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# ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

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Henry R. Darwin  
Acting Director

JAN 11 2011

Mr. Jared Blumenfeld  
Regional Administrator  
U.S. Environmental Protection Agency, Region IX  
75 Hawthorne Street, ORA-1  
San Francisco, CA 94105

RE: *Arizona State Implementation Plan Revision, Exemption of Motorcycles from Vehicle Emissions Inspections and Maintenance Program Requirements in Area A*

Dear Mr. <sup>Jared:</sup> Blumenfeld:

Consistent with the provisions of Arizona Revised Statutes (ARS) Title 49, §§ 49-104 and 49-404 (Enclosure 1) and the Code of Federal Regulations (CFR) Title 40, §§ 51.102-51.104, the Arizona Department of Environmental Quality (ADEQ) hereby adopts and submits to the U.S. Environmental Protection Agency (EPA) the December 2010, *Addendum to the Arizona State Implementation Plan Revision, Exemption of Motorcycles from Vehicle Emissions Inspections and Maintenance Program Requirements in Area A, October 2009*, as a revision to the Arizona State Implementation Plan (SIP).

In 2008 the Arizona Legislature passed House Bill 2280, which amended ARS § 49-542 to authorize the exemption of motorcycles from emissions testing requirements in Area A, the Phoenix testing area. The changes to ARS § 49-542 are self implementing and become effective if approved by EPA as a revision to the SIP on or before July 1, 2012. ADEQ submitted a SIP revision entitled *Arizona State Implementation Plan Revision, Exemption of Motorcycles from Vehicle Emissions Inspections and Maintenance Program Requirements in Area A, October 2009*, to EPA on November 6, 2009. As required under Clean Air Act Section 110(l), the SIP revision contained analyses of emissions impacts due to the exemption and a request for EPA to approve the changes to Arizona's I/M program.

During its review of the exemption request, EPA asked for additional information regarding the impact of the exemption on attainment of the PM<sub>10</sub> National Ambient Air Quality Standards (NAAQS). In addition, because of a recent change in the ozone NAAQS, EPA requested a replacement measure to offset estimated increases in emissions of volatile organic compounds (VOC), an ozone precursor, due to the exemption.

The enclosed Addendum summarizes the exemption's impact on the ozone precursor emissions, volatile organic compounds and oxides of nitrogen, and includes a substitute measure that provides VOC emission reductions equal to those achieved by the testing and repair of

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motorcycles. The Addendum also contains further analysis of PM<sub>10</sub> emission impacts expected from the change in the I/M program. Again, because of the high level of interest and support for this measure in Arizona, ADEQ continues to request expedited review and approval of this SIP revision.

Enclosure 2 contains the SIP Completeness Checklist. Enclosure 3 contains two paper copies and one electronic copy of the SIP revision for your review and action. If you have any questions, please contact Eric Massey, Director, Air Quality Division, at (602) 771-2308.

Sincerely,



Henry R. Darwin  
Acting Director

Enclosures (3)

cc: Colleen McKaughan, EPA, w/o enclosures  
Lindy Bauer, Maricopa Association of Governments, w/o enclosures  
Jo Crumbaker, Maricopa County Air Quality Department, w/o enclosures  
Don Gabrielson, Pinal County Air Quality Control District, w/o enclosures

**ENCLOSURE 1**

**Arizona Revised Statutes §§ 49-104 and 49-404**



49-104. Powers and duties of the department and director

A. The department shall:

1. Formulate policies, plans and programs to implement this title to protect the environment.
2. Stimulate and encourage all local, state, regional and federal governmental agencies and all private persons and enterprises that have similar and related objectives and purposes, cooperate with those agencies, persons and enterprises and correlate department plans, programs and operations with those of the agencies, persons and enterprises.
3. Conduct research on its own initiative or at the request of the governor, the legislature or state or local agencies pertaining to any department objectives.
4. Provide information and advice on request of any local, state or federal agencies and private persons and business enterprises on matters within the scope of the department.
5. Consult with and make recommendations to the governor and the legislature on all matters concerning department objectives.
6. Promote and coordinate the management of air resources to assure their protection, enhancement and balanced utilization consistent with the environmental policy of this state.
7. Promote and coordinate the protection and enhancement of the quality of water resources consistent with the environmental policy of this state.
8. Encourage industrial, commercial, residential and community development that maximizes environmental benefits and minimizes the effects of less desirable environmental conditions.
9. Assure the preservation and enhancement of natural beauty and man-made scenic qualities.
10. Provide for the prevention and abatement of all water and air pollution including that related to particulates, gases, dust, vapors, noise, radiation, odor, nutrients and heated liquids in accordance with article 3 of this chapter and chapters 2 and 3 of this title.
11. Promote and recommend methods for the recovery, recycling and reuse or, if recycling is not possible, the disposal of solid wastes consistent with sound health, scenic and environmental quality policies.
12. Prevent pollution through the regulation of the storage, handling and transportation of solids, liquids and gases that may cause or contribute to pollution.
13. Promote the restoration and reclamation of degraded or despoiled areas and natural resources.
14. Assist the department of health services in recruiting and training state, local and district health department personnel.
15. Participate in the state civil defense program and develop the necessary organization and facilities to meet wartime or other disasters.
16. Cooperate with the Arizona-Mexico commission in the governor's office and with researchers at universities in this state to collect data and conduct projects in the United States and Mexico on issues that are within the scope of the department's duties and that relate to quality of life, trade and economic development in this state in a manner that will help the Arizona-

Mexico commission to assess and enhance the economic competitiveness of this state and of the Arizona-Mexico region.

17. Unless specifically authorized by the legislature, ensure that state laws, rules, standards, permits, variances and orders are adopted and construed to be consistent with and no more stringent than the corresponding federal law that addresses the same subject matter. This provision shall not be construed to adversely affect standards adopted by an Indian tribe under federal law.

B. The department, through the director, shall:

1. Contract for the services of outside advisers, consultants and aides reasonably necessary or desirable to enable the department to adequately perform its duties.

2. Contract and incur obligations reasonably necessary or desirable within the general scope of department activities and operations to enable the department to adequately perform its duties.

3. Utilize any medium of communication, publication and exhibition when disseminating information, advertising and publicity in any field of its purposes, objectives or duties.

4. Adopt procedural rules that are necessary to implement the authority granted under this title, but that are not inconsistent with other provisions of this title.

5. Contract with other agencies, including laboratories, in furthering any department program.

6. Use monies, facilities or services to provide matching contributions under federal or other programs that further the objectives and programs of the department.

7. Accept gifts, grants, matching monies or direct payments from public or private agencies or private persons and enterprises for department services and publications and to conduct programs that are consistent with the general purposes and objectives of this chapter. Monies received pursuant to this paragraph shall be deposited in the department fund corresponding to the service, publication or program provided.

8. Provide for the examination of any premises if the director has reasonable cause to believe that a violation of any environmental law or rule exists or is being committed on the premises. The director shall give the owner or operator the opportunity for its representative to accompany the director on an examination of those premises. Within forty-five days after the date of the examination, the department shall provide to the owner or operator a copy of any report produced as a result of any examination of the premises.

9. Supervise sanitary engineering facilities and projects in this state, authority for which is vested in the department, and own or lease land on which sanitary engineering facilities are located, and operate the facilities, if the director determines that owning, leasing or operating is necessary for the public health, safety or welfare.

10. Adopt and enforce rules relating to approving design documents for constructing, improving and operating sanitary engineering and other facilities for disposing of solid, liquid or gaseous deleterious matter.

11. Define and prescribe reasonably necessary rules regarding the water supply, sewage disposal and garbage collection and disposal for subdivisions. The rules shall:

(a) Provide for minimum sanitary facilities to be installed in the subdivision and may require that water systems plan for future needs and be of adequate size and capacity to deliver specified minimum quantities of drinking water and to treat all sewage.

(b) Provide that the design documents showing or describing the water supply, sewage disposal and garbage collection facilities be submitted with a fee to the department for review and that no lots in any subdivision be offered for sale before compliance with the standards and rules has been demonstrated by approval of the design documents by the department.

12. Prescribe reasonably necessary measures to prevent pollution of water used in public or semipublic swimming pools and bathing places and to prevent deleterious conditions at such places. The rules shall prescribe minimum standards for the design of and for sanitary conditions at any public or semipublic swimming pool or bathing place and provide for abatement as public nuisances of premises and facilities that do not comply with the minimum standards. The rules shall be developed in cooperation with the director of the department of health services and shall be consistent with the rules adopted by the director of the department of health services pursuant to section 36-136, subsection H, paragraph 10.

13. Prescribe reasonable rules regarding sewage collection, treatment, disposal and reclamation systems to prevent the transmission of sewage borne or insect borne diseases. The rules shall:

(a) Prescribe minimum standards for the design of sewage collection systems and treatment, disposal and reclamation systems and for operating the systems.

