

CHAPTER 238

POLLUTION REGULATIONS

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CHAPTER 328**POLLUTION REGULATIONS***(Section 45)**[20th April, 1996.]***PART I***Preliminary*

Short title. **1.** These Regulations may be cited as the

POLLUTION REGULATIONS.

Definitions. **2.**—(1) In these Regulations, unless the context otherwise requires—

CAP. 328. “Act” means the Environmental Protection Act;

“air” means the unconfined portion of the atmosphere excluding any structure or underground space;

“air contaminants” include smoke, vapours, charred paper, dust, soot, grime, carbon, fumes, gases, sulfuric acid, mist, aerosols, aerosol droplets, odours, particulate matter, windborne matter, radioactive materials, noxious chemicals or any other like materials in the outdoor atmosphere;

“air pollution” means the presence in the outdoor atmosphere of one or more air contaminants or a combination thereof in sufficient quantities which either alone or in connection with other substances, by reason of their concentration and duration, are or tend to be injurious to human, plant or animal life or cause damage to property, or unreasonably interferes with the comfortable enjoyment of life or property of a substantial part

of a community or obscures visibility or which in any way reduces the quality of the ambient air below the standards as determined by the Department;

“air pollution control equipment” means equipment used to eliminate, reduce or control the discharge of air contaminants into the ambient air;

“air pollution source” means any physical facility, arrangement, device, contrivance, condition or structure which may emit contaminants;

“ambient air” means that portion of the atmosphere, external to buildings, to which the public has access;

“atmosphere” means the layer of air surrounding the earth;

“authorised officer” means a designated officer as defined in section 2 of the Act;

“BTU” means British Thermal Unit, which is the quantity of heat required to raise the temperature of 1 pound of water to 1 degree Fahrenheit;

“Chief Environmental Officer” means the Chief Environmental Officer appointed under section 3 (1) of the Act;

“CFC” means any chlorofluorocarbons specified in Part II of the Sixth Schedule or any mixture of such chlorofluorocarbons;

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“combustion” means the burning of matter;

“contaminant” means a solid, liquid or gaseous matter, microorganism, odour, radiation or a combination of any of the foregoing that is likely to alter the quality of the environment in any way;

“Department” means the Department of the Environment, established under the Act;

“discharge” means the release, escape or emission of a contaminant into the ambient air;

“dust” means finely divided solid particulate matter occurring naturally or created by mechanical processing, handling or storage of materials in the solid state;

“emission” means any act of passing into the atmosphere an air contaminant or a gas stream, visible or invisible;

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“end user” means any technician working in the refrigeration and air conditioning sector;

“equivalent opacity scale” means a measurement index for ranking plumes in terms of opacities equivalent to opacities on the Ringlemann Scale using per cent opacity as the unit of measurement;

“existing source” means any source of pollution which is not a new source;

“fuel” means any material which is burned for the purpose of producing energy;

“fugitive dust” means uncontrolled dust;

“fume” means solid particulate matter resulting from the condensation and subsequent solidification of vapours of melted solid materials;

“heat input” means the quantity of heat in terms of BTUs generated by fuels fed into fuel burning equipment under conditions of complete combustion;

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“importer” includes any individual or company who or which imports, exports, trans-ships or transits any scheduled substance through Belize;

“motor vehicle” means any self-propelled vehicle designed for transporting persons or property on roads and public highways;

“new source” means any source of air pollution or potential source of air pollution, the construction or modification of which was commenced after the effective date of these Regulations; and in the context of the foregoing definition “commenced” means that an owner or operator has undertaken a continuous program of construction or modification or that an owner or operator has entered into an agreement that is binding in law to undertake or complete within a reasonable time, a “continuous program of construction or modification, construction” means fabrication, erection or installation of an affected facility, and “modification” means any physical change in, or change in the method of, operation of an effected facility which increases the amount of any air pollutant (to which a standard applies) emitted by such facility which results in the emission of any air pollutant (to which a standard applies) not previously emitted but routine maintenance, and “repair and replacement” shall not be considered physical change;

“opacity” means the degree of obscuration of transmitted light;

“operation” means any physical or chemical action resulting in the change in location, form, physical properties or chemical character of a material;

“particulate matter” means any finely divided liquid or solid material, other than uncombined water;

“per cent opacity” means a unit of measurement shown on the equivalent opacity scale;

“permanent production curtailment” means the reduction of sulfur input on a continuing basis;

“person” includes an individual, any public or private corporation, company, partnership, firm, association or society

of persons, the Government of Belize, and any of its departments or agencies;

“plume” means visible effluent;

“pollutant” means a contaminant or a mixture of several contaminants present in the environment in a concentration or quantity greater than the permissible level prescribed by these Regulations;

“positive control” means permanent production curtailment or the operation of emission control equipment of sulfur removal techniques or any combination thereof;

“PPM” means parts per million by volume;

“process” means one operation or more, including equipment and technology, used in the production of foods or services or the control of by-products or waste;

“process source” means the last operation or process which produces an air contaminant resulting from the separation of the air contaminant from the process material or the conversion of constituents of the process materials into air contaminants and which is not an air pollution abatement operation;

“process weight rate” means a rate established as follows—

- (a) for continuous or long-run, steady-state process source, the total weight for the entire period of continuous operation or for a typical portion thereof, divided by the number of hours of such period or portion thereof;
- (b) for cyclical or batch process sources, the total process weight for a period which covers a complete operation or an integral number of cycles divided by the hours or actual process operation during such period;

“quota year” means the period specified in Part IV of the Sixth Schedule. Sixth Schedule.

“Ringlemann chart” means a standardised device employing a graduated series of opacities according to the Ringlemann scale;

“Ringlemann scale” means a standardised rank of opacities using the Ringlemann number as the unit of measurement employed when determining the opacity of a plume;

“smoke” means particulate matter resulting from incomplete combustion;

“source of contamination” means any activity or condition causing the emission of a contaminant into the environment;

“soot” means the carbonaceous particulate product of incomplete combustion which may be a component of smoke;

“standard conditions” means the gas temperature of 60 degrees F and gas pressure of 14.7 pounds per square inch absolute;

“vapour” means the gaseous form of a substance normally occurring in a liquid or solid state;

“vapour pressure” means the pressure exerted by the gaseous form of a substance in equilibrium with its liquid or solid form;

“volatility” means the capability of a substance to vaporize or change to vapour form;

“water” means surface water, ground water and storm water wherever located including natural and artificial drainage courses.

(2) A word or phrase not specifically defined in these Regulations shall have the meaning assigned to it in the Act.

PART II

Emission of contaminants into the Environment

Emission of
contaminants
generally.
60 of 2002.

3.—(1) No person shall emit, deposit, issue or cause the emission, deposit, issuance or discharge into the environment of—

- (a) a contaminant from a domestic, commercial, agricultural, recreational, industrial, or any other source; or
- (b) a contaminant, the presence of which in the environment is prohibited by these Regulations or is likely to affect the life, health, safety, welfare or comfort of human beings or cause damage to or otherwise impair the quality of the environment,

unless a prior permit to do so has been granted by the Department upon such terms and conditions as it may determine.

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(2) Where the discharge of any pollutant in excess of the prescribed standards occurs or is apprehended to occur due to any accident or other unforeseen act or event, the person responsible for such discharge and the person in charge of the premises, vessel, vehicle or container shall be bound to prevent or mitigate the pollution caused as a result of such discharge and shall also forthwith inform the Department of the fact of such occurrence or apprehension of such occurrence and provide the Department with—

- (a) a brief description of the emission;
- (b) an assessment of any damage or potential damage to the public health or the environment associated with the emission;

- (c) a description of the emergency response plan and resources to address the discharge;
- (d) evidence that he has taken or is taking steps to mitigate damage or contamination resulting from the emission.

(3) Every person who fails to comply with subregulation (1) commits an offence and is liable on conviction to a fine of five thousand dollars or to imprisonment for one year.

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4.—(1) No person shall undertake to operate an industry, carry on an activity, use an industrial process or increase the production of any goods or services if it appears likely that this will result in an emission, deposit, issuance or discharge of contaminants into the environment resulting in a change in the quality of the environment unless a permit to do so has been granted by the Department upon such terms and conditions as the Department may determine.

Emission of contaminant from industry.

(2) The Department may, in considering an application from a major industry for permission to emit a contaminant into the atmosphere, cause a study to be made, or request the applicant to carry out a study, on the impact which such emission is likely to have on the environment, and the Department may also require the applicant to carry out certain research experiments in respect of that industry.

(3) For the purposes of subregulation (2), “major industries” include—

- (a) mining industries;
- (b) sugar manufacturing and rum distilling industries;
- (c) oil refineries;
- (d) cement factories;

- (e) power generating industries;
- (f) chemical factories;
- (g) salt factories;
- (h) food processing industries or plants; and
- (i) such other industries as may be designated by the Minister.

Abatement of
contamination.

5.—(1) The Department may, if it considers it necessary for ensuring the protection or sanitary condition of the environment, order the person responsible for a source of contamination to use any class or type of apparatus, or method as specified by the Department, to abate or eliminate the emission, deposit, issuance or discharge of a contaminant.

(2) Without prejudice to subregulation (1), the Department may, if it considers it necessary for ensuring the supervision of the quality of the environment, order the person responsible for a source of contamination to install, within the time and at the place specified by the Department, any class or type of equipment or apparatus or method for measuring the concentration, quantity or quality of any contaminant; and the Department may further order such person to submit to the Department, in the form specified, any data collected from such equipment, apparatus or method.

PART III

Air pollution generally

Emission of
contaminants
into the air.

6.—(1) No person shall cause, allow or permit contaminants to be emitted or discharged either directly or indirectly, into the ambient air from any source.

(2) Nothing in subregulation (1) shall be interpreted as prohibiting the discharge or emission of—

- (a) uncontaminated aqueous steam into the open air unless such discharge constitutes a safety hazard; or
- (b) contaminant emissions inside of buildings except as this may be related to the ultimate release of contaminants into the ambient air.

(3) Control methods utilized to comply with the requirements of these Regulations shall not create air contaminants in concentrations in excess of emission standards specified in the First Schedule.

First Schedule.

(4) Notwithstanding the emission standards specified in these Regulations, no person shall cause the ground level concentration outside the boundaries of his operation to exceed the limits so specified.

7.—(1) Subject to subregulation (2), emissions in excess of the prescribed limits which are temporary and due to unavoidable breakdown of equipment or disruption of operations shall not be considered a violation of these Regulations if—

Temporary emission of contaminants.

- (a) the Department is immediately notified of any such occurrence and a time period for correction of the breakdown or disruption is proposed;
- (b) the Department considers the proposed time-period for repair reasonable;
- (c) the breakdown or disruption is considered by the Department to be unavoidable and not the result of negligence; and

- (d) the Department is provided with daily and weekly reports and is immediately notified when corrective measures have been accomplished; and
- (e) the Department is provided with an assessment of damages or potential risks to human health associated with the breakdown or disruption.

(2) The person responsible for the emission of contaminants into the ambient air in the circumstances described in subregulation (1) shall submit a written report to the Department which shall include the cause and nature of the emission, the estimated quantity of contaminants emitted, the time of the emission and steps taken to control the emission and to prevent a recurrence.

(3) The Department may, subject to such conditions as may be imposed by the Department, grant an exemption to a person responsible for a source of contamination in the circumstances of start-up, shut-down or scheduled maintenance if the person responsible for the source of contamination notifies the Department, within twenty-one days prior to such occurrence, of the nature, duration and unavailability of the emissions and such other information as may be requested by the Department.

