BOARD MEETING DATE: February 14, 1997 AGENDA NO. 37

REPORT: Second Annual RECLAIM Program Audit Report

SYNOPSIS: In accordance with Rule 2015 - Backstop Provisions, the second annual report on the NOx and SOx RECLAIM program has been prepared and is presented for public hearing. The report assesses emission reductions, average annual price and availability of RECLAIM Trading Credits (RTCs), job impacts, compliance issues and other measures of performance.

COMMITTEE: Stationary Source, January 24, 1997, Reviewed.

RECOMMENDED ACTION:
Approve the attached report.

James M. Lents, Ph.D.
Executive Officer

PL:CC:CM:MH:scs

Background

On October 15, 1993, the AQMD Governing Board adopted the RECLAIM program. The goal of RECLAIM is to provide facilities with added flexibility in meeting emission reduction requirements while lowering the cost of compliance. The RECLAIM program is designed to meet all state and federal requirements for clean air programs as well as other performance criteria for air quality improvement, enforcement, implementation costs, job impacts and protection of public health.

Since RECLAIM represents a significant departure from traditional command-and-control regulations, the RECLAIM rules provide for periodic program audits in order to verify that the program objectives are being met. Rule 2015 requires annual audits focusing on specific issues, as well as more comprehensive three-year audits. The results of the audits will be used to determine whether any program modifications are appropriate.

The second annual RECLAIM program audit report has been prepared by AQMD staff. The period covered by the audit includes the second compliance year of program implementation for all RECLAIM facilities. The first compliance year was also considered in instances where its inclusion resulted in a more meaningful analysis. 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 the implementation of RECLAIM during the second compliance year was highly successful. Specifically, the analysis demonstrates that:

- RECLAIM is continuing to meet its emission reduction goals. Aggregate actual emissions from RECLAIM facilities were below allocations for the second compliance year.

- The supply of RTCs is sufficient to meet demand for both the NOx and SOx market. It is anticipated that a combination of factors, including complete implementation of RECLAIM's monitoring and reporting procedures and the implementation of new credit generation programs, will ensure an adequate supply of RTCs.

- An active trading market for RTCs has developed. More than $20 million of RTCs have been traded since the adoption of RECLAIM with $9.9 million in trades occurring in 1996, and sufficient RTCs are 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), are well below the backstop price of $15,000 per ton established in Rule 2015 and are summarized below:

    - $154 per ton for 1996 NOx RTCs;
    - $1,729 per ton for 2010 NOx RTCs;
    - $142 per ton for 1996 SOx RTCs; and
    - $2,117 per ton for 2010 SOx RTCs.

- As of the end of 1996, the RECLAIM Universe consisted of 330 facilities. The universe changes in the second compliance year included one opt-in, three inclusions (two facilities included in the SOx market were already participating in the NOx market), six exclusions, and ten shutdowns. RECLAIM was not cited as a contributing factor by any of the shutdown facilities. Therefore, the fear expressed by some during program development that RECLAIM would encourage business flight was disproven.

- RECLAIM has had minimal impact on employment. RECLAIM was cited by five facility operators as the cause of 49 lost jobs. Five facilities attributed ten jobs gained to

RECLAIM. Jobs lost due to RECLAIM represent only 0.03% of the jobs at RECLAIM facilities.

- Ninety-two percent of facilities complied with their allocations during the second compliance year whereas 86% of facilities complied with their allocations for the first compliance year. Most instances of non-compliance with allocations were mainly due to miscalculations and a lack of understanding of the proper use and application of RTCs and the missing data procedures (MDP). Some facilities encountered delays in meeting compliance deadlines for installing monitoring and reporting devices such as CEMS and Remote Terminal Units (RTUs). As required by the rules, these facilities had estimated emissions which resulted in conservative emissions estimations according to MDP. Staff will perform additional outreach efforts to ensure a better understanding of rule requirements, and also take enforcement action as appropriate. AQMD staff has also worked with RECLAIM participants to resolve specific concerns through rule amendments and implementation guidance documents.

- Staff has conducted an extensive public outreach effort for RECLAIM participants during the second compliance year. This outreach included:

  - Three forums and workshops (excluding those associated with rule amendments);
  - Periodic industry-specific working groups;
  - Periodic meetings with industry associations;
  - Written guidance documents and informational mailings.

  The outreach focus has evolved to address implementation issues with the participation of industry-specific working groups. This effort has been effective in explaining and clarifying rule requirements and resolving facility concerns in a timely manner.

- RECLAIM continues to meet the requirement for equivalency with the AQMP. Allocation levels have changed slightly since program adoption based on updated control technology reviews and other new information, as well as changes to the RECLAIM Universe. However, these changes would also have occurred under command-and-control rules and therefore do not affect the ability of RECLAIM to achieve reductions equivalent to the AQMP as required by Health and Safety Code Section 39616.

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
Second Annual RECLAIM Program Audit Report

/ / /

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Second Annual RECLAIM Program Audit Report

February 14, 1997

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SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

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Acknowledgments

The following staff assisted with the preparation of this report and their assistance is greatly appreciated:

John Higuchi, Manager, Source Testing & Engineering
Steve Marinoff, Supervising Air Quality Engineer, Source Testing Evaluations
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EXECUTIVE SUMMARY

Introduction

On October 15, 1993, the Governing Board of the South Coast Air Quality Management District (AQMD) adopted the Regional Clean Air Incentives Market (RECLAIM) program. The RECLAIM program represents a significant departure from traditional command-and-control regulations. The goal of RECLAIM is to provide facilities with added flexibility in meeting emission reduction requirements and lower the cost of compliance.

In order to ensure that RECLAIM is meeting all state and federal requirements as well as other performance criteria, Rule 2015 - Backstop Provisions, includes provisions for annual program audits focusing on specific topics, as well as more comprehensive three-year audits. This report presents the second RECLAIM annual program audit. The audit findings are discussed below.

Chapter 1: Universe of Sources

The Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx) RECLAIM universe of facilities decreased from 344 to 330 facilities during compliance year 1995. The decrease was due to a combination of factors including: corrections to the data used to generate the original RECLAIM universe, the impact of rule amendments to exclude certain facilities, and facility shutdowns. Two additional facilities entered the RECLAIM universe during compliance year 1995. In addition, two facilities which were already in the NOx market also entered the SOx market. It is anticipated that the RECLAIM universe will remain stable in the future, with any increases or decreases resulting primarily from changes in economic activity.

Chapter 2: Allocations and RTC Supply

During the second compliance year, 13 allocations were adjusted which resulted in a slight increase in the RECLAIM Trading Credit (RTC) supply. Technology reviews as mandated under Rule 2015 resulted in allocation changes for five facilities. These changes largely reflect adjustments to projected emissions which would also have occurred under command-and-control rules and do not adversely impact the ability of RECLAIM to achieve emission reductions equivalent to the subsumed rules and control measures. Three adjustments were results of Emission Reduction Credit (ERC) conversions. The remaining five adjustments were made in response to requests made by RECLAIM facilities. The adjusted allocations are comparable to the 1997 AQMP emission targets. The AQMD is continuing to monitor the supply and availability of RTCs.

Chapter 3: Emission Reductions

Aggregate actual emissions from RECLAIM facilities were below allocations for the first two compliance years, indicating that RECLAIM achieved the emission reduction goals for these years. The supply of RTCs is sufficient to meet

demand for both the NOx and SOx market. Preliminary audited emissions data for compliance year 1995 indicates that NOx and SOx emissions from RECLAIM facilities were both somewhat higher in 1995 than in 1993. This increase is attributed to the prevalence of the use of missing data during the second compliance year 1995 and additions to the SOx universe of facilities with substantial emission levels. However, it is anticipated that the difficulties associated with continuous emission monitoring systems (CEMS) installation and certification will be resolved so that missing data will not have such an impact in future years. Furthermore, RECLAIM facilities did not experience greater emission control requirement impacts than non-RECLAIM sources.

Chapter 4: Trading

The RTC trading market continues to be active and thriving. More than $20 million of trades have occurred since the adoption of RECLAIM with $9.9 million in trades registered in 1996. The average NOx RTC trading prices are comparable with prior years. NOx prices range from $154/ton for 1996 RTCs to about $1,700/ton for 2010 RTCs. Average SOx RTC trading prices changed dramatically due to the more active market. SOx prices range from $124/ton for 1996 RTCs to about $2100/ton for 2010 RTCs. Many of the NOx RTC trades with price are for the current year compliance use, while the majority of the SOx RTC trades with prices are for RTCs with expiration dates of 1999 and beyond.

On July 12, 1996, the AQMD Governing Board adopted amendments to Rule 2002 which resulted in extending RTCs to beyond 2010. Trading of these extended RTCs is expected to become an important part of the active RTC trading market.

Chapter 5: Compliance

Aggregate emissions for the second compliance year continued to be well below total allocations for the year. During the second compliance year, total NOx emissions increased from 69 to 70.5 tons/day and total SOx emissions increased from 19 to 22 tons/day. However, the emissions are most likely skewed high by the application of Missing Data Procedures (MDP) which tend to over estimate emissions. Emissions estimated according to MDP represented 23% of total reported NOx emissions and 40% of total reported SOx emissions. In addition, the SOx market experienced an increase in emission volume because of inclusion of two facilities with a combined emissions level of 100 tons per year.

The majority of the CEMS have been certified. Remaining unapproved CEMS are either new or have technical difficulties. Results of the audits were compared to the reported emissions. The comparison indicated that the reported emissions were accurate and did not change any of the findings included in the first annual audit report.

Staff is continuing the effort of compliance outreach which has evolved from standard educational workshops into industry group and working group meetings which involved more focused discussions on specific issues. Staff will continue to work closely with industry to resolve implementation issues.

Chapter 6: New Source Review Activity

The annual program audit examines new source review (NSR) activity in order to verify that RECLAIM is ensuring compliance with applicable offset and best available control technology (BACT) requirements without preventing existing facilities from expanding their operations or new facilities from entering the program. NSR activity during RECLAIM's second compliance year included expansion or modification of 114 facilities, as well as two existing facilities entering the NOx market and two existing facilities entering the SOx market.

RECLAIM is required to offset NOx and SOx emission increases by at least a 1.2-to-1 ratio on a programmatic basis. During compliance year 1995 RECLAIM provided programmatic offsets of 8.4-to-1 for NOx and 12.6-to-1 for SOx. The evaluation of NSR activity during the second compliance year continues to show that RECLAIM is in compliance with both State and Federal NSR requirements.

Chapter 7: Job Impacts

During the 1995 compliance year, five RECLAIM facilities attributed 10 job gains to RECLAIM, specifically for new hires tasked with performing the monitoring, reporting and recordkeeping requirements of the program. Five of these facilities attributed 49 job losses to RECLAIM. Ten RECLAIM facilities shut down or went out of business in the second compliance year. None of these shut down facilities cite RECLAIM as a contributing factor in their decision to cease operation. Jobs lost due to RECLAIM represent only 0.03% of the jobs at RECLAIM facilities. This level is significantly less than the 866 jobs forgone, on average, per year from 1994 to 1999 predicted at program adoption.

Chapter 8: Air Quality and Public Health Impacts

As only two full compliance years of data are available, the ability to assess the performance of RECLAIM with regard to the air quality and public health concerns identified in Rule 2015: emission trends, seasonal fluctuations, per capita exposure to air pollution, and toxic risk reduction is limited. However, the currently available data does not suggest significant adverse air quality impacts. RECLAIM facility emissions in 1995 were comparable to or lower than any year back to 1989 for NOx and about average for SOx emissions from 1989 to 1994, indicating that the program did not cause an emission increase. Furthermore, no seasonal fluctuations in emissions are discernible at this time and per capita exposure to ozone was lower in 1995 than in any previous year. The AQMD continues to monitor the geographic patterns of emissions from RECLAIM facilities, and at this time there appears to be no geographic shift in emissions due to RECLAIM. RECLAIM sources continue to be subject to the same air toxic regulations as other South Coast Air Basin (Basin) sources, including Rule 1402 - Control of Toxic Air Contaminants from Existing Sources, which requires facilities with significant health risks to implement risk reduction plans.

Chapter 9: Other Program Activities

AQMD staff has conducted a variety of activities in order to further improve the effectiveness of RECLAIM. These activities include: amendments to Regulation

XX - RECLAIM, to address issues ranging from clerical corrections to changes in monitoring requirements and emission factors used for calculating allocations; technology reviews, as required by Rule 2015, to assess the achievability of ending emission factors based on various control measures in the 1991 Air Quality Management Plan (AQMP); and implementation of the super compliance amendments of September 1995.

Chapter 10: Recommendations

The audit results indicate that the implementation of RECLAIM during the first two compliance years was highly successful. It is recommended that AQMD staff:

- Continue to develop area and mobile source credit programs to ensure an adequate future supply of cost-effective ERCs (a Public Hearing to consider a rule establishing a credit generation program for area sources is scheduled for March 1997);
- Continue to investigate the feasibility of linking AQMD's mobile and stationary source credits in order to provide additional compliance flexibility; and
- Continue to monitor and assess the seasonal and geographic patterns of emissions from RECLAIM facilities as additional data becomes available and make any necessary adjustments if information indicates that RECLAIM has created adverse air quality or public health impacts.

INTRODUCTION

The RECLAIM program, adopted in October 1993, replaces certain command-and-control regulations with a new market incentives program. The goal of RECLAIM is to provide facilities with added flexibility in meeting emission 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 more comprehensive three-year audits. The results of the audits will be used to determine whether any program modifications are appropriate.

This report presents the second annual RECLAIM program audit. As required by Rule 2015 this annual audit assesses:

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

In addition, as required for the first three annual program audits and pursuant to Rule 2015 (b)(1), this audit reviews the effectiveness of enforcement and protocols for the purpose of recommending any appropriate revisions to the protocols to achieve improved measurement and enforcement of RECLAIM emission reductions while minimizing administrative cost to the AQMD and RECLAIM participants.

To facilitate the presentation, the report is organized into the following chapters:

1. Universe of Sources: This chapter discusses changes in the universe of RECLAIM sources, including facilities permanently ceasing operations since RECLAIM was adopted.

2. Allocations and RTC Supply: This chapter summarizes changes in emissions allocations in the RECLAIM universe and the supply of RTCs.
3. Emissions Reductions: This chapter assesses emission trends and reductions for RECLAIM sources and emission control requirement impacts on these sources.
4. Trading: This chapter discusses RTC trading activity and the price and availability of RTCs.
5. Compliance: This chapter discusses compliance activities and the compliance status of RECLAIM facilities, and evaluates the effectiveness of compliance and the NOx and SOx monitoring, reporting and recordkeeping protocols.
6. New Source Review Activity: This chapter summarizes NSR activity at RECLAIM facilities.
7. Job Impacts: This chapter discusses employment changes reported by facilities.
8. 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.
9. Other Program Activities: This chapter discusses other areas of interest, such as the amendments which have been made to the RECLAIM regulation and the proposed area source credits program.
10. Recommendations: This chapter presents recommendations based on the audit results.

In accordance with Rule 2015, this audit report will be presented to the AQMD Governing Board in a public hearing on February 14, 1997, and will be included in the AQMD annual performance report to the California legislature.

This second annual audit report will be followed by additional annual and three-year audits. The first three-year audit report will be conducted in 1997 and presented to the Board in 1998. This audit will include a comprehensive evaluation of the performance of the program against specific criteria.

CHAPTER 1
UNIVERSE OF SOURCES

Summary

The NOx and SOx RECLAIM universe of facilities decreased from 344 to 330 facilities during compliance year 1995. The decrease was due to a combination of factors including corrections to the data used to generate the original RECLAIM universe, the impact of rule amendments to exclude certain facilities, and facility shutdowns. Two existing facilities also entered the RECLAIM universe during compliance year 1995 and an additional two facilities which were already in the NOx market entered the SOx market. It is anticipated that the RECLAIM universe will remain stable in the future, with any increases or decreases resulting primarily from changes in economic activity.

Background

The criteria for inclusion in the RECLAIM program are specified in Rule 2001 - Applicability. In general, facilities are subject to RECLAIM if they have annual NOx or SOx emissions of four tons or greater in 1990 or any subsequent year. However, certain facilities are categorically excluded from RECLAIM, including 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 Southeast Desert Air Basin. Additionally, certain other categories of facilities 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.

Universe Changes

Regulation XX includes several mechanisms to add additional facilities to the universe, as well as to exclude facilities originally included in the universe. However, the RECLAIM universe remained relatively stable during the 1995 compliance year—the majority of fine tuning of the universe occurred during the first compliance year. There were, however, a few changes to the RECLAIM universe during the 1995 compliance year, as summarized below:

- One existing facility elected to enter RECLAIM in order to obtain the program's benefits;
- One facility was brought into the NOx universe because it exceeded four tons per year of NOx emissions;
- Two facilities which were already in the NOx universe were brought into the SOx universe because they each exceeded four tons per year of SOx emissions;

- One facility was excluded from RECLAIM because it was discovered that the facility had electrified its sources and reduced its emissions below the four ton threshold prior to RECLAIM's adoption;
- Two facilities were excluded from RECLAIM as a result of a December 1995 rule amendment to exclude ski resorts and facilities located on San Clemente Island;
- Two facilities were excluded from RECLAIM because it was discovered that their NOx emissions had been mistakenly reported as above four tons per year;
- One facility was discovered to have shut down prior to the start of the RECLAIM program; and
- Ten facilities shut down during the 1995 compliance year.

Thus, the net change in the RECLAIM universe during the 1995 compliance year was from 344 facilities to 330 facilities. The universe changes in the second compliance year include one opt-in, three inclusions (two facilities included in the SOx market were already participating in the NOx market), six exclusions, and 10 shutdowns. The number of changes during the 1994 compliance year, on the other hand, was 14 inclusions, 10 shutdowns, and 54 exclusions, for a net decrease of 50 facilities. These changes reflect information found after the first annual audit. As a result, the initial RECLAIM universe was adjusted from 391 facilities to 394 facilities at the beginning of the 1994 compliance year.

Figure 1-1 illustrates the changes in the RECLAIM universe which occurred during compliance year 1995 while Figure 1-2 summarizes the changes in the RECLAIM universe since program adoption in October 1993. A list of facilities in the RECLAIM universe as of December 1996 is provided in Appendix A.

Figure 1-1
Compliance Year 1995 RECLAIM Universe Changes

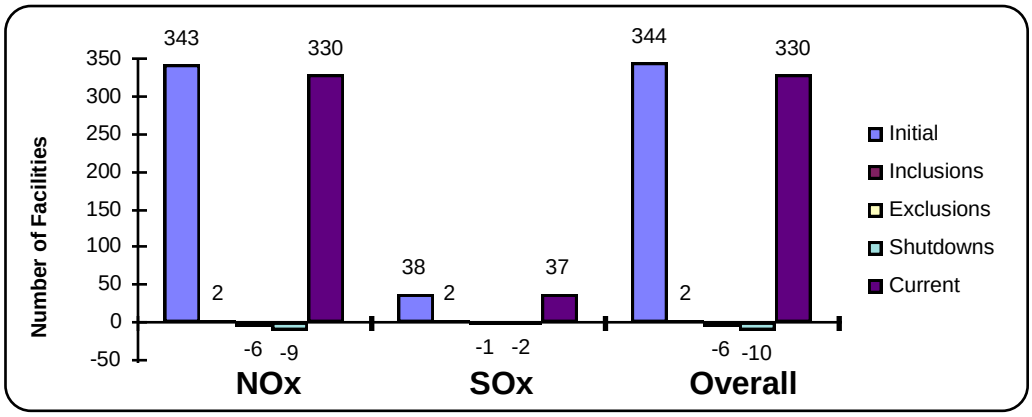
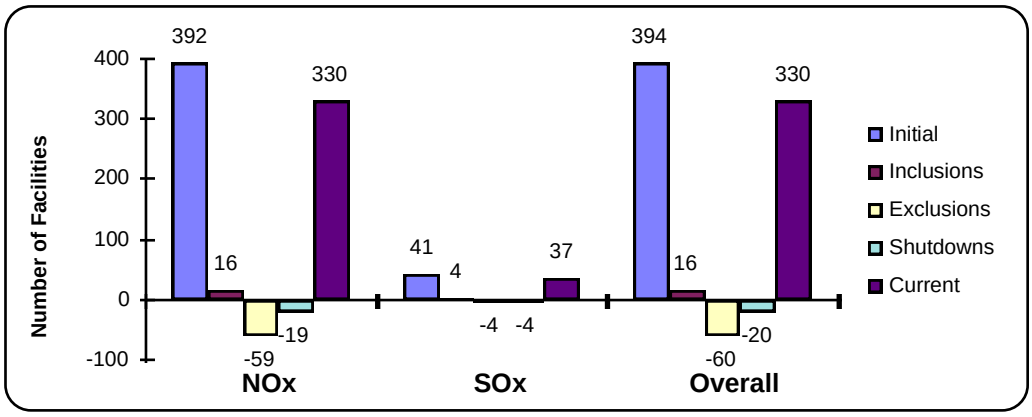


Figure 1-2
Universe Changes Since Program Adoption



Facility Inclusions

Four facilities entered the RECLAIM markets during compliance year 1995. Out of the four facilities, one, the City of Burbank, voluntarily entered the RECLAIM program during the compliance year. This voluntary entry provides a good illustration of the benefits RECLAIM is providing its participants. Rule 2001 specifies that electric power generating systems owned and operated by the City of Burbank, the City of Glendale, and the City of Pasadena shall not be automatically included in RECLAIM regardless of emissions but may elect to enter the program. This rule language was developed to address the concern that the cost of compliance with RECLAIM may be prohibitive for these types of facilities. However, after only one year of RECLAIM implementation, the City of Burbank realized that the enhanced flexibility provided by the RECLAIM program more than offsets its monitoring costs.

The addition of the other three facilities which entered RECLAIM during compliance year 1995 was based on new emissions information discovered by AQMD staff indicating that they should have been included in the initial RECLAIM universe. Note, however, that the two of these three facilities which were brought into the SOx market were already participating in RECLAIM's NOx market. This results in a net increase to the universe of sources by a count of two facilities. Table 1-1 summarizes the reasons for inclusions of facilities into the RECLAIM universe. Appendix B provides the list of specific facilities included.

Table 1-1
Reasons for RECLAIM Universe Inclusions During 1995 Compliance Year

Reason for Inclusion	NOx	SOx	Total
Corrected Emissions Information (> 4 tons)	1	2*	1
Opt-Ins by Existing Facilities	1	0	1
TOTALS	**2**	**2***	**2**

**Both facilities included into the SOx market were already participating in the NOx market.*

Facility Exclusions

Six facilities were excluded from RECLAIM during the second compliance year. The basis for each exclusion is identified below:

- Two facilities were found to have emissions below four tons per year in 1990 and subsequent years. These facilities therefore did not meet the applicability criteria and were removed from the RECLAIM universe.
- One facility initially included in the universe due to its emissions in 1990-1992 was discovered to have gone out of business prior to program adoption.
- One facility requested and was granted exclusion from RECLAIM due to the electrification of emission sources prior to October 15, 1993, thereby lowering its emissions below the four-ton threshold.
- Two facilities were excluded pursuant to a December 1995 amendment to Rule 2001 specifies that ski resorts and facilities located on San Clemente Island are exempt from RECLAIM unless they elect to enter the program.

Table 1-2 summarizes the reasons for the exclusions of facilities from the RECLAIM universe during the 1995 compliance year. Appendix B provides the list of specific facilities excluded.

Table 1-2
Reasons for RECLAIM Universe Exclusions During 1995 Compliance Year

Reason for Exclusion	NOx	SOx	Total
Reclassification Based on Corrected Information:			
Corrected Emissions Data	2	0	2
Out of Business Before Program Adoption	1	0	1
Electrified emissions sources prior to program adoption	1	0	1
Exempted due to 12/7/95 Rule 2001(i) Amendment	2	1*	2
TOTALS	**6**	**1***	**6**

** One exempted facility belonged to both the NOx and SOx universes.*

Facilities Permanently Ceasing Operations

The AQMD is aware of ten RECLAIM facilities which have permanently ceased operations and gone out of business during the 1995 compliance year. Of these ten facilities, eight were in the NOx market, one was in the SOx market, and one was in both the NOx and SOx markets. AQMD staff contacted representative of each facility in order to ascertain the reasons for the closures. RECLAIM was not cited as a contributing factor in any case. These facilities and the reasons cited for closing down are included in Appendix C.

CHAPTER 2
ALLOCATIONS AND RTC SUPPLY

Summary

During the second compliance year, 13 allocations were adjusted which resulted in a slight increase in the RTC supply. Technology reviews as mandated under Rule 2015 resulted in allocation changes for five facilities. These changes largely reflect adjustments to projected emissions which would also have occurred under command-and-control rules and do not adversely impact the ability of RECLAIM to achieve emission reductions equivalent to the subsumed rules and control measures. Three adjustments were results of ERC conversions. The remaining five adjustments were made in response to request made by RECLAIM facilities. The adjusted allocations are comparable to the 1997 AQMP emission targets. The AQMD is continuing to monitor the supply and availability of RTCs.

Background

Rule 2002 - Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx) establishes the methodology for determining Allocations for RECLAIM facilities. The Allocations are established based primarily on historical activity levels during "peak" activity years and the relative emissions control level that would be required by the AQMP. Rule 2002 also provides that all NOx and SOx emission reduction credits (ERC) held by RECLAIM facilities are to be converted automatically into allocations.

During the second compliance year, 12 adjustments were made for NOx allocations and one adjustment was made for SOx allocations. Of the 12 NOx allocations adjustments, five adjustments were results of requests made by RECLAIM facilities to more accurately reflect new data, two were results of ERC conversion, and the remaining five were due to technology reviews conducted pursuant to Rule 2015 . The one SOx allocation adjustment was due to ERC conversion. AQMD does not anticipate a need for further allocation adjustments, with the exception of any future changes to the RECLAIM universe and technology reviews.

Allocation Changes

The five adjustments made at the request of the facility were based on corrections to emission factors, credits for external offsets and RTCs for utility displacement credits (UDC). Two adjustments were made to convert newly issued ERCs. The other five adjustments to allocations were made to reflect the results of technology reviews as required by Rule 2015. Pursuant to this Rule, evaluation of the ending emission factors were made for six source categories: glass melting furnaces; gray cement kilns; steel slab reheating, flat rolled product annealing and flat rolled product galvanizing furnaces; metal melting furnaces; hot mix asphalt operations; and petroleum coke calcining. The technology

reviews resulted in allocation adjustments for one petroleum coke calcining facility, three glass manufacturing facilities, and one cement facility. No changes were made based on the technology reviews of steel slab reheating, annealing and galvanizing furnaces or hot mix asphalt operations.

In addition, changes in the universe of RECLAIM sources (inclusions and exclusions) also resulted in a small net change in the allocations. Conversion of Mobile Source ERCs is another avenue by which the RTC supply can be increased. However, no Mobile Source ERCs were converted to RTCs in the second compliance year. Table 2-1 and 2-2 summarizes the net changes to the respective NOx and SOx RTC supply in the second compliance year.

Table 2-1
Net Changes to NOx RTC (Tons/Day) Supply in the Second Compliance Year

Type of Adjustments	1994 RTC (tons/day)	2000 RTC (tons/day)	2003 RTC (tons/day)
Request by Facility	0.26	0.09	0.07
ERC Conversion	0.79	0.79	0.57
Technology Review	0	2.69	1.95
Inclusion and Exclusion of Sources	-0.18	-0.29	-0.21
Total	0.87	3.28	2.38

Table 2-2
Net Changes to SOx RTC (Tons/Day) Supply in the Second Compliance Year

Type of Adjustments	1994 RTC (tons/day)	2000 RTC (tons/day)	2003 RTC (tons/day)
ERC Conversion	0.06	0.06	0.04
Inclusion and Exclusion of Sources	-0.01	-0.01	-0.01
Total	0.05	0.05	0.03

RTC Supply

The total RTC supply consists of facility allocations, RTCs converted from ERCs by both RECLAIM and non-RECLAIM facilities, and RTCs converted from Mobil Source ERCs. As a result of the above adjustments made in the second compliance year, total NOx adjusted allocations exceed the 1997 AQMP year 2000 target of 43.4 tons/day by 0.7 tons per day but is below the year 2003 target of 31.8 by 0.2 tons per day. The SOx adjusted allocations exceeded the

1997 AQMP targets by 0.2 tons per day for year 2000 and are equal for year 2003. Tables 2-3 and 2-4 present these comparisons and also compare original allocations, adjusted allocations, and the 1991 and 1994 AQMP emission targets for the benchmark years 1994, 2000 and 2003.

Table 2-3
NOx Allocation Adjustments (Tons/Day) (Numerical Values)

Year	1991 AQMP Target	Original Allocations*	1994 AQMP Target		1997 AQMP Target	Adjusted Allocations**	
			Without ERC Conversions	With ERC Conversions		Without ERC Conversions	With ERC Conversions
1994	106	103	N/A	N/A	N/A	104.9	109.3
2000	35	35	34.3	37.5	43.4	39.7	44.1
2003	26	26	25.1	28.2	31.8	28.4	31.6

* The original allocations did not include conversion of ERCs to RTCs at RECLAIM facilities.

** Includes adjustments to individual facility allocations, universe inclusions and exclusions, and results of Rule 2015 technology reviews.

Table 2-4
SOx Allocation Adjustments (Tons/Day) (Numerical Values)

Year	1991 AQMP Target	Original Allocations*	1994 AQMP Target		1997 AQMP Target	Adjusted Allocations**	
			Without ERC Conversions	With ERC Conversions		Without ERC Conversions	With ERC Conversions
1994	24	25	N/A	N/A	N/A	25.9	28.4
2000	14	14	12.4	14.5	16.3	14.0	16.5
2003	10	10	9.5	11.5	11.4	9.8	11.4

* The original allocations did not include conversion of ERCs to RTCs at RECLAIM facilities.

** Includes adjustments to individual facility allocations and universe inclusions and exclusions. SOx allocations were not affected by Rule 2015 technology reviews.

In general, the allocation changes for future years largely reflect changes in projected emissions which would have occurred regardless of RECLAIM. The majority of the changes during the second compliance year for year 2000 and 2003 RTC allocations were due to technology reviews conducted pursuant to Rule 2015. Similar activities also occur under command-and-control rules, wherein adjustments to compliance limits are made based on technology reviews and emission estimates are revised based on new information. The allocation changes are also made in accordance with the program design principle that RECLAIM sources be required to reduce their emissions to a level equivalent to the reductions that would have occurred under the subsumed rule and control

measures. Therefore, RECLAIM continues to conform with the requirement for emission reductions equivalent to the subsumed rule and control measures as required by Health and Safety Code Section 39616.

The total NOx and SOx adjusted allocations (including adjustments due to Rule 2015 technology reviews) and the total NOx and SOx RTC Supply are illustrated in Figures 2-1 and 2-2. As a means to supply additional credits from non-RECLAIM source emission reductions into the program, the RECLAIM rules allow conversion of ERCs and mobile source ERCs into RTCs.

The AQMD is currently developing a variety of credit generation mechanisms which are expected to supply the RECLAIM market with additional sources of emission credits. It is anticipated that RECLAIM facilities can continue to find cost effective ways to comply with the emission reduction goals. Staff will continue to monitor the supply of RTCs throughout program implementation and evaluated as part of future annual and three-year program audits.

