

DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DIVISION OF AIR AND WASTE MANAGEMENT

Statutory Authority: 7 Delaware Code, Chapter 60; (7 Del.C., Ch. 60)

PROPOSED

REGISTER NOTICE

SAN # 2010-23 and #2012-01

Low Enhanced Inspection and Maintenance Program Plan for Implementation (PFI)

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Section 1 - Applicability.

This program will be known as the "Low Enhanced Inspection and Maintenance Program" or the "LEIM Program", and will be identified as such in the balance of this document.

Enhanced programs are required in serious or worse ozone nonattainment areas, depending upon population and nonattainment classification or design value. (The determination of whether an area has a Low Enhanced or a High Enhanced program depends on the emission reductions required for the area. If minimal reductions are needed to meet the Rate of Progress Plan/Attainment requirements, the A Low Enhanced program is acceptable, otherwise a High Enhanced program must be adopted and implemented. Delaware has an approved rate of progress plan for ozone per 40 CFR 350 (b) and the low-enhanced program was accepted by EPA.

The following analysis first portrays the tests of the EPA Rule, first for classification and population criteria and then for extent of area of coverage. For both analyses, various criteria are used to determine applicability. Following each criteria is an analysis which identifies the areas of Delaware where each criteria may or may not apply. The rule language is shown in italics.

(a) Nonattainment area classification and population criteria.

- (1) States or areas within an ozone transport region shall implement enhanced I/M programs in any metropolitan statistical area (MSA), or portion of an MSA, within the state or area with a 1990 population of 100,000 or more as defined by the Office of Management and Budget (OMB) regardless of the area's attainment classification. In the case of a multi state MSA, enhanced I/M shall be implemented in all ozone transport region portions if the sum of these portions has a population of 100,000 or more, irrespective of the population of the portion in the individual ozone transport region state or area.*

Applicability: This criteria applies to New Castle and Kent Counties. This criterion excludes Sussex County due to no 1990 MSA.

- (2) Apart from those areas described in paragraph (a)(1) of this section, any area classified as serious or worse ozone nonattainment, or as moderate or serious CO nonattainment with a design value greater than 12.7 ppm, and having a 1980 Bureau of Census defined (Census defined) urbanized area population of 200,000 or more, shall implement enhanced I/M in the 1990 Census defined urbanized area.*

Applicability: This criteria applies to New Castle and Kent Counties This criteria still excludes Sussex County, with classification of Marginal.

- (3) Any area classified, as of November 5, 1992, as marginal ozone nonattainment or moderate CO nonattainment with a design value of 12.7 ppm or less shall continue operating I/M programs that were part of an approved State Implementation Plan (SIP) as of November 15, 1990, and shall update those programs as necessary to meet the basic I/M program requirements of this subpart. Any such area required by the Clean Air Act, as in effect prior to November 15, 1990, as interpreted in EPA guidance, to have an I/M program shall also implement a basic I/M program. Serious, severe and extreme ozone areas and CO areas over 12.7 ppm shall also continue operating existing I/M programs and shall upgrade such programs, as appropriate, pursuant to this subpart.*

Applicability: This criteria does not apply to New Castle or Kent Counties since they are required to adopt enhanced I/M.

This criteria does not apply to Sussex since the SIP Revision to include that county in the statewide basic I/M program was not adopted by EPA by November 15, 1990.

- (4) Any area classified as moderate ozone nonattainment, and not required to implement enhanced I/M under paragraph (a)(1) of this section, shall implement basic I/M in any 1990 Census defined urbanized area in the nonattainment area.*

Applicability: This criterion does not apply to Delaware counties since there are no counties that are classified as Moderate.

(5) Any area outside an ozone transport region classified as serious or worse ozone nonattainment, or moderate or serious CO nonattainment with a design value greater than 12.7 ppm, and having a 1990 Census defined urbanized area population of less than 200,000 shall implement basic I/M in the 1990 Census defined urbanized area.

Applicability: This criterion does not apply to any Delaware counties since all Delaware counties are included in the ozone transport region.

(6) If the boundaries of a moderate ozone nonattainment area are changed pursuant to section 107(d)(4)(A)(i) (ii) of the Clean Air Act, such that the area includes additional urbanized areas, then a basic I/M program shall be implemented in the newly included 1990 Census defined urbanized areas.

Applicability: This criteria does not apply to any Delaware counties since no counties are classified as Moderate.

(7) If the boundaries of a serious or worse ozone nonattainment area or of a moderate or serious CO nonattainment area with a design value greater than 12.7 ppm are changed any time after enactment pursuant to section 107(d)(4)(A) such that the area includes additional urbanized areas, then an enhanced I/M program shall be implemented in the newly included 1990 Census defined urbanized areas, if the 1980 Census defined urban area population is 200,000 or more. If such a newly included area has a 1980 Census defined population of less than 200,000, then a basic I/M program shall be implemented in the 1990 Census defined urbanized area.

Applicability: This criteria does not apply to any Delaware counties since no counties (other than Kent) have urbanized areas.

(8) If a marginal ozone nonattainment area, not required to implement enhanced I/M under paragraph (a)(1) of this section, is reclassified to moderate, a basic I/M program shall be implemented in the 1990 Census defined urbanized area(s) in the nonattainment area. If the area is reclassified to serious or worse, an enhanced I/M program shall be implemented in the 1990 Census defined urbanized area, if the 1980 Census defined urban area population is 200,000 or more. If less than 200,000, a basic I/M program shall be implemented in the 1990 Census defined urbanized area(s) in the nonattainment area.

Applicability: This criteria could only apply to Sussex, however data does not demonstrate that Sussex should be reclassified to Moderate nonattainment.

(9) If a moderate ozone or CO nonattainment area is reclassified to serious or worse, an enhanced I/M program shall be implemented in the 1990 Census defined urbanized area, if the 1980 Census defined urban area population is 200,000 or more. In the case of ozone areas reclassified as serious or worse, if the 1980 Census defined population of the urbanized area is less than 200,000, a basic I/M program shall be implemented in the 1990 Census defined urbanized area(s) in the nonattainment area.

Applicability: This criterion does not apply to any Delaware counties since no counties are classified as Moderate.

(b) Extent of area coverage.

(1) In an ozone transport region, the program shall entirely cover all counties within subject MSAs or subject portions of MSAs, as defined by OMB in 1990, except largely rural counties having a population density of less than 200 persons per square mile based on the 1990 Census can be excluded provided that at least 50% of the MSA population is included in the program. This provision does not preclude the voluntary inclusion of portions of an excluded rural county. Non urbanized islands not connected to the mainland by roads, bridges, or tunnels may be excluded without regard to population.

Applicability: This criteria does not apply to New Castle or Kent Counties since they are already classified as Severe. This criteria does not apply to Sussex since there are no MSAs in Sussex.

(2) Outside of ozone transport regions, programs shall nominally cover at least the entire urbanized area, based on the 1990 census. Exclusion of some urban population is allowed as long as an equal number of non urban residents of the MSA containing the subject urbanized area are included to compensate for the exclusion.

Applicability: This criteria does not apply to any Delaware counties since all counties are part of the ozone transport region.

(3) Emission reduction benefits from expanding coverage beyond the minimum required urban area boundaries can be applied toward the reasonable further progress requirements or can be used for offsets, provided the covered vehicles are operated in the nonattainment area, but not toward the enhanced I/M performance standard requirement.

Applicability: Delaware does not plan to include credits from vehicles registered in Sussex and operated in Kent or New Castle due to the tentative nature of this analysis.

(4) In multi-state urbanized areas outside of ozone transport regions, I/M is required in those states in the subject multi state area that have an urban area population of 50,000 or more, as defined by the Bureau of Census in

1990. In a multi state urbanized area with a population of 200,000 or more that is required under paragraph (a) of this section to implement enhanced I/M, any state with a portion of the urbanized area having a 1990 Census defined population of 50,000 or more shall implement an enhanced program. The other coverage requirements in paragraph (b) of this section shall apply in multi state areas as well.

Applicability:This criteria does not apply to any Delaware counties since all counties are part of the ozone transport region.

The conclusion of this analysis is that New Castle and Kent Counties are subject to the LEIM program requirements.

(c) Requirements after attainment.