(4) Where start-up or shut-down of equipment is a normal operating condition, the Department may grant a continuing specified period of time within which there must be compliance with these Regulations.

PART IV

Particulate emissions from stationary sources

Power
generating
installations.

8.-(1) Power generating installations-

- (a) which are new sources, shall not emit more than 0.80 pounds of sulfur dioxide, maximum two-hour average, per million BTU when the oil is fired;
- (b) which are existing sources, shall not emit more than 1.0 pound of sulfur dioxide, maximum two-hour average, per million BTU when low sulfur oil is fired;
- (c) which are existing sources, shall not emit more than 2.2 pounds of sulfur dioxide, maximum two-hour average, per million BTU when high sulfur oil is fired;
- (d) which are new sources, shall not emit more than 0.80 pounds of sulfur dioxide, maximum two-hour average, per million BTU heat input when coal is fired;
- (e) which are existing sources, shall not emit more than 1.0 pound of sulfur dioxide, maximum two-hour average, when coal is fired.

(2) Any permit issued for the operation of an existing source or any renewal or modification of such permit shall include a clause indicating that when the conditions justifying the use of high sulfur oil no longer exists the permit shall be modified accordingly.

(3) This Regulation applies to an installation operated for the purpose of producing electrical power with a resulting discharge of sulfur dioxide in the installation effluent gases.

(4) For the purposes of this regulation—

- (a) “low sulfur oil” means fuel oil containing less than 0.90 per cent by weight of sulfur; and

- (b) “High sulfur oil” means fuel oil containing 0.90 per cent or more by weight of sulfur.

Opacity of plume or effluent.

9. Except as otherwise provided in these Regulations relating to specific types of sources, the opacity of any plume or effluent shall not be as great as, or greater than, that designated as No. 2 on the Ringlemann Scale or percent opacity equivalent to No. 2 on the Ringlemann Scale.

Escape of plume or effluent.

10.—(1) No person shall cause or permit a building or its appurtenances, open area, or road or alley to be used, constituted, repaired, altered or demolished without taking reasonable precautions to prevent particulate matter from becoming airborne.

(2) Dust and other types of particulates shall be kept to a minimum by such measures as wetting-down, covering, landscaping, paving, treating, detouring or by other reasonable means.

Airborne dust.

11. No person shall cause or permit the extracting, crushing, screening, handling or conveyance of materials or other operations likely to give rise to airborne dust without taking reasonable precautions, by means of spray bars or wetting agents, to prevent particulate matter from becoming airborne.

Illicit burning.

12. No person shall within any urban area cause or permit—

- (a) the burning of refuse or other combustible material so as to cause a nuisance to any other person; or
- (b) the burning of refuse in a commercial area instead of making provision for adequate cleaning.

Establishment of disposal sites.

13.—(1) The Department may permit the use of disposal sites where burning may be carried out for the purpose of disposing

of solid waste and combustible material at such times and under such conditions as it determines.

(2) The site, for the purpose of subregulation (1), shall be authorized on the basis of the environmental and atmospheric conditions of the area.

14.—(1) No person shall cause or permit the emission of particulate matter into the atmosphere, caused by the combustion of fuel, from any fuel burning operation in excess of the quantity established by the standards of the Department.

Fuel burning equipment.

(2) The maximum allowable emission of particulate matter in pounds per hour per BTU of heat input shall be based upon a 24-hour arithmetic average and calculated directly from the heat input according to established procedures adopted by the Department.

(3) For the purposes of these Regulations—

- (a) the heat input shall be the aggregate heat content of all fuels whose products of combustion pass through a stack or other outlet;
- (b) the heat input value shall be the equipment manufacturer's or designer's guaranteed maximum input, whichever is greater;
- (c) the total heat input of all fuel-burning units on a plant or premises shall be used for determining the maximum allowable amount of particulate matter which may be emitted.

15.—(1) No person shall cause or permit the discharge of particulate matter into the atmosphere, in any one hour from an existing process source, except from incineration and fuel-burning equipment, the total quantity of which is in excess of the amount specified by the Department.

Process industries.

(2) The rate of emission shall be determined on the basis of the process weight rate.

Sulfur plants.

16.—(1) No person shall cause or permit the acid discharge into the atmosphere of—

- (a) more than 4.0 pounds of sulfur dioxide per ton of sulfur acid produced (calculated as 100 per cent H₂SO₄); maximum two-hour average; or
- (b) more than 0.15 pounds of sulfuric acid mist per ton of sulfur acid produced (calculated as 100 per cent H₂SO₄), maximum two-hour average, expressed as H₂SO₄, from facilities that produce sulfuric acid by the contact process by burning elemental sulfur, alkylation's acid, hydrogen sulfide, organic sulfides and mercaptans or acid sludge.

(2) This Regulation shall not apply to existing sources such as metallurgical plants or other facilities when conversion to sulfuric acid is utilized as a means of controlling emission to the atmosphere of sulfur dioxide or other sulfur compounds.

Other industries.

17. No person shall cause or permit the discharge of reduced sulfur into the atmosphere from any other industry, other than those referred to in regulations 8 to 16, which includes sulfur equivalent from all sulfur emissions, including but not limited to sulfur dioxide, sulfur trioxide and sulfuric acid, in excess of 10 per cent of the sulfur entering the process as feed.

PART V

Emission of organic compounds from stationary sources

Reservoir, tanks,
etc.

18.—(1) No person shall place, store or hold in any reservoir, stationary tank or other container, having a capacity of 50,000 or more gallons, any gasoline or any petroleum product that has

a rebate pressure higher than 5.0 pounds per square inch absolute or greater under actual storage conditions, unless such reservoir, tank or other container is a pressure tank that maintains working pressure sufficient at all times to prevent hydrocarbon vapour or gas loss to the atmosphere, or is equipped with one of the following vapour loss control devices, properly installed in good working order and in operation—

- (a) a floating roof consisting of a pontoon type or double-deck type roof resting on the surface of the liquid contents and equipped with a closure seal to close the space between the roof-ease and tank-well and a vapour balloon or vapour dome, designed in accordance with standards approved by the Department;
- (b) other equipment approved by the Department to be of equal efficiency for preventing discharge of hydrocarbon gases and vapours into the atmosphere.

(2) Any other petroleum storage tank which is constructed or extensively remodelled on or after the commencement of these Regulations shall be equipped with a submerged filling device or acceptable equivalent for the control of hydrocarbon emissions.

(3) Subregulation (2) above shall only apply to new sources.

19. All facilities for dock loading or unloading of petroleum products, with a vapour pressure of 5.0 pounds per square inch absolute or greater at loading pressure shall provide for submerged filling or acceptable equivalent for the control of hydrocarbon emissions.

Loading of volatile organic compounds.

20. All pumps and compressors which handle volatile organic compound shall be equipped with mechanical seals or other equipment of equal efficiency to prevent the release of organic contaminants into the atmosphere.

Pumps and compressors.

Organic solvents
and other volatile
compounds.

21. Materials such as solvents and other volatile compounds, including but not limited to paints, acids, alkalies, pesticides, fertilizer and manure, stored in commercial quantities, shall be processed, stored, used and transported in such a manner and by such means that they will not unreasonably evaporate, leak, escape or be otherwise discharged into the ambient air so as to cause or contribute to air pollution; and where means are available to effectively reduce the contribution to air pollution from evaporation, leakage or discharge, the installation and use of control methods, devices or equipment shall be required.

PART VI

Emissions of carbon monoxide from stationary sources

Industrial
sources.

22. No person shall cause or permit the emission from any industrial plant or factory, carbon monoxide emissions above the prescribed level without the use of complete secondary combustion of waste gases generated by any process source.

PART VII

Emissions of nitrogen oxides

Nitric acid
plants.

23. No person shall cause or permit the discharge from, a nitric acid plant producing weak nitric acid, which is 30 to 70 per cent in strength, either by increased pressure or atmospheric pressure process, of more than 3.0 pounds of total oxides of nitrogen per ton of acid produced, maximum two-hour average, expressed as nitrogen dioxide.

Sources of air
pollution.

24.—(1) The owner or operator of any major stationary source of air pollution may be requested by the Department, in writing, to maintain adequate monitoring of the amount of pollutants emitted from such source as may be deemed necessary to determine whether such sources are in compliance with the relevant emission standards.

(2) Where the Department is satisfied that the levels of air pollution exceed any relevant emission standards, then the owner or operator of any source of air pollution may be requested by the Department in writing, to carry out performance tests on the efficiency of its process and emission control in order to determine whether or not the emissions from the process are in excess of the standards established by the Department or such other standard that is acceptable in that industry.

(3) The owner or operator of any source of air pollution—

- (a) shall permit the Department to conduct performance tests and provide the necessary access to sampling points; or
- (b) shall provide the Department with a written report of the results of performance tests carried out by him; or
- (c) shall provide in a timely manner complete and accurate information in respect of any request for information from the Department or in response to any inspection by the Department of the nature and sources of air pollution.

(4) Performance tests shall be conducted and reported according to procedures established by the Department.

PART VIII

Emission from combustion engines

25.—(1) No person shall cause a vehicle to discharge into the atmosphere contaminants in excess of the quantity specified by the Department.

Exhaust
emission
standard.

(2) The quantity of emission from motor vehicle engines shall be set according to the type of vehicle engine and the model year of the vehicle.

(3) Motor vehicles shall be subject to testing of carbon monoxide, hydrocarbon and crankcase pressure which shall be carried out in accordance with levels and procedures to be prescribed by the Minister.

(4) The testing of a motor vehicle shall be carried out at the time of inspection; but any vehicle with visible emission may be subjected to such testing.

(5) Where a motor vehicle has been tested in accordance with subregulations (3) and (4) and defects have been discovered in the exhaust emission, the owner of the vehicle shall be so notified and requested to correct the defects within 15 days of such notification at which time the vehicle shall be returned for retesting.

Visible
contaminants.

26.—(1) No person shall cause or permit the discharge into the atmosphere of any contaminant from a gasoline or diesel engine in excess of the quantity specified by the Minister for a motor vehicle operating under normal conditions.

(2) The intensity of the emission shall be measured in terms of its density when compared to the Ringlemann Chart.

PART IX

Water Pollution

Control of water
pollution.

27. The Department may for the purpose of ensuring the control and abatement of water pollution classify receiving bodies of water according to present and projected future use.

Haulage of
wastewater.

28.—(1) The Department may designate disposal areas for the receipt of wastewater from cesspool emptiers.

(2) The Department may give directions as to the times during which the hauling of wastewater is permitted.

29.—(1) Where it appears to the Department that any waters have been or are likely to be polluted, the Department may serve on the owner or occupier of the land where the act or omission took place, or on the pollutant a notice requiring him to stop or prevent the acts or omissions causing the pollution.

Notice to abstain from pollution practices.
60 of 2002.

(2) Any person who refuses or fails to comply with a notice served under this Regulation commits an offence and shall be liable on summary conviction to a fine not exceeding twenty thousand dollars or to imprisonment for a term not exceeding two years or to both such fine and imprisonment, and where the offence is a continuing offence, he shall be liable to a further fine not exceeding one thousand dollars for each day on which the offence continues after conviction.

60 of 2002.

