

(This ADEQ document matches the official rulemaking published at 4 A.A.R. 3796)

**NOTICE OF FINAL RULEMAKING**

**TITLE 18. ENVIRONMENTAL QUALITY**

**CHAPTER 2. DEPARTMENT OF ENVIRONMENTAL QUALITY -**

**AIR POLLUTION CONTROL**

**PREAMBLE**

1. **Sections Affected:** **Rulemaking Action:**

R18-2-1003.	Amend
R18-2-1006.	Amend
R18-2-1010.	Amend
R18-2-1019.	Amend
  
2. **The specific authority for the rulemaking, including both the authorizing statute (general) and the statutes the rule are implementing (specific):**

Authorizing statutes: A.R.S. §§ 49-104, 49-425  
Implementing statutes: A.R.S. §§ 49-404, 49-447, 49-541, 49-542, and 49-546.
  
3. **The effective date of the rules:**

(Date filed with the Secretary of State)
  
4. **A list of all previous notices appearing in the Register addressing the final rule:**

**Notice of Rulemaking Docket Opening:**  
3 A.A.R. 3367, November 28, 1997

**Notice of Rulemaking Docket Opening:**  
4 A.A.R. 1234, May 29, 1998

**Notice of Proposed Rulemaking:**  
4 A.A.R. 1213, May 29, 1998
  
5. **The name and address of agency personnel with whom persons may communicate regarding the rule:**

Name: Leonard Ishihara, Vehicle Emission Section  
Address: ADEQ-VEI, 600 N. 40th St., Phoenix, AZ 85008  
Telephone: (602) 207-7015  
Fax: (602) 207-7020  
Name: Mark Lewandowski, Rule Development Section

Address: ADEQ, 3033 N. Central, Phoenix, AZ 85012-2809

Telephone: (602) 207-2230

Fax: (602) 207-2251

**6. An explanation of the rule, including the agency's reasons for initiating the rule:**

**Summary.** With this rule, ADEQ is changing the tailpipe emissions test it uses to test smoke emissions from diesel vehicles in the Phoenix area that are greater than 8500 pounds gross vehicle weight rating (GVWR). Apart from other advantages, the new test will detect more malfunctioning engines and reduce smoke (particulate) emissions from the Phoenix diesel fleet. The change is required by a statute enacted in 1996.

**Purpose.** The main purpose of the rule is to reduce particulate emissions from on-road diesel vehicles registered in the Phoenix area. The Phoenix nonattainment area was downgraded to serious for PM10 by the United States Environmental Protection Agency (EPA) on May 10, 1996 (61 FR 21372). PM10 are particles with an aerodynamic diameter less than or equal to 10 micrometers. As part of a multifaceted effort to reduce particulate emissions, a law was passed in special session in July 1996 requiring that in area A, diesels rated at more than 8500 pounds and registering more than 33 months after initial registration must pass "a test that conforms with the society for automotive engineers standard J1667," hereafter SAE J1667 or J1667. (Laws 1996, 7th S.S., Ch.6, § 32) Urban particulate matter monitoring data has shown that on-road diesel engines are a significant source of PM10 in the Phoenix nonattainment area. The National Ambient Air Quality Standards (NAAQS) for PM10 are set not only for human health purposes, but to enhance visibility, and to protect vegetation and materials.

Diesel particulate emissions vary by vehicle but most of the particulates in diesel exhaust are elemental carbon or soot. Hazardous air pollutants, such as polycyclic aromatic hydrocarbons (PAH), are also present in particulates. Diesel NOx emissions are significant, but are not controlled directly by diesel smoke controls.

In 1997, EPA promulgated a new NAAQS for particulates known as PM2.5, to be phased in over several years. PM2.5 are particles with an aerodynamic diameter less than or equal to 2.5 micrometers. The new J1667 test should work equally well or better as a control measure to meet the new standard. According to the 1994 Regional PM10 Emission Inventory for the Maricopa County Nonattainment Area, on-road diesel emissions contributed proportionately more PM 2.5 than PM10 pollution.

**SAE J1667.** There is no requirement in the Clean Air Act (CAA) that states implement an in-use, diesel smoke testing program. However, a number of states that exceed the federal ambient particulate and/or NO<sub>x</sub> standards have opted to adopt some form of in-use diesel testing. Diesel vehicles have been tested in the Phoenix and Tucson areas since at least 1986. EPA has not provided detailed guidance on in-use diesel testing as it has for basic and enhanced emission testing for gasoline vehicles. However, the Society of Automotive Engineers (SAE) and California Air Resources Board (CARB), with the close involvement of the trucking industry, worked together to develop a safer, more cost-effective and consistent smoke test known as SAE J1667, issued in 1996. In April 1997, EPA issued a memo recommending that states use J1667.

SAE J1667 is a procedure for obtaining vehicle exhaust smoke measurements using the snap-acceleration test procedure. The snap-acceleration test begins with the vehicle and test equipment properly preconditioned and the vehicle in neutral. The throttle is moved to the fully open position as quickly as possible, and held fully open until maximum governed speed is reached, plus an additional 1 to 4 seconds. The throttle is then released and the engine is allowed to return to low idle speed. The engine is allowed to remain at idle for from 5 to 45 seconds. This cycle is executed three times and "corrected maximum half second average smoke values" are obtained, one for each cycle. The average of these three becomes the final test result.

J1667 is a stationary vehicle test that can be conducted anywhere, including along the roadside. It is intended for heavy-duty trucks and buses and is designed to be used in conjunction with smoke meters using the light extinction principle of smoke measurement. The test is intended to provide an indication of the state of maintenance and/or tampering of the engine and fuel system relative to the parameters which affect exhaust smoke. The procedure does not replicate the federal engine certification smoke cycle and is intended to identify gross emitters. Regulatory agencies must provide their own pass/fail criteria since SAE bylaws prohibit them. With this rule, ADEQ intends to incorporate J1667 into the existing centralized and fleet testing network. Effective August 21, 1998, ADEQ has statutory authority to implement a "pilot roadside testing program" that uses J1667 after consultation with the directors of the departments of transportation and public safety. ADEQ is considering a rule to implement this pilot program.

**Pass/Fail Criteria.** EPA has had national smoke (opacity) standards for new, on-road heavy-duty diesels since at least the 1984 model year. (See 40 CFR 86, Subparts A and I) However, there are no pass/fail criteria included in J1667 for in-use testing. Rather than develop Arizona-specific standards, ADEQ, for purposes of efficiency and consistency, waited

for California to finish developing them for their program. This rule implements the same 2-tier pass/fail opacity standards for in-use heavy-duty diesels recently adopted in California and used on a voluntary basis in several other states: 40% for 1991 and newer vehicles, and 55% for pre-1991 vehicles. A number of other states are currently gathering test data on these standards using the J1667 procedure. Data from California indicates that vehicles which fail these standards can be repaired to pass and that for at least 1985 and newer vehicles, the results would correlate to the federal test procedure for certifying engine emissions (See 40 CFR 86.884-5). However, ADEQ, as an added safeguard, has added California's engine family waiver procedure as well. See new R18-2-1006(H)(1)(e).

ADEQ is aware that Utah and Nevada have recently begun using J1667 with a 70% opacity standard for older vehicles. At a workshop on this rule held at ADEQ on January 6, 1998, ADEQ was requested to estimate the additional emission benefits that result from using the proposed standards instead of a 70% opacity standard for older vehicles. Data from a random sample of the California fleet in the fall of 1996 show that an additional 8% of heavy duty diesel vehicles will fail with a 55% rather than a 70% opacity cut point, with the failure rate from all California vehicles in that study increasing from 14.6% to 22.1%. Since emission benefits are roughly proportional to the number of failed vehicles, the estimated additional emission benefits are approximately 8%. Regardless, the state of Arizona is applying for an extension to its deadline to meet particulate standards in Maricopa County, and a condition for approval of that extension is that the control measures being implemented are the most stringent that can be implemented. Given the fact that 40 and 55% opacity limits are being implemented elsewhere, ADEQ has determined that the pass/fail standards in this rule are necessary to comply with this Clean Air Act requirement.

In this rule, ADEQ is implementing a diesel test procedure that "conforms to" J1667. Within J1667, a number of options are outlined. In the proposed rule, ADEQ sought comment on these options and on whether items in addition to, or equivalent to, items mentioned in the actual procedure, but still conforming to J1667, may be appropriate for the rule. This rule requires that the J1667 procedure report test results in smoke opacity and employ an ambient air correction factor for all tests. Otherwise, the testing flexibility inherent in J1667 has been retained because it tends to reduce the cost and increase the convenience of the test for the general public at centralized test stations, and for fleet vehicles at fleet testing stations.

**Previous Diesel Test Procedure and Failure Rate.** Prior to this rule, a "lug-down" test was used for all diesel vehicles in both area A and area B. In a lug-down test, the vehicle is tested in gear, usually on a dynamometer, and a moderate load

is put on the engine for the actual smoke measurement.

In 1996, a total of 27,370 initial diesel tests were performed by the state contractor in Maricopa County. Of these, 12,657 vehicles were vehicles that would be tested under the current snap-acceleration test (with either tandem axles, greater than 26,000 lbs., or 10,501 lbs. to 26,000 lbs. GVWR). The initial failure rate for this group was 5.0% (514). The failure rate in the 4001 lbs. to 10,500 lbs. category (12,462 vehicles) was 5.4% (679 vehicles). The prior failure rate for the snap-acceleration fleet was estimated to be 5.0 - 5.4% with the lug-down test.

There is no directly applicable data on J1667 failure rates in Maricopa County. In addition, data from outside Maricopa County is scarce since J1667 is relatively new. Data from California, where opacity rates were surveyed from a fleet including over-the-road vehicles (not to be tested under this rule in Arizona) and where no diesel program is currently in existence suggests that this rule's cut points will produce a significant increase over the current 5% failure rate. ADEQ expects the average failure rate for all vehicles subject to this snap-acceleration test to be 15 - 20%. The California study also found that all vehicles failing close to the cut points would be repairable.

There are other advantages to the J1667 procedure compared to the current area A procedure. The fact that no dynamometer is used should make the test safer and more convenient to administer. Gordon-Darby Inc., the testing contractor, (GDI) and ADEQ are planning that heavy duty diesel testing with the J1667 test will be available at each of the 10 centralized test stations in the Phoenix area, compared to the current 2 heavy duty diesel testing lanes. This should in turn result in less wait times, even with the projected higher failure and retest rates. Although dynamometers are used for gasoline vehicles and therefore still need to be in every lane in the state testing system, there may also be some small cost savings attributable to reduced and lower cost dynamometer maintenance and possible surplusing of the contractor's heavy duty dynamometers, which will no longer be needed.

The J1667 test should also benefit fleet testing capability. Information received at the workshop indicate that in some instances, the time to test a number of fleet vehicles would be cut in half compared to the current lug-down procedure. Mobile analyzers, suitable for outlying fleet locations, are also possible since no dynamometer is needed. See the section on fleet owners in the economic impact section of this preamble at III-b.

Finally, ADEQ believes that a uniform national test procedure, such as J1667, is a benefit to most truck owners, engine

manufacturers, and diesel repair facilities, because it is more difficult to service interstate fleets and oversee repairs when diesel engines are subject to different emissions tests in different states.

**Fee inequity.** ADEQ stated in the proposed rule that it would not adopt this rule under the then existing statutory language related to diesel tests and diesel test fees. Under A.R.S. §§ 49-542(F)(2)(c)(ii) and 49-543(B) as they existed, the heaviest duty diesels, comprising less than half of the vehicles that would be subject to J1667, would have to subsidize the cost of the new test for the majority of J1667 vehicles, which range from 8501 to 25,999 lbs GVWR. Legislation effective August 21, 1998 has corrected this inequity by deleting A.R.S. § 49-543(B). (See Laws 1998, 4th S. S., Ch. 3, §14 )

**Relationship to other rules.** Particulate emissions from off-road diesel engines are also significant contributors to air quality problems in Maricopa County but this source category is outside the scope of this rule making. EPA has had new engine smoke standards for heavy duty off-road diesels since 1994, and recently proposed a rule extending those standards to smaller off-road diesel engines. (62 FR 50152; Sep. 24, 1997) A.R.S. § 49-542.04(B)(1), enacted in 1997, gives ADEQ authority to adopt Arizona emission standards for new heavy duty off-road diesel engines beginning with the 1999 model year. ADEQ expects to propose a rule in the near future.

In addition to diesel engines, PM10 emissions also originate from gasoline engines, paved roads, construction and demolition activities, unpaved parking areas and roads, nonmetallic mineral mining and processing facilities, open burning activities, uncovered haul trucks and farming operations. Other rules in Title 18, Chapter 2, such as Articles 6 and 8, cover these activities. Particulates from gasoline engines are not tested for directly through the I/M program in Article 10, but, in general, passing readings in the 3 directly measured parameters: HC, CO and NOx, correlate well with low particulate readings.

7. **A showing of good cause why the rule is necessary to promote a statewide interest if the rule will diminish a previous grant of authority to a political subdivision of this state:**

Not applicable.

8. **The summary of the economic, small business, and consumer impact:**

**Identification of Adopted Rulemaking**

Title 18, Chapter 2, Article 10; R18-2-1003, R18-2-1006, R18-2-1010, R18-2-1019

**EXECUTIVE SUMMARY**

This rule requires a change in the emissions test to be administered annually to all heavy duty diesel vehicles (HDDV) registered in Area A. HDDV are defined as diesel vehicles with a gross vehicle weight rating (GVWR) of more than 8,500 lbs. However, A.R.S. § 49-542(F) exempts from emissions testing all HDDV that are newer than 33 months (2.75 years). The subject vehicles also include those registered outside Area A which commute to the driver's principal place of employment within Area A. As of December 1997, there were an estimated 48,000 diesel vehicles in Maricopa County with a GVWR of more than 8,500 lbs. About 18% of these are newer than thirty three months.<sup>1</sup> Therefore, the rule will require over 39,000 vehicles to be tested with the new test. A limitation of this estimate is that it is not possible to determine the number of HDDV registered outside Area A (and commute to Area A regularly) that would be subject to emissions testing. This revision in the emissions testing program is being made as part of a multi-pronged effort by ADEQ and the Legislature to address the problem of Maricopa County's serious nonattainment status for particulate matter.

