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NATIONAL ENVIRONMENTAL STANDARDS AND REGULATIONS ENFORCEMENT AGENCY (ESTABLISHMENT) (AMENDED) ACT, 2018

NATIONAL ENVIRONMENTAL (AIR QUALITY CONTROL) REGULATIONS, 2021

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S. I. No. 88 of 2021

NATIONAL ENVIRONMENTAL STANDARDS AND REGULATIONS ENFORCEMENT AGENCY (ESTABLISHMENT) (AMENDED) ACT, 2018

NATIONAL ENVIRONMENTAL (AIR QUALITY CONTROL) REGULATIONS, 2021

[11*th Day of February*, 2021] Commencement.

In exercise of the power conferred on me by sections 34 of the National Environmental Standards and Regulations Enforcement Agency (Establishment) Act, 2007 and all other powers enabling me in that behalf, I, Dr. Mohammad Mahmood Abubakar, Honourable Minister of Environment make the following Regulations—

Part I—General Provisions

1.—(1) The objective of these Regulations are to— Objectives.

(1) improve control of the nation's air quality to such an extent that would enhance the protection of flora and fauna, human health, and other resources affected by air quality deteriorations.

(2) meet basic tenet which provides for all citizens, the right to—

(*a*) clean air ;

(*b*) utilize and benefit from all natural resources managed according to the principles of sustainable development ;

(*c*) be informed of the nature and extent of the potential hazard of any development activity, undertaking or project and to be served timely notice of any significant rise in the level of pollution and the accidental or deliberate release into the atmosphere of harmful or hazardous substances.

(3) enhance the clean-up and rehabilitation of the affected area; highly impacted by air pollution.

2. The scope of these Regulations includes— The Scope.

(1) maximum permissible ambient air concentrations for certain pollutants in the air, as basic for preventing harmful effects on the environment and human health ;

(2) maximum permissible concentrations for criteria pollutants and air toxics in the ambient air, as basis for preventing harmful effects on the environment and human health ;

(3) the maximum permissible emissions from point, area, and line sources ;

(4) adequate information on emissions, ambient air concentrations of pollutants in the air, as well as air quality trends spatially and temporary ; and

(5) measures to enhance improvements in emissions and ambient air quality.

Application.

3. These Regulations shall apply to Point, Mobile and Area sources of air pollution, as well as Indoor and outdoor ambient air quality control.

PART II—EMISSIONS FROM STATIONARY SOURCES

Prohibition of Installations.

4. (1) To install an equipment within the premises of facilities situated in an area designated as a residential, commercial, public offices or institutional zone having demarcated boundaries which appear in the *gazetted* local plan prepared by the appropriate local planning authorities as described in first Schedule to these Regulations, a person shall obtain a written approval of the Agency.

(2) In the absence of such *gazetted* local plan described in sub-regulation (1), the local authority shall—

(*a*) ensure to delineate, demarcate and *Gazette* its land use into industrial, commercial and public/institutional areas ; and

(*b*) Undertake to relocate premises with local authorities' approval with authorized facilities sited in areas without *Gazetted* land use plan, to areas with *gazetted* land use plan.

Accidental discharge of pollutant.

5. Where accidental or unauthorized release or discharge of a contaminant into the air occurs, the person responsible for the release or discharge shall within 24 hours inform the Agency in writing as specified in Schedule II to these Regulations.

Maximum Air contaminant concentrations.

6. A Person shall not discharge contaminants into the air from industrial and other emitting source(s) higher than the concentrations prescribed in Schedules III, IV, V, VI to these Regulations.

Prohibition of two-stroke engines.

7. A person shall not import fuel combustion equipment of any kind with two-stroke engines for use into Nigeria.

Metals and metallic compounds.

8. A Person trading or operating an industry or process, in which fuel-burning equipment or industrial plant is used for the heating of metals leading to emissions of particulate matter, shall ensure that the concentration at any point in-stack of particulate matter shall not exceed the standards prescribed in Schedules V and VI to these Regulations.

Information on emissions of criteria pollutants.

9. A Person operating an industrial plant or facility shall submit to the Agency information relating to its point sources emissions for criteria pollutants annually.

Pollution abatement technologies.

10. A person shall install air pollution control device(s) to new equipment, install or retrofit an existing facility with technology or technologies that enable that facility to meet the national air quality emissions standards.

Stack specifications.

11. A person operating an industrial infrastructure(s) emitting pollutants into the atmosphere shall channel each point of discharge into the atmosphere through stacks that meet good engineering practice (GEP) stack height and complies with stack specification prescribed under Schedule VII to these Regulations.

Prohibition to Burn.

12. A Person shall not burn or permit to burn standing biomass within the premise or neighbourhood, except where it is authorized in accordance with the National Environmental (Control of Bush or Forest fire and Open Burning) Regulations, 2011.

Power Generating sets.

13.—(1) Every Power Generating set from 10 kVA and above which is in use, in operation or is capable of being operated in Nigeria shall—

(*a*) be registered with the Agency ;

(*b*) undergo emission testing at least once a year and certified by the Agency or its accredited Agent ; and

(*c*) be positioned within the building where it shall not cause health hazard to the occupants.

(2) A power generating set shall be positioned in such a way that the flue gas—

(*a*) is discharged out of the building through a suitable stack with or without a forced ventilation system, which shall not allow the flue gas to be drawn back into the building or the building ventilation system; and

(*b*) do not become a nuisance to the inhabitants of any building or the neighbourhood through building downwash effects.

(3) A person operating a power generating set running on petrol, diesel, kerosene or any fuel shall not discharge pollutants into the air higher than the concentrations prescribed in Schedules XV and XVI to these Regulations.

