM facilities. However, some facilities did not use the new fuel based emissions reports where required.

A separate telephone line was established in September 1997 to facilitate testing of the new reporting schemes. Some facilities continued using this line to report actual emissions after January 1, 1998.

Staff is continuing its outreach efforts to clarify issues related to electronic reporting. A working group was organized to address these issues. The Working Group is comprised of major software developers in addition to the RECLAIM facility operators. At the first meeting of the working group, it was unanimously agreed that the group should first focus its effort in resolving current communication problems before investigating new options to the current approach.

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 to be presented to the Governing Board on April 9, 1999. 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 1997 compliance year continue to be negligible when compared to the overall employment in the basin. Two RECLAIM facilities attributed one job gain each to RECLAIM for a new employee for each facility to handle RECLAIM compliance issues. Two 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, five RECLAIM facilities shut down or went out of business in 1997. None of these shutdown facilities cited RECLAIM as a contributing factor in their decision to cease operation.

Background

AQMD staff has been assessing 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 1997.

Prior to compliance year 1997, the APEP reports include the number of manufacturing and non-manufacturing jobs at each facility at the beginning of the compliance year. To further refine job impact data generated by the APEP reports, one additional job category, Sales of Products, was included in the list of categories included in the 1997 APEP report. 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. AQMD staff also contacted the operators of facilities whose reported RECLAIM job gains and/or losses conflicted with the facility's reported total job gains and/or losses. These contacts provided more detailed information regarding the facilities' particular circumstances. A more detailed exposition can be found in Appendix D.

Job Impacts

During the 1997 compliance year, a total of 114 facilities reported 8,335 overall job gains while a total of 144 facilities reported 10,061 overall job losses, which resulted in 1,726 net job losses for RECLAIM facilities in the basin. This net job loss only constituted a small percentage (1.32%) of the overall RECLAIM facility employment (128,646 jobs), and therefore is not expected to have any effect on the job market. The information gathered from 1997 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 1997 Compliance Year

Description	Manufacture	Sales of Products	Non-Manufact	Total
Initial Jobs	67,289	781	62,302	130,372
Overall Job Gain	4,663	185	3,487	8,335
Overall Job Loss	5,002	55	5,004	10,061
Final Jobs	66,950	911	60,785	128,646
Net Job Change	-339	130	-1,517	-1,726
Percent (%) Job Change	-0.504	16.6	-2.43	-1.32
Facilities Reporting Job Gains	94	16	71	114
Facilities Reporting Job Losses	117	16	82	144

Table 6-1 also shows that during the 1997 compliance year, 130 jobs were gained in "Sales of Products" while 339 jobs and 1,517 jobs were lost in "Manufacturing" and "Non-Manufacturing," respectively. Furthermore, five RECLAIM facilities shut down or went out of business during the 1997 compliance year. None of these shutdown facilities cited RECLAIM as a contributing factor in their decision to cease operation.

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 six facilities indicated in their APEP forms that they experienced job gains and/or job losses due to RECLAIM. AQMD staff spoke with the representatives from these facilities to ascertain the extent to which these job gains and/or job losses were the result of RECLAIM. The ensuing discussions revealed that two facilities attributed one job gain each to RECLAIM. For each of these two facilities, an extra person had to be hired to specifically handle RECLAIM reporting and recordkeeping requirements. Two facilities reported that their job losses were due to a number of factors, of which RECLAIM was one. One of these facilities lost eight jobs due to decreased profitability but could not estimate to what extent RECLAIM contributed to the decreased profitability. The other of these facilities was a military installation being shut down by the federal government's base closure plan. The facility reported that, while not a major factor, RECLAIM did contribute to the government's decision to select this base for closure. 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 1997 Compliance Year

Description	No. of Jobs
Job Loss Attributed to RECLAIM	Unknown
Facilities with Job Loss Attributed to RECLAIM	2
Job Gain Attributed to RECLAIM	2
Facilities with Job Gain Attributed to RECLAIM	2

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 which reported job gains and losses in APEP forms for compliance year 1997 are summarized in Appendix D. It should also be noted that the analyses of job impacts is confined to job gains and losses which 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 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 1997 are found to be in an overall downward trend. However, it is too early in the program to discern any conclusive actual emission reduction trend when analyzing the emissions for the past four years. There is no significant shift in emissions seasonally, as shown in the analysis of quarterly emissions for 1997 as well as the previous year. Furthermore, analysis of the geographical distribution of emissions during the first four 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 1997 shows that the Basin has already achieved the December 2000 target for ozone.

Air toxic health risk is primarily caused by volatile organic compounds (VOC) emissions, rather than NO_x or SO_x 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 which 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. However, the analysis of emissions from RECLAIM sources indicates that this did not occur. Figures 7-1 and 7-2 show NO_x and SO_x emissions for RECLAIM sources for the years 1989 through 1997.

