

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Addendum to the Air Toxics Control Plan (March 2000)

DRAFT

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PREFACE

This Addendum to the Air Toxics Control Plan (ATCP), March 2000, is part of an overall program to address air toxics as a key strategy of the South Coast Air Quality Management District (AQMD). The original ATCP was developed as a planning document to lay out the AQMD's air toxics control program. The ATCP was not required by state or federal law, and thus was not submitted as part of the State Implementation Plan (SIP).

This addendum is not intended to be a comprehensive update to the 2000 ATCP. Rather, it provides a status regarding implementation of the various mobile and stationary source strategies in the original ATCP and revises projections based on what has been accomplished. New inventory information is provided to reflect updates in the 2003 Air Quality Management Plan (AQMP). The inventory has changed due to methodology changes and implementation of adopted rules. The addendum also includes a summary table of control strategies that were identified as part of the AQMD's efforts to address cumulative impacts (August 2003 White Paper). The contribution of these cumulative impact measures has not been included in the revised projections, because most of them deal with new sources or sources in microscale. Therefore, it is difficult to fully quantify benefits at a regional level. A comprehensive ATCP update will be conducted shortly after the third Multiple Air Toxics Exposure Study (MATES III) is completed in 2005.

Significant progress has been made in implementation of most of the AQMD strategies from the March 2000 ATCP. The California Air Resources Board (CARB) has also made significant progress in mobile source (diesel-particulate related) measures and has made significant commitments in the 2003 AQMP to continue to reduce mobile source emissions that would have concurrent reductions in air toxics. The United States Environmental Protection Agency (EPA) has continued to implement their air toxic programs applicable to stationary sources. Additional efforts are needed to ensure adequate air quality for all Basin residents.

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ACRONYMS

Air Quality Management Plan (AQMP)
Air Toxics Control Plan (ATCP)
Air Toxics Control Measure (ATCM)
Air Transport Association (ATA)
Annual Emissions Reporting (AER)
California Air Resources Board (CARB)
Carbon Monoxide (CO)
Clean Air Act (CAA)
Compressed Natural Gas (CNG)
Cumulative Impacts Reduction Strategy (CIRS)
Ethylene oxide (ETO)
Fiscal Year (FY)
Hazardous Air Pollutants (HAPs)
Hazard Index (HI)
Health Risk Assessments (HRAs)
Liquid Natural Gas (LNG)
Maximum Achievable Control Technology (MACT)
Maximum Individual Cancer Risk (MICR)
Memorandum of Understanding (MOU)
Methyl tertiary-butyl ether (MTBE)
Multiple Air Toxics Exposure Study (MATES)
National Air Toxics Assessment (NATA)
National Emission Standards for Hazardous Air Pollutants (NESHAP)
Nitrous oxide (NO_x)
Occupational Safety and Health Administration (OSHA)
Particulate Matter (PM)
Source Category Codes (SCC)
South Coast Air Quality Management District (AQMD)
Southern California Association of Governments (SCAG)
State Implementation Plan (SIP)
Toxic Air Contaminants (TACs)
Toxic Best Available Control Technology (T-BACT)
Transport Refrigeration Units (TRU)
United States Environmental Protection Agency (EPA)
Volatile Organic Compounds (VOCs)

I. INTRODUCTION

Purpose

The March 2000 final draft ATCP was developed as a planning document to lay out the AQMD's air toxics control program. This addendum provides a status report regarding implementation of the various mobile and stationary source strategies in the ATCP and revises projections based on what has been accomplished. This addendum also includes a summary table of control strategies that were identified as part of the AQMD's effort to address cumulative impacts, as well as measures identified in the 2003 AQMP.

Significant progress has been made in implementation of most of the AQMD strategies from the March 2000 ATCP. The CARB has also made significant progress in mobile source measures and has made commitments in the 2003 AQMP to continue to reduce mobile source emissions. The EPA has continued to implement their air toxic programs applicable to stationary sources. Additional efforts are needed to ensure adequate air quality for all Basin residents.

Future projections include AQMP Control Measures and adopted rules. Many of the items in the Cumulative Impacts Reduction Strategy (CIRS) will be quantified, to the extent feasible, during rule development. Future updates to the ATCP may consider additional health based indicators in the development of control strategies, to the extent feasible. Consistent with MATES II, the March 2000 air toxics plan primarily focused on cancer-based risks. Future air toxics plan updates may also consider non-cancer health risks. In addition, there may be an examination of asthma as a health based indicator for potential control strategy development, to the extent feasible.

Key Elements

This Addendum to the March 2000 ATCP has six key elements. The first element addresses the progress made in implementing the ATCP strategies, as well as other efforts that reduce toxics that have been adopted or implemented in the last few years. Second, the Addendum provides a historical perspective of air toxic emissions and a look at current air toxic levels. Also included is a discussion of the relative contribution by source categories to those levels. The third element addresses the additional air toxic control strategies that will be worked on in the coming years by all three agencies that will significantly contribute to decreasing air toxic emissions throughout the Basin. Fourth, the Addendum projects future air toxic levels, to the extent feasible, to reflect additional measures to be adopted and implemented for both air toxics and criteria pollutants. Fifth, the Addendum summarizes efforts that will occur to develop the next comprehensive ATCP. The sixth element contains conclusions. It should be noted that the next ATCP update will include the results from the third MATES, due to be completed in 2005. The last chapter includes conclusions.

Public Process

A public meeting was held in December 16, 2003 to solicit input on the structure and content of the Addendum. Two more public consultation meetings were held on February 12 and March 11, 2004. The Addendum discusses strategies from the 2003 AQMP and the CIRS, which both included significant public review and comment. For public outreach regarding the 2003 AQMP, staff held six regional workshops and four regional public hearings. A significant public process was conducted relative to the development of the

CIRS. That public process included numerous meetings of the Cumulative Impacts Working Group, multiple Community Forums held in the evenings and on weekends, local government briefings throughout the Basin, and testimony before the AQMD Governing Board.

Document Format

The Addendum contains several chapters that will provide a status on implementation of the March 2000 ATCP, current and projected air toxic emission levels, as well as a summary of future efforts. Chapter I is the introduction. Chapter II discusses progress in implementing the March 2000 ATCP. Chapter III provides a look at historical and current air toxic emission levels. Chapter IV focuses on future efforts of the AQMD, CARB, and EPA to reduce air toxic emissions, including development and implementation of the 2003 AQMP, CIRS, and state and federal air toxic regulations. Chapter V includes a projected air toxic emissions inventory based on currently available information. Chapter VI describes future updates to the ATCP. Chapter VII lists conclusions. Four appendices contain additional information on: progress in implementing the 1997/1999 SIP; summary of other CARB measures adopted which reduce air toxics; summary of other EPA measures which reduce air toxics; and the updated air toxics emission inventory.

II. STATUS OF ATCP IMPLEMENTATION

The 2000 ATCP includes local, state, and federal programs. At the regional level, the AQMD has authority to develop stationary source rules and select mobile source rules focusing on fleet vehicle use or operations, and diesel fuel specifications. At the state level, CARB sets mobile source emission standards for on-road vehicles registered in the state and certain off-road mobile equipment. CARB can also set state-wide fuel specifications, identify substances as toxic air contaminants (TACs) and adopt airborne toxics control measures (ATCMs). The federal government, through EPA, is responsible for setting on-road motor vehicle standards and off-road (non-road) engine and equipment emission standards. These vehicles include those regulated exclusively by the federal government such as locomotives, ships, aircraft, and diesel-fueled heavy-duty trucks used for inter-state commerce.

To date, a number of strategies have been implemented that will increase protection of the public's health from the emission of air toxics. These include emission reductions from sources such as gas stations, chrome plating operations, motion picture film processing, and on-road motor vehicles. In addition, AQMD Rules 1401 and 1402 have been strengthened to reduce air toxic exposures from new and existing stationary sources, respectively.

Local Programs

The following tables provide an implementation status of the ATCP control strategies for stationary and mobile sources under AQMD's purview. Most of the measures from the March 2000 ATCP have been adopted. Table 1A lists stationary source control strategies that have been adopted and Table 1B lists those measures where adoption and implementation efforts are on-going. Two control measures, AT-STA-06 – Further Reductions from Biomedical Sterilization Operations (amend Rule 1405) and AT-STA-08 – Control of Emissions from Rubber Products Manufacturing (new Rule 1427), were not adopted. AT-STA-06 covered ethylene oxide emissions and it was determined that the rule was not necessary due to reduced usage of the compound and efficiency of controls. AT-STA-08 covered various TACs including formaldehyde, methylene chloride, 1,3-butadiene, toluene, benzene, and vinyl chloride. It was determined that a source-specific rule was not necessary as needed reductions could be achieved through the implementation of Rule 1402.

Table 2A lists mobile source control strategies that have been adopted. Table 2B lists mobile source control strategies that are on-going.

Table 1A – Adopted AQMD ATCP Measures – Stationary Sources

Rule/ ATCP	Topic	Adoption Date	TAC	Estimated Reductions	Implementation Date
1426 AT-STA-01	Metal Finishing	5/2/2003	Nickel, Cadmium, Lead, Copper, Chromic Acid	Not quantified Improved housekeeping and operating records	2004
1469 AT-STA-01	Hexavalent Chromium Emissions	5/2/2003	Hexavalent Chromium	48 pounds per year	2005
1421 AT-STA-02	Dry Cleaning Operations	12/6/2002	Perchloroethylene	849 tons by 2021	2021
1425 AT-STA-03	Motion Picture Film Labs	3/16/2001	Perchloroethylene	39.5 tons per year (including NESHAP)	2003
1122 AT-STA-04	Degreasing Operations	9/21/2001	Perchloroethylene, 1,1,1-Trichloroethane Trichloroethylene Methylene Chloride	0.81 tons per day	2003
461 AT-STA-07	Gasoline Transfer and Dispensing	4/21/2000	Benzene Hexane	27.3 tons per day (total VOC)	2001
AT-STA-09	Pollution Prevention (e.g., Rule 1131 – Food Manufacturing and Processing Operations)	9/15/2000	Isopropyl Alcohol	2.1 - 2.4 tons per day	2002
1124 AT-STA-10	Aerospace Operations	9/21/2001	Perchloroethylene Hexavalent Chromium Trichloroethylene Methylene Chloride	Facility's toxicity-weighted VOC and particulate emissions by 90.0 and 99.0 percent when Rule 1402 levels are exceeded	2001

AT-STA -05 – Control of Methylene Chloride Emissions from Miscellaneous Sources (Proposed Rule 1428) was not adopted but partially implemented through amendments to several source-specific rules that sought to reduce VOCs or other hazardous air pollutants (HAPs).

Table 1B – On-going AQMD ATCP Measures – Stationary Sources

Rule/ATCP	Topic	Adoption Date	TAC	Estimated Reductions	Implementation Date
1401 AT-PRG-01	New Source Review of TACs	8/18/2000 6/15/2001 5/3/2002 2/7/2003 5/2/2003	Chronic compounds Chronic compounds Chronic compounds Chronic compounds Cancer compounds	Not quantified	Dates of adoption
1402 AT-PRG-02	Control of TACs from Existing Sources	3/17/2000	Reduced risk limits; reduction plans	Not quantified	2000
AT-STA-09	Pollution Prevention (e.g., Rule1421, Dry Cleaning)	N/A	various	TBD	TBD

Table 2A – Adopted AQMD ATCP Measures – Mobile Sources

Rule/ ATCP	Topic	Adoption Date	TAC	Estimated Reductions	Implementation Date
431.2 AT-MBL-01	Sulfur Content of Liquid Fuels	9/15/2000	Diesel PM	1.1 tons per day PM*	2005
1186.1 AT-MBL-01	Less-polluting Sweepers	8/18/2000	Diesel PM	48 tons cumulative thru 2011; thereafter 10.7 tons per year PM	2012
1191 AT-MBL-01	Clean On-road Light-and Medium- duty Public Fleet Vehicles	6/16/2000	Diesel PM Benzene 1,3 Butadiene	PM and toxic reductions not quantified 6.2 tons per year VOC	2001
1192 AT-MBL-01	Clean On-road Transit Buses	6/16/2000	Diesel PM	11 tons per year PM	2003
1193 AT-MBL-01	Clean On-road Residential and Commercial Refuse Vehicles	6/16/2000	Diesel PM	68 tons per year PM	2001
1195 AT-MBL-01	Clean On-road School Buses	4/20/2001	Diesel PM	0.53 tons per year VOC 6 tons per year PM	2001
1196 AT-MBL-01	Clean On-road Heavy-duty Public Fleet Vehicles	10/20/2000	Diesel PM	8.2 tons per year PM	2003

Rule/ ATCP	Topic	Adoption Date	TAC	Estimated Reductions	Implementation Date
1194 AT-MBL-11	Commercial Airport Ground Access	8/18/2000 partial adoption delayed on taxis until 10/00	Diesel PM Benzene 1,3 Butadiene	6 tons per year PM 8 tons per year VOC	2001
1631, 1632, 1633, 2507 AT-MBL-15	Mobile Source NO _x Emission Credit Programs, including diesel	5/11/01	Diesel PM	TBD	5/11/01
1634 AT-MBL-15	Mobile Source NO _x Emission Credit Programs, including diesel	11/9/01	Diesel PM	TBD	11/9/01

* Stationary sources will achieve 0.1 ton per day emission reduction and an additional 1.0 ton per day may be achieved through CARB action.

Table 2B – On-going AQMD ATCP Measures – Mobile Sources

ATCP	Topic	Adoption Date	TAC	Estimated Reductions	Implementation Date
AT-MBL-08	Locomotive Operations	N/A	Diesel PM	TBD	On-going
AT-MBL-10	Commercial Motor Boats, Ship, and Tugs (Rules 1631 and 1632)	5/11/01	Diesel PM	TBD	On-going

The following sections summarize progress made on each of the measures included in the 2000 ATCP, separating those which have been adopted and implemented from those which are on-going and those remaining. Additionally, control measures adopted and implemented through the 1997/1999 AQMP will provide concurrent TAC reductions in most cases. Many volatile organic compounds (VOCs) and particulate matter (PM) emissions are TACs, which will be reduced through these measures. See Appendix A for a list of 1997/1999 AQMP measures that have been adopted since the 2000 ATCP.

