

DENR ADMINISTRATIVE ORDER
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Subject : 1998 REVISED RULES AND REGULATIONS FOR THE PREVENTION, CONTROL AND ABATEMENT OF AIR POLLUTION FROM MOTOR VEHICLES

Pursuant to the provisions of the United Nations Framework Convention on Climate Change, Presidential Decree No.1181, entitled 'Providing for the Prevention, Control and Abatement of Air Pollution from Motor Vehicles and for Other Purposes', and by virtue of Executive Order No. 192, the Department of Environment and Natural Resources hereby adopts and promulgates the following revised Rules and Regulations:

CHAPTER I
General Provisions and Administrative Procedures

GENERAL PROVISIONS

Section 1. Title. - These Rules and Regulations shall be known as the "1998 Revised Rules and Regulations for the Prevention, Control and Abatement of Air Pollution from Motor Vehicles".

Section 2. Scope. - These Rules and Regulations shall govern the implementation and enforcement of Presidential Decree No. 1181 and other related laws, rules and regulations, policy issuances, instructions and circulars, which shall hereafter be referred to as "Motor Vehicle Pollution Control Laws".

Section 3. Definitions. - For the purpose of these Rules, the following terms shall have the meanings:

- (a) **"Advance Emission Control Technology"** means a high technology standard equipment/accessory for low-emission vehicles to control CO, HC and NO_x pollutants (e.g. three-way catalytic converters and feedback system).
- (b) **"Air Pollutants"** means any harmful or undesirable matter emitted in the atmosphere, other than oxygen, nitrogen, water vapor, carbon dioxide, and the inert gases in natural or normal concentrations, and includes dust, smoke, soot, cinders, fly ash, solid particles of any kind, undesirable gases, fumes, mists, odors and radioactive substances.
- (c) **"Air Pollution"** means any alteration of the physical, chemical and biological properties of the atmospheric air, or any discharge thereto of any liquid, gaseous or solid substances that will or is likely to create or to render the air resources of the country harmful, detrimental, or injurious to

public health, safety or welfare or which will adversely affect their utilization for domestic, commercial, industrial, agricultural, recreational, or other legitimate purposes.

- (d) **“Approved”** means duly authorized by the Department of Environment and Natural Resources.
- (e) **“Car or Passenger Car”** means a four-wheeled motor vehicle used for the carriage of not more than six passengers including the driver and having a gross vehicle mass not exceeding 2,500 kg.
- (f) **“Certificate of Conformity”** means a certificate issued by the Department to a vehicle manufacturer, assembler or importer certifying that a particular new vehicle or vehicle type meets the emission requirement provided under these Rules.
- (g) **“Certificate of Emission Compliance”** means a certificate issued by the Department to a registered vehicle owner certifying that a particular in-use vehicle meets the emission requirements of these Rules and Regulations.
- (h) **“Compression-Ignition Engine”** means an internal combustion engine in which fuel ignition is accomplished by high compression and without the use of spark-plug, e.g., diesel engines.
- (i) **“Department”** means the Department of Environment and Natural Resources.
- (j) **“Emission”** means any air contaminant, pollutant, gas stream or unwanted sound from a known source which is passed into the atmosphere.
- (k) **“Fuel Evaporative Emission Control System”** means a system, which incorporates a particular principle of operation to control or cause the reduction of fuel evaporative emissions.
- (l) **“Greenhouse Gases”** means those gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and re-emit infrared radiation.
- (m) **“Gross Vehicle Mass” or “Maximum Vehicle Weight”** means the technically permissible maximum mass declared by vehicle manufacturer.
- (n) **“Imported Used Vehicle”** means vehicle used and/or registered in the country of origin and not yet registered in the Philippines.
- (o) **“In-Use Vehicle”** means a motor vehicle duly registered with the Land Transportation Office (LTO).

- (p) **“Light Duty Vehicles (LDV)”** means motor vehicles other than cars, used for the carriage of passengers and/or goods and having a gross vehicle mass not exceeding 3,500 kilograms.
- (q) **“Mandatory Periodic Inspection”** means the scheduled emission tests and inspection conducted, as a pre-condition among others for the renewal of registration of in-use motor vehicles or initial registration of rebuilt and imported used vehicles in accordance with Section 11 of PD 1181.
- (r) **“Manufacturer”, “Assembler” or “Maker”** means any person who makes, manufactures or assembles motor vehicles, for eventual use in the Philippines.
- (s) **“Medium/Heavy Duty Vehicle”** means a motor vehicle used for the carriage of passengers, goods or special purpose ones and having a gross vehicle mass exceeding 3,500 kilograms.
- (t) **“Model Life”** means the period of time during which a car model does not undergo a major change of the engine and/or of the car body panel.
- (u) **“Model Year” or “Production Year”** means the manufacturer’s annual production period, which includes January 1 of such calendar year, provided that, if the manufacturer has no annual production period, the term “Model of the Year” shall mean the calendar year.
- (v) **“Motor Vehicle”** means any vehicle propelled by a gasoline or diesel engine or by any means other than human or animal power, constructed and operated principally for the conveyance of persons or the transporting of property or goods in a public highway or street open to public use.
- (w) **“New Vehicle”** means any brand new motor vehicle which has never been duly registered with the LTO.
- (x) **“Owner or Operator”** means any person who owns, leases, controls, or operates a motor vehicle.
- (y) **“Person or Persons”** include any being natural or juridical, susceptible of rights and obligations or of being the subject of legal relations.
- (z) **“Pollution Control Device”** means any device or apparatus used to prevent, control or abate the pollution of air caused by emissions from motor vehicles at levels within the air pollution control standards established by these Rules, and other pertinent laws, rules and regulations.
- (aa) **“Random Roadside Inspection”** means the supportive inspection conducted by duly authorized action teams/units of the Department, local government authorities, LTO or other concerned agencies or organizations for the purpose of identifying non-complying vehicles. The activities include visual and functional checks of engine, fuel filler and

exhaust systems with subsequent emission tests, using portable equipment, and to ordering needed maintenance/repair work and/or imposing penalty fines for those that fail the test.