(4) The Agency or its Accredited Agents may issue a prohibition order as specified in Schedule XVIII to these Regulations—

(*a*) prohibiting the further operation of any generating set that has undergone an emission test and has contravened the acceptable conditions specified in Schedules XV, and XVI to these Regulations ; and

(*b*) directing the operator's actions required to return to facility compliance with set standards within a period of three months after the gaseous emission test.

(5) The prohibition order shall be securely attached to a conspicuous spot on the power generating set.

(6) The power generating set shall not be operated until its defects have been remedied to the satisfaction of the Agency, after which the prohibition order may be withdrawn.

(7) The person operating the power generating set shall ensure that the prohibition order is not in any way obscured, rendered illegible or removed except with the written approval of the Agency.

(8) For the purpose of regulations 13 (4) of these Regulations, a logbook containing the detailed specifications of the generator, the date, time and result of any test done in the format issued by the Agency shall be kept by the owner of the power generating set.

(9) The records in the logbook shall, upon request by the Agency or its accredited Agent, be made available for inspection by the owner of the generating set.

Environmental impact assessment (EIA) and environmental management plan (EMP).

14. A Person shall in accordance with the Environmental Impact Assessment Act—

(1) Carry out an Environmental Impact Assessment (EIA) for new projects, modification or expansion of existing ones before commencement of activity ;

(2) Submit Environmental Audit Report (EAR) for existing infrastructure on a three yearly basis or as may be required by the Agency ; and

(3) Submit an Environmental Management Plan (EMP) for any new project as may be required by relevant Laws, and ensure that there are compliance reports in respect of tasks and schedules of such tasks which are to be undertaken as part of the EMP over the life-cycle of the project.

PART III—EMISSIONS FROM MOBILE SOURCES

Categories of mobile sources of emission.

15. Mobile sources shall be categorized in accordance with the provisions in Schedule VIII to these Regulations.

Emission from vehicles.

16. Emissions from road vehicles shall be in accordance with the provisions of the National Environmental (Control of Vehicular Emissions from Petrol and Diesel Engines) Regulations, 2011 and other extant Regulations as provided in Schedules IX and X to these Regulations.

Conflicts resolution.

17. The Agency shall, subject to the provisions of the 1999 Constitution (as amended) and other existing legislations, have the sole responsibility to resolve conflicts arising from multiple provisions in standards stipulated under extant Regulations.

Prohibition of Two Stroke engines.

18. A person shall not import, manufacture or assemble two-stroke engines fuel combustion equipment, of any kind for use in Nigeria.

PART IV—CONTROL OF INDOOR AIR POLLUTION IN OFFICES, PUBLIC PLACES AND HOMES

Maximum concentrations in offices and public places.

19. The maximum concentrations of indoor air contaminants for offices and public places shall conform to the limits prescribed under Schedule XI to these Regulations.

Maximum concentrations in homes.

20. The maximum concentrations for indoor air contaminants for homes shall conform to the limits prescribed in Schedule XII to these Regulations.

Building requirement.

21. A Person shall ensure that the ventilation system in a building facilitates improved air quality and is designed in accordance with the extant building codes provided in relevant legislations.

Banned pesticides.

22. Banned pesticides under the provisions of National Environmental (Control of Hazardous Chemicals and Pesticides) Regulations, 2014 and other extent Regulations shall not be used indoor

Provision of exhaust chimney.

23. Every building especially homes and offices with cooking facilities shall have exhaust chimney to channel out the flue gases outside the indoor environment.

Prohibition of smoking.

24. Smoking in public places is prohibited, except in designated area.

PART V—EMISSIONS FROM OTHER SOURCES, FUEL ADDITIVES, ETC.

Fuel additives.

25. A Person shall—

(1) use fuel additives as may be provided by the appropriate regulatory authority ;

(2) Not be granted a licence to—

(*a*) manufacture, process or trade in any fuel additive ; or

(*b*) to import, sell, offer for sale, or introduce into commerce such fuel additive unless the same has been registered with the appropriate authority.

(3) not introduce any proposed fuel additive that would in any way increase emissions of any of the regulated gases prescribed in Schedule IX to these Regulations.

Control of fugitive particulate matter.

26. A Person shall maintain the maximum limit values for evaporative and refuelling emissions from gasoline vehicles as provided in Schedules X to these Regulations.

Ozone depleting substance.

27. The National Environmental (Ozone Layer Protection) Regulations, 2009 (as amended) shall apply in the importation, handling, storage, sale and use alternatives to Ozone Depleting Substance (ODS).

Agrochemicals handling.

28. The importation, handling, storage, transportation and use of chemicals and agrochemicals shall be in accordance with National Environmental (Chemical Pharmaceutical, Soap and Detergent Manufacturing Industries) Regulations, 2009 as Amended

Renewal energy.

29. A Person operating a renewable energy generating plant shall ensure that the plant conforms with the specifications as described in National Environmental (Energy Sector) Regulations 2014.

Quarrying operations.

30. A person engaged in quarry operations shall carry out such operation in accordance with the National Environmental (Quarrying and Blasting Operations) Regulations, 2013 and other extant Regulations.

Mining operations.

31. A person engaged in mining operations shall carry out such operation in accordance with the National Environmental (Mining and Processing of Coal Ores and industrial Minerals) Regulations, 2009 and other extant Regulations.

PART VI—AMBIENT AIR QUALITY STANDARDS

Operations of Industrial Plants or facilities.

32. A person operating an industrial plant or facility shall submit to the Agency any information which the Agency deems appropriate regarding its operations.

Ambient air quality standards.

33. The Local Air Quality Management Authority in an airshed shall—

(1) take steps necessary, including the use of multi-source dispersion modelling within the airshed to apportion maximum emissions among its key sources to ensure that the ambient air quality standards as prescribed in schedules XIII of these Regulations are not violated.