Stationary Source Control Strategies – Adopted

AT-STA-01: Control of Emissions from Metal Finishing Operations, Nickel Plating Operations (Rule 1426) and Chromium Emissions from Plating and Anodizing Operations (Rule 1469)

Implementation of Rule 1469 is expected to reduce over 90 percent of current hexavalent chromium emissions, or approximately 48 pounds per year, primarily through the use of certified fume suppressants and add-on controls. Facilities that are located 25 meters or less from the nearest residence or sensitive receptor, and located 100 meters or less from a school (existing as of rule adoption date) have more stringent standards than other facilities. The rule provides several compliance options.

Rule 1426 requires facilities that perform nickel, cadmium, lead or copper electroplating operations to collect and submit data on process and receptor information. The rule includes housekeeping requirements and specifies restrictions on air sparging of tanks containing chromic acid. The data collection requirements sunset after two years. In addition, staff is working with industry to establish better emission factors. If warranted, future rule amendments could add control requirements.

AT-STA-02: Further Reductions of Perchloroethylene Emissions from Dry Cleaning Operations (Rule 1421)

Rule 1421- Control of Perchloroethylene Emissions from Dry Cleaning Operations, was amended December 2002. Over 2,100 dry cleaners in the Basin were using perchloroethylene (perc) as the cleaning solvent of choice. Approximately two-thirds of the equipment has primary controls only, resulting in a risk to surrounding receptors between 45-in-one-million to over 90-in-one-million. Machines with primary and secondary controls result in risks in the range of 15-in-one-million to 90-in-one-million. The inventory from this source is 850 tons. There are technologically feasible non-perc alternatives available, one of which is more cost-effective than perc and consumes less energy (wet cleaning).

Rule 1421 is a pollution prevention strategy (AT-STA-09) by eliminating the use of perc in dry cleaning by 2021. Prior to the phase-out date, sources continuing to use perc will be required to meet the risk level of 25-in-one-million (Rule 1402) and operate only equipment with primary and secondary controls after November 2007. In conjunction with the amendment of the rule, the AQMD Board also approved a grant program to facilitate the transition to non-perc alternatives.

AT-STA-03: Control of Emissions from Motion Picture Film Processing (Rule 1425)

Rule 1425 – Film Cleaning and Printing Operations, was adopted in March 2001. The motion picture film processing industry uses perc as the primary and most widely used solvent for cleaning and the only solvent used for printing film. The industry is geographically concentrated in the Burbank/Hollywood areas of Los Angeles County. The industry includes approximately 55 facilities with more than 115 film cleaners and 100 film printers. These equipment emitted about 47,000 pounds of perc per year from film cleaning and 64,000 pounds of perc per year from film printing. Rule 1425 requires more emission reductions from

film cleaning than what is required by federal regulations and the rule also applies to film printing. Federal requirements will reduce perc emissions by approximately 12 tons per year and Rule 1425 will reduce an additional 27.5 tons per year perc, for a total reduction of 39.5 tons per year. This is equivalent to an 85 percent overall emission reduction of uncontrolled perc emissions. The reductions were achieved with emission controls, use of alternative solvents or alternative compliance methods.

Compliance with Rule 1425 is expected to reduce cancer risk below 25-in-one-million for most, if not all, facilities. The rule includes a technical assessment to be conducted within 5 years of rule adoption to investigate further risk reduction measures. This investigation would focus on any facilities, after control, having residual risks greater than 25-in-one-million.

AT-STA-04: Reduction of Toxic Air Contaminant Emissions from Solvent Cleaning/Degreasing Operations (Rule 1122, CM#97 CTS-02C)

Rule 1122 – Solvent Degreasers, was amended September 2001 to further reduce VOCs and National Emission Standards for Hazardous Air Pollutants (NESHAP) halogenated solvent emissions from degreasing operations. For VOC cold cleaners and vapor degreasers, the amendments lowered the material VOC limit to 25 g/l. For NESHAP degreasers, effective January 1, 2003, NESHAP solvents could no longer be used unless the equipment met the requirement of airless/air-tight cleaning systems, resulting in a reduction of emissions of these compounds of 0.81 ton per day. Staff conducted a field assessment of sources previously using NESHAP compounds in degreasers and found that the vast majority have switched to aqueous solutions. This is another example of a pollution prevention strategy (AT-STA-09).

AT-STA-05: Control of Methylene Chloride Emissions from Miscellaneous Sources (Proposed Rule 1428) and from Wood Product Stripping (Proposed Rule 1437)

Proposed Rule 1428 – Reduction of methylene chloride emissions have been achieved as a secondary benefit through amendments to several source-specific rules that sought to reduce VOCs or other HAPs. Therefore, a specific rule for the reduction of methylene chloride from miscellaneous sources was not pursued (see Stationary Source Control Strategies Remaining). Other rule amendments resulting in reductions in methylene chloride emissions are summarized below.

Rule 1168 – Adhesive and Sealant Applications, was amended June 2002. To meet lower VOC limits, some manufacturers were reformulating products with methylene chloride. Because alternative chemistries are available that do not contain methylene chloride, or other toxic substitutes such as perc, ethylene dichloride, chloroform, and trichloroethylene, the amendment phased out the use of these TACs in adhesives by January 1, 2004, with a one-year sell-through for products containing methylene chloride.

The one exception to the availability of acceptable formulations that do not contain methylene chloride is solvent welding formulations used to bond hard acrylic, polycarbonate and polyethylene terephthalate glycol plastic. An additional year and subsequent one-year sell-through provision was allowed for continued development of acceptable replacements for methylene chloride formulations.

Approximately 2 tons of HAPs per day will be reduced as a result of this rule amendment.

Rule 1171 – Solvent Cleaning Operations, was amended August 2002. The rule will result in reductions in methylene chloride through implementation of the ATCM for Emissions of Chlorinated Toxic Air Contaminants from Automotive Maintenance and Repair Activities – Title 17, California Code of Regulations, section 93111. This regulation also controls emissions of perc and trichloroethylene.

AT-STA-06: Further Reductions from Biomedical Sterilization Operations (Rule 1405)

Staff conducted a technical analysis of the industry and the results indicated that Rule 1405 had significantly decreased ethylene oxide (ETO) emissions from hospitals in the Basin. In addition, the trend for further reductions in ETO usage by switching to sterilization techniques that do not emit toxics were very common and were expected to continue, resulting in cost savings to facilities, as well as improved employee and fire safety. Therefore, no further rulemaking for ETO sterilization for hospitals was recommended since all of the sources were well below the action risk levels of Rule 1402. Although ETO emissions have been significantly reduced through implementation of Rule 1405, it was determined that some commercial facilities may exceed the risk level of Rule 1402. It was, therefore, recommended in January 2001 that commercial facilities with a potential to exceed the risk be required to submit inventories under AB 2588 to assess if risk reductions are needed to ensure compliance with Rule 1402 action risk levels.

AT-STA-07: Gasoline Transfer and Dispensing

Rule 461 was amended April 21, 2000 to reduced emissions of VOC and toxic compounds from gasoline dispensing facilities. The amendments improved the reliability and performance of vapor recovery equipment by increasing the test frequencies and enhancing the accountability of contractors who install, maintain, or test the equipment at the gas stations. The amendments implemented Control Measure RFL-02 of the 1999 AQMP Amendment and were estimated to reduce 27.3 tons per day total VOCs, including benzene and hexane (TACs).

AT-STA-08: Control of Emissions from Rubber Product Manufacturing

This control strategy was included in the original ATCP because EPA had promulgated a NESHAP that included this source category. Rubber manufacturing can result in TAC emissions and rubber manufacturers were largely exempt from permit. An industry analysis was conducted by staff and the results indicated less toxic emissions than expected and that few, if any, rubber product manufacturers in the AQMD had the potential to exceed the action risk levels of Rule 1402. The industry inventory was conducted by an outside contractor. In view of this small number of facilities, it was determined that it was more appropriate to require this industry to comply with the requirements of Rule 1402 rather than those of an industry-specific toxics rule. In August 2002, staff recommended that AQMD take no further action in developing a rule for the industry. Instead, the inventory provisions of Rule 1402(n) should be implemented to determine which, if any, of the facilities exceed the action levels of the rule and, where appropriate, require further risk reduction to comply.

AT-STA-09: Reduction of Toxic Air Contaminants through Pollution Prevention Strategies

The March 2000 ATCP described pollution prevention strategies as those which: reduce or eliminate hazardous or other polluting inputs; alter manufacturing and maintenance practices; practice good housekeeping or best management practices; train employees; recycle; and substitution. As high-lighted above, the phase-out of perc through Rules 1421 (AT-STA-02) and 1122 (AT-STA-04) are examples of pollution prevention through elimination and substitution. In addition, in association with amendments to Rule 1469 (AT-STA-01), information was provided in the staff report on non-toxic alternatives for many plating processes. Likewise, the staff report for Rule 1425 (AT-STA-03) provided information regarding chemical substitutes for perc as a motion picture film-cleaning solvent. These solvents were either less-toxic or non-toxic alternatives.

Recently an area source pollution prevention strategy was implemented through the AQMD's "Mow Down Air Pollution 2003" program which resulted in the exchange of 3,500 gas-powered lawn mowers for electric models in the summer of 2003. The lawn mower exchange program substituted a clean technology for a polluting method and was estimated to be an emission elimination equivalent to more than that generated by all of the area's oil refineries in two days.

AT-STA-010: Evaluation of Reduction Strategies for Aerospace Manufacturing Operations

Rule 1124 – Aerospace Assembly and Component Manufacturing Operations, was amended in September 2001. The amendment included an alternative to the risk-reduction plan requirements of Rule 1402 – Control of Toxic Air Contaminants from Existing Sources. This was based on the application of existing control technologies and efficiencies achieved in practice that reduce toxicity-weighted emissions of carcinogenic components of aerospace materials. When a facility exceeds the risk action levels established by Rule 1402, the compliance option calls for the reduction of a facility's toxicity-weighted organic solvent and particulate emissions by 90 and 99 percent, respectively. The compliance option is not designed to replace or restrict a facility's ability to comply with the procedures established under Rule 1402, but rather, to provide an additional alternative to complying with Rule 1402.

Stationary Source Control Strategies – On-going

AT-PRG-01: New Source Review of Toxic Air Contaminants (Rule 1401)

Rule 1401 is a permitting rule requiring individual equipment to meet one-in-one-million risk level or use Toxic Best Available Control Technology (T-BACT) to reduce their cancer risk to below ten-in-one-million in order to obtain a permit. Equipment must also be below a hazard index (HI) of 1.0. This strategy focused on updates to Rule 1401 when risk values for TACs were finalized by the state. Since, and including, March 2000, the rule has been amended six times, addressing mostly chronic compounds. In May 2003, however, the amendment included a cancer risk value for methyl tertiary-butyl ether (MTBE).

AT-PRG-02: Control of Toxic Air Contaminants from Existing Sources (Rule 1402)

This control strategy highlighted efforts to amend Rule 1402 to reduce the risk threshold contained in the rule, obtain faster risk reduction, improve rule effectiveness, and to require additional public noticing. This strategy was also designed to address localized toxic impacts contributed by individual facilities. The intent of the strategy was to provide a balanced approach that requires risk reduction while considering technical and economic feasibility. A process for reviewing future additions of TACs was also included to minimize impacts on the regulated community, including essential public services.

Rule 1402 was amended in March 2000 and was designed to provide greater protection of public health from major facilities and improve the effectiveness of the rule. The amendments to Rule 1402 included the following:

- Retained the Significant Risk Level at a Maximum Individual Cancer Risk (MICR) of 100-in-one million and HI of 5;
- Established an Action Risk Level of 25-in-one million, HI of 3.0, and cancer burden of 0.5;
- Reduced the time for required reductions from five to three years;
- Allowed time extensions for technical and economic reasons except for facilities exceeding the Significant Risk Level;
- Set forth a technology-based approach for source specific rules for specific industries with a large number of facilities, or smaller sources. Technology-based rules would be brought to the Board

for metal plating, dry cleaning and motion picture film processing facilities (see below for individual strategy progress reports);

- Added emissions inventory requirements for specific TACs and industries upon Executive Officer request;
- Established a schedule for emissions inventory updates for Hot Spots program Phase I Facilities with pending Health Risk Assessments (HRAs); and
- Required more frequent progress reports and new public notification requirements for facilities above the action risk level.

Since the March 2000 amendment of Rule 1402, approximately 80 facilities have initiated the AB 2588 inventory process. Currently, there are 799 facilities actively reporting under the AB 2588 program.

AT-STA-09: Reduction of Toxic Air Contaminants through Pollution Prevention Strategies

The March 2000 ATCP described pollution prevention strategies as those which: reduce or eliminate hazardous or other polluting inputs; alter manufacturing and maintenance practices; practice good housekeeping or best management practices; train employees; recycle; and substitution. Several AQMD rules or rule amendments have incorporated pollution prevention. Further progress through this measure will be realized as additional rule development projects continue.

Stationary Source Control Strategies – Remaining

AT-STA-05: Control of Methylene Chloride Emissions from Miscellaneous Sources (Proposed Rule 1428) and from Wood Product Stripping (Proposed Rule 1437)

Proposed Rule 1428 – Reduction of methylene chloride emissions have been achieved as a secondary benefit through amendments to several source-specific rules that sought to reduce VOCs or other HAPs. Therefore, a specific rule for the reduction of methylene chloride from miscellaneous sources was not pursued. The rule amendments are summarized in the section of strategies “adopted and implemented”.

Proposed Rule 1437 – Methylene chloride is widely used as a solvent for stripping paint and coatings from wood products, such as furniture. The process is typically carried out in tanks where items are dipped or soaked, or by using brushes that recirculate solvent to scrub the items. The latter operation can be done with or without a flow tray. Flow tray means a non-atomized solvent flow method in which stripper solvent is pumped from an enclosed container into a sloped sink-like work area which may be in the form of a table, which contains and immediately drains the stripper solvent into a covered container or collection system. The businesses are primarily very small operations.