The new test is the Society of Automotive Engineers (SAE) J1667 test procedure that will replace the current steady-state loaded opacity test which has been used to measure diesel emissions in Maricopa County for about a decade. The SAE Recommended Practice J1667 was developed through the cooperative efforts of the National Trucking Association, diesel engine manufacturers, the transportation industry and state and federal regulatory agencies involved in environmental protection. Hence, many states have adopted the SAE J1667 snap-acceleration testing, which provides a basis for standardizing diesel smoke opacity testing nationwide. The SAE J1667 has demonstrated a sufficient level of accuracy, precision and correlation to the federal certification test for identifying gross emitters of particulate emissions. The test eliminates the need for dynamometers for heavy-duty vehicles, offering economic advantages over lug-down testing by lowering capital expenditures and increasing the number of potential testing sites. The test may be administered in a relatively small testing site since the vehicle is stationary, consequently reducing the probability of accidents and injuries. Setting up the instruments and conducting the test is also facilitated. Furthermore, the SAE J1667 is a more efficient method of determining if a diesel engine is malfunctioning.

The Maricopa Association of Governments (MAG) commissioned Sierra Research Inc., a California consulting company, to conduct a research study to analyze in part Maricopa County's particulate emissions problem and to review applicable control measures. The final report was published on January 24, 1997.<sup>2</sup> Based on this study, ADEQ Air Quality staff

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<sup>1</sup>From data compiled by ADOT Motor Vehicle Division.

<sup>2</sup>Robert Dulla and Earl Withycombe, Particulate Control Measure Feasibility Study prepared for MAG, Sierra Research Inc., Sacramento CA, Jan. 24, 1997.

estimate that implementation of the J1667 will reduce annual emissions by an additional 27.1 metric tons of PM10 and 25.1 metric tons of PM2.5 (particulate matter with an aerodynamic diameter of 10 and 2.5 microns or smaller, respectively). It is estimated that 18% of PM10 and 35% of PM2.5 emissions in the urban core of the Phoenix metropolitan area come from vehicular exhaust of diesel-powered vehicles.

## **COSTS**

### **SAE J1667 TEST EQUIPMENT**

A cost of this rule will be the purchase of new smoke opacity meters which meet the J1667 test requirements. The market price of opacity meters varies widely depending on manufacturers and distributors, but unit prices made available to ADEQ staff currently average \$5,901.<sup>3</sup> These will be installed at each inspection station in Maricopa County operated by the current state contractor, Gordon Darby, Inc. (GDI), as well as at ADEQ permitted fleet inspection stations. GDI has indicated that it will require 22 testing units to outfit the ten official test stations and four waiver stations. The number of HDDV fleet owners who will choose to invest in their own testing equipment is unknown, but it is estimated that more than a third of all diesel vehicles are tested at permitted facilities owned by fleet owners.

### **TEST FEES**

GDI's costs for the purchase and installation of the required equipment, as well as related costs to administer the program will be repaid in the form of test fees paid by vehicle owners. The cost to purchase 22 units at the estimated average price is about \$130,000, although selection of units suitable for high volume testing may increase this amount. Currently, the test fee is \$10 for all vehicles with a GVWR of <26,000 lbs., and there is a statutory limit of \$25 for vehicles with a GVWR of >26,000 lbs., or with tandem drive axles. In order to recover its J1667 costs, Gordon Darby calculates that a test fee of between \$20 to \$25 per test will be required. Based on 1997 test data, GDI projects that they will test more than 22,000 HDDV resulting in annual test revenues for GDI of between \$440,000 and \$550,000. Re-tests will be required for all failing vehicles, but no fee is assessed for a re-test conducted within 60 days of the initial test. Only one free re-test is permitted for each paid test. A passing test result will be required for vehicle registration.

### **VEHICLE REPAIRS**

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<sup>3</sup>Price quotes were supplied by manufacturers from California, Illinois and North Carolina. ADEQ does not endorse any specific manufacturer or product.

Another major cost to implement this rule will consist of vehicle repair expenditures that will be borne by owners of vehicles failing the SAE J1667 test. The repair of failing vehicles will achieve the emissions reduction. The Sierra Research study indicated that typical HDDV repair costs are about \$350 (expressed in terms of 1994 dollars). However, another technical support document dated October 1997 shows that a more realistic representation for average costs across several model-year strata dating back to 1980, is \$652 per vehicle.<sup>4</sup> The document assumed that, all other things being equal, repair costs are higher, the older the vehicles in a fleet. Vehicle repair costs in Arizona may be generally lower than those in California because Arizona has been conducting emissions testing since 1986. The emissions testing program promotes better maintenance of the fleet, and over the long term, repair costs would tend to go down.

The ADEQ Vehicle Emissions Inspection (VEI) Section estimates that the new test will increase the vehicle failure rate from its historical annual average of 5.4% for all diesel vehicles to between 15 and 20% of all subject vehicles. This could translate to about 7,000 failed vehicles annually, and a corresponding cost to repair estimated at \$2.5 to \$2.8 million. Repair costs will be paid by owners of the failed vehicles to dealers and vehicle repair shop owners. Incremental repair costs (the amounts required to repair the difference between the historical and the projected failure rate) are about \$1.7 million annually. If repair costs in Maricopa County turn out to be closer to those indicated in the CARB study, incremental repair costs could climb to \$3 million.

## **BENEFITS**

### **CLEANER AIR**

This rule will benefit all residents of, and visitors to, Maricopa County who will breathe cleaner air. According to Maricopa County Air Quality staff, 56% of particulate matter (the visible parts of the Valley's winter brown cloud), is created by vehicle -- especially diesel -- exhaust, and the dust motorists kick up. A net reduction in PM10 and PM2.5 emissions will be particularly important to "at-risk" residents of the Phoenix Metropolitan area. The American Lung Association of Arizona identified these as people who suffer from asthma, chronic lung disease, chronic obstructive pulmonary disease, children under 12 and adults over 65. The Report of the Governor's Air Quality Strategies Task Force dated December 2, 1996, stated that Maricopa County residents included in the "at-risk" groups number about one

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<sup>4</sup>California Air Resources Board and Energy and Environmental Analysis, Inc., Regulatory Amendments to California's Heavy-Duty Vehicle Inspection Program and Periodic Smoke Inspection Program, Technical Support Document, October 1997.

million. There is also new medical evidence compiled by the American Thoracic Society that “even current ambient levels of PM10 (30 to 150 micrograms per cubic meter) are associated with increases in daily cardio-respiratory mortality and in total mortality, excluding accidental and suicide deaths.”<sup>5</sup>

#### AVOIDANCE OF FEDERAL SANCTIONS

Apart from the public health benefits to be derived from improving ambient air quality, there are federal sanctions which may be imposed for continued nonattainment of PM10 National Ambient Air Quality Standards (NAAQS). Due to measured violations of the PM10 standards from 1992 through 1994, EPA reclassified the Maricopa County Nonattainment Area from **moderate** to **serious** on June 10, 1996. As indicated by the PM10 Sub-Committee in its final report to the Governor's Air Quality Strategies Task Force,<sup>6</sup> this action required the submittal of a Serious Area State Implementation Plan (SIP) by December 1997. The Clean Air Act requires that the plan demonstrate attainment by the year 2001. But during preparation of the SIP in the fall of 1997, it became evident that attainment could not be demonstrated by Dec. 31, 2001, and that the Department and MAG would need to request a five-year extension of the attainment deadline.

The Clean Air Act (CAA) contains requirements that must be met in order for EPA to grant approval of an extension request. One of the requirements is that the "SIP include the most stringent measures included in the plan of any State or achieved in practice in any State, and can feasibly be implemented in the area." The SAE J1667, with opacity standards of 40% and 55%, is considered to be the most stringent, feasible measure currently available for testing HDDVs, and is expected to identify a substantially higher number of particulate gross emitters. Furthermore, failure to submit a complete plan, or EPA disapproval of a plan (in part or whole) under section 179 (b) of the CAA, may result in federal sanctions. Sanctions may include two-for-one offsets for industry and the loss of federal highway funds. Federal funding levels programmed for highways in the 1998-2002 MAG Transportation Improvement Program total \$446 million. Failure to achieve attainment or submit a plan could therefore jeopardize federal funds allocated for Arizona amounting to an annual average of \$89.2 million in the next five years.

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<sup>5</sup>The American Thoracic Society, “Health Effects of Outdoor Air Pollution, State of the Art”, American Journal of Respiratory and Critical Care Medicine, Vol. 153, 1996.

<sup>6</sup>PM10 Subcommittee, Final Report to the Governor's Air Quality Strategies Task Force, Maricopa Association of Governments, Jan. 20, 1998.

**B (2) PERSONS DIRECTLY AFFECTED BY THE RULE**

The following Persons/Parties will be affected:

- 1) ADEQ, the implementing agency, is charged with making appropriate modifications to the vehicle emissions testing program in order to reduce diesel engine smoke emissions in Area A.
- 2) Maricopa County, all municipalities, state and federal agencies as well as other public institutions (e.g., school districts) which own or operate diesel vehicles registered in Area A, will be required to comply with the rule.
- 3) Gordon Darby, Inc., the State Contractor, will carry out emissions testing in Area A using the SAE J1667 test procedure.
- 4) All owners of privately-owned HDDVs in Area A, including fleet owners, will be required to comply.
- 5) Vehicle repair shop owners, specifically, those specializing in the repair of HDDVs will see an increase in their business opportunities directly related to the expected increase in the vehicle failure rate.
- 6) Manufacturers and distributors of smoke opacity meters and other products needed to implement the SAE J1667 test procedure will increase their business.
- 7) All persons and businesses who stand to benefit from the planned expenditure of \$446 million in federal highway funds between 1998 and 2002.
- 8) All residents and visitors to Maricopa County who will breathe cleaner air.

**B(3) COST-BENEFIT ANALYSIS**

**I. COSTS AND BENEFITS TO STATE AGENCIES**

**a) Arizona Department of Environmental Quality**

The Department's expenditures to implement this rule will be minimal. The Vehicle Emissions Inspection (VEI) Section does not plan to hire additional FTEs as a result of this rule. Neither are there any anticipated major changes to program procedures, since the change consists primarily of implementing an additional test procedure and instrumentation. The Department is re-negotiating its emissions testing contract with Gordon Darby, Inc., but any contract revision is not expected to create additional costs for the Department, and therefore no major impact to the ADEQ budget is anticipated.

No incremental dollar benefits will accrue to ADEQ. However, approval of this rule will enable the Department to carry out a program that will help satisfy the CAA requirements for Maricopa County, the State's most populous county. Attainment will obviate any federal sanctions that may jeopardize federal dollars earmarked for the county, estimated at an average \$89.2 million annually from 1998 to 2002.

b) Arizona Department of Transportation and AZ Department of Corrections

ADOT and the AZ State Prison Complex(Eyman Florence) are currently permitted by ADEQ to self-inspect their fleets. ADOT is the owner-operator of about 1,000 diesel vehicles, 548 of which are HDDV and registered in Maricopa County. ADOT will be investing in the new test equipment; as will the AZ Department of Corrections which has ten HDDV that will be tested at the Eyman facility.

c) Federal Facilities

There are two federal facilities that are ADEQ permitted fleet owners: Luke Air Force Base and the US Postal Service. Luke AFB, which has 145 HDDV and will be conducting its own tests, has already ordered its SAE J1667 test equipment. The US Postal Service has 124 HDDV registered in Maricopa County.

## II. COSTS AND BENEFITS TO POLITICAL SUBDIVISIONS OF THE STATE

All HDDV owners, whether public or privately-owned, will be required to comply with the rule. There are nine municipalities, one county facility and 11 school districts that are permitted facilities regulated by ADEQ. According to the City of Phoenix Office of Fleet Management, the City owns and operates 906 buses with a GVWR of >8,500 lbs. Adding the two state and two federal entities that own fleets brings the number of public fleet owners to 25 which together account for almost 40% of the total.

The incremental costs of compliance for all public fleet owners, including the costs to implement a self-testing program, will be reflected in their respective budgets, and will therefore be borne by taxpayers. For fleet owners, public or private, the CARB study cited above stated that in-house inspections with company smoke meters will be more economical than contractual service testing when the fleet size exceeds 16 vehicles. The amounts to be allocated for repair costs will

depend on the conditions of the vehicles, how well they have been maintained, and their age. These variables heavily influence failure rates.

### III. COSTS AND BENEFITS TO PRIVATE BUSINESSES, INCLUDING SMALL BUSINESSES

a) The State Contractor, Gordon Darby, Inc. --

The re-negotiated State Contract between ADEQ and GDI is expected to increase the current annual HDDV test fee from \$10 per vehicle to between \$20 and \$25. Additional costs will be incurred to expand GDI's HDDV test capabilities to all Maricopa County testing facilities. According to GDI staff, the company has identified the following "cost categories":

- 1) Program development costs
- 2) Maricopa Vehicle Emissions Inspection Program (MVEIP) and other software costs
- 3) Lane modifications at all testing and waiver facilities
- 4) Equipment acquisition and installation costs
- 5) Liaison with ADEQ and acceptance test procedures (ATP)
- 6) Staff training and other implementation costs
- 7) On-going operational costs.

Program implementation at official test stations has been determined by ADEQ VEI staff to be more complex and demanding than tests carried out in a fleet environment. Gordon Darby operates ten testing stations in Maricopa County that will need to be modified. And, there are four State waiver stations that will also need modifications. The combined facilities have a total of 53 lanes. GDI will test the larger HDDV (those with >26,000 lbs. GVWR, and those with tandem drive axles) in the two existing dedicated HDDV lanes, and all other vehicles will be tested in the other general purpose lanes.