30.—(1) Without prejudice to regulation 29, where it appears to the Department that any poisonous, noxious or polluting matter is likely to enter, or is, or was present in any waters, the Department may, after consultation with any agency or department of Government having functions in relation to water and water resources, carry out such operations as it considers appropriate to prevent entry or remedying or mitigating any pollution caused, or restoring the waters, so far as is reasonably practical to do so, to the state in which the water were prior to contamination.

Operations by Department regarding pollution of water.
60 of 2002.

(2) Any expenditure reasonably incurred by the Department in carrying out operations in accordance with subregulation (1) are, subject to subregulation (3), recoverable by the Department as a debt against the person who caused or permitted the poisonous, noxious or polluting matter, as the case may be, to be present at the place from which it was likely in the opinion of the Department to enter waters or, as the case may be, to be present in such waters; and accordingly, without prejudice to any penalty imposable on such person or persons, such sums

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may be recoverable in a District Court, without limit of amount, as a civil debt.

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(3) A person shall not be liable to pay for any sums expended by the Department pursuant to this regulation if he satisfies the court that such sums were incurred unnecessarily.

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(4) Any person who wilfully obstructs the Department or any person authorized in that behalf in the exercise of its powers under this Regulation commits an offence under this Act and shall be liable on summary conviction to a fine not exceeding ten thousand dollars or to imprisonment for a term not exceeding one year.

Dumping waste.
60 of 2002.

31. No person shall dump or discharge or cause or permit the dumping or discharge of any waste in any inland waters or in the marine environment.

Marine Crafts

Dumping of
refuse etc. on
waters.

32.—(1) No person shall dump, deposit, place, throw or leave rubbish, refuse, debris, bidge, filthy or odoriferous objects, substances or other trash, from a marine craft on any waters or the shorelines of any waters of Belize.

(2) No person, whether or not he is the owner, operator, guest or occupant of a boat, shall remove, place, leave or discharge or cause to be removed, placed, left or discharged any container of inadequately treated wastewater in any waters of Belize.

Toilet on marine
craft.

33.—(1) No marine toilet on any vessel operated upon the waters of Belize shall be constructed and operated so as to permit the discharge of any inadequately treated wastewater into the waters of Belize, whether directly or indirectly.

(2) Any marine toilet located on or within any vessel operated in the waters of Belize shall have securely affixed to the interior discharge opening of such toilet a suitable treatment

device, or some other treatment device or method approved by the Department, in operating condition and properly constructed and fastened.

(3) No person shall discharge or cause to be discharged into the waters of Belize any wastewater from a boat unless such wastewater is passed through a treatment device, described in subregulation (2) that is affixed to the interior discharge opening of the marine toilet.

PART X

Pollution of Land

34.—(1) A person shall not pollute land so that the condition of the land is so changed as to make or be reasonably expected to make the land or the produce of the land—

Pollution of land generally.

- (a) noxious or poisonous;
- (b) harmful or potentially harmful to the health or welfare of human beings;
- (c) poisonous, harmful or potentially harmful to animals, birds or wildlife;
- (d) poisonous, harmful or potentially harmful to plants or vegetation;
- (e) obnoxious or unduly offensive to the senses of human beings; or
- (f) detrimental to any beneficial use made of the land.

(2) Without in any way limiting the generality of subregulation (1) a person shall be deemed to have polluted land in contravention of that subregulation if—

- (a) that person causes or permits to be placed in or on any land or in any place where it may gain access to any land any matter whether solid, liquid or gaseous which–
 - (i) is prohibited by or under these Regulations; or
 - (ii) does not comply with any standard prescribed for that matter; or
- (b) that person establishes on any land–
 - (i) a refuse dump;
 - (ii) a garbage tip;
 - (iii) a soil and rock disposal site;
 - (iv) any other site for the disposal of or as a repository for solid or liquid waste,

60 of 2002.

without the written permission of the Department.

60 of 2002.

(3) A person who contravenes any of the provisions of this Regulation shall be guilty of an offence and liable to a penalty of not more than five thousand dollars.

Leaching contamination.

35. No person shall cause any seepage or leaching contamination of the adjacent soil, ground water or surface water.

Directions by the Department.

36.–(1) The Department may issue, in respect of a person operating a site for elimination or storage of waste or a solid waste treatment plant and disposal system directions it considers appropriate respecting–

- (a) the quality of the service;

- (b) the reports to be submitted;
- (c) the terms and conditions upon which the operation shall be carried on; and
- (d) the standards to be attained and the code of practice to be followed.

(2) Where an operator fails to comply with a direction under subregulation (1) the Department may—

- (a) cancel or suspend the permit issued in respect of that operator; or
- (b) execute any work, at the expense of the operator, that may be necessary to cause the operator to comply with the established standards.

37.—(1) No person shall, without the written permission of the Department, construct any building on a site that was formerly used for the elimination of waste.

No building or sites used for elimination of waste.

(2) No person shall, without the prior written permission of the Department, sell or offer for sale any building on a site that was formerly used for the elimination of waste.

38. No person shall deposit waste in a place other than on a site approved by the Department for the elimination or storage of waste or for the operation of a waste treatment plant or a waste management system.

Deposit of waste.

39. For the purposes of regulations 35 to 38—

Interpretation.

- (a) “waste” includes solid or liquid residue from industrial, commercial or agricultural activities, rubbish, household garbage, used lubricants, demolition debris, pathological waste material, bodies of animals, motor

vehicle wrecks, chemical and radioactive material, and empty containers;

- (b) “waste management system” means a combination of technical and administrative operations for the removal, collection, transport, storage, treatment and final disposal of waste.

PART XI

Noise Abatement

Unreasonable noise emissions on premises.

40.—(1) A person who on any premises uses or causes or allows to be used any equipment in such a way as to cause or allow it to emit unreasonable noise from those premises commits an offence.

(2) A prosecution for an alleged offence under subregulation (1) may be instituted only by—

- (a) any three or more persons, each of whom is the occupier of the premises and claims to be directly affected by that alleged offence;
- (b) an authorized person; or
- (c) a police officer.

Installation of equipment emitting unreasonable noise.

41. A person who installs on or in any premises any equipment which he knows or would have known had he exercised reasonable care, that when so installed and operated emits an unreasonable noise, commits an offence and is liable on summary conviction to a fine of not less than one thousand dollars or to imprisonment for a term of not less than three months.

42.—(1) If an authorized person considers that an unreasonable noise has been or is being emitted from any premises, the authorized person may—

Noise abatement directions.

- (a) direct, either orally or in writing, as he considers appropriate—
 - (i) the person whom he believes to be the occupier of those premises to cause the emission of that unreasonable noise to cease; or
 - (ii) any person whom he believes to be making or contributing to the making of that unreasonable noise to cease making or contributing to the making of that unreasonable noise; or
- (b) take such measures or cause such measures to be taken as the authorized person or police officer considers necessary to abate the emission of that unreasonable noise or to remove the likelihood of any unreasonable noise being emitted.

(2) A person who does not without reasonable excuse comply with a direction given by an authorized person under subregulation (1) commits an offence.

(3) A direction given under subregulation (1) shall have effect for such period not exceeding 7 days as is specified in that direction, but may within that period be revoked by the authorized person who gave it or by any other person authorized by the Department for that purpose.

43.—(1) An authorized person may, for the purpose of enabling him to give direction, or to take or cause to be taken any measures, in respect of noise emitted from any premises or to

Powers of entry in respect of noise abatement directions.

ascertain whether or not an offence under regulation 40(1) has been committed on any premises—

- (a) enter such premises, with the aid of such other authorized persons as he considers necessary; and
- (b) whether or not he enters such premises, require any person—
 - (i) whom he considers on reasonable grounds was or to have been present in or on such premises at any time when the noise was being emitted; and
 - (ii) to whom he has given an oral or written warning of his obligation to furnish him with his name and address and with the name and address of the occupier of those premises,

to furnish him with the names and addresses so requested by him.

(2) A person who does not comply with a requirement made under subregulation (1)(b) commits an offence.

(3) An authorized person shall not, if he exercises the power referred to in subregulation (1)(a), use force in so doing unless he is accompanied by a police officer.

Excessive noise emissions from vehicles or vessels.

44.—(1) A person who is the owner or driver of a vehicle or vessel which does not comply with any noise emission standard prescribed for the purposes of this subregulation commits an offence.

(2) For the purposes of subregulation (1) above, evidence that a vehicle or vessel was found, upon inspection, measurement or test, made by an authorized person, not more

than six weeks after the commission of the alleged offence, not to comply with the noise emission standard as set in that subregulation shall be sufficient evidence to prove that the vessel or vehicle exceeded the prescribed noise limit.

45. Noise levels in excess of the levels contained in the Second Schedule to these Regulations in respect of the various structures as indicated in that Schedule are prohibited.

Noise levels.
Second
Schedule.

46. Every person who contravenes or fails to comply with any of the provisions of this Part, commits an offence and shall be liable on summary conviction to a fine of ten thousand dollars or to imprisonment for a term not exceeding two years or to both such fine and imprisonment.

Offences.
60 of 2002.

PART XII

Prohibition of the Manufacture of Ozone Layer Damaging Substances

47. For the purposes of this Part, “scheduled substance”–

Scheduled
substance
defined.

(a) means a substance listed in the Third Schedule to these Regulations be it virgin, used, recycled or reclaimed;

Third Schedule.
101 of 2009.

(b) in regulations 48 and 49, does not include a substance listed in the Third Schedule that is a manufactured product (other than one used solely for the transportation or storage of the substance) and the substance is used in the operation of the manufactured product or the mere dispensing of the contents of the product that constitutes the intended use of the substance, or that is part of a manufactured product solely because the substance was used in the process of manufacturing the product.

Manufacture of scheduled substance prohibited.

48. For the purpose of protecting the ozone layer, the manufacture of all scheduled substances is prohibited except where a licence is obtained for the purpose of research or academic instruction and in quantities not exceeding one kilogram of the substance in a 12-month period.

Importation of equipment containing scheduled substances (especially CFCs).
Fifth Schedule.
60 of 2002.

49.—(1) The importation into Belize of equipment, using or containing any scheduled substances or mixtures of such substances, listed in the first column of the Fifth Schedule shall be prohibited with effect from the dates specified in the second column of that Schedule.

60 of 2002.

(2) This regulation shall not apply to the importation of CFC-based propellants in metered dose inhalers for medical use.

60 of 2002.

(3) Owners or importers of any vehicle whose air conditioning system is using CFC-12 or a mixture of CFC-12 shall before any such vehicle is allowed to enter into Belize, be required to retrofit any such vehicle with a non-Ozone Depleting Substance, or permanently disable the air conditioning system, at any of Belize's border points before the Customs Department releases the vehicle for entry into Belize.

60 of 2002.

(4) Where any retrofit is done pursuant to subregulation (3), a certificate shall be issued by the retrofitter, in accordance with the Ninth Schedule.

Ninth Schedule.

Licence to import or export scheduled substances especially CFC Gas).
Sixth Schedule.
Seventh Schedule.
60 of 2002.

50.—(1) Only an individual or company listed in Part I of the Sixth Schedule shall apply, on the form prescribed in Seventh Schedule, to the Chief Environmental Officer for a license to import or export any of the scheduled substances or mixtures of such substances.

(2) There shall be a fee of three hundred dollars per ton of CFC quota payable to the Department in respect of any licence or permit issued.