A working group was formed to assist staff in evaluating options for reducing emissions from furniture stripping operations. The analysis included alternative solvents, add-on controls, and work practice changes. AQMD sponsored a study to evaluate some potential alternative solvent formulations. Some of the less toxic alternatives performed well during limited testing, but more work is needed to identify alternative solvents and to test them on a variety of coatings and substrates. Lower-VOC coatings seem to be more difficult to strip, even with methylene chloride.

Add-on control equipment were determined to be prohibitively expensive due to the nature of the operations and the small business make-up of the industry. Improvements can be made through work practices, such as keeping lids on solvents when not in use and having appropriate drainage and recirculation of the solvents. These improved practices are dependent on operator training and can be

implemented through education or permit conditions. Recent Occupational Safety and Health Administration (OSHA) regulations will require improved ventilation systems for most furniture strippers which will help reduce the impact of these businesses on their neighbors. Staff will continue to work on this issue and may propose a rule in the future if cost-effective and feasible options are identified.

Mobile Sources Control Strategies- Adopted

A number of these mobile sources measures may also be found under state control measures since the authority for implementing them are shared.

AT-MBL-01 Alternatively Fueled Engines

Further research into the use of Compressed Natural Gas (CNG) engines has shown after-treatment may need to be used with this alternative fuel because toxic emissions and mutagenicity concerns have been associated with the combustion of CNG. The March 2000 control strategy for this source also mentions research and development for hybrid-electric buses (gasoline/electric hybrids). At this point, these vehicles have moved beyond the research/development stage to actual deployment. Most hybrid trucks are currently still in the research and development stage.

The control strategy also mentions the Rule 1190 series which AQMD has adopted. As suggested in the original control strategy, some of these rules were amended to cover private sector vehicles (Rule 1186.1 – Less-polluting Sweepers, and Rule 1193 – Clean On-road Residential and Commercial Refuse Collection Vehicles).

Rule 1186.1 – Less-polluting Sweepers, was adopted August 18, 2000. It was estimated that Rule 1186.1 would affect approximately 700 sweepers in public and private fleets. Based on this inventory and a ten-year equipment life, the emission reductions from this rule were estimated at complete fleet turnover to be 109.8 tons per year for Nitrogen Oxides (NO_x) and 10.7 tons per year for PM.

Rule 1191 – Clean On-road Light-and Medium-duty Public Fleet Vehicles, adopted June 2000, was estimated to affect approximately 60,800 light- and medium-duty vehicles in the public fleets. Based on an average purchase/replacement rate of 10 percent per year, it was estimated that by 2010, hydrocarbon emissions would be reduced by 6.2 tons per year, NO_x emissions would be reduced by 1.45 tons per year and carbon monoxide (CO) emissions by 252 tons per year. Toxic emission reductions, although not quantified, are also expected.

Rule 1192 – Clean On-road Transit Buses, adopted June 2000, would affect approximately 5000 transit vehicles in the public fleets. Based on an average purchase/replacement rate of 10 percent per year, it was estimated that by 2010 NO_x emissions would be reduced by up to 197 tons per year and PM emissions by 11 tons per year.

Rule 1193 – Clean On-road Residential and Commercial Refuse Collection Vehicles, Adopted June 2000 and amended June 2002, would affect approximately 6,000 refuse collection vehicles in the public and private fleets. Based on an average purchase/replacement rate of 10 percent per year, it was estimated that by 2010 NO_x emissions would be reduced by 695 tons per year and PM emissions by 68 tons per year.

Rule 1194 – Commercial Airport Ground Access, adopted August 2000 and amended October 2000, was estimated to effect approximately 4,800 vehicles, including 2,800 taxicabs that operate out of commercial airports. As part of the adoption of Rule 1194, an estimate of the emission reductions associated with implementing Rule 1194 included passenger cars, light-duty trucks, medium-duty transit vehicles, and heavy-duty transit vehicles, such as taxicabs. Based on an average purchase/replacement rate of five years for light- and medium-duty vehicles, it was estimated that by 2010 hydrocarbon emissions would be reduced by 8 tons per year, NO_x emissions by 92 tons per year, CO emissions by 288 tons per year, and PM by 6 tons per year. Grant funds are provided to independent operators to help offset capital costs of less polluting vehicles.

Rule 1195 – Clean On-road School Buses, adopted April 2001, was estimated to affect approximately 8,500 diesel-fueled school buses in the universe of public and private fleets that have 15 or more school buses. Due to technology constraints, not all buses were covered by the rule. Based on an average purchase/replacement rate of ten or more years for medium-duty school buses and 20 or more years for heavy-duty school buses, it was estimated that by 2010, NO_x emissions would be reduced by up to 90 tons per year, PM emissions would be reduced by up to 6 tons per year, and hydrocarbons would be reduced by up to 0.53 tons per year. Grant funds are provided to school districts to help offset any additional capital costs associated with the less polluting vehicles.

Rule 1196 – Clean On-road Heavy-duty Public Fleet Vehicles, was estimated to affect approximately 5,400 diesel fueled heavy-duty vehicles in the public fleets. Based on an average purchase/ replacement rate of five years for light- and medium-duty vehicles and 10 years for heavy-duty vehicles, it was estimated that by 2010, NO_x emissions would be reduced by 74 tons per year and PM emissions by 8.2 tons per year.

Carl Moyer Program

All the above 1190 series rules will promote technology advancement and will result in emission reductions beyond those indicated above. Further progress in emission reductions through alternatively fueled engines has been made through the Carl Moyer Program. The purpose of the Carl Moyer Program is to help speed the introduction of low-emission, heavy-duty engines. Over the past four years, funding for the Carl Moyer Program has been provided through the state legislature. Funding for the year 2003 will be provided by Proposition 40, the California Clean Water, Clean Air, Safe Neighborhood Parks, and Coastal Protection Act which was passed in the spring of 2002. Proposition 40 allocates \$50 million to the CARB for distribution to air districts for projects that "affect air quality in state and local parks and recreation areas" in accordance with the Carl Moyer guidelines. This funding will be distributed over the next two years, thus guaranteeing funding for the Carl Moyer Program through 2004.

Each year of the program has proven more successful than the last. In fiscal year (FY) 2001-02 over 564 tons of NO_x emissions were reduced as a result of funding 826 new engines and vehicles. Air toxic emission reductions also occurred through the use of these less polluting engines.

AT-MBL-11 Mitigation of Emissions at Airports

Rule 1194 – Commercial Airport Ground Access, required airport taxicab services to purchase rule compliant vehicles when adding or replacing vehicles in an existing fleet or forming a new fleet beginning July 2001. The rule affected approximately 2,800 taxicab vehicles in the taxicab fleets operating out of commercial airports. A decrease in TACs such as benzene and 1,3-butadiene is expected from implementation of this rule.

AT-MBL-15 Mobile Source NO_x Emission Credit Programs, Including Diesel

This strategy was designed to provide toxic reduction benefits, while generating cost-effective NO_x reductions from mobile sources through the generation of credits that can be used by stationary sources. Several AQMD rules have been approved by EPA for generating NO_x emission reductions. Rules 1633 – Pilot Credit Generation Program for Truck/Trailer Refrigeration Units, and 1634 – Pilot Credit Generation Program for Truck Stops, were developed for the purpose of generating NO_x emission reductions, with concurrent reduction of diesel PM retired to the benefit of the environment. Diesel exhaust PM is a TAC, therefore, the PM emission reductions are considered TAC emission reductions. One area source rule, 2507 – Pilot Credit Generation Program for Agricultural Pumps, was approved for generation of NO_x emission reductions. Funding has been approved for electrification of 34 agricultural pumps.

Additionally, the Carl Moyer Program is an incentives program designed to induce voluntary participation from heavy-duty mobile sources in an engine replacement program. Heavy-duty diesel engines are replaced with newer, cleaner, less polluting engines. This program is intended to accelerate fleet turn-over on a voluntary basis. The program includes on-road, off-road, construction, marine, and locomotive engines.

Mobile Source Control Strategies – On-going**AT-MBL-06 Goods Movement**

The Goods Movement Advisory Committee has overseen studies on regional truck counts, truck and rail modal shifts, rail main line capacity, and regional diversion. An update of action steps will be included in the 2004 Regional Transportation Plan.

AT-MBL-08 Locomotive Operations

As of October 10, 2003, AQMD has received over \$5.5 million in proposals in the locomotive category through the Carl Moyer Program. These applications include proposals to put in place diesel/electric hybrid locomotives, Liquid Natural Gas (LNG) locomotives, and to replace old diesel locomotive engines with new Tier II engines. The technology for locomotives is advancing at a rapid rate and the interest of the manufacturers and operators continues to grow. This is the first year that the AQMD has funded any proposals for locomotives.

A Memorandum of Understanding (MOU) between CARB and 2 major railroads was entered into on July 2, 1998. The MOU is designed to achieve a 64% reduction in baseline emission rates (15.4 g/bhp-hr). Total emission reductions depend on miles traveled. Starting in 2010, fleet emission averages are required, with compliance options available to recognize earlier reductions. Liquidated damages may apply if provisions of the MOU are not met, but there are no specific backstop measures.

AT-MBL-10 Commercial Motor Boats, Ships, and Tugs

Further progress comes from AQMD's adoption of Rule 1631 – Pilot Credit Generation Program for Marine Vessels, adopted May 2001 and amended October 2002, and Rule 1632 – Pilot Credit Generation Program for Hotelling Operations, adopted May 11, 2001. Although these rules are crafted to supply NO_x reduction credits, an added value to these programs is the reduction in diesel particulate emissions. As of 4th quarter 2002, there have been a total of 14 tug boats repowered with 17,000 pounds of diesel particulate reduction. The emission reductions from marine vessel repowering are generated over a period of years beginning

when the repowering takes place and are based on the activity level of the vessel. Applications for projects are not allowed after December 31, 2003, and the NO_x emission reduction credits may not be used beyond June 30, 2005, pursuant to Rule 1631 – Pilot Credit Generation for Marine Vessels. As a result, all reductions are retired to benefit the environment permanently.

State Programs

Air Toxic Control Measures – Adopted

Table 3A and Table 3B contain summary information regarding the adoption of ATCMs by CARB. These tables includes items adopted since the 2000 ATCP. Many measures are also covered by the federal government in Code of Federal Regulations Part 60 – New Source Performance Standards and Parts 61 and 63 – National Emission Standards for Hazardous Air Pollutants. Those targeting diesel PM such as school bus idling and the ones for the asbestos used in surfacing applications, and dioxins from residential wood burning, are not covered by NSPS and NESHAP.

Table 3A - Summary of CARB Airborne Toxic Control Measures – Adopted Since the 2000 ATCP

ATCM	Adoption Date	Description
Asbestos Control Measure for Ultramafic Rock Used in Surfacing Applications	April 1990 Amended: July 2000	Prohibits the use of ultramafic rock containing asbestos (0.25 percent) for use in surfacing of unpaved areas.
Chlorinated Toxic Air Contaminants from Automotive Repair Facilities	April 2000	Prohibits the use of perchloroethylene, methylene chloride, and trichloroethylene in automotive consumer products.
Asbestos from Construction, Grading, Quarrying, and Surface Mining Operations	July 2001	Requires road construction and maintenance activities, construction and grading operations, and quarrying and surface mining operations in areas of naturally-occurring asbestos to employ the best available dust mitigation measures.
Toxic Metals in Automotive Coatings	September 2001	Eliminates hexavalent chromium and cadmium from automotive coatings.
Dioxins from Residential Wood Burning	February 2002	Prohibits burning of household trash or garbage outdoors at residences. Dry, natural vegetation grown on the property can still be burned outdoors in open piles unless prohibited by local controls. Burn barrels will not be allowed for burning waste, including vegetation, at residences. Limited exemptions are also provided for the burning of paper and cardboard and/or the use of burn barrels in certain areas with very low population densities.

ATCM	Adoption Date	Description
Diesel PM from School Bus Idling	December 2002	Requires a driver of a school bus or vehicle, transit bus, or other commercial motor vehicle to manually turn off the bus or vehicle engine upon arriving at a school and to restart no more than 30 seconds before departing. A driver of a school bus or vehicle is subject to the same requirement when operating within 100 feet of a school and is prohibited from idling more than five minutes at each stop beyond schools, such as parking or maintenance facilities, school bus stops, or school activity destinations. A driver of a transit bus or other commercial motor vehicle is prohibited from idling more than five minutes at each stop within 100 feet of a school.
Diesel PM from Solid Waste Collection Vehicles	September 2003	Requires owners of these collection vehicles to use best available control technology for their engines, which is defined as either an engine alone or in conjunction with a verified diesel emission control strategy that meets a 0.01 gram per brake horsepower-hour particulate matter standard; an alternative-fuel engine or heavy-duty pilot ignition engine; or application of a CARB-verified diesel emission control strategy to the engine, which reduces diesel particulate matter emissions by the greatest amount possible for that engine and application. The requirement to install best available control technology will be phased-in between 2004 and 2010 by engine model year group.
Diesel PM from Transport Refrigeration Units (TRU)	February 2004	Requires in-use TRU engines that operate in California, including out-of-state TRUs while they are operating in California, to meet specific performance standards that vary by horsepower range. The in-use performance standards have two levels of stringency that would be phased-in over time. The first phase, beginning in 2008, is referred to as the low emission TRU performance standards. The second phase, beginning in 2010, is referred to as the ultra-low emission TRU performance standards.

Table 3B - CARB Airborne Toxic Control Measures Recently Adopted with Pending Dates*

ATCM	Adoption Date	Description
Diesel PM from Portable Diesel Engines	February 2004	The goal of the ATCM for Portable Diesel-Fueled Engines is to reduce diesel PM emissions. Portable diesel engines are used in a variety of applications and emit approximately 1,500 tons per year of diesel PM. The ATCM requires all portable engines to be certified to EPA/CARB off-road engine standards by 2010, meet fleet-average emissions limits in 2013 and 2017, and ultimately achieve at least 85 percent control of diesel PM by 2020. The proposed ATCM will also achieve reductions in NO _x through expedited engine replacement.
Diesel PM from Stationary Diesel-Fueled Compression Ignition Engines	February 2004	Establishes emission standards that users of stationary diesel-fueled engines have to meet. The requirements can be grouped into three general categories: fuel use requirements, operational requirements and emission standards, and record-keeping, reporting, and monitoring requirements. In general, the goal of these requirements is to have the owner and operators of diesel-fueled engines use the cleanest fuels possible, limit the unnecessary operation of their engines, and control the emissions of diesel PM to the greatest extent possible, in consideration of technical and economic feasibility.