Figure 7-1
NO_x Emission Trend for RECLAIM Sources

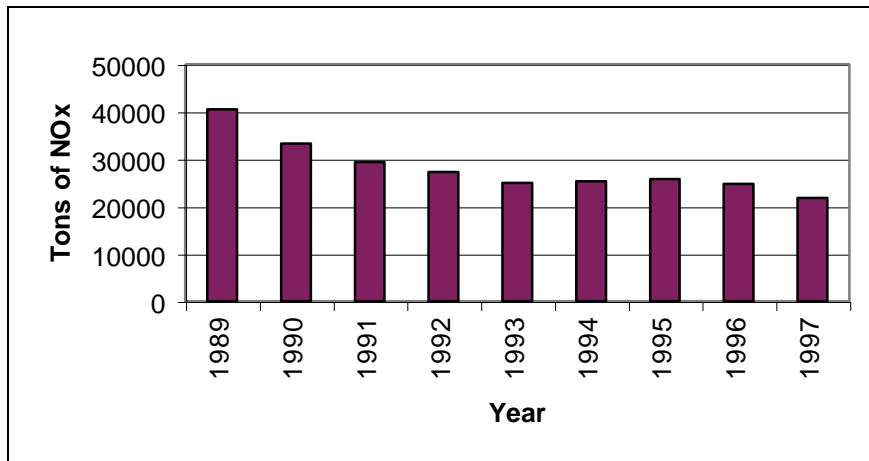
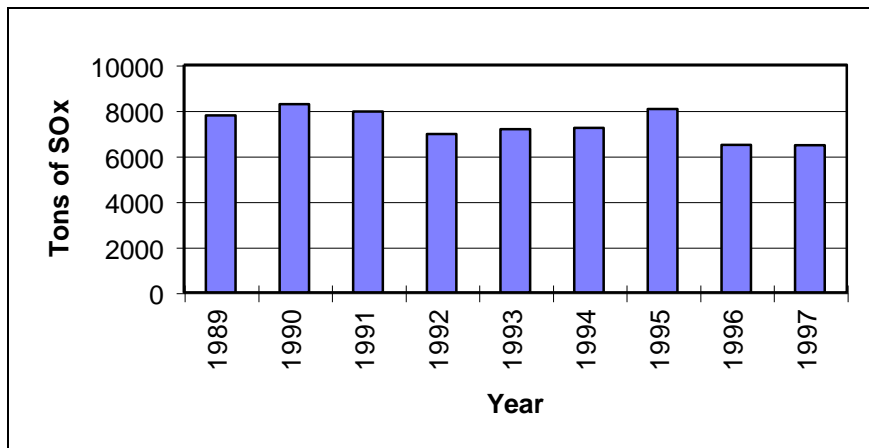


Figure 7-2
SO_x Emission Trend for RECLAIM Sources

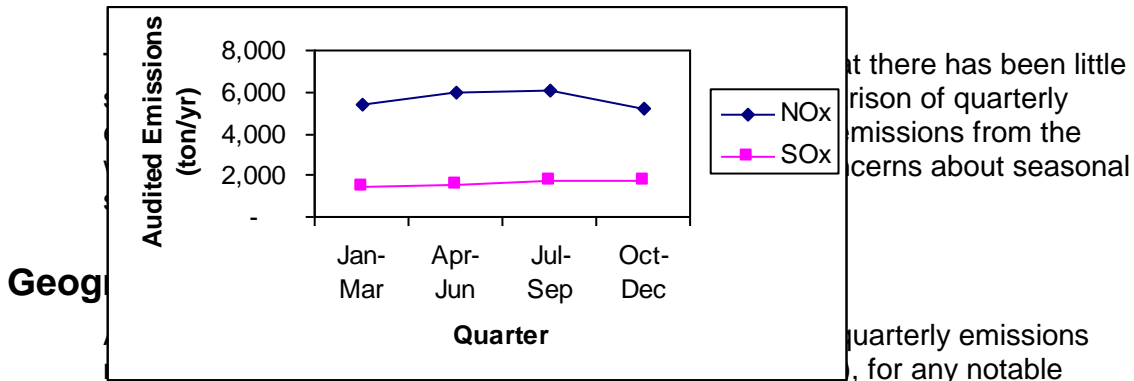


As indicated in Figures 7-1 and 7-2, there is an overall downward trend in emissions from RECLAIM facilities over this time period. It is too early to discern any conclusive trend when analyzing only the emissions for the first four years of the program. However, the above figures clearly show that RECLAIM facilities did not increase their aggregate emissions during the first four compliance years, dispelling the concerns about higher emissions in the early years.