(2) include local specific individuals or process-specific source emissions in the airshed, below levels stipulated in the stationary sources emissions standards in schedules III to VI of these Regulations and similarly for mobile sources, and policies to enhance integrated air quality management which in the judgement of the Local Authority shall enable the airshed comply with national ambient air quality standards.

PART VII—CONTROL OF ODOUR

Control of Odour.

34. A person shall not emit or allow the emission of noxious and foul odorous substances to reach nuisance threshold levels within its neighbourhood such that not more than 5% of the population will experience annoyance greater than 5% of the time per month for up to three continuous months.

Odour detection threshold.

35. A person shall not release or cause the emission of malodourous substances beyond the detection thresholds as prescribed in Schedule XIV to these Regulations.

PART VIII—ENFORCEMENT

Enforcement notices.

36.—(1) An enforcement notice shall be served on a facility where the Agency has established that the operator has contravened standards under these Regulations.

(2) An enforcement notice shall specify the—

(*a*) activities or matters constituting the contravention ;

(*b*) steps that must be taken to remedy the contravention or to remedy the activities ; and

(*c*) period within which those steps must be taken ;

(3) The provisions of sub-regulations (2) (*a*) of this regulation shall apply whether or not the particular manner of operating the facility in question, is regulated by or contravenes a condition of the permit.

(4) An officer of the Agency or its Accredited Agents may, in the course of duty during business hours under these Regulations—

(*a*) enter premises or facility to carry out air emission testing, take samples or specimen for analysis, and measurements based on techniques and the QA/QC criteria published by the Agency as basis for establishing compliance with the standards to which these Regulations relate ; and

(*b*) Seize or seal any facility or premises where the provisions of these regulations are contravened.

Enforcement of notice reminder.

37.—(1) Where a—

(*a*) person fails to comply with the enforcement notice within the specified period given under Regulations 36(2) of these Regulations, a second notice shall be served within 7 days ;

(*b*) person fails to comply with the second reminder of the enforcement notice within the specified time limit, the Agency shall issue a suspension notice, seal the facility or premises or take any other punitive action as may be necessary ; and

(*c*) suspension notice is served pursuant to these Regulations, the permit shall, on the service of such notice cease to have effect as stated in the notice until the suspension notice is vacated by the Agency.

(2) The Agency may vacate a suspension notice after compliance monitoring and verification activity is undertaken and shall issue a report that show evidence of compliance

Power to enter and seal facility or premises.

38.—(1) The Agency shall, upon obtaining a Court Oder, have the power to enter and seal any facility or premises found contravening any of the provisions of these Regulations after at least two enforcement notices have

been issued with no evidence of necessary actions being taken by the operator of the facility to bring the facility to compliance.

(2) where the contravention is established to be of urgent imminent danger to the environment and human health, the Agency shall have the power to seal such contravening facility pending the obtainment of such court order without prejudice to Regulation 37 (1).

(3) Notwithstanding the provisions of sub-regulation (1) of these regulations, the Agency shall, prior to obtaining a Court Order, have the power to enter and seal any contravening facility or premises, where the contravention is of eminent danger to the environment and human health.

Part IX—Permit

Permit.

39. The Agency shall issue permits for the release of air emissions in accordance with the provisions of the National Environmental (Permitting and Licensing System) Regulations (2009).

Part X—Offences and Penalties

Offences and penalties.

40. A person who violates any of the provisions of these Regulations commits an offence and shall on conviction be liable to a fine of not less than—

(*a*) one hundred thousand Naira or to imprisonment for a term not less than six (6) months or to both, such fine and imprisonment and an additional fine of not less than Ten Thousand Naira (₦10,000) for every day the offence in respect of individual offenders ; and

(*b*) One Million Naira (N1,000,000) and additional fine of Fifty Thousand Naira (₦50,000) for every day the offence subsists in respect of body corporate offender.

Part XI—Miscellaneous Provisions

Interpretation.

41. In these Regulations, unless the context otherwise requires—

"*Accredited Agent*" means a body corporate which has passed through all the necessary protocols and fulfilled the criteria set by the Agency or body corporate who are to act for the Agency under streamlined delegated authority to undertake activities assigned to the Agency by its Act ;

"*Act*" means the Act establishing the Agency ;

"*Agency*" means National Environmental Standards and Regulations Enforcement Agency (NESREA) ;

"*Air*" means the mixture of gases that envelop the Earth, known as the atmosphere and comprising Nitrogen (78%), Oxygen (21%), Argon, Hydrogen and other gases (about v1%) ;

"*Business Hour*" means the official working hours of a facility during business days which in Nigeria excludes Saturday, Sunday and other days declared as official public holidays ;

"*Clean Air*" means the air whose regulated pollutant concentrations are below that specified in the ambient air quality standards in these Regulations ;

"*Criteria Pollutant*" means traditional air pollutants (primary or secondary) associated with wide range of combustion related and traditional sources and usually used in establishing the air quality criteria of a location, and include Particulate Matter (PM) comprising Total Suspended Particulate (TSP), and respirable fractions (PM_{10}, $PM_{2.5}$, and PM1), Carbon monoxide (CO), Volatile Organic Compounds (VOC), Nitrogen dioxide (NO_2), Sulphur Dioxide (SO_2) and Ozone (O_3) ;

"*Court*" means the Federal or State High Court ;

"*Emission* "means the quantity of air contaminant discharged from a known source into the atmosphere over a specified time ;

"*Emission Reduction Technology*" means the device and/or processes used as scrubbers or as part of improved operational process to reduce emissions from any facility ;

"*Enforcement Notice*" means Letters of Compliance Concerns or Abatement notices informing a person of observed violations and the need to remedy the same within a time limit, failure of which, a person shall be sanctioned as provided in these Regulations ;

