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NATIONAL ENVIRONMENTAL STANDARDS AND REGULATIONS ENFORCEMENT AGENCY (ESTABLISHMENT) ACT, 2007

NATIONAL ENVIRONMENTAL (PULP AND PAPER, WOOD AND WOOD PRODUCTS SECTOR) REGULATIONS, 2013

ARRANGEMENT OF REGULATIONS

Regulation :

NATIONAL ENVIRONMENTAL (PULP AND PAPER, WOOD AND WOOD PRODUCTS SECTOR) REGULATIONS, 2013

[29*th October*, 2013] Commencement.

In exercise of the powers conferred on me by section 34 of the National Environmental Standards and Regulations Enforcement Agency (Establishment) Act, 2007, and all other powers enabling me in that behalf, I, ARC. DARIUS DICKSON ISHAKU, fnia, Honourable Minister of Environment hereby make the following Regulations—

PART 1—GENERAL PROVISIONS

Purpose.

1. These Regulations seek to prevent and minimize pollution from all operations and ancillary activities from this sector in the Nigerian Environment.

Environmental Governance.

2. A facility, body corporate or organization shall be given equal treatment in the inspection and enforcement of relevant laws.

Planning.

3.—(1) A facility shall submit to the Agency an :

(*a*) Environmental Impact Statement (EIS) arising from the Environmental Impact Assessment (EIA) for new projects or modification including expansion of existing ones before commencement of activity ;

(*b*) Environmental Audit Report (EAR) for existing industries every three years and Environmental Audits shall be conducted by external consultants accredited by NESREA ; and

(*c*) Environmental Management Plan (EMP) as contained in Schedule XIII to these Regulations.

(2) A facility, body corporate or organisation in this sector shall apply up-to-date, efficient 'cleaner production' technologies to minimize pollution to the barest degree practicable.

(3) Facility's emphasis on environmental planning shall be to prevent, reduce or eliminate pollutants at source and less emphasis shall only be placed on external hardware which are end-of-pipe mechanisms.

Precautionary Principle.

4. A facility, body corporate or organization shall ensure that precautionary principles for treated wood are carried out as prescribed in Schedule VII to these Regulations.

Emergency Response Plan.

5.—(1) A facility, body corporate or organization shall plan and set up measures to combat pollution hazards in the event of an emergency.

(2) A facility, body corporate or organization shall for the purposes of sub-regulation (1) of this regulation, have an emergency plan and a stock of pollution response equipment which shall be readily accessible and available to combat pollution hazards in the event of accidental discharges in line with Schedule XII to these Regulations.

(3) A facility, body corporate or organization shall put in place a functional Emergency Response Plan which shall describe measures to be taken to prevent any deposit of a deleterious substance out of the normal course of events or to mitigate the effects of such a deposit.

(4) The Emergency procedures mentioned under sub-regulation (3) of this regulation shall include such details as prescribed in Schedule XII to these Regulations.

(5) An updated emergency response plan shall be prepared not later than January 31st of each calendar year.

Pollution Abatement Equipment.

6.—(1) A facility, body corporate or organization shall install anti-pollution equipment for the detoxification of effluent, emissions and chemicals emanating from the facility to meet the prescribed effluent and emissions permissible limits.

(2) An installation made pursuant to sub-regulation (1) of this regulation shall be based on the best practicable environmental option, cleaner production and green technologies to reduce pollution to meet with the minimum national standards as may be certified by the Agency.

Polluter Pays Principle.

7.—(1) The Polluter-Pays-Principle shall apply to every facility that pollutes the environment in the course of their operations.

(2) The collection, treatment, transportation and final disposal of wastes shall be the responsibility of the facility generating the wastes within the specified standards and guidelines.

(3) In the event of an incidence resulting in an adverse impact on the environment whether socio-economic or health wise, the facility shall be responsible for :

(*a*) the cost of damage assessment ;

(*b*) damage control and clean–up ;

(*c*) remediation ; and

(*d*) reclamation or restoration.

Best Practices and Waste Minimisation.

8.—(1) A facility, body corporate or organization shall ensure the adoption of the 5Rs-Reduce, Reuse, Recover, Repair and Recycle, in the management of waste generated in the course of production.

(2) A facility, body corporate or organisation shall implement programmes on best practices as prescribed in Schedule IV to these Regulations or assign the responsibility for pollution control to a person or body corporate accredited by the Agency.

(3) Pollution prevention programmes shall focus on reduction of use of water and more efficient use of process chemicals.

(4) All recyclables, damaged and disused packaging materials including but not limited to plastics, paper, wood shall be recycled.

(5) A facility shall ensure that no employee is exposed to any hazardous condition in the work place without awareness.

(6) A facility shall adopt systems for collection and recycling of temporary and accidental discharges from process water spills.

(7) A facility shall ensure sufficient and balanced volumes of pulp storage, broke storage and white water storage tanks to avoid or reduce process water discharges.

(8) A facility shall ensure that contaminated storm water is combined with process effluent for treatment.

9. A facility, body corporate or organization shall ensure the adoption of integrated waste management practices and waste disposal in an environmentally sound manner as prescribed in Schedule VI to these Regulations. Waste Utilisation and Disposal.

10. A facility, body corporate or organization shall control particulate matter emissions as prescribed in Schedule VIII to these Regulations. Pollution Prevention and Control Techniques.

11. A facility, body corporate or organisation shall prepare a voluntary action programme for mitigation and adaptation, and such measures shall take into account energy-saving and Best Available Technology (BAT) in their production processes. Global Warming Control.

12. A facility, body corporate or organisation shall control Volatile Organic Compounds (VOCs) as prescribed in Schedule X to these Regulations. Volatile Organic Compounds.

13.—(1) A facility, body corporate or organization shall put in place organizational system for pollution control and shall assign Environmental Pollution Control and Prevention duties to Environmental Managers as prescribed in the Schedule XVI to these Regulations. Pollution Control Organisational System.

(2) Capacity building workshops including courses on pollution prevention, control and assessments shall be conducted to assist Environmental Managers to obtain certification by the Agency as prescribed in Schedule XVI to these Regulations.

14.—(1) A facility, body corporate or organization shall ensure that : Wood and Wood Product Handling and Processing.

(*a*) wood logs are stacked in an environment-friendly manner ;

(*b*) equipment used to manufacture wood products are designed or fitted with protective devices for effective guarding or screening to protect workers from flying chips, debris or hazards in the event of failure of

equipment or component ;

(*c*) every log-haul has at least one walkway fitted with handrails and sufficient weight to enable workers to stand clear of logs in the log haul, unless clearly impracticable ; and

(*d*) the height of any excavated or stable face of a chip, hog fuel or sawdust pile does not exceed the safe reach of the mobile equipment being used to handle the material.

Occupational Risk Control and Safety Measures.

15. A facility, body corporate or organization shall ensure that the guidelines in Schedule IX to these Regulations and the following are adhered to :

(*a*) process controls, including automatic digester capping valves, local exhaust at batch digesters are provided to prevent gas leakages from negative pressure in recovery boilers, sulphite, sulphur dioxide and acid towers ;

(*b*) gas monitors with alarms are installed where leakages or generation of hazardous gases may occur ;

(*c*) contaminated clothing with sodium chlorate spills are kept wet until laundered ;

(*d*) non-skid walking surfaces that allow drainage and quick clean up of spills are used ;

(*e*) conveyor drums, drive belts, pulleys, circular saws , rotator debarkers, rollers on paper machines and shredder feed rolls are fitted with safety guards or interlocks capable of preventing access to moving parts ;

(*f*) compressed air is not used in clearing wood dust and waste paper ;

(*g*) equipment are shut down and locked out before maintenance, cleaning or repairs are undertaken ; and

(*h*) all mills and plants are equipped with adequate and accessible fire fighting equipment including automatic sprinkler systems for mills operating in buildings that are more than three floors and to ensure periodic medical checkup for all workers twice yearly.

Extended Producer Responsibility Programme.

16.—(1) A manufacturer or importer shall subscribe to an Extended Producer Responsibility Programme as prescribed in Schedule XIV to these Regulations.

(2) The Agency shall work with the sector to achieve the Extended Producer Responsibility Program within a period of three years from the commencement of these Regulations.

Chemical Usage.

17.—(1) A facility, body corporate or organization shall submit, on a quarterly basis to the nearest office of the Agency the following information :

(*a*) list of chemicals used in the manufacture of its products including Material Safety Data Sheet (MSDS) ;

(*b*) details of stored chemicals and storage conditions ;

(*c*) list of obsolete, expired or abandoned chemicals and the proposed plan for their environmentally sound management ;

(*d*) the local sources of listed precursor chemicals utilized ; and

(*e*) the sources of listed precursor chemicals imported by the facility, organization or body corporate.

(2) A facility, body corporate or organization shall ensure the :

(*a*) minimization of the use of organic solvents ; and

(*b*) use of ozone depleting substances which shall be controlled in accordance with the provisions of the National Environmental (Ozone Layer Protection) Regulations, 2009.

(3) A facility, body corporate or organization shall ensure :

(*a*) the elimination or decrease in the formation of dioxins and furans in wood and non-wood bleaching processes ;

(*b*) the removal of hexenuronic acids by mild hydrolysis for hardwood pulp ;

(*c*) the collection and recycling of spent cooking liquor spills ;

(*d*) the neutralization of spent cooking liquor before evaporation and reuse of condensates in order to reduce dissolved organics ;

(*e*) chemical recovery in sulphite as well as Kraft mills ; and

(*f*) that current database of all chemicals used and manufactured in the mill are maintained.

Restricted Chemicals.

18. Use of restricted chemicals listed under Schedule XI to these Regulations shall be with a permit from the Agency.

Ink Usage.