Figure 2-1
NOx: Allocations and RTC Supply

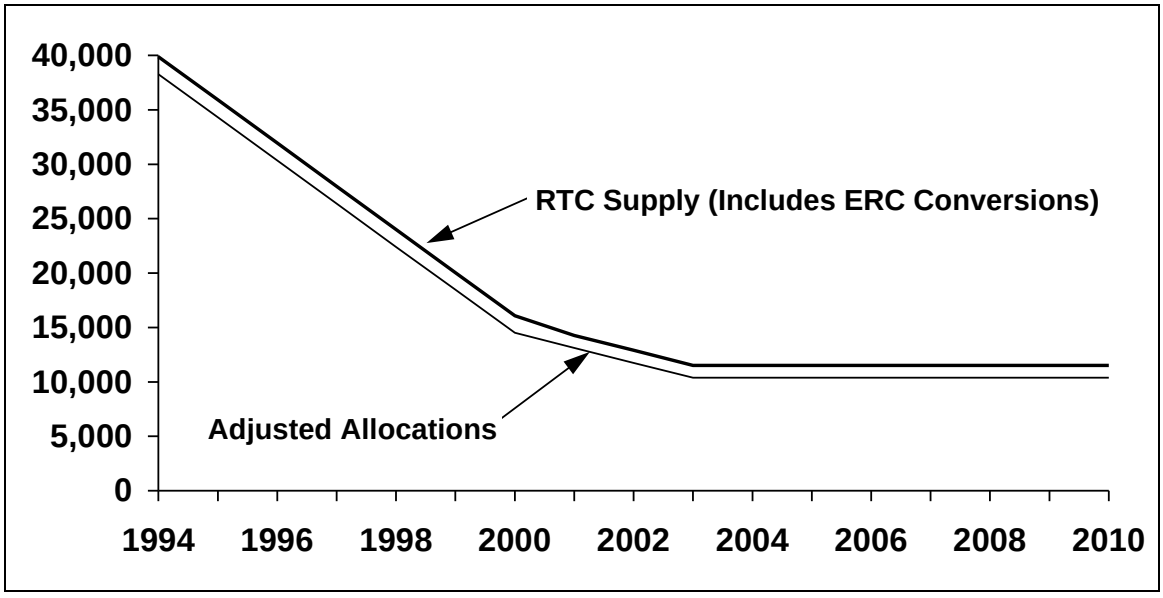
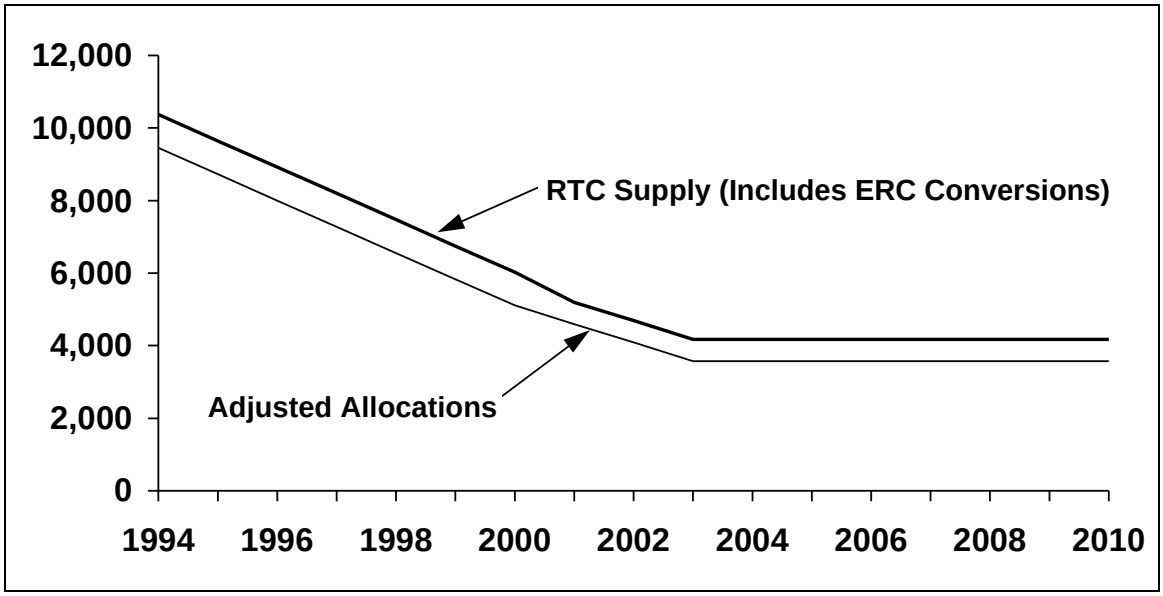


Figure 2-2
SOx: Allocations and RTC Supply



CHAPTER 3
EMISSION REDUCTIONS

Summary

Aggregate actual emissions from RECLAIM facilities were below allocations for the first two compliance years, indicating that RECLAIM achieved the emission reduction goals for these years. The supply of RTCs is sufficient to meet demand for both the NOx and SOx market. Preliminary audited emissions data for compliance year 1995 indicates that NOx and SOx emissions from RECLAIM facilities were both somewhat higher in 1995 than in 1993. This increase is attributed to a the prevalence of the use of missing data during compliance year 1995 and additions to the SOx universe of facilities with substantial emission levels. However, it is anticipated that the difficulties associated with CEMS installation and certification will be resolved so that missing data will not have such an impact in future years. Furthermore, RECLAIM facilities did not experience greater emission control requirement impacts than non-RECLAIM sources.

Background

One purpose of the RECLAIM program audits is to assess whether RECLAIM is achieving the required emission reductions. The emission reduction requirements for RECLAIM facilities are reflected in their declining annual allocations. Annual aggregate emission levels which do not exceed aggregate allocations indicate success in achieving the emission reduction goals.

The annual program audit is also required to assess emission control requirement impacts on RECLAIM sources as compared to other stationary sources identified in the AQMP. This provision reflects the requirements of Health and Safety Code Section 39616(c)(6), which stipulates that RECLAIM "will not result in disproportionate impacts, measured in terms of required emission reductions, and measured on an aggregate basis, on those stationary sources included in the program compared to other permitted stationary sources in the [AQMD]'s attainment plan."

Emission Reduction Trends

Emissions Analysis

Each facility in the RECLAIM program is required to monitor and report its emissions of RECLAIM pollutants on a source-by-source basis, as described in Chapter 5. The monitoring and reporting requirements include a requirement that each facility submit a comprehensive annual emission report within sixty days of the end of each compliance year. This report, the Annual Permit Emissions Program (APEP) report, represents the facility's final opportunity to correct any monitoring, calculation, or reporting errors for each of its sources. However, AQMD staff does conduct audits of the emissions data submitted in

each APEP report. In some cases it is determined that the facility has made errors in quantifying its emissions, such as arithmetic errors, use of inappropriate emission factors, or inappropriate use of missing data substitution (refer to Chapter 5 for a discussion of missing data substitution). Therefore, AQMD's audits result in changes to the emissions data reported in some facilities' APEP reports. In each case that AQMD identifies changes to be made to the emissions data submitted in APEP reports, the facility is provided an opportunity to review the changes and to present additional data or arguments supporting the data submitted in its APEP report or for a correction other than that proposed by AQMD. Therefore, the final emissions data for the compliance year is not available until this process has been completed.

AQMD has received compliance year 1995 APEP reports for all but five facilities. Audits have been conducted for all of the APEP reports received. However, some facilities are still in the process of responding to AQMD's audit findings. Thus, the audited emissions data for compliance year 1995 is not yet final and is subject to revision. The audited data could potentially be corrected upwards or downwards, although it is unlikely that any facility will argue for an increase in its audited emission level; the final audited data is likely to fall between the reported APEP data and the preliminary audited data. Ultimately, the final audit data will be more reliable than the APEP data. However, it is not possible at this point to determine whether the final audit will be closer to the APEP data or to the preliminary audit data. Therefore, two sets of emissions data for compliance year 1995 are available for analysis: facility-reported (APEP) data and preliminary AQMD-audited data. The APEP data for NOx is approximately five percent lower than the preliminary audited NOx data and the SOx APEP data is approximately four percent lower than the audited SOx data. This analysis will focus on the preliminary audit data, but will also include evaluation of the APEP data in summary form.

Analysis of APEP and audited emissions occurring from RECLAIM facilities and of RECLAIM allocations indicates that RECLAIM facilities have not exceeded their allocations on an aggregate basis in either of the two completed compliance years. This indicates that RECLAIM has met its programmatic emission goals for the 1994 and 1995 compliance years. However, the preliminary audited NOx emissions data for compliance year 1995 indicates that 1995 NOx emissions increased approximately three percent relative to 1993 (the last year prior to implementation of RECLAIM). NOx emissions during the 1994 compliance year were comparable to 1993 NOx emissions.

Although 1994 SOx emission from RECLAIM facilities were approximately three percent lower than reported for 1993 from the same facilities, 1995 SOx emissions reported by RECLAIM facilities were approximately eleven percent higher based on preliminary audited data for 1995.

Table 3-1 summarizes the difference between 1993 and 1995 emissions from RECLAIM facilities, calculated based on both facility-reported APEP data and preliminary audit data.

Table 3-1
1995 Reported APEP and Preliminary Audit Data

	Reported APEP Data		Preliminary Audit Data	
	NOx	SOx	NOx	SOx
Difference between 1993 emissions from RECLAIM facilities and 1995 emissions from RECLAIM facilities	-2 % (decrease)	7 % (increase)	3 % (increase)	11 % (increase)
Portion of 1995 emissions attributed to missing data	24 %	42 %	23 %	40 %
Portion of 1995 SOx emissions increase attributed to changing SOx universe	N/A	98 tons (18 % of 548 ton increase)	N/A	98 tons (11 % of 910 ton increase)

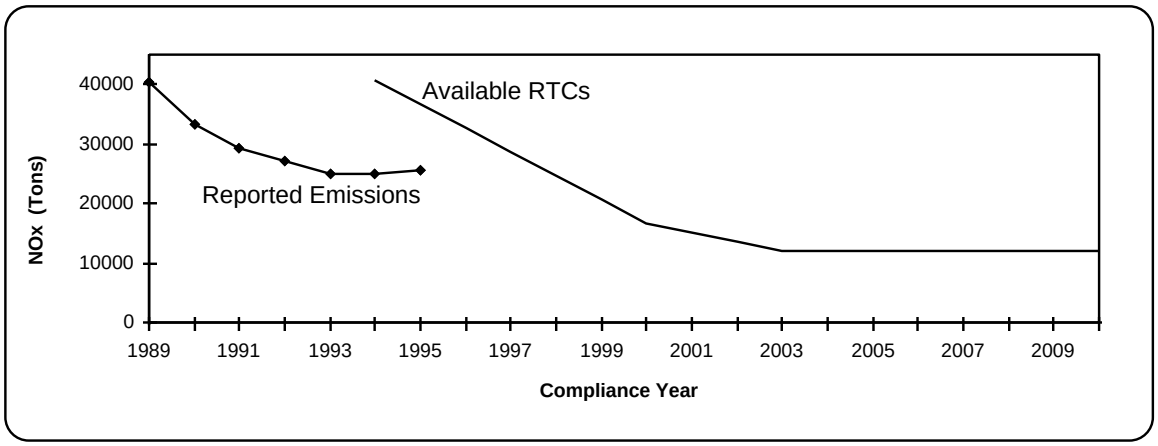
Figures 3-1 and 3-2 illustrate the emission trends for RECLAIM facilities for the years 1989 through 1995.

It should be noted that 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. Placement in either cycle was determined by a computer-generated random assignment shortly after the RECLAIM rules were adopted. To facilitate the analysis, Cycle 1 and Cycle 2 data were combined as if Cycle 2 coincided with Cycle 1.

It is anticipated that reported emissions in the third compliance year will be lower than previously reported emissions due to the completion of CEMS installation and certification for most major sources. The emissions reported by CEMS will be more accurate than emission factors used by facilities during the first compliance year or the missing data procedures used by many facilities during the second compliance year. The emission factors tend to be conservative and estimate emissions based on the high end of the test data range and the missing data procedures combine the emission factors with worst case assumptions regarding facility operations. Approximately 23 % (5877 tons) of preliminary audited NOx emissions and 40 % (3235 tons) of preliminary audited SOx emissions during the second compliance year resulted from the missing data procedures.

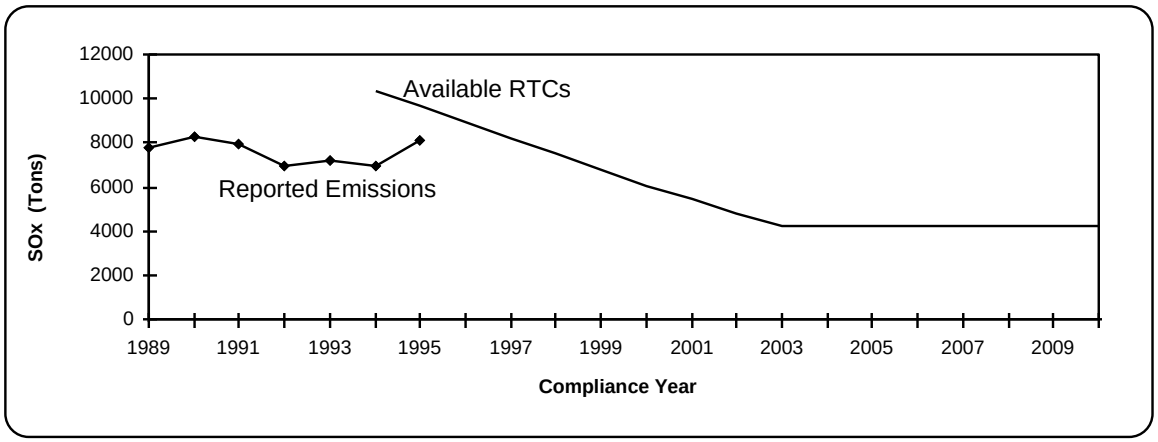
The fraction of 1995 APEP emissions and 1995 preliminary audit emissions accounted for by missing data is summarized in Table 3-1.

Figure 3-1
NOx Emissions and Available RTCs



The 1995 emissions presented in this figure are based the preliminary AQMD-audited data for compliance year 1995. The facility-reported APEP data for 1995 is approximately five percent lower.

Figure 3-2
SOx Emissions and Available RTCs



The 1995 emissions presented in this figure are based the preliminary AQMD-audited data for compliance year 1995. The facility-reported APEP data for 1995 is approximately four percent lower.

Impact of the Use of Missing Data

The increase in reported SOx emissions during the second compliance year is attributable to changes in emissions quantification methodologies and changes in the SOx universe (see below) rather than to an increase in actual emissions. Specifically, Rule 2011 - Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Sulfur (SOx) Emissions allows use of “interim” monitoring and reporting procedures during the 1994 compliance year, but requires use of continuous emissions monitoring systems (CEMS) for major SOx sources and electronic reporting of all emissions commencing in the 1995 compliance year. However, many facilities did not have certified SOx CEMS in

place for the 1995 compliance year. Therefore, "missing data" procedures were used for emissions quantification in the absence of CEMS data. The missing data procedures have an automatic tendency to overestimate actual emissions because they combine conservative emission factors with a "worst case" assumption of operating hours and throughput. Therefore missing data procedures tend to result in a higher level of reported emissions than do the interim monitoring procedures. Reported emissions quantified pursuant to the missing data procedures account for approximately 40 % of compliance year 1995 preliminary audit SOx emissions. 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 category and operating parameters.

Missing data will account for a much smaller fraction of total reported SOx emissions as the difficulties associated with installation and certification of SOx CEMS are resolved and reported emissions will more accurately reflect actual emissions. Similarly, although missing data did not account for as great a fraction of total reported emissions for NOx (23 % of audited emissions) as it did for SOx, it was significant. Therefore, reported NOx emissions will decrease and become more representative of actual emissions as the remaining difficulties associated with NOx CEMS are resolved.

Impact of Growing SOx Universe

As discussed in Chapter 1, three facilities were excluded from the SOx market and two were included into the SOx market. This change in the SOx universe has significant implications for the overall level of SOx emissions from RECLAIM facilities because the two included facilities emit substantially more SOx than do the three excluded facilities. Specifically, the three excluded facilities emitted a combined total of approximately two tons of SOx during compliance year 1994 while the two included SOx facilities emitted a combined total of approximately 100 tons of SOx during compliance year 1995. Therefore, 98 tons of the increase in SOx emissions between compliance year 1994 and compliance year 1995 is accounted for by changes to the SOx universe itself. This 98 tons corresponds to 11 % of the 910 ton increase indicated by the audited SOx data.

The fraction of 1995 APEP emissions and 1995 preliminary audit emissions accounted for by changes to the SOx universe is summarized in Table 3-1.

Availability of RTCs

Each facility in the RECLAIM universe has an annually declining RTC balance. Therefore, the total available RTCs also decline annually. The total available RTCs consist of all RTCs held by both RECLAIM and non-RECLAIM participants and reflects:

- Corrections to individual facility allocations based on new information and the technology reviews conducted pursuant to Rule 2015 - Backstop Provisions (refer to Chapters 2 and 9);
- Changes due to facility inclusions and exclusions, as discussed in Chapter 2;

- Other emission credits converted to RTCs pursuant to Rules 2002 - Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx) and 2008 - Mobile Source Credits.

The supply of RTCs is sufficient to meet demand for both the NOx and SOx market. It is anticipated that the monitoring and reporting difficulties experienced during the second compliance year will be resolved, resulting in a decrease in reported emission levels. Furthermore, AQMD is currently developing a variety of credit generation mechanisms which are expected to supply the RECLAIM markets with additional sources of emission credits. Therefore, the supply of credits available to RECLAIM facilities is anticipated to remain sufficient to meet demand. Figures 3-1 and 3-2 illustrate the emission trends for RECLAIM facilities for the years 1989 through 1995 and the total RECLAIM Trading Credits (RTCs) currently available for compliance years 1994 through 2010 as of December 1996.

Emission Control Requirement Impacts

RECLAIM is designed to achieve an equitable distribution of emission reductions from RECLAIM and non-RECLAIM sources. For example, during 1994, non-RECLAIM stationary sources were required to meet specific compliance deadlines in such rules as Rule 1110.2 - Emissions From Gaseous- and Liquid-Fueled Internal Combustion Engines, 1135 - Emissions of Oxides of Nitrogen from Electric Power Generating Systems, and 1146.1 - Emissions of Oxides of Nitrogen from Small Industrial and Commercial Boilers, Steam Generators, and Process Heaters. Non-RECLAIM stationary sources were also required to meet compliance deadlines for Rule 1134 - Emissions of Oxides of Nitrogen from Stationary Gas Turbines during 1995 and for Rule 1135 - Emissions of Oxides of Nitrogen from Electric Power Generating Systems during 1995 and 1996. RECLAIM facilities are also required to achieve comparable emission reductions, but the emission control requirements were reflected in their allocations. By incorporating these emission reductions into annually declining allocations, RECLAIM achieves comparable emission reductions gradually over time at a level rate rather than in large, periodic steps. RECLAIM's flexibility also encourages implementation of the most cost-effective control strategies first. Facilities which would find it more expensive to implement controls have the freedom to purchase RTCs instead.

The cost of RTCs during the first two compliance years has been very low, as discussed in Chapter 4. These low prices reflect the fact that there was an excess of RTCs during these compliance years (i.e., aggregate actual emissions from RECLAIM facilities were below aggregate allocations for these years). In fact, many facilities had a surplus of allocations for the first two compliance years. Therefore, RECLAIM facilities do not experience greater emission reduction requirements compared to non-RECLAIM stationary sources identified in the AQMP—they achieve the same aggregate emission reductions over time as they would have achieved pursuant to command and control regulations had RECLAIM not been adopted, but they achieve these emission reductions at reduced cost.

The AQMD will continue to monitor and assess emission trends and control requirement impacts for RECLAIM facilities to ensure continued success and equity in achieving the Basin's emission reduction goals.

CHAPTER 4
TRADING

Summary

The RTC trading market continues to be active and thriving. More than $20 million of trades have occurred since the adoption of RECLAIM with $9.9 million in trades registered in 1996. The average NOx RTC trading prices are comparable with prior year, NOx prices range from $154/ton for 1996 RTCs to about $1,700/ton for 2010 RTCs. Average SOx RTC trading prices changed dramatically due to the more active market. SOx prices range from $124/ton for 1996 RTCs to about $2100/ton for 2010 RTCs.

Many of the NOx RTC trades with price are for the current year compliance use. While majority of the SOx RTC trades with prices are for RTCs with expiration dates of 1999 and beyond.

On July 12, 1996, AQMD Governing Board adopted amendments to Rule 2002 which resulted in extending RTCs to beyond 2010. Trading of these extended RTCs is expected to become an important part of the active RTC trading market.

Background

RTC trading is a key element in allowing facilities to achieve RECLAIM compliance at a minimum cost and maximum flexibility. Each facility has the flexibility to determine based on its unique operational needs how best to meet their emission reduction goals through either trading RTCs or reducing actual emissions.

RTCs are issued in advance to each RECLAIM facility in units of a pound of NOx or SOx emission with a term of one year. Each RTC may only be used for emissions occurring within the term of the RTC. With known emissions reduction goals, a facility can plan for future operations on an annual basis and secure the required RTCs through trades. Any person may choose to participate in the RTC trading market. In addition to RECLAIM facilities, brokers, auctioneers, and entrepreneurs have been active participants of the market.

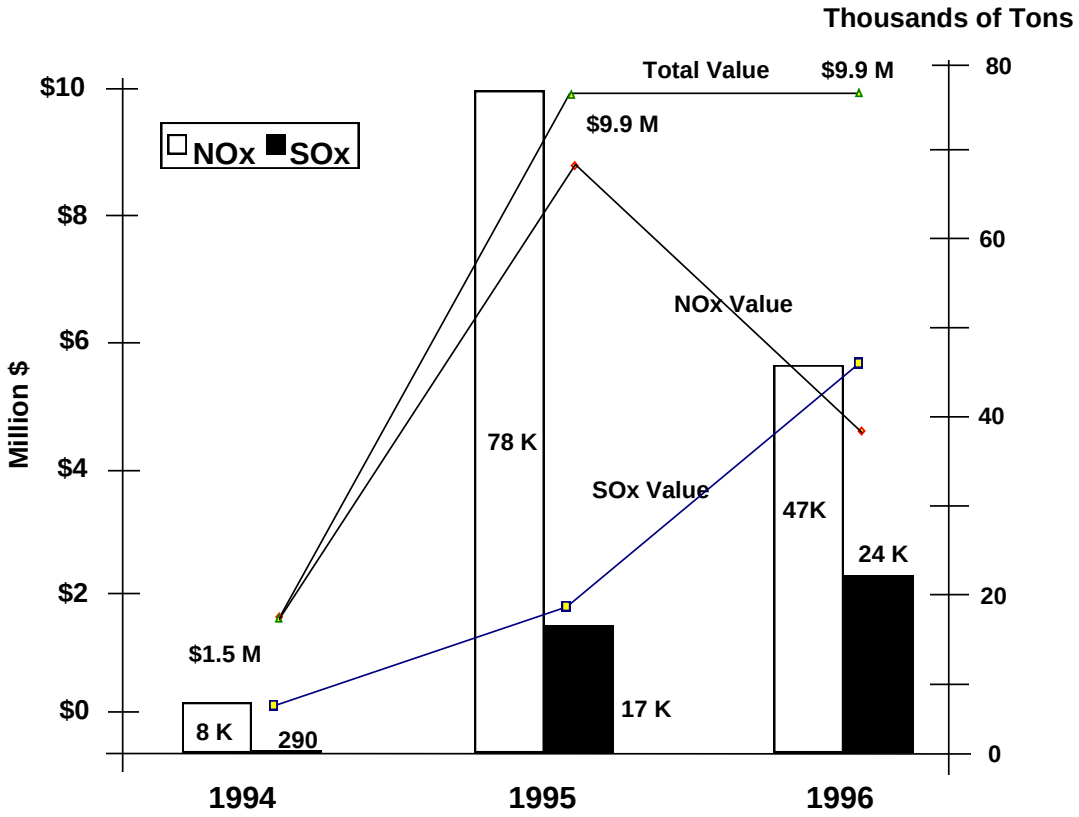
The RECLAIM program was designed to have two compliance cycles to stimulate more market activity. Cycle 1 RTCs are valid from January 1 to December 31 of each year and Cycle 2 RTCs are valid from July 1 each year to June 30 of the next year. Each facility is assigned to either Cycle 1 or Cycle 2 and issued RTCs accordingly. However, facilities may obtain RTCs issued for a different cycle and apply them to emissions provided that the trades are made during the appropriate time period and these cross-cycle RTCs are used for emissions occurring during the twelve month period when the RTCs is valid. At the end of each compliance year, a 60-day reconciliation period is allowed for facilities to secure adequate RTCs. It is during these periods that RTC trades are most active and the supply of RTCs valid for the compliance year is generally higher and prices are lower.

RTC Trading Activity

1996 Trading Activity

The RTC trading market continues to be active in 1996. More than 370 trades of 71,500 tons of NOx and SOx RTCs were transferred in the market. These trades included both RTCs traded with prices and transfers with $0 price. The total value of RTCs traded exceeded $9.9 million. Figure 4-1 summarizes the overall trading activities.

Figure 4-1
Overall Trading Activities



Trades with Prices

Many of the NOx RTCs traded with prices are for credits that are valid for the current compliance year. Whereas, the SOx RTCs traded with prices mostly consist of future credits expiring year 1999 and beyond. Average prices for NOx RTCs traded ranged from $154 per ton of 1996 RTCs to $1,729 per ton of year 2010 RTCs. Average prices for SOx RTC trades ranged from $124 per ton of 1996 RTCs to $2,117 for year 2010 RTCs. Average prices of each year RTCs are listed in Table 4-1. As expected, the prices for the early year RTCs (prior to 1999) are much lower than those for the later years.

Table 4-1
Average RTC Prices Traded in 1996

RTC Year	NOx	SOx
1995	$30	$82
1996	$154	$142
1997	$336	$380
1998	$572	$496
1999	$1,096	$1,788
2000	$1,648	$2,068
2001	$1,504	$2,080
2002	$1,500	$2,094
2003	$1,535	$2,107
2004	$1,523	$2,107
2005	$1,576	$2,107
2006	$1,623	$2,107
2007	$1,646	$2,107
2008	$1,694	$2,107
2009	$1,700	$2,107
2010	$1,729	$2,117

Trades without Price

RTC trades with $0 price occur when RTCs are transferred between facilities of same ownership (Intra-company trades), from seller to brokers or auction houses, between brokers, and between facilities that went through a change of ownership. Even though these $0 price trades have no associated monetary value, they provide important insights to the operation of the market. Intra-company trades serve the same purpose as do other trades in that they provide a company the flexibility to plan and optimize their emission reduction strategy. On the other hand, trades between sellers and intermediaries represent the amount of RTCs offered to sell and are important indicators of the availability of RTCs in the program.

When compared to trades with price, trades with $0 price are the more predominant type of trades in both number and tonnage. This difference may be exaggerated by the fact that some of the trades are “double-counted” when a quantity of RTC is transferred to offer for sale, and is subsequently reverted back to the original owner because no buyer was found. Figures 4-2 and 4-3 show the breakdown of the NOx and SOx RTC trades respectively by year.

Figure 4-2
NOx RTCs Trades

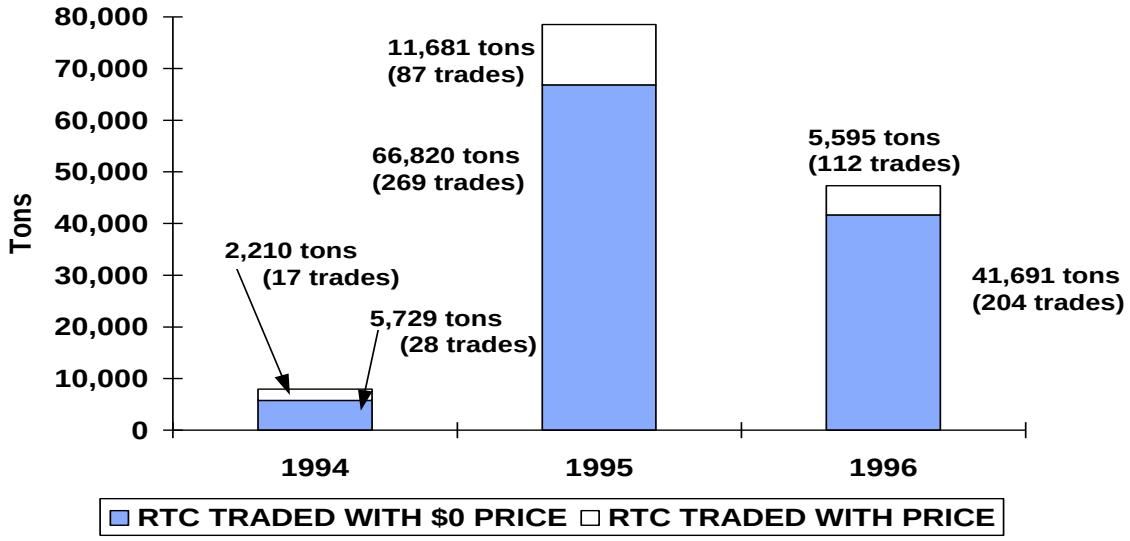
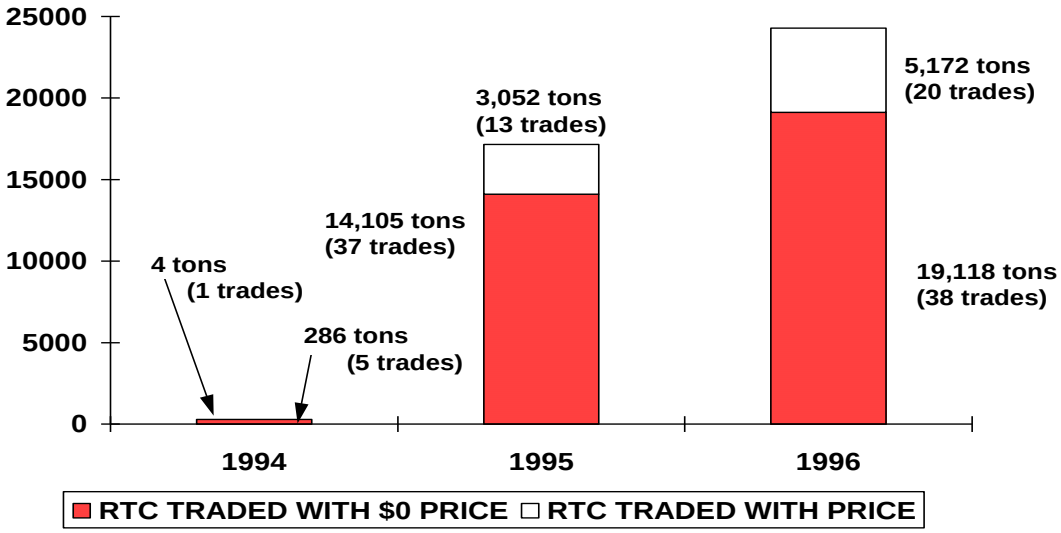


Figure 4-3
SOx RTCs Trades



Year to Year Comparison

As shown in Figure 4-1, the market has shown marked growth since 1994. The values of RTCs traded jumped from $1.5 million in 1994 to $9.9 million in 1995 and continued to stay at the same level in 1996. The values and the volumes of NOx RTCs traded with price are higher than those for SOx RTCs in 1995. However, the reverse is true for 1996. In 1996, most of the SOx RTCs traded were for the later year (beyond 1999) RTCs which also carried higher price tags.

The average prices for different year RTCs changed over the past three years. However, the price trend for each year is similar. For each of the three years, the price of then current year RTCs is very low (less than $200/ton). The prices for future year NOx RTCs appear to be leveling off at a level of $1,700 per ton. On the other hand, the number of trades involving SOx RTCs is relatively low and the average price is significantly affected by a single trade. Therefore, a price for future year SOx RTCs has not stabilized. In 1995, the SOx average price was controlled by a single trade of 1,660 tons at a total price of $859,986, and the controlling trade in 1996 was for 1,776 tons at a total price of 3.3 million dollars. Figures 4-4 and 4-5 show the changes in average prices for NOx and SOx RTCs respectively.