(b) Provide for inspecting the premises, systems and installations and for abating as a public nuisance any collection system, process, treatment plant, disposal system or reclamation system that does not comply with the minimum standards.

(c) Require that design documents for all sewage collection systems, sewage collection system extensions, treatment plants, processes, devices, equipment, disposal systems, on-site wastewater treatment facilities and reclamation systems be submitted with a fee for review to the department and may require that the design documents anticipate and provide for future sewage treatment needs.

(d) Require that construction, reconstruction, installation or initiation of any sewage collection system, sewage collection system extension, treatment plant, process, device, equipment, disposal system, on-site wastewater treatment facility or reclamation system conform with applicable requirements.

14. Prescribe reasonably necessary rules regarding excreta storage, handling, treatment, transportation and disposal. The rules shall:

(a) Prescribe minimum standards for human excreta storage, handling, treatment, transportation and disposal and shall provide for inspection of premises, processes and vehicles and for abating as public nuisances any

premises, processes or vehicles that do not comply with the minimum standards.

(b) Provide that vehicles transporting human excreta from privies, septic tanks, cesspools and other treatment processes shall be licensed by the department subject to compliance with the rules.

15. Perform the responsibilities of implementing and maintaining a data automation management system to support the reporting requirements of title III of the superfund amendments and reauthorization act of 1986 (P.L. 99-499) and title 26, chapter 2, article 3.

16. Approve remediation levels pursuant to article 4 of this chapter.

C. The department may:

1. Charge fees to cover the costs of all permits and inspections it performs to ensure compliance with rules adopted under section 49-203, except that state agencies are exempt from paying the fees. Monies collected pursuant to this subsection shall be deposited, pursuant to sections 35-146 and 35-147, in the water quality fee fund established by section 49-210.

2. Contract with private consultants for the purposes of assisting the department in reviewing applications for licenses, permits or other authorizations to determine whether an applicant meets the criteria for issuance of the license, permit or other authorization. If the department contracts with a consultant under this paragraph, an applicant may request that the department expedite the application review by requesting that the department use the services of the consultant and by agreeing to pay the department the costs of the consultant's services. Notwithstanding any other law, monies paid by applicants for expedited reviews pursuant to this paragraph are appropriated to the department for use in paying consultants for services.

D. The director may:

1. If the director has reasonable cause to believe that a violation of any environmental law or rule exists or is being committed, inspect any person or property in transit through this state and any vehicle in which the person or property is being transported and detain or disinfect the person, property or vehicle as reasonably necessary to protect the environment if a violation exists.

2. Authorize in writing any qualified officer or employee in the department to perform any act that the director is authorized or required to do by law.

49-404. State implementation plan

A. The director shall maintain a state implementation plan that provides for implementation, maintenance and enforcement of national ambient air quality standards and protection of visibility as required by the clean air act.

B. The director may adopt rules that describe procedures for adoption of revisions to the state implementation plan.

C. The state implementation plan and all revisions adopted before September 30, 1992 remain in effect according to their terms, except to the extent otherwise provided by the clean air act, inconsistent with any provision of the clean air act, or revised by the administrator. No control requirement in effect, or required to be adopted by an order, settlement agreement or plan in effect, before the enactment of the clean air act in any area which is a nonattainment or maintenance area for any air pollutant may be modified after enactment in any manner unless the modification insures equivalent or greater emission reductions of the air pollutant. The director shall evaluate and adopt revisions to the plan in conformity with federal regulations and guidelines promulgated by the administrator for those purposes until the rules required by subsection B are effective.



**ENCLOSURE 2**

**State Implementation Plan Completeness Checklist**



# STATE IMPLEMENTATION PLAN COMPLETENESS CHECKLIST

## Submittal of

*Addendum to the Arizona State Implementation Plan Revision, Exemption of Motorcycles from Vehicle Emissions Inspections and Maintenance Program Requirements in Area A, October 2009*

December 2010

1. SUBMITTAL LETTER FROM GOVERNOR/DESIGNEE

See cover letter.

2. EVIDENCE OF ADOPTION

See cover letter.

3. STATE LEGAL AUTHORITY FOR ADOPTION/IMPLEMENTATION

See Enclosure 1.

4. COMPLETE COPY OF REGULATION/DOCUMENT

See Enclosure 3.

5. WRITTEN SUMMARY OF REGULATION CHANGE

See Enclosure 3.

6. REGULATION CHANGES INDICATED BY UNDERLINING AND CROSS-OUTS

See *Arizona State Implementation Plan Revision, Exemption of Motorcycles from Vehicle Emissions Inspections and Maintenance Program Requirements in Area A, October 2009*, Enclosure 3, Appendix A.

7. EVIDENCE THAT ARIZONA ADMINISTRATIVE PROCEDURE ACT REQUIREMENTS WERE MET FOR PLAN

See Enclosure 3, Appendix A.

8. EVIDENCE OF PUBLIC NOTICE AND HEARING

See Enclosure 3, Appendix A.

9. PUBLIC COMMENTS AND AGENCY RESPONSE

See Enclosure 3, Appendix A.

10. IDENTIFICATION OF POLLUTANTS REGULATED BY REGULATION/PLAN

Ozone and Carbon Monoxide.

11. IDENTIFICATION OF SOURCES/ATTAINMENT STATUS

See Enclosure 3.

12. REGULATION'S/PLAN'S EFFECT ON EMISSIONS

See Enclosure 3.

13. DEMONSTRATION THAT NAAQS, PSD INCREMENTS AND RFP ARE PROTECTED

See Enclosure 3.

14. MODELING SUPPORT

See Enclosure 3.

15. EVIDENCE THAT EMISSIONS LIMITATIONS ARE BASED ON CONTINUOUS EMISSIONS REDUCTION TECHNOLOGY

Not applicable.

16. IDENTIFICATION OF REGULATION SECTIONS CONTAINING EMISSION LIMITS, WORK PRACTICE STANDARDS, AND/OR RECORD KEEPING/REPORTING REQUIREMENTS

Not applicable.

17. COMPLIANCE/ENFORCEMENT STRATEGIES

Not applicable.

18. ECONOMIC TECHNICAL JUSTIFICATION FOR DEVIATION FROM EPA POLICIES

No known deviation from EPA policy.

**ENCLOSURE 3**

*Addendum to the  
Arizona State Implementation Plan Revision*

*Exemption of Motorcycles from Vehicle Emissions Inspections and Maintenance  
Program Requirements in Area A, October 2009*

**December 2010**





**Final**

***Addendum  
to the***

***Arizona State Implementation Plan Revision***

***Exemption of Motorcycles from Vehicle  
Emissions Inspections and Maintenance  
Program Requirements in Area A  
October 2009***

**Air Quality Division  
December 2010**

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## **APPENDICES**

- A. State Implementation Plan Revision Public Comment and Hearing Documentation
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  - A.2 Public Hearing Agenda
  - A.3 Public Hearing Sign-In Sheet
  - A.4 Public Hearing Officer Certification and Transcript
  - A.5 Responsiveness Summary

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## 1.0 INTRODUCTION

This document is an addendum to a 2009 request to the U.S. Environmental Protection Agency (EPA) to exempt Phoenix motorcycles from the Arizona vehicle emissions inspection and maintenance program. It contains information requested by EPA including a substitute measure for control of volatile organic compound (VOC) emissions and additional analysis of the exemption's impact on emissions of particulate matter of size less than or equal to 10 microns (PM<sub>10</sub>). Some material included in this addendum can also be found in the 2009 exemption request but is repeated here to provide context.

As background, vehicle emissions inspection and maintenance or I/M programs are required in certain areas that do not meet the carbon monoxide (CO) and ozone (O<sub>3</sub>) National Ambient Air Quality Standards (NAAQS) with the purpose of reducing emissions and improving air quality. These programs help identify vehicles with excess emissions, provide information to assist with diagnosing malfunctions that cause excess emissions, and require repair of vehicles to bring them into compliance with emissions standards. An enhanced I/M program is currently operated in the expanded Phoenix metropolitan area, known as Area A, located in portions of Maricopa, Pinal, and Yavapai Counties.<sup>1</sup> The I/M program requires periodic emissions inspection of motor vehicles registered or regularly operated within the area. The enhanced program is among the primary control measures used to help the Phoenix area attain and maintain the 1-hour ozone, 1997 8-hour ozone, and carbon monoxide NAAQS.<sup>2</sup>

In 2008 the Arizona Legislature passed House Bill 2280, which amended Arizona Revised Statutes (ARS) § 49-542 to authorize the exemption of motorcycles from I/M program requirements in the Phoenix testing area. The changes to ARS § 49-542 are self implementing and become effective if approved by EPA as a revision to the Arizona State Implementation Plan (SIP) on or before July 1, 2012 (as authorized by House Bill 2033 in April 2010).