19. A facility, body corporate or organisation shall ensure :

(*a*) the use of non-hazardous chemical-based ink ; and

(*b*) that Extended Producer Responsibility applies to the manufacturing, importation and distribution of the ink.

Ink Waste Reduction Alternatives and Disposal.

20 A facility, body corporate or organization shall ensure that :

(*a*) best environmental practices for ink waste reduction alternatives are as prescribed in Schedule V to these Regulations ; and

(*b*) ink waste, hazardous and non-hazardous, are recycled or disposed off in an environmentally sound manner, in strict compliance with these Regulations.

Management of Chemicals, Oil Station and Fuel Dumpsite.

21. A facility, body corporate or organisation shall :

(*a*) ensure that there is no contamination arising from leakage of surface or underground oil, fuel or chemicals storage tank likely to cause pollution of the environment including surface and ground water ;

(*b*) have an impermeable base for all ancillary equipment and provide an appropriate bund wall in the event of any unanticipated discharge or spillage ; and

(*c*) install underground tanks and fuel dumps with leak detection equipment and shall regularly inspect for leakages to prevent seepage into ground water.

Community Relations.

22. A facility shall have a sustainable community relations programme as part of demonstration of compliance with corporate social responsibility.

Effluent Limitation Standards.

23. —(1) The National Environmental Standards in relation to effluent limitation for the Pulp and Paper Sector shall be as prescribed in Schedule I to these Regulations ;

(2) An effluent shall be deemed to be polluted where :

(*a*) the concentration of any of its parameters exceeds the permissible limits in Schedule I to these Regulations ; and

(*b*) it is discharged from a facility without appropriate pre-treatment.

(3) The effluent described under sub-regulation (2) of this regulation shall not be discharged from a facility, without pre-treatment to National Standards as prescribed in Schedule I to these Regulations.

Restriction on the Release of Toxic Effluent.

24.—(1) A facility, body corporate or organization shall not discharge effluent onto land, into a watercourse or water body unless the facility ensures that the parameters of the effluent do not exceed the permissible limits as prescribed in Schedule I to these Regulations.

(2) Notwithstanding the provision of sub-regulation (1) of this regulation, any facility, body corporate or organization using an influent, in which the concentration of each of the parameters exceeds the permissible limit as prescribed in schedule I to these Regulations, shall ensure that the concentration or value of the parameters of the effluent conforms to the prescribed standards.

(3) Disposal of hazardous waste on water or land without prior treatment is prohibited.

Effluent Treatment.

25.—(1) A facility, body corporate or organization that discharges effluent into the environment shall treat the effluent to the permissible limits as prescribed in Schedule I to these Regulations.

(2) A facility, body corporate or organization shall :

(*a*) carry out effective treatment, at the time the plant is operating ;

(*b*) ensure that Environmentally Sound Management (ESM) of sludge or residuals containing heavy metals or other toxic materials are disposed in a designated disposal site or landfill by the appropriate Regulatory Authority ;

(*c*) ensure the treatment and disposal of toxic organics contained in both effluent and sludge as approved by the Agency ;

(*d*) ensure that effluent is not diluted to achieve the standards contained in Schedule I to these Regulations ; and

(*e*) ensure that wastes containing toxic organics are treated with Best Available Technology (BAT) and Best Environmental Practices (BEP).

Sludge Disposal.

26.—(1) A facility, body corporate or organization shall not discharge sludge directly into any water body and any discharge to any part of the environment is prohibited except under a sludge disposal license.

(2) Sludge disposed onto land shall be classified and none of its components shall exceed the prescribed limit in Schedule II to these Regulations.

(3) Any other sludge besides purely domestic organic and purely agricultural organic shall be treated as hazardous waste to be treated and disposed in a secure landfill.

Emission Standards

27. A facility, body corporate or organization shall comply with the Emission Standards as prescribed in schedule III to these Regulations.

Priority Air Pollutants.

28.—(1) A facility, body corporate or organisation with potential source of emission shall measure the emission of every priority air pollutant, develop and implement a plan to control such emission in accordance with the standard prescribed in Schedule III to these Regulations.

(2) A facility, body corporate or organisation shall be required to report the emission data, sources of emissions and undertake emission reduction in accordance with the implementation plan which shall be reviewed every three years by the Agency.

(3) A facility, body corporate or organisation shall ensure that, it measures the odour detection threshold and the odorous dilution ratio of the working environment.

(4) A facility, body corporate or organization shall adopt dilution method of testing odours such as the American Society for Testing Materials (ASTM) or any other method as may be specified by the Agency to safeguard the health of the workers.

Burning of Fuels.

29.—(1) A facility, body corporate or organisation shall not burn light fuel containing over 0.5 percent sulphur by weight as fired in an existing source or in a new source.

(2) A facility, body corporate or organisation shall not burn medium oil fuel containing over 1.1 percent sulphur by weight as fired.

(3) Notwithstanding the provisions of sub-regulation (1) of this regulation, heavy fuel oil with not more than 3 percent sulphur may be burnt at a new or existing facility with new fuel combustion sources or a combination of new and existing fuel combustion sources where :

(*a*) one or more of such sources operate in a manner that sulphur dioxide is absorbed by coming into contact with the product or with scrubbing device or other material ; and

(*b*) the total sulphur dioxide emission from the entire facility is less than the allowable sulphur dioxide emission.

Abatement Technology and Treatment.

30.—(1) A facility, body corporate or organisation that discharges gaseous emissions shall reduce emissions to the permissible level as prescribed in Schedule III to these Regulations using appropriate reduction technologies as listed in Schedule XX to these Regulations.

(2) Reduction can be achieved through minimizing the release of significant pollutants to the air by adopting the measures in Schedule XX to these Regulations.

Air Quality Control Permit

31.—(1) A facility, body corporate or organisation with activities connected with those listed in Schedule XV to these Regulations shall require an atmospheric emission permit from the Agency before operation.

(2) The Agency shall notify the operators of any of the following amendments :

(*a*) additions to the list of activities in Schedule XV to these Regulations ;

(*b*) removal of any activity from the list ; or

(*c*) changes to particulars on the list.

Noise Standards.

32. A facility, body corporate or organization shall evaluate its installations and ensure that routine controls are sufficient to prevent risks of noise pollution from pulp and paper processing and production.

Noise Abatement.

33. Noise abatement measures should be in place to achieve the levels prescribed in the National Environmental (Noise Standards Control) Regulations, 2009.

Hearing Conservation Programme.

34.—(1) A facility, body corporate or organization shall administer a continuing, effective hearing conservation programme, whenever employee noise exposures equal or exceed an 8-hour Time-Weighted Average sound

level (TWA) of 90 decibels (dB) measured on the A scale (slow response) or, equivalent to a dose of 80 as stipulated by Occupational Safety and Health Act (OSHA 18001) as in Schedule XIX to these Regulations.

(2) For purpose of hearing conservation programme, employee noise exposure shall be computed, regardless of the provision and the use of Personal Protective Equipment.

(3) An 8-hour time weighted average of 90 dB shall be referred to as the action level.

Noise Monitoring.

35. A change in production process shall be communicated to the Agency and monitoring shall be repeated whenever a change in production process, equipment or control increases noise exposures to the extent that :

(*i*) additional employees may be subjected to risk at the action level ; or

(*ii*) the attenuation provided by hearing protectors being used by employees may be rendered inadequate to meet requirements of regulation 34(1) of these Regulations.

Part II—Sampling Procedures

Collection and Analysis of Samples.

36. A facility, body corporate or organisation shall examine samples according to the Standard Operating Procedures (SOP) as developed by the Agency.

Spot Sampling for Physical or Chemical Parameters.

37. A spot sample for the purpose of analysis for all the tests including oil and grease, dissolved oxygen, pH, chlorine and sulphide shall be taken as follows :

(*a*) the whole sample volume is to be taken at one time, at the point of discharge or, where the discharge has stopped, at the nearest practicable point within zero to one kilometre upstream and downstream of point of discharge ; and

(*b*) the sample shall be analysed immediately after collection where possible but not later than 24 hours after taking the sample and the whole sample volume shall be used.

Composite Sampling for Physical or Chemical Parameters.

38. A composite sample for the purpose of analysis for all tests other than those for temperature and pH shall be taken by combining individual samples as follows :

(*a*) a minimum of five samples of equal volume of not less than 500 ml each shall be taken at the point of discharge or, where the discharge has stopped, at the nearest practicable point within zero to one kilometre upstream and downstream of the point of discharge, at approximately equal intervals of time over a minimum period of four (4) hours within any 24 hour period ;

(*b*) two of the composite samples collected when the discharge has been stopped, will be used to prove the source and extent of pollution ;

(*c*) the samples shall be kept as cool as at site ambient conditions and sample analysis shall commence not later than 24 hours after taking the last sample ; and

(*d*) where the discharge has stopped or is intermittent, two grab samples shall be collected at the nearest practicable point within zero to one kilometre upstream and downstream each of the point of discharge.

Sampling for License Classification.

39. The whole volume of sample for spot and further laboratory analysis shall be taken at one time at the point of discharge.

Sampling for other Parameters.

40. Where full laboratory facilities do not exist on the site, the oxygen in the sample may be "fixed" at the time of sampling by adding any of the following reagents; alkaline azide, sulphuric acid, permanganate, oxalate, manganese sulphate and alkaline iodide or any other approved scientific method, provided that the :

(*a*) stopper of the sample container shall be replaced and the solution shall be well mixed ; and

(*b*) remaining steps shall be carried out later in the laboratory.

Sampling for Microbiological Analysis.

