



Consistent with THE ENVIRONMENT PROTECTION & MANAGEMENT LAW
OF LIBERIA 2003, the Environmental protection Agency promulgates the



LIBERIA WASTE MANAGEMENT & STANDARDS REGULATIONS, 2009

PART I: PRELIMINARY

1. Citation
2. Applications
3. Definitions

PART II: OBLIGATION OF EVERY PERSON TO MANAGE WASTE

4. To prevent the escape of waste from their control.
5. To ensure that the transfer is only to a licenced operator.
6. Duty of every person to ensure that the waste packaged is such category as described:
7. Data on Waste
8. Littering
9. Prohibition on unauthorised or harmful depositing, treatment and disposal of waste
10. Waste Discharge Permits by Industry and Trade Facilities
11. Duty to Deliver Waste to Designated Sites
12. Duty of care as respects waste
13. Duty to Report Breaches of Obligations
14. Exemptions Relating to Duty to Dispose Waste

PART III: INDUSTRIAL & COMMERCIAL WASTE

15. General Obligation to mitigate pollution
16. Treatment of Industrial Waste
17. Commercial Undertakings

PART IV: BIOMEDICAL WASTE

18. Requirement for Environmental Impact Assessment from biomedical waste generation facility
19. Approval of biomedical waste generating facility
20. Segregation of biomedical waste
21. Securing and packaging of bio-medical waste.
22. Treatment of biomedical waste
23. Monitoring by the Licensee and Ministry
24. Storage of biomedical waste.
25. Transportation of biomedical waste
26. Transfer Stations.
27. Requirement of Environmental Impact Assessment for biomedical waste And a permit for a disposal site or plant and license to operate
28. Requirement of Environmental Audits
29. Standards for Biomedical Waste disposal sites or plants
30. Penalties for Non-compliance
31. Agreement for final disposal of biomedical waste product

PART V: RADIOACTIVE SUBSTANCES

32. Requirement on Disposal of a Radioactive Substance

PART IV: HAZARDOUS WASTE & OTHER RELATED HARMFUL WASTE

33. Hazardous Waste
34. Disposal of Pesticides & Pharmaceutical waste

35. Offences relating to Hazardous Waste

PART VI: LICENSING

- 36. Waste management licences: general**
- 37. Licensing of City Councils & Town Authorities for (household, industrial and commercial) controlled waste by the Agency.**
- 38. Licensing of Health Facilities for controlled waste (biomedical waste) management**
- 39. Requirements for Issuance of a Licence**
- 40. Separation of Waste Management from Other Operations**
- 41. Power to create regional authorities for purposes of waste regulation**
- 42. Conditions of a Licence**
- 43. Technical Competence for Personnel for Waste Treatment**
- 44. Other Conditions of Licence**
- 45. Grant of a Licence**
- 46. Commercial Business Operations for Waste Management**
- 47. Functions of waste management licensee**
- 48. Waste disposal plans of waste management licensee**
- 49. Waste recycling plans by waste management Licensees**
- 50. Powers for recycling waste**
- 51. Payments & Rebates for recycling and disposal, Clean Production Mechanisms etc. of waste**

PART VII: COMPLIANCE AND ENFORCEMENT

- 52. Functions of EP Agency and Environment Inspectors**
- 53. Reporting**
- 54. Powers of EP Agency in case of Default by Licensee**
- 55. Prosecution, Charges & General Defences**
- 56. General Provision for Noncompliance or Breach of Regulations**
- 57. Provision for other Remedies**
- 58. Bye Laws**
- 59. Appeals on Licensing**

SCHEDULES

Draft - To be Completed by the Technical Committees

PART I: PRELIMINARY

1. Citation

These Regulations may be cited as the Environmental Protection and Management - Waste Management & Standards Regulations, 2009 and shall come into operation days after the **Board of the Agency so approves.**

2. Application

These Regulations apply to all the categories of waste as is provided for herein.

3. Definitions

The following provisions have effect for the interpretation of this Part.

“Act” means the Environment Protection and Management Act of Liberia 2003.

“Applicant” means an Authority, Agency or any person as so prescribed in the Regulations who applies to the Agency for a License or authorization to perform specific activities connected with waste management.

“Biodegradable substance” means a substance that can be degraded by microorganisms.

“Biomedical waste” means any waste which is generated during the diagnosis, treatment or immunization of human beings and animals or in research activities pertaining thereto or in the production or testing of biological substances and including categories mentioned in [Schedule](#) of these Regulations.

“Controlled waste” is waste includes household, commercial and industrial waste and biomedical waste which is regulated herein, and waste to be treated as household, commercial and industrial, biomedical is contained in a prescribed schedule on categories of waste *Schedule ()* pursuant to these Regulations, and the term **“Waste”** includes—

(a) any substance which constitutes a scrap material or an effluent or other unwanted surplus substance arising from the application of any process; and

(b) any substance or article which requires to be disposed of as unwanted discarded, being broken, worn out, used, expired, contaminated or otherwise spoiled and in their generic description ;

The **“environment”** consists of all, or any, of the following media, namely land, water and the air.

The **“disposal”** of waste includes its disposal by way of deposit in or on land and, subject to other descriptions of activities in these Regulations,

“Disposal or Landfill site” means any area of land on which waste disposal facilities are physically located or final discharge point without the intention of retrieval but does not mean a re-use or re cycling plant or site.

“Domestic Waste” means waste generated from residences and may also be termed as household waste.

“EPA” means the Environmental Protection Agency

“harm” means harm to the health of living organisms or other interference with the ecological systems of which they form part and in the case of man includes offence to any of his senses or harm to their property; and **“harmless”** has a corresponding meaning.

“Incineration” means the controlled burning of solids, liquids, gaseous combustible waste to produce gases and residues containing little or no combustible materials.

“Industrial Waste” means waste arising from processing and manufacturing industries or trade undertakings and can take the form of liquid, non-liquid, solid and gaseous substances.

“Land” includes land covered by waters where the land is above the low water mark of ordinary spring tides and references to land on which controlled waste is treated, kept or deposited are references to the surface of the land (including any structure set into the surface).

“Obligation” implies a duty with sanctions;

“Pollution of the environment” means pollution of the environment due to the release or escape (into any environmental medium) from—

(a) the land on which controlled waste is treated,

(b) the land on which controlled waste is kept,

(c) the land in or on which controlled waste is deposited,

(d) fixed plant by means of which controlled waste is treated, kept or disposed of, of substances or articles constituting or resulting from the waste and capable (by reason of the quantity or concentrations involved) of causing harm to man or any other living organisms supported by the environment.

The *definition of pollution* above applies in relation to mobile plant by means of which controlled waste is treated or disposed of as it applies to plant on land by means of which controlled waste is treated or disposed of.

“Mobile plant” means, a plant which is designed to move or be moved whether on road or other land.

“Prior Informed Consent” means the international operation procedure for exchanging, receiving and handling notification information by the competent authority on specified hazardous waste.

“Radioactive Waste” means any radioactive material that has been, or will be, discarded as of being of no further use.

“Recycling of waste” means the processing of waste material into a new product of similar chemical composition.

“Reprocessing” means the processing of waste into a new product of different chemical composition.

“Reuse” means waste reused with or without cleaning and/or repairing.

“Segregation” means any activity that separates waste materials for processing.

“Sludge” means a non flowing mixture of solids and liquids.

“Storage” means temporary placement of waste in a suitable location or facility where isolation, environmental and health protection and human control are provided in order to ensure that waste is subsequently retrieved for treatment and conditioning and/or disposal.

“Toxic Chemical” means any substance, which on entry into an organism through ingestion, inhalation and dermal contact is injurious, causes physiological, or biochemical disturbances or otherwise causes deterioration of the functions of the organism in any way.