Figure 4-4
Yearly Average Prices for NOx RTCs

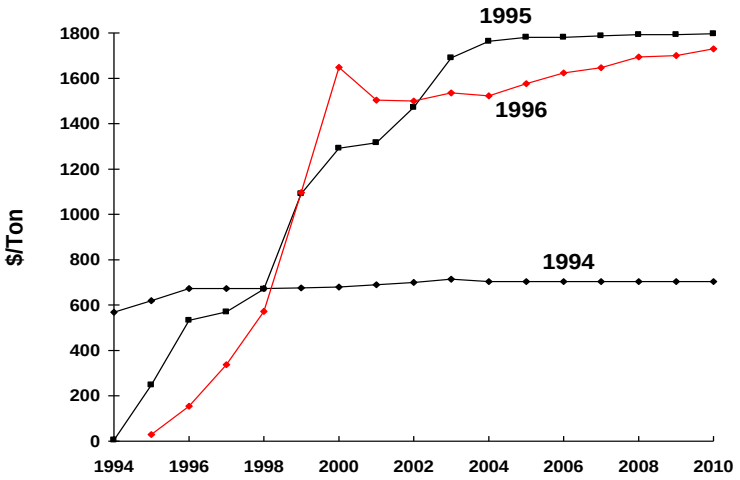
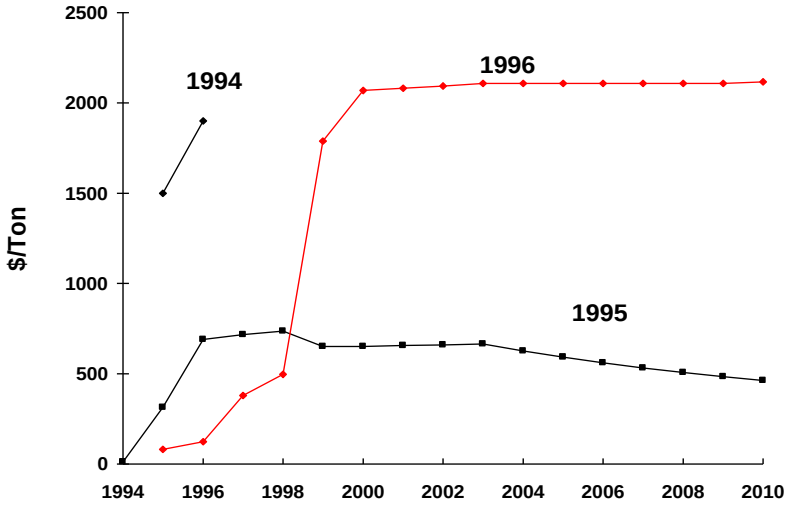


Figure 4-5
Yearly Average Prices for SOx RTCs



As shown in Figure 4-2, there was a sharp peak in the volume of NOx RTCs traded with $0 price in 1995. This is probably due to RECLAIM facilities by "dumping' to other persons, who were not charged RTC fees, to avoid such fees. In May 1995, the AQMD Governing Board amended Rule 301 - Permit Fees, which changed the emissions fee basis to actual emissions instead of RTC holdings. This action eliminated the need for dumping RTCs at the end of the year. In 1996, there was a decrease in the volume of trade with $0 price.

RTC Availability

For both the NOx and SOx RTC trading market, the quantity of RTCs offered for sale exceeded the quantity purchased by RECLAIM facilities. This indicated that sufficient RTCs were available for those facilities who wished to purchase them for compliance use. (The excess RTCs are held by non-RECLAIM facilities, brokers, or in facilities' Certificate Accounts). Figures 4-6 and 4-7 show the availability of RTCs by comparing the supply of RTCs offered for sale to the demand for RTCs by RECLAIM facilities.

Figure 4-6
NOx RTC Availability

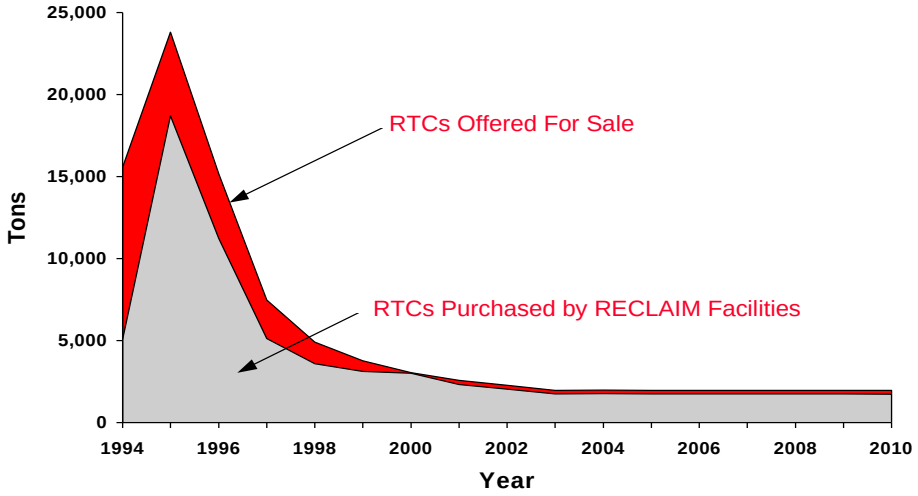
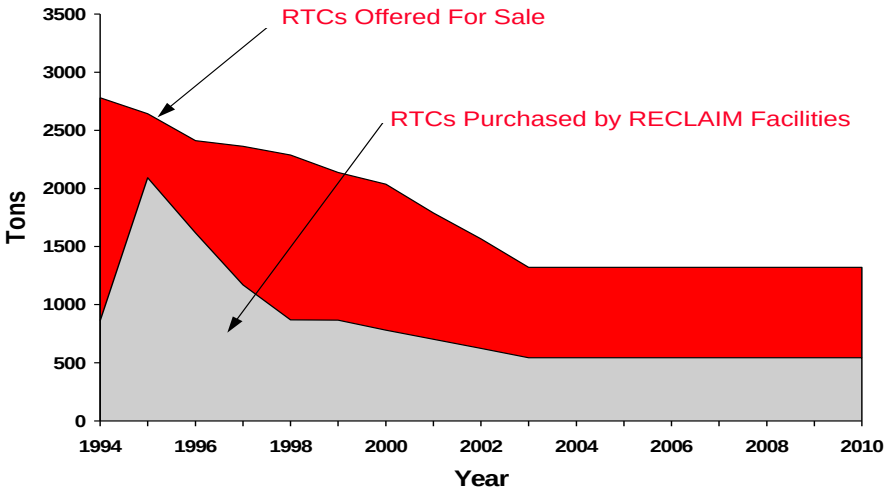


Figure 4-7
SOx RTC Availability



Market Overview

On July 12, 1996, the AQMD Governing Board amended Rule 2002 - Allocations to specify that the levels of RTCs for years beyond 2010 are to remain constant and equal to those issued for year 2010. Two trades of RTCs for years beyond 2010 have also been registered in addition to the above described trading activities. These trades were to transfer to a broker to offer for sale the same amount of RTCs for each year after 2010. Table 4-2 lists the aggregate data since the inception of RECLAIM.

Table 4-2
Aggregate Data since the Inception of RECLAIM

	NOx	SOx	Total
Values of Trade	$14,221,778	$7,159,178	$21,380,956
Volume of Trade	133,767 tons	41,737 tons	175,504 tons
Number of Trades	717	114	813

Overall, the table illustrates that the market has been active and strong. The agencyhands-off policy on trading has allowed the market to mature. Staff recommends that this policy be maintained to sustain the free market and continue to monitor the cost of RTCs.

CHAPTER 5
COMPLIANCE

Summary

Aggregate emissions for the second year continued to be well below total allocations for the year. During the second compliance year, total NOx emissions increased from 69 to 70.5 tons/day and total SOx emissions increased from 19 to 22 tons/day. However, the emissions are most likely skewed high by the application of Missing Data Procedures which tend to over estimate emissions. Emissions estimated according to Missing Data Procedures represented 23 % of total reported NOx emissions and 40 % of total reported SOx emissions. In addition. the SOx market saw an increase in emission volume because of inclusion of two facilities with a combined emissions level of 100 tons per year.

The majority of the CEMS have been certified. Remaining unapproved CEMS are either new or have technical difficulties. Results of the audit for the first year indicate that the reported emissions are accurate and did not change any of the findings included in the first annual audit report.

Staff is continuing the effort of compliance outreach which has evolved from standard educational workshops into industry group and working group meetings which involved more focused discussions on specific issues. Staff will continue to work closely with industry to resolve implementation issues.

Background

The first compliance year was an interim period during which the RECLAIM rules provided time for facilities to install and certify certain required monitoring and reporting devices. The second compliance year started in January 1995 for Cycle 1 facilities and July 1995 for Cycle 2 facilities. The second compliance year marked the start of the requirements for more accurate emissions monitoring equipment for Major Sources and electronic reporting of emissions. These 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. Many facilities encountered delays in certifying their monitoring equipment and submitting their reports electronically. Failure to comply with these requirements in a timely manner resulted in reporting of emissions calculations according to Missing Data Procedures which conservatively estimate the emissions from the RECLAIM sources.

Reported emissions for the second compliance year continued to be well under allocations. In the January 1995 audit report, emissions for the first compliance year were presented based on reported emissions. Audits of these reported emissions were conducted and the results were finalized in March 1995. In addition to the emission data for the second compliance year, comparisons between the final results and the emissions reported in the first audit report are also presented in this chapter.

Allocation Compliance

Requirements

At the beginning of the program, each RECLAIM facility received an annual allocation for each year from 1994. Each facility has the flexibility to decide how to manage its emissions in order to meet its allocation in the most cost-effective manner. Facilities may also buy RTCs to increase their allocations, or sell unneeded RTCs.

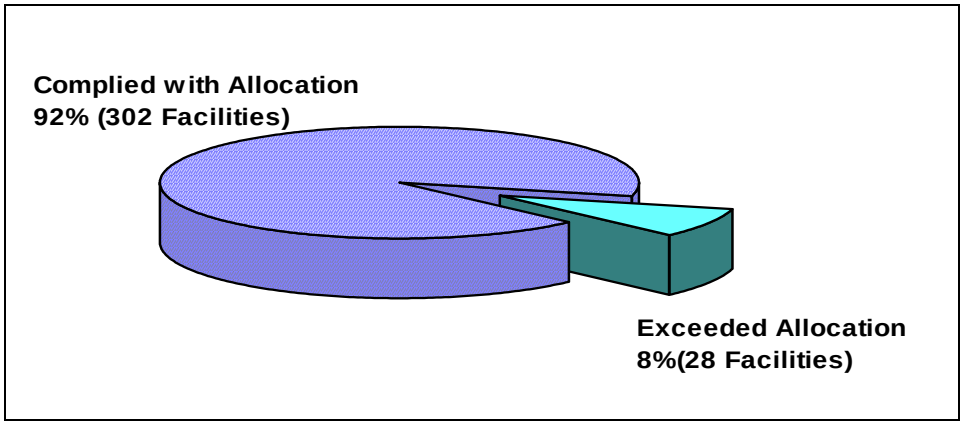
A fundamental requirement of RECLAIM is that at the end of each compliance year, each facility must hold sufficient RTCs in its allocation account to cover its emissions for the year. Facilities may buy or sell RTCs at any time of the year in order to ensure that their emissions are covered. In addition, 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 the Annual Permit Emissions Program (APEP) Report.

Compliance Status

Overall, facilities showed a high level of compliance with their allocations. As illustrated by Figure 5-1, 92 percent of facilities complied with their allocation for the second compliance year, i.e., their final allocation balance after trading was sufficient to cover their final audited emission level. This is an improvement over the first compliance year where 86 percent of facilities complied. Based on the preliminary audit results, 27 facilities exceeded their NOx allocations and one facility violated both the NOx and SOx allocations. As a result, there were a total of 29 allocation exceedances.

At the time of this report, audits of 12 facilities are not yet finalized pending the submittal of additional data from the facilities and completion of the emissions calculations. Emissions for these 12 facilities are based on the reported emissions instead of audited data.

Figure 5-1
Compliance With Allocations for Second Year



Staff is continuing its effort to complete the audits of all emissions reports from facilities. Preliminary evaluations by AQMD staff indicate that the exceedances were mainly due to miscalculations and a lack of understanding of the missing data procedures. Reasons for exceedances include:

- **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 Missing Data Procedures when valid data are not obtained from the monitoring equipment. Missing Data Procedures generally yield a higher emissions number and several facilities failed to retain or buy sufficient RTCs.
- **Failure to Trade**: Some facilities lacked sufficient RTCs to cover their reported emissions, yet did not buy RTCs. Some other facilities actually attempted to purchase RTCs. However, problems in the transactions were encountered. Some trades were not approved because of inaccurate information. Other trades were not credited to the allocation account which is the only account allowed for emission reconciliation.
- **Failure to Reconcile the RTCs Balance**: For facilities that exceeded their 1994 Allocations, the Facility 1995 RTCs Accounts were reduced by the amount of the exceedances. These facilities were notified of the actions. However, they failed to purchase additional RTCs to make up for the amounts reduced.

For some facilities, two or more of these factors contributed to the exceedances. None of the exceedances were due to lack of availability of RTCs on the market. As discussed in Chapter 4, Trading, the amount of NOx and SOx RTCs offered for sale was more than adequate to cover the demand by RECLAIM facilities.

The exceedances did not affect achievement of the overall emission reduction goals of the program. Despite these exceedances at individual facilities, the total emissions from RECLAIM facilities were well below the total allocations for the year. The total amount of the exceedances was 1.02 tons/day of NOx (1.4 tons/day in 1994) and 0.02 tons/day of SOx (0.1 ton/day in 1994). This represents about 1 percent of the total NOx allocation and less than 0.1 percent of the total SOx allocation for the 1995 compliance year. Figures 5-2 and 5-3 compare audited emissions, reported emissions and exceedances to the aggregate allocations for NOx and SOx, respectively.

Figure 5-2
NOx Allocations, Emissions, and Exceedances for 1995 Compliance Year

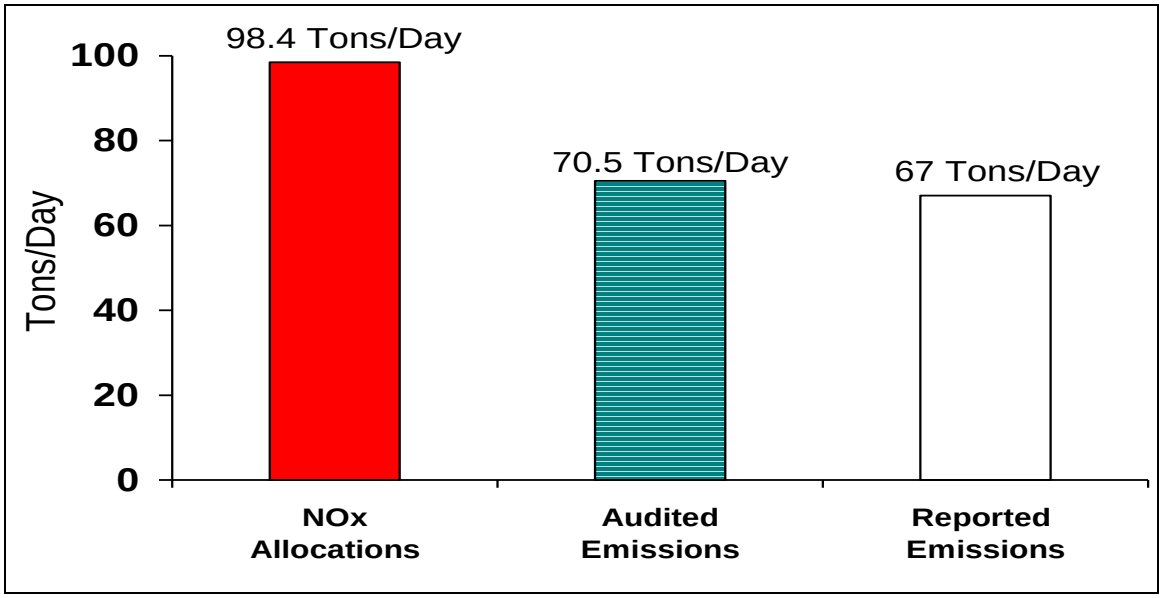
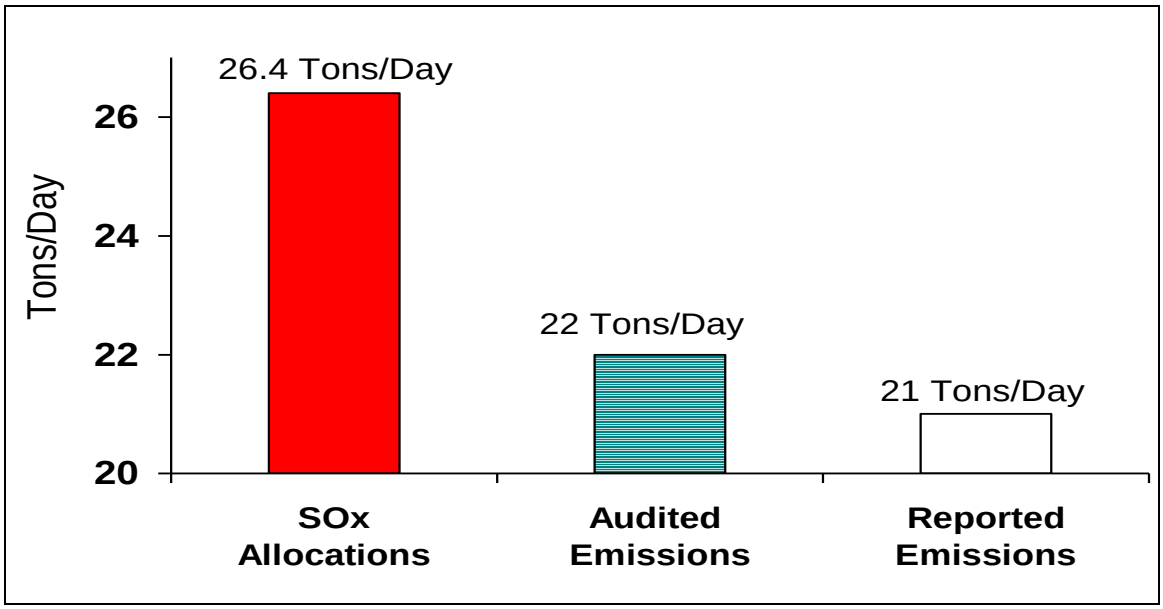


Figure 5-3
SOx Allocations, Emissions, and Exceedances for 1995 Compliance Year



Effects of Missing Data Procedures

Missing Data Procedures (MDP) were designed to provide a method for determining emissions when the emissions monitoring systems failed to yield a valid emissions measurement. These occurrences may be caused by the unavailability or failure of the monitoring systems. On March 10, 1995 the Board adopted an amendment to the RECLAIM Rules to allow an additional six months

for Cycle 1 facilities with Major Sources to certify the required continuous emissions monitoring systems (CEMS) for such sources. This action allowed both Cycle 1 and Cycle 2 RECLAIM facilities the same amount of time (18 months) since the start of the RECLAIM program to install and certify CEMS. If a Major Source is not equipped with a certified CEMS by July 1, 1995, the rules require emissions from this source be calculated according to MDP which in this case call for a "worst case" determination based on 100 percent uptime, maximum throughput, and uncontrolled emission factors. As a result, emissions for these cases are reported at higher than actual levels.

There are also other instances where MDP are used to substitute for periods where emissions or fuel usage data are not obtained. However, the resulting emissions reports are more representative of the actual emissions than the scenario described above. In these cases, averages or maximum of previous operating periods are allowed to be used.

On September 8, 1995, the Board amended the rule to provide additional time for certifying CEMS in cases where technological difficulties or inordinate costs are encountered. Despite these time extensions, major portions of the emissions reported using MDP for the second compliance year were results of not having a certified CEMS by the deadline. Based on the APEP reports, emissions determined by MDP totaled 16.1 tons/day of NOx (23 % of total) and 8.9 tons/day of SOx emissions (40 % of total). However, preliminary results of the emissions audit showed that some facilities have not applied MDP where required due to misunderstanding of the rule requirements. This will likely increase emissions reported pursuant to MDP. Figures 5-4 and 5-5 show the NOx and SOx emissions reported using MDP versus the total reported emissions respectively and list the numbers of NOx and SOx facilities respectively that have emissions estimated using MDP.

Figure 5-4
NOx Reported Emissions from Normal Monitoring vs Missing Data Procedures for 1995 Compliance Year

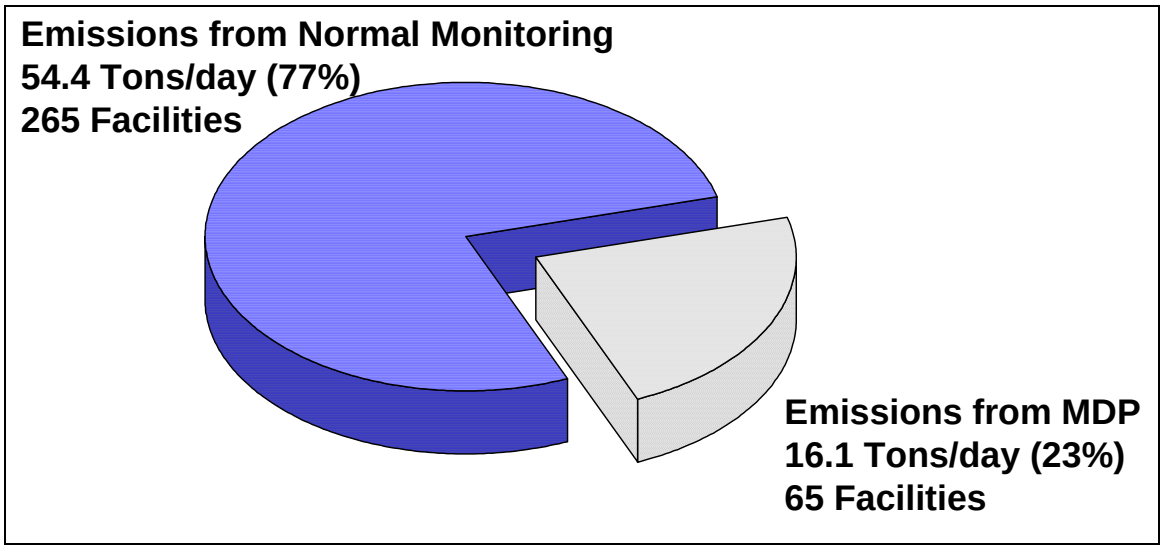
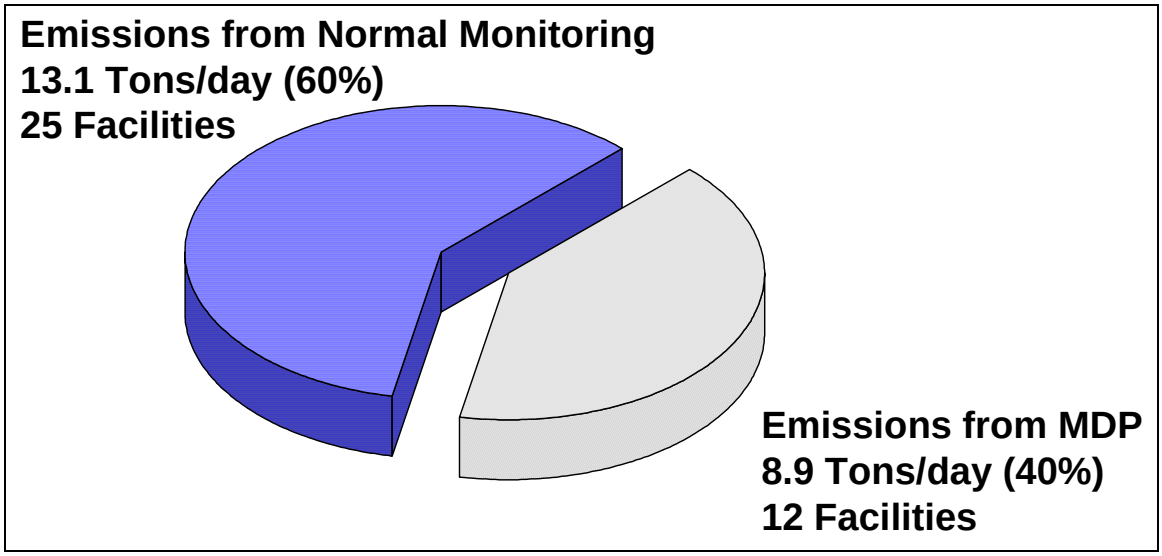


Figure 5-5
SOx Reported Emissions from Normal Monitoring vs Missing Data Procedures for 1995 Compliance Year



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)	Process Units (NOx and SOx)	Rule 219 Equipment (NOx and SOx)
Monitoring Method	Continuous Emission Monitoring System (CEMS)	Fuel Meter or Continuous Process Monitoring System (CPMS)	Fuel Meter or Timer	Fuel Meter or Timer

Continuous Emission Monitoring Systems (CEMS)

Requirements

CEMS represent both the most accurate and 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 regulations. These are devices that do not directly monitor NOx or SOx mass emissions, but, rather, correlate them to one or more 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

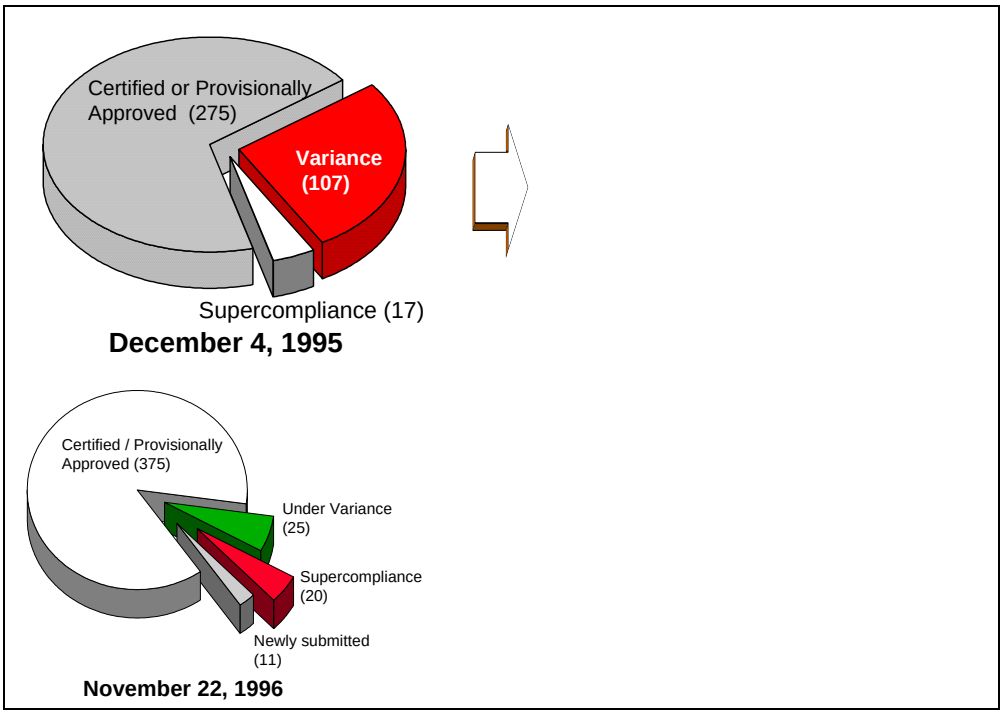
During the last compliance year, many facilities experienced delays in their schedules for the installation of the required CEMS, due to the complex nature of CEMS and the need to customize CEMS to each individual application. The AQMD recognized that delays in CEMS installations and certification testing would cause RECLAIM facilities to report emissions using the missing data procedures. On September 8, 1995, the Governing Board amended RECLAIM to extend the use of interim reporting procedures to December 31, 1995 for cases where technical problems were encountered.

As of November 1996, there were 86 facilities in the RECLAIM universe requiring a total of 431 CEMS. This is compared to November 1995 when it was reported that there were 90 facilities in this universe requiring a total of 399 CEMS. During the intervening year facilities and sources were both added to and removed from the list of facilities and sources requiring CEMS because the facilities:

- added new equipment subject to RECLAIM major source requirements;
- opted into RECLAIM;
- started up previously shut down equipment;
- filed for super compliance to remove major source requirements;
- derated equipment to remove major requirements; or
- shut down operations.

Figure 5-6 compares the status of CEMS as of November 22, 1996 compared to that reported in the previous audit report.

Figure 5-6
Status of CEMS as of December 4, 1995 and November 22, 1996



Of those CEMS that are not certified or do not have provisional approval, 11 (3 %) 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.

Over the course of RECLAIM implementation, CEMS technical issues arose, which delayed certification of many CEMS. To address these issues and further assist facilities in complying with major source monitoring requirements, a Standing Working Group on RECLAIM CEMS Technical Issues (SWG) was formed to provide a forum in which facility representatives, consultants and AQMD staff could discuss and work out technically sound and reasonable solutions. Although the SWG is open to any interested party, the issues tend to be associated mainly with the difficult situations faced by refineries in implementing CEMS requirements. This is attributed to the variability of the fuel used in refinery equipment as compared to natural gas, the operational variability of much of the affected equipment, and the fact that many of the sources in an older refinery were never constructed with CEMS monitoring in mind. The SWG created three subcommittees 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

As a result of the joint efforts of industry representatives and AQMD staff in the SWG, the technical issues that have been adversely affecting final

certification status are being resolved, and final certification of all but those cases involving unique technical situations are expected to be completed at a rapid pace.

Semiannual and Annual Assessments of CEMS

One measure of the quality of CEMS data are the semiannual and annual assessments of CEMS performance, known as the Relative Accuracy Test Audits (RATA). These audits compare the CEMS data to reference method data taken simultaneously by a source testing contractor that is approved by the AQMD through its Laboratory Approval Program as required by RECLAIM. The 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).

Over the past one to two years, RECLAIM facilities have been conducting RATAs of certified CEMS—using private sector testing laboratories approved under the AQMD Laboratory Approval Program—at their prescribed intervals, either semiannually or annually depending on the relative accuracy value which is the sum of the average differences and the confidence coefficient. If all relative accuracies are 7.5 % or less, than the interval is annual. Table 5-2 summarizes the passing rates for 836 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 5-2
Passing Rates Based on Relative Accuracy Test Audits of Certified CEMS

Concentration						Stack Flow Rate				Mass Emissions			
NOx		SO2		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
265	99	26	100	37	73	29	100	259	97	262	98	58	83

[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

The passing rates for SOx mass emissions and total sulfur concentration in fuel gas monitors stand out as the exception to otherwise very high passing rates. For the SOx mass emissions, which exclude the sources associated with total sulfur in fuel gas monitors, the combined uncertainties for concentration and flow rate caused the mass emissions to exceed the standard. For total sulfur in fuel gas monitors, the uncertainties in the concentration was the driving force behind the low passing rate. This indicates the uncertainty is inherent in the measurement methods themselves.

The use of total sulfur in fuel gas monitors is permitted under RECLAIM and, since multiple sources are tied to the total sulfur monitor, its use is more cost effective than individual SO2 monitors on each emission source. The SWG has been studying several aspects of the total sulfur monitoring alternative to isolate and resolve technical problems that are resulting in the reduced passing rates. The areas of study have been the reference method sampling and analytical techniques, the quality and consistency of the calibration standards available, and the total sulfur monitors themselves. The major problem—believed to account for the majority of the RATA variability—has been found to be calibration standards. Working with both affected facilities and calibration gas vendors, staff is close to resolving the problems, implementing quality control cross checks, and assuring consistent products from the calibration gas providers.

Although it is important to note the very high passing rate for RATAs other than total sulfur monitors; it is also natural to consider the representativeness of such a high rate, considering that a failure puts that source into "out-of-control" status, requiring the use of missing data substitution. Therefore, AQMD staff is in the process of developing a CEMS performance audit program through which the above results can be confirmed. Through independent audits of the RECLAIM program, the AQMD will either build confidence that the program is indeed working well, or identify areas that need addressing so as to assure valid and reliable emissions data.