"*EIA*" means Environmental Impact Assessment, as stipulated by EIA Act ;

"*EMP*" means Environmental Management Plan, as stipulated by EIA and/or other extent regulations ;

"*Fuel-combustion equipment*" means any device used for burning of a solid, liquid or gaseous fuel, in which heat is generated and transferred from the process for the production of useful heat electricity or other forms of energy ;

"*Flue Gas*" means combustion or process related gases containing pollutants emitted into the atmosphere directly or through the stacks of small, medium or large-scale facilities used for production or for the provision of services such as electricity generation, among others ;

"*Fugitive Emission*" means pollutants discharged into the atmosphere from leaks related and abrasive processes leading to wears, system leakages from valves joints and related modules in stationary, area or line source ;

"*Hazardous substances*" mean constituents' elements or compounds; or biological agents whose presence in the atmosphere or other media even in very minute concentrations leads to acute toxicity when injected or inhaled

"*Air Pollutant*" means "substance in the atmosphere" with physical, chemical and biological properties capable of causing harm to the health of human and other living things, which could adversely modify the properties of materials or could adversely modify the climate system when emitted into or formed in the Earth's atmosphere in concentrations that exceed the carrying capacity of the atmospheric removal processes leading to net atmospheric accumulations beyond known natural background concentrations of such substances ;

"*Air Pollution*" includes the state of increased concentration of substances in the atmosphere which has the potential of adversely affecting the health of any living substance, ecosystem, natural or built environment, at a level that exceeds the carrying capacity of the atmospheric removal mechanisms to return the air to its natural background concentrations for such substances ;

"*Air Quality*" means a measure of how clean or polluted the air based on the concentrations of pollutants measured in the ambient air ;

"*Air Toxics*" mean a group of air pollutants as lead (Pb), mercury (Hg) and toxic elements, ammonia, ethylene oxide, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), carbonyls, dioxins, BTEX (Benzene, Toluene, Ethyle Benzene, and Xylene), fibres (especially of textiles and asbestos origin) and radionuclides, known to be causative agents for cancer and other debilitating health conditions including such reproductive health conditions as inducing birth defects, and other deformities ;

"*Ambient Air*" means open atmospheric air in its natural state under standards of atmospheric condition of pressure and temperature typically containing 78% nitrogen 21% oxygen and the remaining combinations of gases being 1% supports the life of humans and other organisms and not subject to confined pressure and temperatures such as may be provided within a vessel or other artificial conditions ;

"*Background Air Concentrations*" means "clean air", as defined in this regulation ;

"*Building*" means permanent or temporary structure constructed with exterior walls and a roof, with all auxiliary facilities required for human habitation as residential or for businesses, commercial, recreational, and industrial ;

"*Building Downwash Effect*" means the frictional drag that wind flowing over or around buildings has on plumes released from nearby stacks whereby buildings create a cavity of recirculating winds in the area near their vicinity, with building cavities causing increased vertical dispersion of plumes emitted from stacks on or near these structures, often leading to elevated concentrations downwind of affected stacks ;

or when absorbed through the skin or the eyes lead to, corrosiveness or other skin or eye inflammations or other debilitating conditions or the risk of fire explosion; over very short time intervals or long-term toxicity upon repeated exposure ;

"*Indoor air*" means the air inside a building or other enclosed spaces including mobile homes, offices, commercial and enclosed leisure spaces ;

"*Installations*" mean the whole of a system of machineries and accessories set up and arranged to produce goods and services, and leading to the emission of pollutants into the atmosphere ;

"*Key Sources*" for any pollutant means the group of sources contributing up to 95% of the total emission of the pollutant in a municipality, state or nation ;

"*Local Air Quality Management Authority*" means the authorized entity within a state local government area or municipal area which acts as the designated authority for air quality planning and management ;

"*Local Panning Authority*" means the authorized entity within a state local government area or municipal area which acts as the designated authority for which planning and the enforcement of urban plans ;

"*Mechanical Ventilation*" means controlled air circulation within an indoor space using motorised manually propelled systems to enhance the natural air circulation capability provided for in an indoor design ;

"*Mobile Source*" includes sources such as road, air, railway and navigational vehicles, which emit pollutants into the atmosphere during locomotion ;

"*Odour*" means the property of a substance that gives it a characteristics unpleasant smell perceivable by the human smell sensory system or the olfactory system ;

"*Odour Detectability*" means the minimum concentration of an odour emitting substances that produce an olfactory response or sensation ;

"*Ozone Depleting Substances (ODS)*" means the wide range of compounds now known as chlorofluorocarbons (CFCs), which remain chemically inert, meaning non-toxic or non-combustible, physically very stable under the wide ranges of conditions prevalent in the lower atmosphere (troposphere) and which became very useful as refrigerants in air conditioning and refrigeration equipment, but become very reactive once they found their way to the stratosphere where they are photo-dissociated to release chlorine radicals, acting as catalysts to photo-chemically break-down Ozone (O_3) molecule into an oxygen molecule (0_2) and an atomic oxygen (O) in chain forward and reverse reactions resulting in the net depletion O_3 in the stratospheric ozone leading to ground penetration of UV-B radiation, absorbed by stratosphere and increasing the ground level penetration of UV-B radiation ;

"*Particulate Matter*" means contaminants in solid and liquid phases in suspension in the atmosphere ;

"*Pasting*" means the putting on the entrance or strategic location within the facility a notice at the address of the owner or occupant of the Premises or facility; or the putting of a notice in a public or conspicuous place so that people including those the notice is meant for, can see it ;

"*Person*" means a legal entity including an individual, association, corporate body, organization, government, government agency, institution that own facility or facilities which emit pollutants into the atmosphere ;