The Arizona Department of Environmental Quality (ADEQ) submitted *Final Arizona State Implementation Plan Revision, Exemption of Motorcycles from Vehicle Emissions Inspections and Maintenance Program Requirements in Area A, October 2009*, to EPA on November 6, 2009. The SIP revision contained a request for EPA to approve the changes to Arizona's I/M program. Because revisions to SIP approved control measures must not interfere with the requirements of the Clean Air Act (CAA) [according to CAA Section 110(l)], the October 2009 submittal also evaluated the impact of exempting Phoenix area motorcycles on air quality and included a demonstration that the exemption will not interfere with the ability of the Phoenix area to attain or maintain the NAAQS or with any other requirement of the Clean Air Act.

During its review of the exemption request, EPA asked for additional information regarding the impact of the exemption on attainment of the ozone and PM<sub>10</sub> NAAQS.<sup>3</sup> Because of a recent

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<sup>1</sup> See Arizona Revised Statutes § 49-541(1) for a description of Area A.

<sup>2</sup> See *Final Serious Area Ozone State Implementation Plan for Maricopa County, December 2000; One-Hour Ozone Redesignation Request and Maintenance Plan for the Maricopa County Nonattainment Area, March 2004; Eight-Hour Ozone Plan for the Maricopa Nonattainment Area, June 2007; MAG Eight-Hour Ozone Redesignation Request and Maintenance Plan for the Maricopa Nonattainment Area, February 2009; Revised MAG 1999 Serious Area Carbon Monoxide Plan for the Maricopa County Nonattainment Area, March 2001; and Carbon Monoxide Redesignation Request and Maintenance Plan for the Maricopa County Nonattainment Area, May 2003.*

<sup>3</sup> PM<sub>10</sub> and Ozone are two of the common air pollutants for which EPA has established National Ambient Air Quality Standards (NAAQS) under the Clean Air Act. See <http://www.epa.gov/air/criteria.html> for a complete list of NAAQS.

change in the ozone NAAQS, EPA also requested a replacement measure to offset estimated increases in emissions of VOCs, an ozone precursor, due to the exemption.

Section 2 of this document summarizes the exemption's impact on the ozone precursor emissions, VOC and NO<sub>x</sub>, and includes a substitute measure that provides VOC emission reductions equal to those achieved by the testing and repair of motorcycles. Section 3 contains further analysis of PM<sub>10</sub> emission impacts expected from the change in the I/M program.

## 2.0 DEMONSTRATION OF NONINTERFERENCE WITH ATTAINMENT OF THE OZONE NATIONAL AMBIENT AIR QUALITY STANDARDS

The principal pollutants affected by I/M programs are carbon monoxide, hydrocarbons (HC) or volatile organic compounds (VOC), and to a lesser degree, oxides of nitrogen (NOx). Hydrocarbons and NOx are two of the principal pollutants that contribute to ground-level ozone formation. Phoenix area motorcycles are currently subject to "curb idle" test procedures and maximum allowable emissions standards for carbon monoxide and hydrocarbons.<sup>4</sup> Vehicle emissions inspection and maintenance is an "applicable requirement" for the Phoenix ozone planning area. The resulting emissions reduction benefits have helped the Phoenix area meet the 1979 1-hour ozone standard and the 1997 8-hour ozone standard. The following summarizes the Phoenix area regulatory background for ozone and discusses the basis for EPA's request for a substitute VOC control measure. For a more complete history see *Final Arizona State Implementation Plan Revision, Exemption of Motorcycles from Vehicle Emissions Inspections and Maintenance Program Requirements in Area A, October 2009*.

The Phoenix area was classified as moderate nonattainment for the 1-hour ozone standard under the 1990 Clean Air Act Amendments (later reclassified as serious). The level of both the primary standard (for protection of public health) and secondary standard (for protection of the environment) was set at 0.12 parts per million (ppm).<sup>5</sup> The area attained the standard in 1996 and following submittal of a maintenance plan was redesignated to attainment on June 14, 2005.

In 1997, EPA completed an analysis of the 1-hour ozone standard and adopted a new 8-hour standard, which better protects the public from longer periods of exposure to ozone. The level of both the primary and secondary standards was set at 0.08 ppm.<sup>6</sup> Effective June 15, 2004, EPA designated the Phoenix area including much of eastern Maricopa County and Apache Junction in Pinal County nonattainment for the 8-hour standard (69 FR 23857; April 30, 2004). An 8-hour ozone plan for the Phoenix nonattainment area was submitted to EPA on June 13, 2007. The plan demonstrated that the 1997 8-hour ozone standard would be met with measures that had been implemented before the 2008 ozone season. A review of air quality monitoring data indicates attainment of the 8-hour standard was achieved by 2005. A maintenance plan and request to redesignate the area to attainment for the 1997 standard was submitted to EPA on March 23, 2009.<sup>7</sup> These plans are pending EPA action. As required under anti-backsliding provisions for the transition to the 8-hour standard, the I/M program established for attainment of the 1-hour ozone standard remains a component of the Arizona SIP.

Under CAA Section 110(l), revisions to SIP-approved control measures must not interfere with any applicable requirement concerning attainment of the air quality standards or reasonable further progress towards attaining those standards. To ensure that the exemption of motorcycles will not interfere with continued attainment, modeling analyses in the 2009 maintenance plan and redesignation request demonstrate that the Phoenix area will maintain the 1997 8-hour ozone standards through 2025 *without* testing of Area A motorcycles.

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<sup>4</sup> See Arizona Administrative Code Title 18, Chapter 2, Article 10.

<sup>5</sup> The level of the primary and secondary standard was a one-hour average of 0.12 ppm. In the form or attainment test, three exceedances at a monitor were allowed in a three year period, the fourth exceedance constituted a violation.

<sup>6</sup> The level of the primary and secondary standards was set at 0.08 ppm averaged over 8 hours. The form or attainment test is the three-year average of the annual fourth highest 8-hour average concentration, calculated for each monitor.

<sup>7</sup> See Footnote 2.

In 2008 EPA lowered the 8-hour ozone primary standard from 0.08 ppm (the level adopted in 1997) to 0.075 ppm (73 FR 16436; March 27, 2008). The secondary standard was set at a level identical to the primary standard. Arizona submitted recommendations for areas of the State that meet (attainment) or do not meet (nonattainment) the revised standards on March 12, 2009. The only recommended nonattainment area was the greater Phoenix area including parts of Maricopa and Pinal Counties. Designation of attainment and nonattainment area boundaries is one of the first steps in the planning process for implementing new or revised NAAQS. Once boundary designations have been made, states are required to develop plans for areas that do not meet the new standards including adoption of any strategies and measures necessary to ensure attainment and maintenance of such standards. Due to EPA's reconsideration of the 2008 8-hour ozone standards, however, determination of final area boundaries for the 2008 NAAQS has been delayed.

In January 2010, based on its reconsideration, EPA proposed to set a different primary 8-hour standard than that promulgated in 2008. The proposed standard currently falls within the range of 0.060 to 0.070 ppm, a level that would, according to EPA, provide more protection for children and other "at risk" populations from exposure to elevated levels of ozone pollution (75 FR 2938; January 19, 2010). EPA also proposed to set a new cumulative, seasonal secondary standard, within the range of 7 to 15 ppm-hours, to provide increased protection against damage to vegetation and ecosystems. EPA anticipates making a final decision on the proposed changes to the level and form of the NAAQS in mid 2011.

Nonattainment area boundaries have not yet been established for either the 2008 or proposed 2010 standards. EPA has determined, however, that because several ambient monitors have recorded exceedances/violations of the 2008 ozone standards, a replacement measure is necessary to offset an expected increase in VOC emissions following implementation of the motorcycle exemptions.

Section 2.1 summarizes the expected impact on emissions of the ozone precursors, VOC and NO<sub>x</sub>, and Section 2.2 contains a substitute control measure to mitigate any increase in VOC emissions.

## **2.1 VOC and NO<sub>x</sub> Emissions**

The following summarizes analyses presented in *Final Arizona State Implementation Plan Revision, Exemption of Motorcycles from Vehicle Emissions Inspections and Maintenance Program Requirements in Area A, October 2009*, and provides additional information on VOC and NO<sub>x</sub> emissions impacts due to the exemption.

### **VOC Emissions**

According to the Maricopa County Air Quality Department's *2005 Periodic Emission Inventory for Ozone Precursors for the Maricopa County, Arizona, Nonattainment Area, September 2008*, on-road mobile sources comprise 17 percent of total VOC emissions in the Phoenix ozone planning area. Motorcycles make up approximately 3.5 percent of tested vehicles in Area A and represent 0.3 percent of annual VOC emissions totals in the planning area.<sup>8</sup>

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<sup>8</sup> Vehicle Emissions Inspection Program data for 2007/2008.