Alternative Continuous Emissions Monitoring Systems (ACEMS)

RECLAIM rules require the use of CEMS to determine emissions from Major Sources. This type of equipment directly measures the emissions concentrations and volumetric flow rates from the sources. Alternatively, the rule allows the determination of emissions by measuring other process parameters which directly influence the amounts of emissions from a source and the use of mathematical models which correlate the measured parameters to emissions. These types of devices must be demonstrated through rigorous tests to be equivalent in relative accuracy, reliability, and timeliness to a CEMS for a source according to criteria specified in 40 CFR Part 75 Subpart E. The minimum testing period under this Subpart is a continuous 30-day period. The added advantage of ACEMS to CEMS besides being less costly is that the monitored parameters give insights to the operations of the source which are always valuable to the operator.

At the initial stage of implementation, nine companies expressed interest in installation and operation of ACEMS. Only one company, Southern California Gas Company, has continued the effort and completed the installation and certification of an ACEMS. The rest of the companies determined that the project was either not cost effective or not attainable based on the design. In an effort to lower testing cost for ACEMS, the AQMD originally planned to develop alternative criteria for approving ACEMS based on the results from the initial group of companies. However, with only one company successfully demonstrating the use of ACEMS, there was not enough data to support the development of such criteria.

The Southern California Gas Company operates two engines each of which drives a natural gas compressor. These compressors are used to compress

natural gas into underground storage facilities. The ACEMS model is based on five measured parameters and one calculated parameter. A separate model is developed for each engine even though the same parameters were used in the models. These two ACEMS were issued final certification in December 1996. Due to the nature of ACEMS, the AQMD requires the operator to provide the capability to remotely access the ACEMS, view real-time data and download the data collected.

Super Compliance

On September 8, 1995, the Board amended the RECLAIM rules to allow qualifying facilities to reclassify major sources to NOx Super Compliant Large Sources or SOx Super Compliant Process units which are not required to be monitored by CEMS. The qualifying facility must either have continuously operated under their year 2003 allocations from the compliance year 1994 or modify equipment to operate below such a level. The facility must also retire all RTCs in excess of its year 2003 allocations. The deadline for filing for such status was December 2, 1996. As of the deadline, a total of 9 NOx and 4 SOx facilities had filed for "Super Compliant" status. Two of the NOx facilities filed right before the deadline and have not received provisional approval. All the rest of the facilities are conducting source tests for setting either a concentration limit or an alternative emission factor.

Emissions Reporting

The second compliance year also marked the start of electronic reporting of emissions to the District Central Station. For Major Sources, a system known as a Remote Terminal Unit (RTU) is required to automatically gather data collected by the emissions monitoring devices, generate daily emissions reports and submit them to the Central Station electronically. If a required daily emissions reports is not filed within the deadline, RECLAIM rules require late reports be filed using MDP. For Large Sources and Process Units, the RECLAIM rules allow the operator to either use the RTU or a modem to submit electronic emissions reports.

As in certifying the CEMS, technical problems were encountered by RECLAIM facilities trying to comply with the electronic emissions reports requirements. Integration of the monitoring equipment and the RTU proved to be a major challenge to RECLAIM facilities in that doing so requires a combination of expertise with both types of equipment. For facilities without Major Sources, electronic reporting was less complicated. Unfortunately, some of these facilities are smaller in size and less advanced in automation. For these facilities, electronic reporting also resulted in some confusion.

Problems associated with electronic reporting can be divided into the following categories:

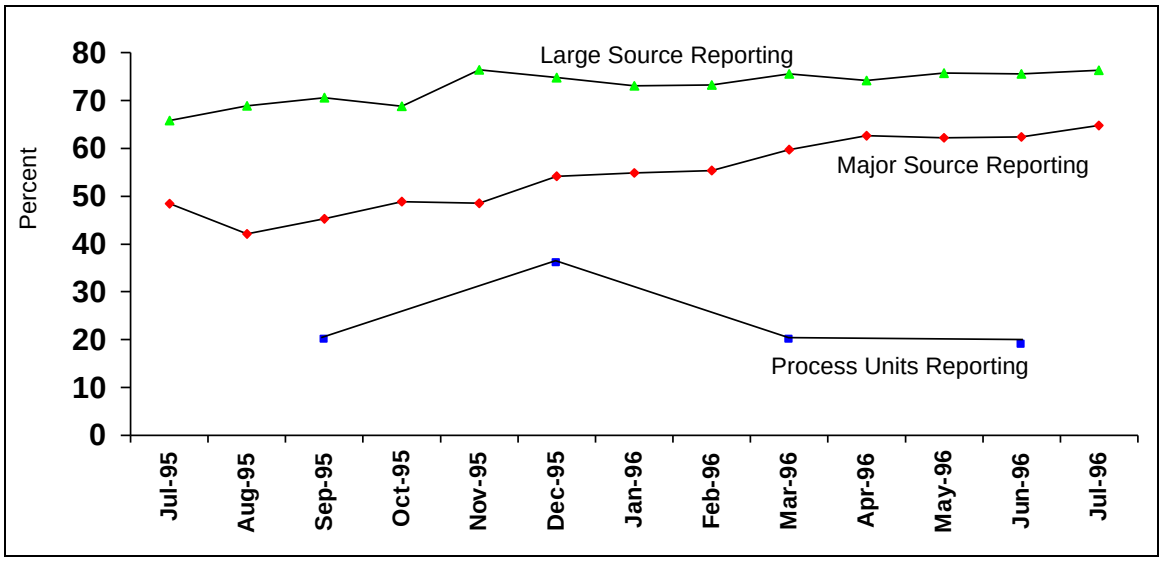
- **Integration Problems:** Most every RECLAIM facility employed independent contractors to develop and install RECLAIM monitoring and reporting equipment. There were contractors that were not fully equipped with the knowledge to integrate both the monitoring and reporting

equipment. This resulted in various reporting failures including inaccurate reporting, late reporting, and non-reporting.

- **Unqualified Contractors:** Some of the contractors employed by RECLAIM facilities proved to be incapable to fulfill the contracts to set up a fully integrated system. Some contractors eventually went out of business. Their systems were non-functional. As with much computer software, these systems are extremely hard to repair. Most of these systems had to be replaced with completely new systems.
- **Misunderstanding of MDP:** The integrated CEMS are required to perform calculations pursuant to MDP whenever valid data is not obtained. In the development of the software, the provisions of MDP were not correctly interpreted and applied in some cases. In response, a working group of industry, independent contractors and District staff was formed to discuss and refine the MDP. As a result, rule amendments will be presented to the Board for adoption in February of 1997.
- **Failure to Follow File Transfer Protocols:** To ensure proper transfer of data, a protocol was specified with the RECLAIM rules to closely follow standard electronic file transfer protocols. Failure to adhere to such protocols resulted in the non-receipt of data.
- **Misunderstanding of Requirements:** The requirements for electronic reporting of emissions from process units were contained in the Protocols to the RECLAIM Rules which caused confusion for RECLAIM facilities with Process Units. The RECLAIM rules were amended in July 1996 to clarify this requirement.

Figure 5-7 shows the compliance percentage of electronic reporting for each classification of sources. As is apparent from the figure, the requirements of electronic reporting for process units were not well understood. Staff is continuing to work with industry to resolve issues related to electronic reporting. One of the planned efforts will be to form a development group for a standardized algorithm for performing calculations according to MDP.

Figure 5-7
Compliance Percentage of Electronic Reporting



Comparison between Reported and Audited Emissions

Compliance Year 1995

Every RECLAIM facility was audited in both the first and second compliance years to verify the accuracy of the reported emissions. The results of the audits revealed that most of the emissions reports were accurate. Preliminary results of the audits for the second compliance year showed that 62 % of the NOx emissions reports and 74 % of the SOx reports are within 1 % of the audited emissions. Table 5-3 shows the comparison between the reported data and the audited data for the second compliance year

Table 5-3
Comparison of Reported to Audited Emissions for 1995 Compliance Year

	Number of NOx Facilities**	Number of SOx Facilities**
Reported **>** Audited Emissions	61	4
Reported **<** Audited Emissions	71	6
Reported = Audited Emissions*	214	28

* with $\pm$1 % accuracy

** Total number of facilities was greater the number of facilities in the universe because facilities which went through change of ownership and shutdown were also included in the audits.

The reasons for the discrepancies between the reported emissions and audited emissions were:

- **Calculation errors** Errors in calculations including rounding-off and arithmetical errors were found during the audits.

- **Incorrect emission factors** Wrong emissions factors were used to calculate emissions. In some instances, devices with different emissions factors were sharing a common fuel meter and emissions were calculated at the lower emission factor.
- **Omission/Incorrect Missing Data Procedures** Due to unfamiliarity with the rules, some facilities did not calculate emissions in accordance with the specified Missing Data Procedures. These included cases where facilities failed to gather and record fuel usage data.
- **Omission of emissions from non-permitted equipment** Emissions from equipment which is exempted from permit requirements are also required to be reported under RECLAIM. However, some facilities neglected to include such emissions in their the APEP reports.

Compliance Year 1994

A very similar result was obtained from the audit of the first compliance year data where 64 % of the NOx emissions reports and 73 % of the SOx emissions reports were within 1 % of the audited emissions. The reasons for the differences are similar to those found for the second compliance year. Table 5-4 shows the comparison between the reported data and the audited data for the first compliance year.

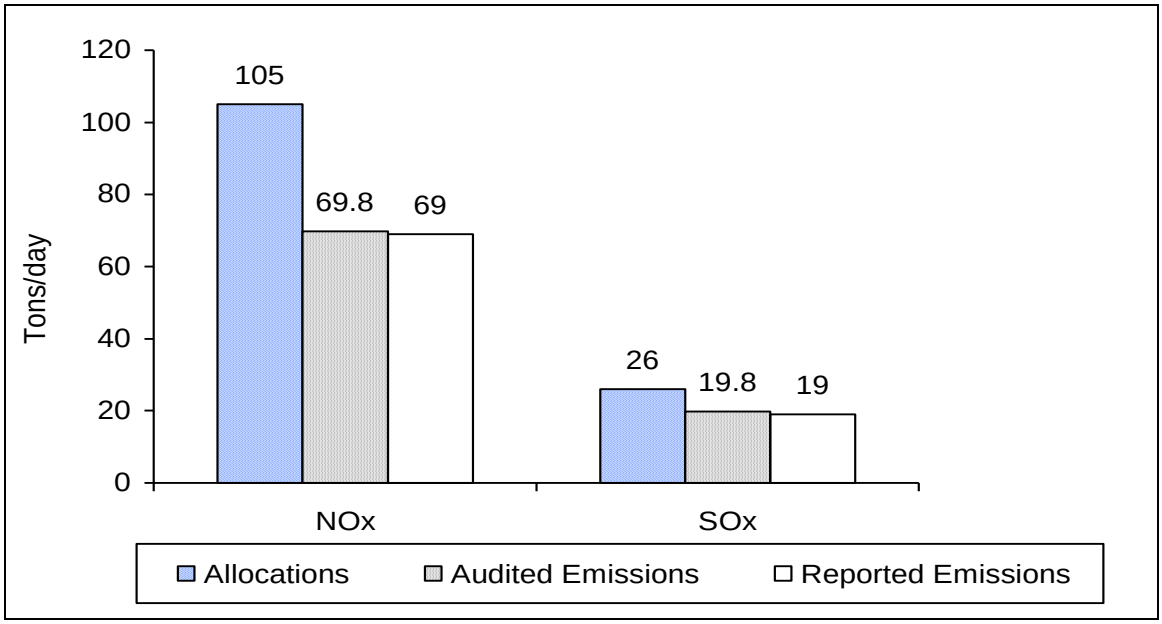
Table 5-4
Comparison of Reported to Audited Emissions for 1994 Compliance Year

	Number of NOx Facilities**	Number of SOx Facilities**
Reported **>** Audited Emissions	54	5
Reported **<** Audited Emissions	75	6
Reported = Audited Emissions*	226	29

* with $\pm$1 % accuracy
** Total number of facilities was greater the number of facilities in the universe because facilities which went through change of ownership and shutdown were also included in the audits.

The first year audit also revealed that overall emissions were accurately reported and remained essentially unchanged. In the January 1995 Annual Report, emissions were reported based on information collected through the Annual Permit Emission Program (APEP) Reports submitted by the facilities and preliminary results from comprehensive audits of all RECLAIM facilities. The final audited data for the first compliance year were not available at the time of filing the Annual Report and are presented below. Total emissions during compliance year 1994 were still under the allocated emissions even though there were slight increases over the reported data. Figure 5-8 shows the 1994 allocations, reported emissions and the final audited emissions.

Figure 5-8
1994 Allocations, Audited Emissions and Reported Emissions



The first annual report shows that 46 facilities exceeded their allocations. The audits revealed that 15 of these facilities did not actually exceed their allocations and that four additional facilities did exceed their allocations. As a result, a total of 35 facilities exceeded their allocations and a total of 36 exceedances were found. Table 5-5 lists the detailed comparison of number of exceedances between the January 1994 Report and the results of the audits. In addition to the reasons mentioned above for changing the emissions report, the following caused changes in the initial findings:

- **Changes in Allocations** Some facilities have requested review of their allocations which were not finalized when the report was filed. Some of these reviews resulted in increased allocations for facilities.
- **Additional information provided by the facilities** Facilities provided information to substantiate that the emissions were not accurately reported.

Table 5-5
Changes in the Number of Exceedances

	Audit Results	January, 1995 Report
Facilities Exceeded NOx Allocations	33	40
Facilities Exceeded SOx Allocations	1	2
Facilities Exceeded NOx and SOx Allocations	1	4
Facilities Exceeded Allocations	35	46
TOTAL Count of Allocation Exceedances	36	50

The total amount of exceedances from these 35 facilities were 1.1 tons/day of NOx and 0.12 tons/day of SOx. Table 5-6 shows the comparisons of the exceedances between the reported emissions and the audited emissions.

Table 5-6
Comparisons of Exceedances (tons/day)

	NOx	SOx
First Annual Audit Report	**1.4**	**0.1**
Final Audit Result	**1.1**	**0.12**

Status of Transition From Command and Control Limits

RECLAIM facilities continued to make progress towards complying with monitoring and reporting requirements. As of December 1996, 151 facilities have certified all their required CEMS, installed fuel meters and timers, and started reporting electronically. For these facilities, the command and control limits have been removed from their facility permits. The rest of facilities are encountering difficulties in certifying CEMS or installing meters on stand-by fuels, or are experiencing reporting problems. AQMD staff will continue to work with these facilities to resolve technical difficulties and assist them in coming into compliance.

Protocol Review

As required in Rule 2015(b)(1), staff has reviewed "the effectiveness of enforcement and protocols [for the purpose of recommending any appropriate] revisions to the protocols to achieve improved measurement and enforcement of RECLAIM emission reductions while minimizing administrative cost to the District and RECLAIM participants," and has the following recommendations:

- Staff believes that its compliance program has been comprehensive and highly effective. Emission audits of each RECLAIM facility have been continued. Staff also conducted one "Clean Air Partner" forum and two workshops and maintained regular industry groups and working groups meetings. These meetings focused discussions 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. Staff recommends that the AQMD continue to conduct annual RECLAIM compliance audits for each facility and conduct other inspections and site visits as appropriate, and continue its outreach effort to assist sources in achieving and maintaining continued compliance.
- Staff has worked closely with RECLAIM participants to resolve issues and concerns regarding the NOx and SOx MRR protocols in a timely manner. Since the program was adopted, staff has produced several rule interpretation and implementation guidance documents to clarify and resolve specific concerns about the protocols raised by RECLAIM

participants. A list of these documents is included in Appendix D. 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 five times since program adoption. The most recent amendment to the protocols was on July 12, 1996. Staff also works with RECLAIM participants through the Standing Working Group on RECLAIM CEMS and the Working Group on Missing Data to resolve CEMS-related issues. Resolutions from these working groups have been carried through either rule implementation guidance documents or rule amendments. A rule amendment reflecting the resolutions from the Missing Data Working Group is scheduled for hearing and adoption in February 1997. Staff will continue to work closely with RECLAIM participants to continue to resolve concerns in the most timely and appropriate manner.

CHAPTER 6
NEW SOURCE REVIEW ACTIVITY

Summary

The annual program audit examines new source review (NSR) activity in order to verify that RECLAIM is ensuring compliance with applicable offset and best available control technology (BACT) requirements without preventing existing facilities from expanding their operations or new facilities from entering the program. NSR activity during RECLAIM's second compliance year included expansion or modification of 114 facilities, as well as two existing facilities entering the NOx market and two existing facilities entering the SOx market.

RECLAIM is required to offset NOx and SOx emission increases by at least a 1.2-to-1 ratio on a programmatic basis. During compliance year 1995 RECLAIM provided programmatic offsets of 8.4-to-1 for NOx and 12.6-to-1 for SOx. The evaluation of NSR activity during the second compliance year continues to show that RECLAIM is in compliance with both State and Federal NSR requirements.

Background

Both state and federal law require NSR programs to ensure that emission increases from the construction of new or modified stationary sources in nonattainment areas does not interfere with progress towards attainment of ambient air quality standards. RECLAIM implements NSR offset requirements in a unique way in that compliance is demonstrated on a programmatic basis rather than for each individual NSR activity. Therefore, each annual RECLAIM audit must assess NSR permitting activity in order to verify that programmatic compliance with state and federal NSR requirements has been maintained. This assessment of NSR activity also includes a verification that RECLAIM has not inhibited the construction and operation of new or modified sources at existing facilities or been a barrier to the construction of new facilities.

Rule 2005 - New Source Review for RECLAIM is designed to allow new sources into the program and to allow existing facilities to expand while complying with the NSR requirements of state and federal law. Rule 2005 establishes best available control technology (BACT), modeling, and offset requirements which must be met by new, relocated, and modified sources at RECLAIM facilities which result in emission increases of RECLAIM pollutants.

AQMD reports to the Governing Board annually regarding the effectiveness of RECLAIM NSR in meeting federal requirements for the preceding year pursuant to Rule 2005(j). The second such report was submitted to the Governing Board in May 1996 and is attached as Appendix E. Henceforth the RECLAIM NSR report will be incorporated into the annual audit for the same period and will no longer constitute a separate report.

NSR Activity

Evaluation of NSR data for the 1995 compliance year indicates that once again many facilities operating under RECLAIM have successfully opened or expanded their operations. One hundred fourteen existing RECLAIM facilities and four facilities entering the RECLAIM markets experienced NSR activity during the 1995 compliance year. The permits issued in each case met all applicable NSR requirements. Table 6-1 summarizes new and expanded operations under RECLAIM.

Table 6-1
Summary of 1995 RECLAIM NSR Activity

Activity	Number of Facilities
New Facilities	0
Existing Facilities Entering RECLAIM Market	2 NOx 2 SOx
Existing RECLAIM Facilities with Expansions or Modifications	114

RECLAIM facilities are required to hold offsets for emission increases of RECLAIM pollutants at a 1-to-1 ratio pursuant to Rule 2005. However, the program overall must comply with the federal NSR offset requirement for offsets at a 1.2-to-1 ratio. For 1995 the actual programmatic offset ratios achieved were 8.4-to-1 for NOx and 12.6-to-1 for SOx (refer to Appendix E for further discussion of the programmatic offset ratio). Thus, sufficient RTCs were available within the trading market to meet the total demand for RTCs, including the demand for offsets by new and expanding RECLAIM facilities.

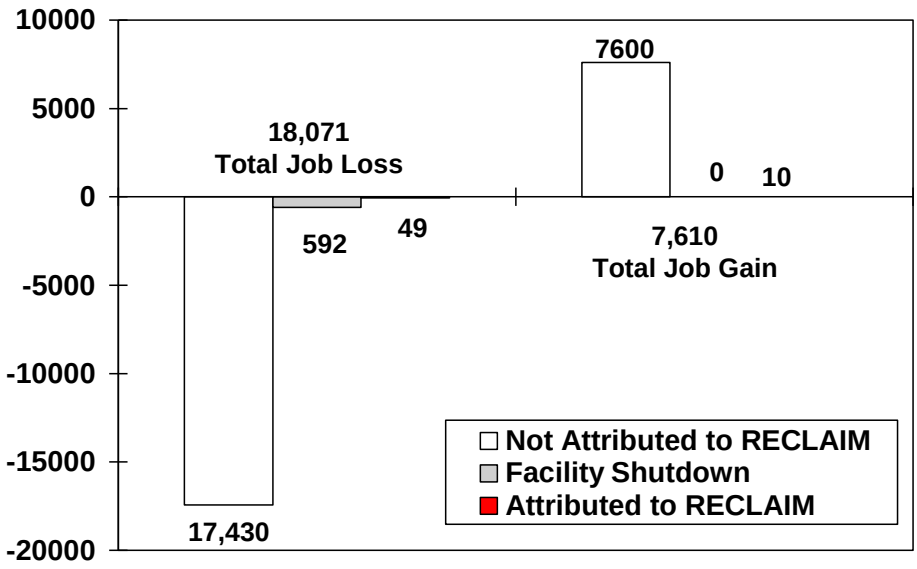
The evaluation of NSR activity during the second compliance year continues to show that RECLAIM is in compliance with both Federal and State NSR requirements. RECLAIM in aggregate satisfied the requirement of no net increase emissions on an annual basis. In addition, RECLAIM rules are designed in such way that Facility Permit holders cannot obtain permits to construct and operate for all new or modified sources in their facilities unless BACT is employed on such sources. Furthermore, all emissions from a new or relocated RECLAIM facility must be fully offset by obtaining RTCs. The use of such RTCs is subject to the trading zones restrictions to ensure net ambient air quality improvement within the sensitive zone. AQMD will continue to monitor NSR activity under RECLAIM in order to ensure continued progress towards attainment without hampering economic growth.

CHAPTER 7
JOB IMPACTS

Summary

During the 1995 compliance year, five RECLAIM facilities attributed 10 job gains to RECLAIM, specifically for new hires tasked with performing the monitoring, reporting and recordkeeping requirements of the program. Five RECLAIM facilities attributed 49 of the job losses to RECLAIM. Ten RECLAIM facilities shut down or went out of business in 1995. None of these shutdown facilities cite RECLAIM as a contributing factor in their decision to cease operation. Jobs lost due to RECLAIM represent only 0.03% of the jobs at RECLAIM facilities. This level is significantly less than the 866 jobs forgone, on average, per year from 1994 to 1999 predicted at program adoption.

Figure 7-1
Comparative Job Loss and Job Gains



Background

RECLAIM's impact on jobs in the regional economy was assessed by examining job data submitted by RECLAIM facilities as part of their Annual Permit Emissions Program (APEP) reports for compliance year 1995.

The APEP reports include the number of manufacturing and non-manufacturing jobs at each facility at both the beginning of the compliance year. In addition to the numbers of jobs at the beginning of the compliance year, the APEP reports also ask 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 is attributable to the RECLAIM program, and a brief explanation of the job increases or decreases attributed to RECLAIM. AQMD staff also contacted the facility 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 their facilities' particular circumstances. AQMD engineers and inspectors familiar with the facilities reporting RECLAIM-related job loss and gains also contributed their experience and expertise to the assessment of RECLAIM's impact on the job market. Some of these insights are presented in the following section. A more detailed exposition can be found on Appendix F.

Job Impact Details

Rohr, Inc., a large aerospace component manufacturer in Riverside county, is a RECLAIM facility that lost 207 jobs in 1995. According to the facility contact these jobs were lost because of the economic downturn, except for three manufacturing jobs that he directly attributed to the RECLAIM program. These three jobs were lost because the company shut down its cogeneration/turbine to avoid installation of the required Continuous Emissions Monitor. The facility instead generates steam by using electricity that the company buys from the City of Riverside. Although it resulted in the loss of three jobs, this shift in power use ultimately brought down emissions at this plant and resulted in monitoring cost savings.

CalResources in Huntington Beach operates a land-based oil production plant that uses pumps to extract oil from beneath the continental shelf off Huntington Beach. In 1995, this facility lost 9 jobs, 8 because of the economic downturn and 1 directly attributed to RECLAIM. Prior to RECLAIM, and the first year of RECLAIM implementation, this facility operated six internal combustion engines to power the pumps in the facility. In 1995, the facility decided to avoid RECLAIM's strict monitoring, reporting and recordkeeping requirements by converting to electricity. This power shift, just like at Rohr, Inc., resulted in a job loss of one operator, a decrease in emissions and monitoring cost savings.

Further inland, in the City of Carson, Rhone-Poulenc, Inc. regenerates sulfuric acid that originates from refineries. The process involves the burning of the spent sulfuric acid by spraying it inside a furnace. Rhone-Poulenc, Inc. reported a job gain of 12 manufacturing employees, one of which was hired specifically to maintain compliance with the monitoring, reporting and recordkeeping requirements of the RECLAIM program.

Another RECLAIM facility, Tandem Industries, an aluminum smelting plant in the City of Fontana in San Bernardino county reported a job gain of 20 employees. One of these employees is tasked with maintaining compliance with RECLAIM's monitoring, reporting and recordkeeping requirements. The company also reported a job loss of 4 employees, none of which were attributed to RECLAIM.

The preceding examples show that for the most part, job gains attributed to RECLAIM provided the facility extra hands to monitor, report and record their emissions, three important compliance checkpoints. Other facilities that attribute reported job losses and gains to RECLAIM are identified in Appendix F. This appendix also includes more detailed information about the numbers of jobs lost

and gained at each facility, the portion of the losses and gains attributed to RECLAIM, and a summary of the comments provided by the facility representatives. The comments indicate that it might be more accurate to attribute such job loss to air quality regulation in general rather than to RECLAIM in particular, or, in some cases, to the overall regulatory structure of which air quality regulations are only one component.

Table 7-1
Job Impacts at RECLAIM Facilities

	CYCLE 1			CYCLE 2			
	MFG	NON-MFG	ALL	MFG	NON-MFG	ALL	**TOTALS**
Initial Jobs	30,891	24,285	55,176	57,822	37,431	95,253	**150,429**
Overall Job Gain	2,023	542	2,565	3,219	1,826	5,045	**7,610**
Job Gain Attributed to RECLAIM	7	1	8	2	0	2	**10**
Overall Job Loss	4,924	5,335	10,259	4,570	3,242	7,812	**18,071**
Job Loss Attributed to RECLAIM	46	0	46	3	0	3	**49**
Final Jobs	27,990	19,492	47,482	56,471	36,015	92,486	**139,968**
Net Job Change	-2,901	-4,793	-7,694	-1,351	-1,416	-2,767	**-10,461**
Percent Job Change	-9.39	-19.74	-13.94	-2.34	-3.78	-2.90	**-6.95**
Facilities Reporting Job Gains			47			66	**113**
Facilities Reporting Job Losses			48			72	**123**
Facilities with Job Gain Attributed to RECLAIM			4			1	**5**
Facilities with Job Loss Attributed to RECLAIM			4			1	**5**
Facilities that Shut Down			3			7	**10**
Job Loss Attributed to Facility Shutdowns	294	11	305	258	29	287	**592**

Data Analysis

Data gathered from the 1995 APEP reports are tabulated in detail on Table 7-1. The table shows an initial inventory of 150,429 jobs among the 344 RECLAIM facilities at the beginning of 1995 compliance year. These are composed of 88,713 manufacturing and 61,716 non-manufacturing jobs.

Forty-seven Cycle 1 and sixty-six Cycle 2 facilities reported an overall job gain of 7,612 new positions. TRW, a Cycle 2 facility, which already employs 4213 manufacturing employees reported a gain of 835 manufacturing jobs, the highest number of new hires. Hughes Aerospace & Electronics Co., another Cycle 2 facility, employed 612 non-manufacturing personnel in 1995 and reported a gain of 1,092 non-manufacturing jobs. Among Cycle 1 facilities, Frito-Lay reported the biggest job gains. They added 561 manufacturing and 35 non-manufacturing jobs. In addition, Disneyland added 322 non-manufacturing jobs

in 1995. However, none of these new positions were attributed to the RECLAIM program.

Five RECLAIM facilities reported a total job gain of 10 that are attributed to the program. According to the facility contacts these new employees were hired specifically to monitor, report and record emissions from the sources in the plant.

In general, the RECLAIM-related job gains reported by facilities are attributed to the increased monitoring, reporting and recordkeeping requirements of the RECLAIM program. These tasks include meter reading for large sources, process units and Rule 219-exempt equipment; and maintenance of monitoring equipment such as CEMS, remote terminal units (RTUs) and modems.

On the job loss column, 18,071 positions were lost in 1995, with 3.27 % or 592 jobs lost due to the shutdown of 10 facilities. The highest number of job loss from shutdowns was reported by Crown Beverage Packaging, a beverage can manufacturer damaged in the Northridge earthquake. The company shutdown meant of loss of 129 manufacturing and 3 non-manufacturing jobs. None of these 10 facility shutdowns were attributed to the RECLAIM program.

Ninety-six percent, or 17,479, of the job losses were reported by facilities that continue to operate. The biggest job losses among this group can be traced to the dissolution of the Soviet Union. As part of the peace dividend realized from the fall of the Berlin Wall, base operations at March Air Force Base were reduced and 4,300 positions were lost, most of them reassigned to other military bases in the country. However, the facility contact commented that strict air quality compliance regulations may have been a factor in the decision to reduce operations at March AFB.

The peace dividend was also a factor in the reported 4,197 jobs lost at two Northrop Corp. facilities in Los Angeles. Because of the reduction in military spending that resulted from the victory of capitalism over communism, these two defense facilities began reducing their work force and shifting some of their operations into the commercial arena. None of these lost jobs were attributed to RECLAIM program requirements.

Five facilities attributed 49 job losses directly to RECLAIM. The highest job loss attributed to RECLAIM was reported by Powerine, a petroleum refiner located in Los Angeles county. Powerine has shut down normal operations but continues to maintain their equipment permits on the active status in the hope of resuming operations. A total of 320 jobs have been reported lost in this facility and the facility contact claims that 32 of these job losses were directly attributable to the program. This facility may permanently close if no purchaser can be found to take over the operations. A plant closure of a sub-contractor for a large Los Angeles refinery also attributes all 12 of its job losses to RECLAIM. More details on these and other facilities that reported job gains and losses attributable to RECLAIM can be found in Appendix F.

Figure 7-2
Overall Change in Jobs at RECLAIM Facilities

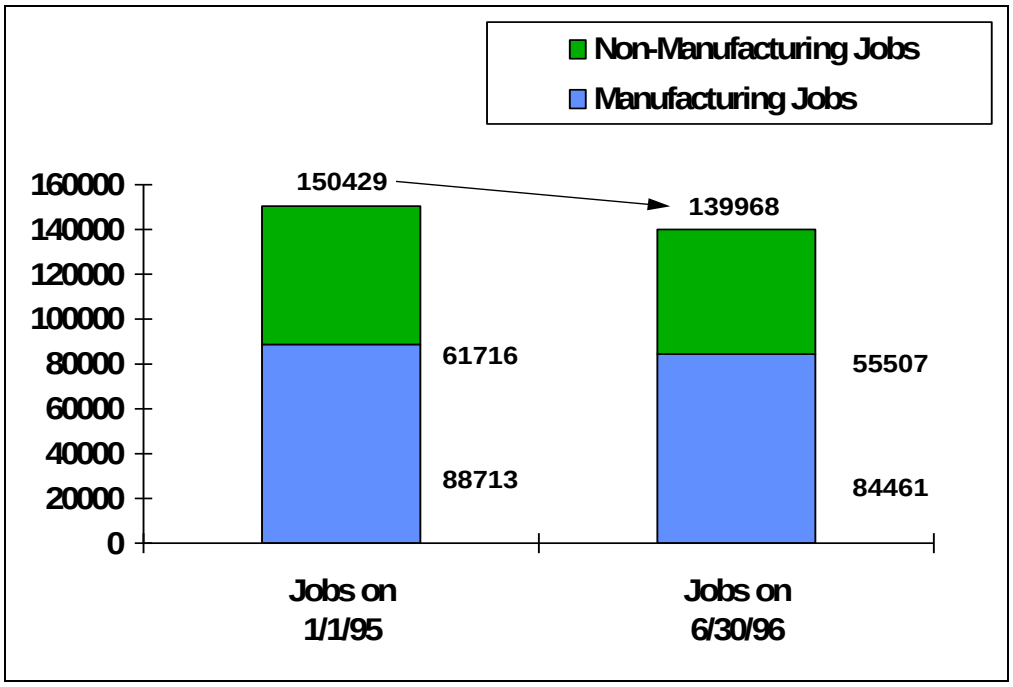


Figure 7-2 above illustrates the net changes in jobs at RECLAIM facilities. A total of 10,461 jobs were lost among RECLAIM facilities and 49 of these jobs were directly attributed to the program.