41.—(1) When a number of samples for different purposes are to be taken from the same sampling point, the following precautions are to be observed :

(*a*) the sample for bacteriological examination shall be collected first unless special investigations are necessary ;

(*b*) samples for bacteriologcal examination shall be kept strictly separate from all others to avoid contamination ; and

(*c*) boxes for the transportation of samples shall be made of materials that can be disinfected regularly, and they shall not be used for carrying anything other than samples of water for bacteriological examination.

(2) Sterile bottles used exclusively for bacteriological purposes that are fit for immediate use shall be provided by the laboratory performing the examination.

(3) Officers must ensure that the volume of each sample is at least 500ml and one sample at least is taken at each sampling point.

Air Sampling for Analysis.

42. Measurements of air quality parameters shall take place at a facility, downwind and upwind.

(2) Measurement of total suspended particulate shall be by gravimetric method using air sampler as follows :

(*a*) a three sampling period (morning 8-10 am, afternoon 12-2pm and evening 4-6pm) shall be adopted ; and

(*b*) the heavy metals level of total suspended particulate shall be determined using any referenced standard method.

(3) Gaseous pollutants shall be measured by any of the following or as may be approved by the Agency :

(*a*) passive sampling method shall require the submission of analysis certificate along with results and a minimum of three sampling periods (1-hour, 24-hour and 30-days) shall be adopted as appropriate ;

(*b*) active sampling for NO_x shall use the Saltzman or any other standard method ;

(*c*) active sampling for SO_x shall use the West-Gaeke, hydrogen peroxide, conductimetry or any other standard method ;

(*d*) active sampling for hydrocarbons shall use the adsorption on activated charcoal method ; or

(*e*) continuous sampling of any gaseous air pollutant shall use instrument with detection range accommodating the maximum allowable limit of measured parameter and the measurement shall last for at least 1 hour in every sampling location.

Noise Measurements.

43.—(1) Noise levels shall be measured with instrument having both A and C weighting, a resolution not more than 0.1 dB and fast or slow responses.

(2) Measurement shall be taken at least 3m from any barrier or other sound reflecting sources, at about 1.2-1.5m above ground level or working platform and shall last for at least 10 seconds and daytime (06:00-18:00) and night time (18:00-06:00) measurements shall be taken at the fence line of any facility.

Part III—Permits

Procedures for Licensing and Permit.

44. Procedures for application for issuing of permit and revocation of such permit where they have already been issued shall be as contained in the National Environmental (Permitting and Licensing System) Regulations, 2009.

Part IV—Industrial Effluent and Air Quality Monitoring and Reporting

Reporting Requirements.

45.—(1) A permit holder, subject to categorical standards shall comply with reporting requirements under the Agency's permit including incidence report and monthly Effluent and Emission Data Sheet to the Agency's field offices.

(2) A permit holder shall submit to the Agency quarterly, a description of the nature, concentration and flow of all pollutants in the Monthly Effluent Data Sheet.

(3) A report shall be based on sampling analysis performed in the period covered by the report and all the reports shall be in compliance with the format as prescribed in Schedule XVII to these Regulations.

(4) A permit holder shall report all sample results for parameters listed on the Monitoring Requirement, on the Industrial/Commercial Effluent/Emission and Discharge Monitoring Report Forms as prescribed in Schedule XVIII to these Regulations.

(5) A permit holder shall install monitoring equipment to facilitate accurate observation, sampling and measurement of the quality of effluent discharges as required by the permit and such equipment shall be in working order and accessible to all authorized officials at all times.

(6) A Permit holder discharging or proposing to discharge effluent to a general sewer or treatment plant shall maintain the following :

(*a*) records of production ;

(*b*) water consumption and discharge flow records ;

(*c*) complete monitoring records as specified in these Regulations ;

(*d*) process monitoring records ;

(*e*) incident reports ;

(*f*) waste handling records ; and

(*g*) any other records necessary to demonstrate compliance with these Regulations.

(7) A permit holder shall be required to file reports with the Agency for explanation where the holder :

(*a*) commits a serious violation or fails to submit a completed Monthly Effluent Data Sheet ;

(*b*) exceeds an effluent limitation for the same pollutant at the same discharge point source by any amount for four out of six consecutive months ; and

(*c*) has any discharge that could cause problems to the environment including any sludge loadings.

Authorized Signatory.

46.—(1) A permit holder shall sign the report and attach a copy of the certificate of analysis from the Agency's accredited laboratory.

(2) A report shall be signed by the appropriate officer and all reports shall include the following certification statement :

"*I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gathered and evaluated the information submitted. This information submitted is, to the best of my knowledge and belief, true, accurate, and complete*".

Monitoring Records.

47. A record shall be made available to the Agency, and shall be retained for a minimum of ten years and throughout the course of any pertinent litigation thereafter.

Fees.

48.—(1)The Agency shall adopt charges and fees that shall include :

(*a*) fees for processing application for permit ;

(*b*) fees for reviewing accidental discharges, prevention procedures and construction ; and

(*c*) other fees as the Agency may deem necessary to carry out the requirements contained in these Regulations, which may include emergency incident response and cost of personnel and equipment.

(2) The fees in sub-regulation (1) of this regulation relate solely to the matters covered by these Regulations and are separate from all other fees chargeable by the Agency.

Confidential Information and Public Access to Records.

49. Without prejudice to any extant law, public access to records shall be governed by the Act and effluent constituents, and characteristics shall not be recognized as confidential information to the Agency.

Part V—Enforcement

Enforcement Notices.

50.—(1) An enforcement notice shall be served on an operator where the Agency is of the opinion that the operator has contravened, is contravening or is likely to contravene a condition of the permit.

(2) An enforcement notice shall specify the :

(*a*) matters constituting the contravention or the matters making it likely that the contravention will arise, as the case may be ;

(*b*) steps that must be taken to remedy the contravention or to remedy the matters making it likely that the contravention will arise, as the case may be ; and

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

(3) Sub-regulation 2 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.

Enforcement Notice Reminder.

51.—(1) Any Operator who fails to comply with the terms of the enforcement notice issued pursuant to regulation 50 of these Regulations shall attract the service of a second notice.

(2) Failure to comply with the second notice in sub-regulation (1) of this regulation within the specified time limit will lead to the issuance of a suspension notice or any other punitive action as may be necessary.

Mode of Delivery.

52. Mode of delivery of the enforcement notice shall be by hand, registered post or courier, electronic transmission, or pasted at the facility or registered premises of the organization.

Suspension of Permits.

53.—(1) Where a suspension notice is served under these Regulations the permit shall upon the service of such notice, cease to have effect as stated in the notice.

(2) The Agency may withdraw a suspension notice after verifying that the Operator has complied with these Regulations.

Equity.

54. Every facility shall be given equal treatment as far as inspection and enforcement of relevant laws are concerned.

PART VI—OFFENCES

Permit Conditions.

55.—(1) A facility, body corporate or organization, contravenes a permit condition where it fails to comply with :

(*a*) the conditions of a permit ;

(*b*) the requirements of an enforcement notice, or a closure notice under these Regulations ; and

(*c*) any requirement imposed by a notice served by the Agency.

False Statement.

56.—(1) A facility, body corporate or organization contavenes the provisions of these Regulations where it makes a statement which is known to be false or misleading particularly, where the statement is :

(*a*) in purported compliance with a requirement to furnish an information imposed by or under any provision of these Regulations ;

(*b*) for the purpose of obtaining a permit for the facility for variation, transfer or surrender of a permit ;

(*c*) to intentionally make a false entry in any record pertaining to the permit ;

(*d*) with the intent to deceive, forge or use a document issued or authorized to be issued under a condition of the permit ; and

(*e*) made or a document is circulated to deceive and mislead the Agency.

Failure to Comply with Abatement Measures.

57. A facility, body corporate or organization contravenes the abatement measures under these Regulations where it fails to :

(*a*) take appropriate measures to remove or otherwise treat and dispose of any effluent to minimize adverse effects ;

(*b*) take measures required by the Agency after unauthorized release of effluent ;

(*c*) remediate the environment to the standard prescribed by the Agency ;

(*d*) furnish all information to the inspector ;

(*e*) remove equipment or contain materials causing release into the environment when requested by the inspector ;

(*f*) produce a document when requested by the inspector ;

(g) comply with guidelines with respect to the handling, storage and transporting of any hazardous material(s) ; and

(*h*) ensure the use of Personal Protective Equipment (PPE) while handling, storing, treating or disposing of wastes.

(2) A facility, body corporate or organization contravenes the abatements measures where it :

(*a*) handles effluent in a manner which causes adverse effect to the environment ;

(*b*) disposes of industrial or factory effluent treated with pesticides contrary to these Regulations ;

(*c*) knowingly obstructs the inspectors from performing their duties ;

(*d*) dismisses, suspends or imposes penalty on an employee who reports a contravention of these Regulations ;

(*e*) transports effluent and sludge not completely enclosed, secured or covered by a manifest ; and

(*f*) transports effluent and sludge in bulk without prior authorization from the Agency.

Failure to Report.

58. A facility, body corporate or organization contravenes these Regulations where it fails to :

(*a*) maintain records of all discharges ;

(*b*) file quarterly and annual reports of all discharges ;

(*c*) submit record of receipt of or removal of effluent and sludge within the time frame prescribed by these Regulations ; and

(*d*) submit an atmospheric pollution prevention plan or air quality impact report arising from its operations.

Discharge of Effluent beyond Permissible Levels.

59. A facility, body corporate or organization contravenes these Regulations where it :

(*a*) releases effluent and sludge into the environment in excess of permissible level in these Regulations;

(*b*) fails to report release of effluent and sludge into the environment in excess of the permissible level as prescribed in Schedules I and II to these Regulations ; and

(*c*) fails to take reasonable measures to prevent, reduce or remedy the adverse effect of effluent, sludge and emissions into the environment.