- (3) The individuals or companies listed in Part I of the Sixth Schedule shall only import or export scheduled substances in accordance with—
- (a) a licence granted by the Department pursuant to the Eight Schedule; and Eight Schedule.
 - (b) their respective annual quota allocations for CFC's specified in Part III of the Sixth Schedule. Sixth Schedule.
- (4) Subject to subregulation (3), the total quantities of CFC's that may be imported in respect of each year shall not exceed the respective quantities specified in Part IV of the Sixth Schedule. 60 of 2002.
Sixth Schedule.
- (5) In the event of any disaster or national emergency the Government may directly import any scheduled substance; where the Government imports any scheduled substance; the quantity imported shall be subtracted on a prorated basis from the quota entitlement of the importers listed in Part III of the Sixth Schedule. 60 of 2002.
Sixth Schedule.
- (6) Any licence issued pursuant to this Regulation shall be valid for a period of twelve (12) months. 60 of 2002.
- (7) An importer of any scheduled substance may, with the approval of the Department, transfer to any other importer listed in Part I of the Sixth Schedule, up to 50% of his annual quota allocation in any given quota year. 60 of 2002.
Sixth Schedule.
- (8) Any individual or company operating in any free zone in Belize, who or which has intention of exporting any scheduled substance, must first apply to the Chief Environmental Officer for a permit authorizing the trans-shipment or transit through Belize of the scheduled substance. 60 of 2002.
- (9) Applicants under subregulation (8) shall comply with regulation 52. 60 of 2002.

Licence to import or export HCFCs, HFCs or any other type of refrigerant gases or mixtures thereof.
101 of 2009.

Seventh Schedule.
Third Schedule.

(10) Any individual or company can apply, on the form prescribed in Seventh Schedule, to the Chief Environmental Officer for a license to import or export any type of scheduled substances including Hydro Chloro-fluorocarbons (HCFCs), Hydro Fluorocarbons (HFCs), or any other type of refrigerant gases or mixtures thereof, as listed in PART 6, 7, 8 and 9 of the Third Schedule, except Chlorofluorocarbons (CFCs), in accordance with—

- (a) a license granted by the Department pursuant to the Eight Schedule.
- (b) any license issued pursuant to subparagraph (a) shall be valid for a period of 30 calendar days.

101 of 2009.

(11) All imports or exports of any scheduled substance shall comply with regulation 51.

Labelling.
60 of 2002.

51.—(1) Subject to subregulation (2), the labelling of retail containers containing any scheduled substance, especially CFC's or mixtures of CFC's, shall conform to the requirements of the Belize National Standard Specification for Labelling (Part 2: Labelling of Pre-packaged Goods-BZS 1: 1998.)

60 of 2002.

(2) Notwithstanding the provisions of subregulation (1), the labelling shall provide the following—

- (a) name or registered number of the ODS content;
- (b) net weight of the ODS content (including mixtures);
- (c) country of Origin;
- (d) contacts of manufacturer;
- (e) brand name.

52.—(1) Importers and end users of scheduled substances, especially CFC’s, HCFCs, HFCs or any other kind of refrigerant gases or mixtures thereof, are required to keep a record of their purchases and report annually to the Department the total quantity of scheduled substances (especially CFC gases, HCFCs, HFCs or any other kind of refrigerant gases or mixtures thereof) purchased and used.

Reporting of data on purchases and use of CFCs, 60 of 2002, 101 of 2009.

(2) The Department may inspect any record of a purchase and imports of a scheduled substance (especially CFC gases) kept by any importer or end user.

60 of 2002, 101 of 2009.

(3) Any accidental discharge of CFCs into the environment shall be reported immediately to the Department.

60 of 2002.

(4) End users are required to submit to the Department quarterly reports, in the format prescribed in the Tenth Schedule.

60 of 2002. Tenth Schedule.

(5) Any trans-shipment or transit through Belize of any scheduled substance shall not be recorded as “imports” into Belize.

60 of 2002.

53.—(1) The Minister may, after consultation with the Department, by Order published in the *Gazette* amend Part I of the Sixth Schedule to remove the name of a registered importer if—

Cancellation of Licence. 60 of 2002.

(a) the company or person ceases to import or export any scheduled substance; or

(b) the importer’s license is revoked in accordance with regulation 53(2)(b).

(2) Any Importer who imports or exports any scheduled substance in breach of the quota allocation for CFCs in any quota year shall be liable, in addition to any penalty, to a reduction of his quota allocation in the following quota year as follows—

60 of 2002.

- (a) 50% reduction of the allocation in respect of a first breach; and
- (b) in the event of a second breach, the licence shall be revoked.

Prohibitions.
60 of 2002.

54.—(1) The refilling and or re-charging of equipment (such as refrigerators and freezers) originally charged with refrigerant 134a, with CFC- 12 is prohibited with effect from 1st January, 2003.

60 of 2002.

(2) The recharging of air conditioning units of vehicles, originally charged with 134a, with CFC-12 is prohibited with effect from 1st January, 2003.

60 of 2002.

(3) The importation of cans of less than sixteen ounces (16oz) containing CFCs is prohibited with effect from 1st January 2003.

60 of 2002.

(4) The importation of CFC-11 is prohibited with effect from 1st July, 2002.

101 of 2009.

(5) The importation of Chloro-fluoro-carbons (CFCs) or mixtures containing CFCs, and equipment or parts containing CFCs is prohibited with effect from the 1st of January 2010.

Offences.
60 of 2002.

55.—(1) Any person who contravenes the provisions of this Part commits an offence and is liable on summary conviction to a fine of ten thousand dollars or to six months imprisonment or to both such fine and imprisonment.

60 of 2002.

(2) Where an offence under these Regulations is committed or continued on more than one day, the person who committed the offence is liable to be convicted for a separate offence for each day on which the offence is committed or continued, and liable to a fine of not less than one hundred dollars for each day on which the offence is committed or continued.

(3) Any person who wilfully discharges CFCs into the atmosphere shall be liable to prosecution pursuant to these Regulations. 60 of 2002.

(4) Any scheduled substance imported without a license or permit from the Chief Environmental Officer shall be liable to seizure by the Department. 60 of 2002.

PART XIII

Other Pollution Control Measures for The Petroleum Industry

56.—(1) No flaring of petroleum or process gas shall be carried out within a radius of one (1) mile from a human settlement especially a village, town, city, resort, farm or hotel. Offences. 101 of 2009.

(2) Whenever flaring is required, only Efficient Flaring Heads will be used in order for emissions from the flare to be completely smokeless, and the minimum standards required shall be as follows—

- (a) for each flare system it is necessary to establish the maximum quantity of waste gas, which can be handled. It is also required to establish the minimum quantity of pilot and purge gas to ensure safe, stable operation and readiness to take the maximum quantity of waste gas. There is need to measure of pilot, purge and vet gas to the flare. The composition and sulphur should be determined. After establishing base data, the refineries should aim towards using essentially pilot and purge gases in the flare. Under this condition the flare should be completely smokeless. The above may be achieved by a combination of the following techniques—

- (i) reducing relief gas to flare by management/good housekeeping practices; and
 - (ii) balancing the refinery fuel gas system; and
 - (iii) installing a gas recovery system; and
 - (iv) using high integrity relief valves; and
 - (v) applying advanced process control;
- (b) the flow rate of pilot, purge and vent gas to flare are to be monitored. In addition, vent gas should have on/off flow indicator. The opacity of the flare is to be measured;
- (c) for normal to 20% of max flare capacity the flare should be smokeless. At higher capacities low smoke is desirable. The flare system is to provide safe, reliable stand-by system to meet short periods of venting due to start-up, shutdown and emergencies. Pilot should be under monitoring and under continuous detection. Flare should be under observation;
- (d) quantity of gas vented to the flare should be reported. The periods of venting should be recorded and target is to have it for less than 5 minutes in consecutive two hours and 24 hours in a year. Noise level is to be measured and reported.

57.—(1) All petroleum refineries, including refinery processing units, shall comply with the minimum national standards for the discharge of effluent and emissions contained in the Eleventh Schedule and Twelfth Schedule, respectively.

Minimum national standards for effluent and emissions. Schedule 11. Schedule 12. 101 of 2009.

(2) Without prejudice to subregulation (1) above, all petroleum refineries, including refinery processing units, shall also comply with the following national minimum emission standards—

- (a) in case of mixed fuel (gas and liquid) use, the limit is to be computed based on heat supplied by gas and liquid fuels;
- (b) all the furnaces/boilers with heat input of 10 million kilo calories/hour or more shall have continuous systems for monitoring of SO₂ and NO_x. Manual monitoring for all the emission parameters in such furnaces/boilers shall be carried out once in two months;
- (c) all the emission parameters in furnaces/boilers having heat input less than 10 million kilo calories/hour shall be monitored once every three months;
- (d) in case of continuous monitoring, one hourly average concentration values shall be met 98% of the time in a month. Any concentration value obtained through manual monitoring, that exceeds the limiting concentration value, shall be considered as non-compliance;
- (e) data on Ni + V content in the liquid fuel (in ppm) shall be reported. Ni + V content in the liquid fuel could be monitored once every six months, if liquid fuel source & quality are not changes. In case of changes, measurement is necessary after each change.

(3) The minimum national standards for emissions for fluids catalytic cracking (FCC) regenerators shall be as contained in the Twelfth Schedule, including the following—

Schedule 12.

- (a) in case part feed is hydro-processed, the emission values shall be calculated proportional to the feed rates of untreated and treated feeds;
- (b) FCC regenerators shall have continuous systems for monitoring of SO₂ and NO_x. One hourly average concentration values shall be met 98% of the time in a month, in case of continuous monitoring. Manual monitoring for all the emission parameters shall be carried out once in two months;
- (c) any concentration value obtained through manual monitoring, if exceeds the limiting concentration value, shall be considered as non-compliance;
- (d) data on Sulphur (weight %), Ni (ppm) and V (ppm) content in the feed to FCC shall be reported;
- (e) limit of CO emissions shall be met except during annual shut down of CO boiler for statutory maintenance.

(4) The minimum national standards for emissions from sulphur recovery units shall be as contained in the Twelfth Schedule, including the following—

Schedule 12.

- (a) sulphur recovery units (SRUs) having capacity above 20 tonnes/day shall have continuous systems for monitoring of SO₂. Manual monitoring for all the emission parameters shall be carried out once in a month;

- (b) data on sulphur dioxide emissions (mg/Nm³) shall be reported;
- (c) sulphur recovery efficiency shall be calculated on a monthly basis, using quantity of sulphur recovered.

(5) The minimum national standards for emissions from the storage of volatile liquids (general petroleum products excluding benzene) shall be as contained in the Twelfth Schedule, including the following—

Schedule 12

- (a) requirements for seals in floating roof tanks—
 - (i) IFRT & EFRT are to be provided with double seals with minimum vapour recovery of 96%;
 - (ii) primary seal shall be liquid or shoe mounted for EFRT and vapour mounted for IFRT. Maximum seal gap width shall be 4cm and maximum gap area will be 200 cm²/m of tank diameter;
 - (iii) secondary seal will be rim mounted. Maximum seal gap width shall be 1.3 cm and maximum gap area will be 20 cm²/m of tank diameter;
 - (iv) material of seal and construction should ensure high performance and durability.
- (b) fixed roof tanks shall have vapour control efficiency of 95% and vapour balancing efficiency of 90%.
- (c) inspection and maintenance of storage tanks should be carried out under strict control. For the inspection, API RP 575 may be adopted.