Refer to Appendix F for more details on these job changes. In general, job gains attributed to RECLAIM are a direct result of the stringent monitoring, reporting and recordkeeping requirements of the program, while most of the job losses attributed to RECLAIM were a direct result of plant shutdowns where air quality considerations were minor factors.

Additionally, it should be noted that the analysis of job impacts is confined to job losses and gains occurring at RECLAIM facilities; it does not address jobs created in the economy outside of RECLAIM facilities as a result of the RECLAIM program. These jobs include the fabrication and maintenance of monitoring, reporting and recordkeeping equipment; third-party electronic reporting of emissions; independent contractors for source testing and certifying monitoring equipment; and the trading of RECLAIM Trading Credits (RTCs).

Some of the facilities whose job gains and losses are not quantifiable include a defense contractor that shut down normal operations in 1995 and an unstaffed cogeneration facility. More details about these job changes are also included in Appendix F.

CHAPTER 8
AIR QUALITY AND PUBLIC HEALTH IMPACTS

Summary

As only two full compliance years of data are available, the ability to assess the performance of RECLAIM with regard to the air quality and public health concerns identified in Rule 2015: emission trends, seasonal fluctuations, per capita exposure to air pollution, and toxic risk reduction is limited. However, the currently available data does not suggest significant adverse air quality impacts. RECLAIM facility emissions in the second compliance year were comparable to or lower than any year back to 1989 for NOx and about average for SOx emissions from 1989 to 1994, indicating that the program did not cause an emission increase. Furthermore, no seasonal fluctuations in emissions are discernible at this time and per capita exposure to ozone was lower in 1995 than in any previous year. The AQMD continues to monitor the geographic patterns of emissions from RECLAIM facilities, and at this time there appears to be no geographic shift in emissions due to RECLAIM. RECLAIM sources continue to be subject to the same air toxic regulations as other Basin sources, including Rule 1402, which requires facilities with significant health risks to implement risk reduction plans.

Background

The RECLAIM program was designed to comply with all applicable requirements of state and federal law, including specific requirements pertaining to air quality and public health. As part of program development, the AQMD conducted extensive analysis of RECLAIM's impacts on air quality and public health, and concluded that RECLAIM would achieve nearly identical benefits compared to the regulatory programs it replaces.

To ensure that RECLAIM achieves the expected air quality and public health benefits during implementation, Rule 2015 provides for annual and three-year assessments. In particular, the annual program audit is specifically required to assess emission trends, seasonal fluctuations in emissions, per capita exposure to air pollution, and toxic risk reductions. Based on these requirements and other concerns expressed during program development, this chapter of the report addresses:

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

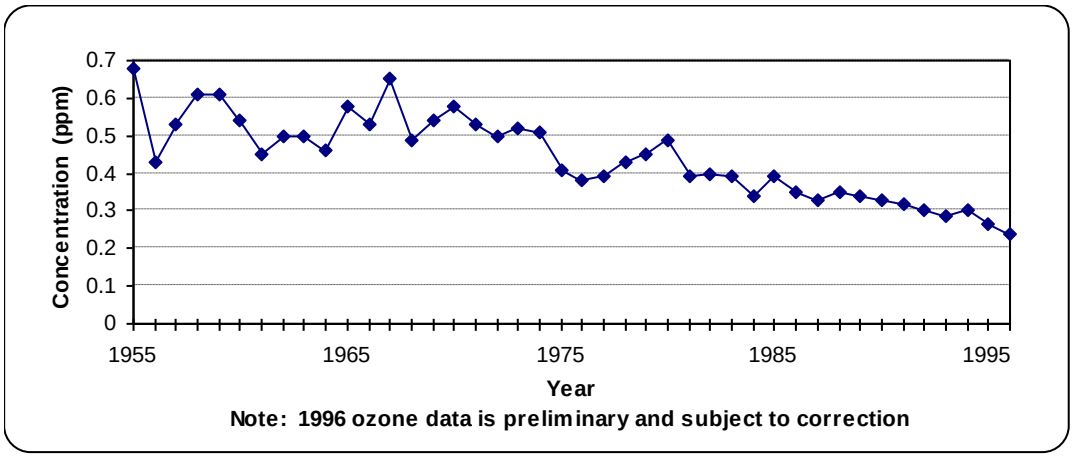
This annual program audit is being prepared during the third year of program implementation. Therefore the data available for this report is limited to that generated during the early portion of the program—only two compliance years have been completed. This data is not adequate to fully evaluate potential trends in

air quality or public health impacts. Additional data will be available for future annual and three-year audits. The three-year audits in particular will include an evaluation of whether public health exposure to criteria pollution has been significantly reduced, and whether public health exposure to toxics has not been significantly increased as a result of RECLAIM.

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. RECLAIM applies to only a portion of emissions in the Basin. Therefore any observed trends in air quality are not necessarily attributable to the implementation of RECLAIM.

Overall, air quality has improved dramatically in the Basin in recent years. For example, the annual maximum basin ozone concentration has been steadily declining over recent years, as illustrated by Figure 8-1 which presents the trend in maximum ozone concentration in the Basin for the past four decades. Although the data for 1996 is preliminary and subject to change, it appears that 1996 will set a new record for the lowest annual maximum ozone concentration. Preliminary data also indicates that there were fewer exceedances of the federal ozone standard, but more exceedances of the state ozone standard, in 1996 than in 1995.

Figure 8-1
Annual Basin Maximum Ozone Concentration, 1955 through 1996



Emission Trends for RECLAIM Sources

During program development, concerns were expressed that RECLAIM might cause sources to increase their emissions during the early years of the program due to a perceived over-allocation of emissions. However, the following analysis indicates that this did not occur.

Figures 8-2 and 8-3 show the trend in emissions for RECLAIM sources for the years 1989 through 1995. The 1994 and 1995 emission values represent the first and second RECLAIM compliance years of both Cycle 1 and Cycle 2 facilities. These charts show an overall downward trend in emissions from RECLAIM

facilities over this time period. Emissions in 1995 of NOx were the lowest for the time period and emissions in 1995 of SOx were consistent with the average yearly emissions for the time period.

Figure 8-2
NOx Emission Trend for RECLAIM Sources

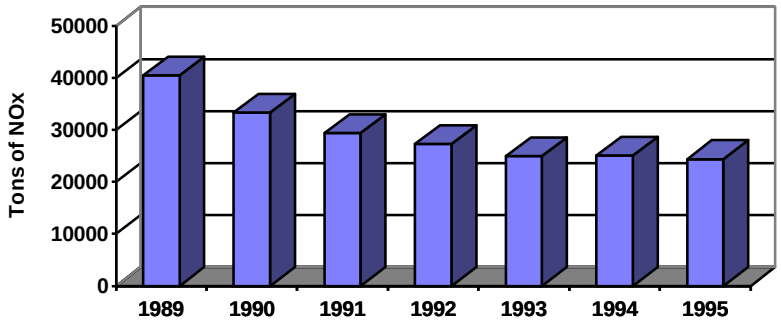
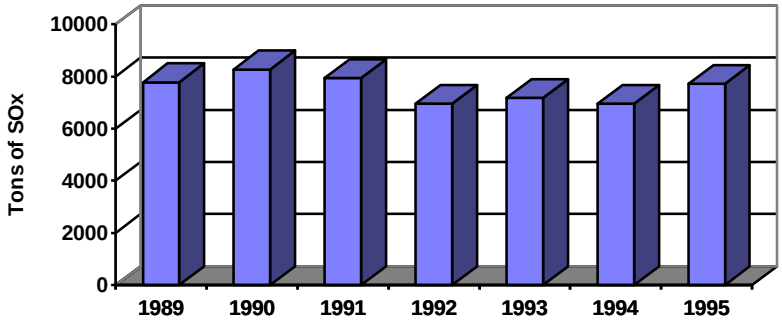


Figure 8-3
SOx Emission Trend for RECLAIM Sources



Seasonal Fluctuation in Emissions for RECLAIM Sources

During program development, concerns were expressed that the RECLAIM program, and particularly the removal of concentration-based emission limits on equipment, might cause facilities to shift emissions from the winter season into the summer ozone season, and therefore exacerbate air quality. Again, analysis indicates that such a shift in emissions did not occur.

RECLAIM facilities report their total facility NOx and SOx emissions on a quarterly and annual basis. Thus, the quarterly emissions data can be used in order to evaluate seasonal fluctuations in emissions. At the time of this report, quarterly emissions data is available for the first two full compliance years for both Cycle 1 facilities (January 1, 1994 through December 31, 1995) and Cycle 2 facilities (July 1, 1994 through June 30, 1996). Subsequent quarterly emission reports have

been received by AQMD, but this data is undergoing quality assurance review. The data indicates that Cycles 1 and 2 exhibit little variation in NOx or SOx emissions on a quarterly basis except for the quarters just prior to and after the second quarter of 1995. This period of fluctuation is explained by three events that happened at that time. The drop in emissions during the first quarter of 1995 is due to refinery production slowdown for retooling for reformulated gasoline. The increases in emissions for the second and third quarters of 1995 are due to the large scale start of production of reformulated gasoline and the end of the interim period for use of emissions factors and the subsequent use of missing data procedures.

This quarterly emissions performance is depicted graphically in Figures 8-4 and 8-5, which show the quarterly NOx and SOx emission levels of RECLAIM facilities by cycle designation. As quality-assured data is only available for these first two years of the program, it does not clearly indicate any seasonal patterns in emissions which might be expected to persist. The AQMD will continue to monitor and assess seasonal emission patterns for RECLAIM sources as additional data is collected.

Figure 8-4
Cycle 1 NOx and SOx Quarterly Emissions

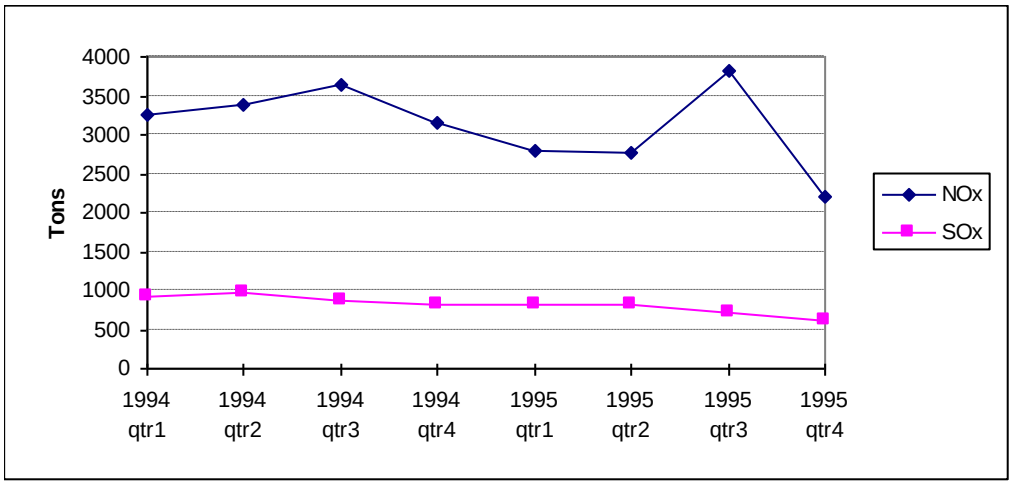
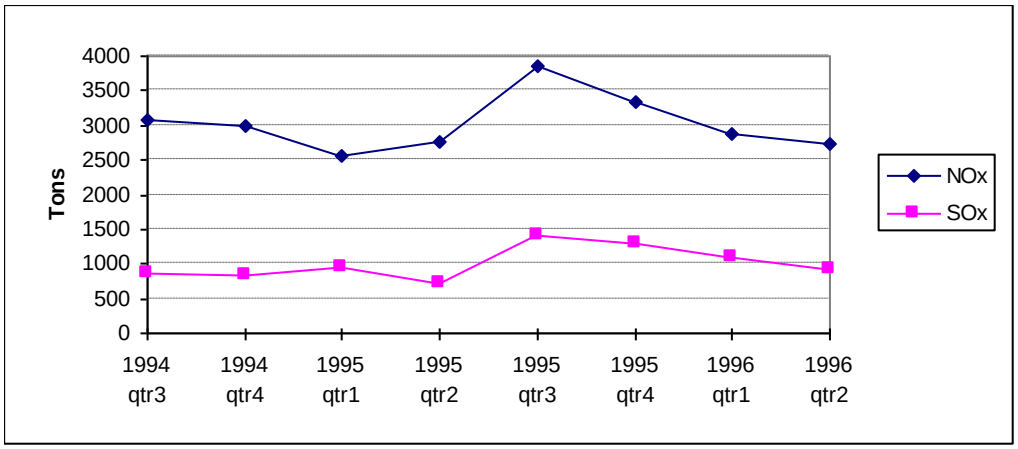


Figure 8-5
Cycle 2 NOx and SOx Quarterly Emissions



Geographic Distribution of Emissions

Concerns were raised during program development that RECLAIM could alter the geographic distribution of emission reductions in the Basin and potentially adversely affect air quality in certain areas. To address this concern, the audit report examines quarterly patterns of emissions. However, analysis of the geographic distribution of RECLAIM emissions on both a quarterly and an annual basis does not show any distinct shift in the geographic pattern of emissions.

Quarterly Emissions Maps

The AQMD maps RECLAIM emissions on a quarterly basis pursuant to Rule 2015(b)(2). Quarterly NOx and SOx emission maps for the first eleven quarters of the RECLAIM program are included in Appendix G. (Maps not available on Internet; for copy contact Merrill Hickman at 909.396.2676.)

In accordance with the RECLAIM compliance schedule, the first two quarters of 1994 include Cycle 1 facility emissions only. The following quarters include both Cycles 1 and 2. The maps for the first three quarters of 1996 are preliminary and subject to revision pending quality assurance review.

The quarterly maps available to date do not appear to show any distinct shift in the geographic pattern of emissions. The AQMD will continue to produce quarterly maps and assess the geographic pattern of emissions as additional quarterly emissions data becomes available.

Annual Emissions Maps

To further evaluate whether RECLAIM has caused a geographic shift in emissions, the reported annual emissions from RECLAIM facilities for the first year of the program were mapped and compared to the second year of the program year and also the most current data on the third year. These maps are provided in Ap-

pendix H. (Maps not available on Internet; for copy contact Merrill Hickman at 909.396.2676.) Note that these maps were prepared on a calendar year basis.

The yearly emissions maps combine emissions data from both Cycles 1 and 2. The first year's data includes only two quarters of emission data for Cycle 2 facilities due to the six month separation in the cycles. The second year contains a full set of data from both cycles. The third year contains only three quarters of data which have not been quality assured.

Although the emissions totals are lower for the first and third years as expected, the maps do not appear to show any distinct geographic shift in emissions. The AQMD will continue to assess the geographic pattern of emissions as additional data becomes available.

Per Capita Exposure to Pollution

Per capita population exposure reflects the length of time the Basin population is exposed to unhealthful air quality. The California Clean Air Act (CCAA) establishes specific milestones for achieving reductions in overall population exposure to severe nonattainment pollutants in the Basin. These milestones are 25 percent reduction by December 31, 1994, 40 percent reduction by December 31, 1997, and 50 percent reduction by December 31, 2000, compared to a 1986-88 baseline.

Modeling performed during program development projected that the Basin would comply with these milestones, with a margin of safety, under NOx and SOx RECLAIM. The modeling showed that compared to the 1991 AQMP, per capita exposure reductions under RECLAIM would be nearly identical for 1994, and greater in 1997 and 2000. However, the modeling also projected that while RECLAIM would decrease overall Basin-wide ozone exposure, RECLAIM might increase per capita ozone exposure in all counties except Los Angeles county in 1994.

The federal ambient ozone standard is 0.12 parts per million (ppm) and the California ambient ozone standard is 0.09 ppm. SCAB experienced exceedances of both the state and federal standards in 1995. Not surprisingly, there were more hours of exposure above the more stringent state standard than above the federal standard. However, the four counties, and SCAB overall, have made substantial progress toward continuous attainment of the state standard: the actual hours of exceedance of the state standard during 1995 was significantly below the CCAA milestones for 2000.

Table 8-1 summarizes the number of hours the average person in each of the four counties and in the South Coast Air Basin (SCAB) was exposed to ambient ozone in excess of the federal standard during 1995. Table 8-1 also compares this exposure data to the average annual hours of exposure above the federal standard during the 1986 through 1988 time period and the projected hours of exposure above the federal standard in 2000. Table 8-2 summarizes the corresponding data for the more stringent state standard. Additionally, Table 8-2 compares the actual hours of exposure to ambient ozone concentrations in excess of the state standard with the CCAA ambient ozone exposure milestones.

The effect, if any, of RECLAIM on exposure patterns is difficult to assess due to fluctuations in annual meteorology. The AQMD will continue to monitor and assess exposure patterns as additional data becomes available in future years.

Table 8-1
Hours Above the Federal Standard of 0.12 ppm

Location	1986-1988[a]	1995	2000
SCAB[b]	23.5	5.1	3.5
Los Angeles	22.4	3.2	4.2
Orange	6.6	0.4	2.3
Riverside	24.1	6.8	2.5
San Bernardino	59.8	23.9	1.9

[a] Average over three years
[b] South Coast Air Basin

Table 8-2
Hours Above the State Standard of 0.09 ppm

Location	1986-88 Actual[a]	1994 Target	1995 Actual	1997 Target	2000 Projected	2000 Target
SCAB	80.5	60.4	24.2	48.3	17.1	40.2
Los Angeles	75.8	56.8	17.4	45.5	19.7	39.9
Orange	27.2	20.4	5.3	16.3	10.4	13.6
Riverside	94.1	70.6	37.7	56.5	19.4	47.0
San Bernardino	192.6	144.4	89.5	115.6	11.9	96.3

[a] Average over three years
[b] South Coast Air Basin

Toxics Impacts

During program development, a comprehensive evaluation of the potential impacts of RECLAIM on air toxic emissions was performed. This analysis concluded that RECLAIM would not result in any significant impacts on air toxic emissions. Nevertheless, in order to ensure that the implementation of RECLAIM does not result in adverse toxics impacts, the annual program audit is required to assess toxic risk reductions.

RECLAIM sources are subject to the same air toxic regulations as other sources in the Basin. Air toxics programs applicable to sources in the AQMD include:

- The federal National Emission Standards for Hazardous Air Pollutants (NESHAP) program, under which the EPA promulgates standards for specific source categories of air toxics;
- The state AB 2588 Air Toxics “Hot Spots” Program, which requires certain facilities to report their toxic emissions, notify exposed persons about significant health risks, and implement risk reduction plans;
- The state AB 1807 Toxic Air Contaminant Identification and Control Program, under which the state identifies toxic air contaminants and promulgates air toxic control measures for specific source categories; and
- Rule 1401 - New Source Review of Carcinogenic Air Contaminants, which limits increases in carcinogenic air contaminants from new, modified and relocated sources.

Since RECLAIM was adopted in October 1993, the AQMD has continued to implement these programs as well as adopt and implement new air toxic control measures pursuant to state and federal requirements. Toxic regulations promulgated since October 1993 include:

- Rule 1402 - Control of Toxic Air Contaminants from Existing Sources, which requires certain facilities generating significant health risks to implement risk reduction plans, adopted pursuant to AB 2588 as amended by SB 1731;
- Rule 1407 - Control of Emissions of Arsenic, Cadmium and Nickel from Non-Ferrous Metal Melting Operations, adopted pursuant to the AB 1807 program; and
- Eighteen new federal NESHAPs.

These regulations will further ensure that RECLAIM does not result in adverse air toxic health impacts. Rule 1402 in particular will ensure that any RECLAIM facilities which are found to pose a significant health risk will be required to reduce the risk. In addition, air toxic health risk is primarily caused by volatile organic compounds (VOC) emissions, rather than NOx or SOx emissions. As a result, implementation of NOx and SOx RECLAIM will not significantly impact air toxic emissions.

The AQMD will continue to monitor and assess toxic risk reduction as part of future annual and three-year audits.

CHAPTER 9
OTHER PROGRAM ACTIVITIES

Summary

AQMD staff has conducted a variety of activities in order to further improve the effectiveness of RECLAIM. These activities include: amendments to Regulation XX to address issues ranging from clerical corrections to changes in monitoring requirements and emission factors used for calculating allocations; technology reviews, as required by Rule 2015, to assess the achievablility of ending emission factors based on various control measures in the 1991 Air Quality Management Plan (AQMP); and implementation of the super compliance amendments of September 1995.

Background

In addition to the tasks directly associated with implementation and enforcement of the program, staff has conducted other activities to support RECLAIM and improve its effectiveness. These activities include:

- Amendments to Regulation XX;
- Technology Reviews; and
- Implementation of Super Compliance amendments.

Each of these activities is discussed below.

Amendments to Regulation XX

The Governing Board has amended Regulation XX six times since initially adopting it in October 1993. These amendments have incorporated a wide variety of changes into the RECLAIM program, ranging from clerical corrections through changes in monitoring requirements and emission factors used for calculating allocations of RECLAIM Trading Credits to new program elements. The various amendments are summarized in greater detail below in reverse chronological order:

- The most recent amendments to Regulation XX were adopted by the Governing Board July 12, 1996. These amendments were necessary to clarify rule requirements and improve monitoring, reporting, and recordkeeping flexibility for RECLAIM facilities. In particular, these amendments:
  - Provided procedures consistent with Rule 430 - Breakdown Provisions for reporting equipment breakdowns affecting RECLAIM pollutants;
  - Clarified RTC allocations after compliance year 2010;
  - Consolidated requirements for reports on RECLAIM issues;

- Clarified requirements for Super Compliant facilities;
- Provided a period of time for CEMS repairs;
- Added language to clarify monitoring, reporting, recordkeeping, and other requirements;
- Provided more accurate emission factors for cement kilns; and
- Allowed for an alternative to the NOx ending emission factor for cement kilns based on a demonstration plan (refer to the discussion of Technology Reviews, below, for further information regarding the amendments pertaining to cement kilns).

- RECLAIM was again amended on May 10, 1996. These amendments incorporated protection of visibility for Federal Class I areas and notification of Federal Land Managers into Regulation XX. These amendments were necessary in order to satisfy requirements of federal law.
- The December 7, 1995 amendments addressed concerns identified by EPA as issues requiring resolution in order for the program to receive federal approval into the State Implementation Plan. These issues included:
  - Definitions;
  - Variances;
  - New Source Review;
  - Executive Officer discretion;
  - Test methods; and
  - EPA's Economic Incentive Program showings;

  The proposal also reviewed emission reduction requirements for five industries:
  - Glass melting furnaces;
  - Gray cement kilns;
  - Steel slab reheating;
  - Metal melting furnaces; and
  - Hot mix asphalt.

  These technology reviews resulted in revisions for the glass and cement industries (refer to the discussion of Technology Reviews, below, for further information regarding the amendments pertaining to the review of emission reduction requirements and the associated emission factor amendments). Additionally, two exemptions from the RECLAIM program were adopted for ski resorts and San Clemente Island.
- On September 8, 1995, the Governing Board amended Rules 2011 and 2012. These amendments helped to ease the burden of RECLAIM's

monitoring and reporting requirements as they pertain to major sources. Specifically, the amendments:

- Provide for the reclassification of a major NOx source to a large NOx source or a major SOx source to a SOx process unit, if a facility can be deemed "Super Compliant." The term Super Compliant denotes a facility with current emissions that are below its adjusted allocation for compliance year 2003 or a facility which can reduce its current emissions by the installation of air pollution control equipment to below its adjusted allocation for compliance year 2003. Eleven facilities have been provisionally approved as super compliant. Of these, seven are super compliant for NOx and four for SOx. An additional two facilities have applied for NOx super compliance and are currently under AQMD review to verify eligibility for provisional approval.
- Expand the acceptable valid data range of a CEMS from 20 to 95 percent of the full scale span (FSS) range to 10 to 95 percent of the FSS range. This also applies to oxygen analyzers. The NOx and SOx Protocols as initially adopted required the use of Missing Data Procedures anytime a CEMS reads concentrations below 20 percent of FSS range. Since the RECLAIM program focuses on the measurement and reporting of actual emissions and the use of Missing Data Procedures does not necessarily yield the measurement or reporting of actual emissions, it is imperative that a RECLAIM CEMS can accurately measure emissions at both low and high concentrations. To accommodate the capturing of low emissions, the protocols were amended to increase the valid range of acceptable CEMS data to 10 to 95 percent of FSS range.
- Include procedures under which a CEMS which has the "lowest vendor guaranteed" FSS below ten percent can report actual measured values, rather than resorting to Missing Data Procedures when monitoring emissions below ten percent of the FSS. The amended procedures address the fact that some CEMS technology has advanced to the point that it can accurately read low concentrations below ten percent of lowest vendor guaranteed FSS range. The procedures also provide a technological incentive to other CEMS manufacturers to improve their instruments' accuracy at low concentrations.
- Amend the Missing Data Procedures to allow facilities with major sources that cannot certify CEMS using standard equipment to continue using, under specified conditions, the interim period emissions calculation methodology until December 31, 1995 or when the CEMS is finally certified, whichever is earlier, in lieu of using the Missing Data Procedures. This calculation procedure is retroactive to July 1, 1995. Also, amend the Missing Data Procedures to allow facilities with major sources that cannot certify CEMS because: there is an inordinate cost burden associated with flow monitoring as specified under (B)(11); and they cannot apply the Reference Methods as specified in Rules 2011(h)(1) and 2012 (j)(1) and

Appendix A, to continue using the interim period emissions calculation methodology up until June 30, 1996 or when the CEMS is finally certified, whichever is earlier, in lieu of using the Missing Data Procedures. This calculation procedure is retroactive to July 1, 1995.

- Change the relative accuracy requirements for stack gas volumetric flow measurement systems from ten percent to 15 percent. This change is consistent with the EPA's Acid Rain Program relative accuracy requirements.

- The protocols for Rules 2011 and 2012 were amended on March 10, 1995 to ease the reporting requirements for major sources which were unable to meet the certification deadline for CEMS. This amendment allowed Cycle 1 major sources which did not have approved CEMS to continue using the interim period methodology to calculate mass emissions during the period January 1, 1995 through June 30, 1995. This amendment also corrected an inadvertent omission of the missing data procedures for major SOx sources and made the procedures for major SOx sources and major NOx sources consistent.

- The NOx and SOx Protocols (Appendix A to Rule 2011 and Appendix A to Rule 2012) were amended on September 9, 1994. These amendments allow RECLAIM facilities to calculate major source missing data from historical data based upon EPA-promulgated procedures. This enables facilities subject to both RECLAIM and EPA's Title IV (Acid Rain) program to use a common missing data procedure under both programs if certain CEMS testing requirements are met. Additionally, the amendments incorporate an option for facilities to use a bias adjustment factor if the CEMS does not pass the Bias Test. This will allow facilities to reduce the number of tests conducted.

Technology Reviews

Tables 1 and 2 of Rule 2002 - Allocations for Oxides of Nitrogen (NOx) and Oxides of Sulfur (SOx) specify the starting emission factors and ending emission factors used for calculating the contributions to NOx and SOx allocations for various types of equipment (including glass melting furnaces; gray cement kilns; steel slab reheating, flat rolled product annealing, and flat rolled product galvanizing furnaces; metal melting furnaces; hot mix asphalt operations; and petroleum coke calciners). The ending emission factors assume timely implementation of the various control measures in the 1991 Air Quality Management Plan (AQMP). However, it was recognized that the emission reductions called for in the AQMP for certain equipment categories may not be realistically achievable. Therefore, Rule 2015 - Backstop Provisions directs the Executive Officer to evaluate the NOx ending emission factors for these equipment categories and, if indicated by the evaluation results, propose appropriate amendments to Rule 2002. Rule 2015 further directs the Executive Officer to recalculate and reissue all affected Allocations if such amendments are adopted by the Governing Board.

All of the ending emission factor reviews required by Rule 2015 have been completed. The evaluations were based upon technology review of applicable control methods and took into account the environmental, energy, and economic

impacts by each source category in evaluating the achievability of NOx emission reduction technologies. The results of each of these reviews are discussed below:

Glass Melting Industry

RECLAIM requires a 70 percent reduction in NOx emissions by the year 2000 for glass melting furnaces which is reflected in the 1.2 pound per ton of glass pulled ending emission factor. The glass melting technology review focused on the container glass industry. The evaluation of NOx control technologies for container glass furnaces was completed and recommendations were made in 1995. The technology evaluation identified oxy-fuel firing as the most promising technology. Oxy-fuel firing would provide environmental and energy-saving benefits, while still being cost-effective. Emission reductions of 70 percent from current Rule 1117 requirements (4 pounds NOx per ton of glass pulled) can be expected from oxy-fuel furnaces, reducing NOx emissions to, or less than, 1.2 pounds per ton of glass pulled. Staff recommended that the year 2000 emission factor of 0.24 pounds per ton of glass pulled be amended to 1.2 to reflect a 70 percent level of control from the starting emission factor of 4 pounds per ton of glass pulled. The Governing Board adopted this recommendation in December of 1995. The allocations for affected facilities have been adjusted accordingly.

Steel Slab Reheating Industry

RECLAIM requires a 50 percent reduction in NOx emissions by the year 2000 for the steel slab reheating furnaces. A number of control technologies can be used currently in the steel slab reheating industry to reduce emissions from steel slab reheating, flat rolled product annealing and flat rolled product galvanizing furnaces. The existing RECLAIM endpoint factors for these source categories are achievable in a cost effective manner. Options available to reduce NOx emissions include low-NOx burners, flue gas recirculation, oxy-fuel process and selective catalytic reduction. Staff recommended no change to the year 2000 emission factor for this industry. The Governing Board adopted staff recommendations in December of 1995.

Metal Melting Industry

RECLAIM requires a 50 percent reduction in NOx emissions by the year 2000 for metal melting furnaces. A number of control technologies can be used currently in the metal melting industry to reduce emissions from metal melting furnaces. The existing RECLAIM endpoint factors for this source category are achievable in a cost effective manner. Options available to reduce NOx emissions include low-NOx burners and selective non-catalytic reduction (SNCR) utilizing urea injection. Staff recommended no change to the year 2000 emission factor for this industry. The Governing Board adopted staff recommendations in December of 1995.

Hot Mix Asphalt Industry

RECLAIM requires a 50 percent reduction in NOx emissions by the year 2000 for the hot mix asphalt industry. AQMD staff has reviewed existing source test data and evaluated available control technologies. Current combustion modification technology is capable of reducing NOx emissions by greater than 50 percent to levels below those currently required by RECLAIM. The existing RECLAIM endpoint factor for this source category is achievable in a cost effective manner. Options available to reduce NOx emissions include low-NOx burners, flue gas recirculation and low excess air. Staff recommended no change to the year 2000 emission factor for this industry. The Governing Board adopted staff recommendations in December of 1995.

Petroleum Coke Calcining Industry

RECLAIM requires a 30 percent reduction in NOx emissions for petroleum coke calcining. The technology evaluation identified the NOxOut process utilizing urea injection as the only technically feasible control method for this application. Staff recommended that the year 2000 emission factor of 0.61 pounds per ton of calcined coke be amended to 0.971 to reflect a 30 percent level of control from the starting Allocation emission rate. The Governing Board adopted staff recommendations in March of 1995. The appropriate allocations have been made for the affected facilities.