*The ARB Board approved the ATCMs with 15-day changes. ARB staff will incorporate the necessary changes in the rule language, and then the changes are circulated for a 15-day public review. The rule is then approved by ARB's Executive Officer and forwarded to the Office of Administrative Law. Office of Administrative Law has 30 days to review and approve the rule, which would become effective 45 days after that approval.

Mobile Source Control Strategies – On-going

A number of these mobile sources measures may also be found under local control measures since the authority for implementing them is shared.

AT-MBL-03 Control of Diesel Particulate Emissions Through After-treatment

This control strategy proposed reduction of toxic emissions from diesel engines through such methods as diesel oxidation catalysts, diesel particulate filters, fuel-born catalysts, non-thermal plasma, and continuously regenerating technology.

- 2003 SIP includes a discussion of CARB's diesel control plan for on-road vehicles in measure ON-RD HVY-DUTY-3.

CARB's current schedule for in-use diesel engine regulations/ATCMs:

- 2003 – Refuse trucks (adopted);
- 2004 – Portable engines, stationary engines, transportation refrigeration units, public on-road vehicles, public off-road equipment, truck idling;

- 2005 – Private on-road vehicles, private off-road equipment.
- Solid Waste Collection Vehicle Technical Support Document has recent CARB-published information about retrofit control technologies.

AT-MBL-04 Control of Diesel Particulate Emissions Through Engine Design Modifications

AT-MBL-04 was a strategy to reduce toxic emissions from diesel engines through engine modifications such as high-pressure fuel injection, advanced timing, in-cylinder combustion modifications, air management, and fuel management.

AT-MBL-05 Alternatively Fueled Engines

This strategy proposed reduction of toxic emissions from heavy-duty diesel vehicles and public fleets through the use of alternatively-fueled vehicles, such as natural gas, fuel-cell powered, or hybrid electric.

AT-MBL-07 Emission Reductions from Diesel Engine Idling

AT-MBL-07 proposed reduction of toxic emissions from the idling of heavy-duty diesel engines by electrification of truck stops, use of auxiliary power units, or reducing idling time. The 2003 SIP includes a discussion of CARB's plans with regard to reduced idling in measure ON-RD HVY-DUTY-3 (Page II-B-21).

AT-MBL-13 Further Emission Reductions from Utility and Mobile Equipment

AT-MBL-13 proposed reductions of toxic emissions from utility and mobile equipment such as lawn mowers using low-sulfur fuel with after-treatment or switching from gasoline engines to electric motors or natural gas engines.

- 2003 SIP includes a discussion of CARB's control plan for off-road diesel equipment in measure OFF-RD HVY-DUTY-1.
- 2003 SIP includes a discussion of CARB's control plan for small off-road equipment (including lawn and garden equipment) in SMALL OFF-RD-1 and SMALL OFF-RD-2. These measures were adopted in October 2003.
- 2003 SIP includes a discussion of CARB's control plan for off-road large spark-ignited engines in measures OFF-RD LSI-1 and OFF-RD LSI-2.

Mobile Source Control Strategies – Remaining

AT-MBL-08 Locomotive Operations

The purpose of AT-MBL-08 was to reduce toxic emissions from the operation of locomotives through the use of LNG and other clean engine technologies, low-sulfur fuel, and/or after-treatment technologies. The 2003 SIP includes a discussion of CARB's current locomotive control activities.

AT-MBL-09 Control of Locomotive Idling Emissions

This strategy proposed reduction of toxic emissions from the idling of locomotives by the use of clean-burning fuels such as electricity, LNG, or low-sulfur fuel or with after-treatment technologies during idling. The 2003 SIP includes a discussion of reduced idling from locomotives.

AT-MBL-10 Commercial Motor Boats, Ships, and Tugs

AT-MBL-10 proposed reduction of toxics from diesel engines used on commercial motor boats, ships, and tugs through retrofitting existing engines or using low-sulfur diesel with after-treatment. The 2003 SIP includes a discussion of CARB's current activities related to commercial marine vessels and ports in Chapter G of Section II.

AT-MBL-11 Mitigation of Emissions at Airports

This control strategy proposed reduction of toxic emissions from airport ground support equipment such as baggage tractors, belt loaders, aircraft tugs, and forklifts. Methods projected for reducing emissions included greater penetration of electrification and conversion to alternative fuels such as compressed natural gas, LNG, lower-sulfur fuel and/or after-treatment as well as mitigation measures to prevent toxic emission increases at airports when considering airport expansion projects.

EPA, CARB and the Air Transport Association (ATA) negotiated a MOU (November 2002) to voluntarily reduce emissions from ground service equipment in the South Coast Air Basin. The MOU applies to 17 ATA-member airlines.

Los Angeles World Airport is planning to extend the MOU to non-ATA members through access agreements. The MOU sets emission rate goals applicable to the 1997 equipment fleet (2.65 g/bhp-hr HC+NO_x by the end of 2010), and a percentage of ZEV equipment for the 1997 and newer equipment. Certain equipment must install add-on controls and use low sulfur fuel on a phased schedule. There may be monetary penalties for failure to meet emission reduction goals, but there are no specific backstop measures.

AT-MBL-14 Reduction of Toxic Air Contaminants from Gasoline-powered Vehicles through the Use of Catalysts

This strategy focused on reducing emissions of 1,3-butadiene, which were identified in the MATES II study as a significant contributor to the overall cancer risk in the Basin. Catalytic converters have been used to reduce emissions from gasoline-powered internal combustion engines. This technology can be further enhanced to reduce emissions of 1,3-butadiene from other vehicles. Incentive programs by the AQMD can help implement this strategy in the near future.

AT-MBL-15 Mobile Source NO_x Emission Credit Programs, Including Diesel

This strategy proposed reduction of toxic emissions from various mobile equipment through the use of economic incentives. Credits would only be available for a source until a rule is implemented to require NO_x reductions from that source. For example, credits will be available for diesel engines only until they are required to meet new federal emission limits.

Federal Programs

EPA continues to strive to reduce air toxics. Other than the stationary source category MACTs promulgated or proposed by EPA, there a variety of efforts and progress made by EPA. See Appendix C for more information on these specific programs.

Since federal approval of the 1990 Clean Air Act Amendments (CAA), EPA has adopted a number of NESHAPs for the reduction of air toxic emissions. Table 4 contains a list of the NESHAPs promulgated by EPA since the 2000 ATCP.

Table 4 - Existing NESHAPs (Promulgated Since the 2000 ATCP)

NESHAP (MACT) STANDARD (CFR 40 Part 63) Source Categories Affected	CFR Sub Parts	Final Federal Register Date & Citation	Compliance Date
Asphalt Processing and Asphalt Roofing Manufacturing	LLLLL	4/29/03 (68FR22975)	5/1/06
Auto & Light Duty Truck (Surface Coating)	IIII	12/24/2002 (67FR78611)	Tentative Final* 2/28/04
Benzene Waste Operations	FF	12/4/03 (68FR67931)	12/4/06
Boat Manufacturing	VVVV	8/22/01 (66FR44217)	8/22/04
Brick and Structural Clay Products Manufacturing	JJJJJ	5/16/03 (68FR26689)	5/16/06
Cellulose Production Manufacturing <ul style="list-style-type: none"> • Caroxymethylcellulose Production • Cellulose Ethers Production • Cellulose Food Casing Manufacturing • Cellophane Production • Methylcellulose Production • Rayon Production 	UUUU	6/11/02 (67FR40043)	6/11/05
Clay Ceramics Manufacturing	KKKKK	5/16/03 (68FR26689)	5/16/06
Coke Oven <ul style="list-style-type: none"> • Pushing, Quenching, & Battery Stacks 	CCCCC	4/14/03 (68FR18007)	4/14/06
Combustion Sources at Kraft, Soda, and Sulfite Pulp and Paper Mills	MM	4/14/03 (68FR18007)	4/14/06
Combustion Turbines	YYYY	Signed 8/29/03	
Engine Test Cells/Stand (Combined with Rocket Testing Facilities)	PPPPP	5/27/03 (68FR28774)	5/27/06
Fabric Printing, Coating & Dyeing	OOOO	5/29/03 (8FR32171)	5/29/06
Flexible Polyurethane Foam Fabrication Operation	MMMMM	4/14/03 (68FR18061)	4/14/06
Friction Products Manufacturing	QQQQQ	10/18/02 (67FR64497)	10/18/05
Generic MACT <ul style="list-style-type: none"> • Carbon Black Production • Cyanide Chemicals Manufacturing • Ethylene Processes • Spandex Production 	YY	7/12/02 (67FR39301)	7/12/05

NESHAP (MACT) STANDARD (CFR 40 Part 63) Source Categories Affected	CFR Sub Parts	Final Federal Register Date & Citation	Compliance Date
Hydrochloric Acid Production <ul style="list-style-type: none"> Fumed Silica Production 	NNNNN	4/17/03 (68FR19076)	4/17/06
Industrial, Commercial, and Institutional Boilers and Process Heaters	DDDDD	Proposal 1/13/03 (68FR6060)	Tentative Final* 2/28/04
Integrated Iron & Steel	FFFFF	5/20/03 (68FR27645)	5/20/06
Iron and Steel Foundries	EEEEEE	Signed 8/29/03	
Large Appliance (Surface Coating)	NNNN	7/23/02 (67FR48253)	7/23/05
Leather Finishing Operations	TTTT	2/27/02 (67FR915510)	2/27/05
Lime Manufacturing	AAAAA	Signed 8/25/03	
Manufacturing Nutritional Yeast (Formerly Bakers Yeast)	CCCC	5/21/01 (66FR27876)	5/21/04
Mercury Cell Chlor-Alkali Plants (Formerly Chlorine Production)	IIII	Signed 8/29/03	
Metal Can (Surface Coating)	KKKK	11/13/03 (68FR64431)	11/13/06
Metal Coil (Surface Coating) Industry	SSSS	6/10/02 (67FR39793)	6/10/05
Metal Furniture (Surface Coating)	RRRR	5/23/03 (68FR28605)	5/23/06
Miscellaneous Coating Manufacturing	HHHHH	Signed 8/29/03	
Miscellaneous Metal Parts and Products (Surface Coating) <ul style="list-style-type: none"> Asphalt/Coal Tar Application to Metal Pipes 	MMMM	Signed 8/20/03	
Miscellaneous Organic Chemical Production and Processes (MON)	FFFF	11/10/03 (68FR63851)	
Municipal Solid Waste Landfills	AAAA	1/16/03 (68FR2227)	1/16/06
Organic Liquids Distribution (non-gasoline)	EEEE	Signed 8/25/03	
Paper and Other Web (Surface Coating)	JJJJ	12/4/02 (65FR72341)	12/4/05
Petroleum Refineries <ul style="list-style-type: none"> Catalytic Cracking Catalytic Reforming Sulfur Plant Units 	UUU	4/11/02 (67FR17761)	4/11/05
Plastic Parts (Surface Coating)	PPPP	Signed 8/29/03	
Plywood and Composite Wood Products (Formerly Plywood and Particle Board Manufacturing)	DDDD	Proposal 1/9/03 (68FR1276)	Tentative Final* 2/28/04

NESHAP (MACT) STANDARD (CFR 40 Part 63) Source Categories Affected	CFR Sub Parts	Final Federal Register Date & Citation	Compliance Date
Polyvinyl Chloride and Copolymers Production	J	7/10/02 (67FR45885)	7/10/05
Primary Copper	QQQ	6/12/02 (67FR40477)	6/12/05
Primary Magnesium Refining	TTTTT	10/10/03 (68FR58615)	
Reciprocating Internal Combustion Engines (RICE) (NESHAP/NSPS)	ZZZZ	Proposal 12/19/02 (67FR77829)	Tentative Final* 2/28/04
Refractory Products Manufacturing	SSSSS	4/16/03 (68FR18729)	4/16/06
Reinforced Plastic Composites Production	WWWW	4/21/03 (68FR15689)	4/21/06
Rubber Tire Manufacturing	XXXX	7/9/02 (67FR45598)	7/11/05
Secondary Aluminum	RRR	3/23/00 (68FR15689)	existing sources 3/24/03 new sources 3/23/00 or startup
Semiconductor Manufacturing	BBBBB	5/22/03 (68FR30848)	5/22/06
Site Remediation	GGGGG	10/8/03 (68FR58171)	
Solvent Extraction for Vegetable Oil Production	GGGG	4/12/01 (66FR19006)	4/12/04
Taconite Iron Ore Processing	RRRRR	10/30/03 (68FR61868)	
Wet Formed Fiberglass Mat Production	HHHH	4/11/02 (67FR17823)	4/11/05
Wood Building Products (Surface Coating) (Formerly Flat Wood Paneling Products)	QQQQ	5/28/03 (68FR31746)	5/28/06

* These standards were signed by the EPA Administrator and are pending final promulgation in the Federal Register.

Implementation of the 1997/1999 SIP

The following list of 1997 SIP mobile source measures were adopted after the March 2000 ATCP. These measures would reduce air toxic constituents in typical coating/solvent materials, diesel PM emissions, or air toxics contained in gasoline or gasoline combustion exhaust. More detailed information is presented in Appendix A of this document. The lists include the control measure (Rule number) and adoption date.

AQMD

- WST-04 (Rule 1150.1) 2000
- PRC-03(Phase 2) (Rule 1138) *
- CTS-020 (Rule 442) 2000
- CTS-02E (Rule 1168) 2000
- RFL-02(Phase 2) (Rule 461) 2000
- CTS-09(Phase 1) (Rule 1132) 2000
- FUG-06 (Rule 1189) 2000
- FUG-05(Phase 1) (Rule 1178) 2001
- PRC-06 (Rule 1131) 2001
- CTS-08(Phase 1) (Rule 1130) 2002
- CTS-08(Phase 2) (Rule 1122) 2001
- CTS-09(Phase 2) (Rule 1162) 2002
- Rule 1102 2000

*Board approved infeasibility findings in October 2000 and used excess reductions from RFL-02(P2) to meet the SIP commitment.