The reduction of emissions due to the repair of vehicles that exceed the prescribed emissions standards contained in AAC Title 18, Chapter 2, Article 10 is called the I/M benefit. In August 2009 the Maricopa Association of Governments completed a modeling analysis to determine the emissions reduction benefits from testing and repair of Area A motorcycles. The VOC emissions reduction benefit is shown in two different ways: comparison to Area A (see Table 1) and comparison to the larger 8-hour ozone nonattainment area (see Table 2).<sup>9</sup> The I/M benefit for subject vehicles is less than one tenth of a metric ton per day which equates to less than one tenth of one percent of both on-road emissions in Area A and total emissions in the ozone planning area.

<b>Table 1: Change in On-Road VOC Emissions Due to Motorcycle Exemption in Area A<sup>10</sup></b>	
Testing Benefit/Emissions Change	VOC
I/M Benefit (metric tons per day)	0.0560
On-Road Emissions in Area A (metric tons per day)	66.58
Relative Emissions Increase in Area A Due to Exemption (percent of on-road emissions in Area A)	0.084%

<b>Table 2: Change in Total VOC Emissions Due to Motorcycle Exemption Relative to the 8-Hour Ozone Nonattainment Area (1997 standard)</b>	
Testing Benefit/Emissions Change	VOC
I/M Benefit (metric tons per day)	0.0560
Total Emissions in the 8-Hour Ozone Nonattainment Area (metric tons per day) <sup>11</sup>	606.69
Relative Emissions Increase Due to Exemption (percent of total emissions in the 8-hour ozone nonattainment area)	0.0092%

Committed and implemented control measures limit the projected emissions growth for the Phoenix area. Emissions of volatile organic compounds from all sources are estimated to rise only slightly through 2025. In contrast, between 2005 and 2025 on-road mobile VOC emissions decline by more than one-third, due primarily to the replacement of older, high-polluting vehicles with new models that meet more stringent federal emission standards.<sup>12</sup> The VOC emission impacts from exempting motorcycles as shown in Tables 1 and 2 are based on 2010 estimates. The testing benefit is expected to decrease with time, however, as older motorcycles are replaced with newer models that meet more stringent federal emission standards for HC and NOx (see Section 3 for further discussion of the new exhaust emissions standards for highway motorcycles). Because of recorded exceedances of the 2008 ozone NAAQS, however, a substitute measure to mitigate the expected increase in VOC emissions due to the exemption of motorcycles is provided in Section 2.2.

<sup>9</sup> Please note that HC is equivalent to VOC in the MOBILE6 model runs.

<sup>10</sup> The year 2010 was selected to estimate emissions impacts in the 2009 exemption request.

<sup>11</sup> Total emissions for the eight-hour ozone nonattainment area are from the *2005 Periodic Emission Inventory for Ozone Precursors for the Maricopa County, Arizona, Nonattainment Area* (Maricopa County Air Quality Department, 2008). The eight-hour ozone nonattainment area (4,880 square miles) is slightly larger than Area A (4,520 square miles).

<sup>12</sup> See Footnote 2.

## **NOx Emissions**

According to the Maricopa County Air Quality Department's *2005 Periodic Emission Inventory for Ozone Precursors for the Maricopa County, Arizona, Nonattainment Area, September 2008*, on-road mobile sources comprise 57 percent of total NOx emissions in the Phoenix ozone planning area. Motorcycles represent 0.2 percent of annual NOx emissions totals.

Although the Area A I/M program includes NOx testing for certain automobiles, the program does not include emissions standards or testing for motorcycles. No credit was taken for NOx reductions due to testing of motorcycles in the July 13, 2007, attainment demonstration or the March 23, 2009, maintenance plan for the Phoenix 8-hour ozone nonattainment area.

As a result of committed and implemented control measures and despite projected population growth for the Phoenix area, overall emissions of NOx are estimated to trend downward through 2025. Similar to VOC emissions trends, on-road NOx emissions are expected to be reduced nearly 30 percent between 2005 and 2025, due primarily to replacement of older, high-polluting vehicles with new models that meet more stringent federal emission standards.<sup>13</sup> New federal exhaust emission standards for highway motorcycles are expected to significantly reduce emissions of NOx and HC from this source category (see Section 3).

Additionally, research has shown that engine repairs to reduce CO emissions can increase NOx emissions. It is reported that changes in HC and CO emission rates are positively related but both are inversely related to changes in NOx emissions. For example, enleaning the air-fuel ratio (i.e., a repair aimed at a CO emissions failure where the air-fuel ratio is adjusted to provide less fuel per unit of air, usually associated with carburetion) will increase NOx emissions.<sup>14</sup>

Any change in NOx emissions due to the exemption relative to overall emissions is expected to be minimal and no replacement measure is provided.

## **2.2 Substitute Measure for VOC Emissions**

Clean Air Act Section 183(e) requires EPA to control VOC emissions from certain categories of consumer and commercial products to help reduce emissions contributing to ozone pollution. On March 24, 2008, EPA issued new national emissions standards for aerosol coatings (spray paints and coatings) under Section 183(e) (73 FR 15604; March 24, 2008; Docket ID No. EPA-HQ-OAR-2006-0971). The compliance date for the new rule, set in a subsequent notice, was July 1, 2009. The rule established nationwide reactivity-based standards for aerosol coatings that better control a product's contribution to ozone formation by requiring the use of less reactive VOC ingredients. The rule is applicable to manufacturers, processors, distributors, or importers of aerosol coatings used by both the general public and industrial applications.

In the final rule EPA estimated that the "... rule will reduce nationwide emissions of VOC from the use of aerosol coatings by an estimated 17,130 tons (15,570 Mg) from the 1990 baseline. This represents a 19.4 percent reduction from the 1990 baseline of 88,300 tons (80,270 Mg) of VOC emissions from the product category." EPA further stated, "While we believe that the

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<sup>13</sup> See Footnote 2.

<sup>14</sup> See *Costs, Emissions Reductions, and Vehicle Repair: Evidence from Arizona, Resources for the Future*, Revised October 1999.

above numbers accurately assess the impacts of the final rule for SIP credit purposes, we recognize that significant reductions have already occurred as the result of the implementation of the CARB aerosol coatings regulations. Because many manufacturers sell 'CARB compliant' coatings across the country, some of these VOC emission reductions have already been achieved outside of California. We estimate that approximately 18 percent of the total products sold are not currently compliant with this rule's limits. Therefore, we estimate that this rule will result in additional VOC reductions equivalent to 3,100 tons per year (i.e., 18 percent of 17,130 tons per year). The reduction of 3,100 tons per year of VOC emissions represents new reductions. However, for ozone SIP purposes, we are providing States that do not currently have aerosol coating regulations in place full credit for the 19.4 percent reduction from the 1990 baseline. This 19.4 percent reduction is equivalent to a 0.114 pound of VOC reduction per capita."<sup>15</sup>

At the time of promulgation there were no national regulations addressing VOC emissions from aerosol coatings and California, Oregon, and Washington were the only states that regulated this product category (73 FR 15609). In addition, this measure was not used for numeric emissions reduction credit in *Eight-Hour Ozone Plan for the Maricopa Nonattainment Area, June 2007*, or *MAG Eight-Hour Ozone Redesignation Request and Maintenance Plan for the Maricopa Nonattainment Area, February 2009*.

Table 3 shows the estimated VOC emissions increase for the motorcycle exemption relative to the emissions reduction credit provided by the aerosol coatings rule. For the Phoenix ozone planning area (1997 8-hour ozone nonattainment area) the allowed credit equates to 217.85 tons [per year].

<b>Table 3: Comparison of the Aerosol Coatings Rule VOC Emissions Reductions for the Phoenix Ozone Planning Area with the Change in Emissions Due to the Motorcycle Exemption</b>		
Annual Emissions Increase Due to Exemption <sup>16</sup>	Nonattainment Area (1997 standard) Population*	Calculated Emission Reduction from Aerosol Coatings Rule <sup>17</sup> (population x 0.114 pound)
22.53 (short) tons per year	3,821,974	217.85 (short) tons per year

\* 2004 population estimate from *2005 Periodic Emission Inventory for Ozone Precursors for the Maricopa County, Arizona, Nonattainment Area* (Maricopa County Air Quality Department, 2008).

Arizona applies emissions reduction credit of 22.53 tons per year of the 217.85 tons per year reduction from the national aerosol coatings rule for the 2008 8-hour ozone NAAQS. This substitute measure provides emission reductions equivalent to that obtained from the testing of motorcycles in Area A.

<sup>15</sup> CARB is the California Air Resources Board.

<sup>16</sup> The emissions change due to the exemption was estimated to be 0.0560 metric tons per day (see Table 1) or 20.44 metric tons per year which equates to 22.53 short tons per year.

<sup>17</sup> The 2004 nonattainment area population of 3,821,974 multiplied by 0.114 pound equals 435,705.04 pounds or 217.85 short tons per year. This is equivalent to 197.6 metric tons.

