

**2006 Annual Report on the Air Resources Board
Expenditure of Nonvehicular Source Fees
for Fiscal Year 2005-2006**

Introduction

Health and Safety Code (H&SC) sections 39612 and 39613 authorize the Air Resources Board (ARB or Board) to assess fees on nonvehicular sources. These fees are to be used by the ARB to recover the costs of State programs related to nonvehicular sources. In the fiscal year (FY) 2005-2006 budget, the Legislature authorized the ARB to collect \$20 million dollars in fees from facilities and the manufacturers of consumer products and architectural coatings. As required by H&SC section 39612(g), this report to the Governor and the Legislature provides information on the expenditure of the fees collected and a status report on the implementation of the programs prioritized for funding pursuant to H&SC section 39612(c).

Background

The Legislature enacted H&SC section 39612 as part of the California Clean Air Act of 1988 (the "Act", Statutes 1988, chapter 1568). The Act requires attainment of State ambient air quality standards by the earliest practicable date. As part of that mandate, the Act requires the ARB and the air pollution control and air quality management districts (districts) to take various actions to reduce air pollution from motor vehicles, industrial facilities, and other sources of emissions. As originally enacted, section 39612 empowered the ARB to assess fees on nonvehicular sources (i.e., facilities) that were authorized by air pollution control or air quality management district permits to emit 500 tons or more per year of any nonattainment pollutant or its precursors.

In 1989, the Board approved the California Clean Air Act Nonvehicular Source Fee Regulations. The original regulations included the fee rate and amounts to be remitted to the ARB by the districts for the first year of the program fiscal year 1989-90. In subsequent years, the Board approved amendments to the fee regulations identifying the amount of fees to be collected by each district for the following fiscal year. To streamline the process, the Board approved in 1998 amendments that established a process whereby the ARB Executive Officer identifies the fees to be assessed in each fiscal year and notifies the districts and affected facilities.

In 2003, the Legislature enacted Assembly Bill (AB) 10X (Statutes 2003, chapter 1X), which amended section 39612 and added section 39613 to the H&SC. AB 10X made a number of changes to section 39612, including: (1) increasing the cap on stationary source permit fees and allowing the fees to be adjusted annually thereafter for inflation; (2) expanding the universe of facilities subject to the fees by specifying that the fees are to be collected from facilities authorized by district permits to emit 250 tons (instead of the previous 500 tons) or more per year of any nonattainment pollutant or its precursors; and (3) authorizing ARB to collect the fees directly from all sources subject to the fees.

In addition, new section 39613 of the H&SC authorized the ARB for the first time to assess fees on manufacturers of consumer products and architectural coatings. The fees are assessed on those manufacturers whose total sales of consumer products or architectural coatings will result in the emission in California of 250 tons or more per year of volatile organic compounds (VOC). The ARB must use these fees solely to mitigate or reduce air pollution in the State created by consumer products and architectural coatings. In July 2003, the Board approved regulations to collect the fees authorized by AB 10X. The full text version of the regulations can be found on the ARB's website at <http://www.arb.ca.gov/regact/feereg03/feereg03.htm>. In 2004, the Legislature authorized the ARB to assess an additional \$2.6 million in fees for a total of \$20 million for FY 2004-2005. In November 2004, the Board approved amendments to the regulations adopted in July 2003 to establish a procedure to collect the additional \$2.6 million for FY 2004-2005 from facilities. The amendments also provided for collection from facilities of any legislatively-approved fees in fiscal years beyond 2004-2005 that are in excess of \$17.4 million. The full text version of the revised regulations can be found on the ARB's website at <http://www.arb.ca.gov/regact/feereg04/feereg04.htm>.

H&SC section 39612(g) states: "On or before January 1 of each year, the Board shall report to the Governor and the Legislature on the expenditure of permit fees collected pursuant to this section and section 39613. The report shall include a status of the programs prioritized for funding pursuant to subdivision (c)." As required by section 39612(g), ARB staff has prepared this report to the Governor and the Legislature which describes the expenditures of the fees collected in FY 2005-2006.

Fiscal Year 2005-2006 Expenditures of Nonvehicular Source, Consumer Products, and Architectural Coatings Fees

The total fee expenditures in five major program categories for FY 2005-2006 are shown in Table 1 below. Following Table 1 are descriptions of the activities that are funded by the fees.

