Improved Point Source Inventory Through Validation and Audit of the Reported Data

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ABSTRACT

The Annual Emissions Reports (AERs) filed by over 3,000 facilities provide the basis for the South Coast Air Quality Management District's (District's) point source emissions inventory. Accuracy of the inventory has significant implications since it is used for planning, rule development, and emission fee calculation purposes as well as for determining the applicability of federal, state, or local programs (e.g., Title V, RECLAIM). Emission fees collected through the AER Program represent more than 20 percent of District's budget. The reporting software, which was used this year by 72% of point source facilities for filing their AERs, has considerably reduced the reporting errors and facilitated data processing by District. Additional Quality Control (QA/QC) of the data reported by facilities is also conducted by the Contractor to identify potential reporting errors based on the specific criteria established by the District. Finally, to further validate the point source inventory, the reported data are audited by District to ensure compliance with District rules, policies and emission calculation guidelines. Implementation of these steps has substantially improved the District's point source inventory and generated additional revenues in emission fees for the District.

INTRODUCTION

The relative contribution of District's point source emissions inventory compared with District's total emissions inventory is presented in Figure 1 for VOC and NOx emissions. As shown, the point source inventory represents about 9% of District's total emissions for both VOC and NOx emissions.[1] Figure 2 shows District's point source inventories for VOC and NOx emissions from 1993 to 1999. The overall downward trend is mainly attributed to the implementation of specific District rules and regulations affecting the stationary sources of emissions. The NOx emissions increase in 1999 is due to the increased in-Basin power generation. Although the point source inventory continues to represent a smaller portion of the District's overall inventory, the accuracy of this inventory is critical because it provides the basis for future planning and rule development as well as the basis for inclusion or exclusion of facilities into local and federal programs such as RECLAIM and Title V.

District's point source inventory is entirely based on the annual emissions reports that are filed by approximately 3000 medium- to large-size stationary source facilities under the Annual Emissions Report (AER) Program. Every year, facilities subject to this Program have the responsibility to completely and accurately report their actual emissions from all equipment and processes for each preceding year to the District. In addition, approximately $20 million in emission fees are collected annually through the AER Program representing a significant portion (about 20%) of District's budget. During the last 5 years, the District has implemented numerous measures in order to further enhance the quality of the emissions and fee data by effectively improving all aspects of the AER Program. Implementation of these improvements has resulted in a significantly improved emissions inventory as

well as in more accurate and additional emission fee revenues from facilities under-reporting their emissions.

Figure 1. 1997 Emissions inventory by source category

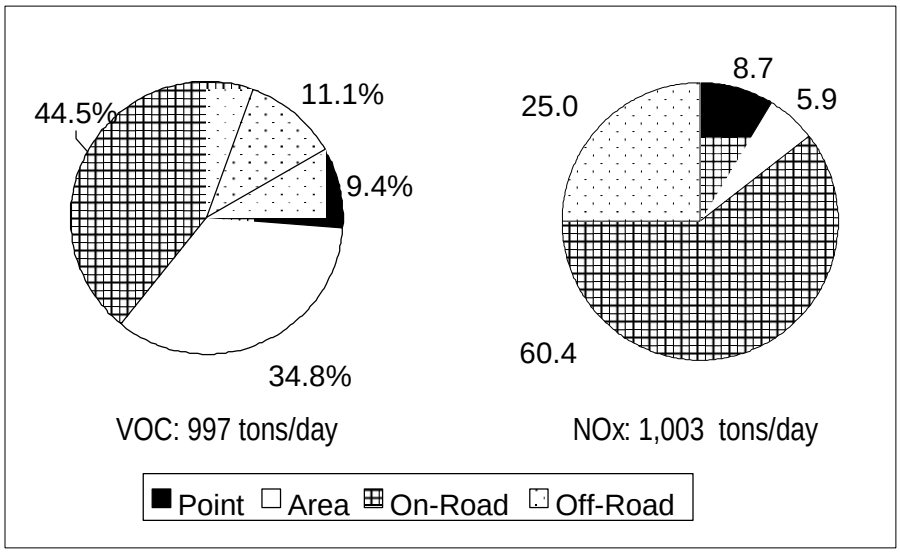
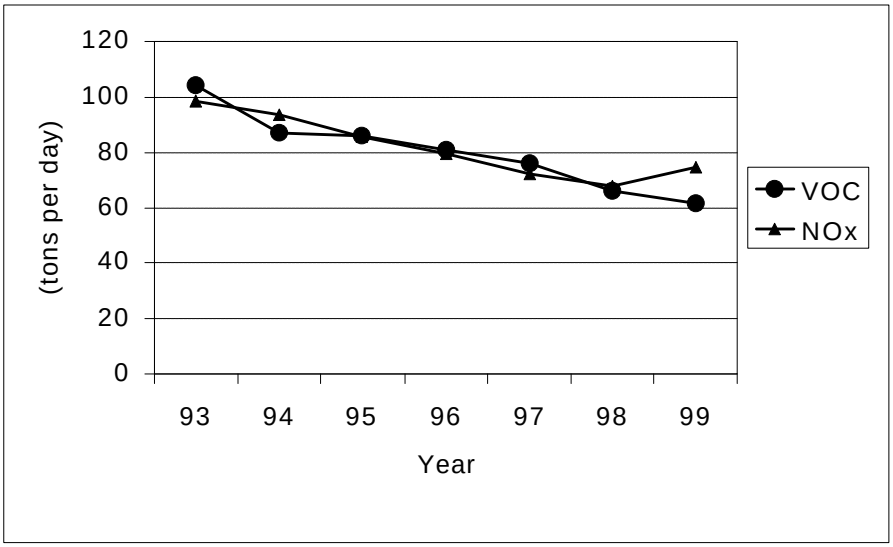