### 3.0 DEMONSTRATION OF NONINTERFERENCE WITH ATTAINMENT OF THE PM<sub>10</sub> NATIONAL AMBIENT AIR QUALITY STANDARDS

Particulate matter 10 micrometers in diameter and smaller is referred to as PM<sub>10</sub>. In 1991, EPA designated portions of Maricopa County and Pinal County as a moderate PM<sub>10</sub> nonattainment area under the Clean Air Act (CAA) Amendments of 1990. The planning area was reclassified to serious effective June 10, 1996, because it did not meet a December 31, 1994, attainment deadline (61 FR 21372; May 10, 1996).

Progress toward attainment of the PM<sub>10</sub> air quality standards has been addressed through several SIP revisions. Most recently, the *Revised MAG 1999 Serious Area Particulate Plan for PM-10 for the Maricopa County Nonattainment Area, February 2000*, was submitted to EPA on February 16, 2000. The plan contained approximately seventy-seven committed control measures from the State and local agencies designed to demonstrate attainment of the PM<sub>10</sub> standard by December 31, 2006. Due to continued exceedances, however, the *MAG 2007 Five Percent Plan for PM-10 for the Maricopa County Nonattainment Area, December 2007*, was submitted on December 21, 2007.

I/M programs are not designed to reduce direct PM emissions. As noted above, the Area A I/M program, depending on vehicle type, includes emissions standards for CO, HC, and NO<sub>x</sub> but does not contain specific standards or testing for PM<sub>10</sub>. Oxides of nitrogen are a presumptive precursor for PM<sub>2.5</sub> and a secondary contributor to PM<sub>10</sub>. Although NO<sub>x</sub> testing is required for certain automobiles, motorcycles are only subject to emissions standards and testing for CO and HC. In addition, MOBILE6 does not assign any PM<sub>10</sub> emissions reduction credit for I/M programs and therefore, no modeled emissions reductions were used for credit in the Maricopa PM<sub>10</sub> planning area SIP.

Nevertheless, because motorcycle emissions contribute a portion of the area's emissions inventory and attainment of the PM<sub>10</sub> NAAQS has not yet been achieved, EPA requested additional analysis of the impacts of exempting motorcycles from the I/M program. Section 3.1 evaluates how PM<sub>10</sub> contributions from motorcycles may change as a result of the motorcycle exemption.

#### 3.1 PM<sub>10</sub> Emissions

According to EPA's final 2004 motorcycle rule, "Highway motorcycles contribute to ambient particulate matter in two ways. First, they contribute through direct emissions of particulate matter in the exhaust. Second, they contribute through the indirect formation of PM (namely ammonium nitrate and organic carbonaceous PM<sub>2.5</sub>) in the atmosphere through their NO<sub>x</sub> and organic carbon emissions, especially HC."<sup>18, 19</sup> Direct emissions include elemental carbon, organic carbon, and sulfates.

The Maricopa County Air Quality Department's *2008 PM<sub>10</sub> Periodic Emissions Inventory for the Maricopa County, Arizona, Nonattainment Area, June 2010*, estimates that on-road mobile sources comprise 42 percent of total PM<sub>10</sub> emissions in the Phoenix planning area. Motorcycles represent 0.008 percent of annual PM<sub>10</sub> emissions totals.<sup>20</sup>

<sup>18</sup> See 69 FR 2398; January 15, 2004.

<sup>19</sup> Please note that PM<sub>2.5</sub> is a subset of PM<sub>10</sub>.

<sup>20</sup> Emissions estimates include exhaust, tire wear, and brake wear emissions.

The 2008 Emissions Inventory attributes approximately 6.2 tons per year of PM<sub>10</sub> from motorcycles to the Maricopa County PM<sub>10</sub> nonattainment area.<sup>21</sup> This figure is an increase of 1.1 tons per year of PM<sub>10</sub> from the 2005 inventory published three years earlier. The increase in PM<sub>10</sub> is likely due to an increase in motorcycle ownership in the PM<sub>10</sub> nonattainment area. Even though the fleet is growing in size, however, recent growth is associated with 2006-2010 model year motorcycles, which are required to meet stricter federal emissions standards for HC and NOx. Motorcycle ownership trends also indicate that motorcycle ownership per person, also called motorcycle density, has trended downward slightly since 2005. This means that community-average exposure to motorcycle exhaust, including PM<sub>10</sub>, is decreasing slightly, since motorcycle density is decreasing.

The evaluation of expected PM<sub>10</sub> impacts below begins with a review of the new federal motorcycle emission standards and follows with an examination of: 1) motorcycle density and ownership trends within the PM<sub>10</sub> nonattainment area; 2) motorcycle fleet turnover by replacement of older vehicles with motorcycles meeting new federal emissions standards; and 3) modeled emissions changes that may be attributable to the exemption.

### **New Federal Exhaust Emissions Standards for Motorcycles**

In January 2004 EPA adopted revised exhaust emission standards for highway motorcycles of 50 cubic centimeters (cc) displacement and above (Control of Emissions From Highway Motorcycles; Final Rule: 69 FR 2398; January 15, 2004). At the same time EPA established new exhaust emission standards for motorcycles of less than 50 cubic centimeters displacement, which had not previously been regulated. See Table 4 for a comparison of old and new standards. The federal rule also includes, beginning in 2008, new permeation evaporative emission standards to reduce fuel loss through fuel tanks and fuel hoses. The revised and new regulations are applicable to motorcycle manufacturers and commercial importers of vehicles and parts.

Engine Size (cc)	New Standards			Old Standards	
	Implementation Date (New)	HC (g/km)	HC+NOx (g/km)	HC (g/km)	HC+NOx (g/km)
less than 50	2006	1.0	-	-	-
50-169	2006	1.0	-	5.0	-
170-279	2006	1.0	-	5.0	-
280 and above	2006 (Tier I)	-	1.4	5.0	-
	2010 (Tier II)	-	0.8		

Source: U.S. Environmental Protection Agency.

\*Standards are applicable for the "useful life" of the vehicle (see 69 FR 2398; January 15, 2004).

Emission reductions may be accomplished through increased use of technologies such as secondary air injection, electronic fuel injection systems, and catalytic converters. EPA estimates that the rule will reduce HC and NOx emissions by about 54,000 tons per year and prevent approximately 12 million gallons of fuel loss annually from fuel hoses and fuel tanks. EPA projects that when fully implemented, the rule will reduce exhaust and permeation emissions of HC and NOx by more than 50 percent. Although PM reductions are not quantified in the final rule, EPA affirms emissions reductions will occur and notes that "By reducing HC and NOx emissions from highway motorcycles, the standards we are finalizing will assist states as they

<sup>21</sup> See Footnote 16.

implement local controls to reduce PM<sub>2.5</sub> levels and help ensure long term maintenance with the NAAQS."

The federal standards also achieve new emission reductions for vehicles not regulated by Arizona's I/M program. Under the Area A program vehicles with an engine displacement of less than 90cc are exempt from inspection requirements. For I/M exempt vehicles with engine displacement of 50 to 89cc allowable HC emissions are reduced from 5.0 gram per kilometer (g/km) to 1.0 g/km. As noted above, the same standards were adopted in the federal rule as a new requirement for motorcycles less than 50cc.