Operating without Permit.

60. A facility, body corporate or organisation contravenes these Regulations where it engages in the operation of any of the activities listed under regulation 59 of these Regulations without a permit from the Agency.

Part VII—Offences and Penalties

Offences and Penalties.

61.—(1) Any person who violates any of the provisions of regulations 55 to 60 of these Regulations commits an offence and shall on conviction, be liable to a fine not less than ₦200,000 or to imprisonment for a term not less than six months or to both such fine and imprisonment and an additional fine of ₦5,000 for every day the offence subsists.

(2) Where an offence under the provisions of regulations 55 to 60 is committed by a body corporate, it shall on conviction, be liable to a fine not less than ₦1,000,000 and an additional fine of ₦50,000 for every day the offence subsists.

(3) Notwithstanding the provisions of these Regulations, the Agency shall have power to enter and seal any facility contravening any of the provisions of these Regulations.

Part VIII—Interpretations

Interpretation.

62. In these Regulations unless the context otherwise requires :

"*Act*" means the National Environmental Standards and Regulations Enforcement Agency (Establishment) Act 2007 ;

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

"*BAT*" (*Best Available Technology*) means an emission limitation based on the maximum degree of emission reduction which (consisting energy, environmental and economic impact and other costs) is achievable through application of production processes and available methods, systems, and techniques ;

"*BEP*" (*Best Environmental Practices*) means actions carried out to mitigate environmental impact of a facility ;

"*Bleaching*" means any process that chemically alters pulp to increase its brightness ;

"*BPT*" (*Best Practicable Technology*) means non-conventional standard based on cost, environmental and engineering factors ;

"*broke*" means any formed paper during the papermaking process (from the beginning of the paper making to the finished product) that has never been shipped to the customer ;

"*CTMP*" (*Chemi-thermo-mechanical Pulping*) means the process of reducing wood chips into pulp in mechanical disk refiners, usually after pretreament of chips with steam or chemical solutions ;

"*composite sample*" means representative mixture of several different samples (usually bulk sample) ;

"*de-inking*" means processes used to remove ink to make the pulp brighter and cleaner ;

"*designated officer*" means a person who has been appointed by the Agency to be responsible for processing applications with respect to activities designated under these regulations, and includes an acting officer ;

"*deleterious substance*" the following classes of substances from a mill are prescribed as deleterious substances :

(*a*) acutely lethal effluent ;

(*b*) BOD matter ; and

(*c*) suspended solids ;

"*Director General/Chief Executive Officer (DG/CEO)*" means the Director General of the National Environmental Standards and Regulations Enforcement Agency (NESREA) ;

"*effluent*" means waste water (treated or untreated) that flows out of a treatment plant, sewer, or industrial outfall resulting from commercial or industrial use of water generally refers to wastes discharged into surface waters ;

"*Environmental Impact Assessment*" (*EIA*) means the process of identifying, predicting, evaluating and mitigating the biophysical, social and other relevant effects of development projects prior to major decisions being taken and commitments made ;

"*emission*" means the direct or indirect release of substances, vibrations, heat or noise from individual or diffuse sources in a facility into the air, water or land ;

"*emission limit*" means the mass, expressed in terms of specific parameters, concentration or level of an emission, which may not be exceeded during one or more periods of time ;

"*expansion*" means an increase in size, volume or other physical dimensions of an activity such that the increase may cause an adverse effect if not properly mitigated ;

"*facility*" means Pulp and Paper, Wood and Wood Products Sectoral Group.

"*flow weighted sample*" means a composite sample consisting of a mixture of aliquots collected at a constant time interval where the volume of each aliquot is proportional to the rate of flow ;

"*grab sample*" means a single sample or measurement taken at a specific time or over a short period of time as feasible ;

"*hazardous waste*" means solid waste that exhibits one or more of the following characteristics :

(*i*) ignitable,

(*ii*) corrosive,

(*iii*) reactive,

(*iv*) toxic ;

"*influent water*" means either processed waste water or raw water from a river, stream, spring or canal, or water abstracted from underground and used by a facility ;

"*inspection officer or inspector*" means a provincial officer who has the legal authority to enter a facility to conduct an inspection under environmental legislation (Acts), guidelines and regulations ;

"*kraft*" means thick brown paper made from chemically treated wood pulp ;

"*Minister*" means the Minister responsible for matters of Environment, the appropriate government structure operating at that time ;

"*modification*" mean a change in any activity that may cause an adverse effect if not properly mitigated and includes, but not limited to, the expansion of the same process, addition of product lines and replacement of equipment with different technology other than that presently in use ;

"*other facility wastewater*" means effluent originating from the washing and general maintenance of a facility ;

"*particle board*" means a type of pressed wood made up of wood particles (wood chips, shavings and sawdust) and synthetic resin ;

"*permit*" means an official document, authorization, license, or equivalent control document issued by the Agency to implement the requirements of these Regulations to discharge effluent especially for a limited period of time ;

"*permitee*" means a person authorised by a permit to carry out a specific function ;

"*person*" means natural or juristic personality (including facility) ;

"*printing and publishing*" mean a group of facility encompassing these three sub-sectors: newspapers and periodicals; books and pamphlets; and commercial and job printing and other allied industries ;

"*process*" means an activity undertaken by industries to detoxify effluent or emission ;

"*pulp*" means processed cellulose fibres that are derived from wood, other plant material or recycled paper products ;

"*responsible corporate officer*" means Chief Executive, or Managing Director, or Chairman, of the corporation in charge of a principal business function, or any designated person who performs similar policy or decision making functions for the corporation ;

"*sample*" means a small part of something intended as a representative of the whole ;

"*sludge*" means liquid or solid sediments including other residue from a municipal sewage collection, treatment system and liquid or solid, other septic

from septic or holding tank pumping from commercial, industrial or residual establishments ;

"*SOP*" means Standard Operating Procedure developed by the Agency for chemical analysis ;

"*sulphite paper*" means thick white paper made from chemically treated wood pulp ;

"*time weighted sample*" means a composite sample consisting of equal volume aliquot collected at a constant time interval ;

"*water bodies*" means underground water, river, stream, spring, canal, reservoir, well, lake, lagoon, ocean etc ;

"*water efficient device*' means any device that minimizes the use of water in the production process ;

"*wastewater system*" :

(*a*) a sewer, conduit, pump, engine or other appliance used or intended to be used for the reception, conveyance, removal, treatment and disposal of effluent ; and

(*b*) does not include house sewers ;

"*watercourse*" means any natural or artificial channel, pipe or conduit, excluding the sewerage system, carrying, or that may carry, and discharging water directly or indirectly into a water body ; and

"*white water*" means water generated from compressed pulp.

63. These Regulations may be cited as the National Environmental (Pulp and Paper, Wood and Wood Products Sector) Regulations, 2013. Citation.

SCHEDULE I

Regulations 23(1), (2)(*a*), (3) ; 24 (1), (2); 25 (1), (2)(*d*) ; 59(*b*)

TABLE A

EFFLUENT LIMITATION FOR (PULP, PAPER AND PAPER PRODUCTS, PRINTING AND PUBLISHING SECTORAL GROUP)

Parameter	*Unit*	*Value*				
		Bleached Kraft	*Unbleached Kraft*	*Sulphite*	*CTMP*	*Mechanical Pulping*
Flow[a]	m^3/ADt	50	25	55[d]	20	20
pH		6-9	6-9	6-9	6-9	6-9
TSS	kg/ADt	1.5	1.0	2.0	1.0	0.5
COD	kg/ADt	20	10	30[c]	5	5.0
BOD_5	kg/ADt	1	0.7	2.0	1.0	0.5
AOX	kg/ADt	0.25		0.005		0.01
Total N	kg/ADt	0.2[b]	0.2	0.5	0.2	0.1
Total P	kg/ADt	0.03	0.02	0.05	0.01	0.01

TABLE B

EFFLUENT LIMITATION FOR (PULP, PAPER AND PAPER PRODUCTS, PRINTING AND PUBLISHING SECTORAL GROUP)

Parameter	*Unit*	*Value*						
		Recycled Fibre without de-inking	*Recycled Fibre with de-inking*	*Recycled Fibre Tissue Mills*	*Uncoated Paper*	*Coated Paper*	*Tissue Mills*	*Fiber Preparation, Nonwood*
Flow[a]	m^3/ADt	10	15	25	15	15	25k	50
pH		6-9	6-9	6-9	6-9	6-9	6-9	6-9
TSS	kg/ADt	0.15	0.3	0.4	0.4	0.4	0.4	2.0
COD	kg/ADt	1.5	4.0	4.0	2.0	1.5	1.5	30
BOD_5	kg/ADt	0.15	0.2	0.5	0.25	0.25	0.4	2.0
AOX	kg/ADt	0.005	0.005	0.005	0.005	0.005	0.01	
Total N	kg/ADt	0.05	0.1	0.25	0.2	0.2	0.25	0.5
Total P	kg/ADt	0.005	0.01	0.015	0.01	0.01	0.015	0.05

Kg/ADt- Kilograms of pollutant per 1,000kg of air dry pulp.

(*a*) Cooling water and other clean water are discharged separately and are not included.

(*b*) Any nitrogen discharge associated with the use of complexing agents should be added to the figure of tot-N.

(*c*) Because of higher kappa number after cooking for magnefite process the BAT associated level is 35kg COD/ADt.

(*d*) Does not include process water from the paper mill in integrated sulfite pulp mills.