"*Point Source*" means a single source of emissions into the atmosphere, contributing not less than 500 metric tonnes of CO, or 100 metric tonnes of any of NO, SO_2 and PM into the atmosphere during full operational annual cycle ;

"*Pollution Control Device*" means any infrastructure designed for use mainly as scrubbers to reduce the concentration of pollutants in their flue gas, thereby enhancing cleaner emissions from stacks of various air pollution sources ;

"*Pollution Control Technology*" means a process; design; physical, chemical or biological technique ; or combinations thereof used in reducing the level of emission from a source to ensure compliance with emission standards defined in this Regulation ;

"*Pollutant*" means substances including gases, liquids, particulates, radioactive substances, biological materials, or other harmful chemicals/ materials, noise or high energy radiation emitted into or formed in any part of the Earth's subsystems (atmosphere, lithosphere or hydrosphere), with capacity to cause diseases or death to humans and ecosystems; or likely to cause damage to any living organisms or to the natural or built environment ;

"*Public places*" means building or other facilities or open spaces owned by government and organizations working for the overall interest of serving the society and established for the general use of the members of the public. They include government and private sector offices open to the public, hospitals and other healthcare facilities, commercial buildings, hotels, recreational facilities, public transport, amusement and entertainment facilities among others ;

"*Quality Assurance and Quality Control*" (*QA/QC*) *Processes*" means a set of tracks taken to ensure that measurements and related activities undertaken to quality emissions and ambient air quality, and quantities associated to them are undertaken to ensure that required quality of outputs have been realised and that defects and errors are identified and fixed ;

"*Radon*" means a radioactive, colourless, odourless and tasteless inert gas with atomic number of 86 and chemical symbol Rn, and usually released into the underlying soil ;

"*Stationary source*" means any fixed facility associated with the production of goods and services, and associated with emissions of one or more types of pollutants into the atmosphere ;

"*Tail Pipe*" means the exhaust nozzle of a vehicle where the flue gases are released into the atmosphere ;

"*Two-Stroke Engine*" means an internal combustion engine which completes combustion within a single crankshaft, in an up (denoting fuel intake or compression) and down (denoting fuel combustion or exhaust) piston strokes ;

"*Vehicle*" means moving motorized means of locomotion propelled by a gasoline, diesel or other types of engines used as means of personal or public transport, or for movement of goods from place to place ;

"*Ventilation*" means the process of ensuring circulation of air within a building or any confined space which could be natural or motorized ; and

"*Volatile Organic Compounds (VOC)*" means organic compounds in gaseous state in the atmosphere, and usually divided broadly into methane (CH4) and non-methane volatile organic compounds (NMVOC).

Citation.

42. These Regulations may be cited as the National Environmental (Air Quality Control) Regulations 2021.

SCHEDULE III [*Regulation 6*]

POINT SOURCE MAXIMUM EMISSION LIMIT FOR FACILITIES AND PROCESS

	Pollutants	*Standard Applicable to Source*	*Maximum Permissible Limits (mg/Nm³)*	*Maximum Permissible Limits*
1.	Antimony and Its compounds	any source	10 as Sb	2.0
2.	Arsenic and its compounds	Any source	10 as As	3.0
3.	Cadmium and its compounds	Any source	10 as Cd	2.0
4.	Carbon Monoxide	Any industrial Source	500 as CO	400
5.	Copper and its Compounds	Any industrial source	100 as Cu	36
6.	Hydrofluoric Acids and Flouride compounds	Any source other than the manufacture of Aluminium from Alumina	50 as HF	56
7.	Hydrogen Sulphide	(*i*) Geothermal Power Plants (*iii*) Any source other than (*i*) and (*ii*)	[a, b] 7 as H_2S	 5.0
8.	Lead	Any trade, industry or process	10 as Pb	1.1
9.	Mercury	Any Source	5 as elemental Hg	0.6
10.	Nickel and its compounds, except Nickel Carbonyl [c]	Any source	20 as Ni	8
11.	NO_x	(*i*) Manufacture of Nitric Acid (*ii*) Fuel burning steam generators Existing Source New Source • Coal-Fired • Oil-Fired (*iii*) Any source other than (i) and (ii) Existing Source New Source	2,000 as acid and NO_x and calculated as NO_2 1,500 as NO_2 1,000 as NO_2 500 as NO_2 1000 as NO_2 500 as NO_2	975 730 487 244 487 244
12.	Phosphorus Pentoxide [d]	Any source	200 as P_2O_5	32
13.	Zinc and its Compounds	Any source	100 as Zn	34.2

SCHEDULE I [*Regulation* 4]

NEW INSTALLATIONS WITHIN RESIDENTIAL AREAS NOT PERMITTED WITHOUT PRIOR APPROVAL

1. Any equipment, plant or facility used for the purpose of heating or generating power that is rated to consume—

(*a*) pulverised fuel ;

(*b*) any solid fuel at 20 kg or more per hour ; or

(*c*) any liquid or gaseous matter at 10 kg or Litre or more per hour.

2. Any equipment, plant or facility that emits any solid particle exceeding 0.5kg per hour.

3. Any equipment, plant used for grain milling or polishing and consumes 1.5kw and above.

4. Any wood working machinery that consumes 0.75 kW and above.

5. Any equipment or facility used in the manufacture, packing or repacking of paints, varnishes, lacquers and all pesticides.

6. Any equipment, plant or facility used in the manufacture, packing or repacking of fish manure or animal feed or fertilizer.

7. Any equipment, plant or facility used in the manufacture, packing or repacking of industrial chemicals, in the process of which mercury, antimony, arsenic, cadmium, zinc, lead, copper, etc or any compound thereof is emitted.