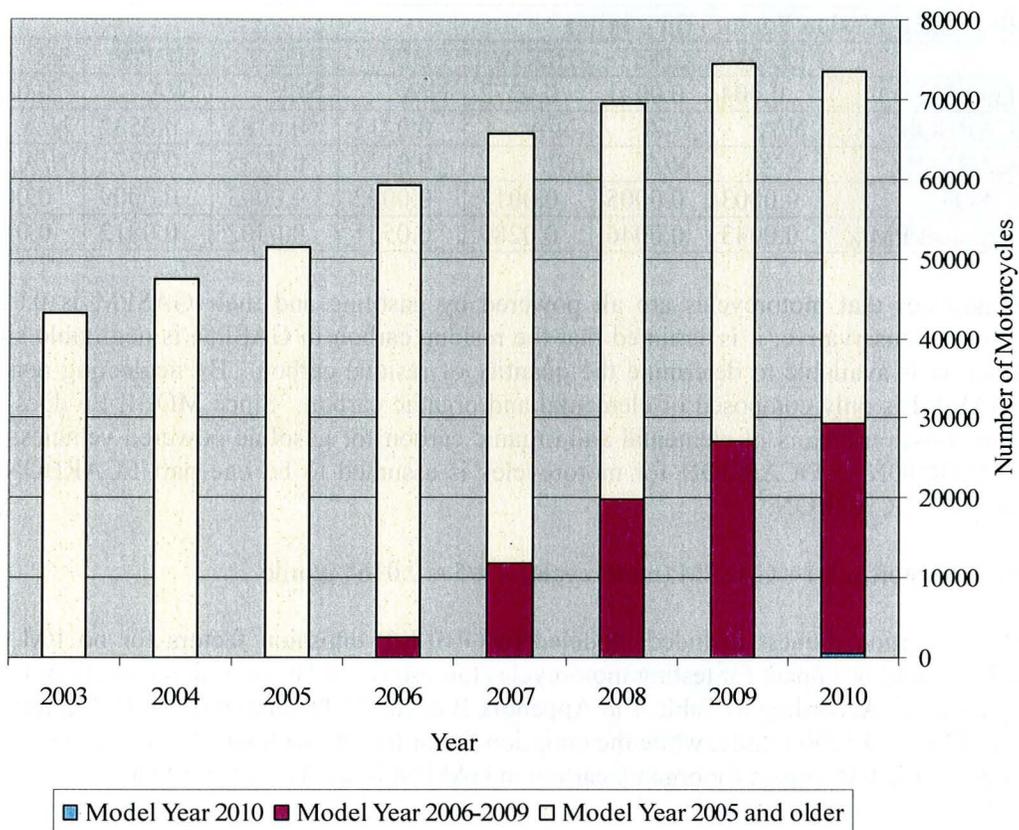
### **Motorcycle Density**

Motorcycles are widely used throughout Europe and Asia and their popularity is no less diminished in the United States. Unlike many crowded European and Asian urban areas, however, transportation in U.S. cities is largely dominated by passenger vehicles rather than motorcycles. According to the Maricopa County 2005 periodic emissions inventory, Vehicle Miles Traveled (VMT) from motorcycles was approximately 1% of VMT for Light Duty Gasoline Vehicles (LDGV). The density of motorcycles to population, however, shows a slight decrease from 2005 to 2008. In 2005 there were 9.9 motorcycles per 1000 people in the nonattainment area and by 2008 that number saw a small decrease to 9.8 motorcycles per 1000 people.

### **Motorcycle Fleet**

With EPA's new emission standards for motorcycles, 2006 and newer motorcycles are required to meet stricter emissions standards than their 2005 and older counterparts. As the motorcycle fleet changes and older motorcycles are replaced with newer units, the net expected benefit is a reduction in pollution contributions from motorcycles and a resultant improvement in air quality. Figure 1 presents motorcycle registration data for the Maricopa County PM<sub>10</sub> nonattainment area from 2003 to July 2010. Total motorcycle registrations have increased from 43,119 in 2003 to 73,427 in 2010. Although motorcycle ownership trends indicate that the nonattainment area fleet is growing in size, the growth is largely associated with 2006 and newer motorcycles, which have more stringent emissions standards than earlier models, while those of model year 2005 and older have decreased steadily since 2006. "Old standard" motorcycle ownership has dropped from a maximum of 56,680 units registered in 2006 to 44,011 units in 2010.

**Figure 1: Motorcycle Registration Data from 2003 to July 2010**



### **Modeled Estimations**

Because the I/M program does not include emissions standards for PM<sub>10</sub> and EPA's MOBILE6 emissions model does not assign PM emission reduction credit for I/M programs the exemption's impact on PM emissions cannot be directly assessed. The following analysis, however, is intended to provide an estimation of the change in the PM<sub>10</sub> emission rate that may be associated with the change in gaseous HC emissions following implementation of the motorcycle exemption.

The change in the rate of PM<sub>10</sub> production, in grams (g) of PM<sub>10</sub> per mile, was projected for the PM<sub>10</sub> nonattainment area using MOBILE6. The base case included motorcycles in the I/M testing program and the projected case excluded motorcycles from I/M. MOBILE6 is capable of quantifying the speciation of particulate emissions. Total particulate exhaust includes elemental carbon (ECARBON), organic carbon (OCARBON), sulfate (SO<sub>4</sub>) and lead.<sup>22</sup> For diesel vehicles, MOBILE6 breaks down PM emissions to elemental carbon, organic carbon, sulfate and lead, however, for gasoline vehicles, PM emissions are broken down to GASPM, sulfate and lead. GASPM includes elemental carbon, organic carbon and residue carbon.

<sup>22</sup> MOBILE6 provides estimates of direct PM emissions. There are no reliable models for estimating secondary organic particulates.

Scenario 2010 summer without I/M was modeled using MOBILE6. Table 5 shows the PM<sub>10</sub> emission factors.<sup>23</sup>

	LDGV	LDGT	HDGV	LDDV	LDDT	HDDV	MC
GASPM	0.004	0.0041	0.0272	N/A	N/A	N/A	0.0205
ECARBON	N/A	N/A	N/A	0.0413	0.0163	0.0532	N/A
OCARBON	N/A	N/A	N/A	0.0116	0.0235	0.0271	N/A
SO4	0.0003	0.0005	0.0017	0.0002	0.0003	0.0009	0.0001
Total Exhaust PM <sub>10</sub>	0.0043	0.0046	0.0289	0.0531	0.0402	0.0812	0.0206

Table 5 indicates that motorcycles are all powered by gasoline and their GASPM is 0.0205 g/mile. To be conservative, it is assumed that the residue carbon in GASPM is negligible since no information is available to determine the quantity of residue carbon. By neglecting residue carbon, GASPM is only composed of elemental and organic carbon. Since MOBILE6 does not specify the emission factors of elemental and organic carbon for gasoline powered vehicles, the ratio of ECARBON to OCARBON for motorcycles is assumed to be one part ECARBON to every four parts OCARBON.<sup>24</sup>

$$\text{OCARBON (motorcycle)} = \text{GASPM (motorcycle)} \times 4/5 = 0.0164 \text{ g/mile}$$

The 2009 exemption request included modeled (MOBILE6) emission factors for no I/M and calculated a benefit or impact for testing motorcycles (an estimated HC emission reduction due to the I/M program). According to Table 4 in Appendix B of the 2009 submittal, the I/M impact on emissions of HC is 0.1250 g/mile, while the emission factor for HC without I/M is 3.16 g/mile. It is assumed that the I/M impact for organic carbon in GASPM is similar to that of HC.

$$\text{MCincrease (OCARBON)} = 0.0164 \times 0.1250 / 3.16 = 0.0006487 \text{ g/mile}$$

By exempting motorcycles, the emission factor of OCARBON may change by 0.0006487 g/mile.

The maximum estimated mass emission increases for PM<sub>10</sub> by the motorcycle I/M exemption are shown as follows,

$$\begin{aligned} \text{EIMC} &= \text{MCincrease (OCARBON)} \times \text{VDMC} \times \text{VMTtotal} \\ &= 0.0006487 \text{ g/mile} \times 0.0046 \times 97,488,505 \text{ miles/day} \\ &= 282.72 \text{ g/day} = 0.00028272 \text{ metric tons/day} \end{aligned}$$

Where,

EIMC = the mass emission increases by the exemption of motorcycles from the I/M program in Area A,

VDMC = vehicle miles traveled (VMT) distribution for motorcycles (0.0046), and

VMTtotal = daily total VMT in Area A (97,488,505 miles/day).

The total on-road portion of PM<sub>10</sub> emissions is 78.22 metric tons/day in area A and total PM<sub>10</sub> emissions are 235.02 metric tons/day in the 8-hour ozone nonattainment area for 2010.<sup>25</sup> Thus, the relative increase in on-road PM<sub>10</sub> emissions due to the exemption of motorcycles is  $3.61 \times 10^{-4}$

<sup>23</sup> The organic PM emission factors are proportionally based on the gaseous HC emissions component.

<sup>24</sup> Source: SPECIATE Data Browser, <http://cfpub.epa.gov/si/speciate/index.cfm>, October 14, 2010.

<sup>25</sup> Emissions values were provided by Ieesuck Jung, Maricopa Association of Governments.

percent (0.000361 %) in Area A, and the relative increase in total PM<sub>10</sub> emissions in the nonattainment area is  $1.20 \times 10^{-5}$  percent (0.000012 %).

### **Summary of PM<sub>10</sub> Impacts**

With recent federal exhaust emission standards for motorcycles, motorcycle ownership trends, and mobile source modeling the following conclusions are established:

- The fleet is getting newer as old model year motorcycles are replaced by newer models meeting more stringent federal emission standards,
- The new federal emissions standards will reduce allowable HC and NO<sub>x</sub> emissions and consequently PM emissions,
- The modeled change in the particulate matter emissions rate without I/M is estimated at 0.0006487 g/mile or a 0.000012 percent change in the planning area. The estimated emissions change is minimal and can be considered "noise" in the model.

Given the results of the analysis no ambient impacts are expected.

#### 4.0 CONCLUSION

Emissions analyses contained in this addendum show a minimal effect on PM<sub>10</sub> emissions due to the exemption of motorcycles from I/M program requirements in Area A and any change represents a small fraction of the overall emissions inventories in the planning area. Additionally, new federal motorcycle standards provide emissions reductions not achieved by the Area A I/M program. This document also includes a replacement measure to offset estimated increases in VOC emissions, an ozone precursor, that may occur following exemption. The information provided here and in *Final Arizona State Implementation Plan Revision, Exemption of Motorcycles from Vehicle Emissions Inspections and Maintenance Program Requirements in Area A, October 2009*, demonstrate that the requested changes to the I/M program will not interfere with the areas' abilities to attain and maintain the ozone or PM<sub>10</sub> NAAQS.