Seasonal Fluctuation in Emissions for RECLAIM Sources

During program development, another concern was that RECLAIM might cause facilities to shift emissions from the winter season into the summer ozone season, thus exacerbating air quality. To address this concern, AQMD staff analyzed quarterly emissions for 1997 to assess if there has been such a shift in emissions. The audited quarterly emissions data was used for this seasonal fluctuation analysis, as illustrated in Figure 7-3.

Figure 7-3
1997 NOx and SOx Quarterly Emissions



changes in the geographic distribution of emissions. RECLAIM facilities have the flexibility to increase emissions as much as they need to so long as they can provide RTCs to offset the emissions exceeding their allocations, although 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 1997 (all four quarters of 1997 and the first two quarters of 1998). 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 unhealthy 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 1997 and 1998 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.

**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 1997 and 1998 Ozone Data**

	1997	1998
Days exceeding state standard	141	115
Days exceeding federal standard	68	62
Basin Maximum (pphm)	21	24

Table 7-3 compares the actual per capita exposures in 1997 to the exposure milestones as specified in the California Clean Air Act (CCAA). The CCAA establishes specific milestones for achieving reductions in overall population exposure to severe nonattainment pollutants in the Basin. These milestones are a 25 percent reduction by December 31, 1994, a 40 percent reduction by December 31, 1997, and a 50 percent reduction by December 31, 2000, relative to a 1986-88 baseline. Analysis of the per capita exposures in 1997 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 exposures has not only met the 40% target scheduled for 1997, but also already achieved the 50% 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	1997 actual	1997 target ²	2000 target ³
Basin	80.5	5.9	48.3	40.2
Los Angeles	75.8	3.0	45.5	39.9
Orange	27.2	0.6	16.3	13.6
Riverside	94.1	13.9	56.5	47.0
San Bernardino	192.6	24.5	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 toxic health impacts. In addition, air toxic health risk is primarily caused by emissions of volatile organic compounds (VOC), rather than NO_x or SO_x 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 NO_x and SO_x RECLAIM is not expected to significantly impact air toxic emissions. That is, the substitution of NO_x and SO_x RECLAIM for the command-and-control rules and measures it subsumes is not relevant to toxics 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.

CHAPTER 8 RECOMMENDATIONS

RECLAIM continues to meet all of the design criteria, as demonstrated through the review of the fourth year of program implementation. This program has resulted in emissions reductions below the level targeted by the applicable RECLAIM rules. Therefore, implementation of RECLAIM is not likely to result in a delay of compliance with the federal Clean Air Act or the California Clean Air Act. Furthermore, these emissions reductions are likely achieved at less cost than anticipated under the command-and-control regulatory approach, as illustrated by the high volume of low-price RTC transactions recorded.

The success of the RECLAIM trading market is measured on its simplicity, accessibility, and enforceability. The market should also be efficient (minimal transaction cost), be liquid (trades completed quickly), and be capable of disseminating accurate, timely transaction information. The RECLAIM trading market has generally met these measures to date. The monitoring elements of RECLAIM are being implemented effectively, although there were some delays in certifying CEMS. Appropriate rule amendments and technical working groups were implemented to equitably address these difficulties. In addition, RECLAIM's enforcement audits have been successful at maintaining a high level of compliance. Thus, overall, the annual audit results indicate that the implementation of RECLAIM during the 1997 compliance year was highly successful at achieving program goals.

Although implementation of RECLAIM has met all program goals, AQMD is continuously striving to provide program enhancements. As a result, staff recommends that AQMD continue to pursue additional program enhancements in the following three broad areas: Trading; Monitoring, Reporting, and Recordkeeping; and Compliance.

Trading

AQMD is in the process of converting the RECLAIM Bulletin Board System (BBS) into an Internet web site. This conversion of the RECLAIM BBS, which is expected to be completed in 1999, will make RTC price and availability information more readily available to facilities, consultants, brokers, and the public. AQMD is also investigating the possibility of providing an electronic RTC trading functionality on the Internet. It is anticipated that a contract to help develop this functionality will be awarded in 1999.

Although the current trading procedures are working efficiently to accurately review and approve transactions in a timely manner without interfering with the trading markets, AQMD is working with a contractor to provide enhancements to the trading system software. These enhancements will include the capability to electronically export data reports from the trading system; the capability to search for and view Quarterly Certification of Emissions data; trade reversal and adjustment capability; and an electronic trade rejection process. The enhanced software is currently undergoing acceptance testing and completion is imminent.