In-service inspection with regard seal gap should be carried out once in every six months and repair to be implemented in short time. In future, possibility of non-stream repair of both seals shall be examined.

(6) The minimum national standards for the storage of benzene shall be as follows—

- (a) FRT with vapour to incineration with 99.9% of removal efficiency for volatile organic compounds (VOC);
- (b) EFRT with double seals, emission-reducing roof fitting and fitted with fixed roof with vapor removal efficiency of at least 99%.

(7) In respect of the storage of solvents for lube-base oil production (Furfural, N-Methyl-2-Pyrrolidone (NMP), Methyl Ethyl Ketone (MEK), Toluene and Methyl Isobutyl Ketone (MIBK)), IFRT with double seals and inert gas blanketing, with vapour removal efficiency of at least 97% shall be complied with.

(8) In respect of the storage of off-gas from bitumen tanks, the odorous off-gas shall be disposed of in an incinerator or other proper burning device approved by the Department of the Environment.

(9) In respect of the storage of off-gas from liquid sulphur storage, the vent from the sulphur storage tanks shall be fed to sour gas or to a proper abatement system.

(10) In respect of LPG odorant plants, the designs and operation of the plants shall ensure an odour-free environment and comply with guidelines set for the purpose by the Department of the Environment.

(11) The following national minimum standards shall be observed for the purpose of reducing pollution to water, soil and ground water from petroleum refineries, petroleum refinery complexes, and petroleum refinery units; namely—

- (a) the system design, level of automation and operation should ensure minimum oil carry over during the water drainage operation. Oil carry over in turn will result in VOC emission from the effluent from different stages and higher oil content in the effluent discharge;
- (b) proper instrumentation/operating procedure and additional level alarm must be observed to avoid overflowing that may lead to soil contamination;
- (c) for avoiding persistent leakage from tanks, the refineries should follow regular tank inspection, leak detection from tank bottoms, provision of double tank bottoms or impervious membrane liner below the tank bottom and there should be ground water monitoring;
- (d) in order to avoid consequences of major oil spills from storage tanks, impermeable tank farm bund containment system shall be implemented across the petroleum industry.

(12) The minimum national standards for controlling fugitive emissions from equipment leaks shall be as contained in the Twelfth Schedule, including the following approach, components, applicability, and leak definition; namely—

Schedule 12.

- (a) **Approach:** Approach that will be employed for controlling fugitive emissions from equipment leaks is to have proper selection, installation and maintenance of non-leaking

or leak-tight equipment. Following initial testing after commissioning, the monitoring for leak detection is to be carried out as a permanent on-going Leak Detection and Repair (LDAR) programme. Finally, detected leaks are to be repaired within an allowable time frame.

(b) **Components to be covered:** Components that shall be covered under LDAR programme include—

- (i) Block valves;
- (ii) Control valves;
- (iii) Pump seals;
- (iv) Compressor seals;
- (v) Pressure relief valves;
- (vi) Flanges - Heat Exchangers;
- (vii) Flanges - Piping;
- (viii) Connectors - Piping;
- (ix) Open ended lines; and
- (x) Sampling connection. Equipment and line sizes more than 1.875 cm or ¾ inch are to be covered.

(c) **Applicability:** LDAR programme would be applicable to components (given at (b) above) for the following products/compounds—

- (i) Hydrocarbon gases;

- (ii) Light liquid with vapour pressure @ 20°C > 1.0 kPa; and
- (iii) Heavy liquid with vapour pressure at 20°C between 0.3 to 1.0 kPa.
- (d) While LDAR will not be applicable for heavy liquids with vapour pressure <0.3 kPa, it will be desirable to check for liquid dripping as indication of leak.
- (e) **Leak definition:** A leak is defined as the detection of VOC concentration more than the values (in ppm) specified below at the emission source using a hydrocarbon analyzer according to measurement protocol (US EPA–453/R-95-017, 1995 Protocol for equipment leak emission estimates may be referred).
- (f) In addition, any component observed to be leaking by sight, sound or smell, regardless of concentration (liquid dripping, visible vapour leak) or presence of bubbles using soap solution shall be considered as leaking.

(13) The minimum national standards for VOC emissions from wastewater collection and treatment shall be as follows–

- (a) all contaminated and odorous wastewater streams shall be handled in closed systems from the source to the primary treatment stages (oil-water separator and equalization tanks);
- (b) the collection system shall be covered with water seals (traps) on sewers and drains and gas tight covers on junction boxes;

- (c) oil-water separators and equalization tanks shall be provided with floating/fixed covers. The off-gas generated shall be treated to remove at least 90% of VOC and eliminate odour. The system design shall ensure safety (prevention of formation of explosive mixture, possible detonation and reduce the impact) by dilution with air/inert gas, installing LEL detector including control devices, seal drums, detonation arrestors, etc. The system shall be designed and operated for safe maintenance of the collection and primary treatment systems;
- (e) wastewater from aromatics plants (benzene and xylene plants) shall be treated to remove benzene/aromatics to a level of 10 ppm before discharge to effluent treatment system without dilution.

(14) The frequency for sampling the parameters for the minimum national standards for the discharge of effluent and emissions for all petroleum refineries, including petroleum refinery units, shall be done in accordance with these Regulations and the requirements in the Eleventh Schedule and Twelfth Schedule.

Schedule 11.
Schedule 12.

(15) The analytical methods for the parameters referred to in subregulation (14) above shall be done in accordance with standard methods acceptable to the Department of the Environment or those contained in the Fourteenth Schedule.

Schedule 14.

Monitoring and
maintenance of
equipment.
Schedule 13.
101 of 2009.

58—(1) All equipment used in the petroleum industry shall be monitored on a regular basis in accordance with the Thirteenth Schedule so as to detect and repair leaks.

(2) The following minimum national standards shall apply to the monitoring, detection and repair of leaks referred to in subregulation (1) above—

- (a) the percentage leaking components shall not be more than 2% for any group of components monitored excluding pumps/compressors. In case of pumps/compressors it shall be less than 10% of the total number of pumps/compressors, or three pumps and compressors, whichever is greater;
- (b) refineries shall prepare an inventory of equipment components in the plant. After the instrumental measurement of leaks, emission from the components shall be calculated using stratified emission factors (USEPA) or any other superior factors. The total fugitive emission shall be established;
- (c) the following types of monitoring methods may be judiciously employed for detection of leaks–
 - (i) instrumental method of measurement of leaks;
 - (ii) audio, visual and olfactory measurement of leaks;
 - (iii) (AVO) leak detection system; and
 - (iv) soap bubble method of measurement of leaks.

(3) The data on the time of measurement of the leak, the concentration value for leak detection, the time of repair of the leak, and the time of measurement and concentration value after the repair of the leak shall be documented and maintained by the petroleum refineries in respect of all components.

(4) The following additional standards shall also apply in respect of equipment referred to in subregulation (1) above–

- (a) pressure relief and blow down systems shall discharge to a vapour collection and recovery system or to flare;
- (b) open-ended lines shall be closed by a blind flange or plugged;
- (c) totally closed-loop shall be used in all routine samples;
- (d) low emission packing shall be used for valves; and
- (e) high integrity sealing materials shall be used for flanges.

Prohibitions.
101 of 2009.

59—(1) No person shall install a petroleum refinery or a unit that produces fuel with a sulphur content of more than 2.00% by mass.

(2) Subject to subregulation (3) below, no person shall combust any petroleum or petroleum oils with a sulphur content of more than 2.00% by mass.

(3) The Department of the Environment may authorize in writing, the use of heavy fuel oils with a sulphur content of between 1.00% and 3.00% by mass where such use does not produce emissions which exceed critical loads and which are permitted under any other law.

Offence and
penalty.
101 of 2009.

60. A person who fails to comply with the minimum national standards set out in these Regulations and in the Eleventh, Twelfth, Thirteenth and Fourteenth Schedules commits an offence and shall be liable on summary conviction to a fine of not less than twenty thousand dollars or to imprisonment for a period not exceeding two years, or to both such fine and period of imprisonment.

PART XIV

Miscellaneous

61.—(1) Notwithstanding anything to the contrary in these Regulations, the Department may by notice in writing direct—

Notice to clean up pollution. 60 of 2002.

- (a) the owner, occupier, or agent of any premises upon or from which pollution has occurred or been permitted to occur;
- (b) the person who has caused or permitted the pollution to occur;
- (c) any person who appears to have abandoned or dumped any industrial waste or potentially hazardous substance; or
- (d) any person who is handling industrial waste or potentially hazardous substances in a manner which is likely to cause an environmental hazard,

to take the clean-up measures as specified in the notice.

(2) The Department may specify in the notice any condition, requirement, restriction, performance, standard or level that it thinks fit, including—

- (a) a condition or requirement that things specified in the notice are to be done to the satisfaction of the Department; and
- (b) a condition or requirement that things specified in the notice are to be done forthwith or by any day or date or within or over any period as specified in the notice; and

- (c) a condition or requirement that clean-up measures are to be carried in stages by any day or date within or over any period as specified in the notice; and
- (d) a condition or requirement that any measurement, recording, sample, report, plan, drawing, document, calculation, test, analysis, or thing be lodged with the Department or be approved by the Department before any clean-up measures or things specified in the notice are carried out.

Abatement of pollution in certain areas.

62.—(1) Notwithstanding anything to the contrary in these Regulations, where—

- (a) pollutants have been or are being discharged;
- (b) a condition of pollution is likely to arise;
- (c) any industrial waste or potentially hazardous substance appears to have been abandoned or dumped; or
- (d) any industrial wastes or potentially hazardous substances are being handled in a manner which is likely to cause an environmental hazard,

the Department may conduct a clean-up or cause a clean-up to be conducted as the Department considers necessary.

(2) The Department may recover any reasonable costs incurred by the Department in taking any action under subregulation (1) from the person who caused the action to be taken or the occupier of the premises on which anything referred to in subregulation (1)(a) to (d) has occurred, in any court of competent jurisdiction as a debt due to the Department.

(3) If the Department cannot recover costs under subregulation (2) from the occupier of the premises on which anything referred to in subregulation (1)(a) to (d) has occurred because the occupier cannot be found the costs shall become a charge on the property of the occupier after an advertisement has been published three times in a newspaper, circulating in the area where the property is situated.

(4) The advertisement shall specify—

- (a) the purpose of the advertisement and the provision of these Regulations under which it is made; and
- (b) the amount in respect of which the charge is to be imposed; and
- (c) the land on which the charge is to be imposed.

63.—(1) If the Department is satisfied that a process or activity which is being carried on or is proposed to be carried on at any premises or the use or proposed use of any premises—

Pollution
abatement
notice.

- (a) has caused or is likely to cause pollution;
- (b) has caused or is likely to cause a failure to comply with—
 - (i) any standard prescribed by these Regulations;
 - (ii) any condition in a licence or permit; or
- (c) has created or is likely to create an environmental hazard;

the Department may serve a pollution abatement notice on the occupier of those premises specifying the reason for which the pollution abatement notice is served.

(2) A pollution abatement notice may require the owner, the occupier, or agent of any premises on whom it is served to do any one or more of the following—

- (a) to cease carrying on or not commence the process, activity or use;
- (b) to carry on, modify or control the process, activity or use in the manner specified in the pollution abatement notice;
- (c) to supply to the Department plans, specifications and other information as is specified in the pollution abatement notice showing how the process, activity or use will be carried on, modified or controlled;
- (d) to take the measures including the installation, alteration, maintenance or operation of any apparatus, plant or structures as maybe specified in the pollution abatement notice;
- (e) to comply with—
 - (i) any standard prescribed by these Regulations;
 - (ii) any condition in a licence or permit;
- (f) to provide monitoring equipment and carry out a monitoring program as specified in the pollution abatement notice.