“Treatment” means any method, technique or process for altering the biological, chemical or physical characteristics of wastes to reduce the hazards it presents; including making it re-usable or reclaiming substances from it and “recycle” (and cognate expressions) shall be construed accordingly.

“waste contractor” means a business collects, keeps, treats or disposes of waste, being a contractor or operator means a company or business enterprise formed under the business law in Liberia for all or any of those purposes of waste management and has entered into agreement as an agent of a waste disposal Licensee in pursuance of these regulations;

“Waste Generator” means any person or plant whose activities or activities under his or her direction produces waste or if that person is not known, the person who is in possession or control of that waste.

“Waste Management” means the activities, administrative and operational, that are used in handling, packaging, treatment, conditioning, reducing, recycling, reusing, storage and disposal of waste.

waste is **“treated”** when it is subjected to any process.

4. Principles of Waste Management

- 4.1. Polluter Pays principle
- 4.2. User-Pay Principle
- 4.3. Product Stewardship Principle

PART II: Categories of Waste

1. Municipal or Domestic Wastes (Not treated in the document. The Industrial, Biomedical and Hazardous Waste are treated)

- 1.1 Solid Waste
- 1.2 Liquid Waste

2. Industrial or Commercial Waste

- 2.1 Solid Waste
- 2.2 Liquid Waste

3. Biomedical Waste

- 3.1 Solid Waste
- 3.2 Liquid Waste

4. Hazardous Waste

Part III: OBLIGATION TO Management of Waste

It shall be the duty of every person who produces, keeps or disposes of controlled waste:

1. To prevent the escape of waste from their control.

- (1) Every person must package the waste in suitable containers so that it cannot fall out, blow away or escape from the receptacle. Every person must secure the waste against unauthorised removal as far as is reasonably practical.
- (2) Security should be sufficient to prevent the breaking of containers and removal of waste by vandals, thieves, children, animals, accident or weather. Waste must not be placed outside for collection longer than necessary (in accordance with the time schedules issued by a waste collector). It should only be placed on the footpath at, or near the scheduled collection time.

(3) It shall be the duty of any person on the transfer of the waste.

2. To ensure that the transfer is only to a licenced operator.

- (1) Every person must ensure that the person removing waste is either a local council, registered contractor, carrier or transporter or and holds a licence to dispose of waste.
- (2) Every person is responsible for ensuring that waste is disposed of properly and must ask for proof from the carrier and waste contractor that they are authorised persons.

- (3) Waste shall only be placed in a designated area and a receptacle for its collection by either the local council herein defined as the waste an agent licensee or its properly authorised waste contractor.
- (4) Failure to ensure compliance with this Regulation is an offence by the householder, owner and keeper of premises from where waste is removed.

3. Duty of every person to ensure that the waste packaged is such category as described:

- (1) That the waste package marked and placed at designated collection site contains such matter as fits the description of the package, that is to say:
 - (a) If the package is for controlled domestic waste that only domestic waste is packaged and delivered at the collection site;
 - (b) If the package is for controlled commercial waste, industrial waste or such other category as may be required under these Regulations that only commercial waste or such other waste is packaged and delivered at the collection site.
- (2) That there is transferred such a description of the waste as will enable other persons to avoid a contravention and to comply with the duty as respects the escape of waste.
- (3) Any person who fails to comply with the duty or with any requirement imposed by sub- regulation 1 to 3 shall be guilty of an offence and liable to penalties under the Act.

4. Data on Waste

- (1) Each transfer of waste must be documented by means of a Duty Controlled Waste Transfer Register. This document must contain details of contractor or operator, to whom the transfer of the waste shall be made, the place of transfer and details of the nature and quantity of the waste being transferred.
- (2) Regular uplifts of waste from the premises by the waste contractor, shall be covered by an annual transfer register. A copy of each transfer register requires to be kept by both the owner of the waste and the Licensee or company collecting the waste for a period of at least two years.
- (3) Any person who disposes of waste without an appropriate transfer register or fails to produce a waste transfer register shall be guilty of an offence under the Act.
- (4) The EP Agency shall enforce compliance through regular audits by the Environment Inspectors of the records of the Duty Controlled Waste Transfer Register.

5. Littering

- 1) No person shall dispose of any waste on a public highway, street, road, recreational area or in any public place except in a designated waste receptacle.
- 2) Any person whose activities generate waste shall collect, segregate and dispose or cause to be disposed off such waste in the manner provided for under these Regulations.
- 3) Without prejudice to the foregoing, any person whose activities generates waste has an obligation to ensure that such waste is transferred to a person who is licensed to transport and dispose of such waste in a designated waste disposal facility.

- 4) The City and Town Councils shall provide waste receptacles, with segregated channels for each category of waste, in public highway, street, road, recreational area or in any public place
- 5) The City and Town Councils shall promulgate by-laws to manage litter and impose penalties in their compliance mechanisms.

6. Prohibition on unauthorised or harmful depositing, treatment or disposal of waste

- (1) No person shall: —

- (a) Deposit controlled waste, or knowingly cause or knowingly permit controlled waste to be deposited in or on any land unless a waste management licence authorising the deposit is in force and the deposit is in accordance with the licence;

- (b) Treat, keep or dispose of controlled waste, or knowingly cause or knowingly permit controlled waste to be treated, kept or disposed of—

- (i) in or on any land, or

- (ii) by means of any mobile plant,

- except under and in accordance with a waste management licence;

- (c) treat, keep or dispose of controlled waste in a manner likely to cause pollution of the environment or harm to human health.

- (1) Regulation (1) above does not apply in relation to household waste from a domestic property which is treated, kept or disposed of within the curtilage of the dwelling by or with the permission of the occupier of the dwelling.

7. Waste Discharge Permits by Industry and Trade Facilities

- (1) All owners and operators of any industry or trade which is responsible for producing, storing, discharging, disposing of solid waste into the environment shall apply for a discharge permit to the City and Town Authority which is by virtue of these Regulations, the Waste Management Licensee in its area of operation.

- (2) A Waste Management Licensee in consultations with the Agency, in exercising its power under sub regulation (1) above, shall have regard in particular to the expediency of excluding from the controls imposed by waste management licences—

- (a) any deposits which are small enough or of such a temporary nature that they may be so excluded;

- (b) any means of treatment or disposal which are innocuous enough to be so excluded;

- (c) cases for which adequate controls are provided by another enactment than this Regulation.

8. Duty to Deliver Waste to Designated Sites

- (1) It shall be the duty of each waste management licensee to deliver for disposal all waste which is collected by the licensee or its authorised contractors and agents to such designated places in accordance with the waste management license for its area.

- (2) The duty imposed on a waste management licensee by sub-regulation (1) above does not, apply as respects household waste or commercial waste for which the waste management licensee in agreement with the owner or operator of an industry and trade decides to make arrangements for recycling the waste;

and the management licensee shall have regard, in deciding what recycling arrangements to make, to its waste recycling plan

- (3) A waste management licensee which decides to make arrangements under Regulation (2) above for recycling waste collected by it shall, as soon as reasonably practicable, by notice in writing, inform the EP Agency, which shall also include the arrangements that it proposes to make.
- (4) Where a waste management licensee has made with a waste disposal contractor arrangements, as respects household waste or commercial waste in its area or any part of its area, for the contractor to recycle the waste, the EP Agency may, by notice served on the waste management licensee, object to having the waste recycled; and the objection may be made as respects all the waste, part only of the waste or specified descriptions of the waste.
- (5) This Regulation does not apply in relation to household waste from a domestic property which is treated, kept or disposed of within the curtilage of the dwelling by or with the permission of the occupier of the dwelling.
- (6) A person who contravenes Regulation (1) above or any condition of a waste management licence commits an offence

9. Duty of care as respects waste

- (1) Subject to Regulation (2) below, it shall be the duty of any person who imports, produces, carries, keeps, treats or disposes of controlled waste or, as a waste management licensee or contractor, or has control of such waste, to take all such measures applicable to him in that capacity as are reasonable in the circumstances—
 - (a) to prevent any contravention by any other person of these Regulations;
 - (b) to prevent the escape of the waste from his control or that of any other person;
- (2) And on the transfer of the waste, to secure—
 - (a) that the transfer is only to an Licensee or authorised contractor agent for authorised transport purposes; and
 - (b) that there is transferred such a written description of the waste as will enable authorised transferor to avoid a contravention of that Regulation and to comply with the duty under this Regulation as respects the escape of waste.