CARB

- M9: CA heavy-duty off-road diesel engine standards 2000
- Marine pleasurecraft (beyond M16) 2001
- Urban transit buses 2000
- Enhanced vapor recovery program 2000
- Medium/heavy-duty gasoline standards (beyond M8) 2000
- 2007 heavy-duty diesel 2001

EPA

- 2007 heavy-duty diesel 2001

III. HISTORICAL AND CURRENT AIR TOXIC LEVELS

Since the approval of the strategy outlined in the March 2000 ATCP, a number of the air toxic control strategies have been developed and implemented. Numerous strategies are in various stages of implementation. In order to assess current air toxic emission levels, it was necessary to incorporate updates in emissions inventory development methodology, which were used for the 2003 AQMP, as well as update the historical baseline emissions inventory to provide for a consistent comparison of emissions.

Updated Emissions Inventory Development

The emissions inventory developed for the ATCP Addendum was primarily based on criteria pollutant emissions developed for the 2003 AQMP. The latest speciation profiles for both PM and total organic gases from CARB were used to calculate emissions of individual toxic chemical compounds. This resulting emissions inventory database was supplemented by emissions from the Toxic Hot Spot (AB 2588) Program. The emissions inventory consists of four parts: (1) On-Road Mobile Sources; (2) Off-Road Mobile Sources; (3) Area Sources; and (4) Major Point Sources and AB 2588 Sources. The following description indicates how each portion of the inventory was developed. The methodology below was used to derive the 2002 air toxic emissions levels, as well as the 2010 projected levels discussed in Chapter V. The 2003 AQMP included long-term measures which were not fully defined relative to source categories. The same assumptions for apportionment used for the 2003 AQMP to differentiate categories were used for the projected inventory.

On-Road Mobile Sources

On-road mobile sources include cars, trucks, buses, and motorcycles. The on-road mobile source emissions are the product of emissions factors and vehicular activity. In California, CARB develops motor vehicle emission factors and provides periodic updates. For the ATCP, CARB's EMFAC2002 emissions factors, the latest version available at the time, were used. Southern California Association of Governments (SCAG), the regional planning organization, provided link-based traffic volumes and speeds obtained from its regional transportation modeling. The on-road emissions used here are consistent with those developed in the 2003 AQMP. Toxic compound emissions are calculated by applying the latest CARB speciation profiles for mobile sources to the hydrocarbon and PM emissions. CARB maintains a database of speciation profiles for both hydrocarbon and PM emissions.

Off-Road Mobile Sources

All mobile sources not included in the on-road mobile source inventory are considered as "off-road" mobile sources. These include aircraft, ships, commercial boats, recreational vehicles, construction equipment, etc. CARB's OFF-ROAD model is used to estimate the VOC and PM emissions in this source category. This model calculates emissions from more than 100 equipment types and incorporates various off-road elements, such as the effects of adopted regulations, technology types, and seasonal conditions on emissions. The model combines population, activity, horsepower, load factors, emission factors, and control factors to yield the annual equipment emissions by county, air basin, and state. Again, CARB's speciation profiles are used to determine individual toxic compound emissions from the hydrocarbon and PM emissions.

Area Sources

Area source emissions are from numerous small facilities or pieces of equipment, such as residential water heaters, consumer products, and architectural coatings, for which locations are not specifically identified. AQMD and CARB shared responsibility for developing the area source emission inventory in the 2003 AQMP for approximately 350 area source categories. Specifically, AQMD developed the area source inventory for about 90 categories whereas CARB developed the remaining area source categories (of which 230 categories are associated with consumer products, architectural coatings, and degreasing). As with the on- and off-road emission inventories, the area source emissions used in the ATCP are consistent with those used in the 2003 AQMP. Toxic compound emissions are calculated by applying the latest CARB speciation profiles for specific area source categories to the hydrocarbon and PM emissions.

Point Sources

The AQMD maintains two major emissions databases: (1) the Annual Emissions Reporting (AER) system, containing emissions information for criteria pollutants and some toxic compounds; and (2) the Toxic Hot Spots (AB 2588) program containing source-specific emissions information on numerous toxic compounds. Both databases are utilized in developing the point source emissions inventory for the ATCP.

AER Facilities

The AER database provided criteria pollutant emissions from about 3,200 facilities that emit more than 4 tons per year. 21 toxic compounds reported as part of AER were incorporated in this inventory as hydrocarbon or PM emissions. Facilities in the program are required to report these emissions annually. The toxic emissions of non-AB 2588 facilities are derived utilizing the AER point source inventory. This database contains information on criteria pollutants such as PM and hydrocarbon. Appropriate PM and hydrocarbon speciation profiles are applied to these emissions in order to obtain specific toxic compound emissions. The base year for the data is 1997. These data are projected to 2002 level by applying the growth and rule control factors developed for the 2003 AQMP. The growth factors are county- and industry-specific, and are based on the SCAG's growth projection. The rule control factors reflect the impact from 1997 to 2002 of existing rules.

AB 2588 Facilities

There are about 800 facilities in the AB 2588 program. These facilities have high or intermediate risks associated with their emissions. Facilities are required to update their emissions once every four years. The facilities have been grouped as follows with their most immediate update year shown:

- Phase 1A – FY 2002/03
- Phase 1B – FY 2003/04
- Phase 2 – FY 2000/01
- Phase 3 – FY 2001/02

Beginning in FY 2000/01, the reporting procedures for AB 2588 and AER were consolidated. Thus, approximately half of the AB 2588 facilities (i.e., Phase 2 and Phase 3 facilities) have provided updated toxic emissions through the consolidated reporting process. (Phase 1A facility for FY 2002/03 will not be available until Spring 2004.) The toxic emissions reported in FYs 2000/01 and 2001/02 for the Phase 2 and 3 facilities are assumed to represent current conditions for purposes of the ATCP.

The toxic emissions from AB 2588 Phase 1A and 1B facilities have not been updated since the MATES II study. Emissions from these facilities are grown and controlled from their 1997 levels in MATES II to 2002 using growth and rule control factors assumed in the 2003 AQMP and reflect an updated MATES II inventory used for this Addendum.

Refinements of Some Specific Emissions

Diesel PM and the metal plating and finishing industry were examined to reflect recently approved rules which reduce TACs. The methods used to develop the emissions are described below.

Diesel Particulate Matter

The California EPA has classified diesel exhaust from diesel-fueled internal combustion engines as carcinogenic. The method chosen to identify diesel particulate matter uses the referenced particulate speciation profile. Upon reviewing the set of particulate speciation profiles available from CARB, only two profiles are identified as internal combustion engines burning diesel fuel. The profile numbers and titles are as follows:

- 116, Stationary Internal Combustion Engine – Diesel
- 425, Diesel Vehicle Exhaust

Source categories referencing these two profiles are assumed to be sources of diesel particulate matter. Diesel particulate matter emissions are primarily from on-road diesel vehicles, off-road diesel engines, trains, motor ships and commercial diesel boats. During the MATES III study, speciation of diesel emissions and emission estimates from diesel internal combustion sources will be further evaluated and refined.

Reductions for diesel particulate matter from the proposed ATCM for stationary compression ignition engines were also considered. This ATCM will be implemented via current Proposed Rule 1470 – Control of Emissions from Diesel-fueled Internal Combustion Engines.

Metal Plating and Finishing Industry

The metal plating and finishing emission inventory primarily consists of three facility lists and the Clean Air Support System (AQMD permit files, or CLASS). The three facility lists employed for this inventory are the ones developed for:

- AQMD Rules 1469 (Hexavalent Chromium Emissions from Chrome Plating and Chromic Acid Anodizing Operations) and 1426 (Emissions from Metal Finishing Operations) rulemaking;
- Air Toxics “Hot Spots” and Information Act of 1987 (AB 2588) Industry-wide billing; and
- Multiple Air Toxics Exposure Study II.

Rules 1469 and 1426

The rulemaking for Rules 1469 and 1426 (revised in May 2003) examined 131 facilities. Permit and inspection records were used to develop individual tank emissions of toxic metals (hexavalent chromium, nickel, cadmium, and lead). These data are limited to plating operations and their corresponding emissions. Facilities with non-zero emissions are carried onto the next step (consolidation).

AB 2588

The Industry-wide billing effort (prepared in April 2003) identified 588 metal plating and finishing facilities. Annual emissions of active permit units are taken directly from permit records. The list of pollutants includes hexavalent chromium, nickel, cadmium, arsenic, acetaldehyde, acrolein, benzene, and perc. The organics (acetaldehyde, acrolein, benzene, and perc) are associated with aqueous tanks, degreasing, sludge drying, and laser cutting. Flame combustion devices (ovens, boilers, heaters, and furnaces) and products (benzene, formaldehyde, perc, and xylenes) are removed from this database, as they would be captured as area sources. These data include both plating and spraying operations. Only facilities with active permits with non-zero emissions are carried onto the next step (consolidation).

MATES II Inventory Special Study

The MATES II (published in March 2000) emission inventory (prepared in October 1999) contains a special study for 85 facilities not included in other databases. Permit and inspection records are used to develop permit unit emissions of hexavalent chromium only. These data include both plating and spraying operations and their corresponding emissions. Only facilities with active permits with non-zero emissions are carried onto the next step (consolidation).

Consolidated Inventory

Duplicate records have been removed from the three aforementioned facility lists (with their corresponding emission profiles). First priority is given to the Rules 1469 and 1426 data as they are the most recent and best characterized individual emissions sources. MATES II inventory special study data were used only if no Rule 1469 and 1426 or AB 2588 data existed.

Baseline Emissions Inventory

The March 2000 ATCP utilized a 1998 emissions inventory for 29 key TACs as the base year following the 1997 AQMP methodology. In order to provide an accurate comparison of emission reductions from the base-year, the 1997/1998 air toxic emissions inventories were updated to reflect the emissions inventory development methodology used for the 2003 AQMP. 29 key TACs measured in MATES II were selected for presenting the total emissions inventory. The result was an increase in air toxic emissions, primarily in the mobile source sector. Although 1997 and 1998 inventories vary slightly, both years are close and are good for comparison purposes. Therefore, comparison to historical emissions are relative to a 1997/1998 base year. It should be noted that using the emissions inventory development methodology of the 2003 AQMP reflects updates in numerous speciation profiles affecting the quantification of a number of TACs, including benzene, diesel particulate, and toluene.

Historical Air Toxics Levels

As previously discussed, the 1997/1998 base-year emissions inventory was recalculated using a methodology consistent with the 2003 AQMP. For the purpose of comparing historical emissions between inventory methodologies, 1997 and 1998 are considered the same base-year. This comparison resulted in the base-year air toxic emissions greater than the base-year emissions inventory derived for MATES II and the March 2000 ATCP. The base-year air toxic emissions estimated for 29 compounds totaled 471,000 pounds per day (annual average) in the 2003 AQMP, compared to the same compounds of 411,000 pounds per day in the 2000 ATCP. This reflected an increase of 60,000 pounds total. The stationary source emissions were relatively unchanged at 147,000 pounds per day, the increase in emissions for both on- and off-road mobile source sectors was a direct result of the updated emissions inventory development

methodology. Table 5A contains a breakdown of emissions by major source category for the base-year emissions inventory in the 2003 AQMP as compared to the inventory used for the March 2000 ATCP. Appendix D provides a summary of the emissions inventory for this Addendum.

Table 5A
Comparison of 1997/1998 Air Toxics Emission Inventory Based on
1997 AQMP Versus 2003 AQMP Methodologies
(Annual Average pounds/day)

1997/1998 Base Year	On-Road	Off-Road	Stationary	Total
1997 AQMP	196,000	68,000	147,000	411,000
2003 AQMP	197,000	127,000	147,000	471,000

Table 5B presents a comparison of the air toxic emissions weighted by their respective cancer toxicity (e.g. toxicity weighted).

Table 5B
Comparison of 1997/1998 Toxicity-weighted Emissions Based on
1997 AQMP Versus 2003 AQMP Methodologies
(Annual Average, pounds per day X Unit Risk Factor)

1997/1998 Base Year	On-Road	Off-Road	Stationary	Total
1997 AQMP	8.7	7.4	1.1	17.2
2003 AQMP	6.4	10.5	1.6	18.5

Although stationary source total toxic emissions remain approximately the same between the two inventory methodologies, the latest inventory estimates reflect significant increases in diesel PM and hexavalent chromium emissions from fuel combustion due to methodology changes (i.e., emission factor changes and changes in speciation profile assignment) that mitigated air toxic emission reductions from other source categories.

Discussion

The following information describes differences in methodology and inventory data developed for this Addendum compared to the inventory used for the March 2000 ATCP.