Based on the re-negotiated test fees, vehicle owners of HDDV tested at official testing stations could collectively pay anywhere from \$440,000 to \$550,000 annually. The estimate pertains to HDDV test fees only, and does not include the fees paid by light duty vehicle owners. The amounts payable for re-test fees (to be levied on all owners whose vehicles exhibit more than 2 failures, or when re-tests exceed 60 days of the initial test) is unknown. Also excluded from this analysis are amounts GDI will receive for testing gasoline-powered vehicles which comprise more than 97% of all motor

vehicles registered in Maricopa County. GDI's revenues are expected to encompass the company's expected rate of return. GDI is a privately held company based in Kentucky, and has offices in Phoenix and Tucson.

b) Private sector diesel fleet owners and other owners of subject vehicles --

Thirty eight (60%) of fleet owners listed by ADEQ are private sector entities. There are an estimated 48,180 diesel vehicles registered in Maricopa County with a GVWR of >8,500 lbs. According to data obtained from the ADOT Motor Vehicle Division, HDDV vehicles comprise just a fraction (2.5%) of the 1.9 million registered vehicles. Of the total HDDV, an estimated 8,672 (18%) are newer than 33 months. These newer vehicles will be exempt from the test, but will have to comply after 33 months.

Estimates for test fees to be paid to Gordon Darby by vehicle owners are based on 1997 company records of diesel test data. If the number of tested HDDV changes, the fees will increase or decrease accordingly. No test fees will be paid by fleet owners who choose to conduct their own tests and are licensed by ADEQ to do this. However, these fleet owners will have to invest in their own test equipment and cover all other related operational costs.

A larger cost burden stems from the vehicle repairs which will be required of all vehicles that fail the initial SAE J1667 test. The projected cost of repairs are found in the following table:

	1998	1999	2000
HDDV Vehicles	40,376	41,264	42,172
HDDV Failures	7,065	7,221	7,380
1994 Cost to Repair	\$2,473,077	\$2,527,485	\$2,583,089
Inflation-adjusted			
Cost to Repair	\$2,847,195	\$2,910,063	\$2,974,140

Tested vehicles as well as vehicle failures are projected to increase at an average annual rate of 2.2% between now and the year 2000, in accordance with VEI historical data compiled between 1994 and the present. Vehicle failures could therefore exceed 21,600 over the three-year period. This is based on a 17.5% (the mid-point between 15% and 20%) failure rate of existing subject vehicles, accompanied by an annual cost to repair of about \$2.5 million, assuming the

average vehicle repairs are \$350 per vehicle, as indicated in the Sierra Research study. But the Sierra study calculated repair costs in terms of 1994 price levels. If repair costs in Maricopa County escalated at the rate of the Phoenix Metropolitan Consumer Price Index (compiled by the ASU Center for Business Research), the comparable average repair cost in 1998 would be \$403. Vehicle owners could then spend \$8.7 million in repair costs in the next three years.

Still another estimate of vehicle repair costs is given by the CARB study cited above, which indicated a much higher average cost (\$652 per vehicle). Three Maricopa County vehicle repair shop owners who repair HDDV were contacted for comparison costs in Arizona (they were faxed the schedule of costs indicated in the CARB study). All three of them stated that the CARB data were more in line with what is being charged in the Phoenix Metropolitan area. If this is the case, total annual costs to repair could average \$4.7 million.

The combined repair cost estimates (for both public- and privately-owned vehicles) therefore range between a low of \$2.5 million to a high of 4.7 million per annum. These sums could be affected by the number of vehicle owners who are granted waivers. But in the experience of the ADEQ VEI Section, most diesel vehicle owners willingly pay for the repair costs of their failed vehicles.

#### The Case of a Utility Fleet

In response to inquiries, a manager of a utility fleet informed ADEQ of the dollar savings the company will realize through implementation of the J1667 program. The utility has 230 HDDV in its fleet.

Under the current rules, the utility spends \$2,300 a year (paid to Gordon Darby in test fees) plus an estimated \$13,800 to \$20,700 in costs attributable to employees and trucks being idled during the testing process. By switching to the J1667 procedures and doing their own testing, ADEQ staff calculated that the company (which has spent \$2,500 for the test equipment) will be able to recoup its equipment investment in only a little over 13 months. In addition, the utility will be able to cut down time from 1 and 1.5 hours per vehicle to only thirty minutes per vehicle. Thus the company will realize savings of between \$6,900 to \$10,350 annually or about \$21,000 to \$31,000 over three years.

ADEQ expects that similar savings will accrue to many other self-testing owners.

c) Diesel vehicle repair shop owners --

There were a total of 1,279 automotive repair establishments in Maricopa County as recorded in the 1995 economic census.<sup>7</sup> These are primarily small business establishments which collectively employed 6,887 people and had an annual payroll of \$157 million. Approximately 81 (6.3%) of these have been identified by the VEI Section as specialists in HDDV repairs. Since diesel vehicles comprise only a small portion of vehicles registered in Arizona, dealers and vehicle repair shop owners who employ technicians specializing in HDDV repairs tend to be limited. Hourly rates for the repair of HDDV in the Phoenix Metropolitan area are currently averaging \$64 per hour.

The projected average increase in the HDDV failure rate from 5.4% to between 15 and 20% will bring an incremental benefit of about \$1.7 million annually (or \$5.2 million over three years) to these businesses, assuming the average repair cost is \$350. If the upper limit (\$652) is used, the incremental benefit to vehicle repair businesses is \$3.3 million annually or \$9.8 million over three years.

#### IV. COSTS AND BENEFITS TO CONSUMERS AND TAXPAYERS

Owners of failed vehicles will either pass on their repair costs to customers, or they may choose to absorb the costs. For publicly-owned vehicles, the increased repair costs due to an increase in failure rates will tend to be absorbed in the budgets of agencies or municipalities that own HDDV. Repair costs for privately-owned vehicles will more likely be passed on to the customers of business owners, or they may choose to absorb the costs. While vehicle repair costs may appear to be substantial, there are benefits to vehicle owners from carrying out repairs promptly. The CARB study cited savings from reduced fuel costs as well as overall operational efficiencies derived from improved vehicle maintenance. Similar fuel savings are expected in Arizona, although these savings could not be quantified. But in California, the calculated cost impacts were not expected to affect freight or passenger rates, or the costs of goods transported by HDDV.

Based on methods used in the Sierra Research study, ADEQ Air Quality Division staff calculated annual emissions reductions resulting from implementation of the SAE J1667 test of 1.85 lbs. per vehicle per year for PM10 and 1.71 lbs. per vehicle per year for PM2.5. Total emissions reductions are projected to be 27.1 metric tons per year for PM10 and 25.1 metric tons per year for PM2.5. The reduction in particulate emissions, combined with other measures undertaken by the Department, is expected to result in public health benefits related to declines in morbidity and mortality. Although these health benefits are not readily monetized, it is well known that health care costs in general, and specifically, the costs

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<sup>7</sup>US Department of Commerce, Economics and Statistics Administration, BUREAU OF THE CENSUS, Arizona County Business Patterns: 1995, CPB/95 issued October 1997.

to treat lung and other respiratory diseases, are high. Medical economists have also known for quite some time that the US medical care inflation rate exceeds the overall inflation rate by a wide margin.

Information from the American Lung Association of Arizona (ALAA) and the Arizona Department of Health Services is compelling:

- \* an estimated 210,000 Arizonans have asthma
- \* the 1995 mortality rate for asthmatics in Arizona was 2.8 per 100,000 population, versus 2.1 nationwide
- \* Maricopa County has the third highest death rate from asthma in the US
- \* The hospital costs for treating Arizona children with asthma amounted to \$12 million in 1996.

People suffering from asthma and other lung diseases are not the only ones who will benefit from emissions reductions. All residents and visitors are bound to benefit from cleaner air. The July 1, 1997 resident population estimate for Maricopa County was 2,720,575. This figure does not include the estimated 124,000 seasonal residents who stay in the Phoenix Metropolitan area during the winter season, according to the ASU Center for Business Research which has been tracking the economic impact of the “snowbirds” in Arizona for the past 13 years. Thus, over 2.8 million people in Maricopa County would be impacted beneficially by cleaner air. Residents and visitors will benefit from the prevention or aggravation of asthma and other chronic lung diseases. These are diseases that are known to be caused or aggravated by exposure (or prolonged exposure) to air quality exceedances.

In addition to the health benefits that are realized due to the reduction of PM10 and PM 2.5 emissions, there are aesthetic benefits that will be realized. Urban haze, better known as the “brown cloud”, is visible pollution comprised primarily of fine particulate matter less than one micron in diameter. The Urban Haze Study conducted in 1989-1990<sup>8</sup> revealed that the primary source of urban haze is combustion engine exhaust from on-road vehicles (50% from diesel engines, 50% from gasoline-powered engines). The obscured visibility due to the brown cloud significantly decreases the natural beauty of the area observed by visitors and residents.

#### REDUCTION OF RULE IMPACTS ON SMALL BUSINESSES

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<sup>8</sup> Desert Research Institute, Maricopa County Urban Haze Study, 1989-1990, Volume II.

**Rule impact reduction on small businesses.** A.R.S. § 41-1035 requires ADEQ to reduce the impact of a rule on small businesses by using certain methods when they are legal and feasible in meeting the statutory objectives for the rule making. The five listed methods are:

1. Establish less stringent compliance or reporting requirements in the rule for small businesses.
2. Establish less stringent schedules or deadlines in the rule for compliance or reporting requirements for small businesses.
3. Consolidate or simplify the rule's compliance or reporting requirements for small businesses.
4. Establish performance standards for small businesses to replace design or operational standards in the rule.
5. Exempt small businesses from any or all requirements of the rule.

**The statutory objectives which are the basis of the rulemaking.** The general statutory objectives that are the basis of this rulemaking are contained in the statutory authority cited in number 2 of this preamble. The specific objectives are to protect and improve public health and to avoid federal sanctions, by reducing particulate emissions from on-road diesel vehicles registered in the Phoenix area.

ADEQ has evaluated each of the five listed methods and has concluded that none of the methods are legal and feasible. The Director does have authority to set various emission standards but A.R.S. § 49-542(F) requires that these be set by vehicle class, not by owner. A.R.S. § 49-542(L) specifies the waiver cost limits that must be set for diesel vehicles, by vehicle class, not by owner. A.R.S. § 49-542(J)(2) generally allows the Director to exempt certain vehicles from testing, but A.R.S. § 49-542(F)(2)(c) specifically requires that all diesels in the defined class be tested. A.R.S. § 49-543 allows the Director to set the fees for diesel testing, but subsection (E) of that section requires the fees to be uniform by each vehicle class.

Finally, ADEQ has found that any impact reduction under A.R.S. § 41-1035 that might be determined legal, would be infeasible. The vehicle emission testing system is designed such that it can efficiently test more than a million vehicles a year. This efficiency is attained, in part, because vehicles are processed by the vehicles' attributes, not the owner's.

**9. A description of the changes between the proposed rules, including supplemental notices, and final rules (if applicable):**

In response to a comment received at the oral proceeding, ADEQ modified proposed R18-2-1003(B)(11) so that it conforms exactly to A.R.S. § 49-542(F)(2)(c). The rule now exempts diesels applying for registration exactly 33 months

after initial registration, as well as those applying at any time less than 33 months after initial registration.

In response to a comment received at the oral proceeding, ADEQ modified proposed R18-2-1006(H) by clarifying that a 1991 or newer vehicle will fail only when it exceeds 40% opacity. If the procedure results in an opacity reading of exactly 40%, the vehicle passes. A similar change was made at the same location for the 55% standard and pre-1991 vehicles.

In response to a comment requesting that any testing flexibility in the referenced standard be fully identified, ADEQ has added language to the rule to clarify that the correction factors for ambient test conditions should be applied to all tests. ADEQ has clarified the requirements set forth in R18-2-1006(H)(1) as follows:

“The procedure shall utilize the corrections for ambient test conditions in Appendix B of J1667 for all tests. ~~shall report~~ The test result shall be reported in units as the percentage of smoke opacity.” See the next section for a fuller discussion of this issue.

ADEQ has also changed the waiver repair limit at R18-2-1010(E)(2)(a) in response to legislation that was effective August 21, 1998. Laws 1998, ch. 217, § 22 raised the limit in A.R.S. § 49-542(L)(1)(c)(i) from one hundred to two hundred dollars. Without this change, the final rule would have been inconsistent with statute and unapprovable.

Finally, ADEQ made numerous nonsubstantive changes to the proposed rule after its initial submittal to GRRC staff, but before its being approved by the council. These nonsubstantive changes were to improve clarity and to conform to various rules regarding rule citation. In a large number of places, the style of referring to internal subsections of the same rule was changed to conform to R1-1-408(I). For example, in R18-2-1006(F)(3), the reference to “paragraph (1)(b) of this subsection” was changed to “subsection (1)(b)”. These changes are shown, separate from the changes made in response to comment, in Part III of the CES, which is available from ADEQ.

**10. A summary of the principal comments and the agency response to them:**

Comment: One commentor requested that ADEQ verify that the language which provides a 33-month exemption for vehicle testing requirements is consistent with the authority for the exemption provided in the Arizona statute. Additionally, the commentor requested that ADEQ verify that the language for the testing cutpoints is consistent with the California regulatory requirements.

Response: ADEQ reviewed the statutory language for the exemption provided in A.R.S. §49-542(F)(2)(c), which states "...a diesel powered motor vehicle applying for registration or reregistration in area A more than thirty-three months after the date of initial registration shall be required to take and pass an annual emissions test ..." The proposed rule, R18-2-1003(B)(11), exempts diesel powered vehicles applying for registration or reregistration in area A less than 33 months after the date of initial registration as a new vehicle. Therefore, the proposed rule was not consistent with statute because it did not account for vehicles registered or reregistered exactly 33 months after the date of initial registration. ADEQ has revised the rule to be consistent with the statutory language as follows:

"11. Diesel powered vehicles applying for registration or reregistration in area A ~~less than~~ or less, after the date of initial registration as a new vehicle."