A revision to 7 DE Admin. Code 1131, will remain in effect if the area is re-designated to attainment status, until approval of a Maintenance Plan, under Section 175A of the Clean Air Act, which demonstrates that the area can maintain the relevant standard for the maintenance period (10 years) without benefit of the emission reductions attributable to the continuation of the LEIM program.

(d) Definitions:

"Department" means the Department of Natural Resources and Environmental Control of the State of Delaware.

"Emissions" means products of combustion and fuel evaporation discharged into the atmosphere from the tailpipe, fuel system or any emission control component of a motor vehicle.

"Emissions Inspection Area" means the emissions inspection area will constitute the entire counties of New Castle and Kent.

"Emissions Standard(s)" means the maximum concentration of hydrocarbons (HC), carbon monoxide (CO) or any combination thereof, allowed in the emissions from a motor vehicle as established by the Secretary, as described in this regulation.

"GPM" means grams per mile (grams of emissions per mile of travel).

"Manufacturer's Gross Vehicle Weight" means the vehicle gross weight as designated by the manufacturer as the total weight of the vehicle and its maximum allowable load.

"Model Year" means the year of manufacture of a vehicle as designated by the manufacturer, or the model year designation assigned by the Division to a vehicle constructed by other than the original manufacturer.

Note: USEPA definition: Model year means the manufacturer's annual production period (as determined by the Administrator) which includes January 1 of such calendar year: Provided, that if the manufacturer has no annual production period, the term model year will mean the calendar year.

"Motor Vehicle" means every vehicle, as defined in 21 Del.C., Section 101, which is self-propelled, except farm tractors, off-highway vehicles, motorcycles and mopeds.

"Motor Vehicle Technician" means a person who has completed an approved emissions inspection equipment training program and is employed or under contract with the State of Delaware.

"New Model Year Exemption" means an exemption of a designated new model year of an applicable vehicle from any or all of the requirements in this regulation. The exemption will begin on the first day of October of the calendar year, which will be the anniversary date for calculating the applicability of a vehicle for a new model year exemption. For example, a 1997 model year vehicle titled in Delaware in August of 1996 will have an anniversary date of October 1, 1996 and thus does not lose its five model year exemption status until October 1, 2001.

"New Motor Vehicle" means a motor vehicle of the current or preceding model year that has never been previously titled or registered in this or any other jurisdiction and whose ownership document remains as a manufacturer's certificate of origin, unregistered vehicle title.

"Onboard Diagnostics (OBD)" means a system of vehicle component and condition monitors controlled by a central, onboard computer designed to signal the motorist when conditions exist which could lead to a vehicle's exceeding its certification standards by 1.5 times the standard.

"Official inspection station" means all official Motor Vehicle Inspection stations operated by the Division in the State of Delaware.

"Operator" means an employee or contractor of the State of Delaware performing any function related to motor vehicle inspections in the State.

"Performance Standard" means the complete matrix of emission factors derived from the analysis of the model program as defined in 40 CFR Part 51 Subpart S, by using EPA's computerized MOVES emission factor model. This matrix of emission factors is dependent upon various speeds, pollutants and evaluation years.

"Secretary" means the Secretary of the Department of Natural Resources and Environmental Control.

"Stringency Rate" means the tailpipe emission test failure rate expected in an I/M program among pre-1981 model year passenger cars or pre-1984 light-duty trucks.

"Vehicle Type" means the EPA classification of motor vehicles by weight class which includes the terms light duty and heavy duty vehicle.

"Waiver" means an exemption issued to a motor vehicle that cannot comply with the applicable exhaust emissions standard and cannot be repaired for a reasonable cost.

"Waiver Rate" means the number of vehicles receiving waivers expressed as a percentage of vehicles failing the initial exhaust emission test.

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Section 2 - Low Enhanced I/M performance standard.

- (a) On-road testing. The performance standard will include on-road testing (including out-of-cycle repairs in the case of confirmed failures) of at least 0.5% of the subject vehicle population, or 20,000 vehicles whichever is less, as a supplement to the periodic inspection.
- (b) Evaluation date:
Enhanced LEIM program areas subject to the provisions of this paragraph will be shown to obtain the same or lower emission levels as the model program described in this paragraph by 2012 for ozone nonattainment areas, and for severe and extreme ozone nonattainment areas, on each applicable milestone and attainment deadline, thereafter. Milestones for NOx will be the same as for ozone.
- (c) On board diagnostics (OBD):
For Kent and New Castle counties that are required to implement a low enhanced I/M program prior to the effective date of designation and classifications under the 8-hour ozone standard,(April 15, 2004) the performance standard includes inspection of all model year 1996 and later light-duty vehicles and light-duty trucks equipped with certified on-board diagnostic systems, with repair of malfunctions or system deterioration identified by or affecting OBD systems as specified in Section 7, and assuming a start date of 2002 for such testing.
- (d) Modeling Requirements: The LEIM programs will be designed and implemented to meet or exceed a minimum performance standard, which is expressed as emission levels in area wide average grams per mile (gpm), achieved from highway mobile sources as a result of the LEIM program. The performance standard was established using the following LEIM program inputs and local characteristics, such as vehicle mix and local fuel controls found in Appendix A, MOVES Model Inputs and Outputs. Table 1.0- Performance Standards, provides program performance information.

TABLE 1.0 - Performance Standards

<u>Model Input</u>	<u>Low Enhanced Federal I/M Program</u>	<u>Low Enhanced Delaware I/M Program</u>
<u>Network Type:</u>	<u>Centralized</u>	<u>Centralized</u>
<u>Start Date:</u>	<u>1/1/1995</u>	<u>New Castle County 1983 Kent County - 1991</u>
<u>Test Frequency:</u>	<u>Annual</u>	<u>Biennial</u>
<u>Model Year Coverage:</u>	<u>1968 and newer</u>	<u>1968 and newer with 5 year new model exemption</u>
<u>Vehicle Type Coverage:</u>	<u>LDV and LDT rated up to 8500 pounds GVWR</u>	<u>LDV and LDT rated up to 8500 pounds GVWR</u>
<u>Exhaust Emission Test Type:</u>	<u>Idle test</u>	<u>Two speed idle test</u>
<u>Emission Standards:</u>	<u>1981 and newer 1.2% CO 1981 and newer 220 ppm HC</u>	<u>1981 and newer 1.2% CO 1981 and newer 220 ppm HC</u>
<u>Emission Control Device Inspection:(not available in MOVES modeling)</u>	<u>1968-71 PCV valve 1972 and newer EGR valve</u>	<u>1981 and newer Catalytic converter</u>
<u>OBD II</u>	<u>None</u>	<u>1996 and newer with 5 year new model exemption</u>
<u>Evaporative system function check:</u>	<u>None</u>	<u>1975-1995 tank pressure check and gas cap pressure check</u>
<u>Stringency Rate: (incorporated in the compliance rate)</u>	<u>NA</u>	<u>NA</u>
<u>Waiver Rate: (incorporated in the compliance rate)</u>	<u>NA</u>	<u>NA</u>
<u>Compliance Rate:</u>	<u>93.12 %</u>	<u>See appendix A spreadsheets</u>

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Section 3 - Network type and program evaluation.

- (a) The network type for the LEIM program meets the centralized testing requirements. The program in the future may be decentralized, or a hybrid of the two at the State's discretion, but must demonstrate that it achieves the same (or better) level of emission reduction as the applicable performance standard described in Section 2.
- (b) Program evaluation.
The LEIM program includes an ongoing evaluation by the Department to quantify the emission reduction benefits of the program, and to determine if the LEIM program is meeting the requirements of the Clean Air Act and 7 DE Admin. Code 1131. The legal authority for this section is contained in 7 Del.C. §6707 and 21 Del.C. §2143, as included in Appendix F - Legal Authority for the I/M Program.
 - (1) LEIM program evaluation reports are prepared by the Department on a biennial basis.
 - (2) The evaluation program consist, at a minimum, emission inspection test data, as submitted to EPA in the annual report, and evaporative system checks for model years subject to those evaporative system test procedures. The emission inspection test data is obtained from a representative, random sample, taken at the time of initial inspection (before repair) on a minimum of 0.1 percent of the vehicles subject to inspection in a given year. Such vehicles receive a State administered or monitored test as specified in this paragraph (b)(2), prior to the performance of I/M-triggered repairs during the inspection cycle. Under consideration is the remote sensing protocol that will be utilized as the state administered test.
The most recent version of EPA's mobile source emission factor model, eis used to reflect the appropriate emission reduction effectiveness of LEIM program elements within Section 2 of this PFI based on actual performance.
Additional emission data using remote sensing technology is used to evaluate program effectiveness. See Appendix B for methodology.