Figure 2. District's point source emission trend

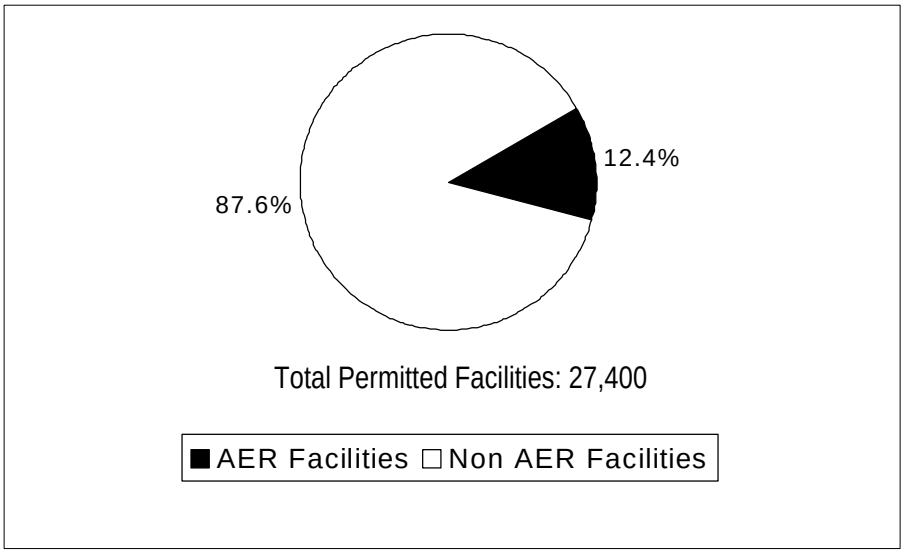


AER PROGRAM

The AER Program is an emission-fee-based program authorized by District's Rule 301(e).[2] Under this rule, facilities emitting 4 tons per year or more of any of the specific pollutants of VOC, NOx, SOx, PM, or more than 100 tons per year of CO are required to report their annual emissions (July 1 to June 30) to the District and pay corresponding fees. Also, facilities emitting any of the toxic air contaminants (TACs) or ozone depleting compounds (ODCs) specified in the AER Program are also required to report these emissions and pay appropriate fees. Emission fees are assessed based on the type of criteria pollutants and TACs/ODCs as well as the level of emissions. Figure 3 provides a comparison of the number of facilities in the AER Program compared to the universe of permitted facilities (i.e., facilities with at least one permit) in the District. Although facilities in the AER Program

only represent about 12% of the permitted stationary source facilities, emissions attributed to the AER facilities represent the majority (over 90%) of the point source emissions in the District.

Figure 3. Facilities in AER program



In 1995, District privatized specific portions of the AER Program in an effort to enhance the overall efficiency of the Program. For the last five years, Ecotek has been District's contractor responsible for implementing various phases of the AER Program under District's supervision and direction. Ecotek's responsibilities in this Program mainly include: preparation and distribution of form packages, software development/update, providing public support (jointly with District), data QA/QC, and preparation of data files. District's responsibilities primarily include: revision of forms, instructions, and emission calculation guidelines; program support; audit of the reports, collection of emission fees, and billing adjustments.

Improvements made in the following six primary aspects of the AER Program (explained in detail in the next sections) have considerably improved the quality of the emissions and fee data.