**Table 1
Expenditure of Fees for Fiscal Year 2005-2006**

Activity	Expenditure
Enforcement	\$2,267,000
Monitoring and Laboratory	\$4,315,000
Research	\$2,350,000
Technical Support and Planning	\$4,397,000
Rule Development and District Oversight	\$6,671,000
Total Expenditures	\$20,000,000

General Division Activities for Consumer Products and Architectural Coatings

ARB performs monitoring, emission inventory development and maintenance, research, modeling, and other activities in support of understanding the contribution of consumer products and architectural coatings to California's air quality problems. In addition, several divisions of the ARB perform other activities to understand, regulate, and enforce rules for the pollution coming from these sources. These divisions include the Stationary Source, Enforcement, Monitoring and Laboratory, Research, and Planning and Technical Support Divisions. Collectively, these efforts are an integral and necessary part of mitigating and reducing the emissions from these products. Below, we describe the various activities pertaining to consumer products and architectural coatings undertaken by each division. In the subsequent sections, we provide more detailed information on FY 2005-2006 specific activities pertaining to consumer products and architectural coatings.

Stationary Source Division: The Stationary Source Division (SSD) is responsible for: 1) conducting surveys to determine the VOC emissions from consumer products and architectural coatings; 2) developing regulations to reduce the VOC emissions from consumer products, and suggested control measures (SCM) to reduce the VOC emissions from architectural coatings; 3) developing new consumer product elements for the State Implementation Plan (SIP) for ozone; and 4) implementing statewide regulations for consumer products.

To implement the consumer products regulations, SSD staff: 1) performs technology assessments for upcoming standards; 2) issues product determinations; 3) reviews and approves charcoal lighter material certifications; 4) reviews and approves innovative product exemptions; 5) reviews and approves alternative control plans; 6) reviews and approves variance applications; 7) develops and submits SIP amendments to the United States Environmental Protection Agency (U.S. EPA) for approval; and 8) works with the Enforcement Division (ED), Monitoring and Laboratory Division (MLD), and Office of Legal Affairs (OLA) to enforce the regulations. SSD staff also works with the Research Division (RD) staff to conduct reactivity research and other research related to VOC emissions, and to determine the potential impacts of exempting compounds from the VOC definitions for consumer products and architectural coatings.

Ongoing efforts by SSD staff to implement the 2000 SCM for architectural coatings, include: 1) assisting the districts to adopt the SCM (20 districts have adopted the SCM to date); 2) reviewing and approving district rules and submits them to the U.S. EPA for approval; 3) performing technology assessments of upcoming standards; 4) working with the ED, MLD, and the OLA to enforce the statewide averaging program. The ARB staff is also in the process of updating the 2000 SCM and anticipates bringing the SCM to the Board for consideration in the fall of 2007. This update will be a major undertaking that will require considerable ARB resources.

Enforcement Division: The ED provides support to the consumer products and architectural coatings programs by: 1) purchasing samples for laboratory analysis by

MLD to determine compliance with the consumer products regulations and the averaging provisions of district architectural coatings rules; 2) investigating alleged violations of these regulations and issuing Notices of Violation to retailers, distributors, and manufacturers involved in the sale of non-complying products; 3) working with ARB's Office of Legal Affairs to resolve cases; 4) issuing enforcement advisories; and 5) working with SSD staff on surveys, regulation development, and implementation, including product determinations.

Monitoring and Laboratory Division: The MLD provides support to the consumer products and architectural coatings programs by: 1) developing and evaluating test methods to measure the VOC content of consumer products, and to measure the reactivity of aerosol coatings; 2) testing consumer products to determine compliance with VOC limits; 3) testing aerosol coatings to determine compliance with reactivity limits; and 4) testing architectural coatings to determine compliance with the averaging provision in district rules. These efforts are in addition to MLD staff conducting ambient air monitoring to determine which areas of the State are nonattainment for the State and federal ozone and particulate matter air quality standards.

Research Division: The RD provides support to the consumer products and architectural coatings programs by: 1) funding and managing research to measure emissions and the actual exposure individuals may experience when using these products; 2) estimating the impact that exposure to emissions may have on health; and 3) exploring the viability of alternative products or control technologies to reduce emissions and exposure through the Innovative Clean Air Technology Program (ICAT) and other research. The Indoor Exposure Assessment Section of RD also develops fact sheets and guidelines for the public that identify ways to reduce exposure to pollutants associated with consumer products, coatings, and other indoor sources.