ADEQ reviewed the California regulatory requirements for the opacity cutpoints. Title 13, §2182(a) of the California regulations provides that pre-1991 engines shall not exceed a smoke opacity of 55 percent and 1991 and newer engines shall not exceed an opacity of 40 percent. For consistency with the California rules, ADEQ has revised R18-2-1006(H)(1)(a) and (b) as follows:

- a. Vehicles powered by a 1991 or subsequent model year diesel engine shall fail when the J1667 final test result is ~~40% or greater~~ than 40% unless the engine family is exempted from the 40% standard under subsection (e).
- b. Vehicles powered by a pre-1991 model year diesel engine shall fail when the J1667 final test result is ~~55% or greater~~ than 55% unless the engine family is exempted from the 55% standard under subsection (e)."

Comment: One comment was received from a fleet operator. The comment supported the implementation of J1667 but asked that any testing flexibility in the referenced standard be fully identified.

Response: In the preamble to the proposed rule, ADEQ stated that J1667 contained a number of options and asked for comment on those options and on whether additional requirements, conforming to J1667, might be appropriate. No comments were received on additional requirements or with regard to whether any specific options contained in J1667 should remain optional or be required. Specifically, no comments were received regarding the use of Appendix B, "Corrections for Ambient Test Conditions".

In light of the above, ADEQ has clarified testing flexibility as follows:

1. With two exceptions, the items implied as optional in J1667 remain optional. As an example, both sampling type and

full-flow smokemeters are allowable.

The exceptions are:

1. Test results are to be reported in units of smoke opacity (not smoke density). The rule was proposed this way. See (R18-2-1006(H)(1)).
2. The correction factors for ambient test conditions contained in Appendix B of J1667 must be applied at all times, not just at the times required in 5.2.1 of J1667.

With regard to item # 2, 5.2.1 of J1667 states “To ensure reliable results, the correction factors in Appendix B should be applied to snap-acceleration testing results to account for normal changes ambient conditions. However, these correction factors must be applied under the following conditions:

- a. Altitude--Greater than 457 m (1500 ft) above sea level
- b. Air temperature--Above or below the range of 2 to 30EC (36 to 86E F)”

ADEQ has determined that use of the correction factors for all tests will significantly reduce variability in test results caused by changes in atmospheric pressure, humidity and temperature. Moreover, it would not be feasible for ADEQ to attempt to ensure that fleets using J1667 began using the correction factors whenever the ambient temperature changed from 85E to 86E, in order to ensure that the test procedure conformed to J1667. ADEQ has determined that application of the Appendix B correction factors for all tests will not add significantly to the cost or length of the test. ADEQ is prepared to work with fleets to ensure that their test equipment correctly implements Appendix B.

**11. Any other matters prescribed by statute that are applicable to the specific agency or to any specific rule or class of rules:**

None.

**12. Incorporations by reference and their locations in the rules:**

<u>Incorporation by reference</u>	<u>Location</u>
SAE J1667	R18-2-1006(H)

**13. Was this rule previously adopted as an emergency rule?**

No.

**14. The full text of the rules follows:**

**TITLE 18. ENVIRONMENTAL QUALITY**

**CHAPTER 2. DEPARTMENT OF ENVIRONMENTAL QUALITY -AIR POLLUTION CONTROL**

**ARTICLE 10. MOTOR VEHICLES; INSPECTION AND MAINTENANCE**

Section

R18-2-1003. Vehicles to be Inspected by the Mandatory Vehicular Emissions Inspection Program

R18-2-1006. Emissions Test Procedures

R18-2-1010. Low Emissions Tune-up, Emissions and Evaporative System Repair

R18-2-1019. Fleet Station Procedures and Permits

ARTICLE 10. MOTOR VEHICLES; INSPECTION AND MAINTENANCE

**R18-2-1003. Vehicles to be Inspected by the Mandatory Vehicular Emissions Inspection Program**

**A.** The following vehicles shall be inspected ~~in accordance with~~ according to this Article at a state station or a fleet station unless exempted by subsection (B) ~~of this Section~~:

1. ~~All vehicles~~ Each vehicle to be registered or reregistered within area A or area B for highway use. For the purposes of this Article, registration within a vehicle emissions control area shall be determined by the vehicle owner's permanent and actual residence. The permanent address in the MVD database shall be presumed to be the owner's permanent and actual residence. A post office box address listed on a title or registration document ~~pursuant to~~ under A.R.S. § ~~28-303(B)~~ 28-2051(C) shall not be evidence of the owner's permanent and actual residence;
2. ~~All vehicles being~~ Each vehicle delivered to retail purchasers by dealers licensed to sell used motor vehicles for highway use ~~pursuant to~~ under Title 28 and whose place of business is located in area A or area B;
3. ~~All vehicles~~ Each vehicle registered outside area A and area B but used to commute to the driver's principal place of employment located within area A or area B; and
4. ~~All vehicles~~ Each vehicle owned by a person who is subject to A.R.S. §§ 15-1444(C) or 15-1627(G).

**B.** The following vehicles are exempt from the inspection requirements of this Article:

1. ~~Vehicles~~ A vehicle manufactured in or before the 1966 model year;
2. ~~Vehicles~~ A vehicle leased to a person residing outside area A and area B by a leasing company whose place of business is in area A or area B, except as otherwise provided in subsection (A)(3) ~~of this Section~~;
3. ~~Vehicles being~~ A vehicle sold between motor vehicle dealers;
4. ~~Electrically-powered vehicles~~ An electrically-powered vehicle;
5. ~~Prorate vehicles~~ An apportioned vehicle;
6. ~~Golf carts~~ A golf cart;
7. ~~Vehicles~~ A vehicle with an engine ~~displacements~~ displacement of less than 90 cubic centimeters.
8. ~~New vehicles~~ A new vehicle originally registered at the time of initial retail sale and titling in this state ~~pursuant to~~ under A.R.S. § ~~28-302~~ 28-2153;
9. ~~Vehicles being~~ A vehicle registered at the time of change of name of ownership except when the

change in registration is accompanied by required fees for the year following expiration of the prior registration or the change results from the sale by a dealership whose place of business is located in area A or area B;

10. ~~Vehicles~~ A vehicle for which a current certificate of exemption or Director's certificate has been issued; and
11. A diesel-powered vehicle in area A applying for registration or reregistration 33 months or less after the date of initial registration as a new vehicle.

C. Governmental vehicles operated in area A or area B and not exempted by this Article shall be emissions inspected ~~pursuant~~ according to R18-2-1017.

#### **R18-2-1006. Emissions Test Procedures**

A. Each vehicle ~~to be~~ inspected at a state station shall be visually inspected ~~prior to~~ before the emissions test for the following unsafe conditions:

1. ~~Any~~ A fuel ~~leaks~~ leak in or around the engine area, fuel tank, or lines which ~~cause~~ causes wetness or pooling of fuel;
2. ~~Any~~ A continuous ~~leaking of~~ engine or transmission oil leak onto the floor;
3. ~~Any~~ A continuous ~~leaking of~~ engine coolant leak onto the floor ~~to such a degree~~ that engine overheating has occurred or will occur within a short time;
4. ~~Worn tires~~ A worn tire with less than 2/32-inch tread remaining or which ~~have~~ has cord showing, ~~bulges, delaminations, lumps, or separations; or a bulge, delamination, lump, or separation;~~
5. ~~Exhaust tail pipes~~ An exhaust pipe that ~~do~~ does not exit the rear or side of the vehicle to allow for safe exhaust probe insertion. ~~Exhaust tail pipes~~ An exhaust pipe on a diesel-powered ~~vehicles~~ vehicle that ~~do~~ does not allow for safe exhaust probe insertion and attachment of opacity meter sensor units; and
6. ~~Other unsafe conditions~~ Any other condition deemed unsafe by the inspector, such as loud internal engine ~~noises~~ noise ~~and~~ or an obvious exhaust ~~leaks~~ leak.

B. ~~No~~ A mandatory vehicular emissions inspection shall not be performed by an official emissions inspection station on any vehicle that is carrying, loaded with, or towing a trailer loaded with explosives or any other hazardous material not used as fuel for the vehicle.

C. Any vehicle ~~that has been~~ found to be in unsafe ~~condition~~ as determined by the visual ~~portion of the~~

inspection requirements listed shall be rejected without an emissions test. Vehicle owners or drivers shall be notified of all unsafe conditions found on rejected vehicles, and if at a state station no A fee shall not be charged if the vehicle is rejected at a state station. The emissions test shall not be conducted on a vehicle rejected for a safety reason until the cause for rejection has been repaired.

D. When conducting the emissions test procedure prescribed required by this Section, both of the following requirements shall be met:

1. All vehicles shall be tested in as-received condition, unless rejected pursuant to under subsections (A) or (B) of this Section. The vehicle's engine shall be operating at normal temperature; the The vehicle's engine shall not be overheating as indicated by a gauge, warning light, or boiling radiator, and all of the vehicle's accessories shall be turned off.
2. Vehicles that are designed to operate with more than one 1 fuel shall be tested on the fuel used by the vehicle at time of inspection.

E. In area A, the inspection test procedures for all vehicles other than diesel-powered vehicles and vehicles held for resale by motor vehicle dealers with a fleet license shall conform to the following:

1. Vehicles manufactured in the with a model year of 1967 through 1980 model years, all nonexempt vehicles with a GVWR greater than 8500 pounds, and all reconstructed vehicles, except motorcycles and constant four-wheel 4-wheel drive vehicles, shall be are required to annually take and pass both a loaded cruise test and curb idle test, described as follows:
  - a. For the loaded Loaded cruise test, the The vehicle's drive wheels shall be placed on a dynamometer and the vehicle shall be operated as prescribed in according to Table 1 of this Article, in drive for automatic transmission or second 2nd or higher gear for manual transmission. Overdrive shall not be used. All vehicles shall be driven by the inspector. HC and CO exhaust emissions concentrations shall be recorded after readings have stabilized or at the end of 90 seconds, whichever occurs first. After exhaust emissions have been recorded, engine speed shall be returned to idle for a curb idle test.
  - b. The curb Curb idle test, The test shall be performed with the vehicle in neutral for 1981 and newer vehicles. For 1980 and older vehicles, it the test shall be performed in neutral, except that if the vehicle has an automatic transmission, drive shall be used. Engine RPM shall be within plus or minus  $\pm$  100 RPM of the manufacturer's specified idle RPM. HC and CO exhaust emissions concentrations shall be recorded after readings have stabilized,

or at the end of 90 seconds, whichever occurs first. A CO<sub>2</sub> plus CO reading of 6% or greater shall be registered to establish test validity. A CO<sub>2</sub> plus CO reading of less than 6% shall be ~~deemed~~ proof of exhaust sample dilution and the vehicle shall be rejected from further emissions inspection.

2. Vehicles ~~manufactured in or after the~~ with a 1981 or newer model year ~~with and a gross vehicle weight rating GVWR~~ of 8500 pounds or less, except motorcycles, reconstructed vehicles, and constant ~~four-wheel~~ 4-wheel drive vehicles, ~~shall be~~ are required to biennially take and pass a transient loaded emissions test, an evaporative system purge test, and an evaporative system integrity test as follows:
  - a. The transient loaded emission test shall consist of 240 seconds of mass emission measurement using a constant volume sampler while the vehicle is driven by an inspector through a computer-monitored driving cycle on a dynamometer with inertial weight settings appropriate for the weight of the vehicle. The driving cycle shall include the acceleration, deceleration, and idle operating modes ~~as specified~~ required in Table 4. The 240 second sequence may be ended earlier using fast pass or fast fail algorithms. Drive shall be used for automatic transmissions and ~~first~~ 1st gear shall be used to begin for manual ~~transmission~~ transmissions. Overdrive shall not be used. Exhaust emissions concentrations in grams per mile for HC, CO, NO<sub>x</sub> and CO<sub>2</sub> shall be recorded continuously beginning with the 1st second ~~one~~. The inspector shall reject from testing vehicles with audible or otherwise detectable exhaust leaks.
  - b. The evaporative system purge test procedure shall consist of measuring the total purge flow in standard liters occurring in the vehicle's evaporative system during the transient dynamometer loaded emission test specified in ~~subparagraph~~ subsection (a) of this paragraph. The purge flow measurement system shall be connected to the purge portion of the evaporative system in series between the canister and the engine ~~as near to~~ the canister ~~as practicable~~.
  - c. The evaporative system integrity test shall consist of the following steps in sequence:
    - i. Connect the test equipment to the fuel tank canister hose at the canister end. The gas cap shall be checked to ensure that it is properly, ~~but not excessively~~ tightened, and shall be tightened if necessary.

- ii. Pressurize the system to  $14 \pm 0.5$  inches of water without exceeding 26 inches of water system pressure.
  - iii. Close off the pressure source, seal the evaporative system, and monitor pressure decay for up to ~~two~~ 2 minutes.
- 3. For vehicles required to take a biennial emissions test, ~~except as otherwise provided by subsection (F) of this Section,~~ all testing and test equipment shall conform to "High-Tech I/M Test Procedures, Emission Standards, Quality Control Requirements, and Equipment Specifications-Final Technical Guidance", (~~hereinafter~~ "High Tech I/M Final Technical Guidance"), EPA-AA-EPSP-IM-93-1, EPA, April 1994, ~~and no further editions, which is~~ incorporated herein by reference; and ~~is~~ on file with the Department and the Secretary of State. This incorporation by reference contains no future editions or amendments. A copy of this referenced material may be obtained at EPA's National Vehicle and Fuel Emissions Laboratory, 2000 Traverwood, Ann Arbor, MI 48105. For vehicles required to take an annual emissions test, exhaust sampling shall conform to ~~paragraph subsection (F)(6) of this Section.~~
- 4. All motorcycles and constant ~~four-wheel~~ 4-wheel drive vehicles shall be required only to take and pass a curb idle test ~~as prescribed in~~ according to subsection (F)(1).
- 5. The emissions pass/fail determination for all vehicles tested ~~pursuant to this~~ under subsection (E) shall be made as follows:
  - a. Vehicles tested ~~pursuant to paragraph~~ under subsection (1) ~~of this subsection,~~ which do not exceed either the loaded cruise mode or curb idle mode HC and CO emissions standards listed in Table 2, shall be ~~deemed~~ in compliance with minimum emissions standards contained in Table 2. The loaded cruise test standards specified in Table 2 shall ~~be applicable~~ apply to fleet vehicles tested ~~under~~ with the 2500 RPM unloaded fast idle test ~~pursuant to~~ under R18-2-1019(A).
  - b. ~~To be in compliance with this Article, vehicles~~ Vehicles tested ~~pursuant to paragraph~~ under subsection (E) (2) of this subsection shall meet the standards in Table 3, pass the evaporative system integrity test, and pass the evaporative system purge test as follows:
    - i. ~~To meet Table 3 standards~~ Standards. ~~a~~ A vehicle shall meet either the composite standard for the whole test or the phase 2 standard for seconds 94 to 239. The Department may implement testing algorithms for fast-pass, fast-fail, or both,

provided that ~~such~~ the algorithms are equivalent to or consistent with those listed in "High Tech I/M Final Technical Guidance" and ~~have been shown to be~~ are reliable in accurately predicting the final outcome of the entire cycle. Vehicles not meeting either the composite or phase 2 standard shall fail.