TSS - Total Suspended Solids
COD - Chemical Oxygen Demand
BOD - Biochemical Oxygen Demand
AOX - Adsorbable Organic Halides
Sources of Information

TABLE C—EFFLUENT LIMITATION FOR WOOD TREATMENT AND PRESERVATION

Parameter	Unit	Value
Flow[a]	m^3/Adt	20
pH	S.U	6-9
TSS	mg/l	50
COD	mg/l	150
BOD_5	mg/l	50
Oil and Grease	mg/	10
Phenol	mg/l	0.5
Arsenic	mg/l	0.1
Chromuim -Total -Hexavalent	mg/l	 0.5 0.1
Copper	mg/l	0.5
Fluorides	mg/l	5
PAHs (each)	mg/l	0.05
Dioxins/Furans	mg/l	0.1
Pesticides (each)	mg/l	0.05
Toxicity	To be determined on a case specific basis	
Temperature	°C	<3[b]

Notes :

(*a*) Process waste water containing chemical preservatives should be contained as part of a closed loop application system.

(*b*) At the edge of a scientifically established mixing zone which takes into account ambient water quality, receiving water use, potential receptors and assimilative capacity.

PAHs- Polycyclic Aromatic Hydrocarbons.

TABLE D—EFFLUENT LIMITATION FOR BOARD AND PARTICLE BASED PRODUCTS

Parameters	Units	Value
pH		6-9
BOD_5	mg/l	50
COD	mg/l	150
TSS	mg/l	50
Formaldehyde	mg/l	10
Temperature	°C	<3[a]

(*a*) At the edge of a scientifically established mixing zone which takes into account ambient water quality, receiving water use, potential receptors and assimilative capacity.

SCHEDULE II

Regulations 26(2) ; 59(*b*)

SLUDGE DISPOSAL PERMISSIBLE LIMIT

DRY SLUDGE GENERATION FROM WASTEWATER TREATMENT	
Parameters	Sludge Production Kg DS/tonne
Sludge (total)	200
Primary Treatment	
Mixing- sedimentation	80
Mixing-Chemical treatment+ sedimentation	150-200
Mixing chemical treatment+ Flotation	150-200

SCHEDULE III

Regulations 27, 28(1), 20(1)

GASEOUS EMISSION

Industry-specific pollutants that may be emitted from point or fugitive sources during routine operations consist of numerous organic and inorganic compounds, including Sulphur Oxides (SO_x), Nitrogen Oxides (NO_x), Ammonia (NH_3), dioxins and furans, formaldehyde, and other volatile organic compounds (VOCs)

TABLE A—AIR EMISSION LIMITATIONS FOR (PULP AND PAPER FACILITY)

Table 2 - Emission for Pulp and Paper Facility			
Parameter	Type of mill	Unit	Value
TSP	Kraft, bleached	Kg/ADt	0.5
	Kraft, Unbleached-Integrated	kg/ADt	0.5
	Sulfite, integrated and Non-integrated	kg/ADt	0.15
SO_x as SO_2	Kraft, bleached	kg/ADt	0.4
	Kraft, Unbleached-Integrated	kg/ADt	0.4
	Sulfite, integrated and Non-integrated	kg/ADt	1.0
NO_x as NO_2	Kraft, bleached	kg/ADt	1.5 for hardwood Pulp 2.0 for softwood Pulp
	Kraft, Unbleached-Integrated	kg/ADt	1.5 for hardwood Pulp 2.0 for softwood Pulp
	Sulfite, integrated and Non-integrated		kg/ADt 2.0
TRS as S	Kraft, bleached	kg/ADt	0.2
	Kraft,Unbleached-Integrated	kg/ADt	0.2

TSP - Total Suspended Particulate
SO_2 - Sulfur dioxide
S - Sulfur
NO_2 - Nitrogen dioxide
N - Nitrogen

TRS - Total Reduced Sulfur compounds
Kg/ADt- Kilogram of pollutant per 1,000kg of air dry pulp

TABLE B—AIR EMISSION LIMITATION FOR SAW MILL FACILITIES

Parameters	Unit	Value
Wood dust	mg/Nm^3	50
VOCs	mg/Nm^3	20

mg/Nm^3 milligram per Nanometer cube

TABLE C—AIR EMISSION LIMITATION FOR BOARD AND PARTICLE BASED PRODUCTS

Parameters	Unit	Value
Particulate Matter	mg/Nm^3	20 (MDF) 20 (Wood Dryers) 50 (Other Sources)
Condensable VOCs	mg/Nm^3	130
Formaldehyde	mg/Nm^3	20 (Wood Dryers) 5 (Other Sources)

SCHEDULE IV *Regulation* 8(2)

BEST PRACTICES

1. Embracing cleaner production with emphasis on water reuse and recycling.

2. Encourage more efficient use of process chemicals.

3. Recovering and reusing process chemicals and ink solution .

4. Using peroxide-based bleaches instead of sulphur and chlorine-based bleaches, where feasible.

5. Adopting counter-current rinsing and improved cleaning and housekeeping.

6. Install vapour recovery systems to control air emissions to prevent the release of toxic organics into air.

(7. Replace highly toxic and persistent ingredients with less toxic, degradable ones.

8. Control loss and wastage of active ingredients and return packaging for refilling.

9. Use equipment wash down waters as makeup solutions for subsequent batches.

10. Minimize wastage by inventory control, and find uses for off-specification products.

11. Substituting potentially harmful process chemicals with less harmful alternatives.

12. Ensure dry debarking of wood to minimise waste water generation .

13. Workers should be trained specifically in the safe use of debarking, chipping, and other equipment.

14. Label, mark, package and store all chemicals and hazardous materials according to national and internationally recognized requirements and standards.

15. Avoid the use of elemental chlorine for bleaching and use a more environmentally friendly bleach.

16. Avoid the use of Copper Chrome Arsenate (CCA) as a preservative for timber and use any environmentally friendly preservative.

17. Use water-based (rather than solvent-based) inks and dyes.

18. Keep sulfur storage bins free of sulfur dust accumulation.

19. Implement an inspection and maintenance program to prevent and identify leaks and equipment failure.

SCHEDULE V *Regulation* 20

GUIDELINES FOR INK WASTE REDUCTION IN PRINTING AND PUBLISHING

1. Fill ink fountains only enough for a particular run or shift.

2. Return all unemulsified to their containers.

3. Install automatic ink levelers in large web presses to keep ink fountains at their optimal level for good print quality.

4. Run similar jobs simultaneously to reduce waste generation between cleanup and start of the next run.

5. Clean ink fountains only when changing colors or when the ink might dry out between runs to reduce waste ink generation but fountains can be left with ink overnight if sprayed with special non-drying aerosol materials.

6. Dedicate one press for inks containing hazardous pigments or solvents.

7. Use water based inks whenever possible to decrease the use of solvent based inks that cause environmental hazards.

Advantages of Water-Based Inks (FLEXOGRAPHIC AND GRAVURE PROCESSES)

1. Often classified as non-hazardous.
2. No special air pollution control equipment required for emissions.
3. Less toxic to employees.
4. Reduced disposal cost.

Advantages of Ultraviolet Inks:

1. Dries quickly when exposed to ultraviolet light.
2. May remain in ink fountains for long periods without drying.
3. Eliminates 'set off' thus avoiding the need for anti-offset sprays.
4. Eliminates ventilated storage of sheets during oxidative drying.

Advantage of Electron Beam Drying (EB) (*used on web presses*)

Similar in use to ultraviolet inks and uses less solvent than heat-set inks.

SCHEDULE VI *Regulation* 9

WASTE UTILISATION AND DISPOSAL

1. Use bark-free wood chips and other wood waste as raw material input for the pulp and paper or board-making industries.

2. Wood and bark chips are to be used as mulch for gardens, highway verges and agriculture.

3. Sawdust and wood shavings are to be used for animal beddings.

4. Wood wastes are to be used as secondary raw materials for facility's process needs or for export.

5. Particle board manufacturers may also accept sawdust and chips with bark.

6. All Rags contaminated with hazardous ink and solvent shall be considered hazardous and shall be stored separately from municipal waste and transported in an environmentally sound manner.

SCHEDULE VII *Regulation* 4

TREATED WOOD PRECAUTIONS AND HANDLING GUIDELINES

1. Only use copper treated wood that is clean, dry and free of surface residues.

2. Avoid inhaling wood dust and wear a filter mask while power sawing, machining, sanding or any operation where wood dust is generated.

3. Protect the eyes while using power tools or any work where small particles may be ejected.

4. Wear gloves when handling material, and wash hands after work and before eating, drinking or smoking.

5. Brush or wash sawdust off skin or clothes.

6. Keep the work area clean.

7. Do not allow wood dust to accumulate.

8. Recover sawdust, shavings and off-cuts for reuse.

9. Wash wood dust contaminated work clothing and safety equipment before reuse.

10. Do not burn off-cuts or waste pieces.

SCHEDULE VIII *Regulation* 10

POLUTION PREVENTION AND CONTROL TECHNIQUES

Recommendation for pollution prevention and control techniques for emission of particulate matter includes :

(*a*) Filtration of air exhaust from material handling and granulation areas using a cyclone or bag house ;

(*b*) Installation of ventilation control systems, especially at the points of highest processing temperature(s) along the production line ;

(*c*) Installation of local exhaust extraction systems and activated carbon adsorbers ;

(*d*) Substitution of solvent-based coatings and adhesives with less toxic alternatives ; and

(*e*) Use of automated techniques for coatings and adhesive applications.

SCHEDULE IX *Regulation* 15

GUIDE FOR OCCUPATIONAL RISK CONTROL AND SAFETY MEASURES

A. PULP AND PAPER

1. Automate pulping and bleaching operations to ensure that operators that monitor and operate processes from control rooms are isolated from potential chemical exposures and other health and safety hazards.