Planning and Technical Support Division: The Planning and Technical Support Division (PTSD) provides support to the consumer products and architectural coatings programs by: 1) maintaining and updating the emissions inventories for these sources for incorporation into the SIP; SIPs are air quality plans that are updated frequently to reflect the latest advances in science and control technologies and are required to show how nonattainment areas will attain ambient air quality standards; and 2) conducting air quality modeling to determine the population exposure to ozone and particulate matter, and to determine the effectiveness of ozone and particulate matter attainment strategies for SIP development and implementation.

Specific Activities Related to Consumer Products and Architectural Coatings in Fiscal Year 2005-2006

Enforcement

Over 2,500 samples of household and institutional consumer products were collected by ED staff during FY 2005-2006 from a variety of retail stores and commercial businesses throughout the state and over the internet. After initial evaluation to determine

compliance with the administrative requirements of the consumer product regulations, the samples were submitted for laboratory analysis to determine compliance with applicable VOC and reactivity limits.

The laboratory results for approximately 500 samples indicated that the products exceeded the VOC limits. Investigations were initiated to determine if a violation had occurred, identify the parties involved, and determine the magnitude of the violations. As a result of these investigations, 40 notices of violation were issued. After conducting office conferences, ED staff worked with OLA to resolve the enforcement cases through administrative, civil, or criminal actions. During this fiscal year, 41 cases that were initiated over multiple fiscal years were settled with over \$867,000 in penalties collected which helped to mitigate over 111 tons of excess emissions resulting from these violations.

ED staff also prepared two enforcement advisories to apprise manufacturers and distributors of products of upcoming changes to the date code provisions and prohibitions on the use of chlorinated compounds in certain categories of consumer products. Compliance with the new date code reporting requirements was monitored. In addition, ED staff assisted SSD staff in conducting the 2003 Consumer and Commercial Products Survey by mailing out a formal written letter to remind a large number of companies of the legal requirements to complete the survey. ED staff along with staff in the SSD, also conducted product category determinations at the request of manufacturers, to evaluate if the product is subject to requirements of the Consumer Products Regulations. After an initial evaluation, staff from both divisions and OLA provide comments on and concurrent approval of the category determination.

Monitoring and Laboratory

Products were routinely submitted for laboratory analysis and samples processed. Test results were evaluated and, when appropriate, used to support follow up enforcement efforts. In response to several external inquiries/requests, laboratory staff in the MLD conducted special studies involving: 1) evaluation of several solvents with respect to low vapor pressure (LVP) VOC criteria; 2) analysis of several architectural coatings and aerosol coatings for VOC content; 3) evaluation of Method 310 applicability for analysis of specific architectural coatings; and 4) evaluation of several new and proposed categories for consumer products regulations

Research

Investigators at the University of California, Berkeley, completed an ARB-funded study of primary and secondary emissions from household cleaning products. They found just three toxic air contaminants emitted from the products, all at low levels not believed to pose a risk to health. However, reactivity tests with products containing terpenes (fragrance compounds such as limonene and pinene) in the presence of ozone showed production of formaldehyde and ultrafine particles, both of which can have health impacts. RD and SSD staff reviewed the draft final report and the revised final report, which is posted on the internet at <http://www.arb.ca.gov/research/apr/past/indoor.htm>.

Staff also commented on a scientific paper submitted to a scientific journal by the investigators.

RD staff and SSD staff attended meetings and assisted with development of an Environmentally Preferable Products (EPP) purchasing manual as part of the Governor's Green Action Team's EPP Task Force. RD staff additionally reviewed and commented on several standards of the Green Seal and Green Guard Programs, voluntary product certification and labeling programs.

RD staff managed an ongoing research contract entitled "Updated Chemical Mechanisms for Airshed Model Applications." The project was developed by RD staff with support from SSD and PTSD and the final report is expected in early 2007. RD staff with support from SSD, PTSD, Office of Environmental Health Hazard Assessment (OEHHA), State Water Resources Control Board (SWRCB), and Department of Toxic Substances Control (DTSC) finalized a report entitled "Environmental Impact Assessment of tertiary-Butyl Acetate" that evaluated a VOC exemption petition for tertiary-butyl acetate. Staff also worked with manufacturers, consultants and OEHHA to begin the evaluation of several other exemption petitions.