Gray Cement Industry

RECLAIM currently requires an 85 percent reduction in NOx emissions by the year 2000 for gray cement kilns. Four control options have been identified as feasible and cost effective for NOx emission reductions. The first option is combustion and process modifications that would optimize kiln operations. The next two options are indirect firing with low-NOx burners and staged combustion. The fourth control option is SNCR. Staff recommended that the year 2000 NOx emission factor for gray cement kilns be changed from 0.98 to 2.73 pounds per ton of clinker. Staff also recommended that language be added to Rule 2015 which would allow the cement industry to demonstrate the recommended control technologies and if the demonstration shows a higher NOx factor than that which staff is recommending, the Executive Officer will change the year 2000 emission factor listed in table 1 of Rule 2002. The Governing Board adopted staff recommendations in July of 1996. The allocations for affected facilities have been adjusted accordingly.

Allocation Changes

The amendments to the ending emission factors for glass melting furnaces, cement kilns, and petroleum coke calciners resulted in allocations adjustments for five facilities. These allocation adjustments are summarized in Table 9-1.

Table 9-1
Allocation Adjustments Pursuant to Technology Review Amendments to Rule 2002

Year	GLASS MELTING FURNACES			CEMENT KILN	PETROLEUM COKE CALCINER
	Ball-Incon Glass	American National Can	Owens-Brockway Vernon	Cal Portland Cement	ARCO CQC Kiln
	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr
1994	0	0	0	0	0
1995	9.99	9.53	23.49	108.28	12.26
1996	19.98	19.07	46.98	216.57	24.51
1997	29.96	28.60	70.47	324.85	36.77
1998	39.90	38.14	93.96	433.13	49.03
1999	49.94	47.67	117.45	541.41	61.28
2000	59.93	57.20	140.94	649.70	73.54
2001	54.42	51.95	127.99	589.99	66.78
2002	48.91	46.69	115.04	530.29	60.03
2003	43.41	41.44	102.09	470.59	53.27
2004	43.41	41.44	102.09	470.59	53.27
2005	43.41	41.44	102.09	470.59	53.27
2006	43.41	41.44	102.09	470.59	53.27
2007	43.41	41.44	102.09	470.59	53.27
2008	43.41	41.44	102.09	470.59	53.27
2009	43.41	41.44	102.09	470.59	53.27
2010	43.41	41.44	102.09	470.59	53.27
TOTAL	**660.29**	**630.34**	**1,553.00**	**7,158.92**	**810.34**

Implementation of Super Compliance Amendments

As discussed above, the September 1995 amendments to RECLAIM included creation of provisions for super compliant facilities. The intent of super compliance is to encourage early emission reductions by providing a mechanism for facilities to invest in emission controls rather than monitoring and reporting equipment for major sources. The affected major sources may then be reclassified as large NOx sources or SOx process units, which have less rigorous monitoring and reporting requirements, provided they permanently reduce the facility's emissions below the level of its compliance year 2003 allocation. The window of opportunity to apply for super compliance closed in December 1996. A total of 13 facilities have applied for super compliance, of which 11 have received provisional approval and the remaining two are currently under review. Nine of these facilities are pursuing super compliance for NOx and the other four for SOx. Eight of the facilities propose to achieve the requisite emission reductions by installing low NOx burners, three are making process changes, and two do not need to make any modifications. Five of the facilities applying for NOx super compliance produce asphalt and two more make building materials. A more complete description of the facilities which have applied for

super compliance, the industries they represent, and the technologies they propose to reduce their emissions are presented in Table 9-2.

Table 9-2
Super Compliance

FAC ID	NAME	MARKET	STATUS	MODIFICATION	PRODUCT
3704	All American Asphalt	NOx	Provisional Approval	Low NOx Burner	Asphalt
12428	National Gypsum	NOx	Provisional Approval	Low NOx Burner	Wall Board
102299	BMCA Insulation Products	NOx	Provisional Approval	Low NOx Burner	Roofing Insulation
107654	CALMAT	NOx	Provisional Approval	Low NOx Burner	Asphalt
107656	CALMAT	NOx	Provisional Approval	Low NOx Burner	Asphalt
800088	Minnesota Mining & Manufacturing	NOx	Provisional Approval	None	Roofing Granules
800153	Long Beach Naval Shipyard	NOx	Provisional Approval	Low NOx Burner	None (utility equipment only)
16642	Anheuser-Busch	SOx	Provisional Approval	Minimize Sulfur in Fuel	Beer
67945	Great Western Malting	SOx	Provisional Approval	None	Malt
800182	Riverside Cement	SOx	Provisional Approval	Process Change	Cement
800264	Edgington Oil	SOx	Provisional Approval	Fuel Change	Refining
5998	All American Asphalt	NOx	Open Application	Low NOx Burner	Asphalt
110720	Robertson's Ready Mix	NOx	Open Application	Low NOx Burner	Asphalt

CHAPTER 10
RECOMMENDATIONS

The audit results indicate that the implementation of RECLAIM during the first two compliance years was highly successful. It is recommended that AQMD staff:

- Continue to develop area and mobile source credit programs to ensure an adequate future supply of cost-effective emission reduction credits (a Public Hearing to consider a rule establishing a credit generation program for area sources is scheduled for March 1997);
- Continue to investigate the feasibility of linking AQMD's mobile and stationary source credits in order to provide additional compliance flexibility; and
- Continue to monitor and assess the seasonal and geographic patterns of emissions from RECLAIM facilities as additional data becomes available in the future and make any necessary adjustments if information indicates that RECLAIM has created adverse air quality or public health impacts.

APPENDIX A

RECLAIM UNIVERSE OF SOURCES

The RECLAIM universe of sources as of November 1996 is provided below.

Facility ID	Cycle	Facility Name	Market
16395	2	AAA GLASS CORP	NOx
73635	1	ABLESTIK LABORATORIES	NOx
23752	2	AEROCRAFT HEAT TREATING CO INC	NOx
42676	2	AES PLACERITA INC	NOx
5998	1	ALL AMERICAN ASPHALT	NOx
3704	2	ALL AMERICAN ASPHALT, UNIT NO.01	NOx
800003	2	ALLIED SIGNAL INC	NOx
21290	1	ALPHA BETA COMPANY, FOOD 4 LESS	NOx
17840	2	ALPHA THERAPEUTIC CORP	NOx
21837	2	ALPHA/OWENS-CORNING LLC	NOx
12247	1	ALUMAX MILL PRODUCTS INC.	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
21598	2	ANGELICA HEALTHCARE SERVICES GROUP INC	NOx
10141	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
59968	1	BARMET ALUMINUM CORP.	NOx
40034	1	BENTLEY MILLS INC.	NOx
14472	2	BHP COATED STEEL (SUPRACOTE 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
92019	2	BREA CANON OIL COMPANY-ALBERT LEVINSON	NOx
6714	2	BREA CITY	NOx
98159	2	BREITBURN ENERGY	NOx

Facility ID	Cycle	Facility Name	Market
25638	2	BURBANK, CITY OF	NOx
2443	2	CAL INDUSTRIAL PROCESSING CO	NOx
8791	2	CAL-PACIFIC DYEING & FINISHING CORP	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
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
94079	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
15381	2	CHEVRON USA INC., MONTEBELLO	NOx
95212	1	CHROMA SYSTEMS PARTNERS	NOx
12224	2	CITY DYEING & FINISHING CO.	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
11790	2	CONSOLIDATED FILM INDUSTRIES	NOx
68042	2	CORONA ENERGY PARTNERS, LTD	NOx
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
Facility ID	**Cycle**	**Facility Name**	**Market**

99588	2	DOMTAR GYPSUM	NOx/SOx
103618	1	DOSKOCIL SPECIALTY BRANDS FOOD	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
11103	1	ENTENMANN'S INC./OROWEAT FOODS	NOx
109208	2	EXEL TEXTILE	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
75373	2	FPB COGEN INC	NOx
2418	2	FRUIT GROWERS SUPPLY CO	NOx
10055	2	G-P GYPSUM CORP	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
101039	2	GRANITE CONSTRUCTION	NOx
8694	1	GRANNY GOOSE FOODS INC,BELL BRAND FI DIV	NOx
40196	2	GUARDIAN INDUSTRIES INC	NOx/SOx
106325	2	HARBOR COGENERATION CO	NOx
800295	1	HENKEL CORP., EMERY GROUP	NOx
107659	1	HEXCELL CORPORATION	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, EDSG	NOx
800067	1	HUGHES SPACE & COMM.CO.-HUGHES AIRCRAFT	NOx
800232	2	HUNT-WESSON	NOx/SOx
800070	1	HUNTWAY REFINING COMPANY	NOx
100291	2	IMCO RECYCLING OF CALIFORNIA	NOx
800240	2	INLAND CONTAINER CORP	NOx
5830	1	INTERMETRO INDUSTRIES CORP.	NOx
106810	2	INTERSTATE BRANDS	NOx
23589	2	INTL EXTRUSION CORP	NOx
22373	1	JEFFERSON SMURFIT	NOx
16338	2	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
Facility ID	**Cycle**	**Facility Name**	**Market**
41582	1	LA DYE & PRINT WORKS, INC.	NOx

12912	2	LIBBEY GLASS, INC	NOx
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
62897	2	NORTHROP CORP, B-2 DIV	NOx
18294	1	NORTHROP CORP., AIRCRAFT DIV.	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
54167	1	ONSITE ENERGY, TV CITY	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
Facility ID	**Cycle**	**Facility Name**	**Market**
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
66226	2	RED LION HOTEL /ORANGE COUNTY AIRPORT	NOx
15544	2	REICHHOLD CHEMICALS INC	NOx
800109	1	REYNOLDS METALS COMPANY	NOx
800131	1	RHONE-POULENC BASIC CHEMICALS COMPANY	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
108805	1	ROBERTSON READY MIX	NOx
800210	2	ROCKWELL INTERNATIONAL	NOx
14736	2	ROCKWELL INTERNATIONAL, ISC DIV	NOx
800259	1	ROCKWELL INTERNATIONAL, ROCKETDYNE DIV.	NOx
800110	2	ROCKWELL INTL	NOx
800111	2	ROCKWELL INTL CORP	NOx
800113	2	ROHR IND INC	NOx
18455	2	ROYALTY CARPET MILLS INC	NOx
93073	1	SABA PETROLEUM INC.	NOx
4242	2	SAN DIEGO GAS & ELECTRIC	NOx
101499	1	SANOFI BIO-INDUSTRIES	NOx
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
59547	2	SHARYN STEAM INC	NOx
800115	2	SHELL CHEM CORP (EIS USE)	NOx/SOx
16639	1	SHULTZ STEEL COMPANY,GORDON W.SHULTZ DBA	NOx
Facility ID	**Cycle**	**Facility Name**	**Market**
54402	2	SIERRA ALUMINUM COMPANY	NOx
85943	2	SIERRA ALUMINUM COMPANY	NOx
101977	1	SIGNAL HILL PETROLEUM	NOx

800204	2	SIMPSON PAPER CO	NOx
82727	2	SMURFIT NEWSPRINT CORPORATION	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
34055	2	SULLY-MILLER CONTRACTING CO,BLUE DIAMOND	NOx
105318	2	SULLY-MILLER CONTRACTING COMPANY	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
3968	1	TABC INC.	NOx
18931	2	TAMCO	NOx
56427	1	TANDEM INDUSTRIES	NOx
14944	1	TECHALLOY COMPANY, INC.	NOx/SOx
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
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
800144	2	UNION OIL CO OF CAL	NOx/SOx
800319	1	UNION OIL CO OF CAL	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
Facility ID	**Cycle**	**Facility Name**	**Market**
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
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 AND EXCLUSIONS

As discussed in Chapter 1, certain facilities have been included or excluded from the RECLAIM universe since last years audit of the RECLAIM program. The facility inclusions and exclusions are listed below.

Facility Inclusions:

ID	Cycle	Facility Name	Market	Reason
25638	2	BURBANK CITY	NOx	Opt-in at facility request
44551	1	GNB INCORPORATED	SOx	Inspector/Engineer determined to be over 4 ton
16338	2	KAISER ALUMINUM & CHEMICAL CORP	NOx	Inspector/Engineer determined to be over 4 ton
35302	2	OWENS-CORNING FIBERGLASS	SOx	Inspector/Engineer determined to be over 4 ton

Facility Exclusions:

ID	Cycle	Facility Name	Market	Reason
800339	2	ALTA DENA CERTIFIED DAIRY INC.	NOx	incorrect EFB
24199	2	CLEAN STEEL INC	NOx	EFB data error less than 4 ton/yr
17763	2	EPE TECHNOLOGIES, INC	NOx	electrification
42155	2	LUCKY CONTAINER INC	NOx	out of business before RECLAIM
43201	1	SNOW SUMMIT SKI CORP.	NOx	exempted due to 12/7/95 rule 2001(i) change
800263	2	U.S. GOVT, DEPT OF NAVY	NOx/SOx	exempted due to 12/7/95 rule 2001(i) change

APPENDIX C

RECLAIM FACILITIES CEASING OPERATION

AQMD staff is aware of ten RECLAIM facilities that have permanently ceased all operations and gone out of business since last year's audit of the RECLAIM program. These facilities are listed below. The reasons for shutdown cited below are based on AQMD staff's best available information.

Facility ID	6394
Facility Name	ANAHEIM FOUNDRY INC.
City and County	Anaheim, Orange County
SIC	3321
Pollutants	SOx
1994 Allocation	11,926 lb.

Reason for Shutdown: This facility was bought out by one of their competitors for the specific purpose of shutting down the facility.

Facility ID	7120
Facility Name	METAL CONTAINER CORP. OF CALIFORNIA
City and County	Carson, Los Angeles County
SIC	3411
Pollutants	NOx
1994 Allocation	39,782 lb.

Reason for Shutdown: This facility was shut down to consolidate its operations with, and move to, their San Diego County facility.

Facility ID	14092
Facility Name	CPC INTERNATIONAL INC, BEST FOODS DIV
City and County	Santa Fe Springs, Los Angeles County
SIC	2075
Pollutants	NOx
1994 Allocation	4,718 lb.

Reason for Shutdown: The facility closed for economic reasons. The company sold this plant and has moved the operation to the midwest.

Facility ID	19212
Facility Name	BP CHEMICALS (HITCO) INC, FIBERS & MATRLS
City and County	Santa Ana, Orange County
SIC	3229
Pollutants	NOx
1994 Allocation	11,742 lb.

Reason for Shutdown: This facility was contacted by AQMD staff. The reason they gave for going of out of business was competition from their competitors.

Facility ID	19563
Facility Name	BP CHEMICALS (HITCO) INC, FIBERS & MATERIALS
City and County	Santa Ana, Orange County
SIC	2295
Pollutants	NOx
1994 Allocation	7,800 lb.

Reason for Shutdown: This facility was contacted by AQMD staff. The reason they gave for going of out of business was competition from their competitors.

Facility ID	46500
Facility Name	UNION OIL CO OF CAL., SFS
City and County	Santa Fe Springs, Los Angeles County
SIC	1311
Pollutants	NOx
1994 Allocation	86,870 lb.

Reason for Shutdown: This facility was shutd own due to more attractive prospects for the use of the land.

Facility ID	60942
Facility Name	GAF BUILDING MATERIALS CORP
City and County	Irwindale, Los Angeles County
SIC	3292
Pollutants	NOx/SOx
1994 Allocation	lb.

Reason for Shutdown: This facility had actually shut down all of their equipment before the RECLAIM program began. They kept their permits open with the hopes that they would again resume production. Eventually it was decided to completely shut the facility down.

Facility ID	61209
Facility Name	FILTROL CORPORATION
City and County	Los Angeles, Los Angeles County
SIC	2819
Pollutants	NOx
1994 Allocation	

Reason for Shutdown: This chemical manufacturing plant was closed due to its age and the costs to retrofit with current technology were not economically feasible.

Facility ID 73790

Facility Name	LUCKY CONTAINER INC
City and County	Vernon, Los Angeles County
SIC	3086
Pollutants	NOx
1994 Allocation	3,042 lb.

Reason for Shutdown: The facility has gone out of business due to economic reasons.

Facility ID	83278
Facility Name	CROWN BEVERAGE PACKAGING INC.
City and County	Van Nuys, Los Angeles County
SIC	3411
Pollutants	NOx
1994 Allocation	22,398

Reason for Shutdown: This facility was closed due to damage caused by the Northrige earthquake of January 17, 1994. The facility stated that it was too costly to rebuild.

APPENDIX D
RULE INTERPRETATION AND IMPLEMENTATION GUIDANCE DOCUMENTS

AQMD staff has produced Rule Interpretation and Implementation Guidance documents in order to clarify program requirements in response to specific concerns expressed by RECLAIM participants. These documents are available from AQMD's RECLAIM & Title V Implementation Team and include:

Rule Interpretation Documents:

Exclusive Use of Timers	October 27, 1994
Missing Data—Large Sources	October 27, 1994
Non-Operated Equipment	January 5, 1995
Alternative Monitoring and Reporting Systems	May 9, 1995
Inordinate Cost Burden	September 22, 1995
Monitoring Parameters for Strip Charts and Computer Printouts	November 14, 1995
Determination of the actual number of facility operating days used in the automatic and voluntary conversions of Emission Reduction Credits (ERCs) to RECLAIM Trading Credits (RTCs)	May 17, 1996
Provisional Approval and Applicability of Command and Control Rules	July 9, 1996
Provisional Approval for Alternative Monitoring Devices for Major SOx Sources and Major NOx Sources	July 9, 1996

Implementation Guidance Documents:

Equipment Reconfiguration	October 3, 1994
Natural Gas Flow Correction to Standard Conditions	October 3, 1994
Physical Identification of Monitoring and Reporting Equipment	October 3, 1994
Early Use of CEMS	October 10, 1994
Elapsed Time Meters and Internal Combustion Engines	October 10, 1994
Provisional CEMS Approval	January 3, 1995
Non-Operated Equipment	January 5, 1995
Reformulated Gasoline (RFG) projects & RECLAIM Allocations	August 16, 1996

APPENDIX E
REPORT TO GOVERNING BOARD ON COMPLIANCE OF RECLAIM WITH FEDERAL NSR REQUIREMENTS

South Coast
Air Quality Management District
21865 E. Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 · http://www.aqmd.gov

BOARD MEETING DATE: May 10, 1996 AGENDA NO. 25

REPORT: RECLAIM Compliance with Federal NSR Requirements

SYNOPSIS: Rule 2005 - New Source Review for RECLAIM, Subdivision (j), requires the Executive Officer to report to the Governing Board by May of each year, on the effectiveness of RECLAIM NSR in meeting the federal NSR requirements for the preceding year. This report details AQMD's success in meeting federal NSR requirements for 1995.

COMMITTEE: Not applicable.

RECOMMENDED ACTION:
Receive and file this report.

James M. Lents, Ph.D.
Executive Officer

PL:CC:PM:BLY:PYP:scs

Background

The federal NSR program, Title 42, U.S.C. Section 7511a(e), requires major stationary sources in extreme non-attainment areas to mitigate their emissions increases by providing emissions offsets at a 1.5:1 or 1.2:1 ratio when the offsets are obtained from external sources, or a 1.3:1 ratio when the offsets are generated internally. In order to provide RECLAIM facilities with maximum flexibility, as well as to simplify the RECLAIM Trading Credit (RTC) transaction system, Rule 2005 establishes a NSR offset ratio of 1:1 for RECLAIM pollutants. AQMD Rule 2005 establishes pre-construction review requirements for construction of new RECLAIM facilities and for modifications to existing RECLAIM facilities in order to ensure continued progress toward attainment of National Ambient Air Quality Standards without restricting economic growth. Rule 2005, subdivision (j) requires the Executive Officer to annually report to the Governing Board on the effectiveness of RECLAIM NSR in meeting federal NSR requirements for the preceding year. This report summarizes RECLAIM's overall programmatic achievement of the fed-

eral NSR requirements. Because of the annual reduction to each facility mass cap in RECLAIM, the fundamental purpose of NSR is met in that new or modified source emission growth does not negatively affect Reasonable Further Progress goals.

By this report, AQMD demonstrates that RECLAIM generates sufficient excess emission reductions beyond the Clean Air Act requirements, such as reasonably available control technology (RACT), to mitigate the difference between the Rule 2005 offset ratio and the higher offset ratio in federal law.

NSR Compliance Demonstration

During 1995, five tons of NOx RTCs from external sources were provided to offset emissions increases due to operation of a new RECLAIM facility pursuant to Rule 2005(b)(2). In addition, 388 tons of NOx RTCs and 42 tons of SOx RTCs from RECLAIM facilities' allocations were held to offset increases in emissions due to modifications to 114 existing RECLAIM facilities pursuant to Rule 2005(c)(2).

Staff has determined that in 1995 the programmatic emission reductions exceeded the increases in NOx and SOx emissions due to NSR activities (i.e., new or modified existing sources) by the ratio of 8.4:1 and 12.6:1, respectively. Table I shows NSR activity related to RECLAIM NOx and SOx sources in 1995.

Table I: Availability of Programmatic RECLAIM Emission Reductions
Federal NSR Equivalency
(Tons per Year)

Pollutant	NSR Emission Increase	Max. Offsets Required by CAA (1.2:1)	RECLAIM Offsets by RTC (1:1)	Additional Offsets for Federal Equiv. (0.2:1)	RECLAIM Programmatic Total Emission Reductions[1]	Offsets Provided by Programmatic Reductions
NOx	393	471.6	393	78.6	3,299	8.4:1
SOx	42	50.4	42	8.4	530	12.6:1

[1] Programmatic Emission Reduction = Initial Allocation - 1995 Allocation

The total of 3,299 tons of programmatic NOx RTC reductions were 8.4 times greater than the 1:1 offset ratio already provided for in Rule 2005 for emissions increases from NSR activity, far exceeding federal NSR offset requirements of 1.2:1. Similarly, the total of 530 tons of programmatic SOx RTC reductions were 12.6 times greater than the SOx emissions increases.

Above and beyond the programmatic RECLAIM reductions, staff has also determined that in 1995 the allocated, but unused RTCs could also be used as emission offsets against NOx and SOx emissions increases due to NSR activities. The resulting offset ratio is 35.2:1 and 75.4:1 for NOx and SOx, respectively. Table II shows the actual RTC activity related to RECLAIM NOx and SOx sources in 1995.

TABLE 2: Availability of RTCs to Offset NSR Emissions Increase
Based on Actual RECLAIM Emissions Reductions
Federal NSR Equivalency
(Tons per Year)

Pollutant	NSR Emission Increase	RTC Allocated in 1995	Reported Emissions[1]	Unused RTCs Available for NSR Offset[2]	Offsets Provided by Unused RTC[3]
NOx	393	35,906	22,457	13,449	35.2:1
SOx	42	9,693	6,565	3,128	75.4:1

1 These reported emissions are subject to revision.
2 1995 Unused RTCs = Total 1995 Allocation - total 1995 Reported Emissions
3 Offset Ratio = 1 + (1995 Unused RTCs / Total Increase) to 1

Reported NOx and SOx emissions, including emissions increases from operation of new and modified facilities, represent 64 percent and 68 percent of total 1995 NOx and SOx allocations, respectively. The total 13,449 tons of unused NOx RTCs were 35.2 times greater than the 1:1 offset ratio already provided for in Rule 2005 for emissions increases from NSR activity, far exceeding federal NSR offset requirements. Similarly, the total 3,128 tons of unused SOx RTCs were 75.4 times greater than the SOx emissions increases.

The total programmatic annual NOx and SOx reductions, and the unused NOx and SOx RTCs constitute creditable emission reductions since they are real, quantifiable, enforceable, and surplus of Clean Air Act required or RACT emission reductions. Therefore, both the programmatic RTC reductions and the unused RTCs can be used to offset emissions increases due to new or modified existing sources, and the total offset ratios shown in Tables III demonstrate that the RECLAIM program exceeds the federal NSR requirements of 1.2:1 and 1.3:1 for external and internal offsets.

TABLE 3: Total Availability of RTCs to Offset NSR Emissions Increase
Federal NSR Equivalency
(Tons per Year)

Pollutant	NSR Emission Increase	RECLAIM Programmatic Total Emission Reductions	Unused RTCs Available for NSR Offset	Offsets Provided by Programmatic Reductions	Offsets Provided by Unused RTC	Total Offsets Provided by RECLAIM
NOx	393	3,299	13,449	8.4:1	35.2:1	43.6:1
SOx	42	530	3,128	12.6:1	75.4:1	88:1

Conclusion

This analysis indicates that RECLAIM generates sufficient creditable emission reductions, and supplies adequate RTCs to offset NOx and SOx emissions increases due to NSR activities during 1995. Further, RECLAIM provided offsets for all NOx and SOx emissions increases at offset ratios of 43.6:1 and 88:1, respectively. These offsets provided by RECLAIM exceed the federal NSR requirements of 1.2:1 and 1.3:1 for external

and internal offsets. Therefore we conclude that RECLAIM is in compliance with federal NSR requirements in 1995.

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APPENDIX F
JOB IMPACTS ATTRIBUTED TO RECLAIM

Job impacts, including both job gains and job losses, attributed by RECLAIM facilities to the RECLAIM program are summarized below.

This information was compiled from APEP reports and contacts with facility operators. The APEP reports for both Cycle 1 and 2 facilities requested the facility operators to include assessments 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. Five facilities which indicated job gains and losses due to RECLAIM were contacted by AQMD staff in order to clarify conflicting data found in their APEP reports and obtain more detailed information regarding the facilities' particular circumstances.

Crescent Cranes, Inc. a Cycle 1 facility, indicated 12 jobs lost due to RECLAIM but did not indicate any job losses in general in their APEP report. This was corrected and the facility representative confirmed that all the job losses were due to RECLAIM. Another Cycle 1 facility, Timco, an aluminum smelter, indicated a job gain of one due to RECLAIM but did not indicate any job gains in general. This was also corrected and the facility contact confirmed that the job gain was indeed due RECLAIM, for the company hired an extra person specifically to perform RECLAIM monitoring, reporting and recordkeeping requirements.

Harbor Cogeneration, also a Cycle 1 facility, indicated a job gain due to RECLAIM but did not indicate any job gains in general. It was found out that there were no actual job gains due to RECLAIM but that the facility contact had to devote additional man hours to maintain compliance with RECLAIM requirements.

Onsite Energy, an unstaffed Cycle 1 facility that provides power for the CBS Studios in Los Angeles, indicated a job gain due to RECLAIM but no job gains in general. After checking with the facility contact, it was confirmed that there were no actual job gains due to RECLAIM, but that the maintenance crew that service the facility has to devote 25% of their time to maintaining compliance with RECLAIM monitoring, reporting and recording requirements.

Finally, McGaw, Inc., a Cycle 2 facility, indicated 2 job gains due to RECLAIM but did not indicate any job gains in general. After explaining the discrepancy, the facility contact confirmed that they did gain two new workers and that they were hired specifically to work on maintaining compliance with RECLAIM monitoring, reporting and recordkeeping requirements.

In addition, in some cases AQMD engineers and inspectors familiar with the facilities reporting RECLAIM-related job loss also contributed their experience and expertise to the assessment of RECLAIM's impact on the job market, as summarized for each facility below.

Facilities with actual job gains or losses attributable to RECLAIM:

Facility ID	104017
Facility Name	CalResources LLC
City and County	Huntington Beach, Orange County
SIC	1311
Pollutant(s)	NOx
Cycle	1
Job Gain	0
Job Loss	9 (1 attributed to RECLAIM)
Comments:	This facility lost 9 manufacturing jobs in 1995 one of these jobs lost is directly attributable to the RECLAIM program. According to the facility contact six internal combustion engines at this facility were converted to electricity to help reduce emissions and to avoid RECLAIM's monitoring and recordkeeping requirements for these sources. This electrification resulted in less work in monitoring the pump engines which actually caused a job loss of one position.

Facility ID	013179
Facility Name	Crescent Cranes Inc
City and County	Torrance, Los Angeles County
SIC	5084
Pollutant(s)	NOx
Cycle	1
Job Gain	0
Job Loss	12 (12 attributed to RECLAIM)
Comments:	All the jobs in this facility are manufacturing jobs. Normal operations in this facility has ceased since June of 1996. Currently only 4 of the plant's 16 employees are still working, mostly in clean-up operations prior to planned shutdown in April, 1997. This facility also reported job losses in 1994. Although the job loss resulted from a combination of automation and reduced production in order to comply with the facility's allocation, the facility attributed all 12 lost jobs to RECLAIM.

Facility ID	800295
Facility Name	Henkel Corp., Emery Group
City and County	Los Angeles, Los Angeles County
SIC	2899
Pollutant(s)	NOx
Cycle	1
Job Gain	0
Job Loss	1 (1 attributed to RECLAIM)
Comments:	One of the 68 manufacturing jobs was lost in 1995, and the facility contact attributes the loss to the RECLAIM program, specifically due to the increase in compliance costs. According to the facility contact, the increased costs of complying with RECLAIM rules makes the company less competitive with facilities located elsewhere, which directly contributes to a reduction in their local customer base.

Facility ID	800103
Facility Name	Powerine Oil Co
City and County	Santa Fe Springs, Los Angeles County
SIC	2911
Pollutant(s)	NOx, SOx
Cycle	1
Job Gain	0
Job Loss	320 (32 attributed to RECLAIM)
Comments:	This facility has ceased normal refining operations in 1995 and only maintains a skeleton crew of 55 employees. Most of the RECLAIM sources in this facility are in a non-operating mode. According to the operator, the facility shutdown may be permanent if no new owners can be found to take-over the operations. The operator also claims that $3.8 million have been spent on RECLAIM Continuous Emissions Monitoring Systems (CEMS), and as with all non-revenue producing dollars, the bottom line is affected.

Facility ID	800131
Facility Name	Rhone-Poulenc Basic Chem
City and County	Carson, Los Angeles County
SIC	2819
Pollutant(s)	NOx, SOx
Cycle	1
Job Gain	12 (1 attributed to RECLAIM)
Job Loss	0
Comments:	This facility added 12 new manufacturing jobs during 1995. The job gain attributed to RECLAIM was for the hiring of a full-time Instrument Technician specifically tasked with RECLAIM monitoring, reporting and recording (MRR) requirements

Facility ID	056427
Facility Name	Tandem Industries
City and County	Fontana, San Bernardino County
SIC	3341
Pollutant(s)	NOx
Cycle	1
Job Gain	20 (1 attributed to RECLAIM)
Job Loss	4 (0 attributed to RECLAIM)
Comments:	Twenty new non-manufacturing jobs were added to this facility's workforce, one of which is attributed to the RECLAIM program. The facility operator cites increased reporting and maintenance requirements as the cause of the job gain. This facility also lost four manufacturing jobs, none of which were attributed to the program.

Facility ID	800223
Facility Name	Texaco Refining & Marketing, Inc.
City and County	Wilmington, Los Angeles County
SIC	2911
Pollutant(s)	NOx, SOx
Cycle	1
Job Gain	5 (5 attributed to RECLAIM)
Job Loss	1 (0 attributed to RECLAIM)
Comments:	One manufacturing job was lost, not attributed to RECLAIM. Five new jobs were gained, all attributed to RECLAIM. The facility operator cites CEMS maintenance and source testing requirements as the causes for the job gains. Total job count, including job losses and gains in this facility are shared with a smaller Texaco facility (ID # 800222, located in Carson with SIC Code # 2819). According to the facility contact, all the job gains are for contractual workers.

Facility ID	043436
Facility Name	Timco, Inc.
City and County	Fontana, San Bernardino California
SIC	3341
Pollutant(s)	NOx
Cycle	1
Job Gain	1 (1 attributed to RECLAIM)
Job Loss	9 (0 attributed to RECLAIM)
Comments:	This facility in the Inland Empire lost 9 manufacturing and 29 non-manufacturing jobs because of the economic downturn, none of these lost jobs were attributed to RECLAIM. They also gained one manufacturing job, which is directly attributable to the RECLAIM program. According to the facility operator, the increased reporting and maintenance requirements of the program compelled them to hire an extra person.

Facility ID	083444
Facility Name	McGaw, Inc.
City and County	Irvine, Orange County
SIC	2834
Pollutant(s)	NOx
Cycle	2
Job Gain	2 (2 attributed to RECLAIM)
Job Loss	0
Comments:	The facility experienced a gain of 2 manufacturing jobs, both attributed to RECLAIM. These 2 new workers are additional operators needed to maintain emissions monitoring equipment.