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Section 4 - Adequate tools and resources.

- (a) Administrative resources.
The LEIM program maintains the administrative resources necessary to perform all of the LEIM program functions including quality assurance, data analysis and reporting, and the holding of hearings and adjudication of cases when necessary.

- (1) The establishment of an I & M Fund by the Delaware Legislature is stated in the following paragraphs of 29 Del. C. §6102:

"(a)(1) Notwithstanding other provisions of this chapter, there shall be established a special fund of the State to be known as the "Inspection and Maintenance Fund" (referred to in this subsection as "the I & M Fund").

The Secretary of Finance shall, commencing at the beginning of each fiscal year, cause to be deposited into the I & M Fund amounts received as payments of costs assessed by the Justice of the Peace Courts relating to traffic and criminal cases under §9801(2) of Title 10, until the amount deposited in said fiscal year shall equal \$2,800,000.

The purpose of the I & M Fund is to provide operating expenses associated with the Delaware Motor Vehicle Enhanced Inspection and Maintenance Program. Any balance in the I & M Fund as of the last day of the fiscal year in excess of \$250,000 shall be deposited into the General Fund.

The Secretary of Finance shall make deposits into the I & M Fund as required under this section commencing after June 30, 1995".

- (2) The budget for the Department's auditing functions may be found in Appendix C - IM Audit Budget. The Divisions operating other administrative functions may be found on the States webpage: <http://www.budget.delaware.gov/fy2011/budget2011.shtml>. These budgets will be updated in the annual I/M report.

- (b) Personnel.

The LEIM program employs sufficient personnel to effectively carry out the duties related to the program, including but not limited to these categories: administrative audits, inspector audits, data analysis, LEIM program oversight, LEIM program evaluation, public education and assistance, and enforcement against motorists who are out of compliance with LEIM program regulations and requirements. The number of each category of personnel and their responsibilities are listed in Appendix D - Personnel Allocation and Responsibilities. When required, enforcement actions taken involving Division and Department personnel are conducted in accordance with the State of Delaware Merit Rules.

- (c) Equipment.

The LEIM program possess equipment necessary to achieve the objectives of the program and meet LEIM program requirements, including but not limited to, test equipment and facilities for LEIM program evaluation, and computers capable of data processing, analysis, and reporting. An equipment list is provided in - Vehicle Inspection Program Lane Operator's Manual for emission inspections in Appendix E and for auditing in Appendix R - I/M Audit Equipment.

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Section 5 - Test frequency and convenience.

- (a) The biennial LEIM program test frequency is consistent with Delaware Code requirements of 7 Del.C. §§2109 (Period of Registration Effective Date) and 2110 (Renewal of Registration) and as described in Section 9.0 of 7 DE Admin. Code 1131. The test frequency is automatically integrated with the enforcement process since the date of registration renewal is the same date as that of the emission testing requirement. Vehicles are assigned inspection cycles (every two years) in Delaware. The inspection cycle normally remains with the vehicle when sold or transferred within the State. New vehicles, or used vehicles newly tagged in Delaware, enter the "cycle" on the date of registration, and remain on that cycle until removed from service or transferred to another state. [See Section 11(a) for a detailed explanation of the registration denial process and Section 9.0 of 7 DE Admin. Code 1131]

- (b) In LEIM programs is designed in such a way as to provide convenient service to motorists required to get their vehicles tested. The locations of official inspection facilities are located in Wilmington, New Castle and Dover. These locations have been found to be adequate and publicly accepted convenient locations since 1983. Motorists registered in Kent and New Castle counties may also have their vehicles tested at the Georgetown facility in Sussex County.

The facilities provide sufficient number of testing lanes to insure short waiting times to get a test. In preparing the estimates for the number of lanes required, the State based all assumptions on the peak hours of operation, based on local experience. Additional relief will be realized with the inception of the change of expiration dates to daily, avoiding end of period delays. Short-term wait times will be addressed by opening only enough lanes to provide a convenient wait of no more than a monthly average of 20 minutes.

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Section 6 - Vehicle coverage.

The legal authority for establishing which vehicles are required to be inspected by this program are contained in 7 Del.C. §6707 and 21 Del.C. §2143, as included in Appendix F - Legal Authority for the I/M Program. The inspection requirements for vehicles covered by 7 DE Admin. Code 1131, will apply to all of the subject vehicles registered in Kent and New Castle counties.

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Section 7 -Test procedures and standards.

- (a) Test procedure requirements may be found Appendix G - Test Procedures for the tailpipe emissions, evaporative emissions and on-board diagnostic tests.
- (b) Test standards are found in 7 DE Admin. Code 1131.

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Section 8 -Test equipment.

- (a) Performance features of computerized test systems.
 - (1) Test equipment specifications are attached as Appendix E - Vehicle Inspection Program Lane Operator's Manual. Each test facility is equipped with the following equipment for the idle test: a tailpipe probe, a flexible sample line, a water removal system, particulate trap, sample pump, flow control components, analyzers for HC, CO and CO₂, and O₂ displays for exhaust concentrations of HC, CO, O₂ and CO₂. Materials that are in contact with the gases sampled will not contaminate or change the character of the gases to be analyzed, including gases from alcohol fueled vehicles. The probe is capable of being inserted to a depth of at least eight inches into the tailpipe of the vehicle being tested, or into an extension boot if one is used. A pressure gauge and equipment for introducing compressed air into the fuel tank evaporative control system is used for the pressure test. The same equipment is used to separately test the gas tank and cap.
 - (2) Test equipment for the Idle Test complies with Bureau of Automotive Repair BAR 97 TEST ANALYZER SYSTEM SPECIFICATIONS dated May 1996 and revised August 2008 (see Appendix H - BAR 97 Emission Inspection System Specifications). Public review of this document may requested by contacting the Department at (302) 739 9402.
 - (3) All test equipment is fully computerized and all processes are automated to the highest degree possible. All computerized equipment have lock-out features to prevent tampering by unauthorized personnel. Station managers or their supervisors have authorization to clear lock-outs or access the hardware for any purpose other than to perform an emissions test: and are required to enter an access code that identifies them personally in order to do so. The date and reason for all lock-outs, as well as the date, and by whom lock-outs are cleared is kept in a data file by the Division.
 - (4) The test procedure is completely computerized. The procedure begins with data entry, which involves entering the license plate number or the VIN. The Motor Vehicle Technician will obtain the VIN digits from the vehicle itself and checks the tag number as well. The entry either, calls up a pre-existing or, creates a new vehicle file based on the registration data base and previous inspections of the vehicle. The Motor Vehicle Technician compares the data in the file and confirms that the vehicle presented matches the VIN/ tag number combination in the file.
 - (5) The test procedure is completely automatic, including the pass/fail decision Test lanes are linked on a real-time basis to a central computer; test data are recorded onto the station server and to the central data base as each test is completed, and multiple initial testing is prevented. Records are kept on the central data base for 10 years or the life of the vehicle whichever is less.
 - (6) The central data base is backed up nightly, and if the vehicle is purged, data is recorded on microfiche permanently. System lockouts are initiated whenever the following quality control checks are failed or not conducted on schedule: periodic calibration or leak checks, and check of the pressure monitoring devices.
 - (7) All electronic calibration and system integrity checks are performed automatically, i.e., without specific prompting by the Motor Vehicle Technician prior to each test and quality control is under computer control to the extent possible.
- (b) Emission test equipment are capable of testing all subject vehicles and are updated from time to time to accommodate new technology vehicles as well as changes to the LEIM program.
- (c) At a minimum, emission test equipment:
 - (1) Are automated to the highest degree commercially available to minimize the potential for intentional fraud and/or human error;
 - (2) Are secured from tampering and/or abuse;