RD staff also participated in consumer products workshops with agendas that included reactivity issues, and provided technical support for exploration of reactivity-based VOC control measures for aerosol coatings, consumer products, automotive refinishing products, and architectural coatings.

ARB funded or co-funded and monitored several studies. A multi-year automotive cleaning products study had a program goal to field test and demonstrate low-VOC and low toxicity aerosol auto parts cleaners for general auto parts cleaning, brake cleaning, carburetor and fuel injector cleaning, and engine degreasing applications at auto repair shops. RD staff managed the study and, with SSD staff, reviewed the December 2004 final report entitled, "Alternatives to Automotive Consumer Products that Use Volatile Organic Compounds and/or Chlorinated Organic Solvents." Dr. Katy Wolf of the Institute for Research and Technical Assistance (IRTA) presented information concerning this report on October 14, 2005.

RD staff is managing, with SSD staff input, another architectural coatings project, entitled "Development of an Improved VOC Analysis Method for Architectural Coatings." RD and SSD staff are also involved with research sponsored by the Eastman Chemical Company to study the emissions of Texanol® from architectural coatings.

RD staff prepared a report entitled "Report to the California Legislature: Indoor Air Pollution in California," which was approved by the Board in March 2005 and submitted to the Legislature in July 2005. The report included information that indicated the use of some products can contribute to harmful indoor air quality. Users are often in close proximity to the release of chemicals during use, and not all consumer products are regulated. Consumer products were ranked in the medium priority category for action due to the success of ARB's regulations to date in promoting alternative, low VOC reformulations, restricting VOC content limits for 115 product categories, and prohibiting

the use of certain toxic air contaminants in specific product categories. Architectural coatings were also ranked in the medium priority category because reductions have been achieved from this source category due to local air district rules.

Technical Support and Planning

SSD staff worked with Emission Inventory staff in the PTSD to evaluate the emissions inventory impact of updated sales and ingredient information obtained with the 2001 Consumer and Commercial Products Survey (2001 Survey). The 2001 Survey was a targeted survey covering about 40 categories that was conducted in FY 2002-2003. SSD staff reviewed and evaluated the 2001 Survey submittals from FY 2003-2004 through FY 2004-2005. In FY 2005-2006, staff reviewed and evaluated manufacturers' requests for revisions to information submitted for the 2001 Consumer Products and Commercial Products Survey. Where applicable, revised emissions were used for fee determinations and to update the statewide emissions inventory. In addition to updating sales and emissions data, staff derived control factors to update the statewide emissions inventory for consumer product categories affected by new VOC limits approved with the 2004 Consumer Products Regulation Amendments.

Rule Development and District Oversight

SSD staff with the assistance and input of ED staff continue to evaluate the 2003 Consumer and Commercial Products Survey (2003 Survey), the most comprehensive survey conducted by ARB staff to date covering about 250 consumer product categories. Over 940 responding companies provided sales and VOC content information for over 26,000 products. Staff review and evaluation of the 2003 Survey continues into FY 2005-2006 which will lead to a new rulemaking effort. The 2003 Survey will be used to identify categories where VOC emission reductions can be obtained to meet current SIP control measure commitments, update the statewide emissions inventory, and develop new commitments for future SIPs.

As part of the 2006 Consumer Products Regulation Amendments rulemaking process, SSD staff prepared and posted lists of proposed product categories, staff proposals for various product categories, definitions of the proposed product categories, and sample formulas for the proposed product categories.

Staff also conducted several Consumer Products Workgroup meetings. Staff's proposals for 15 product categories were presented to the Board, and approved, on November 17, 2006. Staff will present additional proposals to the Board in 2007.

Staff conducted technical assessments of consumer product categories, which become effective in 2006 and of a halogenated solvent use survey; staff continue to evaluate data received from the aerosol adhesives survey.

Staff reviewed and evaluated requests and applications for product determinations; charcoal lighter material certifications; alternative control plans and annual reports; and innovative product exemptions. These activities often involved coordination of input and

the concurrence of staff from ED, MLD, PTSD, and OLA. SSD staff, working with ASD and PTSD staff, prepared and reviewed fee emission determinations for consumer products manufacturers.