- (bb) **“Rebuilt Motor Vehicles”** means a vehicle whether locally assembled individually or backyard-assembled using new or used engines, major parts or components, regardless of whether or not the components used were local or foreign-manufactured.
- (cc) **“Reference Mass”** means the mass of the vehicle in running order with a full fuel tank and including the set of tools and spare wheel, plus 100 kilograms but does not include the mass of the passengers and driver.
- (dd) **“Ringelmann Chart”** means the chart described in the U.S. Bureau of Mines, Information Circular No. 8333 and No. 7718, and used for measuring smoke density.
- (ee) **“Smoke Opacity Meter (or Opacimeter)”** means an instrument, which determines the smoke opacity in exhaust gases emitted by the engine system.
- (ff) **“Spark-Ignition Engine”** means an internal combustion engine in which air/fuel mixture is ignited by spark-plug, e.g. gasoline engines.
- (gg) **“Vehicle Type”** means a category of power-driven vehicles which do not differ in such essentials as equivalent inertia determined in relation to the reference mass, engine type, number of cylinders, body configuration, manner of transmission, fuel used and similar characteristics.
- (hh) **“Visible Smoke Emission”** means emission greater than five percent (5%) opacity.

Section 4. Administration and Enforcement. - These Rules and Regulations shall be administered by the Department and/or by its authorized representative(s) as the primary government agency responsible for the effective administration and enforcement of these Rules. As such, it shall have the following functions, powers and responsibilities:

- (a) Establish emission standards after due consultation with the concerned sectors;
- (b) Prepare and implement an integrated framework and annual action plans for the management of motor vehicles' emissions;
- (c) Update itself on the advanced and modern methods of combating and minimizing air pollution from motor vehicles;
- (d) Coordinate with the Department of Science and Technology (DOST) and the Department of Energy (DOE) in finding alternative sources of fuel and transport systems that would rely less on fossil fuel;

- (e) Establish a cooperative effort among the national government, local government units, non-governmental organizations (NGOs), people's organizations (POs) and the private sector in order to effectively implement these Rules;
- (f) Issue policy guidelines, instructions or procedures, design criteria governing the preparation of plans and specifications for pollution control devices;
- (g) Call on the Department of Transportation and Communication (DOTC), Department of Trade and Industry (DTI), DOST, DOE pursuant to section 7 and 9 of PD 1181; and other concerned government agency, corporation, institution, and other instrumentalities, should they approve, for assistance in the form of personnel, facilities, and other resources, as the need arises in the discharge of its functions;
- (h) Disseminate information and conduct educational awareness campaigns on the effects of air pollution from motor vehicles on health and the environment, with particular emphasis to the concerns on climate change;
- (i) Encourage, participate in, and conduct continuing studies, investigations, researches and demonstrations on the effective means of controlling, preventing and managing air pollution including improvement in the implementation strategy, technology or instrumentation to rationalize the basis emission standards for motor vehicles;
- (j) Issue order against any person or entity and impose the appropriate fines, penalties and other administrative or penal sanctions as provided by our motor vehicle pollution control laws to compel compliance with emission regulations and the provisions of these Rules; and
- (k) Exercise such powers and perform such other functions as may be necessary to carry out its duties and responsibilities under PD 1181 and these Rules.

Section 5. Linkage Mechanism. - The Department shall consult, participate, cooperate and enter into agreement with other government agencies, or with affected nongovernmental organizations (NGOs), or people's organizations (POs), or private enterprises in the furtherance of the objectives of this Rules.

Section 6. Role of Local Government Units. - Local government units (LGUs) shall share the responsibility in the monitoring and enforcement of these Rules within their territorial jurisdiction. The LGUs may formulate and implement local emission standards which are more stringent than those set by the Department.

The Department may delegate to the LGUs the authority to administer all or some aspects of emission management and regulation, including but not limited to certificate issuance, monitoring and the imposition of administrative fines and penalties, when upon the Department's determination, the LGU has demonstrated the technical and financial capability to undertake such functions. The Department shall provide the LGUs with technical assistance, trainings and a continuing capability-building program to

prepare them to undertake such responsibilities. The exercise of such delegated authority shall be under the constant supervision and control of the Department.

Section 7. Public Education and Information Campaign. - A continuing public information campaign shall be conducted by the Department, DOTC, and the Philippine Information Agency (PIA) which shall include the following:

- (a) Promotion of the regular maintenance, adjustment and operation of vehicles by their owners and/or operators, in accordance with the recommendations of the manufacturer's as contained in their duly recognized operating manual;
- (b) Entreating of drivers to properly operate the motor vehicles, with particular caution against overloading vehicles or overfuelling the engines when starting from cold or during acceleration;
- (c) Information on engine and other modification measures, alternative fuels, processes and operating methods which will result in minimizing air pollution, promote energy-efficiency and conservation and reduce emissions, particularly of the greenhouse gases;
- (d) Data on the cost of installation and operation, energy requirements, emission reduction benefits, and environmental impact of the emission control technology;
- (e) Such other relevant matters necessary for the effective enforcement and implementation of PD 1181, these Rules and other pertinent motor vehicle pollution control laws.

ENFORCEMENT PROCEDURE

Section 8. Deputization. - The Department, through the Secretary may deputize in writing as many agents as it shall deem necessary for the effective implementation and enforcement of these Rules. The Secretary shall also designate hearing officers to hear and decide cases of violation of the motor vehicle pollution control laws, PD 1181 and the provisions of these Rules.

Section 9. Apprehension and Grounding of Smoke-Belching Diesel-Fueled Vehicles. - The deputized agent(s), shall, upon seeing any motor vehicle emitting smoke, determine whether it violates any of these Regulations using Ringelmann Chart and/or portable smokemeter. Upon a finding of *prima facie* evidence of violation, the agents shall forthwith: (a) apprehend the vehicle taking into account the established apprehension procedures and traffic conditions; (b) confiscate the license of the driver/operator of the motor vehicle together with the vehicle's plate; and (c) fill out a charge sheet in three (3) copies furnishing one to the driver for delivery to the owner or operator of the apprehended vehicle and require the driver, owner or operator to submit the vehicle for smoke emission test, if no such test has been made to the nearest test station of the Department or authorized agencies not later than the time specified in the

subpoena which shall not exceed seventy-two (72) hours. The test station shall then conduct a smoke emission test on the vehicle and if the vehicle passes the smoke emission test conducted thereon, then the corresponding Certificate of Emission Compliance shall be issued to the driver/operator/owner of the vehicle without paying any of the fines herein provided. However, results of the smoke emission test conducted on the apprehended vehicle presented after the time specified by the apprehending agent shall not constitute a valid ground for the exculpation of the owner or operator from the payment of fine. The failure of an apprehended driver/owner/operator to settle his case within fifteen (15) days from the date of apprehension shall be a ground for the suspension/revocation of driver's license and the Certificate of Registration of the motor vehicle. In turn, for the record, the apprehending unit/agency shall inform LTO in writing of every suspension/revocation or unsettled case and turnover the confiscated driver's plate and license thereto for proper disposition, not later than ninety (90) days from the date of apprehension. The Department or other government agency concerned shall not be held liable for any damage to the vehicle during the conduct of the smoke emission test.