- ii. Evaporative System Integrity. ~~Vehicles shall fail the evaporative system integrity test~~ A vehicle fails if the system cannot maintain a system pressure above ~~eight~~ 8 inches of water for up to ~~two~~ 2 minutes after being pressurized to  $14 \pm 0.5$  inches of water. Additionally, vehicles ~~shall~~ fail the evaporative test if the canister is missing or ~~obviously~~ damaged, if hoses are missing or ~~obviously~~ disconnected, or if the gas cap is missing.
  - iii. Purge System Flow Test. ~~Vehicles~~ A vehicle with a total purge system flow measuring less than ~~one~~ 1 liter, over the course of the transient test required in ~~paragraph subsection (E)(2) of this Section,~~ shall fail ~~fails~~ the evaporative system purge test.
- c. Motorcycles and constant ~~four-wheel~~ 4-wheel drive vehicles which do not exceed the curb idle mode HC and CO emissions standards listed in Table 2 on either the ~~first~~ 1st curb idle test or the ~~second~~ 2nd curb idle test shall be ~~deemed~~ in compliance with the minimum emissions standards ~~contained~~ in Table 2.
  - d. Any vehicle exceeding the applicable emissions standards for the tests described in ~~subsections (E)(1) and (E)(2)(a) of this Section~~ shall fail the emissions test and shall have a low-emissions tune-up performed as described in R18-2-1010 ~~prior to~~ before reinspection. Any vehicle that fails the test described in either ~~subsections (E)(2)(b) or (E)(2)(c) of this Section~~ shall ~~have repairs performed~~ be repaired as required ~~under in~~ R18-2-1010(D)(1) or (2), as applicable, ~~prior to~~ before reinspection.
6. Each ~~non-diesel~~ nondiesel vehicle required to take an annual emission test in area A shall, at the time of the test, undergo a tampering inspection based on the original configuration of the vehicle as manufactured. The applicable emission system requirements shall be verified by the "VEHICLE EMISSION CONTROL INFORMATION" label under the hood. ~~Owners of vehicles~~ Vehicles that fail any portion of the tampering inspection shall ~~be required to repair such tampering in accordance with~~ be repaired according to R18-2-1009 ~~prior to~~ before reinspection or shall provide the written

statement ~~prescribed~~ required in R18-2-1008(B). ~~With respect to foreign manufactured vehicles,~~  
"original Original configuration" for foreign manufactured vehicles means the design and  
construction of ~~those vehicles~~ a vehicle produced by ~~that~~ the manufacturer for original entry and  
sale in the United States. The inspection shall consist of the following:

- a. All ~~non-diesel nondiesel~~ nondiesel vehicles emission tested, except those with non-sealing gas caps, shall ~~undergo~~ have a functional test of the gas ~~cap(s)~~ cap to determine that ~~the~~ cap leakage does not exceed 200 cubic centimeters of air per minute at a pressure of 30 inches of water gauge. ~~Non-diesel~~ Nondiesel vehicles with non-pressurized, vented systems shall ~~undergo~~ have a visual inspection to determine the presence of a gas cap.
- b. For ~~vehicles manufactured after the 1974~~ 1975 and newer model year vehicles:
  - i. A visual inspection to determine the presence of properly installed catalytic converters: ;
  - ~~ii. A visual inspection to determine the presence of fuel filler neck inlet restrictor(s) or malfunction thereof.~~
  - ~~iii.~~ iii. An examination to determine the presence of an operational air pump : ; and
  - ~~iv.~~ iv. A visual inspection to determine the presence or malfunction of the positive crankcase ventilation system and the evaporative control system.

F. In area B, the inspection test procedures for all vehicles other than diesel-powered vehicles shall conform to the following:

1. Area B vehicles manufactured ~~in the~~ with a model year of 1967 through 1980 ~~model years~~ shall ~~be required to~~ take and pass only a curb idle test.
  - a. ~~The~~ curb idle test shall be performed with the vehicle in drive for vehicles with automatic transmissions or in neutral for vehicles with manual transmissions. Engine RPM shall be within ~~plus or minus~~  $\pm$  100 RPM of the manufacturer's specified idle RPM. HC and CO exhaust emissions shall be recorded after readings have stabilized, or at the end of 30 seconds, whichever occurs first. A CO<sub>2</sub> plus CO reading of ~~six percent~~ 6% or greater shall be registered to establish test validity. A CO<sub>2</sub> plus CO reading less than ~~six percent~~ 6% shall be ~~deemed~~ proof of exhaust sample dilution and the vehicle shall be rejected from further emissions inspection.
  - b. ~~In the event the vehicle fails the curb idle test, and if requested by the vehicle operator, the~~

vehicle shall be conditioned according to ~~one~~ 1 of the following conditioning procedures:

~~i.a.~~ For the fast-idle, the vehicle shall be conditioned by increasing engine speed to 2500, ~~plus or minus~~  $\pm$  300 RPM, for up to 30 seconds with the transmission in neutral. HC and CO exhaust emissions concentrations shall be recorded after readings have stabilized, or at the end of 30 seconds, whichever occurs first. The conditioning mode standards in Table 2 shall be for diagnostic and advisory information only. After exhaust emissions have been recorded, the engine speed shall be returned to curb idle for a ~~second~~ 2nd idle test. The fast idle conditioning mode may be used on a vehicle at state stations in place of the loaded conditioning mode if ~~one~~ any of the following ~~situations~~ occurs:

- ~~(1)~~i. The vehicle has a tire on a driving wheel with less than 2/32-inch tread, with metal protuberances, or with ~~obviously~~ visibly low tire pressure, as determined by ~~superficial~~ visual inspection, or any other condition that ~~in the opinion of the vehicular emissions inspector~~ precludes loaded conditioning for reason of safety to personnel, equipment, or vehicle; ~~;~~
- ~~(2)~~ii. The vehicle is driven by a person who, because of physical incapacity, is unable to yield the driver's seat to the vehicular emissions inspector; ~~;~~
- ~~(3)~~iii. The driver refuses to yield the driver's seat to the vehicular emissions inspector; ~~;~~ or
- ~~(4)~~iv. The vehicle is unable to be tested according to Table 1 because of the vehicle's inability to attain the speeds specified.

~~ii.b.~~ For the loaded condition, for all vehicles other than motorcycles and constant ~~four-wheel~~ 4-wheel-drive vehicles, the vehicle's drive wheels shall be placed on a dynamometer and the vehicle shall be operated ~~as prescribed in~~ according to Table 1, in drive for automatic transmission, or ~~second~~ 2nd or higher gear for manual transmission. All front wheel drive vehicles shall be driven by the inspector. HC and CO exhaust emissions concentrations shall be recorded after readings have stabilized or at the end of 30 seconds, whichever occurs first. The conditioning mode standards in Table 2 shall be for diagnostic and advisory information only. After exhaust emissions have been recorded, engine speed shall

be returned to curb idle for a ~~second~~2nd idle test.

- c. ~~Following one of the conditioning procedures described in subparagraph in subsection (b) of this paragraph, the vehicle shall be retested in accordance with~~ according to the curb idle test procedure ~~described in subparagraph in subsection (a) of this paragraph.~~
2. Area B vehicles ~~manufactured in or after the~~ with a 1981 or newer model year, except motorcycles and constant ~~four-wheel~~ 4-wheel drive vehicles, shall be required to take and pass both a loaded cruise test and curb idle test, described as follows:
  - a. ~~For the loaded cruise test, the~~ Loaded Cruise Test. The vehicle's drive wheels shall be placed on a dynamometer and the vehicle shall be operated ~~as prescribed in~~ according to Table 1, in drive for automatic transmission or ~~second~~2nd or higher gear for manual transmission. Overdrive shall not be used. All front wheel drive vehicles shall be driven by the inspector. Exhaust emissions, HC and CO concentrations, shall be recorded after readings have stabilized or at the end of 90 seconds, whichever occurs first. After exhaust emissions have been recorded, engine speed shall be returned to idle for a curb idle test.
  - b. ~~The curb idle test~~ The Curb Idle Test. The test shall be performed with the vehicle in neutral. Engine RPM shall be within ~~plus or minus~~  $\pm$  100 RPM of the manufacturer's specified idle RPM. HC and CO exhaust emissions concentrations shall be recorded after readings have stabilized or at the end of 90 seconds, whichever occurs first. A CO<sub>2</sub> plus CO reading of ~~six percent~~ 6% or greater shall be registered to establish test validity. A CO<sub>2</sub> plus CO reading less than ~~six percent~~ 6% shall be ~~deemed~~ proof of exhaust sample dilution and the vehicle shall be rejected from further emissions inspection.
3. All motorcycles and constant ~~four-wheel~~ 4-wheel drive vehicles shall be required only to take and pass a curb idle test ~~as prescribed in paragraph~~ according to subsection (1) of this subsection. In the event the vehicle fails the curb idle test, and if requested by the vehicle operator, the vehicle shall be conditioned according to the fast idle conditioning procedure ~~prescribed~~ required in ~~paragraph~~ subsection (1)(b) of this subsection. Following conditioning, the engine speed shall be returned to idle for a ~~second~~2nd curb idle test ~~as prescribed in paragraph~~ according to subsection (1)(a) of this subsection.
4. The emissions pass/fail determination shall be made as follows:
  - a. Vehicles manufactured ~~in the~~ with a model year of 1967 through 1980 ~~model years,~~

except motorcycles and constant ~~four-wheel~~ 4-wheel drive vehicles, which do not exceed the curb idle mode HC and CO emissions standards ~~listed~~ in Table 2 on either the ~~first~~1st curb idle test or the ~~second~~2nd curb idle test, shall be ~~deemed~~ in compliance with the minimum emission standards contained in Table 2.

- b. Vehicles ~~manufactured in or after the~~ with a 1981 or newer model year, except motorcycles and constant 4-wheel drive vehicles, which do not exceed either the loaded cruise mode or curb idle mode HC and CO emissions standards listed in Table 2, shall be ~~deemed~~ in compliance with minimum emissions standards ~~contained~~ in Table 2. The loaded cruise test standards specified in Table 2 shall ~~be applicable~~ apply to fleet vehicles tested ~~under~~ with the 2500 RPM unloaded fast idle test.
- c. Motorcycles and constant 4-wheel drive vehicles which do not exceed the curb idle mode HC and CO emissions standards ~~listed~~ in Table 2 on either the ~~first~~1st curb idle test or the ~~second~~2nd curb idle test shall be ~~deemed~~ in compliance with the minimum emissions standards ~~contained~~ in Table 2.
- d. Any vehicle exceeding the appropriate emissions standards ~~shall fail~~ fails the emissions test and shall have a low emissions tune-up ~~performed~~ as described in R18-2-1010 ~~prior to~~ before reinspection.

5. Each area B vehicle required to take an emission test under this Article, shall at the time of the test, undergo a tampering inspection based on the original configuration of the vehicle as manufactured, as follows:

- a. Vehicles that have pressure holding gas caps shall ~~undergo~~ have a functional test of the gas ~~cap(s)~~ cap to determine that ~~the~~ cap leakage does not exceed 200 cubic centimeters of air per minute at a pressure of 30 inches of water gauge. Vehicles with non-sealing gas caps shall be checked for the presence of a gas cap.
- b. For ~~vehicles manufactured after the 1974~~ 1975 and newer model year vehicles:
  - i. A visual inspection to determine the presence of properly installed catalytic converters: and
  - ii. ~~A visual inspection to determine the presence of fuel filler neck inlet restrictor(s) or malfunction thereof.~~
  - iii. An examination to determine the presence of an operational air pump.

The above items shall be checked for conformance to the original configuration at time of manufacture. ~~With respect to foreign manufactured vehicles, "original~~ "Original configuration" ~~for foreign manufactured vehicles~~ means the design and construction of ~~those vehicles~~ a vehicle produced by ~~that~~ a manufacturer for original entry and sale in the United States. The applicable emission system requirements shall be verified by the "VEHICLE EMISSION CONTROL INFORMATION" label under the hood. ~~Owners of vehicles~~ Vehicles that fail any portion of the tampering inspection shall ~~be required to repair such tampering in accordance with~~ be repaired according to R18-2-1009 prior to before reinspection or shall provide ~~the~~ a written statement ~~prescribed in~~ required by R18-2-1008(B).