2. Engineering controls, such as automatic digester capping valves, local exhaust at batch digesters should be provided to prevent gas leaks from negative pressure in recovery boilers, sulphite, sulphur dioxide and acid towers.

3. Ensure that contractors and casual staff are trained in the use of personal protective equipment and handling of chemicals.

4. Install catch platforms under conveyors that cross passageways or roadways.

5. Install guard rails on walkways adjacent to production lines or at height, and clearly mark traffic lanes for vehicles and pedestrians ;

6. Establish routines to ensure that heavy loads are not moved by crane over personnel or equipment with moving parts.

7. Components such as conveyor drums, drive belts, pulleys, shafts, rollers on paper machines and shredder feed rolls should be fitted with safety guards or interlocks capable of preventing access to moving parts.

8. Establish and follow safety practices for unloading logs, lumber and chips.

B. Wood and Wood Products

1. All cutting and debarking equipment such as circular saws and rotator debarkers should be fitted with safety guards or interlocks to prevent access to moving parts.

2. All log yard activities should be mechanized to reduce human contact with logs during handling and stacking.

3. Ensure that log stacks are not higher than the safe height defined by risk assessment carried out by qualified personnel or consultant which should take account of site specific circumstances including stacking methodology.

4. All operating personnel should be trained in safe working procedures in log stacks, avoidance of felling of logs, planning of escape routes and ways to minimize injury during movement of logs to log ponds.

5. All conveyor system routes must be clearly demarcated to prevent access as necessary and belt must be inspected daily to ensure they are in good working conditions.

6. Ensure that all sources of ignition are eliminated through safe use of certain chemicals for example peroxide hardening products can be self heating and result in spontaneous combustion.

7. All workers must be trained in emergency evacuation procedures and first aid fire fighting techniques.

Schedule X *Regulation* 12

Volatile Organic Compounds (VOCs) Control

1. Ensure that VOCs emissions from mechanical pulping of wood with high extractive (resin) content are recovered in the heat recovery units and the start-up scrubber.

2. Ensure that VOCs containing exhaust air are incinerated in existing boilers or separate furnace.

3. Ensure that contaminated condensates containing terpenes are recovered.

4. Ensure that operating bark boilers are supplied with excess oxygen to prevent VOCs and CO emissions while minimizing formation of NO_x.

SCHEDULE XI *Regulation* 18(1)

BANNED/RESTRICTED CHEMICALS
CONTROLLED SUBSTANCES UNDER THE MULTILATERAL
ENVIRONMENTAL AGREEMENTS

Chemical/Pesticide	*CAS Number*
ROTTERDAM CONVENTION	
PART 1: Banned Chemicals and Pesticides	
2,4,5-T	93-76-5
Aldrin	309-00-2
Binapacryl	485-31-4
Captafol	2425-06-1
Chlordane	57-74-9
Chlordimeform	6164-98-3
Chlorobenzilate	510-15-6
DDT	50-29-3
Dieldrin	60-57-1
DNOC and its salts (such as ammonium salt, potassium salt and sodium salt)	534-52-1;2980-64-5;5787-96-2;2312-76-7
Dinoseb and its salts and esters	88-85-7
EDB (1,2-dibromoethane)	106-93-4
Ethylene dichloride	107-06-2
Ethylene oxide	75-21-8
Fluoroacetamide	640-19-7
HCH (mixed isomers)	608-73-1
Heptachlor	76-44-8
Hexachlorobenzene	118-74-1
Lindane (gamma-HCH)	58-89-9
Mercury Compounds	
Monocrotophos	6923-22-4
Parathion	56-38-2
Parathion (all formulations—aerosols, dustable powder (DP), emulsifiable concentrate (EC), granules (GR) and wettable powders (WP)— of this substance are included, except capsule suspensions (CS))	56-38-2
Pentachlorophenol	87-86-5
Toxaphene (Camphechlor)	8001-35-2

dustable powder formulations containing a combination of benomyl at or above 7%, carbofuran at or above 10% and thiram at or above 15%	17804-35-2;1563-66-2;137-26-8
Methamidophos (Soluble liquid formulations of the substance that exceed 600 g active ingredient/l)	10265-92-6
Methyl-parathion (emulsifiable concentrates (EC) with 19.5%, 40%, 50%, 60% active ingredient and dusts containing 1.5%, 2% and 3% active ingredient)	298-00-0
Monocrotophos	6923-22-4
Phosphamidon (Soluble liquid formulations of the substance that exceed 1000 g active ingredient/l)	13171-21-6 (mixture, (E)&(Z)-isomers) 23783-98-4 ((Z)-isomer), 297-99-4 ((E)-isomer)
Actinolite asbestos	77536-66-4
Amosite asbestos	12172-73-5
Anthophylite	77536-67-5
Tetraethyl lead	78-00-2
Tetramethyl lead	75-74-1
Tremolite	77536-68-6
Tris(2,3 dibromopropyl)phosphate	126-72-7
Alachlor	15972-60-8
Aldicarb	116-06-3
PART 2: SEVERELY RESTRICTED CHEMICALS AND PESTICIDES	
Polybrominated Biphenyls (PBBs)	36355-01-8(hexa-) 27858-07-7(octa-) 3654-09-6(deca-)
Polychlorinated Biphenyls (PCBs)	1336-36-3
Polychlorinated Terphenyls (PCTs)	61788-33-8

STOCKHOLM CONVENTION PART 3 : PERSISTENT ORGANIC POLLUTANTS—(POPs)	
Aldrin	309-00-2
Chlordane	57-74-9
DDT	50-29-3
Dieldrin	60-57-1
Dioxins	
Endrin	
Furans	
Heptachlor	76-44-8
Hexa Chloro Benzene (HCB)	11-74-1
Polychlorinated Biphenyls (PCBs)	1336-36-3
Mirex	
Toxaphene	8001-35-2
α-hexachlorocyclohaxazne	319-84-6
β- hexachlorocyclohaxazne	319-85-7
Chlordecone	143-50-0
Hexabromobiphenyl hexabromodiphenyl ether and	36355-01-8
heptabromodipheny	
lindane (gamma-hexachlorocyclohexane) Pentachlorobenzene tetrabromodiphenyl ether and pentabromodiphenyl ether	58-89-9 608-93-5
perfluorooctanesulfonic acid (PFOS) its salt and perfluorooctanesulfonyl fluoride (PFOS)	
MONTREAL PROTOCOL PART 4—OZONE DEPLETING SUBSTANCES	
Trichlorofluoromethane	75-69-4
Dicholrodifluoromethane	75-71-8
Trichlorotrifluoroethane	76-13-1
Dichlorotetrafluoroethane	76-14-2 76-15-3
Bromochlorodifluoromethane	353-59-3
Bromotrifluoromethane	75-63-8
Dibromotetrafluoroethane	76-15-3
Chlorotrifluoromethane	75-72-9

Pentachlorofluoroethane	354-56-3
Tetrachlorodifluoroethane	76-12-0
Tetrachloromethane or carbon tetrachloride	56-23-5
Trichloroethane or methyl chloroform	71-55-6
Chlorodifluoromethane	75-45-6
Dichlotrifluoroethane	306-83-2
Chlorotetrafluoroethane	2837-89-0
Dichlorofluoroethane	1717-00-6
Clorodifluoroethane	75-68-3
Methyl Bromide or Bromoethane	74-83-9
1, 2-dibromoethane (EDB)	106-93-4
BASEL CONVENTION All wastes arising from the chemicals covered under the Rotterdam and Stockholm Conventions as well as the Montreal Protocol.	
OTHERS	
Acetic acid	64-19-7
Acetone	67-64-1, 7217-25-6
Acetyl bromide	506-96-7
Allyl isothiocyanate	57-06-7
Ammonia (35% or greater)	
Ammonia (less than 35%)	7664-41-7
Ammonium Nitrate	6484-52-2
Antimony pentachloride	7647-18-9
Antimony trihydride	7803-52-3
Arsine	7784-42-1
Arsenical substances	
Boric acid; Sodium borate	10043-35-3, 1330-43-4
Boron tribromide	10294-33-4
Boron trichloride	10294-34-5
Boron trifluoride	7637-07-2
Bromine; Bromine solutions	7726-95-6,
Captafol	2939-80-2, 2425-06-1
Carbamates,	598-55-0
Bendiocarb	22781-23-3
BPMC (Fenobucarb)	3766-81-2
Mercaptodimethur (methiocarb)	2032-65-7
Calcium Ammonium Nitrate	
Carbon monoxide	630-08-0

Carbon tetrafluoride	75-73-0
Chlorinated hydrocarbons	85422-92-0
Chlorine	7782-50-5
Chlorine trifluoride	7790-91-2
Chlorobenzenes	108-90-7
Chlorophenols	25167-80-0
Chlorophenoxyacids; their salts, esters, amines	94-74-6
Chlorosilanes	
Chlorosulphonic acid	7790-94-5
Chromic acid	1333-82-0
Cyanides	
Diborane	19287-45-7
Dibromochloropropane	96-12-8
Diethyl sulphate	77-78-1
Epichlorohydrin	106-89-8
Ethyl mercaptan	75-08-1
Ethylene imine	151-56-4
Ferric chloride	7705-08-0
Fipronil	120068-37-3
Fluorine	7782-414
Fluoroacetamide	640-19-7
Formic acid	64-18-6
Germane	
Hydrazine anhydrous ; Hydrazine aqueous solutions	302-01-2
Hydrochloric acid	7647-01-0
Hydrofluoric acid	7664-39-3
Hydrogen chloride	7647-01-0
Hydrogen cyanide ; Hydrocyanic acid	74-90-8,
Hydrogen Peroxide	7722-84-1
Hydrogen selenide	7783-07-5
Isocyanates Mercury compounds including inorganic mercury compounds, alkyl mercury compounds, alkyloxyalkyl and aryl mercury compounds, and other organic compounds of mercury	
Metanil yellow (sodium salt of metanilylazodiphenylamine)	587-98-4