Staff processed two variances for personal care products. The variances were necessary due to an unexpected shortage of a key raw material. Staff tracked manufacturer progress toward compliance to ensure that excess emissions were minimized.

Staff responded informally and formally to numerous inquiries from manufacturers, consultants, product certification/labeling programs, and other regulatory agencies (including federal, local, and other states' air quality management/air pollution control agencies and from other countries, including Canada and Hong Kong). Staff made presentations at several national and regional industry association meetings.

In FY 2005-2006, SSD staff continued work on its 2005 survey of architectural coatings sold into California and finished collecting and entering the data into a database. The bulk of the data analyses occurred in FY 2005-2006. Work on the survey continues into FY 2006-2007, and it will be used to update the statewide architectural coatings emissions inventory and to revise the 2000 SCM. Close to 200 responding companies have provided sales and VOC content information for over 20,000 products. SSD staff also worked with ASD and PTSD staff to review fee emission determinations. In addition, SSD staff developed a revised methodology to account for the thinning and clean up emissions associated with the use of architectural coatings

SSD staff also assisted local air districts with regard to architectural coatings by: beginning work on updating the 2000 SCM; working with California Polytechnic State University (Cal Poly), San Luis Obispo on the architectural coatings research project entitled "Development of an Improved VOC Analysis Method for Architectural Coatings; working on a settlement for a statewide violation of local architectural coatings rules; advising the districts as to the results of our field study of coatings being sold under districts' averaging provisions; collecting and reporting the data required by local districts' rules for annual reporting; assisting districts with rule development, especially the South Coast Air Quality Management District and the Kern County and El Dorado County air districts; and conducting product determinations.

General Division Activities for Nonvehicular Sources

During FY 2005-2006, ARB used the fees collected from nonvehicular sources to develop and enforce emission reduction strategies for nonvehicular sources. In addition, ARB used the fees to develop the technical information and air quality plans necessary to address these sources.

Enforcement. These activities include conducting inspections of stationary sources, investigating complaints, issuing notices of violations, evaluating district variances for compliance with regulatory requirements, obtaining and analyzing evidence to

determine the date of onset, cause, and extent of violation of air pollution regulations, and reviewing district rules for enforceability.

Monitoring and Laboratory: These activities include measuring ambient air levels of gaseous and particulate criteria and toxic air pollutants. These efforts are used in determining which areas of the State are nonattainment for the State and federal ambient air quality standards. They are used for statewide ambient air toxic monitoring to facilitate the identification of and control of air toxic contaminants in California.

Research: These activities include investigating the reactivity of air pollutants and the atmospheric processes that contribute to ozone and particulate matter formation, conducting vulnerable populations and children's health studies, and reviewing/updating ambient air quality standards based on research results.

Technical Support and Planning: These activities include maintaining and updating emission inventories, conducting air quality modeling to determine the population exposure to ozone and particulate matter, and developing and implementing air quality plans for ozone and particulate matter.

Rule Development and District Oversight: These activities include managing a database of Best Available Control Technologies (BACT) to facilitate the transfer of technologies among districts facing growth from similar sources, helping districts comply with federal permit requirements, developing area wide emission inventories to better target district resources, providing guidance and technical resources to evaluate feasibility and effectiveness of regulatory actions, developing suggested control measures to assist districts in developing regulations, and evaluating, developing and implementing regulatory measures to reduce emissions.

Status of Efforts to Address Priority Activities

In addition, H&SC section 39612(c) gives priority for expenditure of nonvehicular source fees to five specified activities. ARB's efforts to address these activities are summarized below.

1. Identifying air quality-related indicators that may be used to measure or estimate progress in the attainment of State ambient air quality standards

H&SC section 39607(f) requires that ARB, in consultation with districts, evaluate air quality indicators that can be used to measure progress towards attainment of State standards. By July 1993, ARB was required to identify one or more indicators to be used by districts in assessing progress in their triennial State attainment plan updates required under H&SC section 40924.