- The 2000 ATCP base-year inventory is based on a 1993 baseline emissions inventory and growth/control assumptions in the 1997 AQMP. The updated inventory is based on a baseline emissions inventory of 1997 and growth/control assumptions in the 2003 AQMP.
- Higher hexavalent chromium emissions can be primarily attributed to increases in on-road gasoline vehicle particulate emissions based on the 2003 AQMP methodology, which contain hexavalent chromium.
- “Other Mobile” emissions in the 2003 AQMP inventory are developed from CARB’s OFF-ROAD model. This has contributed to the following:

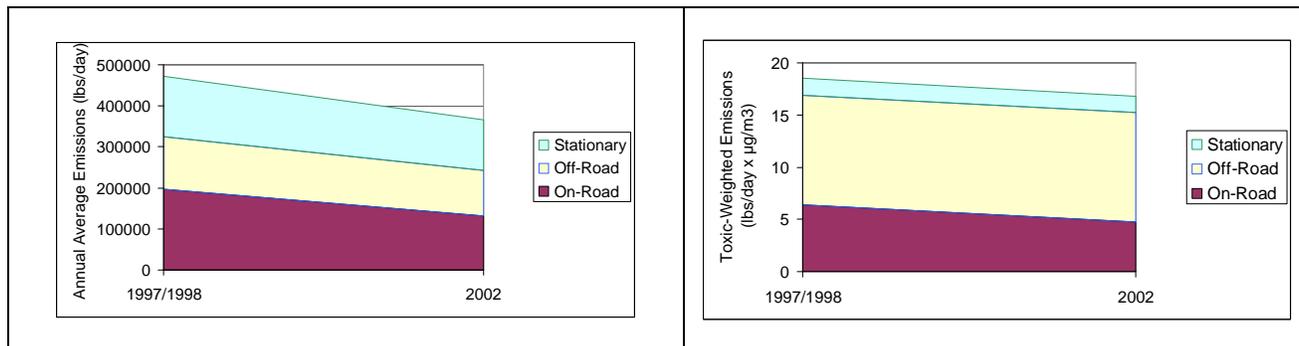
- Increased off-road VOC and particulate emissions; and
- Increased off-road 1,3 butadiene, formaldehyde, MTBE, toluene, arsenic, cadmium, chromium, hexavalent chromium, lead, nickel, and diesel particulates.
- VOC and particulate emissions from stationary source combustion natural gas increased in the 2003 AQMP as compared to the 2000 ATCP. This has been attributed to the following:
 - Increased point source acetaldehyde, benzene, 1,3 butadiene, formaldehyde, arsenic, and lead emissions;
 - Increased area source acetaldehyde, 1,3 butadiene, and formaldehyde emissions; and
 - Increased hexavalent chromium emissions specifically from internal combustion engines.
- Diesel PM emissions from area sources almost doubled under the 2003 AQMP methodology mainly due to a correction to the fuel consumption estimated, which was underestimated in the 2000 ATCP.
- CARB conducted a complete overhaul of the profile assignment for Source Category Codes (SCCs) in “Industrial Processes – Chemical” since the 1997 AQMP. Most SCCs in this category now are assigned profiles based on an EPA average. Higher emissions of benzene, 1,3 butadiene, ethylene dichloride, and arsenic are due to these changes.
- 1997 AQMP had significant benzene emissions from pesticide application. CARB created a new profile recently which does not have benzene as a component.
- Stationary source (i.e., point and area) vinyl chloride emissions increased relative to 1997 AQMP. 1997 AQMP had zero stationary source vinyl chloride emissions. These increases occurred in the SCCs for “Waste Disposal – Landfills” and “Industrial Processes – Chemical”.

Note: The March 2000 ATCP focused on 31 compounds, not all of which are identified as toxic air contaminants. For the purpose of this Addendum and to draw direct comparisons of TAC emissions levels, two compounds (i.e., elemental carbon and organic carbon) have been removed from this analysis.

Year 2002 Air Toxics Levels

The air toxics emission inventory for 2002 was derived using the same methodology as was used for the 2003 AQMP inventory, except for the AB 2588 facilities. As discussed earlier, reported FY 2000-2001 and FY 2001-2002 emissions were used to develop that portion of the year 2002 inventory. This inventory also includes the same 29 air toxic compounds as the March 2000 ATCP. This was done to provide a consistent comparison between inventoried years and to examine the emission reductions of key air toxics contributing to the regional risk in the Basin from both mobile and stationary sources. As a result of using the updated methodology, the 2002 emissions inventory totals 365,000 pounds per day. This assessment accounts for growth and recent rule implementation from the base-year emissions. Based on the revised inventory, there is a total decrease of 22 percent in total pounds of air toxic emissions from the 1997/1998 base-year to 2002, or 11 percent in toxicity-weighted emissions (lbs/day x $\mu\text{g}/\text{m}^3$) (Figure 1).

Figure 1
Air Toxics Emission Trends



Relative to stationary source emissions, the 1997/1998 base-year air toxics inventory was approximately 147,000 pounds per day total, where the 2002 inventory is estimated to be 122,000 pounds per day. This reflects a stationary source mass emission reduction of 17 percent for the 29 TACs; with little change in toxicity-weighted emissions. It should be noted that for the 2002 air toxics emissions inventory, AB 2588 reported emissions contained higher diesel particulate emissions due to the combined reporting with the AER requirement versus the AB 2588-only reporting, which contained a 3,000 gallon reporting threshold. As a result, diesel consumption less than 3,000 gallons were reported through the AER requirement. This was probably also compounded by the energy crisis in 2001 resulting in higher usage of diesel backup generators. Therefore, the reported AB 2588 emissions somewhat offset otherwise greater reductions anticipated from stationary sources.

Introducing cleaner vehicles or engines through fleet turnover reduces on-road mobile toxic emissions by 32 percent, or 25 percent in toxicity-weighted emissions. Similarly, off-road mobile sources reduced total emissions by 13 percent, or 1 percent on a toxicity-weighted basis. As shown in Figure 2 on page 5-1, the changes in toxic emissions between 1997/1998 and 2002 result in slight changes relative to the source contribution. Overall, the stationary source contribution remains below 10 percent with approximately 90 percent from mobile sources.

In the March 2000 ATCP, a table showed which TACs in the base year contributed most to the cancer risk throughout the Basin, based on weighted toxicity. Table 6 compares those TACs presented in the March 2000 ATCP and the updated inventories for the base year and 2002.

Table 6
Comparison: Order of Toxicity Based on Contribution
to the Overall Basin-Wide Risk

Rank	2000 ATCP		2003 AQMP Inventory			
	1997/1998	Percent Contribution	1997/1998	Percent Contribution	2002	Percent Contribution
1	Diesel PM	72.0%	Diesel PM	77.1%	Diesel PM	79.2%
2	1,3-Butadiene	8.4%	1,3-Butadiene	7.6%	1,3-Butadiene	6.2%
3	Benzene	6.5%	Benzene	6.0%	Hexavalent Chromium	5.7%
4	Formaldehyde	2.0%	Hexavalent chromium	5.3%	Benzene	4.6%
5	Hexavalent Chromium	1.8%	Formaldehyde	1.3%	Formaldehyde	1.1%
6	Perchloroethylene	0.8%	Perchloroethylene	0.8%	Perchloroethylene	0.9%
7	Acetaldehyde	0.6%	Arsenic	0.7%	Arsenic	0.8%
8	Methylene Chloride	0.2%	Cadmium	0.4%	Cadmium	0.4%
9	Nickel	0.2%	p-Dichlorobenzene	0.2%	p-Dichlorobenzene	0.3%
10	Trichloroethylene	0.1%	Acetaldehyde	0.2%	Acetaldehyde	0.2%

The 2000 ATCP list is based on an eight-station average from the MATES II study, and the 2003 AQMP lists are emissions inventory-based. The most noticeable change in relative contribution for the 2003 AQMP between 1997/1998 and 2002 is hexavalent chromium from 5.3 to 5.7 percent. This is primarily due to the fact that hexavalent chromium emissions did not change significantly between 1997/1998 and 2002, while other air toxics decreased during the same timeframe.

IV. STRATEGIES THAT WILL FURTHER REDUCE AIR TOXICS

There are four general areas that will contribute to additional air toxic reductions in the future. They are: 1) strategies carried over from the 2000 ATCP; 2) 2003 AQMP; 3) additional strategies from CARB and EPA; and 4) cumulative impacts reduction strategies. These are outlined below.

Strategies from the 2000 ATCP That Have Not Been Completed

Of the 26 control strategies outlined in the March 2000 ATCP, five are not yet completed. This is because work on these strategies is ongoing. Table 7 lists these control strategies.

Table 7 – 2000 ATCP Strategies Yet to Be Completed

RULE/ ATCP	Title	TAC
1437 AT-STA-05	Furniture Stripping	Methylene chloride
AT-MBL-05	Alternatively Fueled Engines	Diesel PM
AT-MBL-06	Goods Movement	Diesel PM
AT-MBL-08	Locomotive Operations	Diesel PM
AT-MBL 10	Commercial Motor Boats, Ships, and Tugs	Diesel PM

2003 Air Quality Management Plan

In August 2003, AQMD adopted the 2003 AQMP which contains stationary and mobile source measures designed to meet the PM₁₀ and 1-hour ozone standards by 2006 and 2010, respectively. Descriptions of these measures can be found in Appendices IV-A and IV-B of the 2003 AQMP. In general, since many of the VOC constituents are also air toxics, reducing VOC emissions would result in concurrent emission reductions of TACs. Reformulation from solvent-based coatings/solvent materials to water-based substances typically also causes net reductions in toxic emissions. Diesel PM or ammonia reductions for the purpose of PM₁₀ or PM_{2.5} controls reduces air toxics, as well. Full implementation of the 2003 AQMP is expected to result in significant air toxics benefit. Table 8 lists measures proposed by AQMD that are anticipated to have concurrent air toxic reductions. In total, AQMP measures will reduce 52.5 tons per day of VOC, 2-6 tons per day of PM₁₀ and 10.6 tons per day of NH₃.

Table 8 – 2003 AQMP Control Measures

Measure	Description	TAC
CTS-07	Further Emission Reductions from Architectural Coatings and Clean-up Solvents (VOC)	Various

Measure	Description	TAC
CTS-10	Miscellaneous Industrial Coatings and Solvent Operations (VOC)	Various
FUG-05	Emission Reductions from Fugitive Sources (VOC)	Various
CMB-07	Emission Reductions from Petroleum Refinery Flares (all pollutants)	Various
CMB-09	Emission Reductions from Petroleum Fluid Catalytic Cracking Units	Ammonia
FSS-04	Emission Charges of \$5,000 per Ton of VOC for Stationary Sources Emitting over 10 Tons per Year (VOC)	Various
FSS-05	Mitigation Fee Program for Federal Sources	Diesel PM
FSS-06	Further Emission Reductions from In-use Off-road Vehicles and Equipment	Diesel PM
FSS-07	Emission Fee Program for Port Related Mobile Sources	Diesel PM
MSC-04	Emission Reductions from Miscellaneous Ammonia Sources	Ammonia
MSC-05	Truck Stop Electrification (all pollutants)	Diesel PM
MSC-06	Emission Reductions from Wood Burning Fireplaces and Wood Stoves	Polycyclic Organic Matter
MSC-08	Further Emission Reductions from Large VOC Sources (VOCs)	Various
PRC-03	Emissions Reductions from Restaurant Operations (PM ₁₀)	Various
WST-01	Emission Reductions from Livestock Waste (VOC, NH ₃)	Various, Ammonia
WST-02	Emission Reductions from Composting (VOC, NH ₃ , PM ₁₀)	Various, Ammonia
LMT-ALL	Long-term Control Measure (VOC)	Various
LT/MED-DUTY-1	Replace or Upgrade Emission Control Systems on Existing Passenger Vehicles – Pilot Program	Benzene 1,3-Butadiene
LT/MED-DUTY-2	Improve Smog Check to Reduce Emission from Existing Passenger and Cargo Vehicles	Benzene 1,3-Butadiene
ON-RD HVY-DUTY-1	Augment Truck and Bus Highway Inspections with Community-Based Inspections	Diesel PM Benzene 1,3-Butadiene

Measure	Description	TAC
ON-RD HVY-DUTY- 2	Capture and Control Vapors from Gasoline Cargo Tankers	Benzene
ON-RD HVY-DUTY- 3	Pursue Approaches to Clean Up the Existing and New Truck/Bus Fleet	Diesel PM
OFF-RD CI- 1	Pursue Approaches to Clean Up the Existing Heavy-Duty Off-Road Equipment Fleet (Compression Ignition Engines)	Diesel PM
OFF-RD CI- 2	Implement Registration and Inspection Program for Existing Heavy-Duty Off-Road Equipment to Detect Excess Emissions (Compression Ignition Engines)	Diesel PM
OFF-RD LSI-1	Set Lower Emission Standards for New Off-Road Gas Engines (Spark Ignited Engines 25 hp and Greater)	Various
OFF-RD LSI-2	Clean Up Off-Road Gas Equipment Through Retrofit Controls and New Emission Standards (Spark-Ignition Engines 25 hp and Greater)	Various
SMALL OFF-RD-1	Set Lower Emission Standards for New Handheld Small Engines and Equipment (Spark Ignited Engines Under 25 hp such as Weed Trimmers, Leaf Blowers, and Chainsaws)	Benzene 1,3-Butadiene
SMALL OFF-RD-2	Set Lower Emission Standards for New Non-Handheld Small Engines and Equipment (Spark Ignited Engines Under 25 hp such as Lawnmowers)	Benzene 1,3-Butadiene
MARINE-1	Pursue Approaches to Clean Up the Existing Harbor Craft Fleet – Cleaner Engines and Fuels	Diesel PM Benzene 1,3-Butadiene
MARINE-2	Pursue Approaches to Reduce Land-Based Port Emissions – Alternative Fuels, Cleaner Engines, Retrofit Controls, Electrification, Education Programs, Operational Controls	Diesel-PM Benzene 1,3-Butadiene
FUEL-1	Set Additives Standards for Diesel Fuel to Control Engine Deposits	Diesel PM
FUEL-2	Set Low-Sulfur Standards for Diesel Fuel to Control Engine Deposits	Diesel PM
CONS-1	Set New Consumer Products Limits for 2006	Various
CONS-2	Set New Consumer Products Limits for 2008-2010	Various

Measure	Description	TAC
FVR-1	Increase Recovery of Fuel Vapors from Aboveground Storage Tanks	Benzene
FVR-2	Recover Fuel Vapors from Gasoline Dispensing at Marinas	Benzene
FVR-3	Reduce Fuel Permeation Through Gasoline Dispensing Hoses	Benzene
PEST-1	Implement Existing Pesticide Strategy	Various

In October 2003, the CARB approved the 2003 SIP that describes the state's future mobile source strategy. The 2003 SIP includes 15 defined mobile source and fuel commitments with a focus on reducing emissions from in-use vehicles. CARB has committed to adopt and implement these measures by 2010. The SIP also includes a measure to achieve an additional 97 TPD of reductions from mobile and consumer product categories. The goals, and many of the strategies, from Measure M17 (the only defined CARB measure from the 1994 SIP that was not adopted) are included in 2003 SIP measure ON-RD HVY-DUTY-3. Table 8 summarizes the mobile source measures in the 2003 SIP. In addition, because of the need for additional emission reductions to meet the attainment goal, CARB will pursue additional control strategies beyond these defined measures. All measures in Table 8 are under CARB's authority, except LT/MED-DUTY-2 which is regulated by the Bureau of Automotive Repair (BAR) and PEST-1 which is regulated by the Department of Pesticide Regulation (DPR).