8. Any equipment or plant used in the manufacture of asbestos containing products.

SCHEDULE II [*Regulation* 5]

PROCEDURE FOR REPORTING ACCIDENTAL DISCHARGE OF POLLUTANTS

The information required includes the—

(1) date and time of the release or discharge.

(2) duration of the release or discharge.

(3) composition of the release or discharge showing—

(*a*) the concentration of air contaminants,

(*b*) the emission rate, and

(*c*) the total amount.

(4) description of the circumstances leading to the release or discharge.

(5) steps and procedures taken to control the release or discharge, as well as those taken to prevent similar releases or discharges in the future ; and

(6) steps and procedures taken to clean up the release.

Key:

a- All new geothermal power plants starting construction by 01 January 2015 shall control H_2S emissions to not more than 150 g/GW-Hr or 42 g/TJ

b- All existing geothermal power plants shall control H_2S emissions to not more than 200 g/GW-Hr or 56 g/TJ within 5 years from the date of effectiveness of these regulations.

c- Emission limit of Nickel Carbonyl shall not exceed 0.5 mg/Ncm^3.

Note:

a- 1 GW-hr = 3.6×10^{12} J or 3.6 TJ

b- TJ = 10^{12} J

c- 1 g/GW-hr = 0.278 g/TJ

SCHEDULE IV [*Regulation* 6]

STACK EMISSIONS FROM POINT SOURCES RELATED TO COMBUSTION

Combustion Processes	***Emission Standard*** *Flue Gas Concentration (kg/TJ-Energy Consumed)*					
	PM_{10}	CH_4	VOC	SO_2	NO_x	CO
Public Electricity Generation :						
Coal	350		8	550	300	15
Heavy Fuel Oil (HFO)	1	15	0.1	2	190	0.6
Light Fuel Oil (LFO)	0.3	2		5	70	0.6
Natural Gas	0.1	1	2	0.5	110	1.0
Industrial Electricity Generation						
Coal	500	2	20	500	350	150
HFO	40	3	8	800	190	10
LFO	5	3	5	200	70	10
Natural Gas	0.1	1.4	5	0.5	110	10
Industrial Boilers/Heat Generation						
Fuel-wood	200		400		10	4000
Charcoal	200		400		10	4000
Commercial/Institutional Electricity/Heat Generation						
Fuel-wood	200	150	600	10	94	9000
Charcoal	150	100	400	10	75	4000
Coal	100	23	31	500	100	625
Chemical Process Industry						
Charcoal Kiln (kg/tonne)	1.24		2		0.112	1.6
Carbon Black (Stack) (kg/tonne)	6.7		77	0.045	6.2	123
Paint & Vanish (kg/tonne)			0.5			
Plastics (kg/tonne)			5.9			
Printing Ink (kg/tonne)			213			
Soap & Detergents (kg/tonne)	7					

SCHEDULE V [*Regulations 6 and 8*]

EMISSION STANDARDS FOR AIR POLLUTANTS FROM INDUSTRIAL PROCESS SOURCES OPERATIONS

S/N	*Pollutants* 1	*Ppm*	*Averaging time (min.)*
1.	Ammonia	0.28	30
2.	Carbon Disulphide	0.01	30
3.	Chlorine and Chlorine Compounds expressed as Cl^{-2}	0.03	5
4.	Formaldehyde	0.04	30
5.	Hydrogen Chloride	0.13	30
6.	Hydrogen Sulphide	0.07	30
7.	Nitrogen Dioxide	0.20,0.14	30,60
8.	Phenol	0.03	30
9.	Sulphiur Dioxide	0.18, 0.13	30,60

SCHEDULE VI [*Regulations 6 and 8*]

EMISSION LIMITS FOR SPECIFIC METAL POLLUTANT FROM STATIONARY SOURCES

No.	*Substance*	*Limit* (mg/Nm^3)
1.	Antimony	20-100
2.	Arsenic	20-100
3.	Cadmium	1.0-40
4.	Copper	20
5.	Lead	10-100
6.	Mercury	1.0-230
7.	Zinc	11.72

Source : Guidelines and Standards for Environmental Pollution Control in Nigeria.

SCHEDULE VII [*Regulation* 11]

INDUSTRIAL STACK HEIGHT REGULATION

Industrial stacks shall comply with the Good Engineering Practice stack height (H_{GEP}), which ensures that emissions from the stack does not result in excessive concentrations of any air pollutant in the immediate vicinity of the sources, resulting from atmospheric downwash, eddies, or wakes which may be created by the source, nearby structures or terrain obstacles. For any industrial stack, the GEP Stack height shall be defined and calculated using the following relations :

$$H_{GEP} = H + 1.5L$$

Where H is the height of the adjacent structure or nearby structure, and L is the lesser dimension (height or maximum projected width of the adjacent or nearly structure or terrain).

A single representative stack may be used to represent several sources that are identified as "similar". "Similar stacks are those that are located within 100 m distance and emit the same pollutants, and have stack heights and flue gas exit velocities differ by less than 20%. The procedure for merging sources identifies one worst case representative stack from which all of the emission scrum the sources involved are modelled. The merged stack is typically located at the closest location, of all the stacks involved, to the property line. This location, if all other parameters were the same would result in the maximum modelled off-site concentration. Dissimilar stacks may be merged, by computing the parameter M for which stack, using :

$$M = \frac{(H_s V T_s)}{Q}$$

Where M is the parameter accounting for the relative influence of stack height, plume rise and emission rate on concentration,

H_s is the stack height, and

$$V \quad \frac{\pi}{4} v^2 d^2$$

Where V is the stack gas volumetric flow rate (m^3/s), d is the stack exit internal diameter (m), v is the stack gas exit velocity (m/s), Ts is the stack gas exit temperature (K) and Q is the pollutant emission rate (g/s).