10. Duty to Report Breaches of Obligations

- (1) It is the obligation of every person to report a breach of these Regulations by any person, or a licensee, an operator or contractor appointed under these Regulations.
- (2) Reports shall be made to the Agency, City and Town Councils, Police Agency, or the nearest Ministry or other government agency which may if authorised take action, and forward such reports to the Agency.

11. Exemptions Relating to Duty to Dispose Waste

- (1) The following are authorised transport purposes for which these Regulations does not apply, *and { (b) & (c)} for which provision under other regulations including hazardous waste regulations apply*: -
 - (a) transport of controlled waste within the same premises between different places in those premises;

- (b) transport to a place in Liberia of controlled waste which has been brought from a country or territory outside Liberia and is for transit the destination being outside Liberia until it arrives at the place of its designated arrival; and
- (c) transport by air or sea of controlled waste from a place in Liberia to a place outside Liberia;
- (d) Transport of controlled waste in (b) and (c) is waste that is subject to Prior Informed Consent, the international operation and control procedure provided in the international conventions for transport and movement of such waste.

PART IV– INDUSTRIAL & COMMERCIAL WASTES

12.General Obligation to mitigate pollution

- (1) Every trade or industrial undertaking shall install at its premises anti-pollution technology for the treatment of waste emanating from such trade or industrial undertaking;
- (2) Anti-pollution technology installed pursuant to these Regulations shall be based on the best available technology not entailing excessive costs or other measures as may be prescribed by the Agency.

13.Treatment of Industrial Waste

An owner or operator of a trade or industrial undertaking shall not discharge or dispose of any waste in any state into the environment, unless the waste has been treated in a treatment facility and in a manner prescribed by the Agency in consultation with the relevant Licensee, and in accordance with the guidelines for each industry as contained in the Schedule. (*Edible Oils Industry, Flour Mills, Paint Industry*)

14.Commercial Undertakings

The prescribed obligations and measures for Industrial undertakings in Part II above are applicable to commercial undertakings.

15.Disposal of Pesticides & Pharmaceutical waste

- (1) No person shall dispose of any pesticide, pharmaceutical waste or toxic substance other than at a designated site or plant approved by the Agency and operated by a Licensee or waste disposal operator or contractor.
- (2) This Regulation is in addition to measures taken by the Line Ministries in their statutory duty to manage such waste.

PART V: BIOMEDICAL WASTES

16.Requirement for Environmental Impact Assessment from biomedical waste generation facility

All institution that generates biomedical waste shall be required to apply for an Environmental Impact Assessment licence issued by the Agency under the EIA Regulations of the Act.

The biomedical waste generation facilities shall be described and listed in a Schedule prepared by the line Ministry in consultations with the Agency. (*hospitals, clinics, healthcare and nursing homes, funeral homes etc*)

17.Approval of biomedical waste generating facility

Any person who generates biomedical waste in a facility shall before operation obtain approval and a permit by the appropriate Ministry in charge and a license to conduct the business undertaking by the EP Agency.

18.Segregation of biomedical waste

Any person who generates biomedical waste shall at the point of generation and at all stages thereafter segregate the waste in accordance with the guidelines and standards provided under the **Schedule** to these Regulations. (see guidelines presented by MoH)

19.Securing and packaging of bio-medical waste.

All biomedical waste shall be securely packaged in biohazard containers which shall be labelled in the symbols set out in the **Schedule** to these Regulations.

20.Treatment of biomedical waste

Any person who generates waste shall treat or cause to be treated all biomedical waste in the manner set out in the **Schedule** to these Regulations, before such biomedical waste is stored or disposed of.

21.Monitoring by the Licensee and Ministry

The relevant lead agency shall monitor the treatment of all biomedical waste to ensure that such waste is treated in a manner that will not adversely affect public health and the environment.

22.Storage of biomedical waste.

- (1) Every biomedical waste licensee shall provide storage facilities for waste, at an area and facility separate from other storage facilities or other waste.
- (2) No person shall store biomedical waste above 0° C for more than one day without the written approval of the relevant line agency, provided that untreated pathological waste shall be disposed of within 24 hours.

23.Transportation of biomedical waste

- (1) No person shall transport biomedical waste without a valid permit issued by the Licensee in consultation with the relevant lead agency.
- (2) No person shall transport or allow to be transported biomedical waste save in a specially designed vehicle or other means of conveyance so as to prevent scattering, escaping, flowing, spillage or leakage of the waste.

24.Transfer Stations.

The provisions of these regulations relating to storage and transportation of bio-medical waste shall apply to owners or operators of transfer stations.

25.Requirement of Environmental Impact Assessment for biomedical waste And a permit for a disposal site or plant and license to operate

No person shall own or operate a biomedical waste disposal site or incinerator or plant without an Environmental Impact Assessment licence issued by the Agency under the provisions of the Act, and operating as a waste disposal contractor under a permit by a Licensee and subject to the consent of the Agency.

26.Requirement of Environmental Audits

Within **six** months after the commencement of these Regulations, operators of biomedical waste disposal sites or plants shall submit an Environmental Audit reports and thereafter annual Audit Reports to the Agency.

27. Standards for Biomedical Waste disposal sites or plants

(1) A licence to operate a biomedical waste disposal site incinerator or plant shall comply with the standards on design and construction set out in **Schedule** to these Regulations.

28. Agreement for final disposal of biomedical waste product

A Licensee who operates a biomedical waste disposal site incinerator or plant shall enter into agreement with a Licensee who operates a Waste Disposal Landfill site for disposal of final product of the waste treated by means of incineration.

29. Penalties for Non-compliance

Any institution which fails to comply with the provisions of these Regulations shall be liable for breach of licence conditions and the respective officers in charge of the activity shall be liable to charges for offences under these Regulations and the Act.

PART VI: RADIOACTIVE SUBSTANCES

30. Requirement on Disposal of a Radioactive Substance

- (1) No person shall dispose of any radioactive substance or waste other than at a designated site or plant approved by the Agency in consultations with the Ministry in charge of such substances.
- (2) Any person generating such waste shall obtain a permit to dispose of the waste from the Licensee.

PART VII: HAZARDOUS WASTE PROHIBITED & SPECIFICALLY REGULATED BY HARZARDOUS WASTE REGULATIONS

Define Hazardous Waste and list other hazardous such as Oil Spillage

31. Hazardous Waste Licensing

Any person dealing in (generation, transit, use, storage, disposal) of hazardous waste shall apply to the Agency for a License under the hazardous waste regulations and procedures.

32. Prohibitions on Dealing with Hazardous Waste

Hazardous waste or other related toxic waste shall not be released into the environment of Liberia unless in accordance with the regulations specifically provided for dealing with hazardous waste.

33. Penalties Under the Act

Any person who deals in hazardous waste without the license and procedure provided for in the specific hazardous waste regulations commits an offence as is provided for in the Act.

PART VIII: WASTE MANAGEMENT LICENSING

34. Waste management licences: general

- (1) A waste management licence shall be granted by the EP Agency as the waste Regulatory Agency authorising the Waste Management Licensee other Ministry

or Agency with the keeping treatment, or disposal of any specified description of controlled waste in or on specified land or the treatment or disposal of any specified description of controlled waste by means of specified mobile plant.

- (2) An application for a waste management license shall be made in writing in the prescribed form in Schedule.