6. Exhaust sampling in area B shall conform to the following:
  - a. All CO and HC emission analyzers shall have water traps incorporated in ~~their~~ the sampling lines. Sampling probes shall be capable of taking undiluted exhaust samples from ~~the vehicle's~~ a vehicle exhaust system.
  - b. All vehicles, other than diesel-powered vehicles, shall be inspected with NDIR analyzers capable of determining concentrations of CO and HC within the ranges and tolerances specified in Table 5.
  - c. Vehicles with multiple exhaust ~~tail~~ pipes shall be inspected by collecting and averaging samples ~~with one~~ by 1 of the following methods:
    - i. Collect separate samples from each exhaust. The average concentration shall determine the test results;
    - ii. ~~Utilize~~ Use manifold exhaust probes to simultaneously sample approximately equal volumes from each pipe: or
    - iii. ~~Utilize~~ Use manifold exhaust ~~pipes~~ pipe adapters to collect approximately equal volume samples from each pipe.
    - iv. ~~Collect samples by a combination of the methods described in subdivisions (ii) and (iii) of this subparagraph. The average concentration shall be used to determine the test results.~~

**G.** The following apply to all testing ~~pursuant to~~ under subsections (E) or (F) ~~of this Section:~~

1. All rotary piston engines shall be treated in the same manner as 4-stroke engines with ~~four~~ 4 cylinders or less: ;

2. All turbine engines shall be treated as 4-stroke engines having more than ~~four~~ 4 cylinders: and
3. All vehicles in which a diesel engine has been replaced with a gas engine shall be inspected as gas-powered vehicles of the same vehicle model year. ~~Catalytic~~ The vehicle shall not pass the test unless catalytic converters, ~~fuel filler neck inlet restrictors~~, air pumps, gas caps and other emissions control devices applicable to the vehicle model year and the same or more recent year engine configuration ~~shall be~~ are properly installed and in operating condition.

**H.** In area A, the inspection test procedure for diesel-powered vehicles shall be as follows:

1. A diesel-powered vehicle with a GVWR greater than 8,500 pounds shall be tested with a procedure that conforms to Society of Automotive Engineers standard J1667, February 1996, incorporated by reference and on file with the Department and the Secretary of State. This incorporation by reference contains no future editions or amendments. A copy of this referenced material may be obtained at: Society of Automotive Engineers, 400 Commonwealth Dr., Warrendale, PA 15096-0001. The procedure shall utilize the corrections for ambient test conditions in Appendix B of J1667 for all tests. The test results shall be reported as the percentage of smoke opacity. Emissions pass/fail determinations are as follows:
  - a. Vehicles powered by a 1991 or later model year diesel engine shall fail if the J1667 final test result is greater than 40%, unless the engine family is exempted from the 40% standard under subsection (e);
  - b. Vehicles powered by a pre-1991 model year diesel engine shall fail if the J1667 final test result is greater than 55% unless the engine family is exempted from the 55% standard under subsection (e);
  - c. The engine model year is determined by the emission control label. If the emission control label is missing, illegible, or incorrect, the test standard shall be 40% unless a correct, legible emission control label replacement is attached to the vehicle within 30 days;
  - d. Any vehicle that exceeds the appropriate standard fails the emission test. Before reinspection, the vehicle shall have a low emissions tune-up as described in R18-2-1010(G);
  - e. The Director shall exempt any engine family from the standards in subsections (a) or (b) if the engine manufacturer demonstrates either of the following:
    - i. The engine family exhibits smoke opacity greater than the standard if in good

operating condition and adjusted to the manufacturer's specifications. Instead the engine family shall comply with any technologically appropriate less stringent standard identified by the Director based on a review of data obtained from engines in good operating condition and adjusted to manufacturer's specifications; or

ii. The engine family is exempted from an equivalent standard based on J1667 by the executive officer of the California Air Resources Board (CARB). Instead the engine family shall comply with any technologically appropriate less stringent standard identified by the executive officer of CARB; and

f. A demonstration under subsection (e)(i) shall be based on data from at least 3 vehicles. Data from official inspections under subsection (H)(1) showing that vehicles in the engine family pass may be used to rebut the demonstration. The Director shall implement any new standard resulting from each exemption as soon as practicable for all subsequent tests and provide notice at all affected test stations and fleets.

2. A diesel-powered vehicle with a GVWR greater than 4000 pounds and less than or equal to 8,500 pounds shall be tested by a loaded dynamometer test by applying a single load of 30 HP,  $\pm$  2 HP, while operated at 50 MPH. A diesel-powered vehicle with a GVWR of 4000 pounds or less shall be tested by a loaded dynamometer test by applying a single load of between 6.4 - 8.4 HP while operated at 30 MPH. For all diesel-powered vehicles with a GVWR less than or equal to 8,500 pounds:

a. The emissions pass/fail determination shall be made as follows:

i. The opacity reading for a period of 10 consecutive seconds with the engine under applicable loading shall be compared to the opacity standard specified in R18-2-1030(B). Vehicles which do not exceed the opacity standards in R18-2-1030(B) shall be in compliance with the minimum emission standards.

ii. Any vehicle that exceeds the appropriate standard fails the emission test. Before reinspection, the vehicle shall have a low emissions tune-up as described in R18-2-1010.

b. Exhaust sampling shall conform to the following:

i. Separate measurements shall be made on each exhaust pipe on diesel vehicles

equipped with multiple pipes. For vehicles equipped with more than 1 exhaust pipe, the reading taken from the exhaust pipe which has the highest opacity reading shall be used for comparison with the appropriate emission standard.

- ii. Vehicles shall be inspected with a full-flow, direct reading, continuous reading light extinction opacity meter using a collimated light source and photo-electric cell, accurate to a value within  $\pm 5\%$  of filter value.

I. ~~The In area B,~~ inspection test procedure for diesel-powered vehicles shall conform to the following: 1. ~~The emission inspection procedure shall be conducted~~ as follows:

- a1. A diesel-powered vehicle ~~either~~ with a GVWR greater than 26,000 pounds or having tandem axles shall be tested ~~pursuant~~ according to one 1 of the following ~~two~~ methods:

- ia. ~~With the vehicle on a chassis dynamometer under no power absorption, the~~ The vehicle shall be tested on a chassis dynamometer beginning with no power absorption by selecting a gear ratio which ~~will produce~~ produces a maximum vehicle speed of ~~between~~ 30-35 MPH at governed or maximum rated RPM~~7~~, if ~~if~~ the vehicle has a manual transmission or an automatic transmission with individual gear selection, ~~and then running~~ the engine shall be operated at governed or maximum rated engine RPM, at normal operating temperature under a power absorption load applied to the dynamometer until such loading reduces the engine RPM to 80~~percent~~% of the governed speed at wide-open throttle position. ~~In the case of vehicles with~~ If the vehicle has an automatic ~~transmissions~~ transmission with automatic gear kickdown, the engine shall be loaded to a speed just above the kickdown speed or 80~~percent~~% of the governed speed, whichever is greater. If the chassis dynamometer does not have enough horsepower absorption capability to lug the engine down to these speeds, the vehicle's brakes may be used to assist the dynamometer.

- ii. If a chassis dynamometer is not available, the vehicle shall be tested by being lugged by its own brakes by selecting a gear ratio which ~~will produce~~ produces a maximum speed of ~~between~~ 10-15 MPH at governed engine RPM or maximum rated RPM and then loading the engine by applying the brakes until the engine RPM is lugged down to 80~~percent~~% of the governed or maximum rated RPM at

wide-open throttle position. If the vehicle does not have a tachometer, the vehicle may be loaded to 80-percent% of governed or maximum rated speed.

b2. A diesel-powered vehicle without tandem axles and having a GVWR greater than 10,500 pounds and less than or equal to 26,000 pounds shall be tested ~~pursuant~~ according to one of the following ~~three~~ methods:

- ia. ~~With the vehicle on a chassis dynamometer under no power absorption, the~~ The vehicle shall be tested on a chassis dynamometer beginning with no power absorption by selecting a gear ratio which ~~will produce~~ produces a maximum vehicle speed of ~~between 30-35 MPH at governed or maximum rated RPM;~~ if the vehicle has a manual transmission or an automatic transmission with individual gear selection, ~~and then running the engine shall be operated at~~ governed or maximum rated engine RPM, at normal operating temperature under a power absorption load applied to the dynamometer until such loading reduces the engine RPM to 80-percent% of the governed speed at wide-open throttle position. ~~In the case of vehicles with~~ If the vehicle has an automatic ~~transmissions~~ transmission with automatic gear kickdown, the engine shall be loaded to a speed just above the kickdown speed or 80-percent% of governed speed, whichever is greater. If the chassis dynamometer does not have enough horsepower absorption capability to lug the engine down to these speeds, the vehicle's brakes may be used to assist the dynamometer: ;
- ii**b**. The vehicle shall be tested by applying a single load of 30 HP, ~~plus or minus~~ ± 2 HP, while ~~being~~ operated at 50 MPH: ; or
- iii**c**. The vehicle shall be tested by being lugged by its own brakes by selecting a gear ratio which ~~will produce~~ produces a maximum speed of ~~between 10-15 MPH at~~ governed engine RPM or maximum rated RPM and then loading the engine by applying the brakes until the engine RPM is lugged down to 80-percent% of the governed or maximum rated RPM at wide-open throttle position. If the vehicle does not have a tachometer, the vehicle may be loaded to 80-percent% of governed or maximum rated speed.

e3. A diesel-powered vehicle with a GVWR of greater than 4000 pounds and less than or equal to

10,500 pounds shall be tested by a loaded dynamometer test by applying a single load of 30 HP, ~~plus or minus~~  $\pm 2$  HP, while ~~being~~ operated at 50 MPH.

~~d4.~~ A diesel-powered vehicle with a GVWR of 4000 pounds or less shall be tested by a loaded dynamometer test by applying a single load of between 6.4 - 8.4 HP while ~~being~~ operated at 30 MPH.

~~25.~~ The emissions pass/fail determination shall be ~~made as follows~~ performed:

a. The opacity reading ~~made over~~ during a period of ~~ten~~10 consecutive seconds with the engine under ~~the~~ applicable loading specified in ~~paragraph subsection (1) through (4) of this subsection~~ shall be compared to the opacity reading ~~used for comparison with the~~ standard specified in R18-2-1030(B). Vehicles which do not exceed the opacity standards ~~set forth~~ in R18-2-1030(B) shall be ~~deemed~~ in compliance with the minimum emission standards.

b. Any vehicle ~~exceeding that exceeds~~ the ~~appropriate~~ standard in R18-2-1030(B) shall fail the emission test. ~~prior to~~ Before reinspection, the vehicle shall have a low emissions tune-up ~~performed~~ as described in R18-2-1010.

~~36.~~ Exhaust sampling shall conform to the following:

a. Separate measurements shall be made on each exhaust ~~outlet pipe~~ on diesel vehicles equipped with multiple exhaust pipes. For vehicles equipped with more than ~~one~~ 1 exhaust ~~stack or pipe~~, the reading taken from the ~~outlet exhaust pipe giving which has~~ the highest opacity reading shall be used for comparison with the ~~appropriate~~ standard in R18-2-1030(B).

b. ~~All diesel-powered vehicles~~ Vehicles shall be inspected with ~~an opacity meter that is~~ a full-flow, direct reading, continuous reading light extinction-type opacity meter using a collimated light source and photo-electric cell, accurate to a value within ~~plus or minus~~ five percent  $\pm 5\%$  of filter value.

~~I.~~ Area A or area B vehicles that are diesel-fueled and equipped with catalytic converters or PCV systems shall undergo a tampering inspection for those devices ~~pursuant to~~ under subsections (E) or (F) ~~of this Section~~.

~~J.~~ ~~The Director shall monitor biennial test failure rates by vehicle type on at least a weekly basis during the first three months of biennial testing, and if necessary, shall adjust emission standards according to this subsection. If the cumulative initial fail rate for any vehicle type listed in Table 3 exceeds 30%, excluding~~

vehicles that failed due solely to an evaporative system failure, at any time after a minimum sample of 1000 vehicles is available, the Director shall, one at a time, raise each emission standard with the highest number of exceedances for the sample in increments equal to 10% of the original standard until the cumulative initial failure rate for the vehicle type would fall below 28%. The Director shall implement the new standards resulting from each such adjustment as soon as practicable for all subsequent tests and provide reasonable notice at all affected test stations subsequent to any such adjustments. For any vehicle type for which a minimum sample of 1000 vehicles is not reached within the first three months of biennial testing, the Director's authority under this subsection shall extend until a minimum sample of 1000 is reached.

#### **R18-2-1010. Low Emissions Tune-up, Emissions and Evaporative System Repair**

A. A low emissions tune-up on nondiesel-powered vehicles ~~shall consist~~ consists of a person performing the following procedures:

1. ~~Perform an emission failure diagnosis~~ Emissions Failure Diagnosis. On computer-controlled vehicles, ~~access~~ the on-board-diagnostics shall be accessed and ~~record~~ any stored trouble codes recorded. The following instruments or equipment are required to complete a low emissions tune-up: tachometer, timing light, or an engine analyzer or oscilloscope, and where specified by the manufacturer, a HC/CO NDIR analyzer to make final A/F adjustments. Final adjustment shall be made ~~only after~~ on the vehicle engine only after the engine is at normal operating temperature. All adjustments shall be made ~~in accordance with~~ according to the manufacturer's specifications and procedures.
2. Inspection of Air Cleaner, Choke, and Air Intake System. ~~Inspect for dirty or plugged air cleaner and stuck choke, restricted air intake system. Replace and repair as required. The person shall replace or repair a dirty or plugged air cleaner, a stuck choke, or a restricted air intake system.~~
3. Dwell and Basic Timing Check. ~~Check dwell (or point gap) and basic timing according to manufacturer's specifications and adjust as required. Dwell and basic engine timing shall be checked and adjusted, if necessary, according to manufacturer's specifications.~~
4. Inspection of PCV Valve. ~~Check for manufacturer's recommended PCV valve and for its correct operation. The PCV valve shall be checked to ensure that it is the type recommended by the manufacturer and that it is correctly operating. Verify free~~ Free flow through the PCV system passages and hoses shall be verified. Repair and replace as required.