Section 10. *Apprehension and Grounding of Gasoline-Fueled Motor Vehicles.* Except as provided for in Sections 30 and 31 hereof, the deputized agent(s) may at any time also conduct spot checking of gasoline-fueled motor vehicles whenever visible smoke emission occurs. The procedures provided in preceding section shall also apply in the apprehension and grounding of motor vehicle with spark-ignition engine except that the procedures to be followed shall be in accordance with the pertinent provisions of Section 31 hereof.

Section 11. *Grounded Motor Vehicles Not to be Operated on Public Highway.* - No grounded motor vehicle shall be operated or used in public roads unless it has been issued a Certificate of Emission Compliance and an Order to resume operation.

ACTIONS, PLEADINGS AND HEARING PROCEDURES

Section 12. *Nature and Procedure.* - Subject to the basic requirements of due process, the proceedings herein provided shall be summary in nature. The technical rules of evidence obtaining in courts of law shall not bind the Board and the Regional Offices. The Rules of Court shall not apply in proceedings before the Board except in a suppletory character and only whenever applicable.

Section 13. *Commencement of Action.* - Action for any violation of any of the motor vehicle pollution control laws and/or these Rules and Regulations may be commenced by any person by filing a written complaint, or by the Department on its own initiative, or by the filing of a charge by any deputized agent of the Department before the hearing officer.

Section 14. *Caption and Title.* - In all cases cognizable by the Department, the full name of the parties, as far as they are known, shall be stated in the caption of the original pleadings, motion, resolution, order or decisions and in all summons, notices

and processes to be served upon them. If the action is initiated by any person other than the Department or its deputized agent, the caption shall be as follows:

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES (Office Address of Hearing Officer)	
_____ Complainant, - versus - _____ Respondent -----x	DENR Case No. _____ For: Violation of PD 1181
CHARGE, ORDER, DECISION, MOTION, ETC.	

If the action is initiated at the instance of the Department or by its deputized agent, the caption shall be as follows:

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES (Office Address of Hearing Officer)	
IN THE MATTER OF THE AIR POLLUTION CASE	
- versus - _____ Respondent -----x	DENR Case No. _____ For: Violation of PD 1181
CHARGE, ORDER, DECISION, MOTION, ETC.	

Section 15. Form and Contents of Complaint and Charge Sheet. The complaint or charge sheet shall be in writing and drawn in clear and concise language, either in Filipino or in English. It shall recite the ultimate facts constituting the cause(s) of action and/or the violation of the motor vehicle pollution control laws and/or these

Rules and Regulations, as well as all information pertinent thereto. It may specify the relief and such further remedies as may be deemed just and equitable, except that the charge sheet shall already include a notice requiring the Respondent to appear and answer the charge of the date, time and place indicated therein which shall not be less than one (1) day nor more than three (3) days from receipt hereof. In the case of a private complaint, the hearing officer shall set the case for hearing and require the Respondent to appear and answer the complaint on the date, time and place indicated in the notice of hearing which shall not be later than five (5) days from receipt thereof.

Section 16. *Filing and Service of Complaint and Charge Sheet.* - The complaint or charge sheet shall be filed in two (2) copies before the Hearing Officer whose office covers the territorial jurisdiction where the Respondent was apprehended. The charge sheet shall be filed immediately, but not later than twenty-four (24) hours from knowledge of the violation. Service of the copy upon the driver of the Respondent, shall be deemed service to the Respondent.

Section 17. *Hearing Procedures on Apprehended Motor Vehicles.*

- (a) As soon as the parties entered their appearances and manifested their readiness to proceed with the hearing of the case the complainant shall be allowed to present evidence in support of the charge with the testimony of each witness taken under oath. Thereafter, the Respondent shall be allowed to present his evidence.
- (b) If the case is commenced by the Secretary or its deputized agent, the hearing shall proceed directly with the presentation of results of the smoke meter or CO/HC tests as the case may be, and other evidence, after which the Respondent shall present his evidence.
- (c) The Hearing Officer shall admit all evidence relevant or material to the case.

In case of doubt, the Hearing Officer shall admit all the evidence presented, subject to the objections interposed, if there be any.

Section 18. *Order / Decision.* If the Respondent admits the charge, the Hearing Officer shall on that same day, issue an order imposing the appropriate fines and directing the grounding of the apprehended motor vehicle.

If the litigation of the case continues, the Hearing Officer shall decide the same within three (3) days from its submission. Said decision shall become final and executory if no appeal is taken therefrom to the Secretary within fifteen (15) days from notice thereof.

Only upon the presentation of the CEC and the official receipt certifying full payment of fines shall the grounded motor vehicle be released upon a written order duly issued by the Hearing Officer. The Hearing Officer shall then issue another order allowing the said motor vehicle to resume operation.

Section 19. *Action on the Application for Certificate of Conformity.* - The Department shall, within a reasonable time not to exceed fifteen (15) days, act on the application for Certificate of Conformity either by issuing the corresponding certificate

upon a showing of compliance with the requirements of these Rules and Regulations or by denying the application in writing stating the reasons/s thereof.

In case the application is denied, the applicant may file a written motion for reconsideration. All evidence presented during the hearing or the motion including such additional tests as may be required by the Hearing Officer, shall form part of the records of the case.

The Hearing Officer shall decide the motion within ten (10) days from submission. Said decision shall become final if no appeal is taken therefrom to the Secretary within fifteen (15) days from notice of the same.