Facility ID	800113
Facility Name	Rohr, Inc.
City and County	Riverside, Riverside County
SIC	3728
Pollutant(s)	NOx
Cycle	2
Job Gain	0
Job Loss	207 (3 attributed to RECLAIM)
Comments:	The economy has adversely impacted the facility causing a loss of 127 non-manufacturing jobs and 80 manufacturing jobs. Three of the manufacturing jobs lost were directly attributable to the shutdown of a cogenaration/turbine that provided steam and power for the facility's use. This equipment was decommissioned to avoid installation of the required CEMS. The facility instead buys electricity from the City of Riverside to generate steam.

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

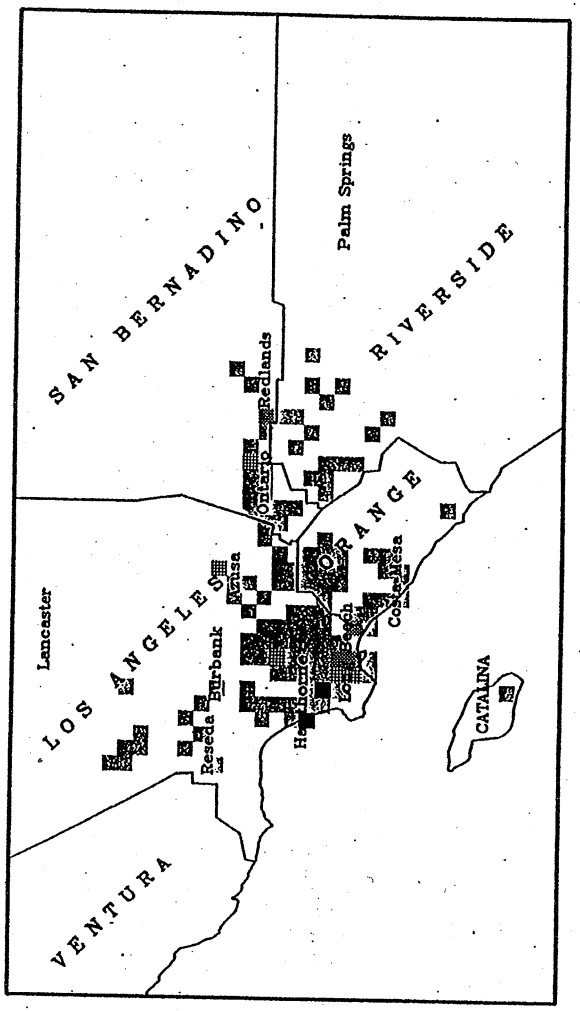
Facility ID	054167
Facility Name	Onsite, TV City
City and County	Los Angeles, Los Angeles County
SIC	3398
Pollutant(s)	NOx
Cycle	1
Job Gain	0
Job Loss	0
Comments:	This is an unstaffed facility that provides power to the CBS Studios in Los Angeles. According to the facility operator, although no permanent employees are assigned at this location, maintenance people visit the facility regularly to check on the equipment. The company estimates that the 25% increase in man hours spent by the of maintenance personnel at the facility are devoted to monitoring and reporting requirements of RECLAIM. This is an increase in operational costs that the facility operator considers a job gain.

Facility ID	800099
Facility Name	Norris Ind
City and County	Vernon, Los Angeles County
SIC	34
Pollutant(s)	NOx
Cycle	1
Job Gain	0
Job Loss	378
Comments:	This is a defense-related facility that ceased normal operations in 1995. Although the major reason for this facility shutdown was the decrease in defense spending, the facility considers RECLAIM as a minor contributing factor. It is, however, unknown how many of the jobs lost were attributable to RECLAIM.

APPENDIX G
QUARTERLY EMISSION MAPS

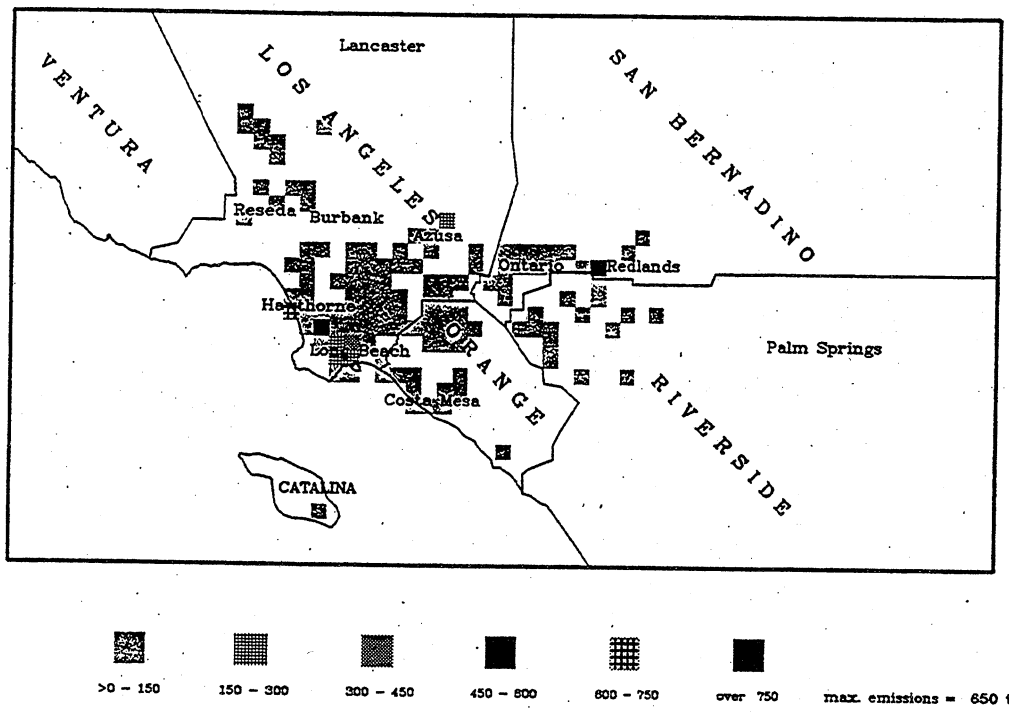
RECLAIM Facilities

Certified NOx Emissions (Tons) From 7/96 To 9/96



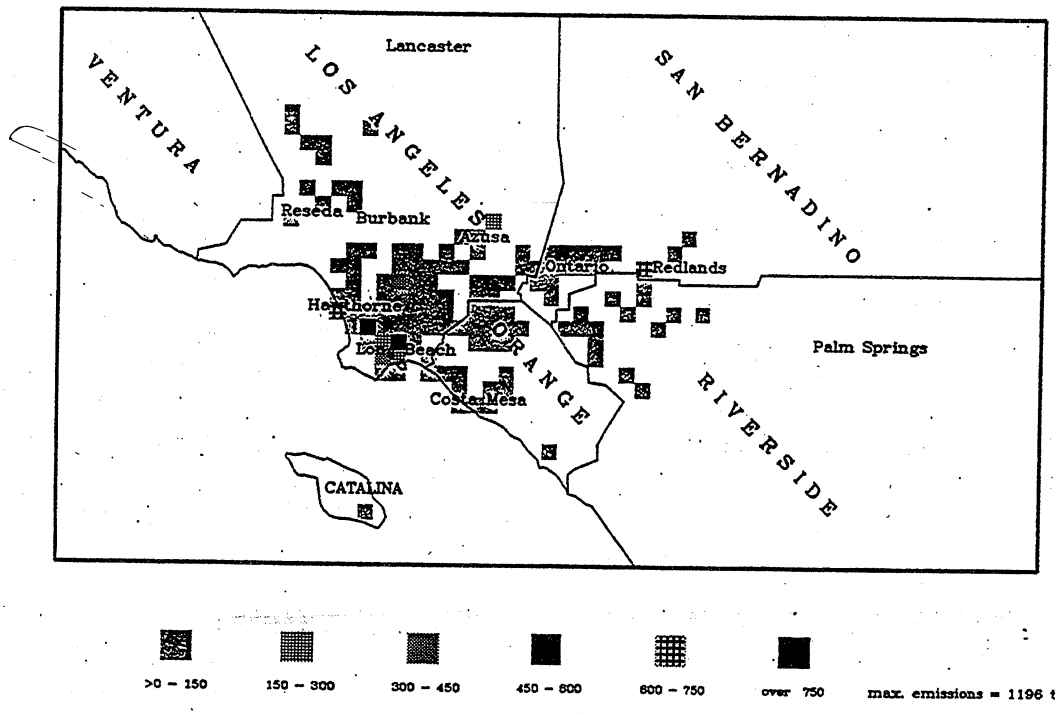
RECLAIM Facilities

Certified NOx Emissions (Tons) From 4/96 To 6/96



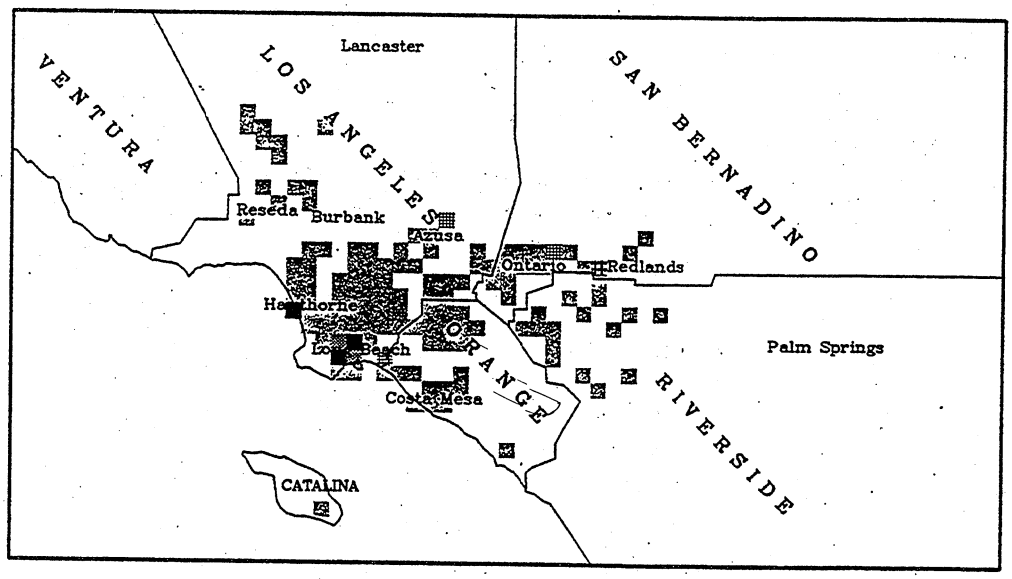
RECLAIM Facilities

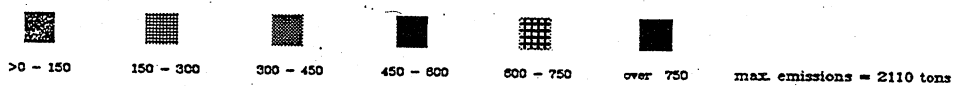
Certified NOx Emissions (Tons) From 1/96 To 3/96



RECLAIM Facilities

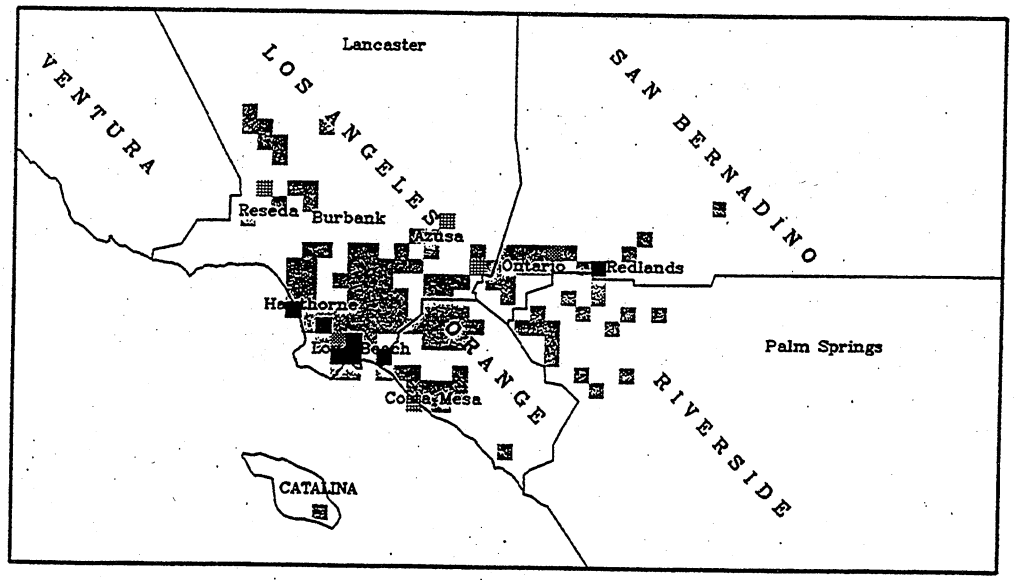
Certified NOx Emissions (Tons) From 10/95 To 12/95

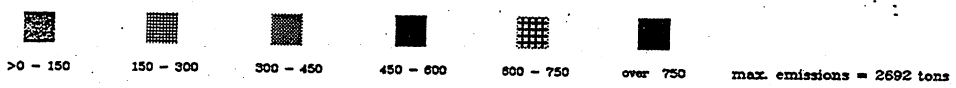




RECLAIM Facilities

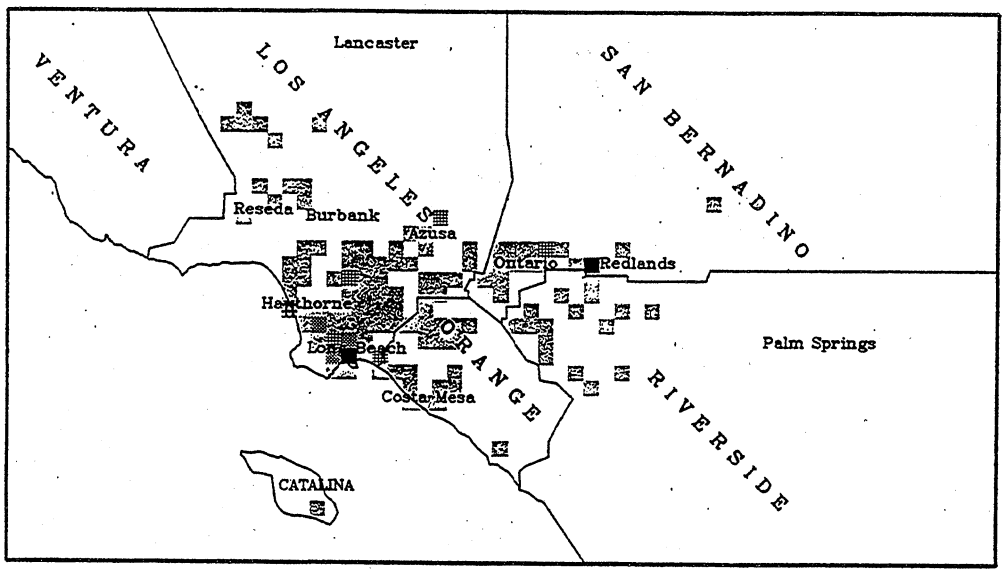
Certified NOx Emissions (Tons) From 7/95 To 9/95

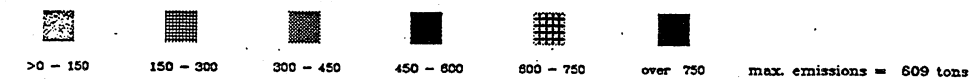




RECLAIM Facilities

Certified NOx Emissions (Tons) From 4/95 To 6/95





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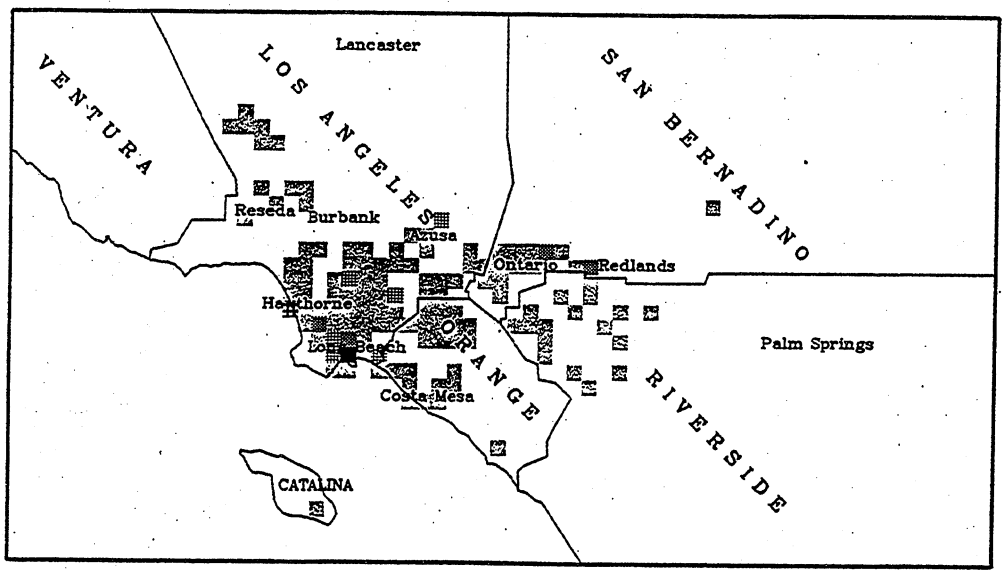
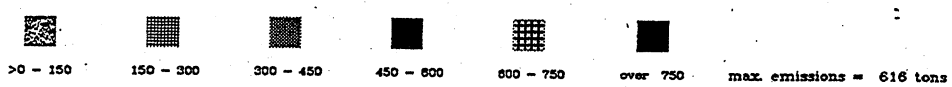
RECLAIM Facilities

Certified NOx Emissions (Tons) From 1/95 To 3/95

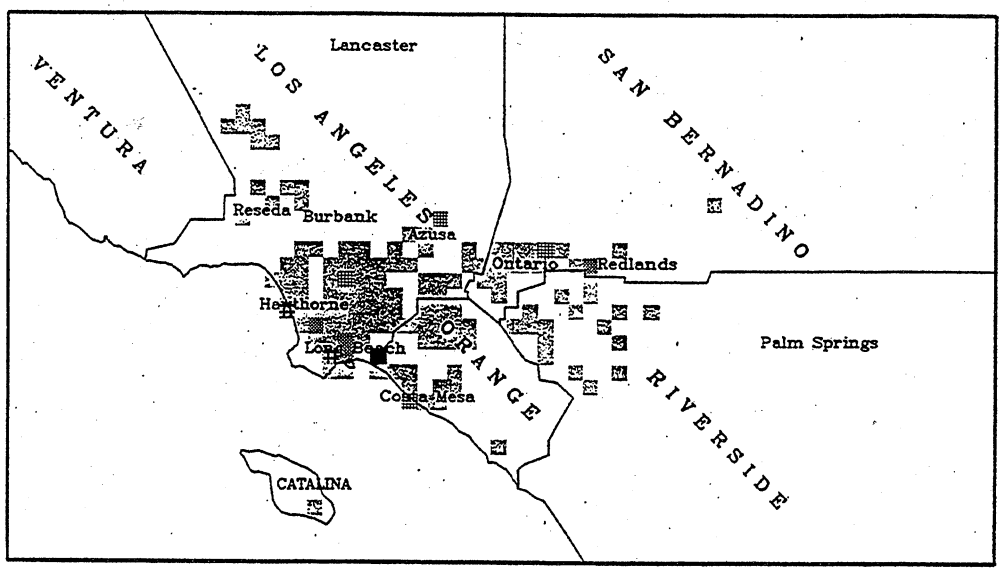


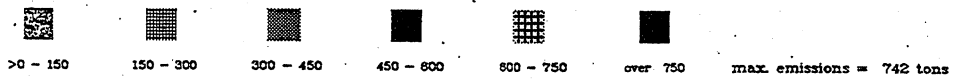


107

RECLAIM Facilities

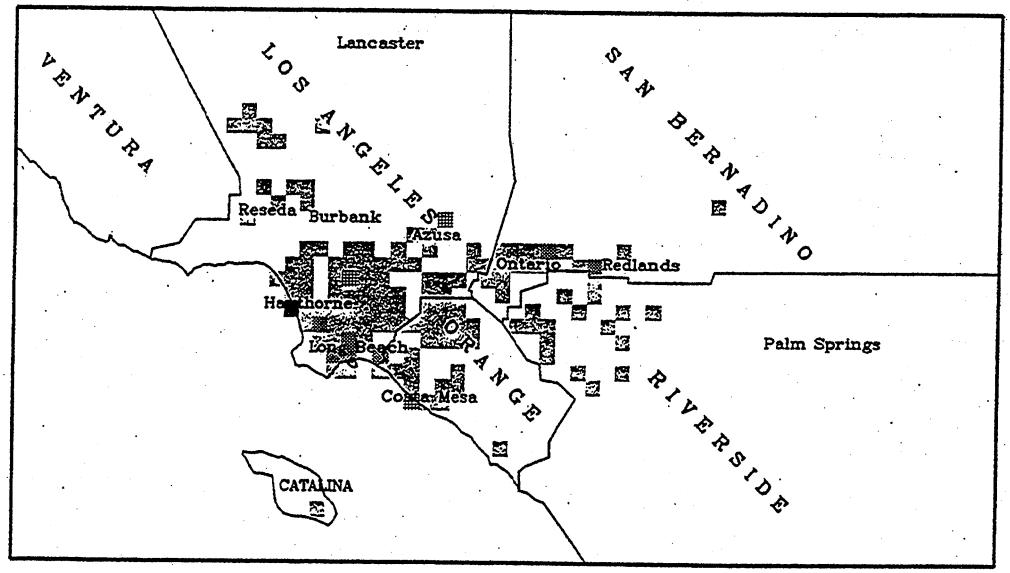
Certified NOx Emissions (Tons) From 10/94 To 12/94

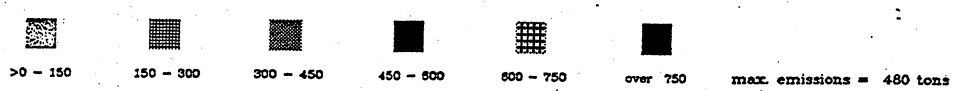




RECLAIM Facilities

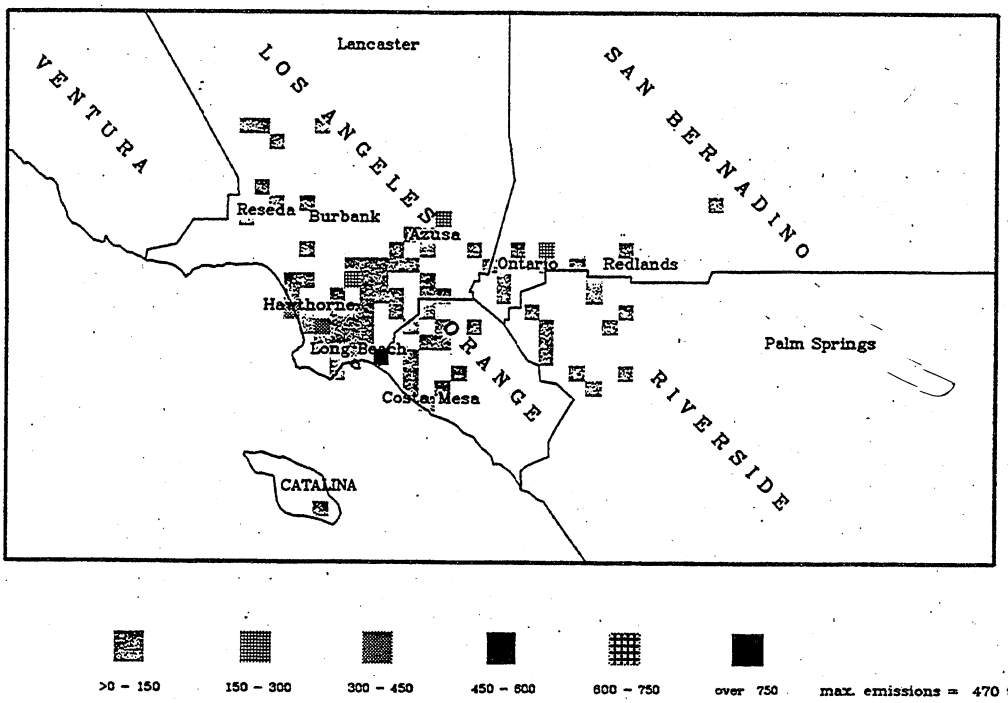
Certified NOx Emissions (Tons) From 7/94 To 9/94





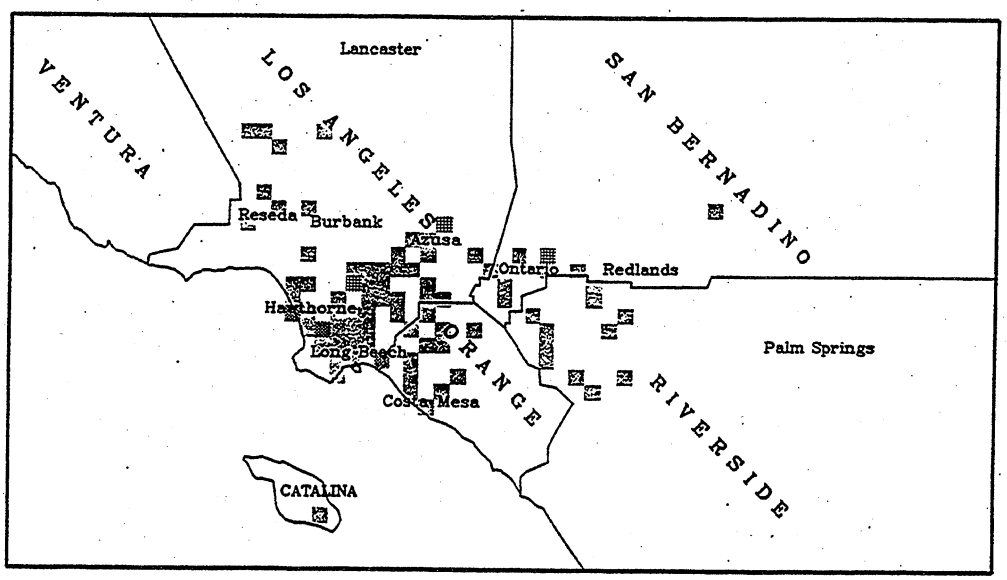
RECLAIM Facilities

Certified NOx Emissions (Tons) From 4/94 To 6/94



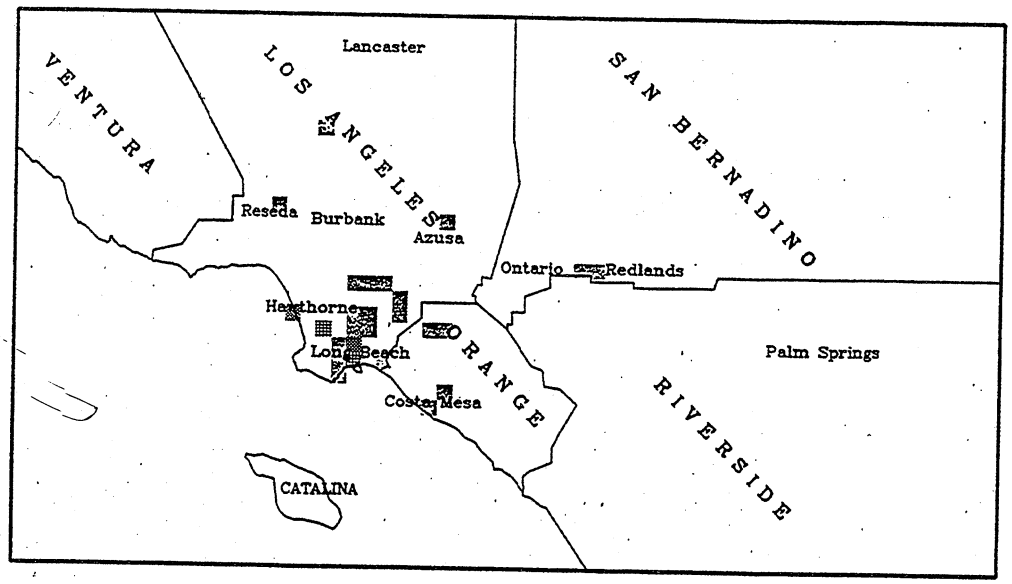
RECLAIM Facilities

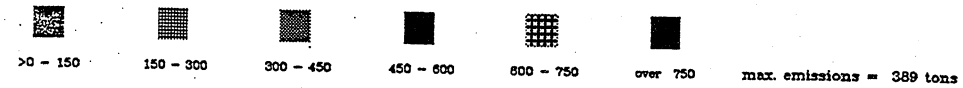
Certified NOx Emissions (Tons) From 1/94 To 3/94



RECLAIM Facilities

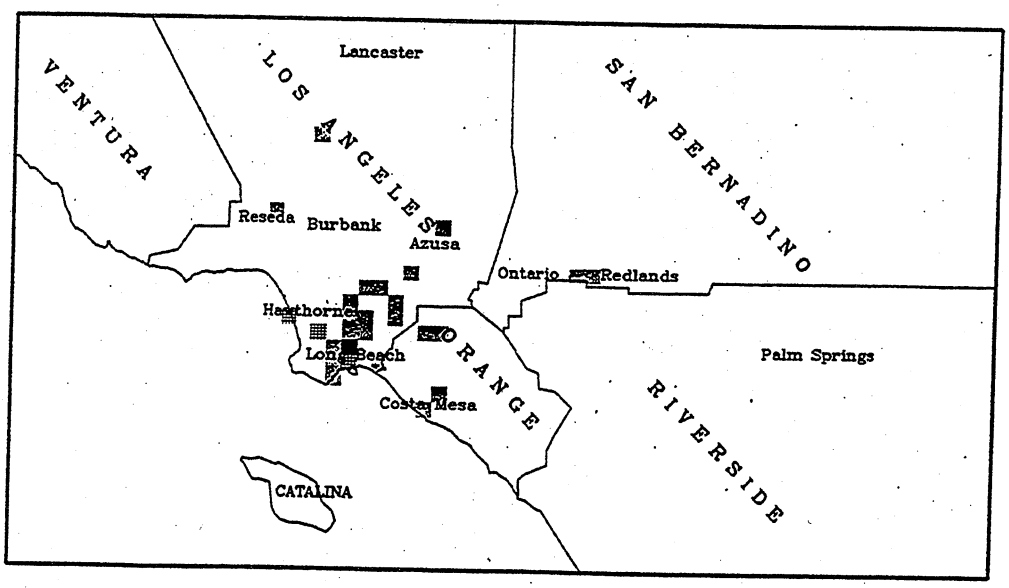
Certified SOx Emissions (Tons) From 7/96 To 9/96