Methyl chloride	74-87-3
Methyl mercaptan	74-93-1
Monomethyltetrachloro diphenyl methane	76253-60-6
Monomethyl-dichloro-diphenyl methane	76253-60-24
Monomethyl-dibromo diphenyl methane	99688-47-8
Neonicotinoid compounds used as pesticides	138261-41-3
Nitric acid (95% or greater)	
Nitric acid (less than 95%)	
Nitric oxide	10102-43-9
Nitrogen trifluoride	7783-54-2
Nitromethane	75-52-5
Oleum	8014-95-7
Orange II [sodium salt of p-(2-hydroxy-1-naphthylazo) benzene sulphonic acid]	
Organic peroxides	
Organo-tin compounds	
Perchloromethyl mercaptan	594-42-3
Perfluorooctane sulfonate (PFOS)	29457-72-5
Phenols	
Phenol ethoxylate	9016-45-9
Phosgene	75-44-5
Phosphides	
Phosphine	603-35-0
Phosphorus compounds, excepting Dimethoate Fenchlorphos Fenitrothion Phenthoate Profenophos Prothiophos Quinalphos	
Phosphorus oxybromide	7789-59-5
Phosphorus oxychloride	10025-87-3
Phosphorus pentabromide	7789-69-7
Phosphorus pentachloride	10026-13-8
Phosphorus pentafluoride	7647-19-0
Phosphorus trichloride	7719-12-2

Polybrominated diphenyl ethers	
Potassium hydroxide	1310-58-3
Potassium Nitrate	7757-79-1
Potassium Perchlorate	7778-74-7
Prochloraz	67747-09-5
Pyrethroid compounds used as pesticides	
Sodium azide	26628-22-8
Sodium Chlorate	7775-09-9
Sodium hydroxide	1310-73-2
Sodium Nitrate	7631-99-4
Sulphur tetrafluoride	7783-60-0
Sulphur trioxide	7446-11-9
Sulphuric acid	7664-93-9
Sulphuryl chloride	7791-25-5
Sulphuryl fluoride	2699-79-8
Titanium tetrachloride	7550-45-0
Tungsten hexafluoride	7783-82-6
Urea	57-13-6

SCHEDULE XII *Regulation* 5(2), (4)

GUIDE TEMPLATE FOR EMERGENCY PROCEDURES IN INDUSTRY

STEP 1—ESTABLISH A PLANNING TEAM

There must be an individual or group in charge of developing the emergency management plan.

1. Form the Team.
2. Establish Authority.
3. Issue a Mission Statement.
4. Establish a Schedule and Budget.

STEP 2—ANALYZE CAPABILITIES AND HAZARDS

This step entails gathering information about current capabilities and about possible hazards and emergencies, and then conducting a vulnerability analysis to determine the facility's capabilities for handling emergencies.

1. Where do you stand right now?
2. Meet with outside groups.
3 Identify Codes and Regulations.
4. Identify critical products, services and operations.
5. Identify internal resources and capabilities.

6. Identify external resources.
7. Do an insurance review.
8. Conduct a vulnerability analysis.
9. List potential emergencies.
10. Estimate probability.
11. Assess the potential human impact.
12. Assess the potential business impact.
13. Assess the potential property impact.
14. Assess internal and external resources.
15. Add the columns.

STEP 3—DEVELOP THE PLAN

Emergency planning must become part of the corporate culture. Look for opportunities to build awareness; to educate and train personnel; to test procedures; to involve all levels of management, all departments and the community in the planning process; and to make emergency management part of what personnel do on a day-to-day basis.

1. Plan components
2. The development process

STEP 4—IMPLEMENT THE PLAN

1. Implementation means more than simply exercising the plan during an emergency. It means acting on recommendations made during the vulnerability analysis, integrating the plan into company operations, training employees and evaluating the plan.

2. Integrate the plan into company operations.

3. Conduct training, drills and exercises.

SCHEDULE XIII *Regulation* 3(1) (*c*)

GUIDELINE FOR PREPARING ENVIRONMENTAL MANAGEMENT PLAN (EMP)

1. An Environmental Management Plan (EMP) describes the process that an organization will follow to maximize its compliance and minimize harm to the environment. This plan also helps an organization map its progress toward achieving continual improvements.

2. Regardless of the organization's situation, all environmental plans must include the following elements :

(*a*) policy ;
(*b*) planning ;
(*c*) implementation and Operation ;
(*d*) checking and Corrective Action ; and
(*e*) management Review and Commitment.

Policy.

3. Policy statements are important to an organisation because they help anchor the organisation on a core set of beliefs. These environmental guiding principles will enable all members of an organisation to focus on the same objective. They provide an opportunity for outside interests to understand the operation of the organisation. The policy should be focused, concise and easy to read. The environmental policy should address the following :

(*a*) compliance with legal requirements and voluntary commitments ;

(*b*) minimising waste and preventing pollution ;

(*c*) continual improvement in environmental performance, including areas not subject to regulations ; and

(*d*) sharing information on environmental performance with the community.

Planning.

4. The planning should define the organisation's environmental footprints and set goals. Goals and objectives should focus on maximising their positive impacts on the environment. When evaluating, the following elements should be considered :

(*a*) impacts on the environment through its activities, products and services ;

(*b*) legal requirements associated with protecting the environment ; and

(*c*) meaningful and focused environmental objectives and targets.

Implementation and Operation.

5. Implementation and operation should define the activities that the organisation will perform to meet its environmental objectives and targets. This section should identify the activity each person is responsible for, ensure completion and set targets for each of the identified activity. In addition, this area should specify employee training, communication and outreach activities that are necessary to ensure successful implementation of the plan.

Checking and Corrective Action.

6. The EMP should describe the process that will be followed to verify proper implementation and how problems will be corrected in a timely manner. Routine evaluation and continual improvement to the process is necessary to make sure that the plan successfully leads towards the completion of environmental objectives and targets.

Management Review and Commitment to Improvement.

7. Routine review and support by management is a necessary and meaningful tool for the organization. This should identify the improvement that will be carried out to ensure that the plan is appropriately implemented to meet its environmental objectives.

SCHEDULE XIV *Regulation* 16(1)

GUIDELINES FOR EXTENDED PRODUCER RESPONSIBILITY PROGRAMME

1. As part of the Strategic Alliance Programme of the Agency, all manufacturers and importers of pulp and paper products shall partner with the Agency to establish an effective Consumer Product Stewardship Programme.

2. The manufacturers and importers shall submit a proposal for a consumer products stewardship program to the Agency for approval and the proposal shall include elements for successful implementation of the scheme as follows :

(*a*) establish a process for the collection, handling, transportation and final treatment of post-consumer products, regardless of who the original brand owner is ;

(*b*) incorporate the principles of a pollution prevention hierarchy by moving progressively from disposal to reduction, reuse, recycling and recovery of post-consumer products ; and

(*c*) submit on or before June 30 in each year to the Agency , an annual report on their consumer products stewardship program during the previous fiscal year including information with respect to :

(*i*) the total amount of paper products and other related products sold and post-consumer products collected,

(*ii*) the total amount of post-consumer products processed or in storage,

(*iii*) the percentage of post-consumer products that were treated, contained, reduced, reused, recycled or recovered,

(*iv*) efforts taken through marketing strategies to reduce post-consumer products and packaging waste,

(v) the types of processes used to reduce, reuse, recycle or recover post-consumer products, including details of efforts to incorporate the priorities of a pollution prevention hierarchy by moving progressively from disposal to reduction, reuse, recycling and recovery of post-consumer products,

(*vi*) the location of return collection facilities or depots,

(*vii*) the location of any long-term containment or final treatment and processing facilities for post-consumer products and packaging waste,

(*viii*) the types of educational information and programs provided,

(*ix*) the process of internal accountability used to monitor environmental effectiveness, and

(*x*) any other information requested by the Agency.

SCHEDULE XV *Regulation* 31(1), (2*a*)

ACTIVITIES REQUIRING AIR QUALITY CONTROL PERMIT

Based on precautionary consideration to safeguard public health and the environment, the following activities shall require Atmospheric Emission Permit :

(*a*) use of solvents in activities ;

(*b*) processes including the use of ammonia, formaldehyde, methanol and other alcohols, esters, aliphatic hydrocarbons and several monomers ;

(*c*) the use of perchloroethylene ; and

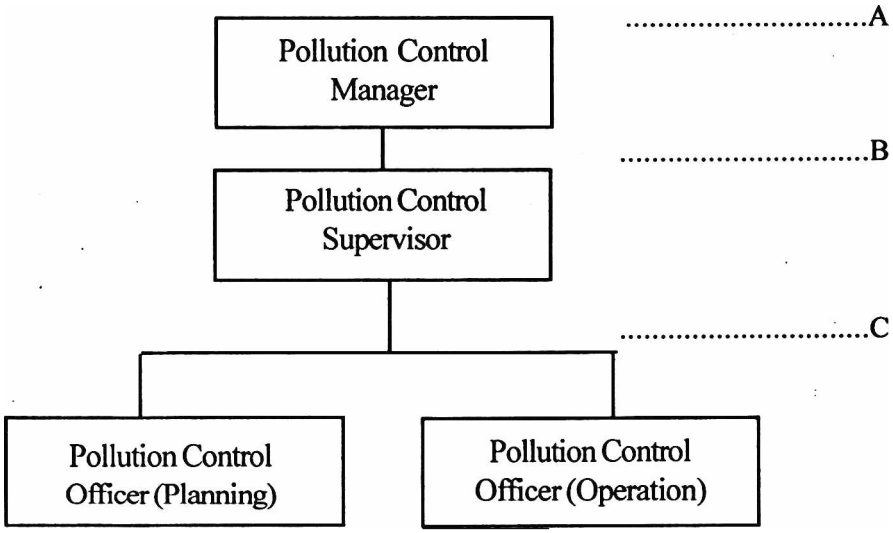
(*d*) any other activity whose process may result in atmospheric emission.