1) Revision and Development of New Forms and Instructions
2) Program Support
3) Software Reporting
4) Automated Data Collection and Processing
5) Data QA/QC
6) Audit Functions

Revision and Development of New Forms and Instructions

The AER Program relies on a number of forms that are designed specifically for collecting emissions and fee data based on the specific type of equipment, process, or industry. Currently, there are a total of 42 forms in the AER Program. Depending on the type of equipment and operations, a facility may use anywhere from 5 forms (e.g., dry cleaner) to 25 forms (i.e., refinery) to file its annual emission report.

Table 1 provides a listing of the most common forms used in the 1999-2000 AER Program. Some of the forms are designed for the more common emission source categories such as internal and external combustion equipment, coatings and solvents, fugitives and above-ground tanks while others are intended for specific industries such as refineries, power plants, body shops, and dry cleaners. Calculations of emissions are generally conducted on each form based on the fuel, material, or throughput usage, emission factor, and/or control efficiency. Instructions printed on the back of each form provide guidance to the user on calculating emissions on a step-by-step basis. Emissions from different equipment and processes within the same facility calculated on detailed forms are then transferred to the Summary Forms to determine the facility's overall emissions and corresponding emission fees, if any. Every year, the forms and instructions are reviewed for revision in order to reflect the latest available emission factors, calculation guidelines, and District rules and policies as well as to improve the usability of the forms based on the lessons learned.

Table 1. List of the most common emission and fee reporting forms

Form Number	Form Title
S	Fees Due Summary
X	Signature Sheet
A	Status Update, Exemption Request, and Refund Request
C/CU/CR	Permitted/Non-Permitted/RECLAIM Emissions Summary
TAC	Toxic Air Contaminants/Ozone Depleters
B1/B1U	External Fuel Combustion Equipment
B2/B2U	Internal Fuel Combustion Equipment
B3/B3U	Use of Organics (Coatings and Solvents)
W/WU/WT	Credits for Waste Shipment
B4/B4U	Miscellaneous Sources
B5/B6/B7	Above-Ground Storage Tanks
R1 to R7	Refineries
DC	Dry Cleaning Operations – Perchloroethylene Emissions
DCB	Dry Cleaning Operations – Boiler Emissions
AB	Auto Body Operations - Oven/Dryer Emissions

Note: U denotes non-permitted emission reporting forms.

In addition to the instructions on the back of each form, a General Instruction Booklet is also provided to all facilities in the AER Program to assist them in filing their reports. This booklet provides program updates, general instructions, notice of the Informational Workshops or industry clinics, and program support means (e.g., telephone hotline, one-on-one consultation), frequently asked questions, common mistakes, general tips, fee tables, and an example of how an actual report should be filled out and filed. During the last several years, specific emission calculation guidelines have also been developed or improved for a number of industries or emission categories such as refinery fugitives and flare emissions, above-ground storage tanks, paint manufacturing, lithographic inks, liquid waste recycling credit, and spray-coating operations. The General Instruction Booklet and all emission calculation guidelines also undergo an annual review in order to incorporate the latest revisions and lessons learned.

Program Support

In order to assist facilities to file their annual emission reports more completely and accurately, a number of program support means are also made available to facilities in terms of public outreach (workshops, clinics) and public assistance (hotline, fax, Internet, one-on-one consultation).

For the last five years, District, in conjunction with Ecotek, has conducted at least four informational workshops annually for the facilities subject to the Program. These workshops have especially been helpful for those facilities that are first-time filers as well as for individuals who are preparing these reports for the first time. These non-formal workshops provide an overview of the program requirements and updates, reporting process, different reporting options (paper and software), and an actual demonstration of how the software works. These workshops also provide an opportunity for facilities to discuss their specific questions with District and Ecotek staff. Computer terminals are also made available for facility representatives that would like to become aquatinted with the reporting software.

Significant staff and resources are assigned for public assistance, in particularly during the two months allowed for facilities to file their annual emission report. Facilities may contact Ecotek or District staff by phone, e-mail, fax or Internet and receive prompt response to their questions. Generally, Ecotek would handle more administrative and questions on published instructions, while District staff would be responsible for more complex technical, legal or policy type questions. Facilities may also retrieve relevant support information on the program from the Web page specifically designed for this purpose. One-on-one consultation (through scheduled appointments) is also provided by both District and Ecotek for facilities requiring additional assistance.