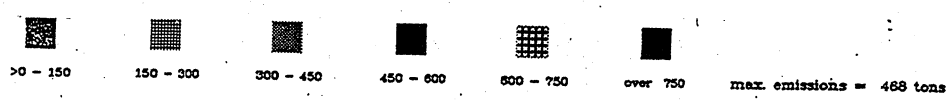




RECLAIM Facilities

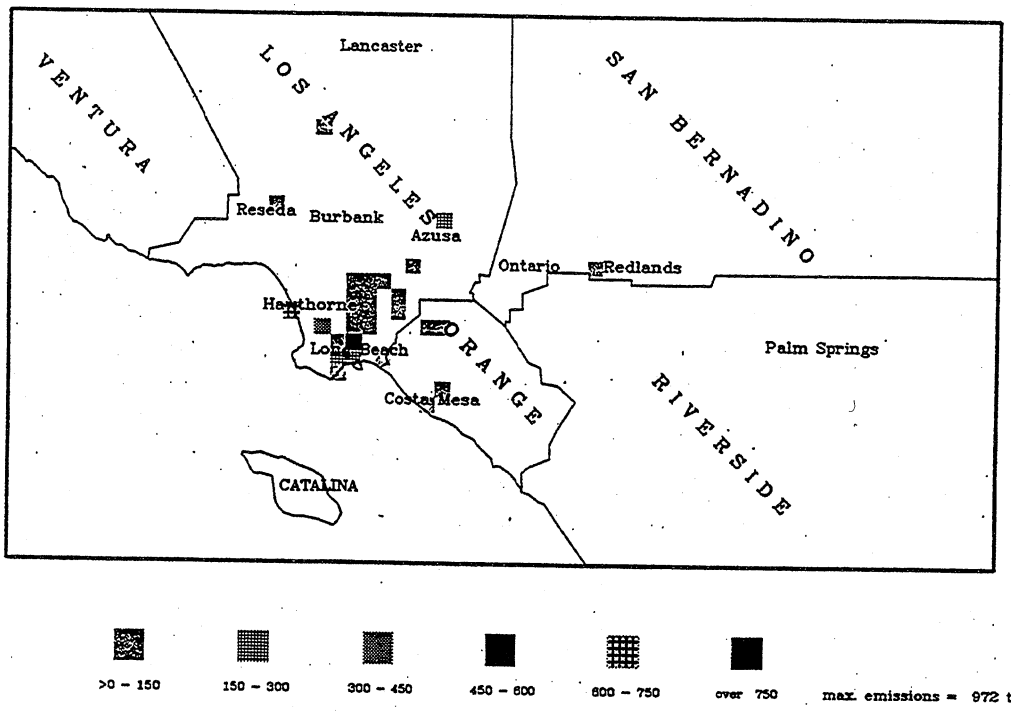
Certified SOx Emissions (Tons) From 4/96 To 6/96





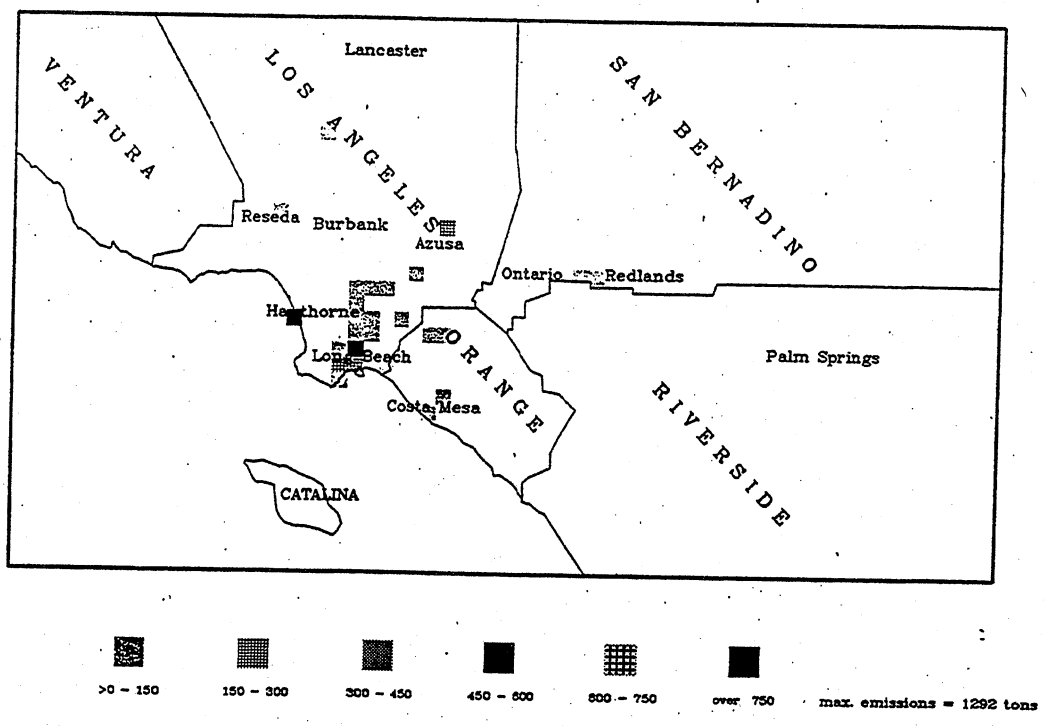
RECLAIM Facilities

Certified SOx Emissions (Tons) From 1/96 To 3/96



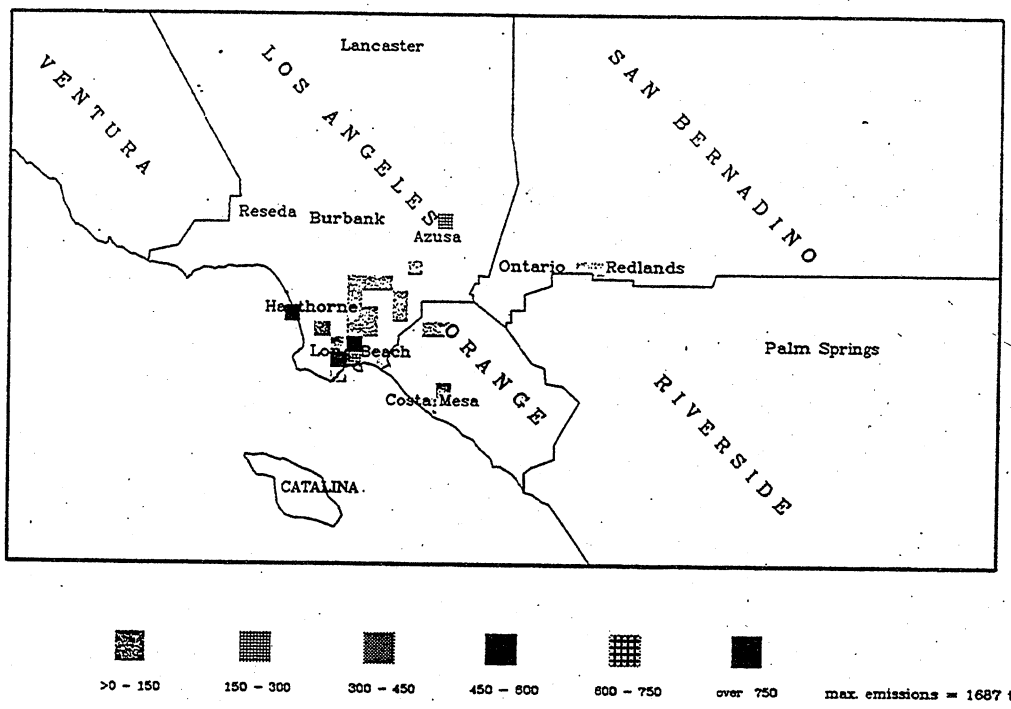
RECLAIM Facilities

Certified SOx Emissions (Tons) From 10/95 To 12/95



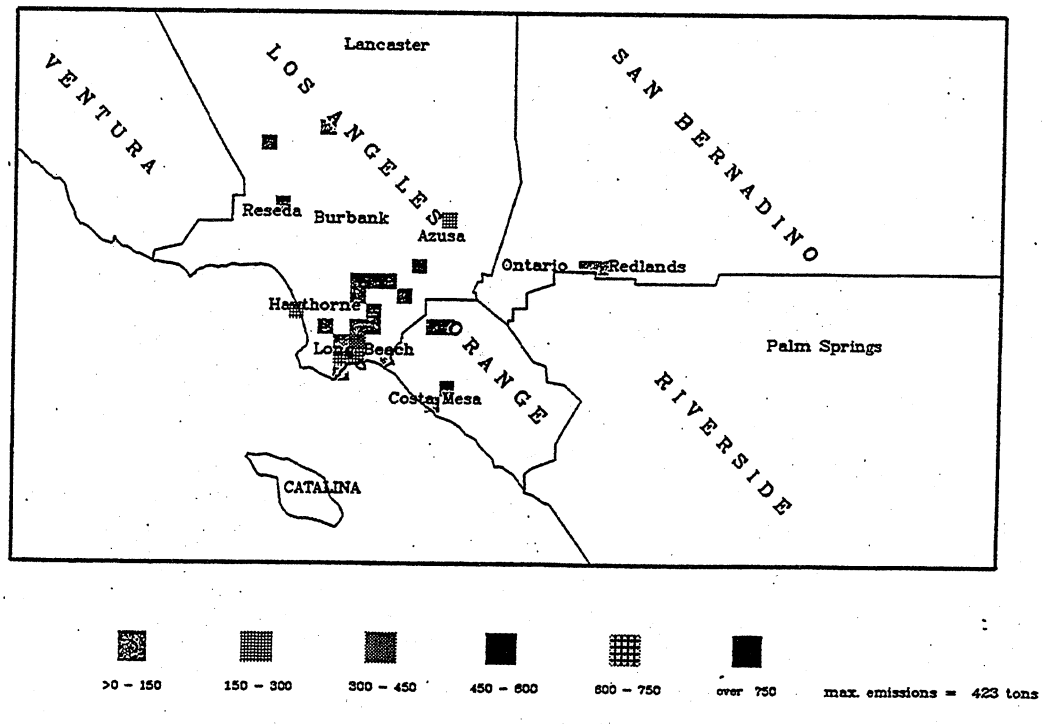
RECLAIM Facilities

Certified SOx Emissions (Tons) From 7/95 To 9/95



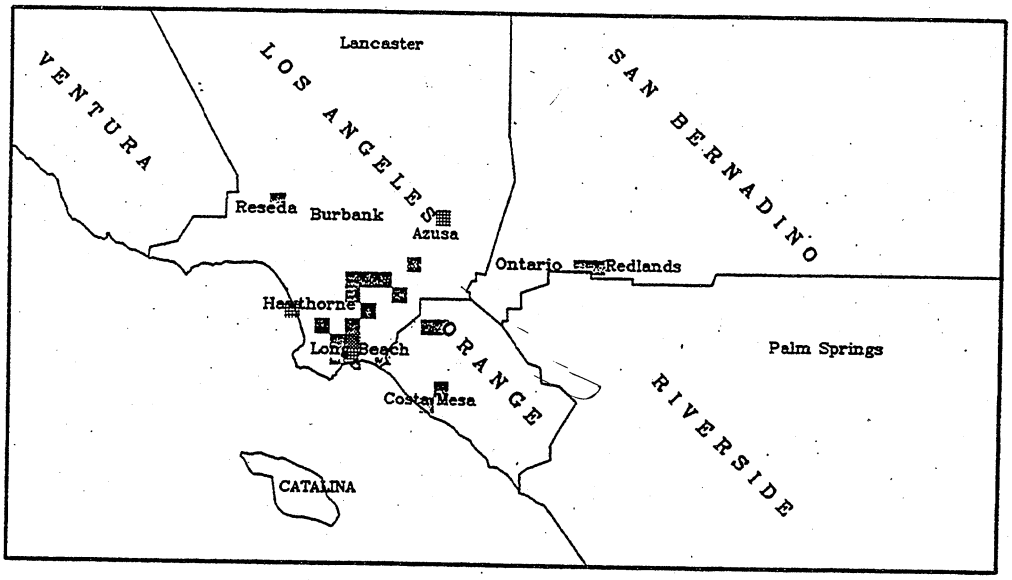
RECLAIM Facilities

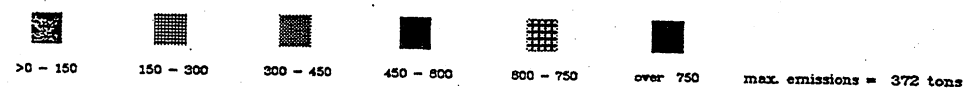
Certified SOx Emissions (Tons) From 4/95 To 6/95



RECLAIM Facilities

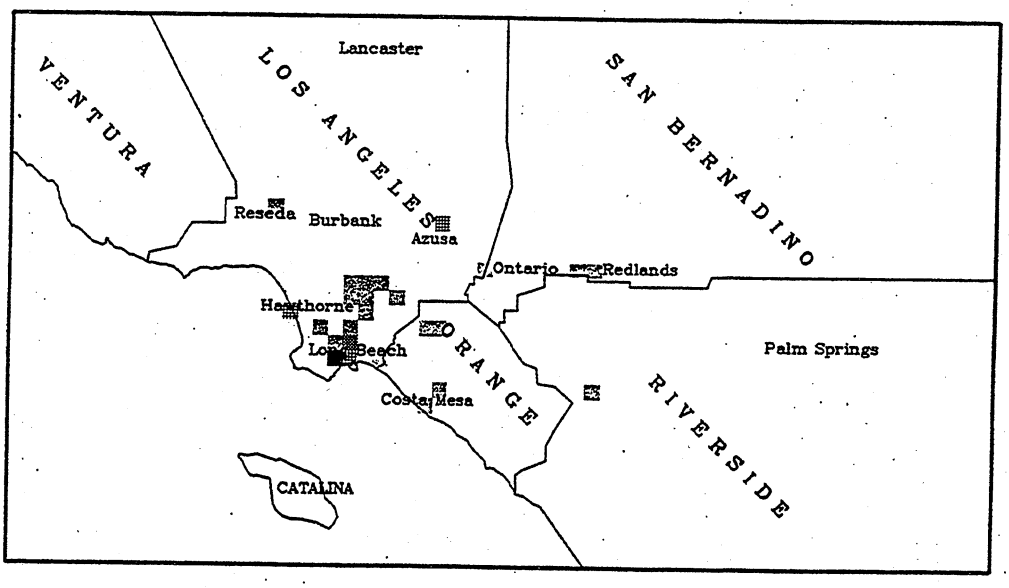
Certified SOx Emissions (Tons) From 1/95 To 3/95

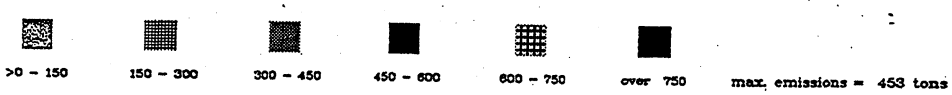




RECLAIM Facilities

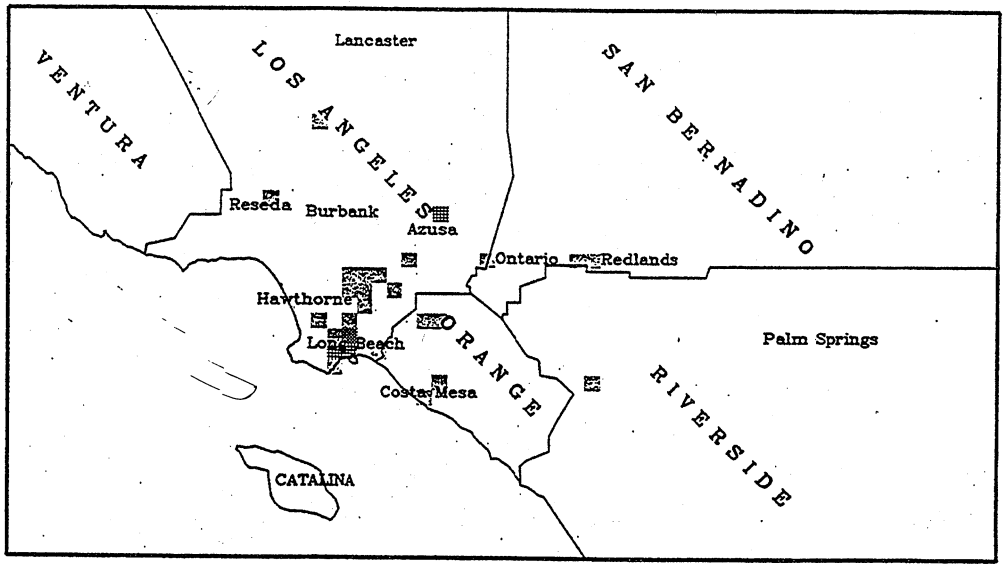
Certified SOx Emissions (Tons) From 10/94 To 12/94

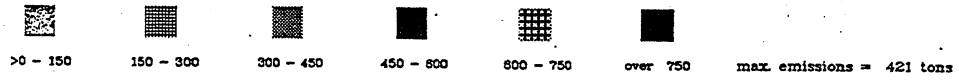




RECLAIM Facilities

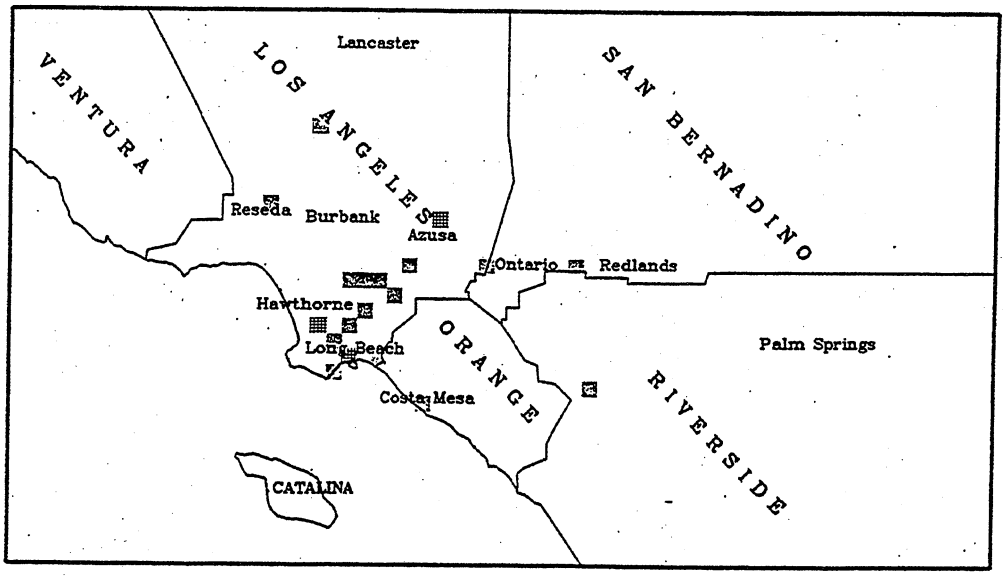
Certified SOx Emissions (Tons) From 7/94 To 9/94

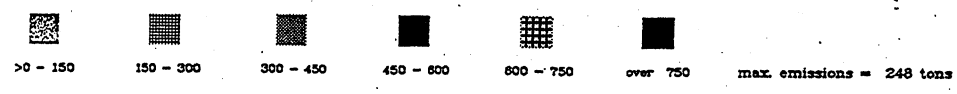




RECLAIM Facilities

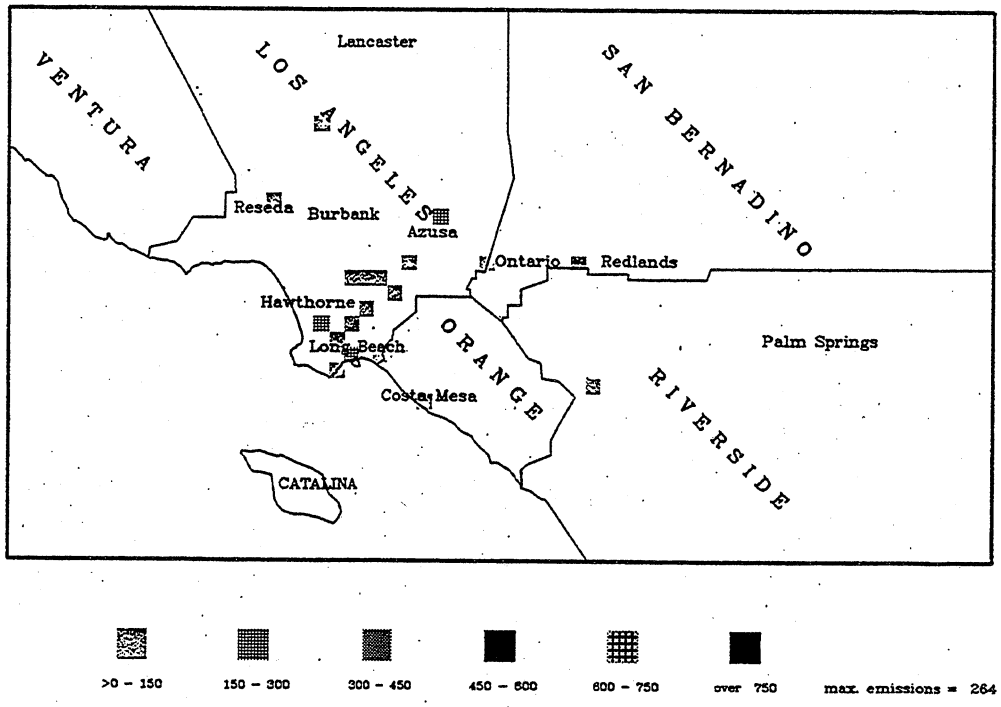
Certified SOx Emissions (Tons) From 4/94 To 6/94





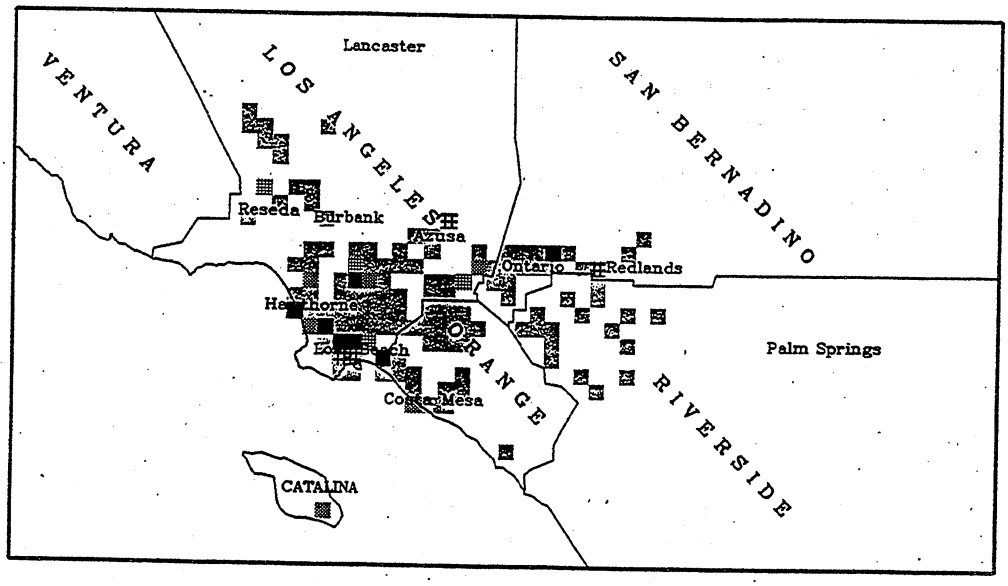
RECLAIM Facilities

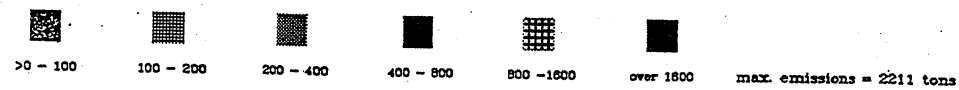
Certified SOx Emissions (Tons) From 1/94 To 3/94



RECLAIM Facilities

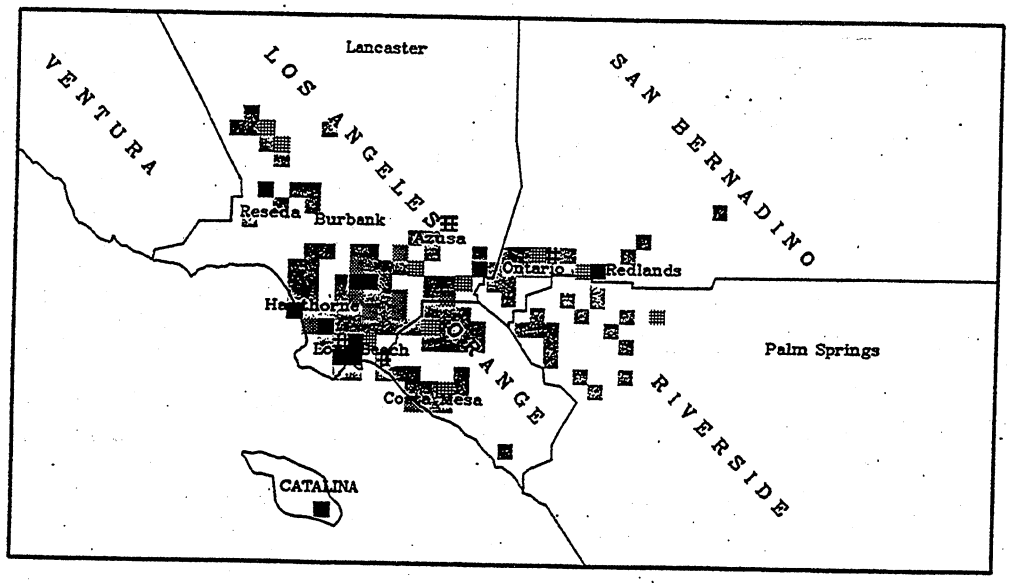
Certified NOx Emissions -- From 1/96 To 9/96

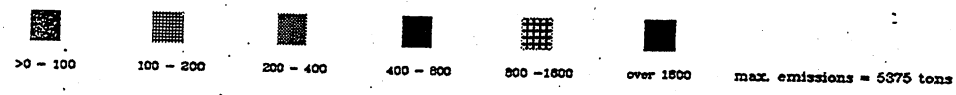




RECLAIM Facilities

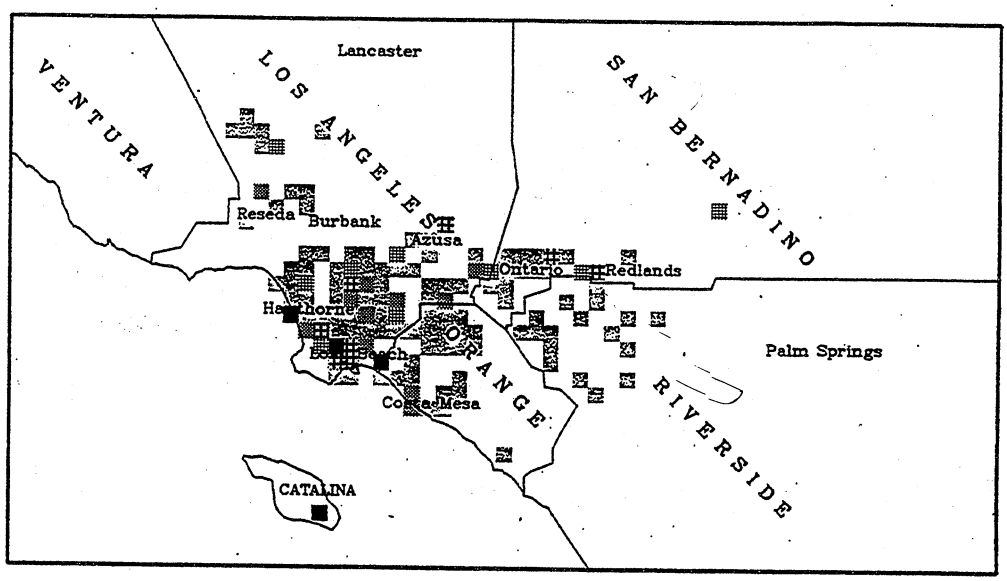
Certified NOx Emissions -- From 1/95 To 12/95

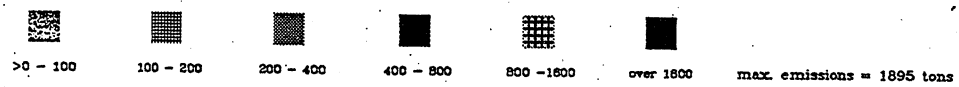




RECLAIM Facilities

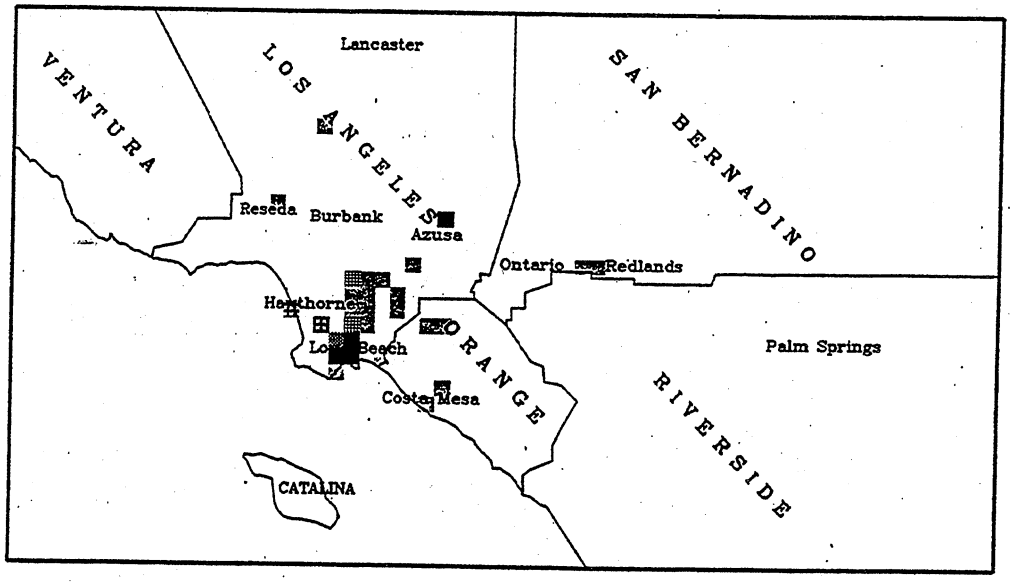
Certified NOx Emissions -- From 1/94 To 12/94

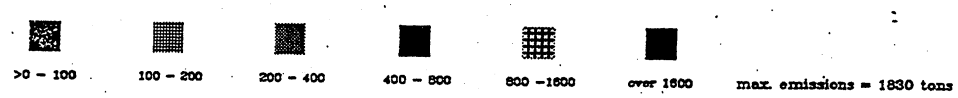




RECLAIM Facilities

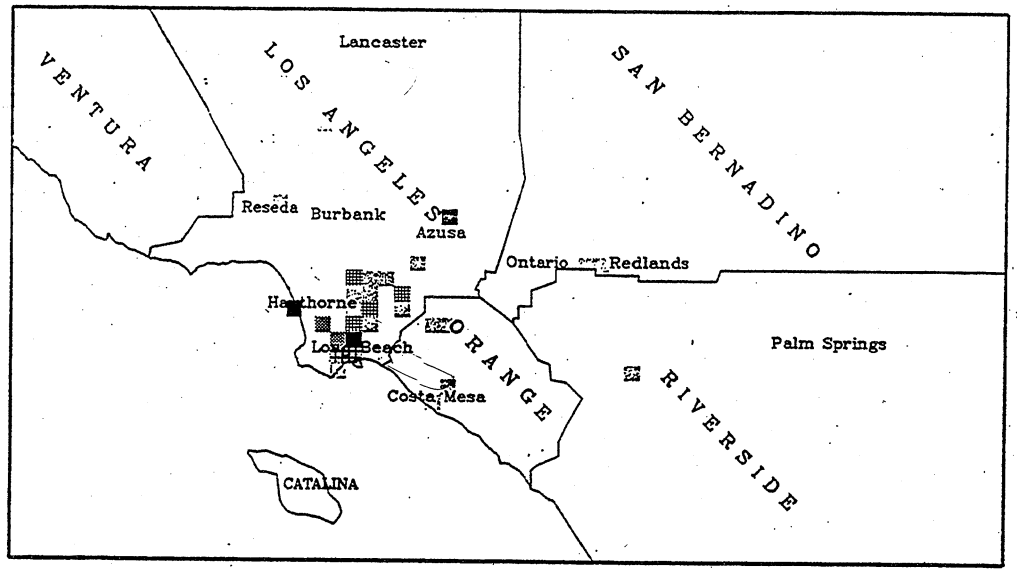
Certified SOx Emissions -- From 1/96 To 9/96

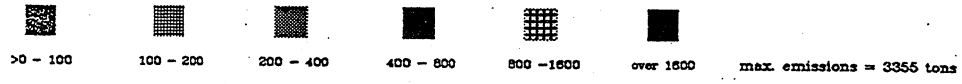




RECLAIM Facilities

Certified SOx Emissions -- From 1/95 To 12/95





RECLAIM Facilities

Certified SOx Emissions -- From 1/94 To 12/94