35.Licensing of City Councils & Town Councils for (household, industrial and commercial) controlled waste by the Agency.

- (1) The City & Town Councils and any other Local authorities are by virtue of these Regulations designated as waste management -collection treatment and disposal - authorities for namely, the Waste Management Licensees as described in these Regulations.

- (2) Each Waste Management Licensee for the purposes of these Regulations shall be licensed to manage household, industrial and commercial waste within the areas of their jurisdiction and extended zones (as may be designated) in accordance with these Regulations.

- (3) In the case of a licence relating to the treatment or disposal of waste by means of mobile plant, a licence shall be issued to the person who operates the plant.

- (4) A License shall be subject to conditions issued by the Agency as prescribed in these Regulations.

36.Licensing of Health Facilities for controlled waste (biomedical waste) management

Health facilities with the technical and financial competence and are in compliance with the other conditions in these Regulations and those prescribed in the guidelines **Schedule** shall be licensed by the Agency as **biomedical waste licensees**.

37.Requirements for Issuance of a Licence- Ownership & Control of Property

- (1) Requirements of a Licence include but are not limited to the following:

- (a) In the case of a licence relating to the treatment, keeping or disposal of waste in or on land, the Applicant shall own or be legally in occupation of the land; and

- (b) The land shall be designated as a suitable site for which the treatment, keeping or disposal of waste is approved for the said purposes in the local, regional and national physical development plans,

- (c) In the case of a licence relating to the treatment transport or disposal of waste by means of mobile plant, the Applicant shall be the owner and operator the plant.

- (d) In the case of a licence relating to the treatment, storage, transport or disposal of biomedical waste, the Applicant shall be the owner of such incinerator or plant, land, storage and transport facility as specified in the guidelines.

- (2) A licence shall be granted pursuant to an application in the prescribed **Schedule**.

38.Further Requirements- Separation of Waste Management from Other Operations, Technical & Financial Competence

- (1) It shall be the duty of each Waste Management Licensee—

- (a) to make administrative arrangements for keeping its functions as a Waste Management Licensee separate from its other management functions as a City, Town Council; hospital facility or otherwise and
 - (b) to submit details of efficient and sustainable management plans- amongst which shall include technical and financial competence- which it has made to the Agency.
 - (c) Tariff Structure
 - (d) Performance Targets
 - (e) Competences (as above) of any contractor or operator, by who part of the functions of the Licensee are to be performed.
- (2) The EP Agency may issue guidelines to a Waste Management Licensee to which this Regulation applies and directions as to the arrangements which it is to make for the purpose of keeping its functions as a Waste Management Licensee separate from its other management functions; and
- (3) It shall be the duty of the Licensee to give effect to the directions issued.

39. Power to create regional authorities for purposes of waste regulation

- (1) If the EP Agency is satisfied that any two or more of the City and Town Councils mentioned above that those authorities could with advantage make joint arrangements for the discharge of all or any of their functions as waste management authorities, it may by order allow the establishment of such a single Licensee (a “regional Licensee”) to discharge such functions as may be specified in the order for the area comprising the areas of those authorities.
- (2) The order shall be subject to a Memorandum of Understanding between the two authorities on administrative and financial management.
- (3) Any question arising in default of agreement between the two authorities licensing in question, be determined by arbitration.

Conditions of a Licence

40. Technical Competence for Personnel for Waste Treatment

- (1) An applicant shall be technically competent in relation to a facility of a type listed under this Regulation if they have in their employment service persons who are holders of certificates awarded in Waste Management Training as being relevant certificates of technical competence for the type of the facility.
- (2) The compliance with this Regulation shall be in accordance with the Table of facility of a type listed in Schedule ...
- (3) An Applicant shall submit evidence of measures taken and to be taken in respect of occupational health and safety of its employees in respect of waste management.

41. Other Conditions of Licence

- (1) A licence shall be granted on such terms and subject to such conditions as appear to the Waste Management Licensee to be appropriate and the conditions may relate—
- (a) to the activities which the licence authorises, and
 - (b) to the precautions to be taken and works to be carried out in connection with or in consequence of those activities;
- and accordingly requirements may be imposed in the licence which are to be complied with before the activities which the licence authorises have begun or after the activities which the licence authorises have ceased.

- (2) Conditions may require the holder of a licence to carry out works or do other things notwithstanding that he is not entitled to carry out the works or do the thing and any person whose consent would be required shall grant, or join in granting, the holder of the licence such rights in relation to the land as will enable the holder of the licence to comply with any requirements imposed on him by the licence.
- (3) Conditions may relate, where waste other than controlled waste is to be treated, kept or disposed of, to the treatment, keeping or disposal of that other waste.
- (4) It shall be the duty of waste management licensee to have regard to any guidance issued to them by the Agency with respect to the discharge of their functions in relation to licences.
- (5) A licence may not be surrendered by the holder except in accordance specific conditions set out in the Licence.
- (6) A licence is not transferable by the holder but the Waste Management Licensee may transfer it to another person, who becomes the occupier of the land or operator of the plant as the case may be.
- (7) A licence shall continue in force until it is revoked entirely by the EP Agency or it is surrendered and the surrender is accepted.
- (8) A licence shall not be issued for a use of land for which planning permission is required in pursuance of the Town or Urban Planning Act unless such planning permission is in force in relation to that use of the land.
- (9) Where the EP Agency proposes to issue a licence, the Agency shall, before it does so,—
 - (a) refer the proposal to the Public Health Licensee and water resources management agency in the area; and
 - (b) consider any representations about the proposal which the Licensee or the Agency makes to it during the allowed period.
- (10) If, following the referral of a proposal to water resources management agency and the Public Health Licensee they requests that the licence should not issued or disagrees about the conditions of the proposed licence either of them may refer the matter to the Environment Protection Agency and the licence shall not be issued except in accordance with the consideration of the matters referred and a decision of the Agency.

42. Grant of a Licence

- (1) A licence shall be issued within three (3) months from the date of receipt of the complete application by the EP Agency.
- (2) If the EP Agency declines to issue a Licence to an Applicant it shall inform the Local Licensee and give its reasons in writing;
- (3) A Local Licensee whose application has been rejected may upon fulfilment of conditions submit another Application for a Licence to the EP Agency.
- (4) The EP Agency may appoint a City and Town Licensee to extend its operations to another Licensee area of jurisdiction for a period of time being not more than two years, or until such time as the defaulting Licensee gains capacity to fulfil its obligations under these Regulations.
- (5) A Licence shall be issued upon the payment of the prescribed fee in Form provided in Schedule
- (6) The fees for a Licence shall be paid **yearly (to be determined)** as contained in Schedule
- (7) A Licence shall be for a period of **3 years**

43. Commercial Business Operations for Waste Management

- (1) On application of a waste management licensee, the Agency may, give consent to an existing waste management licensee or, in the case of joint City and Town authorities desiring to apply for jointly as one waste management licensee , to the constituent authorities allowing them, to: (a) form or participate in forming of waste disposal companies; and (b) transfer to the companies so formed, by and in accordance with a scheme made by agreement, any of the the relevant part of their undertakings; And,
- (2) A waste management licensee shall accordingly have power to form, and hold securities in, any company so established.
- (3) The Agency shall be informed of and verify the terms of partnership that —
 - (a) the form of the company and the undertaking transferred are satisfactory; and
 - (b) the requirements of Regulations on compliance with separate and below management arrangements shall be fulfilled;
 - (c) and “satisfactory” means satisfactory by reference to the corresponding arrangements to which the Agency would give its approval for the purposes of a waste transfer an disposal scheme under these Regulations.
- (4) A waste disposal Licensee shall, for so long as it controls a company which it has formed or participated in forming, so exercise its control as to secure that the company does not engage in activities other than the following activities or any activities incidental or conducive to, or calculated to facilitate, them, that is to say, the disposal, keeping or treatment of waste and the collection of waste.
- (5) A waste disposal Licensee shall, by entering into agreement provide conditions to any company (referred to as contractor or operator) undertaking any part of its operations with sanctions and measures for compliance and enforcement, which agreement shall be approved by the Agency.
- (6) A community based organisation may be appointed as a contractor of such undertaking (contractor or operator) subject to compliance with conditions.