- (3) Are based upon written specifications; and
- (4) Are capable of simultaneously sampling dual exhaust vehicles.
- (5) Are able to determine the RPM of the vehicle.
- (d) The vehicle inspection test record is electronically transmitted to the DMV customer service specialist. The vehicle inspection test record will include:
 - (1) A vehicle description, including license tag number, vehicle identification number, and odometer reading;
 - (2) The date and time of test;
 - (3) The name or identification number of the individual(s) performing the tests and the location of the test station and lane;
 - (4) The type of tests performed, including emission tests, visual checks for the presence of emission control components including catalytic converter, and functional, evaporative system checks including a gas cap test;
 - (5) The applicable test standards;
 - (6) The test results, including exhaust concentrations and pass/fail results for each mode measured, pass/fail results for evaporative system checks, and which emission control devices inspected were passed, failed, or not applicable;
 - (7) A handout indicating the availability of warranty coverage as required in Section 207 of the Clean Air Act;
 - (8) Certification that tests were performed in accordance with the regulations; and
 - (9) For vehicles that fail the tailpipe emission test, some possible causes of the specific pattern of high emission levels found during the test are given in the Vehicle Inspection Program Brochure (See Appendix I) distributed at the inspection lane.
- (e) Functional characteristics of computerized test systems. The test system is composed of emission measurement devices and other motor vehicle test equipment controlled by a computer.
 - (1) The test system automatically:
 - (i) Makes a pass/fail decision for all measurements;
 - (ii) Records test data to an electronic medium;
 - (iii) Conducts regular self testing of recording accuracy;
 - (iv) Performs electrical calibration and system integrity checks before each test, as applicable, forwarded electronically to the inspection database where it is retained for 10 years or the life of the vehicle whichever is less, and;
 - (v) Initiate system lockouts for:
 - (A) Tampering with security aspects of the test system;
 - (B) Failing to conduct or pass periodic calibration or leak checks;
 - (C) Failing to conduct or pass the pressure monitoring device check (if applicable);
 - (D) A full data recording medium or one that does not pass a cyclical redundancy check.
 - (2) The test systems will include a real time data link to a host computer that prevents unauthorized multiple initial tests on the same vehicle in a test cycle and to insure test record accuracy.
 - (3) The test system will insure accurate data collection by limiting, cross checking, and/or confirming manual data entry.
 - (4) On-board diagnostic test equipment requirements
 - (i) The test system interface to the vehicle includes a plug that conforms to SAE J1962 Diagnostic Connector. The procedure is done in accordance with SAE J1962 Diagnostic Connector (JUN92).
 - (ii) The test system is capable of communicating with the standard data link connector of vehicles with certified OBD systems.
 - (iii) The test system is capable of checking for the monitors supported by the on-board diagnostic system and the evaluation status of supported monitors (test complete/test not complete) in Mode \$01 PID \$01, as well as able to request the diagnostic trouble codes, as specified in SAE J1979. In addition, the system has the capability to include bi-directional communication for control of the evaporative canister vent solenoid.

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Section 9 - Quality control.

Quality control measures will insure that emission measurement equipment is calibrated and maintained properly, and that inspection, calibration records, and control charts are accurately created, recorded and maintained.

(a) General provisions.

- (1) The Division has contracted with Environmental Systems Products Inc. (ESP Inc.) to perform regular maintenance on the emission testing equipment. The contract provisions detailing the maintenance procedures are given in Appendix E - Vehicle Inspection Program Lane Operator's Manual.
- (2) Preventive maintenance on all inspection equipment necessary to insure accurate and repeatable operation will be performed on a periodic basis.
- (3) Computerized analyzers automatically record quality control check information, lockouts, attempted tampering, and any other recordable circumstances (e.g., service calls) which are monitored in the preventative maintenance routine to insure quality control

(b) Requirements for steady-state emissions testing equipment and evaporative system functional test equipment.

- (1) Equipment is maintained according to demonstrated good engineering practices to assure test accuracy. The calibration and adjustment requirements in Appendix E - Vehicle Inspection Program Lane Operator's Manual apply to the steady-state test equipment.
- (2) The Division analyzers use ambient air as zero air, which draws the air from outside the inspection bay or lane in which the analyzer is situated.
- (3) The analyzer housing is constructed to protect the analyzer bench and electrical components from ambient temperature and humidity fluctuations that exceed the range of the analyzer's design specifications.
- (4) Analyzers automatically purges the analytical system after each test

(c) Document security.

Measures are taken to ensure that compliance documents and data files cannot be stolen, removed, changed or edited without being damaged or marked for detection. Additional procedures concerning document security can be found in Appendix J - Procedures for Document Security.

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Section 10 -Waivers and compliance via diagnostic inspection.

The LEIM program allows for the issuance of a waiver, which is a form of compliance with the LEIM program requirements that allows a motorist to comply without meeting the applicable test standards, as long as prescribed criteria are met.

(a) Issuance criteria.

[Requirements may be found in 7 DE Admin. Code 1131 Section 7.1.]

(b) Compliance via diagnostic inspection.

[Requirements may be found in 7 DE Admin. Code 1131 Section 7.2.]

(c) Quality control of waiver issuance.

- (1) The Director will provide control of waiver issuance and processing by establishing a system of waivers issued by the Division. The Division's waiver issuance protocol is contained in Appendix K - Emissions Waiver Procedure.
- (2) Vehicle owners or lessors are informed via a standardized form provided by the Division, of potential warranty coverage, and ways to obtain warranty repairs upon their failure of an emissions inspection.
- (3) Division personnel will insure that repair receipts are authentic and cannot be revised or reused. All qualified receipts will be permanently marked so they cannot be revised or reused. Department personnel or personnel contracted by the Department, on a periodic schedule will perform visual inspections of all related repairs done by anyone, except for waiver repairs done by Certified Emission Repair Technicians.
- (4) Waivers will be tracked, managed, and accounted for by the Division with respect to time extensions or exemptions in the Division's database so that owners or lessors cannot receive or retain a waiver improperly. Records will be maintained in secured, limited access data files and cross checked on a quarterly basis with the main data base to ensure waivers are being properly managed and reinspected biennially by the inspection program. The Department performs periodic reviews of all waiver documentation but not limited to waiver applications and repair receipts.

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Section 11 - Motorist compliance enforcement.

Compliance is ensured through the denial of motor vehicle registration unless the vehicle has complied with the I/M requirement prior to initial registration or registration renewal.

(a) Registration denial.

- (1) Registration denial enforcement (See Appendix L - Registration Denial, the Systems Requirement Definition for the Registration Denial process) is defined as rejecting an application for initial registration a vehicle or re-registration of a used vehicle (i.e., a vehicle being registered after the initial retail sale and associated registration) unless the vehicle has complied with the LEIM program requirement prior to granting the application. This enforcement is the express responsibility of the Division with the assistance of police agencies for on road inspection and verification. The law governing the registration of motor vehicles is found in the Delaware Criminal and Traffic Law Manual, Title 21 **Del.C.** Ch. 21. Pursuant to section 207(g)(3) of the Act, nothing in this section will be construed to require that new vehicles will receive emission testing prior to initial retail sale. In designing its enforcement program, the Director will:
 - (a) Provide an external, readily visible means of determining vehicle compliance with the registration requirement to facilitate enforcement of the LEIM program. This is in the form of a tag sticker which clearly indicate the vehicles compliance status and the expiration date.
 - (b) Adopt a schedule of biennial testing that clearly determines when a vehicle will have to be inspected to comply prior to (re)registration;
 - (c) Design a registration denial system which features the electronic transfer of information from the inspection lanes to the Division's Data Base, and monitors the following information:
 - (i) Expiration date of the registration;
 - (ii) Unambiguous vehicle identification information; and
 - (iii) Whether the vehicle received either a waiver or a certificate of compliance;
 - (iv) The Division will finally check the inspection database to ensure all program requirements have been met before issuing a vehicle registration.
 - (2) Ensure that evidence of testing is available and checked for validity at the time of a new registration of a used vehicle or registration renewal:
 - (a) Prevent owners or lessors from avoiding testing through manipulation of the title or registration system; title transfers do not restart the clock on the inspection cycle.
 - (b) Limit and track the use of time extensions of the registration requirement to only one 30 day extension per vehicle to prevent repeated extensions.
- (b) Registration Policy: The following is a description of the Division of Motor Vehicles' registration policy according to Delaware law on the registration of newly titled vehicles and registration renewals:
- (1) New motor vehicles that have never been titled/registered in any state are allowed to register for a period of five years without complying with the I/M requirement found in 7 **DE Admin. Code** 1131.
 - (2) All other vehicles older than 5 model years (and that must comply with 7 **DE Admin. Code** 1131) coming into Delaware or being titled/registered for the first time are required to pass I/M inspection prior to titling and registration. 21 **Del.C.** §2102, requires new residents to register all vehicles within 60 days after taking up residency in Delaware (See Appendix M - Chapter 21. Registration of Vehicles).
 - (3) All vehicles applying for registration renewal must pass an I/M inspection within 90 days of their registration expiration date in order for their registration to be renewed.
 - (4) Delaware's registration denial system is designed to prevent fraud and registrations without inspection. The system was fully computerized at the end of 1998 which allows the Division to use Vehicle Inspection Reports (VIR's) which are generated when a vehicle is inspected as backup documentation. The computer system will now automate the entire system. The test record is stored in the vehicle's registration database. A failure in any portion of the test will prevent the vehicle from being registered. The system will lock out the clerks from updating the vehicle record until the vehicle passes inspection. The VIR will only be used as backup documentation in the event a failure occurs in the automated system.
 - (5) The I/M test record for each vehicle is stored in the Division's mainframe computer database. The I/M test record is matched to the vehicle's Vehicle Identification Number (VIN), and the last ten (10) I/M inspections will be stored with the vehicle's registration record. The test record is a computer-based record with a paper back-up (VIR). The paper record is only kept for one year. The motorist is given the VIR when the inspection is completed.
 - (6) The Division currently issues a registration card and license plate sticker to show a vehicle is registered. Currently, vehicle registrations expire on the 15th and the last day of each month.
 - (7) Penalty for non-compliance:

- (i) Delaware law prohibits a vehicle owner from operating or knowingly permitting the operation of a vehicle upon the highway that is not registered or which does not have attached thereon the number plate assigned by the Department or a current expiration sticker. Violators will be subject to fines referred to in Motor Vehicle Law Title 21, Section 2102. Delaware law enforcement officers having probable cause to believe that a vehicle is not in compliance with the law or regulations may inspect the vehicle and documents and make arrests for non-compliance.
 - (ii) At any time and notwithstanding the possession of current registration plates as provided by Delaware Title 21, the Transportation Secretary, any authorized agent of the Department or any police officer may, upon reasonable cause, require the owner or operator of a vehicle to stop and submit such vehicle and the equipment to such further inspection and test with reference thereto as may be appropriate. In the event such vehicle is found to be in an unsafe condition or lacking the required equipment or is not in proper repair and adjustment, the officer will give a written notice to the driver and will send a copy thereof to the Department. The notice will require that such vehicle and its equipment be placed in safe condition and in proper repair and adjustment and/or that proper equipment be obtained, and that a certificate of inspection and approval for such vehicle be obtained within five (5) days thereafter.
 - (iii) Every owner or driver upon receiving the notice prescribed in subsection (a) of Title 21, Section 2144, of the Delaware Code will comply therewith and will, within the five (5) day period, secure an endorsement upon such notice by an inspector of the Department that such vehicle is in safe condition and properly equipped and its equipment in proper repair and adjustment and will then forward the notice to the Department. No person will operate any such vehicle after receiving a notice with reference thereto as above provided, except as may be necessary to return such vehicle to the residence or the place of business of the owner or driver if within a distance of 20 miles or to a garage until the vehicle and its equipment has been placed in proper repair and adjustment and otherwise made to conform to the requirements of this title.
- (8) Rental car agencies are required to obtain vehicle registrations in Delaware for the number of vehicles the agency has available for rent in Delaware.
- (9) In Delaware, the compliance sticker (and vehicle tag) normally remains with any vehicle already in the program, regardless of ownership. Vehicles changing the compliance sticker and vehicle tag with a change in vehicle ownership will be assigned a new inspection cycle and require a new compliance sticker prior to re-registration. Manipulation of the title or registration will therefore be ineffective in attempting to avoid inspection.
- (c) The following explains how the registration denial system currently works and how the computer controlled system will work once implemented:
- (1) A registration renewal notice (email) may be sent to each vehicle owner approximately 90 days prior to the expiration of the current registration/inspection. Email notification must be requested by the vehicle owner. No other notification will be given.
 - (2) The vehicle is required to be inspected at one of the Division of Motor Vehicles inspection facilities. The vehicle inspection test record (VIR) is electronically transmitted to the DMV customer service specialist. When the vehicle passes inspection, the owner proceeds to obtain the registration or renewal for the vehicle.
 - (3) Vehicles failing inspection must have the vehicle repaired and presented back for inspection. The Division allows one retest without proof of repair. After the first retest, documented repairs must be performed prior to another retest.
Vehicle owners whose registration have expired or are about to expire can apply for a temporary license plate to allow for operation of the vehicle for 30 days while the vehicle is being repaired. The temporary tags and permits are tightly controlled and are shown on the vehicle's registration record. This prevents an owner from obtaining more than one temporary tag or permit. The vehicle cannot obtain registration until a VIR is recorded which shows the vehicle has passed I/M and the Division's safety inspection program.
 - (4) The vehicle registration system that began in 1998 provides the registration specialist with on-line access to the vehicle inspection record. When an owner registers a vehicle, the computer system will indicate if the vehicle failed or passed inspection. When a vehicle fails inspection, the computer system will lock the vehicle record and prevent any attempt to register the vehicle. The registration specialist can look at the vehicle inspection test record and inform the customer of the failed items. The customer can then be offered a 30-day temporary tag or temporary permit. Vehicles passing inspection will be allowed to register and will be provided a new registration card and plate sticker. Vehicles being titled for the first time in Delaware are subject to the same restrictions. The system will prevent the vehicle from being registered.

- (5) The vehicle registration system will have two methods to override the inspection failure. The first method of registration denial override occurs with emission waivers issued under 7 DE Admin. Code 1131. The waiver information and receipts are verified by Delaware's Department of Natural Resources and Environmental Control (DNREC) on routine basis. The second method is by supervisory override. The override authority allows the registration specialists to change a vehicle record from fail to pass for certain safety-related failure items. Registration specialists will not have the authority or the ability to change any I/M-related items.
- (6) The vehicle registration system security requires DMV supervisory personnel to have the sole authority to override a record in the event of a computer failure.
- (7) Example: vehicle owner takes vehicle through inspection, passes and receives a VIR showing a pass in all areas. Through a computer malfunction, the vehicle record is not updated in the mainframe computer system. The supervisor can verify through the inspection lane station manager computer that the vehicle was inspected and passed. The supervisor would then override the system and allow the renewal. The supervisor would notify the Division's Computer Support of the computer problem and action would be taken to ensure the inspection test record is sent to the mainframe system.
- (8) The override transaction ability will be strictly controlled. Managers will be provided with reports when the override is used. The override transaction report will contain information to easily identify the individual who performed the transaction override, date, time and the item overridden.
- (d) The legal authority to enforce the program is contained in applicable sections in 7 Del.C. §6010 and 7 Del.C. §6702. The procedures to be followed by the Division in the specific operation of the enforcement program, as well as a penalty schedule to be followed when violations occur, are included in Appendix M - Chapter 21. Registration of Vehicles.
- (e) Program Compliance
 - (1) The Department assesses the program compliance rate through the examination of data, test records and enforcement actions. In addition, the Department conducts on-road and parking lot surveys of vehicles with Delaware tags, noting the vehicle inspection sticker located on the tag and indicating the month and year of expiration. In these same surveys, tag numbers are tracked and verified with the Division's record as to registration compliance. The number of out of compliance vehicles that are identified in the on-road test and the number of vehicles that have expired registration stickers that are identified by the parking lot checks will be compiled and a compliance rate will be determined.
 - (2) The State commits to a sustained level of LEIM program enforcement which will ensure a compliance rate of no less than 96% of subject vehicles. This reflects the compliance rate used in LEIM program modeling. In the event that LEIM program evaluation reveals that this compliance rate is not being continuously met, the following contingency measures will be implemented by the Department:
 - (i) additional on-road testing and additional parking lot surveillance
 - (ii) contact fleet and federal fleet managers to ensure full compliance
 - (3) Should these measures not be sufficient to bring the State's compliance rate to the needed level, a final measure will be implemented. The Division will generate a list of all vehicles known to be operating in the State under legal tags. This list will be compared to a list of all vehicles in compliance with the LEIM program. Any outstanding vehicles will be investigated by the Department and brought into compliance subject to current laws and regulations.
- (f) Certain vehicles will be exempt from the inspection requirements of the LEIM program. A detailed estimation of the percentage of the light duty fleet by vehicle type, and, the percentage of the subject fleet that vehicle type represents is provided in the annual report. The exempt status of these vehicles will be confirmed through the registration inspection requirements and through other established enforcement mechanisms. If a violation is found, the exempt status of any individual vehicle may be revoked.
- (g) Owners of subject vehicles must have a valid electronic vehicle inspection record test or a waiver from the Director's representative in order to receive registration from the Division.
- (h) State and local enforcement branches, such as police agencies, as part of this program, will cite motorist who do not visibly display evidence of compliance with the registration and inspection requirements.
 - (1) Fleet and all other registered applicable vehicle compliance will be assured through the regular enforcement mechanisms concurrent with registration renewal, on-road testing and parking lot observation. Fleets will be inspected at official inspection stations.
 - (2) Federal fleet compliance will be assured through the cooperation of the federal fleet managers as well as also being subject to regular enforcement operations of the Division

Section 12 - Motorist compliance enforcement program oversight.