In 1993, ARB developed three air quality indicators for districts to use in assessing progress toward State standards in their triennial plans. The first is the expected peak day concentration, which is also termed the peak indicator. This indicator tracks

progress at locations where concentrations are the highest; these are also the locations where the potential for acute health effects are the greatest. The other two indicators, population-weighted exposure and area-weighted exposure, indicate the potential for chronic health effects. In contrast to the peak indicator, which is based on data for peak exposures at individual monitors, the two exposure indicators are based on data for all monitors and reflect the "average" exposures within a district. The population-weighted exposure indicator represents the average of all personal exposures in the area, while the area-weighted exposure indicator represents the average exposure across all locations in the area. All three indicators have been used for the State 1-hour average ozone standard. As a result of the new 8-hour average ozone standard adopted by the Board in 2005, ARB now provides the 8-hr ozone peak indicator in addition to the 1-hr ozone peak indicator. ARB is working on developing the area-weighted and population-weighted exposure indicators for the 8-hr ozone standard.

ARB published the indicators in July 1993, and in September 1993 published a guidance document for how to use these indicators in assessing progress; this report is titled "Guidance for Using Air Quality-Related Indicators in Reporting Progress in Attaining the State Ambient Air Quality Standards." Since then, districts have used these indicators in assessing progress in their State ozone triennial plan updates. Every three years, ARB calculates and provides the indicators to each of the districts for use in assessing progress made over the last three years toward attainment of the State ozone standard and for incorporation in their triennial plan updates. ARB last provided updated indicators to districts in September 2006 for their 2007 plan updates.

ARB also published the 2006 "California Almanac of Emissions and Air Quality" (the Almanac). This document represents a comprehensive assessment of progress toward State standards from a statewide as well as a regional perspective over a twenty-year period. The Almanac includes numerous air quality statistics, updates the attainment status for State standards, and includes maps, graphs, and numerous data tables to illustrate progress. The peak indicator is provided for four pollutants (ozone, carbon monoxide, nitrogen dioxide, and sulfur dioxide) for all air districts and air basins in California and ozone population exposure estimates are provided for California's five largest urban areas.

In addition, ARB updated and published maps that show the attainment status for each State standard in 2006; these maps provide a snapshot of year-to-year progress in air quality improvement. Finally, ARB staff developed and maintains a real-time air quality database, which is an important tool that allows the public and districts to continually track and measure progress.

H&SC section 39607(f) also requires that ARB continue to evaluate the prospective application of air quality indicators, and upon a finding that adequate air quality modeling capability exists, identify indicators which may be used by districts in lieu of the annual five percent emission reductions mandated by H&SC section 40914(a). Prospective indicators have not yet been developed because adequate air quality modeling capability for this application does not yet exist. However, ARB staff is continually evaluating and improving the models. Currently, ARB, in conjunction with

some districts, is developing and applying state of the art modeling tools needed to develop attainment demonstrations for the federal ozone and PM 2.5 air quality standards. It is expected that the additional information from this effort will contribute to further understanding of prospective air quality indicators.

2. Establishing a uniform methodology for assessing population exposure to air pollutants

H&SC section 39607(g) required that, by July 1996, ARB establish a uniform method for use by districts in assessing population exposure to air pollution at levels above the standards. As discussed above, ARB established a population-weighted exposure indicator, which was documented in a 1993 report entitled "Guidance for Using Air Quality-Related Indicators in Reporting Progress in Attaining the State Ambient Air Quality Standards." ARB reports population-weighted exposure information to the districts for use in their triennial progress assessments and plan updates, and publishes population-weighted exposure to ozone for five air basins as part of the annual Almanac of Emissions and Air Quality. As shown in the 2006 edition of the Almanac, from 1990 to 2004, population exposure to unhealthy ozone levels above the State 1-hr ozone standard has been reduced by a statewide average of 75 percent.