44. Functions of waste management licensee

- (1) It shall be the duty of each waste management licensee to arrange—
 - (a) for the disposal of the controlled waste collected in its area by the waste collectors or contractors; and
 - (b) for places to be provided at which persons resident in its area may deposit their household waste and for the disposal of waste so deposited;
- (2) The arrangements made by a waste management licensee under sub-regulation (1)(b) above shall be such as to secure that—
 - (a) each place is situated either within the area of the residence or so as to be reasonably accessible to persons resident in its area;
 - (b) each place is available for the deposit of waste at all reasonable times
 - (c) each place is available for the deposit of waste free of charge by persons resident in the area;but the arrangements may restrict the availability of specified places to specified descriptions of waste.
- (3) A waste management licensee may include in arrangements made under these Regulations for the places provided for its area for the deposit of household waste free of charge by residents in its area to be available for the deposit of

household or other controlled waste by other persons on such terms as to payment (if any) as may be determined.

- (4) For the purpose of discharging its duty under Regulation (1)(a) above as respects controlled waste collected as mentioned in that paragraph a waste management licensee—
- (a) shall give directions to the collectors or contractors within its area as to the persons to whom and **places at** which such waste is to be delivered;
 - (b) may arrange for the provision, within or outside its area, by waste disposal contractors of **places at which such waste may be treated** or kept prior to its removal for treatment or disposal;
 - (c) may make available to waste disposal contractors (and accordingly own) **plant and equipment** for the purpose of enabling them to keep such waste prior to its removal for disposal or to treat such waste in connection with so keeping it or for the purpose of facilitating its transportation;
 - (d) may make available to waste disposal contractors (and accordingly hold) **land for the purpose of enabling them to treat, keep or dispose** of such waste in or on the land;
 - (e) may contribute towards the **cost** incurred by persons who produce commercial or industrial waste in providing and maintaining plant or equipment intended to deal with such waste before it is collected; and
 - (f) may contribute towards the cost incurred by persons who produce commercial or industrial waste in providing or maintaining pipes or associated works connecting with pipes provided by a waste management licensee within the area of the waste disposal waste management licensee.
- (5) For the purpose of discharging its duties under Regulation (1)(b) above as respects household waste deposited as mentioned in that paragraph a waste management licensee—
- (a) may arrange for the provision, within or outside its area, by waste disposal contractors of places at which such waste may be treated or kept prior to its removal for treatment or disposal;
 - (b) may make available to waste disposal contractors (and accordingly own) plant and equipment for the purpose of enabling them to keep such waste prior to its removal for disposal or to treat such waste in connection with so keeping it or for the purpose of facilitating its transportation; and
 - (c) may make available to waste disposal contractors (and accordingly hold) land for the purpose of enabling them to treat, keep or dispose of such waste in or on the land.
- (6) Where the arrangements made under this Regulation include such arrangements as are authorised, as respects household or other controlled waste, it applies as respects to commercial and industrial waste.
- (7) Provided that no such contractor or operator may undertake all of the functions of a Licensee.

45. Waste disposal plans of waste management licensee

- (1) It shall be the duty of each waste management licensee—
- (a) to carry out an investigation with a view to deciding what arrangements are needed for the purpose of treating or disposing of controlled waste which is situated in its area and controlled waste which is likely to be so

- situated so as to prevent or minimise pollution of the environment or harm to human health;
- (b) to decide what arrangements are in the opinion of the authority needed for that purpose and how it should discharge its functions in relation to licences;
 - (c) to prepare a statement ("the plan") of the arrangements made and proposed to be made by waste disposal contractors, waste management licensee and waste disposal contractors, for the treatment or disposal of such waste;
 - (d) to carry out from time to time further investigations with a view to deciding what changes in the plan are needed; and
 - (e) to make any modification of the plan which the authority thinks appropriate in consequence of any such further investigation.
- (2) In considering any arrangements or modification for the purposes of Regulation (1) (c) or (e) above it shall be the duty of the Licensee to have regard both to the likely cost of the arrangements or modification and to their likely beneficial effects on the environment.
- (3) It shall be the duty of the Licensee to include in the plan information as to—
- (a) the kinds and quantities of controlled waste which the authority expects to be situated in its area during the period specified in the plan;
 - (b) the kinds and quantities of controlled waste which the authority expects to be brought into or taken for disposal out of its area during that period;
 - (c) the kinds and quantities of controlled waste which the authority expects to be disposed of within its area during that period;
 - (d) the methods and the respective priorities for the methods by which in the opinion of the authority controlled waste in its area should be disposed of or treated during that period;
 - (e) the policy of the authority as respects the discharge of its functions in relation to licences and any relevant guidance issued by the Secretary of State;
 - (f) the sites and equipment which persons are providing and which during that period are expected to provide for disposing of controlled waste; and
 - (g) the estimated costs of the methods of disposal or treatment provided for in the plan;
- but, provision may be made by the Agency by regulations for modifying the foregoing paragraphs and for requiring the Licensee to take into account in preparing plans and any modifications of plans under this Regulation such factors as may be prescribed in the regulations.
- (4) In considering what information to include in the plan under Regulation (3)(d) above, it shall be the duty of the Licensee to have regard to the desirability, where reasonably practicable, of giving priority to recycling waste.
- (5) It shall be the duty of the Licensee in preparing the plan and any modification of it, to consult—
- (a) any water resources management authority any part of whose area is included in the area of the waste management licensee;
 - (b) the collectors or contractors who are or may be included in the area of the Licensee;
 - (c) in a case where provisions of the plan or modification relate to the taking of waste for disposal or treatment into the area of another waste management licensee, that other Licensee; and

- (d) in any case, such persons as the Licensee considers it appropriate to consult from among persons who in the opinion of the Licensee are or are likely to be, or are representative of persons who are or are likely to be, engaged by way of trade or business in the disposal or treatment of controlled waste situated in the area of the Licensee; and before finally determining the content of the plan or modification, to take, subject to Regulation (6) below, such steps as in the opinion of the waste management licensee will—
 - (e) give adequate publicity in its area to the plan or modification; and
 - (f) provide members of the public with opportunities of making representations to the waste management licensee about it;
 - (g) and to consider any representations made by the public and make any change in the plan or modification which the waste management licensee considers appropriate.
- (6) Without prejudice to the duty of authorities under Regulation (5) above, it shall be the duty of the waste management licensee, in preparing the plan and any modification of it, to consider, in consultation with the collectors or contractors in its area and any other persons,—
 - (a) what arrangements can reasonably be expected to be made for recycling waste; and
 - (b) what provisions should be included in the plan for that purpose.
- (7) A waste management licensee shall not finally determine the content of the plan or modification in a case falling within Regulation (5)(c) above except with the consent of the other waste management licensee or, if the other waste management licensee withholds its consent, with the consent of the EP Agency;
- (8) It shall be the duty of the waste management licensee, before finally determining the content of the plan or modification, to send a copy of it in draft to the Agency for the purpose of enabling the Agency to determine whether Regulation (3) above has been complied with; and, if the Agency gives any directions to the waste management licensee for securing compliance with these Regulations, it shall be the duty of the waste management licensee to comply with the direction;
- (9) When a waste management licensee has finally determined the content of the plan or a modification it shall be the duty of the waste management licensee—
 - (a) to take such steps as in the opinion of the waste management licensee will give adequate publicity in its area to the plan or modification; and
 - (b) to send to the Agency a copy of the plan or, as the case may be, particulars of the modification.
- (10) The Agency may give to any waste management licensee directions as to the time by which the waste management licensee is to perform any duty imposed by these Regulations specified in the direction; and it shall be the duty of the waste management licensee to comply with the direction.
- (11) Failure to comply with duties prescribed shall result in liability for payment of financial penalties.