Monitoring, Reporting, and Recordkeeping

Overall, the monitoring, reporting, and recordkeeping (MRR) elements are being successfully implemented, although there have been some problems with electronic reporting and some facilities experienced delays in certifying their CEMS. Staff has worked closely with RECLAIM participants to resolve issues and concerns regarding the NO_x and SO_x MRR protocols in a timely manner. AQMD has initiated a contract to develop the ability to provide facility representatives access to their emissions reports via the Internet. This project will enable facility representatives to review their emissions reports prior to the submittal deadline, which will enable them to verify that a particular report was accurately received and to resubmit the emissions report if it was not received or contained errors.

Furthermore, the proposed amendments to Regulation XX, which are scheduled for April 1999, will incorporate recommendations of the CEMS working group. These proposed amendments will resolve many issues related to the RECLAIM MRR requirements. AQMD is also working with some RECLAIM participants on the feasibility of certain Alternate Continuous Emission Monitoring Systems (ACEMS). Approval of such ACEMS may provide other RECLAIM participants with additional monitoring options to minimize implementation costs as well as ensure the enforceability of the RECLAIM program. In addition, AQMD held public meetings addressing electronic reporting issues. AQMD will continue to work closely with RECLAIM participants, the environmental community, ARB, and EPA to evaluate other viable options for electronic reporting.

Compliance

To help RECLAIM facilities achieve a high level of compliance, AQMD staff has been periodically conducting forums and public consultation meetings to provide the facility operators with updated information on RECLAIM requirements. Staff also maintains regular industry groups and working group meetings. These meetings are focused on specific implementation issues. Results of these discussions have been transformed into either implementation guidance documents or rule amendments to clarify rule intent and to provide alternative compliance approaches.

AQMD will continue to ensure program compliance by continuing to conduct annual RECLAIM compliance audits at a representative number of facilities and to conduct other inspections and site visits as appropriate. AQMD will also evaluate its outreach efforts and strive to make them even more topical and useful to facilities. Future outreach efforts will address lessons learned from previous compliance years and specific concerns expressed by RECLAIM facilities in order to assist sources in achieving and maintaining continued compliance.

APPENDIX A

RECLAIM UNIVERSE OF SOURCES

The RECLAIM universe of sources as of June 30, 1998 is provided below.

Fac_ID	Cycle	Facility Name	Market
16395	2	AAA GLASS CORP	NOx
73635	1	ABLESTIK LABORATORIES	NOx
23752	2	AEROCRAFT HEAT TREATING CO INC	NOx
42676	2	AES PLACERITA INC	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
21837	2	ALPHA OWENS CORNING	NOx
17840	2	ALPHA THERAPEUTIC CORP	NOx
17418	1	ALUMINUM COMPANY OF AMERICA	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
800012	2	ARCO	NOx/SOx
47232	1	ARCO CQC KILN	NOx/SOx
65974	1	ARCO WESTERN	NOx
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
106797	1	BALL-FOSTER GLASS CONTAINER	NOx/SOx
40034	1	BENTLEY MILLS INC.	NOx
14472	2	BHP COATED STEEL (SUPRACOTE INC)	NOx
101145	2	BHP STEEL USA INC	NOx
502	1	BLUE DIAMOND MATERIALS, CORONA PLANT	NOx
14445	2	BLUE DIAMOND MATERIALS, FONTANA PLANT	NOx
19390	1	BLUE DIAMOND MATERIALS, SUN VALLEY PLANT	NOx
102299	2	BMCA INSULATION PRODUCTS	NOx
10340	1	BREA CANON OIL COMPANY, BREA	NOx
800329	1	BREA CANON OIL COMPANY, CARSON	NOx

Fac_ID	Cycle	Facility Name	Market
92019	2	BREA CANON OIL COMPANY-ALBERT LEVINSON	NOx
6714	2	BREA CITY	NOx
98159	2	BREITBURN ENERGY	NOx
25638	2	BURBANK, CITY OF	NOx
2443	2	CAL INDUSTRIAL PROCESSING CO	NOx
22607	2	CALIFORNIA MILK PRODUCERS	NOx
800181	2	CALIFORNIA PORTLAND CEMENT CO	NOx/SOx
800344	1	CALIFORNIA STATE, AIR NATL.GUARD	NOx
46268	1	CALIFORNIA STEEL INDUSTRIES, INC.	NOx
107653	2	CALMAT CO.	NOx
107654	2	CALMAT CO.	NOx
107655	2	CALMAT CO.	NOx
107656	2	CALMAT CO.	NOx
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
114736	1	CARSON COGENERATION CO.,CALIF LMTD PARTN	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
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
800337	2	CHEVRON U.S.A.,INC., LA HABRA	NOx
95212	1	CHROMA SYSTEMS PARTNERS	NOx
12224	2	CITY DYEING	NOx
16978	2	CLOUGHERTY PACKING CO,FARMER JOHN MEATS	NOx
55349	2	COLOR AMERICA TEXTILE PROCESSING INC	NOx
53080	1	COLORTEX DYEING & FINISHING, 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