(3) If premises are premises on which more than the prescribed quantity or the prescribed concentration of a notifiable chemical are stored, processed or used, the pollution abatement notice may require the occupier of any premises on whom it is served to provide the Department with financial security satisfactory to the Department.

(4) A requirement contained in a pollution abatement notice may be expressed to be general or limited in operation as to particular times, places or circumstances.

(5) A pollution abatement notice may specify a period of time within which any requirement specified in the pollution abatement notice is to be complied with.

(6) The Department may by notice of amendment in writing served on the occupier of any premises on whom a pollution abatement notice has been served—

- (a) extend the period, if any, for compliance with a requirement specified in the pollution abatement notice if the Department is satisfied that the circumstances of the case justify an extension of that period; and
- (b) revoke or amend any requirement specified in the pollution abatement notice.

(7) A pollution abatement notice and any notice of amendment of a pollution abatement notice shall not take effect until a day specified in the pollution abatement notice or notice of amendment being a day not less than 30 days after the day on which the pollution abatement notice or notice of amendment is served.

(8) An owner, occupier, or agent of any premises on whom a pollution abatement notice or a notice of amendment has been served under this Regulation who contravenes a requirement specified in the notice shall be guilty of an offence and liable to a penalty of not more than ten thousand dollars and in the case of a continuing offence to an additional penalty of not more than one hundred dollars for each day during which the offence continues.

60 of 2002.

64.—(1) Unless otherwise directed by the Department, any contractor, owner or operator who carries on quarry or mining,

Site abandonment.

manufacturing, power generating or related activities shall, prior to closing down operations on any site—

- (a) remove all equipment and installations, structures, plants, appliances from the relinquished area or site in a manner agreed with the Department pursuant to an abandonment plan; and
- (b) perform all necessary site restoration activities in accordance with the directives of the Department, and shall take all other action necessary to prevent hazards to human life, property or to the environment.

(2) In order to ensure compliance with the requirements of subregulation (1) the Department may require the contractor, etc., to post a bond or guarantee acceptable to the Department, or in the alternative, to fund a reserve for future estimated abandonment and site restoration costs.

Special powers of authorized officers where imminent danger to life or limb or to the environment.

65.—(1) Notwithstanding anything to the contrary in these Regulations—

- (a) if—
 - (i) pollutants have been or are being discharged;
 - (ii) a condition of pollution is likely to arise;
 - (iii) any industrial waste or potentially hazardous substance appears to have been abandoned or dumped; or
 - (iv) any industrial waste or potentially hazardous substance is being handled; and

- (b) an authorized officer is of the opinion that there is or is likely to be imminent danger to life or limb or to the environment –

the authorized officer may give such directions either orally or in writing as the authorized officer considers appropriate to remove, disperse, destroy or, dispose of, abate, neutralize or treat any pollutant, waste substance, environmental hazard or noise.

(2) Any costs incurred in complying with subregulation (1) by any person who is not the person who caused or permitted the situation described in subregulation (1)(a) are to be reimbursed to that person by the Department.

(3) Where the Department has reimbursed any costs under subregulation (2) the Department may recover the costs from any person proved to have been the person who caused or permitted the situation described in subregulation (1)(a) in any court of competent jurisdiction as a debt due to the Department and when recovered must be paid into the Consolidated Revenue Fund.

(4) No matter or thing done by an authorized officer or by any person under a direction given by an authorized officer shall, if the matter or thing was done in good faith in the exercise of the power conferred by these Regulations on an authorized officer, subject the authorized officer or that person personally to any action, liability, claim or demand whatsoever.

(5) Any person who contravenes without reasonable cause a direction given by an authorized officer under subregulation (1) shall be guilty of an offence.

66. If any segment or element of the environment is polluted as a result of a discharge, emission or deposit of any substance from or on any premises on which there is conducted any commercial or industrial undertaking, the occupier of the premises is deemed to have polluted that segment or element of

Presumption that occupier caused discharge etc.

the environment unless the occupier adduces evidence that the discharge, emission or deposit was unrelated to the commercial or industrial undertaking.

Owner and master of ship each guilty of pollution from ship.

67. If an offence is committed against these Regulations with respect to the discharge or emission of wastes or pollutants or noise from any ship, the owner and the master of the ship are each guilty of the offence.

Furnishing of information.
60 of 2002.

68.—(1) The Department may by notice in writing served on the occupier of any premises or any previous occupier of the premises require that occupier to furnish to the Department within fourteen days or such longer period as is specified in the notice such information as to any manufacturing, industrial, or trade process carried on in or on the premises or as to any waste which has been, is being or is likely to be discharged from, or any noise which has been, is being or is likely to be emitted from, or any waste which is being or is likely to be stored on, those premises as is specified in the notice.

(2) Any person who contravenes any requirement made under this Regulation shall be guilty of an offence.

(3) Any information furnished or statement made to the Department pursuant to any requirement made under subregulation (1) shall not, if the person furnishing the information or making the statement objects, at the time of furnishing the information or statement, to doing so on the ground that it might tend to incriminate him, be admissible in evidence in any proceedings against that person for an offence except the offence of refusing or failing to comply with the requirements of a notice given under this Regulation.

Environmental audits.
60 of 2002.

69. The Department may by notice require the owner or operator of any factory, industrial plant or similar facility to undertake an environmental audit on the processes utilized in such factory, industrial plant, or similar facility, the type of pollution effluent discharged by such factory, industrial plant, or similar facility, as well as the steps being taken to control or reduce pollution,

and to submit the environmental audit to the Department within such time as may be specified by the Department.

70.—(1) The Department shall develop, promote and implement appropriate incentive programmes which encourage the voluntary use of effective environmental management systems and the achievement of improvements in environmental quality, including—

Environmental
incentive
programmes.

- (a) the establishment of a voluntary facility environmental audit programme which allows for the exercise of enforcement discretion by the Department with respect to liability which might otherwise arise, if an offence or violation is detected as a result of such an audit programme and voluntary disclosure to the Department—,
- (b) the establishment of environmental certification or labelling programmes which allow the Department to distinguish or designate specific persons, activities or products which the Department certifies as demonstrating or representing significant environmental management qualities;
- (c) the operation of deposit refund systems for specified materials to increase the level of recycling, reuse or other authorised disposition; and
- (d) any other programmes or mechanisms which may further the objectives of the Act.

(2) With the approval of the Minister the Department may impose pollution charges or user fees to encourage the protection and conservation of the environment.

(3) For purposes of this Regulation, “facility environmental audit programme” means a comprehensive investigation and evaluation system designed and implemented at a facility for the purpose of—

- (a) detecting and preventing violations of environmental requirements or the commission of offences under these Regulations; and
- (b) identifying opportunities for achieving improvements in environmental programmes at the facility.

Washing of motor vehicles.

71. No person shall wash any motor vehicle or any other type of vehicle in any river or stream.

Offence.
60 of 2002.

72.—(1) Where no penalty is specifically provided in the Act, a person who contravenes these Regulations is guilty of an offence and shall be liable on summary conviction to a fine not exceeding twenty thousand dollars or to imprisonment for a term not exceeding two years and in the case of a continuing offence, to a further fine not exceeding one hundred dollars for each day or part thereof during which the offence continues after a conviction is first obtained.

60 of 2002.

(2) In imposing any fine, the magistrate may order that the fine imposed, or a portion of such fine, be paid into an environmental fund established by the Department.

Savings in respect of other offences.

73. Where an act or omission constitutes an offence under these Regulations and is also an offence under any other law, nothing in these Regulations shall affect the operation of such other law and the accused person may be charged and tried under such other law, notwithstanding the provisions of these Regulations.

Fees.
Fourth Schedule.
60 of 2002.

74. The fees set out in the Fourth Schedule shall be paid in respect of the permits specified in the Fourth Schedule.

75. (1) The Department may, in performing any of its functions under these Regulations, from time to time, require any person, officer or other authority to furnish to it or to any prescribed authority or officer any reports, returns, statistics, accounts and other information that may be required for the purposes of these Regulations and such person, officer, or other authority shall be bound to do so.

Department may collect information. 60 of 2002.

(2) A person who fails to comply with subregulation (1) on being required by the Department to do so, commits an offence and is liable on conviction to a fine not exceeding five thousand dollars.

60 of 2002.

76.—(1) Any person who—

Additional offences. 60 of 2002.

- (a) fails to manage any pollutants, hazardous materials, processes or wastes in accordance with any permit, licence or lawful instruction of the Department or contrary to these Regulations;
- (b) knowingly or fraudulently mislabels wastes, pesticides or chemicals;
- (c) aids or abets the illegal trafficking in wastes, chemicals, pesticides or hazardous processes, wastes or substances

commits an offence and shall upon conviction be liable to a fine of not less than five thousand dollars and not more than twenty thousand dollars or to imprisonment for two years.

(2) Any person who discharges or emits any pollutant into the environment otherwise than in accordance with these Regulations commits an offence and shall be liable, upon conviction, to a fine of not less than ten thousand dollars or to imprisonment for ten years or to both such fine and imprisonment.

60 of 2002.

MADE by the Minister of Tourism and the Environment this
10th day of April, 1996.

(HENRY YOUNG)

Minister responsible for the Environment.

FIRST SCHEDULE

[Regulation 6]

CONCENTRATION OF AIR CONTAMINANTS

	Concentration in micrograms per meter cube			
	SPM	SO ₂	CO	NO _x
A. Industrial and mixed use	500	120	5000	120
B. Residential & Rural	200	80	2000	80
C. Sensitive	100	30	1000	30

1. CEMENT**Standard for particulate matter emissions.**

Capacity	Other area
200 tpd and less	400 mg/Nm ³
Greater than 200 tpd	250 mg/Nm ³

2. THERMAL POWER**(a) Standard for particulate matter emission.**

Boiler size	Other area
Less than 200MW	350 mg/Nm ³
200 MW & above	150 mg/Nm ³

(b) Standard for Sulphur dioxide control (through stack height)

Boiler size	Stack height
Less than 200MW	H=14 (Q) 0.3
200 MW to less than 500 MW	220 meters
500 MW & more	275 meters

Q=Sulphur Dioxide emission in kg/hr

H=Stack height in meters

3. IRON & STEEL**Standard for particulate matter**

Process	Emission Limits
Sintering plant	150 mg/Nm ³
Coke oven	–
Blast furnace	–
Steel making during normal operation	150mg/Nm ³
Steel making during oxygen lancing	400mg/Nm ³

4. FERTILIZER (UREA)**Standard for particulate matter emission**

Process	Emission Limit
Drilling Tower	50mg/Nm ³

5. FERTILIZER (PHOSPHATIC)**Standard for fluoride and particulate matter,**

Process	Emission Limit
Acidification of rock phosphate	25 mg/Nm ³ as total fluoride (F ⁻)
Granulation, Mixing, Rock Grinding	150 mg/Nm ³ of particulate matter from each process

6. SULPHURIC ACID**Standard for sulphur dioxide and acid mist emission**

Process	Sulphur dioxide emission	Acid mist emission
Single conversion Single absorption	10 Kg/tonne of concentrated (100%) acid produced	50mg/Nm ³
Double conversion Double absorption	4kg/tonne of concentrated (100%) acid produced	50mg/Nm ³

7. CALCIUM CARBIDE**Standard for particulate matter emission.**

Source	Emission Limit
Kiln	250mg/Nm ³
Arc Furnace	150 mg/Nm ³

8. COPPER, LEAD AND ZINC SMELTING

Standard for particulate matter and other oxides of sulphur.