Software Reporting

Introducing improved reporting methods has been one of the key elements of successful AER process. In 1995, District, in conjunction with Ecotek, developed a software-reporting version of the AER forms for facilities to file their AER report electronically. Facilities using the reporting software have an added edge over facilities that file using the paper forms because of the features inherent in the software program. The objective met by the development of the software has been further streamlining of the reporting of annual emissions (and fees) by facilities, reduced potential reporting errors, expedited processing of reported emissions/fee data, and increased data quality and accuracy.
The highest value of the software is in the fact that it guides the user and eliminates the most common mistakes. In addition to the modifications that reflected changes to the reporting program, and in order to encourage software use, the software has continuously been improved to be more user-friendly through additional features, performance improvement, more on-screen reminders, warnings for possible problem situations, navigational features and many other enhancements. Table 2 provides a list of software features which have eliminated or minimized some of the most common reporting problems.

Table 2. List of the most useful software features that result in an improved data

Common Mistake or Problem	**Software Feature**	**Benefits of Software Use**
• User not computer inclined. • Apprehensive about using software.	• Provided on CD. • Improved Installation design.	• User friendly with step-by-step instructions. • Installation fast, easy and simple.
• Over 40 forms to choose from, often confusing for paper user.	• Form Selection in Interview Module.	• Forms automatically selected based on user's answers. • Guides user on next steps.
• Lengthy report preparation. • Don't know where to start.	• Import function.	• Allows previous year data to be simply imported and updated. • Provides for consistency and completeness of the reports.
• Incorrect values listed.	• Pull-down menus. • Build-in default	• Provides only correct choices. • Directs user to enter data in assigned format.

	emission factors.	• Default emission factors are automatically displayed by checking box.
• Wrong units, incorrect format, data entered exceeds common thresholds.	• Pop-up labels • On screen reminders. • Built-in warnings. • Validation checks.	• Eliminates common errors and incorrect format. • Provides helpful hints. • Warns user if data entered exceeds common thresholds (to prompt review).
• Unit conversion errors.	• Unit Conversion Calculator.	• Automatically converts units. • Eliminates unit conversion errors.
• Arithmetic errors in calculating emissions. • Incorrect fees assigned.	• Automatic calculation of emissions and fees.	• Eliminates arithmetic errors in calculating emissions. • Eliminates incorrect fees.
• Incorrect transfer (from detailed to summary forms).	• Automatic transfer.	• All transfers required preformed by software. • Eliminates incorrect transfer between forms.
• Missing data. • Incomplete submittal. • Errors. • Invalid data.	• Audit. • Submit Module.	• Audit is automatically preformed. User has to correct errors prior to submitting the data. • Creates submittal Data Disk and prints submittal forms.
• Uncertainty or guesswork.	• Help System.	• Provides context sensitive full online Help for all software features.
• Incomplete supporting documentation or submittal.	• Submittal Checklist.	• Based on data entered, generates checklist to assist user in verifying the completeness of the submittal including supporting documentation.

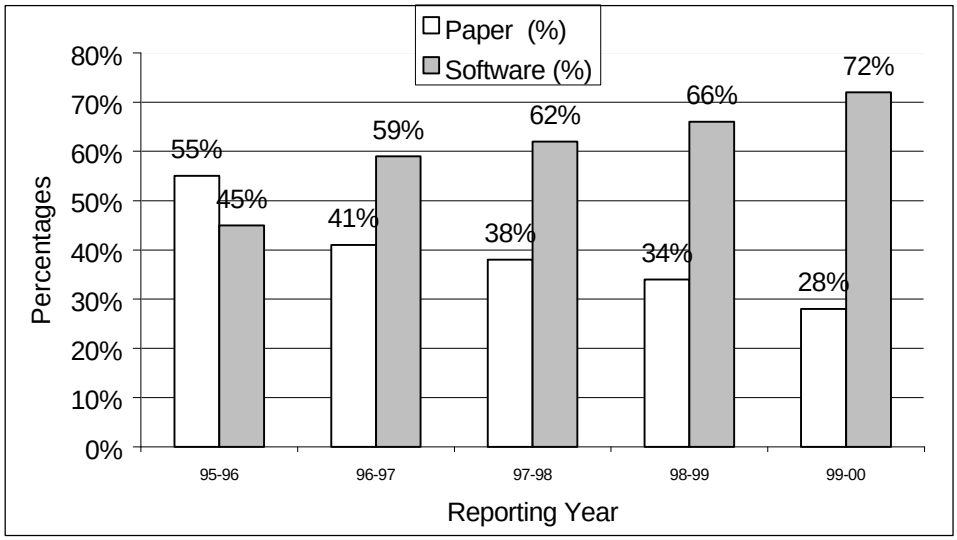
Software improves the quality of AER submittals. This is the most significant program benefit that permeates all elements of the program. The software has not only helped the District to improve data quality and program efficiency, but it has also made the reporting process significantly easier and more efficient for the facilities in the program. The quality is improved for numerous reasons:

- Data submittals are complete, missing information is eliminated.
- Submitted data conforms to validation requirements that are programmed into the software.
- Submitted data conforms to calculation methodologies and report preparation procedures. This is in sharp contrast to the unlimited degrees of freedom available to facilities in completing paper forms.
- Software reduces the time required to prepare an AER and therefore saves facilities money and resources, as well as reduces the number of late filers for District.
- Software simplifies the report preparation and the submittal process. Emissions and fees are calculated for the facility after simply entering throughput and emission factors.
- Software contributes to the consistency and the completeness of the reports from year to year.
- Software can be enhanced each year of the program to refine features, add new features, and incorporate user feedback.
- Software AER submittals also reduce the time and effort involved with data processing, data validation, and quality control review. A software submittal is simply uploaded from the data submittal disk. Uploading a software submittal can be done within a minute whereas the time required to process an individual paper submittal can range from less than an hour to several days or sometimes weeks.

The software has been greeted with enthusiasm by facilities subject to the Program, which have provided positive feedback through telephone hotline, e-mails, and other contacts with facilities. Greater software use has significantly contributed to improved emissions inventory data and has allowed more resources from Ecotek and District to be directed toward QA/QC and auditing efforts. Figure 4

illustrates the steady increase in software use by facilities from 45% in 1995-96 to 72% in the 1999-2000 reporting period.

Figure 4. Trend in reporting methods



It is worth noting that the use of the software has been consistently higher among the facilities emitting 10 tons or more of criteria pollutants (Priority 1 facilities). For these facilities, the percent of software users has increased from 57% in 1995-96 to 81% in the 1999-2000 reporting period. This is most likely due to the availability of more technical/computer expertise on site and the fact that these submittals are often more complex and can be simplified by the use of the software program. In comparison, software use among Priority 2 facilities (less than 10 toners) has increased from 42 % to 69 % for the same period which also illustrates a very favorable response for these facilities.

Automated Data Collection and Processing

In addition to the software development, data collection and processing have also been automated. An internal data entry system was developed to collect submitted data, facilitate quality control review of submittals, and track the processing of submittals. The data entry software was modified to allow entry of any data reported by the facility, and perform calculations for comparing with the reported data. The data entry software has additional built-in features to assist data entry operators and warn them of potential data entry errors. The established tracking system and database follow in detail the progress in processing of each submittal, track status of various flags and dispositions, and prioritize the processing order of submittals.

Facilities submit their AER in paper or disk formats. All paper form submittals have to be manually data entered. Processing the reported data on paper forms is a complex process depending on the quality of the AER submittal. Tasks can include evaluating data written on the forms, making data conform to database requirements, collecting missing data from facilities, performing back-calculations, resolving numerous issues, and entering the data. One of the major project challenges is to work with facilities to acquire the missing data or obtain clarification on the submitted data. The effort to simply obtain enough information from a facility to complete the data entry is sometimes enormous. Some facilities either do not have an understanding of the emissions reporting process, do not provide the level of attention necessary to the reported data, or suffer from a wide variety of other problems such as staff turnover, lost information, or constantly changing processes. In this regard, the data entry process is actually integral to the QC checking of the submittals. In most cases, a data entry operator cannot simply data-enter a facility's submittal. Engineering evaluation and facility contact is routinely required to

perform data entry. This level of QC is performed as an essential part of performing data entry but generally not tracked as part of the QC process. This means that the overall level of QC is actually much higher than suggested by the measured and tracked QC efforts.

Submittals provided on disks are imported into the emissions database through an upload process. This is one of the most significant benefits of software submittals since the data entry process is completely eliminated.

Data QA/QC

Ecotek performs QA/QC review of emission data with the primary purpose of correcting errors such as mathematical errors, incorrect units, data input errors, or calculations that are inconsistent with the specified instructions, as well as meeting the requirements for criteria specified by the District or Ecotek. QA/QC is preformed to ensure AER data quality by looking for common problems based on experience gained in prior years. Detail QA/QC performance and monitoring procedures that define QA/QC flags, QA/QC criteria for setting flags, and follow up actions and procedures are developed and submitted to District for approval. The procedures have been improved, expanded, and streamlined annually based on program modifications and lessons learned. For the 1998-99 reporting period, 77% of all facility submittals were QA/QC reviewed in some manner depending on the review flags that were triggered. QA/QC review tasks range from assessment of supporting materials submitted with the AER, contact with facilities to collect information, and technical evaluation of data. As experienced with data entry, any QA/QC review tasks that involve facility contact are very time consuming and in some cases problematic. This again emphasizes the value of developing reporting methods that help facilities submit correct reports from the start.