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Fac_ID	Cycle	Facility Name	Market
13179	1	CRESCENT CRANES INC.	NOx
65384	1	CRITERION CATALYST COMPANY L.P.	NOx
18648	1	CROWN CITY PLATING COMPANY	NOx
3950	1	CROWN CORK & SEAL COMPANY, INC.	NOx
15982	2	CUSTOM ALLOY SALES INC	NOx
63180	1	DARLING-DELAWARE COMPANY, INC.	NOx
3721	2	DART CONTAINER CORP OF CALIFORNIA	NOx
7411	2	DAVIS WIRE CORP	NOx
47771	1	DELEO CLAY TILE COMPANY	NOx
800037	2	DEMENNO/KERDOON	NOx
5268	2	DIESEL RECON CO	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
10873	1	ELSINORE READY-MIX COMPANY, INC.	NOx
105356	2	ENVIRONMENTAL CHEMICAL CORP	NOx
22047	1	FANSTEEL/CALIFORNIA DROP FORGE	NOx
61210	1	FILTROL CORPORATION	NOx
800047	2	FLETCHER OIL & REF CO	NOx/SOx
11716	1	FONTANA PAPER MILLS INC.	NOx
2418	2	FRUIT GROWERS SUPPLY CO	NOx
5814	1	GAINEY CERAMICS INC.	NOx
79015	2	GEO PETROLEUM 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
800069	2	HUGHES AIRCRAFT CO	NOx
800343	2	HUGHES AIRCRAFT CO, ED SG	NOx
800067	1	HUGHES SPACE & COMM.CO.-HUGHES AIRCRAFT	NOx
800070	1	HUNTWAY REFINING COMPANY	NOx
100291	2	IMCO RECYCLING OF CALIFORNIA	NOx
800240	2	INLAND CONTAINER CORP	NOx
113415	2	INLAND PAPERBOARD & PACKAGING	NOx
5830	1	INTERMETRO INDUSTRIES CORP.	NOx
106810	2	INTERSTATE BRANDS	NOx

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Fac_ID	Cycle	Facility Name	Market
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
41582	1	LA DYE & PRINT WORKS, INC.	NOx
12912	2	LIBBEY GLASS, INC	NOx/SOx
83102	2	LIGHT METALS INC	NOx
31046	2	LISTON BRICK COMPANY OF CORONA	NOx
95524	2	LOMITA GASOLINE COMPANY INC	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
103672	1	MAGUIRE THOMAS PARTNERS	NOx
14049	2	MARUCHAN INC	NOx
3029	2	MATCHMASTER DYEING & FINISHING INC	NOx
83444	2	MCGAW 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
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
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 (VERNON) NO. 1	NOx
82022	2	NORRIS PLUMBING FIXTURES, MANSFIELD PLUMB	NOx
800167	2	NORTHROP CORP	NOx

Fac_ID	Cycle	Facility Name	Market
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
23542	1	P. W. GILLIBRAND COMPANY, P.W.GILLIBRAND	NOx/SOx
20564	2	PACIFIC CLAY PRODUCTS	NOx
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
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
346	1	RECOT, INC.	NOx
15544	2	REICHHOLD CHEMICALS INC	NOx
800109	1	REYNOLDS METALS COMPANY	NOx
114801	1	RHODIA, INC.	NOx/SOx
61722	2	RICOH ELECTRONICS INC	NOx
108113	1	RIDGEWOOD/CALIFORNIA POWER PARTNERS, LP	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

Fac_ID	Cycle	Facility Name	Market
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
55239	2	SANTA MONICA BAY HOTEL ASSOCIATES LTD	NOx
6505	2	SANWA FOODS INC	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
800115	2	SHELL CHEM CORP (EIS USE)	NOx/SOx
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
800204	2	SIMPSON PAPER	NOx
82727	2	SMURFIT NEWSPRINT CORPORATION	NOx
9114	1	SOMITEX PRINTS OF CALIFORNIA	NOx
14871	2	SONOCO PRODUCTS CO	NOx
800338	2	SPECIALTY PAPER MILLS INC.	NOx
23449	2	STANDARD CONCRETE PROD,INC, MOBILE SAND	NOx
861	1	STAR-KIST FOODS INC.(CAN MAKING PLANT)	NOx
1634	2	STEELCASE INC, WESTERN DIV	NOx
83753	1	STOCKER RESOURCES INC.	NOx
112164	2	STOCKER RESOURCES, INC	NOx
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
7940	2	SWEETHEART CUP CO INC	NOx

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Fac_ID	Cycle	Facility Name	Market
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
800222	1	TEXACO REFINING & MARKETING INC.	NOx/SOx
800223	1	TEXACO REFINING & MARKETING INC.	NOx/SOx
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
109198	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
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
54723	2	VANGUARD ENERGY SYSTEMS	NOx
61589	2	VANGUARD ENERGY SYSTEMS	NOx
14502	2	VERNON CITY, LIGHT & POWER DEPT	NOx
14495	2	VISTA METALS CORPORATION	NOx
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

Fac_ID	Cycle	Facility Name	Market
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, two facilities were included into the NOx market of the RECLAIM universe between July 1, 1997 and June 30, 1998. An additional facility, which had been in the NOx market only, was included into the SOx market. These facilities are identified below.