CHAPTER II

Emission Control for New Motor Vehicle Types

Section 20. Scope - New motor vehicle types to be manufactured, locally assembled or imported into the country, shall be covered by a Certificate of Conformity issued pursuant to the following sections of this Chapter; provided however that, those motor vehicle types already covered by the COC at the time of the effectivity of these rules and regulations shall not be subject to these provisions unless the Department finds justifiable grounds to suspend, cancel or revoke such a certificate.

Section 21. General Requirements

- a) Every motor vehicle manufacturer/assembler or importer shall provide, as the case may be, a service manual or written instructions for the proper use and the maintenance of the vehicle, including all relevant service information/specifications to insure proper functioning of the emission control system and compliance with emission standards.
- b) All newly manufactured gasoline-fuelled vehicles, including motorcycles and mopeds to be introduced into the market or imported effective January 1, 1999 shall be designed to operate on unleaded gasoline.
- c) Effective January 1, 2000, all newly manufactured/assembled vehicles, including motorcycles and mopeds shall be equipped with such emission control system necessary to meet the emission regulations.

Section 22. Application for Certificate of Conformity

The application for a Certificate of Conformity, as cited in Section 19 hereof, for a vehicle type with regards to the limitation of emission of gases and/or particulate pollutants shall be submitted to the Department by the vehicle manufacturer/assembler, importer or his duly authorized representatives. It shall be accompanied, among others, by the following particulars in triplicate copies:

1. Complete and detailed descriptions of vehicle and/or the engine;
2. Description of the emission control system installed in the vehicle;

3. Details of the fuel feed system;
4. Previous test results of pre-production engine/vehicle type; and
5. Other particulars as referred to in Annex 1 and 2 of Economic Commission of Europe Nos. 15-04, 83-01, 49-01, 49-02 and 40, whenever applicable.

Section 23. Approval - Upon a determination by the Department that the vehicle type meets the requirements of this chapter, the Secretary or his duly authorized representatives shall issue a Notice of Approval and a Certificate of Conformity.

Section 24. Certificate of Conformity

- a) The Certificate of Conformity shall cover only new vehicles or new vehicle type which conform, in all material respects, to the design specifications applicable to the particular vehicle type as described in the applications for certification and which are produced during the validity of the Certificate of Conformity of the said manufacturer/assembler. For purposes of this section, modification in the brake system, steering, air conditioning, suspension and wheel base and interior and exterior trimmings shall not be construed as a change in vehicle type.
- b) The Certificate of Conformity shall be valid for six (6) years from the date of issuance unless sooner revoked or suspended. In cases of suspension, the running of the period of the certificate's effectivity continues.
- c) It shall be a condition of this certificate that the manufacturer/assembler shall consent to all inspections described in this Chapter with regards to vehicle engine and its emission control system specifications.
- d) Failure to comply with any of the requirements of this Chapter shall justify the revocation or suspension of this Certificate.

Section 25. Emission Control Labeling

The manufacturer, assembler or importer of any motor vehicle or motor vehicle engine, subject to the applicable emission standards prescribed by the Department, shall affix a permanent legible label, and the vehicle identification number (VIN) plate of the type and in a manner described below:

- (a) The label, of durable material, shall be affixed by the manufacturer, assembler or importer in such a manner that it cannot be removed without defacing such label. It shall be affixed in a readily visible position in the engine compartment or any conspicuous area under the hood; and
- (b) The label shall contain the following information lettered in the English language in block letters and numerals with a print size not less than one (1) centimeter, and of a color that contrast with the background of the label;

- (1) The label heading: Vehicle Emission Control Information;
- (2) Full corporate name and trademark;
- (3) Engine type displacement in metric units;
- (4) International emission regulation code; and
- (5) Engine tune-up specification and adjustment as recommended by the manufacturer including but not limited to idle speed(s), ignition timing, the idle air-fuel mixture setting procedure and value (e.g. idle CO, idle air-fuel ratio, idle speed drop), high idle speed, initial injection timing and valve lash (as applicable) as well as other parameters deemed necessary by the manufacturer.

Section 26. Submission of Vehicle Identification Number (VIN)

The manufacturer, assembler or importer of any new motor vehicle, covered by a Certificate of Conformity under these Rules shall, not later than sixty (60) days after its manufacture or entry into the country, submit to the Department the vehicle engine number, chassis number, engine type, vehicle type and color. Likewise, a sticker with the DENR logo, Certificate of Conformity number and date of issue and a brief statement that the vehicle complies with the provisions of PD 1181 and its rules and regulations, shall be conspicuously displayed in the front windshield of the motor vehicle.

Section 27. Standards for Reduced-Emission Vehicles

- a) As a condition for the issuance of a Certificate of Conformity, exhaust emissions from new motor vehicle types fueled with leaded gasoline for spark-ignition engine and diesel for compression-ignition engine to be introduced into the market on 01 July 1998 up to 31 December 1999 shall not exceed the following:
 1. For cars and light duty motor vehicles equipped with spark-ignition and compression-ignition engines, the limits for emission of gaseous pollutants as a function of given reference mass shall be as provided in Table 1:

Table 1 1998 Exhaust Emission Limits of Gaseous Pollutants for Cars and Light Duty Motor Vehicles

Reference Mass (rw), (kg)	CO (g/test)	HC + NOx (g/test)
< rw ≤ 1020	58	19.0
1020 < rw ≤ 1250	67	20.5
1250 < rw ≤ 1470	76	22.0
1470 < rw ≤ 1700	84	23.5
1700 < rw ≤ 1930	93	25.0
1930 < rw ≤ 2150	101	26.5
2150 < rw ≤	110	28.0

for LDV, HC + NOx limits are those given in the Table 1 above multiplied by a factor of 1.25

2. For medium and heavy duty motor vehicles with compression-ignition engine, the limit for the emission of gaseous pollutant shall be as provided in Table 2:

Table 2 1998 Exhaust Emission Limits of Gaseous Pollutants for Medium and Heavy Duty Motor Vehicles Equipped with Compression-Ignition Engine

CO (g/KWH)	HC (g/KWH)	NOx (g/KWH)
11.2	2.4	14.4

3. Fuel evaporative emission for spark-ignition engines shall not exceed 2.0 grams hydrocarbons per test. Likewise, it shall not allow any emission of gases from crankcase ventilation system into the atmosphere.
4. For motorcycles, the CO emission shall not exceed 6.0% for all types.

b) Test procedures

1. The test procedures for the determination of gaseous exhaust emissions for cars and light duty motor vehicles shall be in accordance with ECE Regulation 15-04, "Uniform provision concerning the approval of vehicle equipped with positive-ignition engine or with compression-ignition engine with regards to emission of gaseous pollutant by the engine".
2. The test procedures for the determination of gaseous exhaust emissions for medium and heavy duty motor vehicles with compression-ignition engines shall be in accordance with ECE Regulation 49-01, "Uniform provision concerning the approval of compression ignition (C.I.) engines and vehicle with C.I. engines with regards to the emission of pollutant by the engine.
3. The test procedure for the determination of CO emission shall be at idling speed as provided in Annex 1.