5. Inspection of Vacuum Hoses. Check for improperly routed, leaking or disconnected. The vacuum hoses shall be inspected for leaks and proper routing and connection. Repair and replace as required.
  6. Idle Speed and A/F Mixture Check. ~~The Adjust~~ idle speed and A/F mixture shall be checked and adjusted in accordance with according to manufacturer's specifications and procedures. ~~Note:~~ If vehicle is equipped with fuel injection system or an alternate fuel (LPG or LNG) follow the manufacturer's recommended adjustment procedure shall be followed.
- B.** ~~The A~~ low emissions tune-up must be performed on ~~all vehicles~~ a vehicle in order to qualify for a waiver if the vehicle fails reinspection.
- C.** If the maximum required repair cost ~~outlined~~ in subsections (E) and (F), or the vehicle owner share of repair costs in R18-2-1014(D), if applicable, whichever is less, ~~has is not been~~ exceeded after performing the a low emissions tune-up described in subsection (A), then ~~the following shall be done~~ a person shall perform the following and repair or replace as required:
1. ~~For vehicles failing~~ If a vehicle fails the CO only, ~~check the vehicle shall be checked~~ for proper canister purge system operation, high float setting, leaky power valve, faulty or worn needles, seats, jets or improper jet size. If applicable, the person shall check the computer, engine and computer sensors, engine solenoids, engine thermostats, engine switches, coolant switches, throttle body or port fuel injection system, fuel injectors, fuel lines, (routing and integrity), air in fuel system (for example, line, pump, etc.), fuel return system, injection pump, fuel injection timing, routing of vacuum hoses and/or electrical connections. ~~Repair and replace as required.~~
  2. ~~For vehicles failing~~ If a vehicle fails HC or HC and CO, ~~check the vehicle shall be checked~~ for faulty spark plugs and faulty, open, crossed, or disconnected plug wires, distributor module, vacuum hose routing and electrical connections; and for distributor component malfunctions including vacuum advance, faulty points or condenser, and distributor cap crossfire, catalytic converter efficiency, and catalytic converter air supply; and for vacuum leaks at intake manifold, carburetor base gasket, EGR, and vacuum-operated components. ~~Repair or replace as required.~~
  3. ~~For vehicles failing~~ If a vehicle fails NO<sub>x</sub>, ~~check the vehicle shall be checked~~ for removed, plugged, or malfunctioning EGR valve; exhaust gas ports, lines, and passages; EGR valve electrical and vacuum control circuitry, components, and computer control, as applicable; and for above normal engine operating temperature, proper air management, lean A/F mixture, catalytic converter

efficiency and over advanced off-idle timing. ~~Repair, replace and adjust as required.~~

**D.** Evaporative System Failures:

1. ~~For vehicles failing~~ If a vehicle fails an evaporative system integrity (pressure) test, ~~check the vehicle shall be checked~~ for leaking or disconnected vapor hoses, line, gas cap, fuel tank. ~~Repair or replace as required.~~
2. ~~For vehicles failing~~ If a vehicle fails an evaporative system purge test, ~~check the vehicle shall be checked~~ for missing or malfunctioning canister, canister electrical and vacuum control circuits and components. ~~Repair or replace as required.~~

**E.** The maximum required repair cost for vehicles in area A, not including costs to repair vehicles which fail an evaporative system purge or integrity test due to tampering, or other tampering repair costs, is ~~as follows:~~

1. Five hundred dollars for a diesel-powered vehicle with a ~~gross weight in excess of twenty-six thousand~~ GVWR greater than 26,000 pounds or a diesel-powered vehicle with tandem axles: ; or
2. For a vehicle other than a diesel-powered vehicle with a ~~gross weight in excess of twenty-six thousand~~ GVWR greater than 26,000 pounds or a diesel-powered vehicle with tandem axles:
  - a. ~~One~~ Two hundred dollars for ~~such~~ a vehicle manufactured in or before the 1974 model year: ;
  - b. Three hundred dollars for ~~such~~ a vehicle manufactured in the 1975 through 1979 model years: ; and
  - c. Four hundred and fifty dollars for ~~such~~ a vehicle manufactured in or after the 1980 model year.

~~This subsection~~ Subsection (E) does not prevent ~~the a~~ a vehicle owner from authorizing or performing more than the required repairs. ~~Vehicle operators who are having their~~ A vehicle operator who has a vehicle reinspected shall have repair receipts available when requesting a certificate of waiver.

**F.** ~~In area B, the~~ The maximum required repair cost ~~for vehicles in area B,~~ not including tampering repair costs, ~~for area B vehicles~~ is as follows:

1. Three hundred dollars for a diesel-powered vehicle with a ~~gross weight in excess of twenty-six thousand~~ GVWR greater than 26,000 pounds or a diesel-powered vehicle with tandem axles: ; or
2. For a vehicle other than a diesel-powered vehicle with a ~~gross weight in excess of twenty-six thousand~~ GVWR greater than 26,000 pounds or a diesel-powered vehicle with tandem axles:
  - a. Fifty dollars for ~~such~~ a vehicle manufactured in or before the 1974 model year: ;

b. Two hundred dollars for ~~such~~ a vehicle manufactured in the 1975 through 1979 model years; and

c. Three hundred dollars for ~~such~~ a vehicle manufactured in or after the 1980 model year.

~~This subsection~~ Subsection (F) does not prevent ~~the~~ a vehicle owner from authorizing or performing more than the required repairs. ~~Vehicle operators who are having their~~ A vehicle operator who has a vehicle reinspected shall have repair receipts available when requesting a certificate of waiver.

**G.** A low emissions tune-up on diesel-powered vehicles ~~shall consist of~~ consists of a person performing the following procedures:

1. ~~Inspect~~ Inspection for dirty or plugged air cleaner, restricted air intake system; ~~Replace and repair~~ repair and replace as required.

2. ~~Check~~ Checking fuel injection system timing according to manufacturer's specifications; ~~and~~ adjust as required.

3. ~~Check~~ Checking for fuel injector fouling, leaking or mismatch; ~~Repair~~ repair and replace as required.

4. ~~Check~~ Checking fuel pump and air-fuel ratio control according to manufacturer's specifications; ~~and~~ adjust as required.

5. If the vehicle fails the J1667 procedure, checking smoke-limiting devices, if any, such as the aneroid valve and puff limiter. Repair and replace as required.

**H.** Any available warranty coverage shall be used to obtain needed repairs before expenditures can be counted towards the cost limits in subsections (E) and (F) ~~of this Section~~. The operator of a vehicle within the statutory age and mileage coverage under section 207(b) of the Clean Air Act shall present a written denial of warranty coverage from the manufacturer or authorized dealer for this provision to be waived ~~for approved tests applicable to the vehicle~~.

#### **R18-2-1019. Fleet Station Procedures and Permits**

**A.** Vehicles owned by or leased to a holder of a fleet emissions inspection station permit ~~that are not exempt from inspection~~ shall be inspected ~~as specified in~~ according to R18-2-1006(E) through (I), except as follows:

1. Dealer fleet vehicles in area A held for resale and all area B fleet vehicles, if manufactured in or after the 1981 model year, ~~and~~ other than diesel-powered, shall be required to take and pass both the

curb idle test specified in R18-2-1006(F)(1) and a 2,500 RPM unloaded fast idle test as follows:

- a. The vehicle's engine shall be operated at 2500, ~~plus or minus~~  $\pm$  300 RPM, for up to 30 seconds with the transmission in neutral; and
  - b. HC and CO exhaust emissions concentrations shall be recorded after readings have stabilized or at the end of 30 seconds, whichever occurs first, and compared to the loaded cruise standards in Table 2.
2. Dealer fleet vehicles in area A held for resale, if manufactured in or before the 1980 model year, ~~and~~ other than diesel-powered, shall be required to take and pass a curb idle test ~~as specified in~~ according to R18-2-1006(F)(1). The loaded cruise test standards specified in Table 2 of this Article ~~shall be~~ are applicable to fleet vehicles tested ~~under~~ with the 2,500 RPM unloaded fast idle test. A fleet emissions inspection station that is unable to test at least 25 vehicles ~~as specified in~~ according to R18-2-1006 and this Section shall surrender its license ~~on the effective date of this~~ Section.

**B.** The following equipment requirements shall apply to permits for all fleet stations:

1. If the permit is for the inspection of nondiesel-powered vehicles, all of the following equipment shall be owned or leased by the permit applicant or permit holder, or its employees, and shall be in good working condition:
  - a. Ignition timing light with timing advance tester;
  - b. Ignition operated tachometer;
  - c. Dwell meter;
  - d. Socket tool for replacing spark plugs;
  - e. Spark-plug gap setting tool;
  - f. Tools for replacing or adjusting carburetors or fuel injection systems, distributors, fuel pumps, and ignition coils; and
  - g. NDIR analyzer.
2. If the permit is for the inspection of diesel-powered vehicles, all of the following equipment shall be owned or leased by the permit applicant or permit holder, or its employees, and shall be in good working condition:
  - a. Tools for removing fuel pumps and injectors;
  - b. Fuel pressure gauge;

- c. Opacity meter. The meter shall meet J1667 specifications for vehicles with a GVWR greater than 8500 lbs. in area A;
- d. Tools required by the vehicle manufacturer for field setting of fuel injectors, inlet and exhaust valve clearance, governors, and throttle controls; and
- e. A dynamometer for testing light duty diesel vehicles;

**BC.** The following shall apply to permits for all fleet stations:

1. ~~Any~~ An owner or lessee of a fleet of 25 or more nonexempt vehicles whose place of business is located in areas A or B may apply to the Director for a permit to establish a fleet station. The Director shall not issue or renew any fleet station permit until the Director has found that the permit applicant or permit holder:

a. Maintains an established facility for the inspection, repair, and maintenance of the applicant's fleet, ~~of vehicles which meets the following requirements:~~

i. The facility shall be exclusively rented, leased, or owned by the permit applicant or permit holder.

~~ii. If the permit is for the inspection of nondiesel-powered vehicles, all of the following equipment shall be owned or leased by the permit applicant or permit holder or employees thereof and shall be in proper working condition:~~

~~(1) Ignition timing light with timing advance tester;~~

~~(2) Ignition operated tachometer;~~

~~(3) Dwell meter;~~

~~(4) Socket tool for replacing spark plugs;~~

~~(5) Spark-plug gap setting tool;~~

~~(6) Tools for replacing or adjusting carburetors or fuel injection systems, distributors, fuel pumps, and ignition coils;~~

~~(7) Nondispersive infra-red analyzer (NDIR);~~

~~iii. If the permit is for the inspection of diesel-powered vehicles, all of the following equipment shall be owned or leased by the permit applicant or permit holder or employees thereof and shall be in good working condition:~~

~~(1) Tools for removing fuel pumps and injectors;~~

~~(2) Fuel pressure gauge;~~

~~(3) Opacity meter.~~

~~(4) Tools required by the vehicle manufacturer for field setting of fuel injectors, inlet and exhaust valve clearance, governors, and throttle controls.~~

~~(5) A dynamometer for testing light and medium duty diesel vehicles.~~

- b. Employs ~~properly~~ trained personnel as follows:
- i. If the facility is for the repair of nondiesel-powered vehicles, ~~employs~~ personnel to perform tune-ups of engines and replacement or repair of carburetion and ignition components: ~~;~~ and
  - ii. If the facility is for the repair of diesel-powered vehicles, ~~employs~~ personnel to perform tune-ups and replacement or repair of diesel fuel systems in the vehicle fleet.
- c. Provides ~~a suitable~~ space devoted principally to maintaining or repairing the ~~fleet's~~ motor vehicles. ~~Such~~ The space shall be of sufficient area to conduct maintenance or repair of at least ~~one~~ 1 fleet motor vehicle at a time.
- d. Has obtained ~~the~~ a CO and HC emissions analyzer ~~conforming which conforms~~ to the requirements of R18-2-1006 to conduct the ~~required~~ emissions inspections.
- e. Employs a licensed vehicular emissions inspector who ~~will perform~~ performs the necessary inspections. ~~This~~ The inspector may be the same person required by ~~subparagraph subsection (b) of this paragraph~~.
- f. ~~Agrees to provide~~ Provides information to the Department as ~~prescribed~~ required in this Section.
- g. Demonstrates proficiency by passing a Department-administered examination on the statutes and rules ~~governing for~~ the operation and administration of a fleet emissions inspection station. If the permit applicant or permit holder ~~will not be~~ is not in charge of the day-to-day operation of the fleet station, ~~then~~ the individual who ~~will be~~ is in charge of the day-to-day operation of the fleet station shall be required to pass the examination. ~~This~~ The individual shall be known as the fleet agent.
2. A dealer's business inventory of vehicles held for resale ~~that~~ which exists at the time of inspection of the dealer's fleet for approval of application by the Department shall be used to determine

- compliance with ~~paragraph subsection (1) of this subsection~~ ;
3. Application forms may be obtained from the Department: ;
  4. All completed applications shall be submitted to the Department: ;
  5. Before an ~~original~~ application for a fleet station permit ~~may be~~ is approved, an inspection of the premises shall be made by a state inspector: ;
  6. A fleet station shall not inspect or certify vehicles not owned by or leased to the fleet owner. Consignment vehicles shall be tested at a state inspection station ~~in accordance with~~ according to R18-2-1005(A)(3): ;
  7. A fleet station permit ~~shall expire one~~ expires 1 year from the date of issuance, except as otherwise provided in Title 41, Chapter 6, Article 6 of the Arizona Revised Statutes: ;
  8. The fleet station permit may be renewed by submittal of a renewal application to the Department within 30 days ~~prior to~~ before expiration: ;
  9. A fleet station permit ~~shall only be applicable to~~ is valid for only the fleet's inspection facility located at the address shown on the fleet station permit. ~~If a fleet owner wishes to have a permit for inspection facilities at more than one address, then~~ A separate permits ~~permit~~ shall be obtained for each inspection facility: ;
  10. Fleet station permits issued by the Director shall not be transferable: ;
  11. ~~When~~ If a permit name or address ~~changes do~~ change does not involve a change of ownership, the permit shall be returned to the Department for cancellation and a new permit application shall be submitted. ~~The Director shall cancel the returned permit and issue a~~ A new permit shall be issued by the Director for the unexpired term: ;
  12. In the event of loss, destruction, or mutilation of ~~the~~ a permit, the ~~person to whom it was issued~~ fleet owner may obtain a duplicate upon furnishing satisfactory proof of the fact. Any fleet that loses a fleet station permit issued by the Director, and after obtaining a duplicate finds the original permit, shall immediately surrender the original permit to the Department: ;
  13. ~~Persons~~ Fleet owners whose permits have expired shall immediately cease ~~the activity requiring a~~ permit fleet inspections, except as otherwise provided in Title 41, Chapter 6, Article 6 of the Arizona Revised Statutes: ;
  14. A fleet station ~~which~~ that does not have a vehicular emissions inspector in its employ shall immediately cease to operate as a fleet station and shall notify the Department ~~immediately~~ within 1

day by telephone and in writing within ~~seven~~ 7 days ~~in writing~~. All unused vehicle certificates of inspection shall be returned to the Department within ~~seven~~ 7 days for a refund: ;