All data that go into the data entry system electronically or manually is stored in a master database, then queried to create QA/QC flags. This allows great flexibility in development of QA/QC review criteria as needed without being locked in to criteria selected during the programming phase of the project. The data entry system also allows the addition of manual flags to store further observations and comments in easily accessible format. If there is a need to modify originally reported data in order to accomplish data entry or QA/QC, this is noted in detail according to developed and District approved procedures and reflected in the master database and stored for future use. In addition to the master database, a mirror database is created for the purpose of storing all facility information, as it was originally data entered. This will mean that the District can retrieve the original facility information without having to physically look for the file.

First phase of assigning flags is accomplished during data entry. Data entry operators are manually assigning some of the flags according to developed procedures. Ecotek electronically checks all submittals and consequently assigns additional flags to facilities to be QA/QC reviewed by querying the master database and assigning flag numbers that correspond to the selected criteria. Facilities that meet the criteria are pulled and checked. In general the key flags can be grouped in several categories as displayed in Table 3.

Table 3. Sample of QA/QC criteria/flags

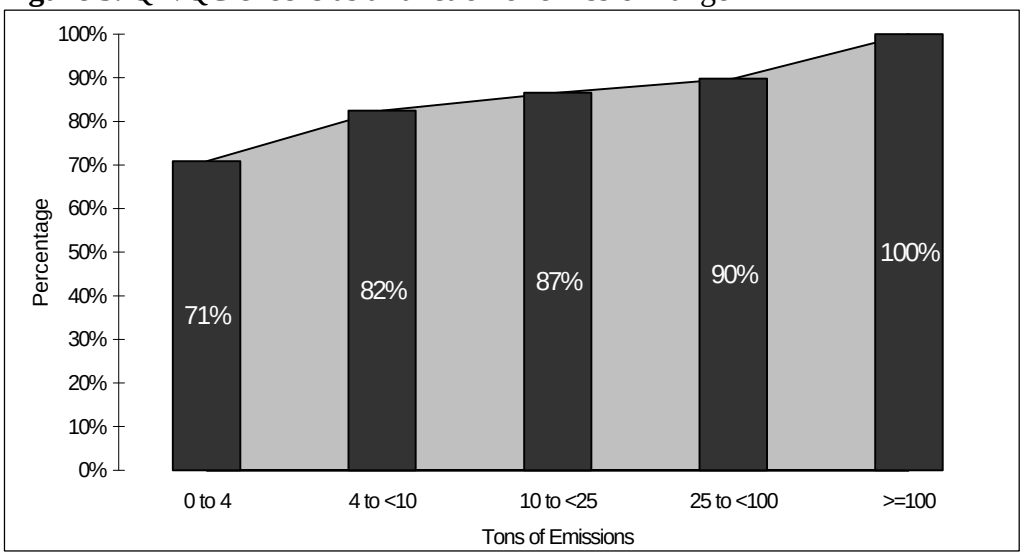
General Flag Type	QA/QC Criteria
Flags that indicate problem or possible problem	• Any negative emissions • Possible double reporting of emissions • Fee Discrepancy, or negative fee • >2 Tons Discrepancy on C+CU • Non- permitted emissions greater than permitted emissions by 10 tons • Control Efficiency exceeding specified ranges • Emission Factor >1 lb/lb for material reported in lbs
Flags that indicate exceeding of typical values	• Fees for specific industry groups are exceeding typical values • Emissions on specific forms or industry exceeding specified levels • Solvent % or Credit % used in waste credit calculation are high than thresholds specified • Calculated or reported fees exceeding specified levels
Additional issues identified through the data entry and QA/QC process	• Indicated changes in operating status are not sufficiently supported • Problems identified during data entry, to be resolved during QA/QC • Problems identified, but not resolved • Facility not being cooperative
Data entry flags	• Mandatory Field Left Blank • Form Selected, but no data entered

Ecotek staff would evaluate facility submittals for each flag. Flags would be resolved to the extent possible. All discrepancy resolutions and facility contacts are thoroughly documented, and identified by facility ID in easily accessible format. In addition to documented flag resolutions, there are multiple levels of communication by Ecotek to the District, depending on the severity of problematic submittals discovered. Upon completion of all QA/QC checks, Ecotek updates the database to indicate the status of the review.