Section 28. Standards for Low-Emission Vehicles

- a) As a condition for the issuance of Certificate of Conformity, the standards set forth hereunder for motor vehicle types with spark-ignition engines fueled with unleaded gasoline and compression-ignition engines to be introduced into the market on or after January 1, 2000 shall not exceed the following:

1. For cars equipped with spark-ignition and compression-ignition engines, the exhaust emission limits shall be as provided in Table 3:

Table 3 Exhaust Emission Limits of Gaseous Pollutants for Cars Equipped with Spark-Ignition and Compression-Ignition Engines

CO (g/km)	HC + NOx (g/km)	PM ^a (g/Km)
2.72	0.97	0.14

2. For light duty vehicles equipped with spark-ignition and compression engines, the exhaust emission limit as a function of the given reference mass shall be as provided in Table 4:

Table 4 Exhaust Emission Limits of Gaseous Pollutants as a Function of the Given Reference Mass for LDV Equipped with Spark-Ignition and Compression-Ignition Engines

Reference Weight (rw) (kg)	CO (g/km)	HC + NOx (g/km)	PM ^a (g/km)
Rw ≤ 1250	2.72	0.97	0.14
1250 < rw ≤ 1700	5.17	1.4	0.19
Rw ≥ 1700	6.9	1.70	0.25

a For compression-ignition engines only

3. For medium and heavy duty motor vehicles equipped with compression-ignition engines, the exhaust emission limits shall be as provided in Table 5:

Table 5 Exhaust Emission Limits of Gaseous Pollutants for Medium and Heavy Duty Vehicles Equipped with Compression-Ignition Engines

CO (g/KWH)	HC (g/KWH)	NOx (g/KWH)	PM (g/KWH)
4.5	1.10	8.0	0.36

4. Fuel evaporative emission for spark-ignition engines shall not exceed 2.0 grams hydrocarbons per test. Likewise, it shall not allow any emission of gases from crankcase ventilation system into the atmosphere.
5. Durability of pollution control equipment for spark-ignition and compression-engines shall conform with the deterioration factor prescribed in sub-section (b) of this section.

6. The standards set forth in paragraphs 1, 2, 3, 4 and 5 of this section refer to the exhaust emitted over a driving schedule or engine speed, evaporative emission, crankcase ventilation emission and durability of pollution control equipment as set forth in the test procedures indicated below.
7. For motorcycles, the CO emissions shall not exceed 6.0% for all types but shall be equipped with "tamper proof" seals on the carburetor.

b) Test Procedures

1. The test procedures for the determination of exhaust emissions, fuel evaporative emission, emission of crankcase gases and durability of pollution control equipment for cars and light duty motor vehicles shall be in accordance with ECE Regulation 83-01/02, series of amendment approval B and C: "Uniform provision concerning the approval of vehicles with regards to the emission of gaseous pollutants by the engine according to engine fuel requirement".

Approval B - Limitation of emission of gaseous pollutant by the engine, evaporative emission, crankcase emission and durability of vehicle fueled with unleaded petrol.

Approval C - Limitation of emission of gaseous and particulate pollutants, crankcase emission and durability of pollution control devices of motor vehicles fueled with diesel fuel.

2. The test procedures for Medium and Heavy Duty Motor Vehicles with compression-ignition engines shall be in accordance with ECE Regulation 49-02, series of amendment (49/02) "Uniform provision concerning the approval of compression-ignition (C.I.) engines and vehicles equipped with C.I. engine with regards to the emission of pollutants by the engine".
3. The test procedure for the determination of CO emission shall be at idling speed as provided by Annex 1.

CHAPTER III

Exhaust Emission Control for In-Use Motor Vehicles

Section 29. Scope. This Chapter shall apply to the control of exhaust emissions for in-use motor vehicles and unregistered rebuilt vehicles including imported used vehicles emphasizing regular and proper vehicle maintenance and utilizing appropriate test procedures and equipment. The objective is to bring about significant reduction in exhaust emissions by:

- a) Bringing about the repair of vehicles that fail the tests due to excessive emissions of carbon monoxide, hydrocarbons and visible emissions;

- b) Assisting the LTO and other concerned agencies in the proper inspection and maintenance of vehicles to insure that they conform to prescribed emissions standards; and
- c) Deterring owners/drivers from tampering the adjustment of engine system, pollution control devices and misfuelling of vehicles.

Section 30. Mandatory Periodic Emission Inspection

- a) Gasoline-Powered Motor Vehicles. The mandatory periodic emission inspection for this type of vehicle shall include the measurement of CO and HC concentration at low idle and raised idle speed in accordance with Annex 1 of these regulation.
- b) Diesel-Powered Motor Vehicles. The mandatory periodic emission inspection of motor vehicles powered by compression ignition engines shall include measurement of smoke opacity by the free acceleration method from low idle speed in accordance with Annex 2.
- c) Schedule of Mandatory Periodic Emission Inspection. The frequency or schedule of mandatory periodic emission inspection is based on the Gross Vehicle Mass and intended use of such motor vehicles, under the basic assumption that for hire, public utility and heavier vehicles should undergo more frequent emission inspection. The following schedule of mandatory emission inspection is hereby adopted:
 - i. For privately owned vehicles and those not for hire and not considered public utility vehicles such as passenger cars, owner-type jeeps, diplomatic and government vehicles, motor cycles and light duty vehicles of not more than 4.5 T gross vehicle mass, the first emission inspection shall commence on the fourth registration year and subsequently, will be biennial until the twelfth year and annually thereafter. For vehicles that are rebuilt or imported used, the first emission inspection shall commence on the first registration year; and
 - ii. For hire and public utility and other vehicles with gross vehicle mass of more than 4.5T not included in A above, the mandatory emission inspection shall be annually starting from the second to fourth registration year and semi-annually thereafter. For vehicles that are rebuilt or imported used, the first emission inspection shall commence on the first registration year.