With this submittal, ADEQ requests that the changes to Arizona's vehicle emissions inspections and maintenance program to exempt motorcycles from the Phoenix testing area be approved as a component of Arizona's SIP.

## **Appendix A**

### **State Implementation Plan Revision Public Comment and Hearing Documentation**



**Appendix A.1**

**Notice of Public Hearing**



ADEQ  
AIR QUALITY DIVISION

10 NOV 18 AM 10:11

# THE ARIZONA REPUBLIC

STATE OF ARIZONA }  
COUNTY OF MARICOPA } SS.

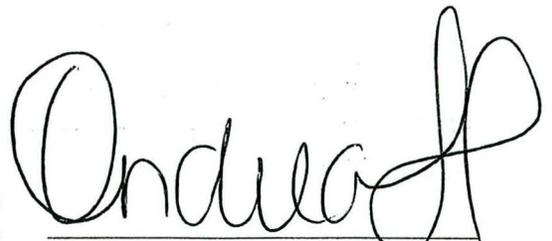
Mark Gilmore, being first duly sworn, upon oath deposes and says: That he is a legal advertising representative of the Arizona Business Gazette, a newspaper of general circulation in the county of Maricopa, State of Arizona, published at Phoenix, Arizona, by Phoenix Newspapers Inc., which also publishes The Arizona Republic, and that the copy hereto attached is a true copy of the advertisement published in the said paper on the dates as indicated.

**The Arizona Republic**

November 15, 16, 2010

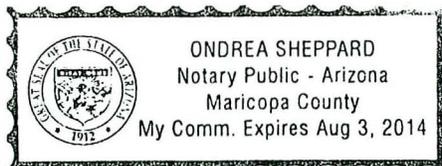


Sworn to before me this  
16<sup>TH</sup> day of  
November A.D. 2010



Notary Public

**PUBLIC NOTICE**  
ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY (ADEQ) PUBLIC HEARING ON AN ADDENDUM TO THE ARIZONA STATE IMPLEMENTATION PLAN (SIP) REVISION TO EXEMPT MOTORCYCLES FROM THE ARIZONA VEHICLE EMISSIONS INSPECTION PROGRAM  
ADEQ will hold a public hearing to receive comments on proposed changes to Arizona's vehicle emissions inspection and maintenance (I/M) program. In 2008, the Arizona Legislature passed House Bill 2280, which exempts motorcycles in the Phoenix testing area upon approval by the U.S. Environmental Protection Agency (EPA). ADEQ is proposing to submit an addendum to a 2009 request to EPA to approve the change to the I/M program.  
A public hearing on the proposed SIP revision will be held on Wednesday, December 15, 2010, at 4:30 p.m., ADEQ Conference Room 145, 1110 West Washington Street, Phoenix, Arizona. All interested parties will be given an opportunity at the hearing to submit relevant comments, data, and views orally and in writing. The public comment period for this SIP revision will end at the conclusion of the public hearing or 6:00 p.m. on December 15, 2010, whichever is later.  
All written comments should be addressed, faxed, or e-mailed to:  
Bruce Friedl  
Air Quality Planning Section  
Arizona Department of Environmental Quality  
1110 W. Washington St.  
Phoenix, AZ 85007  
PHONE: (602) 771-2259  
FAX: (602) 771-2366  
E-Mail: friedl.bruce@azdeq.gov  
A copy of the proposal will be available for review beginning November 15, 2010, on the ADEQ Web site Events and Notices Calendar at the following Web address:  
<http://www.azdeq.gov/cgi-bin/vertical.pl> or at the following location:  
ADEQ Records Center  
1110 W. Washington St.  
Phoenix, Arizona 85007  
PHONE: (602) 771-4380  
E-Mail: recordscenter@azdeq.gov  
Pub: October 15, 16, 2010





## **Appendix A.2**

### **Public Hearing Agenda**





# Public Hearing Agenda

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## AIR QUALITY DIVISION

### **PUBLIC HEARING ON A PROPOSED ADDENDUM TO THE ARIZONA STATE IMPLEMENTATION PLAN (SIP) REVISION TO EXEMPT PHOENIX MOTORCYCLES FROM ARIZONA'S VEHICLE EMISSIONS INSPECTION PROGRAM**

**PLEASE NOTE THE MEETING LOCATION AND TIME:**

**Arizona Department of Environmental Quality  
Conference Room 145  
1110 West Washington Street, Phoenix, Arizona  
Wednesday, December 15, 2010, 4:30 p.m.**

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**Pursuant to 40 CFR § 51.102 notice is hereby given that the above referenced meeting is open to the public.**

1. Welcome and Introductions
2. Purposes of the Oral Proceeding
3. Procedure for Making Public Comment
4. Brief Overview of the proposed SIP revision
5. Question and Answer Period
6. Oral Comment Period
7. Adjournment of Oral Proceeding

Copies of the proposal are available for review at the Arizona Department of Environmental Quality (ADEQ) Records Center, 1110 W. Washington St., Phoenix, Arizona and ADEQ's website at <http://www.azdeq.gov/cgi-bin/vertical.pl>. For additional information regarding the hearing please call Bruce Friedl, ADEQ Air Quality Division, at (602) 771-2259 or 1-800-234-5677, Ext. 771-2259.

Persons with a disability may request a reasonable accommodation, such as a sign language interpreter, by contacting Dan Flukas at (602) 771-4795 or 1-800-234-5677, Ext. 771-4795. Requests should be made as early as possible to allow sufficient time to make the arrangements for the accommodation. This document is available in alternative formats by contacting ADEQ TDD phone number at (602) 771-4829.



**Appendix A.3**

**Public Hearing Sign In Sheet**





# Air Quality Division Sign-In Sheet

## Please Sign In

SUBJECT Area A Motorcycle exemption Public Hearing DATE 12-15-2010

	<u>NAME</u>	<u>ORGANIZATION</u>	<u>PHONE</u>	<u>FAX</u>	<u>E-MAIL</u>
1.	<u>SKg/dot</u>	<u>DCMC</u>	<u>623-224-1885</u>	<u>-</u>	<u>-</u>
2.	<u>CAROLE O'REILLY</u>	<u>ABATE</u>	<u>480-538-0202</u>		
3.	<u>BILLY LARSON</u>	<u>MMA/ABATE</u>	<u>623-308-0556</u>		<u>larson_billy@hotmail.ca</u>
4.	<u>ED MANN "POPS"</u>	<u>NFF</u>	<u>520-582-6010</u>		<u>POPS-NFF@cox.net</u>
5.	<u>DENNIS KOLB</u>	<u>ADAL</u>	<u>937-313-4161</u>		<u>DDKOLB@COX.NET</u>
6.	<u>MICHAEL DEON</u>	<u>MMA</u>	<u>602-312-4554</u>		<u>MDEGN40669@AOL.COM</u>
7.	<u>Eric Massey</u>	<u>ADEQ</u>	<u>602 771 2308</u>		<u>ecm@azdeq.gov</u>
8.	<u>Corby Martinkoni</u>	<u>ADBEQ</u>	<u>602 771 2370</u>		<u>lam@azdeq.gov</u>

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**Appendix A.4**

**Public Hearing Officer Certification and Transcript**





Air Quality Division

Public Hearing Presiding Officer Certification

I, John Englander, the designated Presiding Officer, do hereby certify that the public hearing held by the Arizona Department of Environmental Quality on the November 2010, Proposed Addendum to the Arizona State Implementation Plan Revision, Exemption of Motorcycles from Vehicle Emissions Inspections and Maintenance Program Requirements in Area A, October 2009, was conducted on December 15, 2010, at the Arizona Department of Environmental Quality, Conference Room 145, 1110 West Washington Street, Phoenix, Arizona, in accordance with public notice requirements by publication in The Arizona Republic and other locations beginning November 15, 2010. Furthermore, I do hereby certify that the public hearing was recorded from the opening of the public record through concluding remarks and adjournment, and the transcript provided contains a full, true, and correct record of the above-referenced public hearing.

Dated this 16 day of December, 2010.

[Handwritten signature of John Englander]
John Englander

State of Arizona )
) ss.
County of Maricopa )

Subscribed and sworn to before me on this 16 day of December, 2010.