The enforcement program will be audited regularly and will follow effective program management practices, including adjustments to improve operation when necessary.

(a) Quality assurance and quality control.

A quality assurance program has been implemented to insure effective overall performance of the enforcement system. Quality control procedures are required to instruct individuals in the enforcement process regarding how to properly conduct their activities. Audits of the Quality Assurance and Quality Control procedures will be performed by Department Auditors and reported to EPA on an annual basis. The quality control and quality assurance program will include:

- (1) Verification of exempt vehicle status by inspecting and confirming such vehicles during registration;
- (2) Facilitation of accurate critical test data and vehicle identifier collection through the use of automatic data capture systems such as bar code scanners or optical character readers, or through redundant data entry performed upon appearance for testing by lane personnel;
- (3) Maintenance of an audit trail to allow for the assessment of enforcement effectiveness such that all documentation can be controlled, tracked and reported to EPA by the Department on an annual basis with program evaluations;
- (4) Establishment of written procedures for personnel directly engaged in LEIM program enforcement activities, contained in Appendix N - Quality Assurance Enforcement Procedures;
- (5) Establishment of written procedures for Division personnel engaged in LEIM program document handling and processing, such as registration clerks or personnel involved in sticker dispensing and waiver processing, as well as written procedures for the auditing of their performance, contained in Appendix O - Document Handling Procedures - Division Personnel;
- (6) A determination of enforcement program effectiveness through annual audits of test records and LEIM program compliance documentation, with the procedures described in Appendix P - Test Record Audits - Department and Division Personnel. Results will be provided to EPA with annual program evaluation reports;
- (7) Enforcement procedures in accordance with the Agreement Between State of Delaware Department of Public Safety Motor Vehicle Division and Council 81 of the American Federation of State, County and Municipal Employees and the State of Delaware Merit Rules for immediate disciplining, retraining, or removing enforcement personnel who deviate from established requirements;

(b) Information management.

The information data base to be used in characterizing, evaluating, and enforcing the LEIM program will:

- (1) Determine the subject vehicle population through analysis of vehicles receiving State of Delaware tags in New Castle and Kent Counties;
- (2) Permit EPA audits of the enforcement process;
- (3) Assure the accuracy of registration and other program document files and data bases through internal and cross data base comparisons of records;
- (4) Maintain and ensure the accuracy of the testing database through periodic internal and/or third party Departmental review; through automated or redundant data entry; and, through automated analysis for valid alpha numeric sequences of the vehicle identification number (VIN), certificate number, or tag number. Department auditors will annually review and verify analyses, and assist the Division and Police agencies in enforcement actions;
- (5) Compare on a quarterly and annual basis, the testing database to the registration database to determine LEIM program effectiveness and establish compliance rates.
- (6) Sample the fleet as a determination of compliance through parking lot surveys, road side pull overs, or other in use vehicle measurements.

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Section 13 - Quality assurance.

An ongoing quality assurance LEIM program has been implemented to discover, correct and prevent fraud, waste, and abuse and to determine whether procedures are being followed, are adequate, whether equipment is measuring accurately, and whether other problems might exist which would impede LEIM program performance. The quality assurance and quality control procedures will be evaluated at least annually to assess their effectiveness and relevance in achieving LEIM program goals. The written procedures for all audits are found in Appendix Q - I/M Audit Procedures.

(a) Performance audits.

Performance audits will be conducted by the Departments auditors on a minimum of an annual basis to determine whether Motor Vehicle Technicians are correctly performing all tests and other required functions. Performance audits will be of two types: overt and covert, and will include:

- (1) Performance audits based upon written procedures and results will be reported using either electronic or written forms to be retained by the Department, with sufficient detail using violations of procedures found, to support a hearing if necessary. This will include all evidence uncovered of a violation, including the time, date, nature of the violation, and possible effect on vehicles being inspected and the programs overall effectiveness. A copy of the written performance audits will be provided to the Division Director. Preliminary results will be discussed with the lane manager. Final results will be transmitted to both the Division Director and the Department Secretary who will decide if further action is required, and initiate that further action;
 - (2) Performance audits in addition to regularly programmed audits for Motor Vehicle Technicians suspected of violating regulations as a result of audits, data analysis, or consumer complaints;
 - (3) Overt performance audits will be performed once per month and will include:
 - (i) A check to see that required record keeping practices are being followed;
 - (ii) A check for licenses or certificates and other required display information; and
 - (iii) Observation and written evaluation of each Motor Vehicle Technician's ability to properly perform an inspection;
 - (4) Covert performance audits will include:
 - (i) Remote visual observation of Motor Vehicle Technician performance, which will include the use of aids such as binoculars or video cameras, at least once per year per Motor Vehicle Technician.
 - (iii) Full documentation of all audit preparation, execution and performance, which will be sufficient for building a legal case and establishing a performance record;
- (b) Record audits.
Station and Motor Vehicle Technician records will be reviewed or screened at least monthly by the Department, to assess station performance and identify problems that may indicate potential fraud or incompetence. Such review will include:
- (1) Software based, computerized analysis which can be initiated by Division or Department personnel to examine station records and identify statistical inconsistencies, unusual patterns, and other discrepancies;
 - (2) Visits to inspection stations by Department auditors, to review records not already covered in the electronic analysis (if any); and
 - (3) Comprehensive accounting for all officials forms (when implemented) used to demonstrate compliance with the LEIM program.
- (c) Equipment audits.
During overt site visits, auditors will conduct quality control evaluations of the required test equipment, including (where applicable):
- (1) A gas audit using gases of known concentrations at least as accurate as those required for regular equipment quality control and comparing these concentrations to actual readings;
 - (2) A check for tampering, worn instrumentation, blocked filters, and other conditions that would impede accurate sampling;
 - (3) A leak check;
 - (4) A check to determine that station gas bottles used for calibration purposes are properly labeled and within the required tolerances;
 - (5) A check of the system's ability to accurately detect background pollutant concentrations;
 - (6) A check of the pressure monitoring devices used to perform the evaporative canister pressure test; and
- (d) Auditor training and proficiency.
- (1) Auditors are required to be formally trained and knowledgeable in:
 - (i) The use of analyzers;
 - (ii) LEIM program rules and regulations;
 - (iii) The basics of air pollution control;
 - (iv) Basic principles of motor vehicle engine repair, related to emission performance;
 - (v) Emission control systems;
 - (vi) Evidence gathering;
 - (vii) State administrative procedures laws;

- (viii) Quality assurance practices; and
- (ix) Covert audit procedures.
- (2) Auditors will themselves be audited by their supervisor, at least once per annum.

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Section 14 - Enforcement against motor vehicle technicians.

Enforcement against motor vehicle technicians includes swift, sure, effective, and consistent penalties for violation of LEIM program requirements in accordance with the Agreement between the State of Delaware Department of Transportation Motor Vehicle Division and Council 81 of the American Federation of State, County and Municipal Employees and the State of Delaware Merit Rules.

(a) Imposition of penalties.

The State of Delaware will continue to operate the LEIM program using State of Delaware Employees for all functions. Should enforcement actions be required for violations of program requirements, the State of Delaware Merit Rules, shall be adhered to in all matters.

(b) Legal authority.