15. A fleet station ~~which that~~ does not have a fleet agent in its employ shall immediately cease to operate as a fleet station and shall notify the Department immediately by telephone and in writing within ~~seven~~ 7 days, ~~in writing~~ unless the permit applicant or other designated employee has taken and passed the examination requirement ~~as set forth in paragraph subsection (1)(g) of this subsection and assumes~~ The permit applicant or other designated employee shall assume responsibility for the day-to-day operation of the fleet station. The fleet owner shall notify the Department within ~~seven~~ 7 days of the designation of a new fleet agent: ;
16. ~~When~~ If a fleet station permit is surrendered, suspended, revoked, or is not renewed, all unused vehicle certificates of inspection shall be returned to the Department for a refund: ; and
17. ~~Surrender~~ A permit holder's surrender of a permit shall not deprive the Department of jurisdiction from ~~carrying out investigative or disciplinary proceedings against the~~ investigating or disciplining ~~the permit holder for violations prior to surrender.~~

**ED.** In addition to the equipment requirements in subsection (B) ~~of this Section~~, non-dealer fleets in area A shall have ~~all~~ of the following:

1. Equipment to perform a steady state loaded emission test as required in R18-2-1006(E)(1): ;
2. Equipment to perform a transient loaded emission test as required in R18-2-1006(E)(2): ;
3. Equipment for testing evaporative systems for pressure and purge flow as required in R18-2-1006(E)(2): ; and
4. Ability to perform the maintenance and quality control requirements of R18-2-1006(E)(2) and "High-Tech I/M Final Technical Guidance".

**DE.** The Director may suspend, revoke, or refuse to renew a fleet station permit ~~in accordance with~~ according to A.R.S. §§ 49-546(F) and 41-1001 et seq. if the permittee, or any person working for or employed by the permittee:

1. Violates any provision of Title 49, Chapter 3, Article 5 of the Arizona Revised Statutes or any provision of this Article : ;
2. ~~Has misrepresented~~ Misrepresents a material fact in obtaining a permit: ;
3. Fails to make, keep, and submit to the Department records ~~showing~~ for vehicles tested as a permittee : ;

4. Fails to ~~maintain conformance with each of the applicable~~ meet the requirements of subsections (B) and (C) of this Section; ~~through (D); and~~

5. Does not provide a state inspector access to the ~~information records~~ required by this Article.

**FF.** The fleet station permit and licenses of all fleet inspectors ~~employed at the station~~ shall be ~~prominently~~ conspicuously displayed within the station.

**FG.** ~~A written notification shall be submitted to the Department by the fleet station permit holder~~ A fleet station permit holder shall notify the Department in writing within ~~seven~~ 7 days of any change of the employment status of ~~the a fleet station's~~ station vehicular emissions inspector.

**GH.** The inspection equipment shall meet the following requirements:

1. Each fleet station shall be equipped with at least one emission ~~analyzers~~ analyzer which ~~meet~~ meets the specifications contained in R18-2-1006. Only the equipment ~~required~~ necessary to test the types of vehicles in the fleet inventory ~~shall be~~ is required ~~in~~ at the fleet stations.

2. All test equipment and instrumentation shall be maintained in ~~proper~~ accurate working condition as ~~prescribed~~ required by the manufacturer. Instruments requiring periodic calibration shall be calibrated ~~in accordance with~~ according to instructions and recommendations of the instrument or equipment manufacturer. NDIR emission analyzers shall be registered and calibrated ~~pursuant~~ according to R18-2-1027. ~~A record of calibrations performed on~~ Calibration records for each instrument other than NDIR emission analyzers, shall be maintained by the fleet station, ~~indicating~~ The calibration records shall indicate the date and authentication of the technician performing ~~the~~ previous each calibration.

3. The instrument calibration records shall be ~~subject to~~ available for review by the Department.

4. Working gases used by the fleet station shall be subject to analysis and comparison to the Department's standard gases at any time.

5. Fleet station equipment shall be subject to both scheduled and unscheduled checks for accuracy and condition by the Department.

**HI.** ~~If at any time~~ a fleet station fails to meet all the requirements of ~~subsection (B)(1) of this Section~~ subsections (B) and (C)(1), it shall immediately cease to operate as a fleet station until all such requirements are met. ~~Should~~ If the fleet ~~be administratively red-tagged~~ is cited for failure to have the necessary equipment, it shall not resume operation as a fleet emissions inspection station until compliance ~~has been~~ is verified by the Department.

**II.** Certificates of inspection shall be processed as follows:

1. A certificate of inspection shall be completed and signed by the vehicular emissions inspector conducting the inspection at the time the vehicle passes inspection. Only the vehicular emissions inspector performing the inspection may sign a certificate of inspection. Certificates shall be issued in numerical order: ;
2. For all inspections other than ~~the~~ a biennial test, the expiration date shall be ~~one~~ 1 year from the date ~~that the vehicle has passed~~ passes the mandatory vehicular emissions inspection. For vehicles required to pass ~~the~~ a transient loaded emission test, the expiration shall be ~~two~~ 2 years after the pass date: ;
3. All ~~information required on the~~ copies of a certificate of inspection shall be ~~entered with sufficient pressure to ensure that all copies of the certificate are~~ legible: ;
4. ~~Any certificates~~ A certificate of inspection that ~~are~~ is incorrect shall have all corrections authenticated by the initials of the vehicular emissions inspector: ;
5. ~~Only the vehicular emissions inspector performing the inspection may sign a certificate of inspection.~~
65. Unless inspection data is electronically transmitted ~~pursuant to~~ under A.R.S. § 49-542(Q), the original completed certificate shall be presented to the Arizona Department of Transportation Motor Vehicle Division in Pima County or the Maricopa County Assessor in Maricopa County for processing of ~~either~~ the vehicle's application for title and registration or the Arizona registration card: ;
76. The ~~second~~2nd copy of each completed certificate of inspection, along with the ~~second~~2nd copy of the Fleet Inspection Report/Monthly Summary, shall be forwarded to the Department monthly, within ~~two~~ 2 weeks after the end of the month in which the inspection ~~was~~ is conducted: ;
87. The ~~third~~ 3rd copy of each completed certificate of inspection, along with the original Fleet Vehicle Inspection Report/Monthly Summary, shall be retained for ~~two~~ 2 years from the date of inspection: ;
98. Unless inspection data is electronically transmitted ~~pursuant to~~ under A.R.S. § 49-542(Q), the Arizona Department of Transportation Motor Vehicle Division in Pima County or the Maricopa County Assessor in Maricopa County shall accept ~~the~~ a signed vehicular emissions certificate as evidence that the vehicle is a fleet-inspected vehicle and ~~has met~~ meets the state's inspection requirements ~~according to~~ under R18-2-1007(C): ;

- ~~109.~~ ~~Certificates~~  Vehicular emissions certificates shall be purchased from the Department in lots of 25. If the number of vehicles to be inspected by the fleet station is reduced after purchase of the certificates and before ~~their use~~ the certificate is used, the excess certificates may be ~~either~~ returned to the Department for refund or may be used in subsequent years: ;
- ~~110.~~ The charge for certificates shall be \$5.00 each. ~~The payment~~ Payment for ~~the~~ certificates shall be included with ~~the~~ an application for certificates: ; Checks shall be made payable to the Department of Environmental Quality.
- ~~1211.~~ Only the Department shall sell or otherwise transfer certificates of inspection: ;
- ~~1312.~~ The fleet station owner shall be responsible for the security and accountability of all the owner's certificates: ; and
- ~~1413.~~ ~~In the event that~~ If any certificates are lost or stolen, the fleet station owner shall notify the Department in writing within 24 hours, ~~and indicate~~ indicating the number of certificates lost and ~~their~~ the serial numbers. ~~Refusal~~ The Department may revoke a fleet station permit for refusal or failure to report lost certificates within 24 hours, shall be grounds for revoking a fleet station permit.

~~JK.~~ The ~~Each fleet shall obtain a~~ Fleet Vehicle Inspection Report/Monthly Summary ~~shall be obtained~~ from the Department and, for all inspections other than diesel inspections and the transient loaded emissions test, ~~shall contain~~ record all of the following information ~~which shall be recorded~~ at the time of inspection by the vehicular emissions inspector performing the inspection:

1. The VIN of the vehicle passing inspection: ;
2. The vehicle's license number, ~~where~~ if applicable: ;
3. The HC content of the undiluted exhaust recorded at idle: ;
4. The CO content of the undiluted exhaust recorded at idle: ;
5. The HC content of the undiluted exhaust recorded at 2500 ~~rpm:~~ RPM:
6. The CO content of the undiluted exhaust recorded at 2500 ~~rpm:~~ RPM:
7. ~~When applicable, results~~ Results of a tampering check: ;
8. The vehicle model year: ;
9. The vehicle make: ;
10. The date of inspection: ;
11. The license number of the vehicular emissions inspector conducting the inspection: ;

12. The signature of the inspector making the entry: ; ~~and~~
13. The serial number of the certificate of inspection, recorded in numerical order: ;
- KL**. For diesel vehicles, the summary described in subsection (J) shall record opacity rather than undiluted HC and CO readings.
- LM**. For vehicles required to take the transient loaded emission test, the summary described in subsection (J) shall record the total HC, CO, CO<sub>2</sub> and NO<sub>x</sub> measured in grams/mile, ~~and~~ the evaporative system integrity and the purge test results, ~~rather than the~~ The items in subsections (J)(3) through (7) are not required.
- MN**. Upon request, a state inspector shall be allowed access to and shall be allowed to photocopy on or off the premises the original Fleet Vehicle Inspection Report/Monthly Summaries, the ~~second~~2nd copies of certificates of inspection, and any ~~or all~~ other related documents.
- NO**. Fleet vehicles shall be subject to inspection by state inspectors.
- OP**. A certificate of waiver may be issued by a fleet inspector other than an auto dealer licensed to sell used motor vehicles ~~pursuant to~~ under Title 28 of the Arizona Revised Statutes ~~when if~~ the requirements of R18-2-1008(A), R18-2-1009, and R18-2-1010 ~~have been~~ are met according to the following procedure:
1. A certificate of waiver ~~shall be~~ is completed and signed by the vehicular emissions inspector conducting the inspection following completion of a fleet inspection waiver report. The report shall be forwarded to the Department within ~~three working~~ 3 business days from the date of issuance of the certificate of waiver. A fleet inspection waiver report shall be provided with the purchase of each certificate of waiver. The fleet inspection waiver report shall contain a description of the vehicle, test results, and repairs performed: ;
  2. The expiration date of the certificate of waiver shall be ~~two~~ 2 years from the date ~~that~~ the waiver is granted for ~~vehicles~~ a vehicle required to take ~~the~~ a transient loaded emission test, and ~~one~~ 1 year for all other vehicles: ;
  3. ~~All information required on the certificate of waiver shall be entered with sufficient pressure to ensure that all copies of the certificate are~~ of waiver shall be legible: ;
  4. ~~Any~~ A certificate of waiver that is incorrect shall have all corrections authenticated by the initials of the vehicular emissions inspector: ;
  5. ~~Only the vehicular emissions inspector performing the inspection may sign a certificate of waiver.~~
- ~~65.~~ Unless inspection data is electronically transmitted ~~pursuant to~~ under A.R.S. § 49-542(Q), the original completed certificate shall be presented to the Arizona Department of Transportation

Motor Vehicle Division in Pima County or the Maricopa County Assessor in Maricopa County for processing of either the vehicle's application for title and registration or the Arizona registration card.;

76. The ~~second~~2nd copy of each completed certificate of waiver shall accompany the completed fleet inspection waiver report. ;
87. The ~~third~~ 3rd copy of each completed certificate of waiver, along with a copy of the fleet inspection waiver report, shall be retained by the fleet station owner for ~~two~~ 2 years from the date of inspection. ;
98. Unless inspection data is electronically transmitted ~~pursuant to~~ under A.R.S. § 49-542(Q), the Arizona Department of Transportation Motor Vehicle Division in Pima County or the Maricopa County Assessor in Maricopa County shall accept ~~the~~ a signed vehicle emissions certificate as evidence that the vehicle is a fleet-inspected vehicle and ~~has met~~ meets the state's inspection requirements. ~~if the~~ The certificate is must be complete and ~~the expiration date has not passed.~~ shall be current.
109. The charge for certificates of waiver shall be \$5.00 each. ~~The payment~~ Payment for ~~the~~ certificates shall be included with ~~the~~ an application for certificates. Checks shall be made payable to the "Department of Environmental Quality." ;
110. Only the Department shall sell or otherwise transfer certificates of waiver. ;
121. The fleet station owner shall be responsible for the security and accountability of all the owner's certificates. ; and
1312. ~~In the event that any~~ If certificates are lost or stolen, the fleet station owner shall notify the Department in writing within 24 hours, ~~and indicate~~ indicating the number of certificates lost and ~~their~~ the serial numbers. ~~Refusal~~ The Department may revoke a fleet station permit for refusal or failure to report lost certificates within 24 hours, ~~shall be grounds for revoking a fleet station permit.~~