[Handwritten signature of Laura McFarland]
Notary Public

My commission expires: 4/2/2012



1 ARIZONA AIR QUALITY STATE IMPLEMENTATION PLAN REVISION TO EXEMPT  
2 PHOENIX MOTORCYCLES FROM THE ARIZONA VEHICLE EMISSIONS INSPECTION  
3 PROGRAM

4  
5 Oral Proceeding Transcript

6  
7 December 15, 2010  
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10 John Englander:

11 Good afternoon and thank you for coming. I now open this hearing on a proposed state  
12 implementation plan, SIP, revision to exempt Phoenix motorcycles from Arizona's vehicle emissions  
13 inspection and maintenance program.  
14

15 It is now Wednesday, December 15, 2010, and the time is 4:36 p.m. The location is the Arizona  
16 Department of Environmental Quality, Conference Room 145, 1110 West Washington Street,  
17 Phoenix, Arizona. My name is John Englander and I have been appointed by the Director of ADEQ  
18 to preside at this hearing.  
19

20 The purposes of this proceeding are to provide the public an opportunity to:

- 21 (1) hear about the substance of the proposed SIP revision,  
22 (2) ask questions regarding the proposal, and  
23 (3) present oral argument, data, and views regarding the proposal in the form of comments on the  
24 record.  
25

26 Representing the Department are Eric Massey, Director of the Air Quality Division, Leonard  
27 Montenegro, Evaluation Unit Supervisor, John Walls,  
28

29 Bruce Friedl:

30 He's not here today.  
31

32 John Englander:

33 He's not here? Alright, sorry. Deborrah Martinkovic and Bruce Friedl of the Planning Section.  
34

35 Public notice was published in *The Arizona Republic* on November 15 and 16, 2010, and on ADEQ's  
36 website. Copies of the November 2010 proposal titled, *Addendum to the Arizona State  
37 Implementation Plan Revision, Exemption of Motorcycles from Vehicle Emissions Inspections and  
38 Maintenance Program Requirements in Area A, October 2009*, were made available at the ADEQ  
39 Phoenix office and on ADEQ's website on November 15, 2010.  
40

41 The procedure for making a public comment on the record is straightforward. If you wish to  
42 comment, you need to fill out a speaker slip, which is available at the sign-in table, and give it to me.

43 Using speaker slips allows everyone the opportunity to be heard and allows us to match the name on  
44 the official record with the comment. You may also submit written comments to me today. Please  
45 note the comment period for the proposal ends at the conclusion of this hearing or 6 p.m. today,

1 December 15, 2010, whichever is later. All written comments must be postmarked if sent via U.S.  
2 mail or received, if sent via e-mail, at ADEQ by December 15, 2010. Written comments can be  
3 mailed to Bruce Friedl, Air Quality Planning Section, Arizona Department of Environmental Quality,  
4 1110 W. Washington Street, Phoenix, Arizona 85007 or [friedl.bruce@azdeq.gov](mailto:friedl.bruce@azdeq.gov). Comments may  
5 also be faxed to (602) 771-2366.  
6

7 Comments made during the formal comment period are required by law to be considered by the  
8 Department when preparing the final state implementation plan. This is done through the  
9 preparation of a responsiveness summary in which the Department responds in writing to written and  
10 oral comments made during the formal comment period.  
11

12 The agenda for this hearing is simple. First, I will present a brief overview of the proposed revision  
13 to the state implementation plan.  
14

15 Second, I will conduct a question and answer period. The purpose of the question and answer period  
16 is to provide information that may help you in making comments on the proposed revision.  
17

18 Thirdly, I will conduct the oral comment period. At that time, I will begin to call speakers in the  
19 order that I have received speaker slips.  
20

21 Please be aware that any comments you make at today's hearing that you want the Department to  
22 formally consider must be given either in writing or on the record during the oral comment period of  
23 this proceeding. At this time, I will give a brief overview of the proposal.  
24

25 Vehicle emissions inspection and maintenance programs, or I/M programs, are required in certain  
26 areas that do not meet the carbon monoxide and ozone air quality standards with the purpose of  
27 reducing emissions and improving air quality. These programs help identify vehicles with excess  
28 emissions, provide information to assist with diagnosing malfunctions that cause excess emissions,  
29 and require repair of vehicles to bring them into compliance with emissions standards. The Phoenix  
30 I/M program is included as a control measure in the Arizona SIP and is among the primary control  
31 measures used to help the Phoenix area meet and maintain the ozone and carbon monoxide air  
32 quality standards.  
33

34 In 2008 the Arizona Legislature passed House Bill 2280, which amended Arizona Revised Statutes,  
35 or ARS, § 49-542 to authorize the exemption of motorcycles from emissions testing requirements in  
36 Area A, the Phoenix testing area. The changes to ARS § 49-542 will become effective only upon  
37 approval by the U.S. Environmental Protection Agency, EPA, as a revision to the SIP.  
38

39 ADEQ submitted a SIP revision entitled *Final Arizona State Implementation Plan Revision,*  
40 *Exemption of Motorcycles from Vehicle Emissions Inspections and Maintenance Program*  
41 *Requirements in Area A, October 2009,* to EPA on November 6, 2009. The SIP revision contained a  
42 request for EPA to approve the changes to Arizona's I/M program. Because revisions to SIP  
43 approved control measures must not interfere with the requirements of the Clean Air Act, according  
44 to CAA Section 110(i),  
45

1 Bruce Friedl:

2 (I).

3  
4 John Englander:

5 (I), sorry, the October 2009 submittal also evaluated the impact of exempting Phoenix area  
6 motorcycles on air quality and included a demonstration that the exemption will not interfere with  
7 the ability of the Phoenix area to attain or maintain the National Ambient Air Quality Standards,  
8 NAAQS, or with any other requirement of the Clean Air Act.

9  
10 Inspection and maintenance programs are not designed to reduce direct particulate matter emissions.  
11 Nevertheless, motorcycle emissions do contribute a portion of the area's emissions inventory.  
12 During its review of the exemption request, EPA asked for additional information regarding the  
13 impact of the exemption on attainment of the PM<sub>10</sub> NAAQS. In addition, because of a recent  
14 change in the ozone NAAQS, EPA requested a replacement measure to offset estimated increases in  
15 emissions of volatile organic compounds, VOCs, an ozone precursor, due to the exemption.

16  
17 The proposed Addendum summarizes the exemption's impact on the ozone precursor emissions,  
18 VOC and oxides of nitrogen, and includes a substitute measure that provides VOC emission  
19 reductions equal to those achieved by the testing and repair of motorcycles. The Addendum also  
20 contains further analysis of PM<sub>10</sub> emission impacts expected from the change in the I/M program.

21  
22 Analysis of PM<sub>10</sub> emissions impacts and the VOC replacement measure are more fully described in  
23 the proposed Addendum.

24  
25 This concludes the explanation portion of this proceeding on the proposed revision to the state  
26 implementation plan. Are there any questions before we move to the oral comment period? Alright,  
27 hearing none, this concludes the question and answer period of this proceeding on the proposed state  
28 implementation plan revision.

29  
30 I now open this proceeding for oral comments.

31  
32 Um, I have one comment card at this time. So, Sky Pilot?

33  
34 Sky Pilot:

35 Sky Pilot.

36  
37 John Englander:

38 Sky Pilot, alright. Um, you can go ahead and make your comment.

39  
40 Sky Pilot:

41 Okay. I just, on the behalf of the Arizona Confederation of Motorcycle Clubs and other  
42 motorcyclists, we thank you, members of the ADEQ, for all you put into it. It was an enormous  
43 amount of work that you've done and I just want to praise and thank you for, including doing this  
44 contingency thing that you had to come up with. We really appreciate the hard work and efforts.

45

1 John Englander:  
2 Alright, thank you for your comment. Are there any other comments before we go ahead and move  
3 on? Alright, this concludes the oral comment period of this proceeding.  
4  
5 If you have not already submitted written comments, you may submit them to me at this time.  
6 Again, the comment period for this proposed revision to the state implementation plan ends today,  
7 December 15, 2010.  
8  
9 Thank you for attending. The time is now 4:46 and I will close this oral proceeding.

## **Appendix A.5**

### **Responsiveness Summary**



## **RESPONSIVENESS SUMMARY**

**to**

### **Testimony Taken at Oral Proceeding and Written Comments Received on *Addendum to the Arizona State Implementation Plan Revision, Exemption of Motorcycles from Vehicle Emissions Inspections and Maintenance Program Requirements in Area A***

The oral proceeding on the November 2010 proposal *Addendum to the Arizona State Implementation Plan Revision, Exemption of Motorcycles from Vehicle Emissions Inspections and Maintenance Program Requirements in Area A, October 2009*, was held on Wednesday, December 15, 2010, at 4:36 p.m., at the Arizona Department of Environmental Quality (ADEQ), Conference Room 145, 1110 West Washington Street, Phoenix, Arizona. The public comment period began on November 15, 2010, and closed on Wednesday, December 15, 2010, at 6:00 p.m. ADEQ received one verbal and one written comment in support of exempting motorcycles from emissions testing in Area A. ADEQ appreciates the positive comments regarding the exemption of motorcycles from emissions testing.

No changes were made in response to public comments received, however, during its final review of the proposed State Implementation Plan revision, ADEQ made minor corrections for clarity, grammar and formatting.