Concentrator	150 mg/Nm ³ for particulate matter
Smelter & Converter	Off-gases must go for H ₂ SO ₄ manufacture. No release of SO ₂ SO ₃ shall be permitted from the smelter or converter

9. CARBON BLACK

Standard for particulate matter emission.

Year of commissioning	Emission Limit
All plants	150 mg/Nm ³

10. NITRIC ACID

Standard for oxides of nitrogen, NO_x

3Kg of NO_x per tonne of weak acid (before concentration) produced

SECOND SCHEDULE

[Regulation 45]

NOISE LEVEL

Noise Level According to the dB (A) Scale (as defined by the International Electronics Commission.

		Structure A		Structure B		Structure C		Structure D		Structure E	
Duration of Noise		D	N	D	N	D	N	D	N	D	N
1.	More than 9 hrs	60		60		70		70		85	
2.	More than 3 hrs, less than 9 hrs	70		70		75		75		90	
3.	More than 30 mins	75		75		80		80		100	
4.	More than 30 mins		45		45		45		45		90
5.	More than 15 mins and less than 1 hr	70		70		90		90		105	
6.	More than 10 mins and less than 30 mins		45		50		50		50		90
7.	More than 5 mins and less than 15 mins	70		85		100		90		90	
8.	More than 2 mins and less than 5 mins	90		95		100		100		95	
9.	Less than 10 mins		50		70		70		70		80
10.	Less than 2 mins.	100		100		105		100		110	
11.	Noise from infrequent (less than 4 times per week) explosions	109		109		114		114		114	

D = Day N = Night

- Structure A: any building used as a hospital, convalescent home, old age home, or school.
- Structure B: any residential building
- Structure C: any building in an area that is used for residential and one or more of the following purposes: commerce, small scale production, entertainment.
- Structure D: any residential apartment in an area that is used for the purposes of industry, commerce or small-scale production
- Structure E: any building used for the purposes of industry, commerce, or small-scale production in an area used for the purposes of industry, commerce, or small scale production.

THIRD SCHEDULE¹*[Regulation 47 and 48]*

SCHEDULED SUBSTANCES

PART I

Chlorofluorocarbons (CFC)

Chemical Name		Common Name
CFCl ₃ –	Trichlorofluoromethane	CFC11
CF ₂ Cl –	Dichlorodifluoromethane	CFC12
C ₂ F ₃ Cl ₃ –	Trichlorotrifluoroethane	CFC113
C ₂ F ₄ Cl ₂ –	Dichlorotetrafluoroethane	CFC114
C ₂ F ₅ Cl –	Chloropentafluoroethane	CFC115

PART 2

Halons

Chemical Name		Common Name
CF ₂ BrCl –	Bromochlorodifluoromethane	halon 1211
CF ₃ Br –	Bromotrifluoromethane	halon 1301
C ₂ F ₄ Br –	Dibromotetrafluoroethane	halon 2402

¹ This Schedule was amended by S.I. 101 of 2009.

PART 3

Other Fully Halogenated Chlorofluorocarbons

Chemical Name	Common Name
CF ₃ Cl – Chlorotrifluoromethane	CFC13
C ₂ FC1 – Pentachlorofluoroethane	CFC111
C ₂ F ₂ C1 ₄ – Tetrachlorodifluoroethane	CFC112
C ₃ FC1 ₇ – Heptachlorofluoropropane	CFC211
C ₃ F ₂ C1 ₆ – Hexchlorodifluoropropane	CFC212
C ₃ F ₃ C1 ₅ – Pentachlorotrifluoropropane	CFC213
C ₃ F ₄ C1 ₄ – Tetrachlorotetrafluoropropane	CFC214
C ₃ F ₅ C1 ₃ – Trichloropentafluoropropane	CFC215
C ₃ F ₆ C1 ₂ – Dichlorohexafluoropropane	CFC216
C ₃ F ₇ C1 – Chloroheptafluoropropane	CFC217

PART 4

Carbon Tetrachloride

Chemical Name	Common Name
CCl ₄ – Tetrachloromethane	Carbon Tetrachloride

PART 5

Methyl Chloroform

Chemical Name	Common Name
C ₂ H ₃ C1 ₃ – 1,1,1 – Trichloroethane	Methyl Chloroform

PART 6

Hydrochlorofluorocarbons (HCFC)

Chemical Name	Common Name
CHF ₂ Cl – Chlorodifluoromethane	HCFC 22
C ₂ HF ₄ Cl ₂ – Dichlorotrifluoroethane	HFC 123
C ₂ HF ₄ Cl– Chlorotetrafluoroethane	HCFC 124
C ₂ H ₃ FCl ₂ – Dichlorofluoroethanes	HCFC 141
CH ₃ CFCl ₂ –1,1–Dichloro–1–fluoroathane	HCFC 141b
C ₂ H ₃ F ₂ Cl– Chlorodifluoroethane	HCFC 142
CH ₃ CF ₂ Cl–1–Chloro–1,1–difluoroethane	HFCH 142b

PART 7

Hydrofluorocarbon (HFC)

Chemical Name	Common Name
CF ₃ CH ₂ F–1,1,1,2–Tetrafluoroethane	HFC 134a
CHF ₂ CH ₃ –1,1–Difluoroethane	HFC 152a
CF ₃ CHF ₂ –Pentafluoroethane	HFC 125
CF ₃ CH ₃ –1,1,1–Trifluoroethane	HFC143a
CH ₂ F ₂ –Difluoromethane	HFC 32
CHF ₃ –Trifluoromethane	HFC 23
CF ₃ CH ₂ CHF ₂ –1,1,1,3,3–Pentafluoropropane	HFC 245fa

PART 8

Hydrofluorocarbon Mixtures (HFC)

Mixture	Common Name
R 143a/125/134a	R 404A
R 143a/125	R 507A
R 32/125/134a	R 407A
R 32/125/134a	R 407B
R 32/125/134a	R 407C
R 32/125	R 410A
R 23/116	R 508A
R 23/116	R 508B

PART 9

Other Blends

Mixture	Common Name
CFC 12/HFC 152a	R 500
HCFC22/HCFC 124/HFC 152a	R 401 (MP 39)
HFC 134a/Iso-butane/Octofluoropropane	R 413A (MO49)
HCFC-22/R-600a/HCFC-142b	R-406A
HCFC-22/HFC-143a/HFC-125	R-409A (FX 10)

HCFC-22/HCFC-124/HCFC-142b

R 409A (FX 56)

HCFC-22/HFC-152a

R-415B

Including any other kind of refrigerant gases such as
Hydrocarbons.

FOURTH SCHEDULE

[Regulation 74]

FEES

Permit to emit contaminants into the environment under regulation 3 or regulation 4	\$500
Permit to construct building on site formerly used for the elimination of waste under regulation 4.	\$1000

FIFTH SCHEDULE

[Regulation 49]

<u>Equipment</u>	<u>Effective Date</u>
Domestic refrigerators and freezers.	1/1/03
Industrial refrigeration units	1/1/03
Commercial refrigeration units, including Display Cabinets, bottle coolers and Soda fountains	1/1/03
Aerosols, foams and solvents which use or are made up of the following ozone depleting substances	1/1/03
CFC-11	
CFC-12	
CFC-113	
CFC-114	
CFC-115	
Vehicular air conditioning units	1/1/03
Halon-based fire fighting equipment	1/7/02

SIXTH SCHEDULE

[Regulations 2 and 50(1)]

PART I

List of Licensed Refrigerant importers

LICENSED IMPORTERS

Midway Convenience Store
Enrique Martinez & Sons

PART II

CFC to be imported under the Quota System

CFC-11 (CFC-13) –	Until 2002
CFC-12 (CFC2CL2) –	Until 2010
CFC-113 (C2F3CL3) –	“ “
CFC-114 (C2F4CL2) –	“ “
CFC-115 (C2F5CL) –	“ “
R502 (51.2% CFC-115 and 48.8% HCFC 22)	“ “

PART III

Annual Quota Allocations for Imports of CFCs

Importers

Quota Allocations

Enrique Martinez & Sons	50%
Midway Convenience Store	50%

PART IV

CFC Imported Quotas 2001 – 2008

Jan 2002 to Dec 2002	25 metric tonnes
Jan 2003 to Dec 2003	20 metric tonnes
Jan 2004 to Dec 2004	15 metric tonnes
Jan 2005 to Dec 2005	10 metric tonnes

SEVENTH SCHEDULE

[Regulation 50(1)]

APPLICATION FORM

APPLICATION FOR LICENSE TO IMPORT/EXPORT
SCHEDULE SUBSTANCES (OZONE DEPLETING
SUBSTANCE)

1. Name of importer:
.....
2. Address of Importer:
.....
3. Description and Quantity/Volume of Substances to be
imported/Exported:
.....
4. Country of Origin of Substance:.....
.....
5. Supplier's Name and Address:
.....
6. Port of Entry:
.....
7. Has any previous application been made? Yes..... No.....

If yes, please state When and Quantity Imported:

.....

.....
Date

.....
Applicant's Signature

For Official Use Only

Approved/Not Approved

Note:

Chief Environmental Officer

EIGHTH SCHEDULE
[Regulation 50(3)]

ENVIRONMENTAL PROTECTION ACT (CAP. 328)

LICENCE TO IMPORT/EXPORT SCHEDULED SUBSTANCE

THE DEPARTMENT OF THE ENVIRONMENT HEREBY GRANTS A LICENCE
TO:

To Import/Export scheduled substances pursuant to an application for
importation/exportation dated the _____ day of _____.

Location of the Importing/Exporting company or person: _____

Type, Quota of scheduled substance for which this licence is being authorised:

Type: _____

Quota: _____

This LICENCE is granted subject to the following conditions:

1. Only a maximum volume/quantity of scheduled substances will be permitted to be imported/exported as per the annual quota stated above.
2. A maximum of 50% of the above quota will be permitted for transfer to another scheduled importer/exporter.
3. This licence is valid for one year only.
4. This licence can be revoked by the chief Environmental Officer at any time, pursuant to regulations 48.

This Licence expires: 31st December, 20____.