The Director has the authority to temporarily suspend station Motor Vehicle Technicians' certificates immediately upon finding a violation or upon finding the Motor Vehicle Technician administered emission tests with equipment which had a known failure and that directly affects emission reduction benefits. The Director has the authority to impose disciplinary action against the station manager or the Motor Vehicle Technician, even if the manager had no direct knowledge of the violation but was found to be careless in oversight of motor vehicle technicians or has a history of violations, in accordance with the State of Delaware Merit Rules. The lane manager is held fully responsible for performance of the motor vehicle technician in the course of duty.

(c) Recordkeeping.

The Department maintains records of all warnings, suspensions, revocations, and violations and are compiled statistics on violations and penalties on an annual basis. These records are provided to the Division Director and to the EPA on an annual basis.

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Section 15 - Data collection.

Accurate data collection is essential to the management, evaluation, and enforcement of an LEIM program. The Director will gather test data on individual vehicles, as well as quality control data on test equipment.

(a) Test data.

The goal of gathering test data is to unambiguously link specific test results to a specific vehicle, LEIM program registrant, test site, and Motor Vehicle Technician, and to determine whether or not the correct testing parameters were observed for the specific vehicle in question. In turn, these data can be used to distinguish complying and non-complying vehicles as a result of analyzing the data collected and comparing it to the registration database, to screen inspection stations and Motor Vehicle Technicians for investigation as to possible irregularities, and to help establish the overall effectiveness of the LEIM program. At a minimum, the LEIM program collects the following with respect to each test conducted:

- (1) Test record number;
- (2) Inspection station and Motor Vehicle Technician numbers;
- (3) Test system number;
- (4) Date of the test;
- (5) Vehicle Identification Number;
- (6) Delaware tag number;
- (7) Manufacturer's Gross Vehicle Weight Rating (GVWR) for vehicles above 8,500 pounds;
- (8) Vehicle model year, make, and body style and EPA vehicle classification;
- (9) Odometer reading;
- (10) Category of test performed (i.e., initial test, first retest, or subsequent retest);
- (11) Fuel type of the vehicle (i.e., gas, diesel, or other fuel);
- (12) Emission test sequence(s) used;
- (13) Hydrocarbon emission scores and standards for each applicable test mode;
- (14) Carbon monoxide emission scores and standards for each applicable test mode;
- (15) Carbon dioxide emission scores (CO+CO₂) and standards for each applicable test mode;

- (16) Nitrogen oxides emission scores, if available, and standards for each applicable test mode;
- (17) Results (Pass/Fail/Not Applicable) of the applicable visual inspections for the gas cap, catalytic converter, evaporative system, and any other visual inspection for which emission reduction credit is claimed;
- (18) Results of the evaporative system pressure test expressed as a pass or fail; and
- (b) Quality control data. At a minimum, the program I gathers and reports the results of the quality control checks required under Section 9 of this PFI, identifying each check by station number, system number, date, and start time. The data report also contains the concentration values of the calibration gases used to perform the gas characterization portion of the quality control checks.

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Section 16 -Data analysis and reporting.

Data analysis and reporting are required to allow for monitoring and evaluation of the program by program management and EPA, and provides information regarding the types of program activities performed and their final outcomes, including summary statistics and effectiveness evaluations of the enforcement mechanism, the quality assurance system, the quality control program, and the testing element. Initial submission of the following annual reports commenced on July 1, 1996. The biennial report commenced on July 1, 1999.

(a) Test data report.

The Secretary submits to EPA by July of each year a report providing basic statistics on the testing program for January through December of the previous year, including:

- (1) The number of vehicles tested by model year and vehicle type;
- (2) By model year and vehicle type, the number and percentage of vehicles:
 - (i) Failing the emissions test initially;
 - (ii) Failing each emission control component check initially;
 - (iii) Failing the evaporative system integrity check initially;
 - (iv) Failing the first retest for tailpipe emissions;
 - (v) Passing the first retest for tailpipe emissions;
 - (vi) Initially failed vehicles passing the second or subsequent retest for tailpipe emissions;
 - (vii) Initially failed vehicles passing each emission control component check on the first or subsequent retest by component;
 - (viii) Initially failed vehicles passing the evaporative system integrity check on the first or subsequent retest;
 - (ix) Initially failed vehicles receiving a waiver; and
 - (x) Vehicles with no known final outcome (regardless of reason);
- (3) The initial test volume by model year and test station;
- (4) The initial test failure rate by model year and test station; and
- (5) The average increase or decrease in tailpipe emission levels for HC, CO, and NOx (if applicable) after repairs by model year and vehicle type for vehicles receiving an emission test.

(b) Quality assurance report.

The Secretary will submit to EPA by July of each year a report providing basic statistics on the quality assurance program for January through December of the previous year, including:

- (1) The number of inspection stations and lanes operating throughout the year; and
- (2) The number of inspection stations and lanes operating throughout the year:
 - (i) Receiving overt performance audits in the year;
 - (ii) Not receiving overt performance audits in the year;
 - (iii) Receiving covert performance audits in the year;
 - (iv) Not receiving covert performance audits in the year.
- (3) The number of Motor Vehicle Technicians and stations, in accordance with the Agreement between State of Delaware Department of Transportation Motor Vehicle Division and Council 81 of the American Federation of State, County and Municipal Employees and the State of Delaware Merit Rules:
 - (i) That were suspended, fired, or otherwise prohibited from testing as a result of overt or covert audits;
 - (ii) That were suspended, fired, or otherwise prohibited from testing for other causes; and
- (4) The number of Motor Vehicle Technicians certified to conduct testing;
- (5) The number of hearings:
 - (i) Held to consider adverse actions against Motor Vehicle Technicians and stations; and

- (ii) Resulting in adverse actions against Motor Vehicle Technicians and stations;
- (6) The total number of covert vehicles available for undercover audits over the year; and
- (7) The number of covert auditors available for undercover audits.
- (c) Quality control report.
The Secretary submits to EPA by July of each year a report providing basic statistics on the quality control program for January through December of the previous year, including:
 - (1) The number of emission testing sites and lanes in use in the LEIM program;
 - (2) The number of equipment audits by station and lane;
 - (3) The number and percentage of stations that have failed equipment audits; and
 - (4) Number and percentage of stations and lanes shut down as a result of equipment audits.
- (d) Enforcement report.
 - (1) The Secretary will, at a minimum, submit to EPA by July of each year a report providing basic statistics on the enforcement program for January through December of the previous year, including:
 - (i) An estimate of the number of vehicles subject to the inspection program, including the results of an analysis of the registration data base;
 - (ii) The percentage of motorist compliance based upon a comparison of the number of valid final tests with the number of subject vehicles;
 - (iii) The number of compliance surveys conducted, number of vehicles surveyed in each, and the compliance rates found.
 - (2) The Secretary will provide the following additional information obtained from the Director:
 - (i) A report of the LEIM program's efforts and actions to prevent motorists from falsely registering vehicles out of the LEIM program area or falsely changing fuel type on the vehicle registration, and the results of special studies to investigate the frequency of such activity; and
 - (ii) The number of registration file audits, number of registrations reviewed, and compliance rates found in such audits.
- (e) Additional reporting requirements.
In addition to the annual reports in paragraphs (a) through (d) of this section, LEIM programs will submit to EPA by July of every other year, beginning with July 1, 1998, biennial reports addressing:
 - (1) Any changes made in LEIM program design, personnel levels, procedures, regulations, and legal authority, with detailed discussion and evaluation of the impact on the LEIM program of all such changes; and
 - (2) Any weaknesses or problems identified in the LEIM program within the two year reporting period, what steps have already been taken to correct those problems, the results of those steps, and any future efforts planned.

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Section 17 -Motor Vehicle Technician training and certification.

The Department and the Division will jointly ensure that adequate and appropriate training is available within the state. Interested agents may apply to be a state training facility. Upon evaluation of the program and a positive finding, the agent may be certified. The Department and the Division will monitor and evaluate the training program delivery at least annually to ensure that it continues to meet the requirements of the program and reflects changes occurring in the program over time. (See also Appendix S - Training and Certification of Delaware DMV Inspection Lane Personnel)

- (a) Training.
 - (1) Motor vehicle technician training will impart knowledge of the following:
 - (i) The air pollution problem, its causes and effects;
 - (ii) The purpose, function, and goal of the inspection LEIM program;
 - (iii) State inspection regulations and procedures;
 - (iv) Technical details of the test procedures and the rationale for their design;
 - (v) Emission control device function, configuration, and inspection;
 - (vi) Test equipment operation, calibration, and maintenance;
 - (vii) Quality control procedures and their purpose;
 - (viii) Public relations; and
 - (ix) Safety and health issues related to the inspection process.