Section 31. Random Road Inspections

- a) The random roadside inspection shall be undertaken when a motor vehicle is emitting visible emission and shall consist of two types:
 - i) Roadside pull-overs with portable emission test equipment. This is applicable to both gasoline- and diesel-powered vehicles; and

- ii) Roadside pull-overs and applicable to diesel-powered vehicles only where no test equipment is available but using only the Ringelmann Chart and/or inspector's expertise for visually determining the smoke density.
- b) Under the type (i) random inspection system, an emission test for CO and HC is conducted using a non-dispersive infra-red (NDIR) instrument (Annex 2) for spark-ignition engines and a duly approved opacimeter or smoke meter for diesel engines (Annex 1) to determine vehicle compliance with the pertinent smoke opacity standards.

After passing the emission test, a Certificate of Emission Compliance sticker is issued for attachment to either the front windshield or the glass window at the rear of the driver. If the vehicle fails the test, this shall be deemed as a prima facie evidence of violation and shall cause the monitoring team/unit to issue a charge and subpoena ticket in accordance with Section 13 of PD 1181.

- c) Similarly under the Type (ii) random inspection system, the inspecting team shall issue an order for emission testing to be done at a duly accredited testing center or repair shop.

If the results of the emission test indicate compliance with the standard, the driver/owner shall be issued a Certificate of Emission Compliance.

However, if the test results indicate non-compliance with the standards, the head of the testing station shall issue a repair order to be undertaken by any accredited repair shop within a period of two weeks, with instructions to the driver/owner to submit the vehicle for a retest at the same station within forty-eight (48) hours after completion of the repair. The said vehicle shall be prohibited from being operated on any public road or highway until issued a Certificate of Emission Compliance. The repair order shall be attached to the front windshield of the vehicle.

Section 32. Agencies Authorized to Perform Emission Inspection

The agencies or special units that shall conduct mandatory periodic inspection and random roadside inspection are the following:

- a) For Mandatory Periodical Inspection, Prior to Renewal of Registration
 - Land Transportation Office (LTO), in addition to the inspection of safety and road worthiness, in accordance with RA 4136,
 - Special Testing Centers that may be accredited or authorized by DENR, LTO and DTI, whenever necessary.
- b) For Random Roadside Inspection
 - DENR Regional Offices
 - LTO and its Law Enforcement Service Offices
 - Metro Manila Development Authority
 - Local Government Units

- Philippine National Construction Corporation Special Team for the North and South Expressway
- Other duly authorized agencies or entities such as Non-Government Organizations

Section 33. Authorized/Accredited Repair Shops

The repair of motor vehicle engines, exhaust system and pollution control devices shall preferably be done by automotive repair shops or service stations that are duly accredited by the DTI. These facilities shall be equipped with standard automotive repair tools, standard spare parts and pollution test equipment conforming to applicable ECE, ISO or SAE standards. It is also required that these repair shops or service stations shall have highly skilled mechanics and/or technicians who have on-the-job training certificates from DTI, local assemblers and manufacturers of motor vehicles. The DENR, DTI and DOTC shall establish the criteria for accreditation of automotive repair shops and service stations in consultation with motor vehicle assemblers within sixty (60) days from the effectivity of these Rules.

Section 34. Permissible Emission Limits for In-Use Motor Vehicles.

All in-use motor vehicles shall, upon effectivity of these Rules, comply with the hereunder emission standards as a pre-requisite for renewal of registration with the LTO.

a) In-Use Motor Vehicles Powered by Spark-Ignition (gasoline) Engines.

1) Maximum permissible limits for Carbon Monoxide (CO) and Hydrocarbon (HC) for uncontrolled or reduced emission vehicles when measured at low idle speed.

i) Vehicles registered for the first time or with COCs issued on or before 31 December 1996 or those without any COCs:

CO	-	4.5 vol %
HC (as Hexane)	-	800 ppm

ii) Vehicles with COCs issued on or after 1 January 1997:

CO	-	3.5 vol %
HC (as Hexane)	-	600 ppm

2) Maximum Permissible Limits for Low Emission Vehicles (i.e., exhaust emission controlled by an advanced emission control system such as three-way catalytic converter and feedback system):

For vehicles with COCs issued on or after 1 January 2000, the maximum permissible limits for CO and HC, the concentrations of which are measured by the low idle and raised idle methods shall not exceed the following:

i) At low Idle Speed (refer to manufacturer's specifications):

CO - 0.5 vol %
HC - 100 ppm

ii) At Raised Idle Speed (at least 2500 rpm)

CO - 0.3 vol %
Lambda - $1 \pm 0.03^*$

(* or in accordance with manufacturer's specifications)

b) In-Use Motor Vehicles Equipped with Compression-Ignition (Diesel) Engines.

The maximum permissible limit for smoke opacity when measured by the free acceleration method for diesel fueled in-use vehicles shall not exceed the hereunder standards:

- 1) First registration or with COCs issued on or before 31 December 1996 - 2.5 m^{-1} ; provided that for turbo charged engines and for 1,000 meter increase in elevation, the smoke opacity shall be 3.5 m^{-1} and 4.5 m^{-1} respectively.
- 2) For vehicles with COCs issued on or after 1 January 1997 - 1.65 m^{-1} ; provided that for turbo charged engines and for 1,000 meter increase in elevation, the smoke opacity shall be 2.65 m^{-1} and 3.65 m^{-1} , respectively.
- 3) For vehicles with COCs issued on or after 1 January 2000 - 1.2 m^{-1} ; provided that for turbo charged engines and for 1,000 meter increase in elevation, the smoke opacity shall be 2.2 m^{-1} and 3.2 m^{-1} , respectively.

Note: These limits also cover reconditioned engines or vehicles retrofitted with reconditioned diesel engines when applying for the first registration.

c) In-Use Motorcycles Powered by S.I. Engines

The maximum permissible concentration of CO for in-use S.I. powered motorcycles shall not exceed the following when measured by the idle speed.