ID	Cycle	Facility Name	Market	Reason
12912	2	LIBBEY GLASS, INC	SOx	Amended EFB Forms
101145	2	BHP STEEL USA INC	NOx	Opt-in at facility request
105356	2	ENVIRONMENTAL CHEMICAL CORP	NOx	Opt-in at facility request

APPENDIX C RECLAIM FACILITIES CEASING OPERATION

AQMD staff is aware the following RECLAIM facilities that have permanently ceased all operations and gone out of between July 1, 1997 and June 30, 1998. The reasons for shutdown cited below are based on AQMD staff's best available information.

Facility ID 12247
Facility Name ALUMAX MILL PRODUCTS INC.
City and County Riverside, Riverside County
SIC 3353
Pollutants NOx
1994 Allocation 90,858 lb.
Reason for Shutdown: The plant outlived its useful life. It would cost too much to modernize the facility and the products it manufactured can be better made elsewhere.

Facility ID 800232
Facility Name Hunt-Wesson
City and County Fullerton, Orange County
SIC 2033
Pollutants NOx/SOx
1994 Allocation NOx: 31,112 lb.
SOx: 9,564 lb.
Reason for Shutdown: The company consolidated operations in northern California because this facility's business fell off.

Facility ID 107659
Facility Name HEXCELL CORPORATION
City and County Anaheim, Orange County
SIC 2891
Pollutants NOx
1994 Allocation 10,474 lb.
Reason for Shutdown: The company is consolidating sites. Furthermore, utility costs are too high at this facility:

Facility ID 8694
Facility Name GRANNY GOOSE FOODS, BELL BRANDS
City and County Santa Fe Springs, Los Angeles County
SIC 2096
Pollutants NOx
1994 Allocation 25,170 lb.
Reason for Shutdown: The facility was not competitive because its equipment was old and could not produce chips at an affordable price.

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Facility ID 110720
Facility Name ROBERTSON'S READY MIX
City and County Irvine, Orange County
SIC 2951
Pollutants NOx
1994 Allocation 13,716 lb.

Reason for Shutdown: This property was purchased from another company. The existing facility on the property was then shutdown and a new, non-RECLAIM facility was constructed on the property.

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 which 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 RECLAIM program during the 1997 compliance year was assessed by examining data in APEP reports submitted by RECLAIM facilities.

The detailed information for facilities which reported job gains and losses in their APEP forms for compliance year 1997 is summarized below:

Facilities with actual job gains or losses attributed to RECLAIM:

Facility ID	800326
Facility Name	Avery Dennison
City and County	Monrovia, Los Angeles County
SIC	2672
Pollutant(s)	NOx
Cycle	1
Job Gain	2 (1 attributed to RECLAIM)
Job Loss	25 (none attributed to RECLAIM)
Comments	Avery Dennison hired one person whose main job was to maintain RECLAIM records and submit reports.
Facility ID	83444
Facility Name	McGaw, Inc
City and County	Irvine, Orange County
SIC	2834
Pollutant(s)	NOx
Cycle	2
Job Gain	1 (1 attributed to RECLAIM)
Job Loss	100 (none attributed to RECLAIM)
Comments	Because of the increased reporting and recordkeeping requirements as demanded by the RECLAIM program, McGaw, Inc. hired one person whose main job was to maintain RECLAIM records and submit reports.

Facilities with “unknown” job gains or losses attributed to RECLAIM:

Facility ID 800295
Facility Name Henkel Corporation
City and County Los Angeles, Los Angeles County
SIC 2899
Pollutant(s) NOx
Cycle 1
Job Gain 0
Job Loss 8 (Unknown number attributed to RECLAIM)
 According to the facility representative, the cost of RECLAIM compliance is one of the factors for the company’s reduced profitability. It costs more to operate the plant under RECLAIM and decreases the efficiency of equipment. Other factors he cited for the loss of jobs at the plant are increased competition and economic reasons.