Date

Chief Environmental Officer

NINTH SCHEDULE

[Regulation 49(4)]

RETROFIT CERTIFICATION

Name of Importer:

Address: _____

Item: _____

Nature of Retrofit:

Type of Gas removed from system: _____

Type of Gas System Retrofitted to: _____

Name of Retrofitter: _____

Remarks: _____

TENTH SCHEDULE

[Regulation 52(4)]

QUARTERLY REPORT FORM
ODS RETROFITTING

Reporting Period: _____

Type of Equipment	Number retrofitted	Previous total	Year to date
Refrigerator			
Deep Freezer			
A/C Unit (window)			
A/C Unit (heavy duty vehicle)			
A/C Unit (motor vehicle)			
A/C Unit (other)			
Refrigerated Truck			
Other			

TOTAL

Comments:

Port of Entry:

Signed _____

Signature of Supervisor _____

Date _____

Date _____

ELEVENTH SCHEDULE ¹*[Regulations 57 (1)(14) & 60]*NATIONAL MINIMUM EFFLUENT STANDARDS FOR
PETROLEUM REFINERY

S. No.	Parameter	Limiting value for concentration (mg/l, except for pH)	Limiting value for quantum (kg/1000 tonne of crude processed, except for pH)	Averaging Period
Parameters to be monitored daily: grab samples for each shift with 8-hours' interval				
1	Ph	6.0 - 8.5	-	Grab
2	Oil & Grease	5	2	-do-
Parameters to be monitored daily: composite sample (with 8-hours' interval) for 24-hours flow weighted average				
3	BOD _{3 days, 27°C}	15	6	24-hours
4	COD	125	50	-do-
5	SS	20	8	-do-
6	Phenols	0.35	0.14	-do-
7	Sulphides	0.5	0.2	-do-
8	CN	0.2	0.08	-do-
Parameters to be monitored once in a month: composite sample (with 8-hours' interval) for 24-hours flow weighted average				
9	Ammonia as N	15	6	-do-
10	TKN	40	16	-do-
11	P	3	1.2	-do-
12	Cr (VI)	0.1	0.04	-do-
13	Total Cr	2.0	0.8	-do-
14	Pb	0.1	0.04	-do-
15	Hg	0.01	0.004	-do-
16	Zn	5.0	2	-do-
17	Ni	1.0	0.4	-do-
18	Cu	1.0	0.4	-do-
19	V	0.2	0.8	-do-
Parameters to be monitored once in month: grab samples for each shift with 8-hours' interval				
20	Benzene	0.1	0.04	Grab
21	Benzo(a) Pyrene	0.2	0.08	-do-

¹ This Schedule was inserted by S.I. 101 of 2009.

TWELFTH SCHEDULE¹

[Regulations 57 & 60]

NATIONAL MINIMUM EMISSIONS STANDARDS FOR
PETROLEUM REFINERY

A. Minimum National Standards for Emissions from furnace and boilers:

S. No.	Parameter	Limiting concentration in mg/Nm ³ , unless stated	
		Refineries, furnaces, boilers	
1	Sulphur Dioxide (SO ₂)	Gas firing	50
		Liquid firing	850
2	Oxides of Nitrogen (NO _x)	Gas firing	250
		Liquid firing	350
3	Particulate Matter (PM)	Gas firing	5
		Liquid firing	50
4	Carbon Monoxide (CO)	Gas firing	100
		Liquid Firing	150
5	Nickel + Vanadium (Ni + V)	Liquid Firing	5
6	Hydrogen Sulphide (H ₂ S) in fuel gas	–	150
7	Sulphur content in liquid fuel, weight %	–	2.0

B. Minimum National Standards for Emissions from Fluid Catalytic Cracking (FCC) regenerators:

S. No.	Parameter	Limiting concentration in mg/Nm ³ , unless stated
		Refineries or FCC
1	Sulphur Dioxide (SO ₂)	500 (for hydro-processed feed) 850 (for other feed)
2	Oxides of Nitrogen (NO _x)	350
3	Particulate Matter (PM)	50
4	Carbon Monoxide (CO)	300
5	Nickel + Vanadium (Ni + V)	2

¹ This Schedule was inserted by S.I. 11 of 2009

6	Opacity, %	30
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C. Minimum National Standards for Emissions from Sulphur Recovery Units:

S. No.	Plant capacity (Tonnes/ day)	Parameter	Refineries or SRU
1	Above 20	Sulphur recovery, %	99
		H ₂ S, mg/Nm ³	10
2	5 – 20	Sulphur recovery, %	98
3	1 – 5	Sulphur recovery, %	96
4	-	Oxides of Nitrogen (NO _x) mg/Nm ³	250
5	-	Carbon Monoxide (CO) mg/Nm ³	100

D Minimum National Standards for Emissions from Storage of volatile liquids: Storage of general petroleum products:

Requirements on type of storage tanks shall be as follows

S. No.	Total Vapour Pressure (TVP), kPa	Tank Capacity, m ³	Type of Storage Tank
1	> 10	4 – 75	Fixed Roof Tank (FRT) with pressure valve vent
2	10 – 76	75 – 500	Internal Floating Roof Tank (IFRT) or External Floating Roof Tank (EFRT) or Fixed Roof Tank with vapour control or vapour balancing system
3	10 – 76	> 500	Internal Floating Roof Tank or External Floating Roof Tank or Fixed Roof Tank with vapour control system
4	> 76	> 75	Fixed Roof Tank with vapour control system

E. Minimum National Standards for Emissions from Loading of Volatile Products:

S. No.	Item	Standards
1	Applicable products	Gasoline, Naphtha, Benzene, Toluene, Xylene
2	Type of loading: (i) Road tank truck (ii) Rail tank wagon	(i) Bottom loading (ii) Top submerged
3	Vapour collection: Road tank truck/ Rail tank wagon	Annual leak testing
Emission control for Road tank truck/ Rail tank wagon loading		
4	Gasoline and Naphtha: (i) VOC reduction, % or (ii) Emission, mg/m ³	(i) 99.5 or (ii) 5
6	Benzene: (i) VOC reduction, % or (ii) Emission, mg/m ³	(i) 99.99 or (ii) 20
7	Toluene/Xylene: (i) VOC reduction, % or (ii) Emission, mg/m ³	(i) 99.98 or (ii) 150

F. Minimum National Standards for Fugitive Emissions from Equipment Leaks:

S. No.	Component	General Hydrocarbon (ppm)	Benzene (ppm)
1	Pump/Compressor	7500	2500
2	Valves/Flanges	6000	1500
3	Other components	6000	1500

THIRTEENTH SCHEDULE ¹*[Regulations 58 & 60]*MONITORING AND REPAIR SCHEDULE FOR LEAKS
DETECTION IN PETROLEUM INDUSTRY

1. **Below is the Schedule for the frequency for monitoring of leaks and schedule for repair of leaks:**

S. No.	Component	Frequency of monitoring	Repair schedule
1	Valves/Flanges	Quarterly (semi-annual after two consecutive periods with < 2% leaks and annual after 5 periods with < 2% leaks)	Repair will be started within 5 working days and shall be completed within 15 working days after detection of leak for general hydrocarbons. In case of benzene, the leak shall be attended immediately for repair.
2	Pump seals	Quarterly	
3	Compressor seals	Quarterly	
4	Pressure relief devices	Quarterly	
5	Pressure relief devices (after venting)	Within 24 hours	
6	Heat Exchangers	Quarterly	
7	Process drains	Annually	
8	Components that are difficult to monitor	Annually	
9	Pump seals with visible liquid dripping	Immediately	Immediately
10	Any component with visible leaks	Immediately	Immediately

¹¹ This Schedule was inserted by S.I. 101 of 2009

11	Any component after repair/replacement	Within five days	–
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FOURTEENTH SCHEDULE ¹

[Regulations 57(15) & 60]

**RECOMMENDED ANALYTICAL METHODS IN
PETROLEUM INDUSTRY**

1. With regard to captive power plants, the standards prescribed for furnaces shall be applicable.
2. Emission monitoring shall be carried out as per regulations set by the Department.
3. The following methods may be used for measurement of pollutant concentrations in the **emissions**:

S. No.	Parameter	Method of measurement
1	Sulphur Dioxide (SO ₂)	USEPA CFR-40 Part 60 Appendix A Method 6
2	Oxides of Nitrogen (NO _x)	USEPA CFR-40 Part 60 Appendix A Method 7
3	Particulate Matter (PM)	USEPA CFR-40 Part 60 Appendix A Method 5
4	Carbon Monoxide (CO)	USEPA CFR-40 Part 60 Appendix A Method IOA/ Combustion analyzer with electro chemical detector/ NDIR detector
5	Nickel + Vanadium (Ni + V)	USEPA CFR-40 Part 60 Appendix A Method 29
6	Hydrogen Sulphide (H ₂ S)	USEPA CFR-40 Part 60 Appendix A Method 15

4. The following methods may be used for measurement of pollutant concentrations in the **effluent**:

S. No.	Parameter	Method	Reference

¹ Inserted by S.I. 101 of 2009

1	Ph	By electrometric method using pH meter	APHA, 20 th edition 1998 4500 - H+B Page 4-87 to 4-91
2	Oil & Grease	Soxhlet solvent extraction method	APHA, 20 th edition 1998, 5520 D Page 5 - 38

S. No.	Parameter	Method	Reference
3	BOD ₃ days, 27°C	Incubation followed by Winkler's Idometric titration using Azide modification	BIS, 1993, 3025 (part 44)
4	COD	Dichromate oxidation open reflux method followed by titration	APHA, 20 th edition 1998 5520 – B Page 5-14 to 5-15
5	SS	By Gravimetric method 103-105°C	APHA, 20 th edition 1998, 2540 D Page 2-57 to 2-58
6	Phenols	Distillation followed by Direct Photometric method	APHA, 20 th edition 1998 5530 B & D Page 5-41 & 5-43 to 5-44
7	Sulphides	Iodometric Titration method	APHA, 20 th edition 1998 4500 S ²⁻ -F Page 4-167
8	CN	Distillation followed by Argentometric titration	APHA, 20 th edition 1998 4500 CN-C & D Page 4-37 to 4-39
9	Ammonia as N	Distillation followed by phenate method	APHA, 20 th edition 1998 4500 NH ₃ B & F Page 4-104, 105 and 108 & 109
10	TKN	Digestion followed by distillation and titration	APHA, 20 th edition 1998 4500 N org B Page 4-124 to 125
11	PO ₄ -P (available)	Spectrophotometric method using stannous chloride reduction method	APHA, 20 th edition 1998 4500 P D Page 4-145 to 146
12	Cr (VI)	Spectrophotometric method using Diphenyl Carbazide	APHA, 20 th edition 1998 3500 Cr B Page 3-66 to 3-68
13	Total Cr	Oxidation followed by spectrophotometric method using Diphenyl Carbazide	APHA, 20 th edition 1998 3500 Cr B Page 3-66 to 3-68
14	Pb	Nitric Acid Digestion followed by AAS method (Direct Air-Acetylene Flame)	APHA, 20 th edition 1998 3030E & 311 B Page 3-8 & 3-17 & 18

15	Hg	By mercury analyzer (cold vapour generation technique)	APHA, 20 th edition 1998 3112 B Page 3-22 to 24
16	Zn	Nitric acid digestion followed by ASS method	APHA, 20 th edition 1998 3030E & 311 B Page 3-8 & 3-17 & 18

S. No.	Parameter	Method	Reference
17	Ni	Nitric acid digestion followed by ASS method	APHA, 20 th edition 1998 3030E & 311 B Page 3-8 & 3-17 & 18
18	Cu	Nitric acid digestion followed by ASS method	APHA, 20 th edition 1998 3030E & 311 B Page 3-8 & 3-17 & 18
19	V	Acid digestion followed by AAS method (Direct Nitrous Oxide–Acetylene flame)	APHA, 20 th edition 1998 3111 B & D Page 3-17 & 18 and 3-20 to 21
20	Benzene	Gas chromatograph Method (Purge and Trap Technique) or Liquid-liquid extraction GC/MS Method	6410 B Page 6-59 to 72
21	Benzo(a) Pyrene	Liquid-liquid extraction Chromatographic Method	APHA, 20 th edition 1998, 6440 B Page 6-79 to 84