1) First Registration on or after 1 January 1997

2 - stroke and 4 - stroke engine - CO - 6.0 vol %

Section 35. Emission Violations By In-Use Vehicles

Subject to the provision of Section 35(b), the owner and/or driver of a vehicle shall be liable for the following violation:

- (a) the vehicle fails a re-test and reinspection after an order for repair is issued;
- (b) any vehicle which, if issued a repair order by a testing station or roadside inspection is not submitted for re-test or reinspection within the prescribed period;

- (c) any diesel-powered vehicle which after being issued a test order/ticket by a random roadside inspection team for smoke belching is not submitted for instrument testing within the prescribed period with ticket/order; and
- (d) the full-load stop screw-sealing is removed or tampered with.
- (e) such other acts or omissions contrary to the provisions of PD 1181 and these Rules.

Section 36. Test Procedures

- a) Measurement of Emission for In-Use Spark-Ignition Engines/Motor Vehicles.
 - (i) The emission test procedure for in-use passenger and light duty motor vehicles shall follow the procedure described in Annex 1.
 - (ii) Carbon monoxide shall be measured by a non-dispersive infra-red spectrophotometer suitably calibrated using single blend of carbon monoxide in nitrogen and checked for response to water vapor and carbon monoxide.
 - (iii) Hydrocarbon shall be measured by a non-dispersive infra-red spectrophotometer suitably calibrated using single blend of propane in clean air and checked for response.
- b) Measurement of Smoke Opacity of In-Use Motor Vehicles Powered by Compression-Ignition (Diesel) Engines and Unregistered Diesel Fueled Vehicles with Reconditioned Engines:
 - (i) The opacity of smoke emission for in-use motor vehicles powered by compression ignition (diesel) engines, or newly assembled diesel fueled motor vehicles powered by reconditioned engines shall be measured using the free acceleration from low-idle speed method as described in Annex 5 of ECE Regulation No. 24. This method is summarized and attached to these regulations as Annex 2.
 - (ii) The test equipment's characteristics and installation for the free acceleration from low-idle speed method shall satisfy the conditions laid down in Annex 8 and 9 of ECE Regulations No. 24.

Section 37. Vehicles Eligible for Renewal of Registration

- a. Aside from passing safety and roadworthiness inspection by the Land Transportation Office, only motor vehicles that meet the permissible emission limits in Section 34 of these regulations through a valid certificate of test compliance shall be eligible for renewal of motor vehicle registration.
- b. To consider variations in the accuracy of emission testing due to errors in calibration and/or operation of test instruments or in techniques of measurement by technicians, certain motor vehicles whose exhaust emission

exceed the emission limits by not more than ten percent (10%) of the limit numerical value may be eligible for registration renewal.

Section 38. Emission Limits for Imported Used an Rebuilt Motor Vehicles

a. For Imported Used Motor Vehicles

For purposes of inspection and testing, prior to the first registration of any imported used and rebuilt motor vehicle with the Land Transportation Office, the appropriate emission standard shall be the basis of action by all concerned agencies; provided that, if the in-use emission standard of the country of origin differs from these standards (maximum limit), the stricter standard shall be the basis of approval and first registration of the used vehicle. For test procedure and equipment, refer to Annexes 1 and 2.

i) Vehicles registered for the first time before 31 December 1999:

CO ^a	--	3.5 vol. %
HC ^a	--	500 ppm
Smoke ^b	--	1.65 m ⁻¹

ii) Vehicles registered for the first time on or after 01 January 2000:

CO ^a	--	1.2 vol. %
HC ^a	--	200 ppm
Smoke ^b	--	1.2 m ⁻¹

Note:

- a - For spark-ignition (gasoline-fueled) motor vehicle*
- b - For compression-ignition (diesel-fueled) motor vehicle*

b. For Rebuilt Motor Vehicles

Prior to first registration of any rebuilt motor vehicles, such vehicles shall comply also with the above limits.

Section 39. Fuel Specifications

The specifications for gasoline and diesel fuel to be used by the various types of motor vehicles shall be in accordance with the Philippine National Standards (PNS) for such petroleum products.

Section 40. Schedule of Fees. Test conducted shall be paid in accordance with the following schedule:

- a) Pollution control device or gadget ----- PhP 110.00
- b) Exhaust emission of registered gasoline/diesel driven vehicles with or without control devices (Idling tests) ----- PhP 40.00

- c) Engine test of prototype of non-registered gasoline/diesel driven vehicle (CVS-1973) ----- PhP2,750.00

* - Other fees 10% increase in line with the cabinet approved proposal dated September 27, 1983, pursuant to BP 25.

CHAPTER IV **Prohibited Acts and Penalties**

Section 41. Prohibitions.

- a) No owner or operator of a vehicle shall be allowed to discharge air pollutants at levels greater than the pollutant concentration standards prescribed in these Rules.
- b) No owner or operator of a motor vehicle shall use or cause or allow such vehicle to be used unless it meets the emission standards established in these Rules and Regulations.
- c) No person shall sell, register or operate any new imported or locally manufactured motor vehicle without any certification from the Department that it meets the emission standards prescribed in these Rules.
- d) No person shall do any other act that is prohibited in these Rules and Regulations.

Section 42. Penalties. Any person violating PD 1181 and/or any provision of these Rules and Regulations involving the same vehicle shall, for the first offense be liable to a fine of not exceeding PhP200.00, for the second offense to a fine of not exceeding PhP500.00 and for the third and succeeding offense to a fine not exceeding PhP1,000.00 plus the suspension of his vehicle's certificate of registration, until such time as there shall be compliance with the requirements of these Rules.

CHAPTER V **Final Provisions**

Section 43. Separability Clause. If any action or provision of these Rules is declared unconstitutional or invalid by a competent court, other sections or provisions hereof which are not affected thereby, shall continue to be in full force and effect, as if the sections or provisions so annulled had never been incorporated herein.

Section 44. *Repealing Clause.* Any provisions of these Rules and/or parts inconsistent thereof inconsistent with the law, other policy issuances and regulations, are hereby repealed and/or modified accordingly.

Section 45. *Amendments.* These Rules shall be accordingly amended and/or modified from time to time by the Department.