Facility ID 12372
Facility Name Mission Clay Products
City and County Corona, Riverside County
SIC 3259
Pollutant(s) NOx
Cycle 1
Job Gain 12 (none attributed to RECLAIM)
Job Loss 0
 According to the facility representative, RECLAIM can cause them to lay-off workers and shut down production towards the end of the year, depending on their annual emissions and yard stock.

Facility ID 6281
Facility Name U.S. Government, Marine Corps Air Station, El Toro
City and County El Toro, Orange County
SIC 9700
Pollutant(s) NOx/SOx
Cycle 2
Job Gain 0
Job Loss 153 (Unknown number attributed to RECLAIM)
 This military facility will be shut down as part of the federal government’s base closure plan. According to the facility contact, although not a major factor, RECLAIM was a contributing factor in the government’s decision to close this base. The closure of this base is part of the military’s lower readiness status due to the end of the cold war.

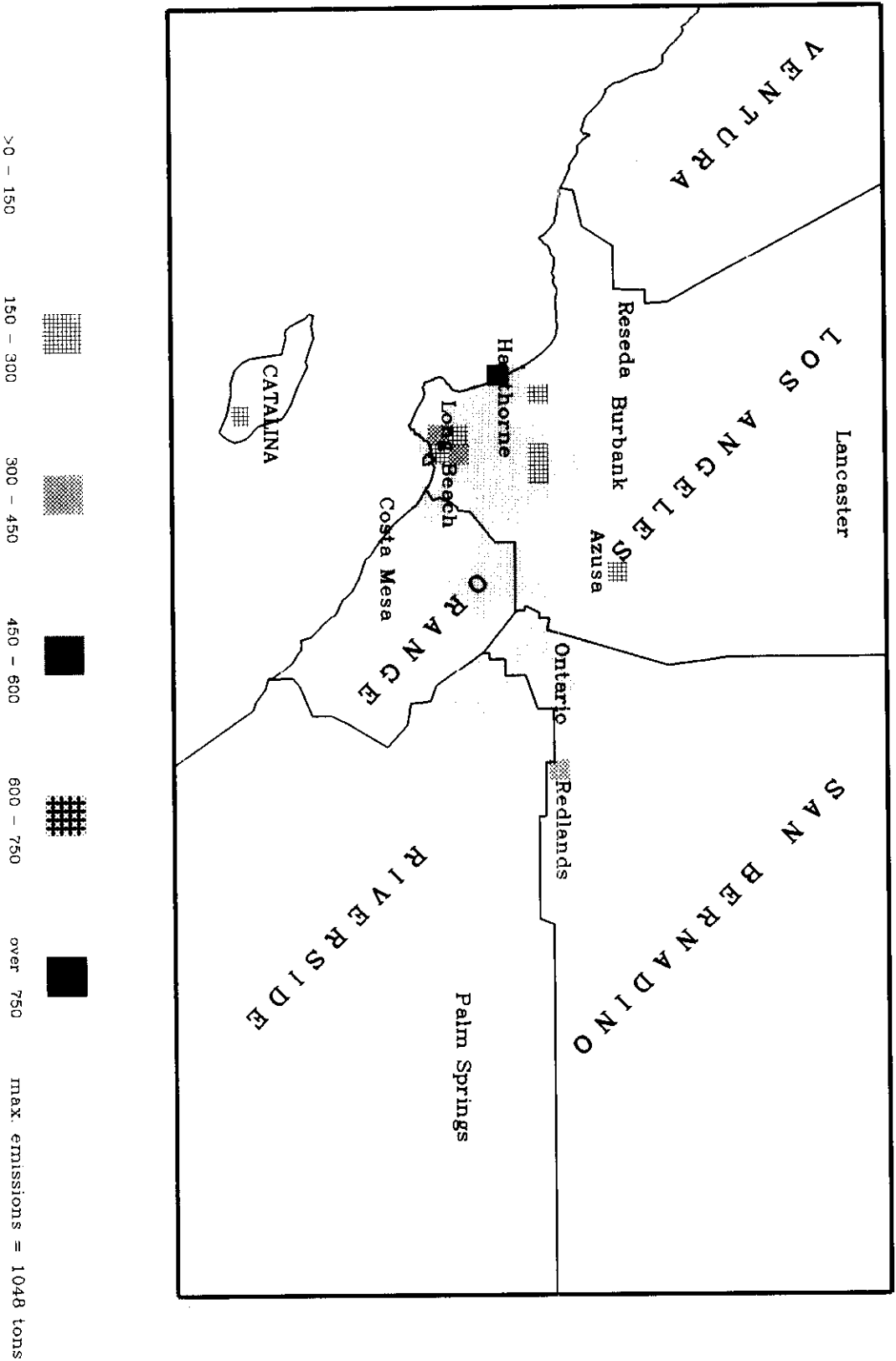
Facility ID 40196
Facility Name Guardian Industries
City and County Fullerton, Orange County
SIC 3211
Pollutant(s) NOx/SOx
Cycle 2
Job Gain 10 (none attributed to RECLAIM)
Job Loss 0

The facility representative verified that this facility did not actually experience any job losses during the compliance year. However, the facility representative claimed that if there were no RECLAIM program, they would have the ability to hire 2 new employees. But because of the facility's poor missing data procedures, they were found to have exceeded their allocation and were penalized.