(2) In order to complete the training requirement, a trainee will pass with a minimum of 80% of correct responses to all questions, a written test administered by the Division. In addition, a hands on test will be administered in which the trainee demonstrates without assistance the ability to conduct a proper inspection, to properly utilize equipment and to follow other procedures. Inability to properly conduct all test procedures will constitute failure of the test. The LEIM program will take appropriate steps to insure the security and integrity of the testing process, and that sufficient training is provided to allow all motor vehicle technicians to complete the training requirements.

(b) Motor Vehicle Technician Certification.

(1) All motor vehicle technicians will be certified by the Division in order to perform official inspections.

(2) Completion of motor vehicle technician training and passing required tests with a grade of at least 80% will be a condition of certification.

(3) Motor vehicle technician certificates will be valid for no more than 2 years, at which point refresher training and testing will be required prior to renewal. Alternative approaches based on more comprehensive skill examination and determination of motor vehicle technician competency may be used.

(4) Certificates will not be considered a legal right but rather a privilege bestowed by the LEIM program conditional upon adherence to LEIM program requirements.

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Section 18 -Public information and consumer protection.

(a) Public awareness.

The Department and the Division will ensure the development of a plan for informing the public on an ongoing basis throughout the life of the LEIM program of the air quality problem, the requirements of federal and state law, the role of motor vehicles in the air quality problem, the need for and benefits of an LEIM program, how to maintain a vehicle in a low emission condition, how to find a qualified repair technician, and the requirements of the LEIM program. This information will be provided to motorists whose vehicles fail the emission test in a brochure developed by the Division entitled "Vehicle Inspection Program Brochure. Motorists are also be offered a list of repair facilities in the area and information on the results of repairs performed by repair facilities in the area, as described in Section 19 (b)(1) of this PFI. Additional information regarding the LEIM program is made available at www.dnrec.delaware.gov.

(b) Consumer protection.

The Department will institute procedures and mechanisms to protect the public from fraud and abuse by Motor Vehicle Technicians, and others involved in the LEIM program. It will include mechanisms for protecting whistle blowers and following up on complaints by the public or others involved in the process. It will include a program to assist owners in obtaining warranty covered repairs for eligible vehicles that fail a test. An additional consumer protection policy by the Division is included in Appendix J.

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Section 19 -Improving repair effectiveness.

Effective repairs are the key to achieving LEIM program goals and the state has taken steps to ensure the capability exists in the repair industry to repair vehicles that fail I/M tests.

(a) Technical assistance.

The Department will provide the repair industry with information and assistance related to vehicle inspection diagnosis and repair.

(1) The Department will regularly inform repair facilities of changes in the inspection LEIM program, training course schedules, common problems being found with particular engine families, diagnostic tips and the like.

(2) The Department will provide a telephone number where the public may call with questions related to the legal requirements of state and Federal law with regard to emission control device tampering, engine switching, or similar issues. Where possible, the Department will assist repair technicians with repair problems and answer technical questions that arise out of the repair process.

(b) Performance monitoring.

(1) The Department will monitor the performance of individual motor vehicle repair facilities, and provide to the public at the time of initial failure, a summary of the performance of Certified Emission Repair Technicians that have repaired vehicles for retest. The initial stage of the repair technician report card will score certified emission repair technicians only with a 1 each time a repaired vehicle comes in for a retest and passes and a 0 when the repaired vehicle fails after the retest. Motor Vehicle Technicians will enter the

Certified Emission Repair Technician's code number into data management system and the vehicle emission report for that retest will then have the technician and the results of the test in the record. The records will then be compiled in a report and a percent of repaired vehicles that passed the retest will be given to each technician. The initial analysis will be to assess the training that the state provides to the technician to acquire certification. After the initial stage of the performance monitoring program is completed, a full performance monitoring will include statistics on the number of vehicles submitted for a retest after repair by the repair facility, the percentage passing on first retest, the percentage requiring more than one repair/retest trip before passing, and the percentage receiving a waiver. The Department will issue procedures to weight the averages for repair shops, to avoid causing a shop to carry a poor record from the beginning of the program that does not reflect their current ability to make repairs. The LEIM program may provide motorists with alternative statistics that convey similar information on the relative ability of repair facilities provide effective and convenient repairs, in light of the age and other characteristics of vehicles presented for repair at each facility.

This performance monitoring will be achieved by requiring waiver applicants to have repairs performed at repair facilities with state certified technicians beginning on January 1, 1997 for vehicles registered in New Castle County and July 1, 1997 for vehicles registered in Kent County. Department personnel will review the Vehicle Inspection Report and Vehicle Emission Repair Report Form for the failures that occurred and the types of repairs done before retest.

- (2) The Department will provide feedback, including statistical and qualitative information (repair technician report card) prior to releasing the information to the public, to individual repair facilities on a regular basis (at least annually) regarding their success in repairing failed vehicles. Copies will be sent to the Division.

(c) Repair technician training.

The Department will assess the availability of adequate repair technician training in the emissions inspection area and, if the types of training described in paragraphs (c)(1) through (4) of this section are not currently available, will insure that training is made available to all interested individuals in the community either through private or public facilities. This will involve working with other training agencies or training companies approved by the Department and Division) to add curricula to existing programs or start new programs. The training available will include:

- (1) Diagnosis and repair of malfunctions in computer controlled, closed loop vehicles;
- (2) The application of emission control theory and diagnostic data to the diagnosis and repair of failures on the emission test and the evaporative system functional check;
- (3) Utilization of diagnostic information on systematic or repeated failures observed in the emission test and the evaporative system functional check; and
- (4) General training on the various subsystems related to engine emission control.

- (d) Other training agencies or training companies approved by the Department and Division) will provide, jointly certified by the Department and the Division, adequate training in emission repair to qualified individuals. The program of study will be consistent with the EPA Rule, and will qualify the trainees to perform effective repairs on vehicles failing the emission test. The course of study will be available on ongoing basis. The Department will cooperate with other training agencies or training companies approved by the Department) on an ongoing basis to ensure the training program remains current with any changes to the program or it's requirements.

xx/xx/xx

Section 20 -On road testing.

On road testing is defined as the measurement of HC, CO, and/or CO₂ emissions on any road or roadside in any I/M area. On road testing is required in the emission inspection area as defined in 7 DE Admin. Code 1131.

(a) General requirements.

- (1) On road testing will be part of the emission testing system, but is to be a complement to testing otherwise required. The use of remote sensing is one alternative under consideration to fulfill this requirement.
- (2) On road testing will evaluate the emission performance of 0.5% of the subject fleet or 20,000 vehicles, whichever is less, including any vehicles that may be subject to the follow up inspection provisions of paragraph (a)(4) of this section, each inspection cycle. For Delaware, that means that at least 1,125 valid inspections on vehicles are to be conducted in this manner, adjusting annually for any changes in subject fleet size.
- (3) Owners of vehicles that have previously been through the normal periodic inspection and passed the final retest and found to be high emitters during the on-road test will be notified that the vehicles are required to pass an out of cycle follow up inspection. Notification of the requirement to appear for testing will be issued by mail.

- (4) Number of vehicles failing the on-road emission test or found not in compliance with applicable sections of 77 DE Admin. Code 1131 will be compiled and used as a measurement of the compliance rate of the LEIM program.
- (5) The on-road tests will be done at different locations in the LEIM area and cover different times of the year

xx/xx/xx

Section 21 -Implementation deadlines.

Implementation Deadlines.

All requirements related to the LEIM program will be effective ten days after the Secretary's order has been signed and published in the State Register except for the following provisions that have been amended to this regulation:

	<u>Date of Implementation</u>
<u>Two-speed idle test (vehicle at idle and 2500 rpm) of all covered vehicles model years 1981 and newer.</u>	<u>November 1, 1999</u>
<u>On-Board Diagnostics Test</u>	<u>January 1, 2002</u>

15 DE Reg. 1278 (03/01/12) (Prop.)