Section 46. *Effectivity.* These Rules and Regulations shall take effect fifteen (15) days after publication in a newspaper of general circulation.

Done in Quezon City, this 29 day of June, 1998.

APPROVED:

(SGD) **VICTOR O. RAMOS**
Secretary
Department of Environment and Natural Resources

ANNEX 1

Emission Test Procedure for Registered or In-Use Motor Vehicles Equipped with Spark-Ignition Engines

1. Scope

The test procedure is for the determination of the concentration of exhaust carbon monoxide (CO) and hydrocarbon (HC) emissions from in-use motor vehicles equipped with spark-ignition engines running at idle speed.

2. Test Equipment (Reference: ISO - 3930)

- a) **Carbon monoxide analyzer** - a NDIR (Non-dispersive Infrared) CO exhaust gas analyzer.
- b) **Hydrocarbon analyzer** - a NDIR (Non-dispersive infrared) HC exhaust gas analyzer, HC as hexane (C₆H₁₄).
- c) **Tachometer** - An easily installed and operated tachometer to measure engine speed (RPM).

3. Vehicle Preparation

- a) Set the vehicle transmission at neutral with the hand-brake engaged.
- b) Ensure that the idling speed or the engine rpm with the accelerator in the rest position, conforms with the vehicle manufacturer's recommendation.
- c) All accessories like rear window heating, air conditioning system, air fan and other equipment necessary for the vehicle operation at idle should be switched-off.
- d) Check that the temperature of the engine is at least 70°C; otherwise, run the vehicle for at least 15 minutes on a normal road before testing.
- e) Ensure that the vehicle exhaust system is reasonably leakproof and will allow the insertion of the sampling probe by at least 30 cm. from the tailpipe outlet. If this is not possible due to tailpipe configuration, use the appropriate correction factor.

4. Measurement

- a) Immediately preceding the measurement, adjust the instrument to zero and accelerate the engine to about 2,500 rpm, using the tachometer, if available. Maintain this speed from ten (10) to fifteen (15) seconds, then release the pedal to return the engine at idle speed.

- b) While the engine idles, insert the sampling probe into the exhaust pipe as deeply as possible which shall not be less than thirty (30) cm. Wait for twenty (20) seconds and take the CO/HC reading.
- c) If the vehicle has multiple exhaust outlets the arithmetic average of the CO/HC readings in each exhaust outlet is taken as the final result.

5. Instrument Calibration, Adjustments (Reference: ISO 3929)

- a) Prepare, use and maintain the analyzer following the directions given in the instrument manufacturer's operation manual and service the instrument at such intervals as to ensure accuracy.
- b) Carry out a span and zero calibration within a period of four (4) hours before the instrument is moved or transferred to a new location. The calibration shall be performed well away from the exhaust of motor vehicles whose engines are running.

If the instrument is not self-compensated for non-standard conditions of altitude and ambient temperature or not equipped with a manually controlled system of compensation, the scale calibration shall be performed using calibration gas.

- c) If the sample handling system is not integral with the analyzer, make certain that the effectiveness of the gas sampling system are leakproof. Check that filters are clean, that filter holders are fitted with their gaskets and that these are all in good condition.
- d) Ensure that the sample handling line and probe are free from contaminants.

ANNEX 2

Free Acceleration Test For In-Use Compression-Ignition Motor Vehicle

1. Scope

The test is a smoke opacity measurement for in-use motor vehicles equipped with compression-ignition (diesel) engines, using the free acceleration from low idle speed method.

2. Motor Vehicle Test Condition

- a) The test shall be carried out on a stationary vehicle and the engine shall be first brought to normal operating conditions during a road run or dynamic test. In particular, cooling water and oil should be at normal temperature.
- b) The combustion chamber should not have been cooled or fouled due to a prolonged period of idling preceding the test.
- c) The exhaust system shall not have any orifice or leaks wherein the gases emitted by the engine might be diluted.

3. Test Equipment

The light-absorption coefficient of the exhaust gases shall be measured with an opacimeter satisfying the conditions laid down in ECE Regulation No. 24, Revision 2E/ECE/TRANS 505. Rev Add 23 Rev 2, Annex 8: Characteristics of Opacimeter.

4. Test Procedures and Smoke Opacity Measurement

- a) Follow the opacimeter manufacturer's instruction for on the proper installation, operation/use and checking the accuracy and calibration before and after each test.
- b) Set the vehicle gear-change control in the neutral position and the hand-brake effectively engaged.
- c) Start the engine and warm it up to its normal operating temperature.
- d) Accelerate the engine two to three times (2-3) prior to smoke sampling in order to remove deposits of soot and other carbon particles in the tail pipe.
- e) With the engine idling, depress the accelerator quickly, but not violently, to obtain maximum delivery from the injection pump. Maintain this position until maximum engine speed is reached for about two (2) to four (4) seconds and the governor comes into action. As soon as this speed is reached, release the accelerator until the engine resumes its idling speed. Record the maximum reading of the smokemeter.

- f) The operation described in paragraph (4)(e) shall be repeated not less than six (6) times in order to clear the exhaust system and to allow for any necessary adjustment of the apparatus. The maximum opacity values read in each successive acceleration shall be noted until stabilized values are obtained. The values read shall be regarded as stabilized when four (4) consecutive readings are within a band width of 0.25 m^{-1} and do not form a decreasing sequence. The arithmetic mean of the four stabilized values shall be the test result for the concerned vehicle.
- g) For motor vehicles designed with several exhaust outlets that are individually connected from paired exhaust ports, the free acceleration test shall be carried out on each outlet. In this case, the values used for calculating the correction to the absorption coefficient shall be arithmetical mean values recorded at each outlet and the test shall be valid only if the extreme values measured do not differ by more than 0.15 m^{-1}

For motor vehicles designed with several exhaust outlets connected from one exhaust pipe coming from the engine's exhaust manifold collector, the free acceleration test shall be carried out only on one exhaust outlet, the other outlets effectively blocked to prevent leaks.

- h) Seal the full load screw of the injection pump/delivery system of the motor vehicle after a pass-test to prevent tampering;

5. Test Data

Conversion of results from Hartridge Smoke Units to other scales shall be made in accordance with DENR-approved conversion table.