APPENDIX E
QUARTERLY NO_x EMISSION MAPS

RECLAIM Facilities

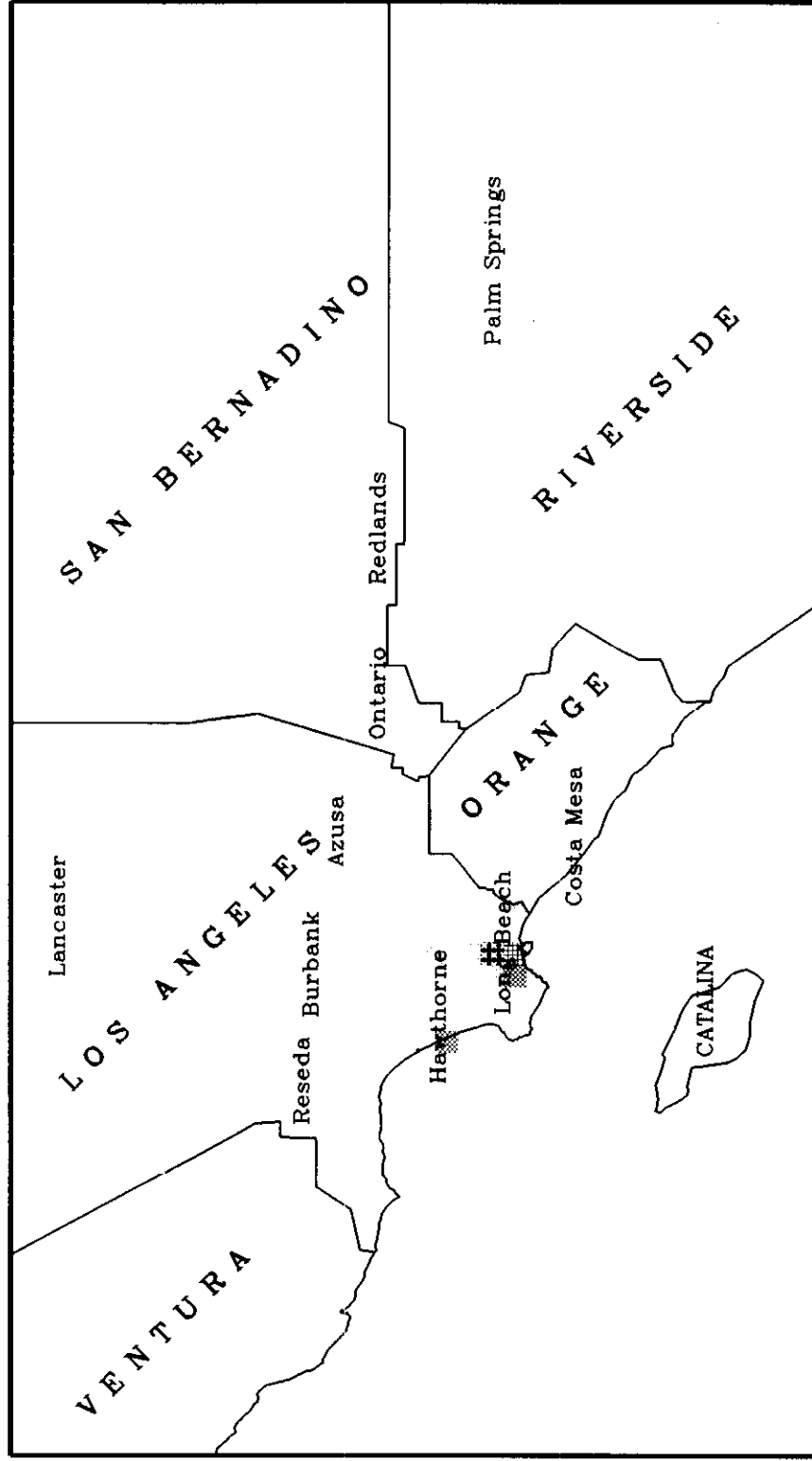
Certified NOx Emissions (Tons) From 1/97 To 3/97



;APPENDIX F
QUARTERLY SO_x EMISSION MAPS

RECLAIM Facilities

Certified SOx Emissions (Tons) From 1/97 To 3/97



max. emissions = 613 tons