46. Waste recycling plans by waste management Licensees

- (1) It shall be the duty of each waste management licensee, as respects household and commercial waste arising in its area—

- (a) to carry out an investigation with a view to deciding what arrangements are appropriate for dealing with the waste by separating, baling or otherwise packaging it for the purpose of recycling it;
 - (b) to decide what arrangements are in the opinion of the Licensee needed for that purpose;
 - (c) to prepare a statement ("the plan") of the arrangements made and proposed to be made by the Licensee and other persons for dealing with waste in those ways;
 - (d) to carry out from time to time further investigations with a view to deciding what changes in the plan are needed; and
 - (e) to make any modification of the plan which the Licensee thinks appropriate in consequence of any such further investigation.
- (2) In considering any arrangements or modification for the purposes of Regulation (1)(c) or (e) above it shall be the duty of the Licensee to have regard to the effect which the arrangements or modification would be likely to have on the amenities of any locality and the likely cost or saving to the Licensee attributable to the arrangements or modification.
- (3) It shall be the duty of a waste management licensee to include in the plan information as to—
 - (a) the kinds and quantities of controlled waste which the Licensee expects to collect during the period specified in the plan;
 - (b) the kinds and quantities of controlled waste which the Licensee expects to purchase during that period;
 - (c) the kinds and quantities of controlled waste which the Licensee expects to deal with in the ways specified in Regulation (1)(a) above during that period;
 - (d) the arrangements which the Licensee expects to make during that period with waste disposal contractors for them to deal with waste in those ways;
 - (e) the plant and equipment for the purpose
 - (f) the estimated costs or savings attributable to the methods of dealing with the waste in the ways provided for in the plan.
- (4) It shall be the duty of a waste management Licensee, before finally determining the content of the plan or a modification, to send a copy of it in draft to the EP Agency to determine whether these Regulations the Environment Protection Law and its other Regulations have been complied with;
- (5) Where the a waste management licensee has made a plan with a waste disposal contractor, as respects household waste or commercial waste in its area or any part of its area, for the contractor to recycle the waste, or any of it, the EP Agency, by notice served on the waste collection Licensee, approve the arrangement or object to the waste management licensee having the waste recycled; and the objection may be made as respects all the waste, part only of the waste or specified descriptions of the waste.
- (6) An approval may be made subject to conditions and an objection may be made with a requirement of review of permission if certain specified conditions are met.
- (7) A waste management licensee may, subject to Regulation (8) below, provide plant and equipment for the sorting and baling of waste.
- (8) A waste management licensee may permit another person to use facilities provided by the contractor under Regulation (7) above and may provide for the

use of another person any such waste management facilities as the Licensee has power to provide under that Regulation;

47. Powers for recycling waste

- (1) This Regulation has effect of conferring on waste management licensee and its contractors, powers and operators and any person for the purposes of recycling waste.
- (2) A waste management licensee may—
 - (a) make arrangements with its waste contractors if any, for them to recycle waste
 - (b) make arrangements with waste disposal contractors for them to use waste for the purpose of producing from it heat or electricity or both;
 - (c) buy or otherwise acquire waste with a view to its being recycled;
 - (d) use, sell or otherwise dispose of waste as respects products or anything produced from such waste.
- (3) A waste management licensee may—
 - (a) buy or otherwise acquire waste with a view to recycling it;
 - (b) use, or dispose of by way of sale or otherwise to another person, waste or anything produced from such waste within its area of operation.

48. Payments & Rebates for recycling and disposal, Clean Production Mechanisms etc. of waste

- (1) Where, an operator or contractor retains for recycling waste collected by it under these Regulations, the waste management licensee for the area shall make to that waste operator or contractor payments, in respect of the waste so retained, of such amounts representing its net saving of expenditure on the disposal of the waste as the waste management licensee determines.
- (2) Where, by reason of the discharge by an operator of a plant, waste arising in its area does not fall to be collected by a waste management licensee, by virtue of the treatment or recycling mechanisms, the waste management licensee shall make to the operator such rebates in respect of clean production mechanisms, of such amounts representing its net saving or expenditure on the collection of the waste as the waste management licensee determines.
- (3) Where a person other than a waste collection waste management licensee, for the purpose of recycling it, collects waste arising in the area of a waste management licensee which would fall to be collected under these Regulations, the waste management licensee may make to that person payments, in respect of the waste so collected, of such amounts representing its net saving of expenditure on the disposal of the waste as the waste management licensee determines.
- (4) The Agency may, impose on waste management licensee a duty to make payments corresponding to the payments which are authorised by Regulation (3) above to such persons in such circumstances and in respect of such descriptions or quantities of waste as are specified in the regulations.
- (5) An operator shall be entitled to receive from a waste management licensee such sums as are needed to reimburse the waste management licensee the reasonable cost of making arrangements for the disposal of commercial and industrial waste collected in the area of the waste disposal of such waste management licensee.
- (6) Failure to comply with duties prescribed shall be result in liability for payment of financial penalties as prescribed in Schedule .

PART IX: COMPLIANCE AND ENFORCEMENT

49. Functions of EP Agency and Environment Inspectors

- (1) The EP Agency shall designate its Environment Inspectors having suitable qualifications in waste management to assist in:
 - (a) Compliance with these Regulations and the Act;
 - (b) Field Inspections of land, sites, storage, transportation and mobile facilities, disposal and treatment facilities;
 - (c) Maintenance of data on waste management by Licensees, contractors and operators, and institutions or any person under an obligation;
- (2) For the said purposes an Environment Inspectors shall exercise such powers as conferred by the Act.
- (3) Upon report received by an Environment Inspector, or such other person, it shall be the duty of the EP Agency to serve a notice of remedial measures and issue such directions as may be necessary to the Licensee and the person being the operator or owner of the premises;
- (4) Where, on service of a notice of remedial measures, it appears to the EPA that the condition of the land , sites, storage, transportation and mobile facilities, disposal and treatment facilities is, by reason of the relevant matters affecting the operation of work, such that pollution of the environment or harm to human health is likely to be caused, it shall be the duty of the EP Agency to undertake remedial measures and do such works and take such other steps (whether on the land affected or on adjacent land) as appear to the Agency to be reasonable to avoid such pollution or harm.
- (5) Where the EP Agency exercises in relation to waste on any land the duty imposed by subsection (7) above, the EP Agency shall, be entitled to recover the cost or part of the cost incurred in doing so from the Licensee and the person who is for the time being the owner of the land (whoever is liable), except such of the cost as that person shows was incurred unreasonably.
- (6) Failure to comply with duties prescribed shall be result in liability for payment of financial penalties.
- (7) Any person who obstructs an Environment Inspector in the course of their duty under this Regulation commits an offence.

50. Reporting

- (1) Each waste management licensee shall prepare and publish annual report relating to its functions and scope of work as a waste management licensee:
 - (a) Send a copy of the report to the EP Agency;
 - (b) Provide Information and the annual report to the public;
- (2) Hold public consultation processes in partnership with communities, commercial enterprises, industries, neighbourhood associations and non- governmental organisations and any other persons from time to time.