Upon completion of QA/QC checks, Ecotek prepares and submits to the District a Final Summary Report of QA/QC activities and results including QA/QC checks resolutions status as a function of each individual flag and summary reports documenting the total number of facilities flagged and checked based on: (1) by the SIC code and (2) by level of facilities emissions. Ecotek keeps track of all revisions made to the facility's reported emissions and fees. Ecotek also works closely with the District to make sure that all pertinent status codes used by the District are kept consistent and properly applied.

QA/QC checks as a function of facility emissions levels for criteria pollutants (VOC, NOx, SOx and PM) are shown in Figure 5 which is based on the total reports received and the total number of facilities that triggered the QA/QC criteria.

Figure 5. QA/QC checks as a function of emission range



As a result of improvements in the development of the reporting materials and instructions, expanded public assistance, introduction and upgrading to the software reporting, automated data collection and processing, and data QA/QC, enhancements have been observed in the overall quality of the data received. During the last five years, the number of flags that indicate problems or possible problems have consistently been reduced. Table 4 provides an illustration of the error reduction trend by comparing the number of data sets that triggered a selected criteria (identified by the flag) which indicate problems or possible problems of originally submitted data in 1995-96 vs. 1998-99.

Table 4. Selected flags reduction

Flag #	Flag Description	Flags triggered in 1995-96	Flags triggered in 1998-99
81	Emission Factor >1 lb/lb	350	19
84	Solvent/Coating Control Efficiency > 99%	41	26
91	Fee Discrepancy	708	193
93	>2 Tons Discrepancy	259	106

The improved data quality has allowed for expansion of QA/QC criteria and efforts. Consequently, the QA/QC criteria has increased from 19 during the 1995-96 reporting period to 43 in the 1998-99 reporting period. The QA/QC phase screens all of the submittals through a set criterion, which ensures that no major mistakes can go undetected, and in the process the public is constantly educated on the correct reporting methodologies.

Audit Functions

As the final phase of the AER Program, and to complement the data QA/QC conducted by Ecotek, District staff conducts a detailed engineering audit of the reported data for a number of facilities. The engineering audit is primarily intended to identify and correct potential reporting errors in emission factors, throughput or usage data, control efficiencies and other reporting parameters that are not identified and corrected during the data QA/QC phase.

During the audit phase, District staff conducts a detailed evaluation of: 1) facility's prior annual emission reports (to detect any significant variations in emissions and fees), 2) permit and inspection records (to ensure consistency between the permit/inspection databases and the reported data), 3) supporting documentation submitted by facility in support of the reported data (e.g., source test reports, material safety data sheets, waste manifests, other references), 4) variance records (to ensure that any potential exceedances of emission levels allowed under special circumstances are incorporated in the annual emission report, 5) finance records (to determine the status of fees paid by facility), and 6) related District rules, policies, and emission calculation guidelines.

Some of the facilities flagged for auditing include those facilities that are identified by Ecotek (during the QA/QC phase) with either incomplete reports or questionable data and for which emissions or fee data can not be reconciled with the facility. For these facilities, District conducts a detailed audit of the submittals and makes appropriate corrections, if necessary. The corrections primarily involve validating or correcting the reported data based on District's specified policies and guidelines or obtaining missing data from facilities.

In addition to facilities identified by Ecotek, District identifies other facilities for auditing through three primary mechanisms: 1) District's audit criteria, 2) industry-specific trend analysis, and 3) facilities filing amendments to their reports, which are briefly described here.

Table 5 provides a listing of some of the audit criteria used by District to identify facilities for auditing as well as the results obtained though this effort last year. Annually, the audit criteria is reviewed and revised based on the audit results from previous year as well as to accommodate the specific data needs for the respective year.