3. Updating the emission inventory pursuant to section 39607.3, including emissions that cause or contribute to the nonattainment of federal ambient air standards

ARB compiles, maintains, and is constantly working to improve a very detailed and complex inventory of air pollution sources. Emission inventory improvement is an integral part of ARB's air quality planning and regulatory development processes. It is also an important ARB research category. Pursuant to H&SC section 39607.3, ARB staff periodically updates the inventory and brings it to the Board for approval either as a stand-alone item or as part of the Board's approval of air quality plans. ARB also publishes the inventory for all California air basins annually as part of the Almanac. In FY 2005-2006, some of the major activities ARB completed related to emissions inventories include the following:

Preparation of Ozone and PM2.5 SIPs - ARB is directed by federal law to prepare a State Implementation Plan (SIP) for the attainment of ambient air quality standards. SIPs for the South Coast Air Quality Management District (SCAQMD) and the San Joaquin Valley Air Pollution Control District (SVAPCD) are being prepared pursuant to federal law, and are due to the U. S. EPA by mid-2007. To prepare for the SIPs for the national PM 2.5 and 8-hour ozone standard, ARB is performing extensive air quality modeling using its emission inventory. ARB continues to work with districts to perform quality assurance on the emission inventory that will be used for the modeling. This quality assurance program includes special emphasis on verification of local data for point sources, verification of emissions from large power plants, and on verification and correction of stack data. Weekly meetings were held with SCAQMD staff and periodically with SVAPCD staff to discuss inventory and modeling needs for the SIPs. Improvements to the ARB's methodologies for estimating area source emissions are

continually being refined. Efforts to improve methods of forecasting future year emissions using economic and demographic growth factors are in progress. Control factors that are based on activities that result in emission reductions are regularly reviewed.

Based on recommendations from the National Academy of Sciences, the U.S. EPA requires the inclusion of additional analyses to corroborate air quality modeling for the 8-hour ozone standard. These corroborative analyses are intended to strengthen the technical foundation for the SIP. As a result, the ARB is carrying out a series of analyses intended to satisfy this requirement. These analyses will rely on the extensive monitoring data routinely collected by the ARB and the districts, as well as the ARB's emission inventory. Specifically, analyses that are underway will compare trends in air quality and emissions for ozone and its precursors, examine methodologies to account for year-to-year variations in meteorology and their effects on air quality, and characterize changes in the ozone forming potential of the atmosphere for those air basins with the most severe air quality problems.

In recognition of the regional nature of air quality problems throughout the state, the ARB is also migrating towards the use of two large modeling domains to address all of the 8-hour ozone non-attainment areas in the state. Previously, several smaller modeling domains were used to assess air quality impacts. This transition has required the development and quality assurance of meteorological and emission inventory inputs for large regions.

Emission Inventory Enhancements - ARB made major revisions to its emission estimation models. These revisions were incorporated into these models in preparation for the 8-hour Ozone SIP effort. ARB staff also worked on updating emission estimates for several areawide source categories. During fiscal year 2005-2006, work on the following three categories was completed: Architectural Coatings, Auto Refinishing, and Consumer Products. Each update was based on surveys conducted by ARB's Stationary Source Division. These surveys collected detailed sales and formulation data which were used to calculate the emissions.

Systems Design Enhancements - ARB maintains the statewide emission inventory in two systems: the California Emission Inventory Development and Reporting System (CEIDARS) is the repository for the base year emission data; and the California Emission Forecasting System (CEFS) is the forecast processor. In FY 2005-2006, to meet the forecasting burden of the SIP, CEFS had to be migrated to a faster operating platform and the program had to be redesigned to enable sequential batch processing. As a result, CEFS now operates at speeds that are ten times as fast as the prior version. This has enabled ARB to meet SIP deliverable deadlines on schedule without sacrificing data quality, while keeping dedicated staff resources at the same levels.

Training for District Staff - ARB has provided training and guidance for district emission inventory staff. In FY 2005-2006, training by ARB included an educational workshop on emission inventory development, one-on-one focus sessions on the California Emission Forecasting System (CEFS) data requirements, and ongoing

training on the “Hot Spots” Analysis and Reporting Program, a computer software package that performs database and risk assessment functions. ARB also hosts bimonthly Emission Inventory Technical Advisory Committee meetings to keep districts informed on its emission inventory program.

Web Accessibility - ARB has developed web-based tools that give districts direct access to their emission inventory data. Extensive emission inventory reference and documentation is available on the ARB website for those who are creating and/or using emission inventories. ARB has also created a number of web tools that allow districts and the general public to summarize emission inventory data in a number of ways. In FY 2005-2006, ARB developed a special internal web site to assist District and ARB planners and modelers in the development of the SIP. This web site offers several tools for summarizing emissions data. Separate tools were developed for summarizing seasonal average emissions used for planning and month/day-specific emissions used for modeling. The planning tool offers a “drill-down” feature that enables the end-user to retrieve detailed information by simply clicking on a major summary category. This provides the necessary detail for developing and assessing control strategy options. The emissions information can be easily downloaded for later manipulation. The web site also provides a version control chronology that provides planners and modelers with a quick reference guide for tracking specific inventory products used in the SIP process. This suite of tools has enabled fast-response reporting and emissions analysis greatly enhancing the efficiency of the SIP process.