SCHEDULE XVI *Regulation* 13(1), (2)

ORGANISATIONAL SYSTEM FOR POLLUTION CONTROL

Each facility shall be mandated by the Agency to have an organizational system that will carry out Internal Environmental Auditing of the facility as well as liaise with NESREA and other Government Authorities. The Organizational system shall have Pollution Control Manager, Pollution Control Supervisor and Pollution Control Officers with relevant scientific background as minimum qualification shall be appointed. These shall be certified by the Agency.

Organization for Pollution Prevention



Functions

1. Manages the pollution control issues of the facility.

2. Assists the manager and directs the officers (only applicable in facilities where large amount of smoke and sewage is generated).

3. Deals with technical matters like inspection of the facility and raw materials.

Note : 3 depends on the size of the facility, and for a large facility there shall be PCM for air, land and water.

SPECIFIC DUTIES OF THE POLLUTION CONTROL MANAGER (PCM)

The specific duties of the PCMs are to :

(*a*) ensure that the responsibilities are very clear for all the staff involved in pollution control ;

(*b*) ensure that daily pollution control practices are complied with ; and

(*c*) maintain smooth and proper environmental and safety communications within the facility and the regulatory authorities as well as the host community.

CONCRETE POLICIES CONCERNING INDUSTRIES' POLLUTION CONTROL

1. Management concerning pollution control at facilities include the following :

(*a*) improvement and operation of effective environmental management system ;

(*b*) communication with the Agency's Headquarters ;

(*c*) ability to know when a system is malfunctioning ;

(*d*) documentation of the environmental management procedure and control of the records and documents.

(5) co-operation with interested parties such as other related companies, regulations.

2. Addressing corporate-wide environmental measures in the following ways :

(*a*) recognition of the business risk relative to the environmental management system ;

(*b*) recourse management including maintenance of human resources for pollution control and their competency ;

(*c*) establishing a corporate-wide environmental management system including risk information feed-back system ;

(*d*) establishing a redundant monitoring, assessment and self-improvement system ; and

(*e*) establishing a contingency plan and its verification.

SCHEDULE XVII *Regulation* 45(3)

PERMIT FORM

FORM 1

APPLICATION FOR EFFLUENT/EMISSION DISCHARGE

1. Name of Applicant .....
2. Year of Incorporation and Registration Number of Business Name
.....
3. Location of Business Premises
.....
.....
4. Description of plant facilities, outfall location(s), Effluent Characteristic(s)(to be Geo-referenced)
.....
.....
5. Qualifications and experience of staff involved in pollution control.....
.....
6. A listing of all toxic substances used or manufactured on the site.....
7. Does the establishment have any other permit issued to the facility? (State type)
.....
.....
8. Description of pollution abatement/monitoring facilities on site (including details of year of installation, capacity, etc. and also copies of design plans of sewerage and/or drainage plans.....
.....
9. A listing of all chemicals in use at the facility (trade names not acceptable)
.....
.....
10. Present discharge locations (to be geo-referenced) (illustrate) and position of inspection tap for compliance monitoring.....
.....
11. For new sources—submission of EIS report is mandatory. Request for permit must be made 3 months before the expected date of discharge.
12. Volume of raw water consumption (cubic meters /year)
.....
13. Source of energy at facility and quantitative estimate of consumption on a monthly basis .....
.....
14. Any safety/contingency plan/EMP.....
.....

15. Distance of facility from residential area .....
.....
.....

16. Detailed description of effluent/disposal methods.....
.....
.....

17. Production Capacity :
(*a*) current production capacity.....
(*b*) estimated production especially as a result of any proposed expansion
.....
.....
(*c*) estimated effluent organic load per year(kg / year COD)
.....

18. Air pollution emission points - with stack height and diameter (Drawing may be attached)
19. Process and pollution abatement equipment descriptions and specifications
20. All exhaust gas outlet temperatures (^{0}C)
21. All exhaust gas flow rates (m^3/min.)
22. Chemical nature of air pollution emissions
23. Air pollution emission estimates or existing stack test data (examples of pollutants —NO_x, SO_x, VOC, CO, PM, etc.)
24. Fuel specifications (type-%sulfur-%nitrogen-%ash-%H_2O-BTU-grade)
25. Describe fuel and material storage sites (size, temperature, pressure)

....
Date *Applicant's Signature*

SCHEDULE XVIII *Regulation* 45(4)

QUARTERLY DISCHARGE MONITORING REPORT (QDMR) [NESREA]

DISCHARGE MONITORING REPORT

Please Complete and submit One Copy per Quarter, this report must be postmarked not later than the 28th of the following month.

FACILITY NAME AND ADDRESS :

Facility e-mail address:

Mail To:
National Environmental Standards and Regulations Enforcement Agency (NESREA),
National Headquarters,
Abuja.

SAMPLING POINT LOCATION : ..... [ ] .....

MONTH YEAR

SAMPLING DATES AND TIME : .....

Type of Sampling							
Parameters	*Monthly Results*						*National Regulatory Limits*
PHYSICAL :	*Units*	*1st*	*2nd*	*3rd*	*4th*	*Average*	
Appearance							
Odour							
Temperature	°C						
Ph							
Conductivity	µs/cm						
Turbidity	NTU						
Dissolved Oxygen (DO)	mg/l						
Total Suspended Solids (TSS)	mg/l						
Total Dissolved Solids (TDS)	mg/l						
BOD	mg/l						
COD	mg/l						
INORGANIC :							
Chloride	mg/l						

Nitrate	mg/l						
Sulphate	mg/l						
Sulphite	mg/l						
Cyanide	mg/l						
Nitrites	mg/l						
Chromium (hexa-valent	mg/l						
Copper	mg/l						
Zinc	mg/l						
Lead	mg/l						
Cadmium	mg/l						
Manganese	mg/l						
Silver	mg/l						
Mercury	mg/l						
Arsenic	mg/l						
ORGANICS:							
Phenols	mg/l						
Oil & Grease	mg/l						
MICRO-BIOLOGICAL:							
Feacal Coli form	mg/l						

NOISE MEASUREMENTS

Locations				Noise Levels												
				Signature with date of Principal Executive Officer or Authorized Agent:			I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted.									
Signature of Certified Operator	Date (Month, Day, Year)			Date :												
				Signature :												

FORM 2

NATIONAL ENVIRONMENTAL STANDARDS AND REGULATIONS ENFORCEMENT AGENCY (NESREA)

INCIDENT REPORT FORM

This report is to be completed when accidental discharge, occupational illness or incident occurs. If an employee is injured or develops gradually a job-related illness as a result of his/her employment at the facility. She must complete and submit the **"Incident Report"**. If the employee is unable to complete the form, the supervisor must complete on his/her behalf.

Incident reporting ensures there is a record on file with the employer. in no way does this waive the employee's right to work's compensation benefits. If an injury occurs, first aid may be the appropriate treatment.

All accidental discharges/emergencies/accidents should be reported to NESREA within 48 hours.

1. FACILITY :

Name & Address of Facility :.....
.....
.....
.....

No of Employees :.....
.....

Department where the discharge occurred :.....
.....

Place of the accidental discharge :.....
.....

2. DISCHARGE :

Cause(s) of discharge :.....
Did the discharge occur as a result of mechanical/technical/unskilled application? Please specify.....
.....

Was the discharged gaseous, liquid or solid? Please specify.....
.....

What was the nature of discharge, sludge, effluent or influent? Please specify.
.....

Into which medium was it discharged to i.e. water body, land, or air? Please specify.....
.....

- If water body, specify type of water; pond, stream, lake, river etc.

.....

.....

- If land, Name and location.....

.....

- (Geo-reference) of the land where discharge occurred .....

.....

.....

Ways of disposing of discharge; i.e. burying, burning etc please specify.

.....

.....

Was there any previous accidental discharge of this kind? Yes☐ No☐

If yes, when ? .....

How ?.....

.....

Who was/were the victim(s) ?.....

.....

SCHEDULE XIX *Regulation* 34

HEARING CONSERVATION TABLE

A-Weighted Sound Level(dB)	Duration (hours)
80	32
85+	16
90‡	8
95	4
100	2
105	1
110	0.5
115	0.25
120	0.125
125	0.063
130#	0.031

Where :

* Measuring threshold

\+ Hearing Conservation begins—50% dose

‡ Eight hour criteria level

\# Minimum upper range

SCHEDULE XX *Regulation* 30(1), (2)

APPROPRIATE ABATEMENT AND TREATMENT TECHNOLOGIES

1. Stack gas scrubbing, carbon adsorption or combustion (for toxic organics).
2. Bag houses or cyclone (for particulate matter removal).
3. Biological filters or any other appropriate technology.
4. Natural gas fired dryers.
5. Kraft and soda lime kilns.
6. Flue gas desulfurization systems.
7. Anaerobic wastewater treatment.

ISSUED at Abuja this 29*th Day* of *October*, 2013.

ARC. DARIUS DICKSON ISHAKU, fnia,
Honourable Minister of Enviroment

EXPALANATORY MEMORANDUM

(*This memorandum does not form part of these Regulations but it is intended to explain its purport*).

These Regulations seek to address the prevention and also the minimization of environmental hazards from all operations and ancillary activities of this sector in Nigeria.