51. Powers of EP Agency in case of Default by Licensee

- (1) If the EP Agency is satisfied that a waste management licensee has failed, in any respect, to discharge any function under this Part which it ought to have discharged, it may make an order declaring the Licensee to be in default.
- (2) The failure to discharge any such function may be a failure in a class of case to which the function relates or a failure in a particular case.
- (3) An order made under subsection (1) above which declares a Licensee to be in default may, for the purpose of remedying the default, direct the Licensee ("the defaulter in this case") to perform any function specified in the order (whether in relation to a class of case or a particular case) and may specify the manner in which and the time or times within which the function is to be performed by the Licensee.
- (4) If the defaulting authority fails to comply with any direction contained in such an order the EP Agency may, instead of enforcing the order by court proceedings of mandamus, make an order transferring to itself any function of the Licensee specified in the order, whether in relation to all the classes of case to which the function relates or to such of those classes or, as the case may be, such particular case as is specified in the order.
- (5) Where any function of a defaulting authority is transferred under subsection (4) above, the amount of any expenses which the EP Agency certifies were incurred by them in performing the function shall on demand be paid to it by the defaulting Licensee.

52. Prosecution, Charges & General Defences

- (1) Criminal prosecutions may be referred to a Magistrate *of ... Category* for hearing and determination of offences under these Regulations.
- (2) It shall be a defence for a person charged with an offence under this Regulation to prove: —
 - (a) that he took all reasonable precautions and exercised all due diligence to avoid the commission of the offence; or
 - (b) that the acts alleged to constitute the contravention were done in an emergency in order to avoid danger to the public and that, as soon as reasonably practicable after they were done, particulars of them were furnished to the Agency, licensee or government authority in whose area the treatment or disposal of the waste took place.

53. General Provision for Non-compliance or Breach of Regulations

Save as is expressly provided for, any act or omission that constitutes an offence under these Regulations shall be an offence subject to penalties provided by the Act.

54. Provision for other Remedies

The imposition of a penalty by a Magistrates Court made in accordance with these Regulations and the Act shall not prejudice any remedy for recovery of damages for any loss and restoration of the environment.

55. Bye Laws

The City and Town Councils (in these Regulations described as a Licensee) shall in consultations with the Agency, respective County and District Environment Committees promulgate by-laws to regulate waste standards and littering offences and to implement and enforce compliance of these Regulations within months of the coming into force of these Regulations.

56. Appeals on Licensing

Any person aggrieved by the decision of the Agency in respect of licensing under these Regulations may appeal to the Environment Administrative Court established under the Environment Protection Agency Act.

SCHEDULES:

Application for a License
Standards & Guidelines for Waste

Descriptions:

Household
Commercial
Industrial
Biomedical

LICENCE FEES

Application for a Licence.....Dollar. 00
Licence.....Dollar.00

SCHEDULES: ENVIRONMENT PROTECTION AGENCY

PART X: Treatment of Industrial Waste

NATURAL RUBBER PROCESSING INDUSTRY

| Parameters | Centrifuging and creaming units for disposal | | Crape and crumb units for disposal | |
|------------|--|--|--|--|
| | into inland surface water | on land for irrigation | into inland surface water | on land for irrigation |
| | (a) | (b) | (a) | (b) |
| | (concentration in mg/l, except pH & quantum of waste water generation) | (concentration in mg/l, except pH and quantum of waste water generation) | (concentration in mg/l, except pH & quantum of waste water generation) | (concentration in mg/l, except pH and quantum of waste water generation) |

| | | | | |
|-----------------------------------|-------------------------------|-------------------------------|--------------------------------|--------------------------------|
| pH | 6 - 8 | 6 - 8 | 6 - 8 | 6 - 8 |
| Total Kjeldahl nitrogen (as N) | 200(100*) | *** | 50 | *** |
| Ammoniacal nitrogen (as N) | 100 (50*) | *** | 25 | *** |
| BOD at 27°C for 3 days | 50 | 100 | 30 | 100 |
| COD | 250 | *** | 250 | *** |
| Oil & grease | 10 | 20 | 10 | 20 |
| Sulphide (as S) | 2 | *** | 10 | 20 |
| TDS | 2100 | NP** | 2100 | NP** |
| SS | 100 | 200 | 100 | 200 |
| Quantum of waste water generation | 5 lit/kg of product processed | 8 lit/kg of product processed | 40 lit/kg of product processed | 40 lit/kg of product processed |

PART XI: BIO-MEDICAL WASTE

Regulation 23: HOSPITAL (BIO-MEDICAL) WASTES

STANDARDS & GUIDELINES FOR OPERATION OF WASTE TREATMENT FACILITY & DISPOSAL SITE

A. Operating Standards: Incinerator

1. Combustion efficiency (CE) shall be at least 99.00%.

2. The combustion efficiency is computed as follows:

$$\text{C.E.} = \frac{\% \text{CO}_2}{\% \text{CO}_2 + \text{CO}} \times 100$$

3. The temperature of the primary chamber shall be 800 + 50 deg C.

4. The secondary chamber gas residence time shall be at least 1 (one) second at 1050+ 50°C, with minimum 3% Oxygen in the stack gas.

b. Emission Standards

| Parameters | | Concentration mg/Nm3 at (12% CO2 correction) |
|------------|--|--|
| 1 | Particulate matter | 150 |
| 2 | Nitrogen Oxides | 450 |
| 3 | HCl | 50 |
| 4 | Minimum stack height shall be 30 metres above ground | |
| 5 | Volatile organic compounds in ash shall not be more than 0.01% | |

Note

- incinerator to achieve the above emission limits, if necessary.
- Wastes to be incinerated shall not be chemically treated with any chlorinated disinfections
- Chlorinated plastics shall not be incinerated.
- Toxic metals in incineration ash shall be limited within the regulatory quantities as defined under the Hazardous Waste (Management and Handling Rules), 1989.
- Only low sulphur fuel like L.D.O./L.S.H.S./Diesel shall be used as fuel in the incinerator.

34.2 Standards for Waste Autoclaving

The autoclave should be dedicated for the purposes of disinfecting and treating bio-medical waste.

1. When operating a gravity flow autoclave, medical waste shall be subjected to:

| | |
|---|--|
| i. | a temperature of not less than 121°C and pressure of 15 pounds per square inch (psi) for an autoclave residence time of not less than 60 minutes; or |
| ii. | a temperature of not less than 135°C and a pressure of 31 psi for an autoclave residence time of not less than 45 minutes; or |
| iii. | a temperature of not less than 149°C and a pressure of 52 psi for an autoclave residence time of not less than 30 minutes. |
| <p>When operating a vacuum autoclave, medical waste shall be subjected to a minimum of one pre-vacuum pulse to purge the autoclave of all air. The waste shall be subjected to the following.</p> | |
| i. | a temperature of not less than 121°C and pressure of 15 psi per an autoclave |

residence time of not less than 45 minutes; or

- ii. a temperature of not less than 135oC and a pressure of 31 psi for an autoclave residence time of not less than 30 minutes.

- 1 Medical waste shall not be considered properly treated unless the time, temperature and pressure indicators indicate that the required time, temperature and pressure were reached during the autoclave process. If for any reasons, time temperature or pressure indicator indicates that the required temperature, pressure or residence time was not reached, the entire load of medical waste must be autoclaved again until the proper temperature, pressure and residence time were achieved.

Recording of operational parameters

- 2 Validation test spore testing:

The autoclave should completely and consistently kill the approved biological indicator at the maximum design capacity of each autoclave unit. Biological indicator for autoclave shall be *Bacillus stearothermophilus* spores using vials or spore strips, with at least 1x10⁴ spores per millilitre. Under no circumstances will an autoclave have minimum operating parameters less than a residence time of 30 minutes, regardless of temperature and pressure, a temperature less than 121oC or a pressure less than 15 psi.

- 3 Routine

A chemical indicator strip/tape that changes colour when a certain temperature is reached can be used to verify that a specific temperature has been achieved. It may be necessary to use more than one strip over the waste package at different location to ensure that the inner content of the package has been adequately autoclaved.