Table 5. Sample of audit criteria and corresponding results

Audit Criteria	**Results**
Reported Emissions Significantly Different from Prior Years' Reports	Corrections were made in some instances due to facilities reporting off-road vehicles, exempt solvents, and non-permitted instead of permitted emissions. Other variations were validated due to production/operational change, installation of control equipment, switching to low-VOC materials, and updated emission factors.
Reported Toxic Emissions Exceeding Specified Levels	Corrections were mostly made due to the use of erroneous emission factors, calculation methods, or usage data, or for neglecting to apply control efficiencies.
Reported Substantial Amount of Coatings with Little or No Solvents	Reported data was mostly validated (e.g., water-based coatings, solvent usage was combined with coatings, reported solvents under different codes, or reported as non-permitted emissions).
Reported Emission Factors Significantly Different from Default Factors (Combustion)	Corrections were made to reported emission factors higher than default factors. Emission factors lower than default factors were either validated or corrected based on the review of source test results.
Reported Significant Amount of Fuel Other than Natural Gas	Corrections were made due to the use of wrong codes for fuels or for reporting fuel usage in wrong units (e.g., gallons instead of 1000s gallons)

As part of District's audit efforts, District also conducts industry-specific trend analysis to identify any potential discrepancies in the reported emissions within the industry as well as to verify compliance and consistency with applicable emission calculation guidelines for the targeted industry. Table 6 provides a summary of the emissions and fee impact associated with auditing the major refineries in the District conducted during the last two years. As a result of District's audit, significant under-reporting of emissions were identified and corrected in the refineries' reports (covering the last 6 reporting periods) as indicated in Table 6 resulting in approximately $4,000,000 in additional revenues for the District.

Table 6. Summary results of District's audit of refineries reports

Emission Category	Pollutant	Under-Reported Emissions (tons per year)	Additional Fees and Penalties Collected ($)
Hydrogen Production	VOC	612	$690,000
Fugitives (Component Leaks)	VOC	958	$1,454,000
Flares	SOx	1343	$1,570,000
Others (e.g., marine terminals, FCCU)	VOC	72	$285,000

In addition to the audit efforts mentioned above, District also conducts an audit of all amendments to the annual emission reports submitted by facilities. These amendments are usually submitted to incorporate revised emissions data which was applicable at the time of filing and should have been incorporated in the original report. The same audit procedure is used by District staff to validate or correct the reported amendments which may also have an associated fee impact (i.e., refunds or underpayments) which are then processed accordingly.

CONSOLIDATION OF CRITERIA AND TOXICS EMISSIONS

As a result of the improvements made in the AER Program, the District plans to incorporate the toxics emissions inventory reporting requirements of the Air Toxics "Hot Spots" (AB2588) Program into the 2000-01 AER Program to develop an integrated criteria and toxics emissions inventory. Under the AB2588 Program, approximately 1000 facilities are required to report their toxics emissions to the District on a quadrennial basis in order to provide their most current level of toxics emissions and also conduct a new or updated health risk assessment, if necessary.

Under the consolidated program, the AER and AB2588 facilities will be reporting their criteria and toxics emissions to the District using a consistent format. In order to accommodate the consolidated reporting, the existing AER forms will be modified and new forms will be developed to capture emissions by each emission source category (e.g., boilers, ICEs, fugitives, etc.). Consolidation of criteria and toxics emissions reporting into one program will have the benefit of streamlining the reporting process, improving toxics emissions data quality, linkage between criteria and toxics pollutants from same equipment/process and minimizing the required resources by both facilities and the District.

CONCLUSION

Improvements made in the various aspects of the AER Program have significantly improved the overall efficiency of the AER Program in terms of improved forms and instructions, increased use of

reporting software, enhanced public outreach and assistance, automated data processing, data QA/QC, and the audit process with the added benefit of additional revenues for the District.

Continuous efforts to further improve these areas as well as the incorporation of lessons learned every year and the projected consolidation of criteria and toxics emissions reporting into the AER Program promise to result in a continually more accurate point source inventory for the District.

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KEY WORDS
Annual Emissions Report
Audit
Criteria Emissions
Database
Emissions Inventory
Point Source Emissions
QA/QC
Software Reporting
Toxics Emissions

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Mike Nazemi is a Planning and Rules Manager at the SCAQMD. His current responsibilities include the development of emission inventories, development of mobile source regulations and policies, and the implementation of the Toxic Hot Spot Program. He is a registered professional engineer and holds an M.S. degree in Electrical Engineering.

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Elaine Chang is the Assistant Deputy Executive Officer, Planning, Rule Development and Area Sources Division, SCAQMD. Her current responsibilities include the development of AQMP's, overseeing the rulemaking process, evaluating emission trading issues, and implementing the Toxic Hot Spot Program. She holds a Ph.D. in Public Health.

Natasha Meskal is President of Ecotek, an environmental compliance management consulting, software development and data management company. For the last five years, Ecotek has been the District's consultant for the Annual Emission Report Program, assisting the District in areas such as software development, designing reporting forms, Internet support, and interfacing with the District's customers. She holds a B.S. degree in Chemical Engineering.