The 2003 SIP also recognizes that EPA has a critical role to play in reducing mobile source emissions. In the South Coast, the emission sources under the exclusive legal or practical control of the federal government account for 30 percent of all NO_x and almost 60 percent of all diesel PM. The federal CAA directs EPA to continue reducing mobile source emissions that cause or contribute to air pollution that endangers public health. The 2003 SIP calls on EPA to pursue new requirements for national and international sources, and complement them with financial incentives to speed turnover of the diesel fleet to cleaner engines. Table 9 shows the concepts identified in the 2003 SIP for federal action.

Table 9 - Concepts for Federal Action from the 2003 SIP

On-Board Diagnostics for New Truck/Bus Fleet and In-Use Testing for Existing Truck/Bus Fleet
Lower Emission Standards for New Off-Road Compression Ignition Engines
Low-Sulfur Standards for Diesel Fuel for Off-Road Equipment, Locomotives, and Marine Vessels
More Stringent Emission Standards for New Harbor Craft and Ocean-Going Ships
Clean Up the Existing Ocean-Going Ship Fleet through Approaches such as Cleaner Fuels, Incentives for Cleaner Ships, Smoke (Opacity) Limits
Reduce Emissions from Jet Aircraft through Approaches such as More Stringent Engine Standards, Retrofit Controls, Cleaner Fuel, and Applying Standards to Non-Tactical Military Aircraft
More Stringent Emission Standards for New and Remanufactured Locomotive Engines
Incentives to Accelerate Clean Up of Existing Diesel Engines

Table 11 - Proposed NESHAPs

NESHAP Source Category	Proposed Date	Tentative Final Approval Date	Compliance Date
Auto & Light-duty Trucks	December 24, 2002	February 28, 2004	3 years after final approval
Industrial, Commercial & Institutional Boiler Process Heaters	January 13, 2003	February 28, 2004	180 days after final approval
Plywood & Composite Wood Products	January 9, 2003	February 28, 2004	March 2007
Reciprocating ICEs	December 19, 2002	February 28, 2004	Existing – 3 years after final approval New – final approval or startup

Continued Federal Efforts

Continued Development and Implementation of National Emission Standards for Hazardous Air Pollutants

The schedule for implementing the Maximum Achievable Control Technology (MACT) standards was established under section 112 of the 1990 CAA. On this basis, MACTs were scheduled for promulgation on a 2-year, 4-year, 7-year, or 10-year basis. To date, 87 MACTs have been proposed and finalized and are in various stages of implementation. In a coordinated effort, 20 of the 21 MACTs scheduled for the 2-year and 4-year promulgation dates are currently under review in the Residual Risk Program. Four additional 10-year MACTs are currently proposed with final promulgation dates anticipated as February 28, 2004. These four source-categories are: Auto and Light-duty Trucks; Industrial, Commercial and Institutional Boilers and Process Heaters; Plywood and Composite Wood Products; Reciprocating Internal Combustion Engines. Tables presenting Existing NESHAPs [Promulgated & Implemented]), NESHAPs Promulgated but not Fully Implemented, and Proposed NESHAPs, that appeared in the March 2000 ATCP, have been updated. The table, Future NESHAPs, as it appeared in the March 2000 ATCP, is no longer valid because all MACT standards have been promulgated or proposed as described above.

Continued Development and Implementation of the Integrated Urban Air Toxics Strategy

A November 22, 2002 Federal Register notice added 23 area source categories of HAPs to the previous lists developed under the Integrated Urban Air Toxics Strategy. This addition fulfills the CAA requirement that EPA “identify and list area source categories accounting for at least 90 percent of the emissions of the 30 “listed” (or area source) HAP (64 FR 38706, July 19, 1999), and that are, or will be, subject to standards under section 112(d) of the CAA.” Section 112 (d) requires the establishment of emissions standards for HAPs and the method by which they will be promulgated. The 23 area source categories added are: asphalt processing and asphalt roofing manufacturing; brick and structural clay products manufacturing; carbon black production; chemical manufacturing: chromium compounds; chemical preparations; clay ceramics manufacturing; industrial machinery and equipment: finishing operations; copper foundries; electrical and electronics equipment: finishing operations; ferroalloys production: ferromanganese and silicomanganese; fabricated metal products manufacturing, not elsewhere classified; fabricated plate work (boiler shops); fabricated structural metal manufacturing; heating equipment manufacturing, except electric; inorganic pigments manufacturing; iron and steel forging; nonferrous foundries, not elsewhere classified; paints and allied products manufacturing; plastic parts and products (surface coating); prepared feeds manufacturing; primary copper smelters; primary metals products manufacturing; and valves and pipe fittings manufacturing.

Continued Development and Implementation of the Residual Risk Program

Under the residual risk program, a requirement of the federal CAA, the following source categories are being evaluated: coke ovens; dry cleaning; industrial cooling towers; petroleum refineries; hazardous organic NESHAP, gasoline distribution; ethylene oxide sterilizers; magnetic tape; halogenated solvents; chrome electroplating; polymers & resins I, II, and IV; secondary lead; aerospace; marine vessel loading; wood furniture; ship building; printing/publishing; and off-site waste. Once evaluated, the federal standards may be amended to enforce more stringent requirements, thereby lowering the remaining risk after full implementation. These assessments will be conducted for each federal standard mandated under the federal Clean Air Act Amendments of 1990. For specific information on any of these actions the reader is referred to www.epa.gov/ttn/atw/risk/residriskpg.html

Reduction of Impacts Due to Cumulative Exposure to Toxic Air Contaminants

In 2001, EPA published its document for the National-Scale Air Toxics Assessment, based on emissions data for 1996 (called the “national-scale assessment”). The national-scale assessment was a nationwide study of potential inhalation exposures and health risks associated with 32 hazardous air pollutants (i.e., air toxics) and diesel PM, based on 1996 data, because 1996 emission inventories were the most complete and up-to-date available. National Air Toxics Assessment (NATA) is the technical support component of EPA’s National Air Toxics Program, which includes activities such as expanding air toxics monitoring, improving and periodically updating emissions inventories, periodically conducting national- and local-scale air quality, multimedia and exposure modeling, characterizing risks associated with air toxics exposures, and continuing research on health and environmental effects and exposures to both ambient and indoor sources. EPA plans to perform NATA every three years.

The results of the 1996 NATA were posted by EPA in May 2002, which includes input based on scientific peer review. The following four steps were completed:

1. Compiling a national emissions inventory of air toxics emissions from outdoor sources.
2. Estimating ambient concentrations of air toxics across the contiguous United States.

3. Estimating population exposures across the contiguous United States.
4. Characterizing potential public health risk due to inhalation of air toxics, including both cancer and noncancer effects.

The goal of the national-scale assessment is to identify those air toxics which are of greatest potential concern, in terms of contribution to population risk. The results will be used to set priorities for the collection of additional air toxics data (e.g., emissions data and ambient monitoring data).

The initial national-scale assessment was the first in an anticipated series of national-scale assessments. These national-scale assessments may be repeated every 3 years, to track trends in the reduction of emissions of air toxics, as well as progress in reducing risks from air toxics exposure. The purpose of the national-scale assessment is to gain a better understanding of the air toxics problem. It was not designed, and is not appropriate for identifying local- or regional-scale air toxics "hot spots," nor is it appropriate for identifying localized risks or individual risks from air toxics. Further analyses on a national scale, and additional assessments on other scales (e.g., urban air toxics assessments and residual risk assessments) are being performed in order to fully characterize risks, especially disproportionate and cumulative risks.

For references to other EPA efforts to reduce air toxics, please see Appendix C.

Cumulative Impacts Reduction Strategy

The Board approved a cumulative impacts reduction strategy in September 2003, which included 25 strategies. Some strategies are designed to address localized impacts, which are likely to encompass cumulative impacts, while other strategies are more directly focused on reducing cumulative impacts. Strategies include rules, policies, funding, education and cooperation with other agencies.

The scope includes not only cancer risk and hazard indices from non-cancer risk sources but also odors and enforcement strategies. To the extent these strategies reduce air toxics, they have been included in this addendum to the 2000 ATCP. The key elements are a set of early-action and other strategies included in this plan, and the process and implementation associated with the ATCP and MATES III. For completeness, a summary of the strategies is presented in Table 12. The agency or agencies responsible are in parenthesis after the title.

Table 12 - Cumulative Impacts Reduction Strategies

No.	Title	Date of Proposed Adoption
Early-Action Control Strategies (Rules)		
1	Air Toxic Control for Back-up Generators (AQMD & CARB) Seek to reduce air toxic emissions, including diesel particulates, from back-up generators as a key finding of MATES II was the significant contribution of cancer risk throughout the Basin by diesel sources.	1 st Quarter 2004
2	More Stringent Requirements for New Sources Located Near Existing Schools and Possibly Other Sensitive Receptors (AQMD)	2004

No.	Title	Date of Proposed Adoption
	Seek to establish requirements for new and relocated facilities near schools and possibly other sensitive receptors.	
3	<p>Yard Hostlers at Ports, Rail Yards, and Distribution Centers (AQMD)</p> <p>Seek to reduce emissions from yard hostlers at ports, rail yards, and distribution centers used in conjunction with these operations. Ground support operations associated with cargo sorting and transport within ports, rail yards, and distribution centers are known as yard hostlers.</p>	2004-2005
4	<p>Chromium Spray Coating Operations (AQMD)</p> <p>Investigate and potentially seek to reduce emissions of chromium from operations such as chromium-based spray coating operations which have been identified as potentially contributing to cancer risk.</p>	4 th Quarter 2004
5	<p>Private Fleet Rule Development (AQMD)</p> <p>Develop additional new rules for further emission reductions from private fleets to complement the AQMD Governing Board adopted series of fleet rules (e.g., 1190 series rules) to reduce emissions of diesel particulates from mobile sources within the agency's jurisdiction.</p>	2004-2005
Early-Action Control Strategies (Policy)		
6*	<p>Increased Compliance Assurance for Repeat Emission Violations (AQMD)</p> <p>Develop and implement an enhanced compliance assurance program for stationary sources which receive multiple notices of violation.</p>	2004-2005
7*	<p>Prioritize Resources for CEQA Document Review in High Cumulative Impact Areas (AQMD)</p> <p>Ensure that CEQA documents prepared in conjunction with projects evaluated by AQMD for potentially significant impacts include adequate measures to mitigate the impacts when required. Relative to air quality impacts, a thorough evaluation of project related emissions, including both mobile and stationary source emissions is needed, particularly for projects located in high cumulative impact areas.</p>	2004
8*	<p>Voluntary AQMD/Local Government/Public Agency Partnership (AQMD & Local Government)</p> <p>Work with local governments/planners through a partnership, providing necessary information/tools to minimize cumulative impacts from potentially air toxic-emitting facilities/projects in their area.</p>	2004

No.	Title	Date of Proposed Adoption
9*	<p>Governing Board Resolution to CARB (AQMD)</p> <p>Mobile sources, regulated under CARB, are significant contributors to risk levels in the Basin and additional controls from this sector would greatly enhance the reduction of cumulative impacts.</p>	<p>2003 (Adopted December 5, 2003)</p>
Early-Action Nuisance Strategy		
10*	<p>Pilot Odor Abatement Program (AQMD)</p> <p>Seek to develop proactive measures to prevent exposure to odors. Nuisance complaints, including odors, are a localized issue and can trigger adverse health impacts due to the physical sensitivity of individuals located in and around the area of incidence.</p>	2004-2006
Additional Recommended Strategies for the ATCP		
11	<p>Truck Idling</p> <p>Seek to develop requirements to reduce emissions from diesel truck idling.</p>	2005
12	<p>Train Idling (AQMD)</p> <p>Seek to develop requirements to reduce emissions from train engine idling associated with rail traffic moving cargo to and from ports and rail yards.</p>	2005
13	<p>Marine and Airport Operations (AQMD & CARB)</p> <p>Addresses yard hostlers at ports, rail yards and distribution centers. Seek to address emissions from marine and airport related operations (compliments strategy No. 3).</p>	2005-2008
14	<p>More Stringent Requirements for Rule 1402 Sources Near Existing Schools and Possibly Other Sensitive Receptors (AQMD)</p> <p>Address existing facilities located near (e.g., within 100 meters) schools and possibly other sensitive receptors (compliments strategy No. 2).</p>	2004-2005
15	<p>More Stringent Air Toxic Source-Specific Requirements for Sources Near Existing Schools and Possibly Other Sensitive Receptors (AQMD)</p> <p>Amend existing toxic source-specific rules, or for consideration during development of future new toxic rules, to evaluate more stringent requirements and distance and receptor criteria (compliments strategy Nos. 2 and 14).</p>	2005-2008

No.	Title	Date of Proposed Adoption
16*	<p>Develop and Launch Pollution Prevention Initiatives (AQMD)</p> <p>Develop a pilot pollution prevention program that could be initiated in areas of high cumulative impact.</p>	On-going
17	<p>Neighborhood Air Toxic Abatement Fund (AQMD)</p> <p>This strategy would call for the creation of a fund that can be used for local programs to reduce public exposures to air pollution and support or match funds for projects that would reduce local exposures to air pollution.</p>	2004 & On-going
18	<p>Additional Controls for Arsenic (AQMD)</p> <p>Evaluate and establish additional control requirements for sources of arsenic emissions as MATES II data indicates that arsenic is one of several compounds that contributes to the ambient risk.</p>	2005
19*	<p>Additional Control for Auto-body Shops (AQMD)</p> <p>Examine typical causes of odors, compliance status, and evaluate control options for auto-body shops due to odor complaints and the variety of TACs in auto-body coatings.</p>	2005
20	<p>Diesel Traffic Flow Control (AQMD and Local Government)</p> <p>Work with local governments and planners to minimize impacts from diesel-based traffic on schools or other sensitive receptors (companion to strategy No. 11).</p>	On-going
21	<p>Analysis and Mitigation for Sources Contributing to High Cumulative Air Pollution Impacts (Cancer and Non-Cancer) (AQMD)</p> <p>Develop mitigation measures to reduce air toxic emissions from sources contributing to the cumulative impacts, once the high cumulative impact areas and their key risk contributors are identified,</p>	2004 & On-going
22*	<p>Odor Abatement Program for Existing Facilities (Nuisance Strategy) (AQMD)</p> <p>Build on the Pilot Odor Abatement Program (strategy No. 10) by extending control strategies to existing facilities.</p>	2005 & On-going
23	<p>CARB Component (CARB & AQMD)</p> <p>Consider CARB's air toxics control program to identify sources under their jurisdiction that contribute significantly to cumulative impacts.</p>	Ongoing
24	<p>EPA Component (EPA, CARB, & AQMD)</p> <p>Develop strategies for sources under EPA jurisdiction that contribute significantly to cumulative impacts.</p>	Ongoing

No.	Title	Date of Proposed Adoption
25	Increased/Targeted Funding for Disproportionate Impacted Areas (AQMD) Prioritize funding to disproportionately impacted areas.	Ongoing

* These measures are designed to address cumulative impacts, and may not directly reduce air toxics.