The stack with the lowest M value is used as the representative stack, so that the sum of emissions from all merged stacks is assumed to be emitted from the representative stack. The location of the representative stack is assumed to the actual location closest to the property line. For dispersion modelling from multiple stack locations, the representative stacks would be used.

SCHEDULE VIII [*Regulation* 14]

INDUSTRIAL STACK HEIGHT REGULATION

Mobile Source Grouping	*Source Types*	*Definition of Source Type*
Air Transportation.	Domestic and international civil aviation.	Emissions from all aircraft types excluding military.
Road Transportation	Passenger cars.	Automobiles designated primarily for the transport of persons, having a capacity of 12 persons or less, or equipped with no special features such as four wheel drives or off-road operation. Maximum gross weight of 3900 kg.
	Passenger cars with catalysts.	Passenger cars (as above) with 3-way catalysts for NOx control.
	Light duty trucks (LDT).	Automobiles designated primarily for the transport of cargo or equipped with special features such as four wheel drives or off-road operation. Maximum gross weight of 3900 kg.
	Light duty trucks with catalysts.	LDT (as above) with 3-way catalysts for NOx control.
	Heavy Duty Trucks & Buses (HDTB).	Any gasoline or diesel fuelled vehicles rated to exceed 3900 gross weight or designed to carry more than 12 persons at a time.
	Motorcycles.	Any vehicle designed to travel with not more than three wheels in contact with the ground, and weighing less than 680 kg.
Railways	All rail travelling vehicles.	Includes both passenger and freight coaches.
Water Transport	Internal Navigation.	All internal and coastal navigation, including small craft and fishing vessels not included under the International Marine Bunkers.
	International Marine Bunkers.	Sea going ships of all flags, including fishing vessels.

Other Non-Road Transportation	Lawn and Garden Equipment Agricultural Equipment Logging Equipment Light Commercial Equipment Industrial Equipment Construction Equipment Airport Service Equipment.	

SCHEDULE IX [*Regulation* 15 ; 25(*c*)]

TAIL PIPE EMISSION STANDARD FOR ROAD VEHICLES

Mobile Source	*Emission Standard*									
	Tailpipe Concentration (%)					*Emission Factor (g/km)*				
	PM_{10}	Soot	CO	NO_x	VOC	PM_{10}	Soot	CO	NO_x	VOC
ROAD TRANSPORTATION										
Per Capita (PC)(Gasoline) : [Fuel economy = 6.0 km/l								13	1.6	1.2
PC (Gasoline) with catalysts : Fuel economy = 9.4 km/l								3.5	0.6	0.3
PC (Diesel) : [Fuel economy = 6.8 km/l]						0.4		0.9	1.0	0.3
Light Duty Truck, LDT (Gasoline) : [Fuel Economy = 5.1 k/l]								15	1.8	2.0
LDT (Gasoline) with Catalysts		25						10	1.0	0.8
LDT (Diesel)		40				0.5		8.0	1.2	0.45
Heavy Duty Truck, HDTB		40				0.9		9.0	12	2
Motorcycles/Tricycles		45				0.3		14	0.6	2.6

SCHEDULE IX [*Regulation* 15 ; 26(*a*)(*b*)]

FUGITIVE EMISSION STANDARDS FOR GASOLINE VEHICLES

Fugitive Source	*Pollutant*	*Emission factor Standard (g/km)*
Tank Evaporative Emissions	VOC	0.45
Tank Refuelling Emissions	VOC	0.30

SCHEDULE XI [*Regulation* 18]

INDOOR AIR QUALITY FOR OFFICES AND PUBLIC PLACES

Parameter	*Unit*	*8-hour average* [a]	
		Excellent Class	*Good Class*
Room Temperature	℃	20 to < 25.5	< 25.5
Relative Humidity	%	40 to < 70	< 70
Air movement	m/s	< 0.2	< 0.3
Carbon Monoxide (CO)	μg/m³	< 2,000	< 10,000
	ppbV	< 1.7	< 8.7
Suspended Particulates(PM_{10})	μg/m³	< 20	< 180
Nitrogen Dioxide (NO_2)	μg/m³	< 40	< 150
	ppbV	< 21	< 80
Ozone (O_3)	μg/m³	< 50	< 120
	ppbV	< 25	< 61
Formaldehyde (HCHO)	μg/m³	< 30	< 100
	ppbV	< 24	< 81
Total Volatile Organic Compounds (TVOC)	μg/m³	< 200	< 600
	ppbV	< 87	< 261
Radon (Rn)	Bq/m³	< 150	< 200
Airborne Bacteria	cfu[b]/m³	< 500	< 1,000

Legends :

(*a*) In some cases, it may not be practicable to take 8-hour continuous measurement. In these circumstances, surrogate measurement (i.e. an intermittent measurement strategy based on the average of half-an-hour measurements conducted at four time-slots) is also accepted.

(*b*) CFU : standard units of microbial measurements in colony Forming units per cubic meter.