4. Identifying, assessing, and mitigating the effects of interbasin transport of air pollutants

H&SC section 39610 directs ARB to assess ozone transport, defined as the contribution of ozone and ozone precursors in upwind regions on ozone concentrations that violate the State ozone standard in downwind regions. ARB is specifically directed to (1) identify district transport couples, (2) assess the relative contribution of upwind emissions on downwind ozone concentrations, and (3) establish mitigation requirements commensurate with the level of contribution. Further, ARB through its mobile source emission control program provides the majority of emission reductions in both upwind and downwind regions, thereby providing the bulk of interbasin transport mitigation.

Assessments of Transport Couples - Since 1989, ARB has published several assessments of transport relationships between air basins and regions in California. The assessments identify transport couples consisting of an upwind area (source of transported emissions) and a corresponding downwind area (receptor of transported emissions). ARB also evaluates the magnitude of the contribution and determines whether the contribution is overwhelming, significant, inconsequential, or a combination thereof. ARB first identified transport couples in 1989 and 1990 and updated these assessments in 1993, 1996, and 2001. ARB reviews air quality data every three years and proposes changes to the transport identification regulation, when warranted by the data. ARB also uses air quality models to account for transport in the development of air quality plans.

ARB adopted transport mitigation regulations for the districts in 1990 and amended them in 1993 and 2003. The 1990 regulations established mitigation requirements for upwind areas found to have either overwhelming or significant impacts on downwind areas. The primary mitigation requirement was application of best available retrofit control technology. In 1993, ARB amended the mitigation requirements to align them with the minimum permitting requirements of State law. In May 2003, ARB adopted amendments that strengthened the mitigation requirements to include a requirement that upwind districts adopt all feasible measures for the ozone-forming pollutants, independent of the upwind district's attainment status. In addition, they include a requirement that "no net increase" thresholds for new source review permitting programs in upwind areas be as stringent as those in downwind districts.

Transport Impacts – Since 2003, ARB staff has continued working with the districts in California to further the understanding of inter-district transport and transport impacts. ARB staff work includes development and use of state-of-the-art air quality modeling tools. These tools will enable ARB and local air districts to better evaluate which emission control measures can mitigate the impacts of transported pollutants.

During the last year this work has focused on development and use of complex computer models of the atmosphere that replicate the formation and movement of pollution in and among regions across the State. The models ARB is developing cover the entire State, so the effects of interbasin transport are accounted for implicitly within the models. This effort is part of the scientific foundation of the State Implementation Plans (SIPs) required under federal law to show how the State will attain the federal standards.

Mitigation Measures – Many districts are currently updating their local control strategies for federal SIP purposes. These districts typically develop their triennial updates to local district attainment plans for the State's one-hour ozone standard at the same time. ARB staff has been coordinating with the districts as they develop their plans and local control strategies. A key element of this ARB effort has been to ensure that districts are complying with the requirements for transport mitigation.

5. Developing new State Implementation Plan strategies

ARB has under way a major effort to update its control program with new strategies as part of the planning effort for attaining the federal 8-hour ozone and PM_{2.5} standards. The SIPs for ozone are due to the U.S. Environmental Protection Agency (U.S. EPA) by June 15, 2007. PM_{2.5} SIPs are due April 15, 2008. These are the same strategies that are needed to ensure progress toward the State standards.

ARB staff is working with the local districts to develop a comprehensive control strategy that is designed to address the needs of each nonattainment area in California. These control concepts would provide the substantial new emission reductions needed beyond those provided by existing programs.

The effort to update the State strategy has been multifaceted. It includes the updating the State's database of emission sources across the State: stationary, areawide, and mobile. These updated emission inventories have then been used as inputs to atmospheric computer models to estimate the emission reduction targets for meeting air quality standards. Finally, it includes the development of the control concept and engineering and technical analysis to quantify potential emission reductions.