V. PROJECTED AIR TOXICS LEVELS

2010 Emissions Summary

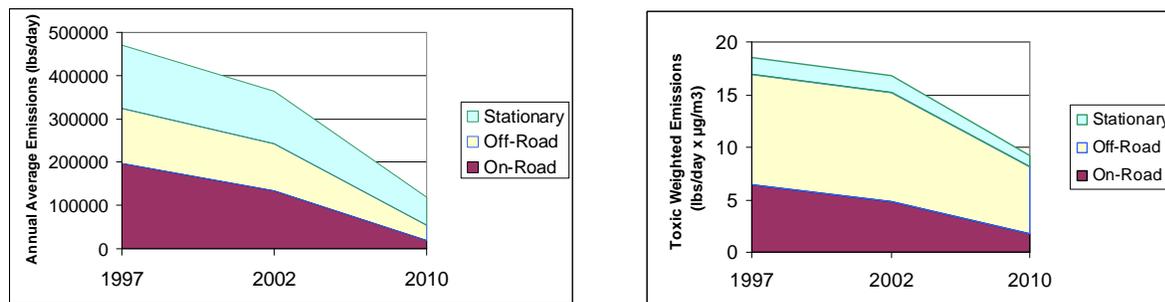
Projected toxic emission inventories for 2010 were forecast based on the 2003 AQMP methodology and assuming the full implementation of the 2003 AQMP control measures and the consideration of several recently adopted toxics rules (i.e., Rules 1122, 1421, 1425, and 1469) and the upcoming diesel compression ignition engine ATCM (implemented via Proposed Rule 1470 – Control of Emission from Diesel-fueled Internal Combustion Engines) discussed in previous sections of this report.

The projected emissions from the 1997/1998 base-year to 2010 for the 29 compounds reflect a total decrease in air toxic emissions of 75 percent. Relative to the source apportionment, the toxicity-weighted emissions reduction from 1997 to 2010 is projected to be 50 percent. The reductions shown in Figure 2 are reflected in all major source categories. Many of the stationary and mobile source rules have implementation dates in 2002 and subsequent years. Examples of these rules and projected reductions include the following:

- Rule 1421: 849 tons per year total (100% reduction by 2021 with a portion of that reduction projected to 2010);
- Rule 1425: 39.5 tons per year (85% per year reduction) in 2003;
- Rule 1469: 48 pounds hexavalent chromium per year (>90% reduction) in 2005;
- Rules 1192 and 1196: 74 tons diesel PM per year in 2001;
- Rules 1193 and 1195: 19 tons diesel PM per year in 2003; and
- Stationary Compression Ignition Engine ATCM (Proposed Rule 1470): projected 85% reduction of diesel PM.

The reductions from these rules will be realized between 2001 and 2010.

Figure 2
Projected Air Toxic Emissions and Toxicity-weighted Emission Reductions (1997-2010)

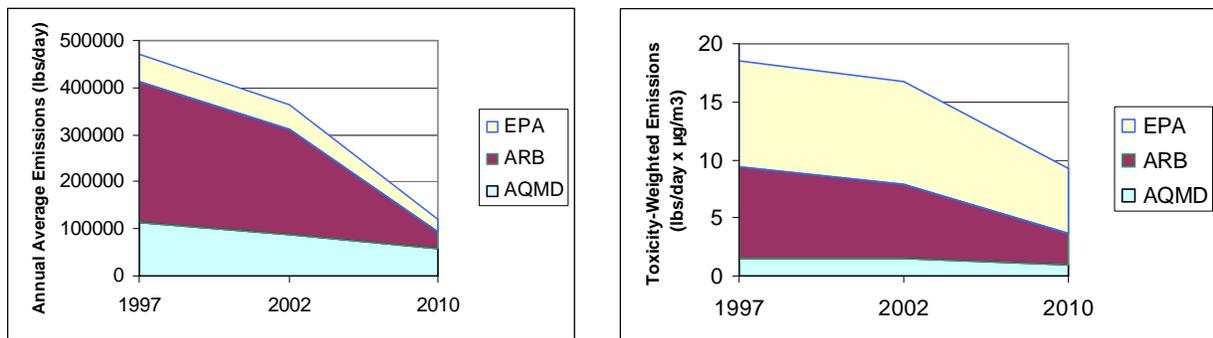


Utilizing the 2003 AQMP emissions inventory methodology, the base-year emissions (1997/1998) is approximately 29 percent higher than the March 2000 ATCP. On a toxicity-weighted basis, the 1997/1998 baseline is approximately 10 percent higher than the March 2000 ATCP. The rate of reduction from 1997/1998 to 2010 for the updated inventory is projected to be higher than that of the March 2000 ATCP. This is primarily due to a lower VOC carrying capacity for the 2003 AQMP, as well as the fact that EMFAC

2002 significantly lowers its estimates for diesel PM emissions from heavy-duty diesel trucks. For the 2010 stationary source air toxics inventory, emissions may be over-estimated because reductions pursuant to Rules 1401 and 1402, which cap risk by device and facility total, respectively, cannot be predicted.

Figure 3 provides a comparison of emissions and toxicity-weighted reductions (lbs/day x $\mu\text{g}/\text{m}^3$) for the respective AQMD, ARB, or EPA jurisdiction, or responsibility. The 2010 levels reflect remaining emissions after full implementation of the control strategies discussed in the earlier chapters (including the 2003 AQMP) where the reductions can be quantified.

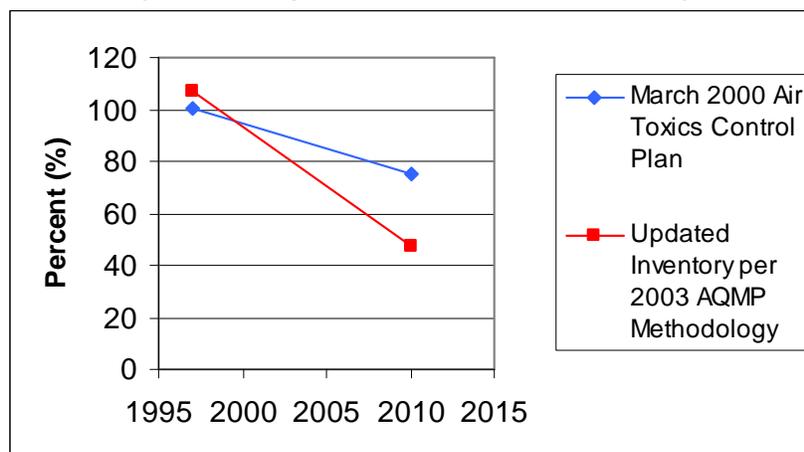
Figure 3
Projected Air Toxic Emissions and Toxicity-weighted Emission Reductions
by Agency Responsibility (1997-2010)



Comparison to the March 2000 ATCP / MATES II

Figure 4 shows a comparison of the toxic-weighted emission reductions projected from 1997/1998 to 2010 using the updated air toxics emissions inventory versus the projections made in the March 2000 ATCP.

Figure 4
Comparison of Projected Toxicity-weighted Emission Reductions
(with Full Implementation of the 2003 AQMP)



On a toxicity-weighted basis, the March 2000 ATCP projected a reduction of 26 percent, whereas the updated inventory reflects a reduction of 50 percent. Relative to total mass air toxic emissions, the projected emission reduction from 1997/1998 to 2010 are projected to be 75 percent as compared to the March 2000 ATCP of 37 percent. It should be noted that the rates of reduction to 2010 projected for the March 2000 ATCP are based on reductions of the key 11 monitored TACs from MATES II and inventoried for the ATCP. These 11 compounds provide the greatest contribution on a toxicity-weighted basis, estimated at greater than 95 percent.

VI. PERIODIC ATCP REVISIONS

Future updates to the air toxics plan will be conducted on a periodic basis, the first of which will utilize data from MATES III. Future updates will include improved inventories, methodologies, and special studies to focus on achieving greater air toxic emission reductions from stationary and mobile source categories. Development of those plans will rely on an iterative process for prioritization. The updates will also take into consideration comments received at various Town Hall meetings, task forces, and other public meetings.

The ATCP will be subject to periodic revisions, including the following four enhancements; which will strive to improve the knowledge base for toxics, which has many areas of uncertainty.

Improve Emissions Inventories, Data and Analysis Tools

This enhancement would involve the development of better data and analytical methods with which to measure, report, and evaluate cumulative air pollution impacts, and programs to address those risks. Such improvements would be made to the AQMD's inventories, as well as the data needed to conduct analyses. This would be accomplished by using special studies (e.g., MATES III), information gained through various rule development efforts and existing efforts to update and improve emissions inventories, such as linking AER program and Air Toxics Hot Spots (AB 2588) databases. Updated inventory information from the state relative to mobile sources (i.e., EMFAC 2002) will also be utilized for the first ATCP update. Such information will be continually updated. This will enable staff to focus and facilitate efforts relative to addressing cumulative impacts and implementing the control strategies in the most efficient manner possible.

Improve Modeling Tools

To assess cumulative impacts, staff would utilize improved modeling tools (e.g., 2003 AQMP modeling techniques) for evaluating air toxic impacts at the local level from all nearby sources, including mobile sources, for comparing local level exposures within the region. In this Addendum, the assessment used the improved emission inventories associated with the 2003 AQMP to examine progress since the approval of the March 2000 ATCP. Staff will update these tools on an on-going basis.

Identify and Address Non-Cancer Risks

MATES II focused on examining those TACs contributing to cancer risk throughout the Basin and did not specifically analyze non-cancer impacts associated with those chemicals. At many public outreach meetings, consistent comments were made that such studies should also address non-cancer impacts. This strategy would develop a program that not only seeks to reduce cancer risk, but also identifies ways to reduce chronic and acute non-cancer or other public health exposures. To address this issue in the short-term, staff will be examining the data collected in MATES II to estimate the non-cancer impacts throughout the Basin using the previous data. MATES III will examine non-cancer and asthma impacts (to the extent possible) and staff will seek to use this information for future updates to the ATCP.

Evaluate High Cumulative Air Pollution Impact Areas

Using the data and information resulting from the previous three enhancements, staff will refine the approach to prioritize areas of concern based on unusually high levels of cumulative health risk and to identify sources contributing significantly to that risk. This information will be used to develop specific measures to reduce public exposures to air pollution and health risks. As previously described, the approach was developed as a tool to prioritize staff resources, not as a regulatory classification. Staff will use MATES II data to examine the top 100 1 km x 1 km grid cells for mobile and stationary sources to identify sources and potential solutions. The process will then continue with the next 100 grid cells. This approach may be revised when staff gains more experience and new techniques become available. The analysis of potentially high cumulative impact areas will form the foundation to formulate control strategies.

MATES III

As directed by the Governing Board in January 2003, staff is conducting the third MATES program. As before, AQMD has been using a scientific review panel and will seek public input on the various aspects of the program, including monitoring locations and evaluation tools. The list of toxic air contaminants will be revised from MATES II to address the risks associated with additional chemicals of concern. Some TACs may be eliminated from the analysis if they were not detected in the previous study.

A key element of MATES III is the selection of micro-scale sites for localized monitoring. Staff has received numerous suggestions for such sites and will be further evaluating various locations. It is anticipated that monitoring, modeling, analysis, and reporting, will take approximately 1 ½ years. Monitoring started in February 2004.

VII. CONCLUSIONS

- Significant progress has been made in many areas towards reducing air toxic emissions and exposures. A total of 13 air toxic control strategies were adopted by AQMD and 10 statewide ATCMs, were adopted or approved with 15-day changes by CARB since the 2000 ATCP.
- Air toxic emissions have reduced approximately 22 percent or 11 percent by toxicity-weighted emissions between 1997/1998 and 2002, attributable to adopted local, state, and federal regulations.
- Mobile source emissions continue to be the predominant contributors (over 90 percent) to regional toxicity levels. To reduce regional exposures, the most significant reductions will be necessary from this source category. AQMD will continue to work with CARB and EPA in these efforts.
- Although stationary sources contribute to about 10 percent of regional air toxic emissions, unique neighborhood impacts remain significant concerns expressed by residents at numerous Town Hall and other public meetings.
- While it is difficult to characterize neighborhood exposures adequately, AQMD is committed to trying to address these concerns. Many strategies included in the Addendum, such as the Cumulative Impacts Reduction Strategies are designed to address localized, or neighborhood impacts across the entire region. Analysis of areas with higher toxic levels, pollution prevention, and grant funding for controls are efforts possible for risks difficult to quantify at the neighborhood or local level.
- For the purpose of analysis, this Addendum shows significant air toxic reduction benefits from full implementation of the 2003 AQMP (i.e., 50 percent reductions in toxicity-weighted emissions). However, it should be noted that some strategies will be controversial, and may rely on technological development, additional funding, or expanded authority. All agencies will need to work diligently and cooperatively, especially in the areas of mobile sources, to make sure that 2003 AQMP is implemented in a timely manner.
- AQMD has committed to periodically update the ATCP, which will not only update the control strategy, but also serve as milestones to improve technical tools in analyzing air toxics emissions and exposure.