SCHEDULE XII [*Regulation* 19]

MAXIMUM CONCENTRATIONS FOR INDOOR AIR CONTAMINANTS IN HOMES

S/N *Pollutants*	*Average Time*	*Limit for Acceptable Indoor Air Quality*	*Unit*
1. Carbon Monoxide (CO)	8hrs	10 9	mg/m^3 ppm
2. Formaldehyde	8hrs	120 0.1	$\mu g/m^3$ ppm
3. Ozone (O_3)	8hrs	120 0.06	$\mu g/m^3$ ppm
4. Total Volatile Organic Compound (TVOC)	8hrs	300	mg/m^3
5. Respiratory Dust (<10 microns)	8hrs	150	mg/m^3
6. Bacteria	8hrs	500	CFU/m^3 (algar plate)
7. Fungi	8hrs	500	CFU/m^3 (algar plate)

SCHEDULE XIII [*Regulation* 29, 30 *and* 33]

AMBIENT AIR QUALITY STANDARDS FOR CRITERIA POLLUTANTS AND AIR TOXICS

S/N	*Pollutants*	*Time Weighted Average*	*Concentration in Ambient Air*
1.	Sulphur dioxide (SO_2)	Annual	80 µg/m³
		24 hours	120 µg/m³
		1hour	350 µg/m³
2.	Nitrogen dioxide (NO_2)	Annual	80 µg/m³
		24 hours	120 µg/m³
		1hour	200 µg/m³
3.	Carbon monoxide (CO)	8 hours	5.0 mg/m, 10,000[a]
		1 hour	10 mg/m³ 25,000[a]
4.	Particulate Matter (PM_{10})	Annual	60 µg/m³
		24 hours	150 µg/m³
5.	Particular Matter ($PM_{2.5}$)	Annual	20 µg/m³
		24 hours	40 µg/m³
6.	Ozone (O_3)	8 hours	100 µg/m³
		1 hour	180 µg/m³
7.	Lead (Pb)	Annual	1.0 µg/m³ 0.5
		24 hours	1.4 µg/m³
8.	Arsenic (As)	Annual	6,000 µg/m
9.	Nickel (Ni)	Annual	20,000 µg/m³
10.	Cadmium (Cd)	Annual	5,000 µg/m³
11.	Ammonia (NH_3)	Annual	0.2 mg/m³
		24 hours	0.6 mg/m³

SCHEDULE XIV [*Regulation* 35]

AMBIENT AIR QUALITY STANDARDS FOR SOME MALODOROUS COMPOUNDS

Substance	*Chemical Formular*	*Irritation (ppmV)*	*Threshold Odour (ppmV)*	*Air Quality Standard for Odour (ppmV)*
Hydrogen Sulphide	H_2S	50 – 100	0.00001-0.8	5
Carbon Disulphide	CS_2		0.21	0.1
Chlorine	Cl_2	1 – 6	0.01 - 5.0	0.1
Ammonia	NH_3	55 – 140	0.32 – 55	5
Benzene			468	50
Formaldehyde	HCHO	0.25 - 2.0	0.1 - 1.0	0.02
Methyl Mercaptan	CH_3SH		0.001 - 0.00026	0.0001
Ethyl Mercaptan	CH_3CH_2SH		0.00019 - 0.001	0.0001
Dimethyl Sulphide	$(CH_3)_2S$		0.000048	
Sulphur Dioxide	SO_2	6 – 20	0.1 - 3.0	0.5

SCHEDULE XV

EMISSION STANDARDS FOR DIESEL POWERED GENERATING SETS≤800KW

Engine Power (P)	*CO*	*HC*	*NOx*	*PM*	*Smoke Limit*
	g/kW-hr (kg/TJ)				*per meter(1 m)*
P d" 19 kW	5.0 (1,389)	1.3 (360)	9.2 (2,560)	0.6 (167)	0.7 (194)
19 kW < P d" 50 kW	5.0 (1,390)	1.3 (360)	9.2 (2,560)	0.5 (140)	0.7 (194)
50 kW < P d" 176 kW	3.5 (970)	1.3 (360)	9.2 (2,560)	0.3 (80)	0.7 (194)
176 kW < P d" 800 kW	3.5 (970)	1.3 (360)	9.2 (2,560)	0.3 (80)	0.7 (194)

SCHEDULE XVI

PERMISSIBLE EMISSION LEVELS FOR GENERATING SETS THAT RUN ON PETROL AND KEROSENE

Class	*Displacement (cc)*	*CO (g/kW-hr)[kg/TJ]*	*NOx+HC (g/kW-hr)[kg/TJ]*
1.	Up to 90	≤250 [≤7,000]	≤12 [≤3,300}
2.	>99 and up to 225	≤250 [≤7,000]	≤10 [≤2780]
3.	>225	≤250 [≤7,000]	≤8 [≤1,390]

Class 1 generating sets are those that have a displacement of up to 90 cc, class 2 generating sets are those having displacement between 99 and 225 cc, while class 3 refers to generators with a displacement of more than 225 cc.

Displacement is the combined swept volume of the pistons inside the cylinders of an engine. Displacement is an important factor, as it has a direct impact on an engine's power output, fuel efficiency, and in some countries, how a vehicle is taxed.

NOTE :

a- kW-hr = 3.6×10^{6} J or 3.6×10^{-6} TJ

b- 1 TJ = 10^{12} J

..c- 1 g/kW-hr = 278 kg/TJ

SCHEDULE XVII

PROHIBITION ORDER FOR POWER GENERATING SET (PETROL AND DIESEL)

1. Generator Registration No :.....
2. Engine No : .....
3. Date of Manufacture/Tier :.....
4. Date and Time of Emission Test :.....
5. Location : .....
6. Results : .....
7. Reference No. :.....
8. Date and Time of previous Emission Test : .....
9. Location : .....
   Results.....
   Reference No. : .....
10. In accordance with the provisions of sections 6, the above-named generator set is prohibited from operation effective from :

.....(time)	.....(date)

Name of Officer :.....

Designation : .....

Signature :.....

Date : ..... Stamp :.....

MADE at Abuja this 11th day of February, 2021.

Honourable Minister of Environment

EXPLANATORY NOTE

(This Note does not form part of these Regulations but is intended to explain its purport)

These Regulations provide for improved of the nation's air quality to enhance economic efficiency, sustainable development and the protection of human health, flora and fauna, and other resources affected by air quality deterioration.