34.3 Standards for Liquid Waste

The effluent generated from the hospital should conform to the following limits:

| PARAMETERS | PERMISSIBLE LIMITS |
|--|--|
| pH | 6.5-9.0 |
| Suspended solids | 100 mg/l |
| Oil and grease | 10 mg/l |
| BOD (3 days at 27oC | 30 mg/l |
| COD | 250 mg/l |
| Bio-assay test | 90% survival of fish after 96 hours in 100% effluent |
| <p>These limits are applicable to those hospitals which are either connected with sewers without terminal sewage treatment plant or not connected to public sewers. For discharge into public sewers with terminal facilities, the general standards as notified under the Environment (Protection) Act, 1986 shall be applicable</p> | |
| 34.4 Standards of Microwaving | |
| <ol style="list-style-type: none"> 1. Microwave treatment shall not be used for cytotoxic, hazardous or radioactive wastes, contaminated animal carcasses, body parts and large metal items. 2. The microwave system shall comply with the efficacy test/routine tests and a performance guarantee may be provided by the supplier before operation of the unit. 3. The microwave should completely and consistently kill the bacteria and other pathogenic organisms that is ensured by approved biological indicator at the maximum design capacity of each microwave unit. Biological indicators for microwave shall be Bacillus subtilis spores using vials or spore strips with at least 1x10⁴ spores per millilitre. | |
| 34.5 Standards for Deep Burial | |
| <ol style="list-style-type: none"> 1. A pit or trench should be dug about meters deep. It should be half filled with waste, then covered with lime within 50 cm of the surface, before filling the rest of the pit with soil. 2. It must be ensured that animals do not have any access to burial sites. Covers of galvanised iron/wire meshes may be used. 3. On each occasion, when wastes are added to the pit, a layer of 10 cm of soil shall be added to cover the wastes. | |

4. Burial must be performed under close and dedicated supervision.
5. The deep burial site should be relatively impermeable and no shallow well should be close to the site.
6. The pits should be distant from habitation, and sited so as to ensure that no contamination occurs of any surface water or ground water. The area should not be prone to flooding or erosion.
7. The location of the deep burial site will be authorised by the prescribed authority.
8. The institution shall maintain a record of all pits for deep burial.

WASTE MANAGEMENT & STANDARDS REGULATIONS

PART XII: BIO-MEDICAL WASTE: GUIDELINES FOR DESIGN AND CONSTRUCTION OF BIO-MEDICAL WASTE INCINERATOR

1 . General

1. These guidelines shall be applicable only to the new installation of incinerators. However, the existing incinerator shall be retrofitted with Air Pollution Control Device as mentioned in these guidelines.
2. Installation of individual incineration facility by a healthcare unit shall be discouraged as far as possible but approval may be granted only in certain inevitable situations where no other option is available.

2. Incinerator Design

The following design criteria may be adopted for better performance:

- I. The incinerator shall be designed for capacity more than 50 kg/hr. For 50 kg/hr capacity, the minimum hearth area shall be 0.75 sq. m (8 sq. feet) and the minimum flow of the flue gas in the secondary chamber shall be 0.6 m³/sec at 1050°C. Each incinerator must be installed with an air pollution control system (as specified in the section 3).
- II. The size of the opening through which the waste is charged shall be larger than the size of the waste bag to be fed. The volume of the primary chamber shall be at least five times the volume of one batch.
- III. The double chamber incinerator shall preferably be designed on "controlled-air" incineration principle, as particulate matter emission is low in such incinerator. Minimum 100% excess air shall be used for overall design. Air supply in the primary and secondary chamber shall be regulated between 30%-80% and 170%- 120% of stoichiometric amount respectively. Primary air shall be admitted near / at the hearth for better contact. Flow meter / suitable flow measurement device shall be provided on the primary & secondary air ducting. The combustion air shall be supplied through a separate forced draft fan after accounting for the air supplied through burners.
Optional: For higher capacity incinerators, typically above 250 kg/hr, other design e.g. Rotary Kiln shall be preferred.
- IV. A minimum negative draft of 1.27 to 2.54 mm of WC (Water Column) shall be maintained in the primary chamber to avoid leakage of gaseous emissions from the chamber and for

safety reasons. Provision shall be made in the primary chamber to measure the Water Column pressure.

V. The waste shall be fed into the incinerator in small batches after the fixed interval of time in case of fixed hearth incinerator and continuous charging using appropriate feeding mechanism in case of rotary kiln incinerator or as recommended by the manufacturer. The size of the hearth i.e. primary chamber shall be designed properly.

VI. The sides and the top portion of the primary and secondary chambers shall preferably have rounded corner from inside to avoid possibility of formation of black pockets/dead zones.

VII. The size of the secondary chamber shall be properly designed so as to facilitate a minimum of one second of residence time to gas flow. For the estimation of residence time in the secondary chamber its volume shall be calculated starting from the secondary burner tip to the thermocouple.

VIII. The refractory lining of the chamber shall be strong enough to sustain minimum temperature of 1000°C in the primary chamber and 1200°C in the secondary chamber. The refractory & insulation bricks shall have minimum 115 mm thickness each & conform to IS:8-1983 & IS:2042-1972 respectively.

IX. The Incinerator shell shall be made of mild steel plate of adequate thickness (minimum 5 mm thick) & painted externally with heat resistant aluminum paint suitable to withstand temperature of 250°C with proper surface preparation. Refractory lining of the hot duct shall be done with refractory castable (minimum 45 mm thick) & insulating castable (minimum 80 mm thick). Ceramic wool shall be used at hot duct flanges & expansion joints.

X. The thermocouple location shall be as follows:

In Primary chamber - Before admission of secondary air

In Secondary chamber - At the end of secondary chamber or before admission of dilution medium to cool the gas

XI. There shall be a separate burner each for the Primary & Secondary chamber. The heat input capacity of each burner shall be sufficient to raise the temperature in the primary and secondary chambers as $800\pm 50^{\circ}\text{C}$ and $1050\pm 50^{\circ}\text{C}$ respectively within maximum of 60 minutes prior to waste charging. The burners shall have automatic switching "off/on" control to avoid the fluctuations of temperatures beyond the required temperature range.

- a) Each burner shall be equipped with spark igniter and main burner;
- b) Proper flame safeguard of the burner shall be installed;
- c) Provide view ports to observe flame of the burner;
- d) Flame of the primary burner ;

- i) Shall be pointing towards the centre of the hearth;
 - ii) Shall be having a length such that it touches the waste but does not impinge directly on the refractory floor or wall.
- e) The secondary burner shall be positioned in such a way that the flue gas passes through the flame.

XII. There shall not be any manual handling during charging of waste in to the primary chamber of the incinerator. The waste shall be charged in bags through automatic feeding device at the manufacturer's recommended intervals ensuring no direct exposure of furnace atmosphere to the operator. The device shall prevent leakage of the hot flue gas & any backfire. The waste shall be introduced on the hearth in such a way so as to prevent the heap formation. Suitable raking arrangement shall be provided for uniform spreading of waste on the hearth.

XIII. A tamper-proof PLC(Programmable Logic Control) based control system shall be installed to prevent:

Waste charging until the required temperature in the chambers are attained during beginning of the operation of the incinerator.

Waste charging unless primary & secondary chambers are maintained at the specified temperature range.

Waste charging in case of any unsafe conditions such as - very high temperature in the primary & secondary chambers; failure of the combustion air fan, ID fan, recirculation pump; low water pressure & high temperature of the flue gas at the outlet of air pollution control device.

XIV. The incineration system must have an emergency vent. The emergency vent shall remain closed i.e it shall not emit flue gases during normal operation of the incinerator.

XV. Each incineration system shall have graphic or computer recording devices which shall automatically and continuously monitor and record dates, time of day, batch sequential number and operating parameters such as temperatures in both the chambers. CO, CO₂, and O₂ in gaseous emission shall also be measured daily (atleast ½ hour at one minute interval).

XVI. The possibility of providing heat recovery system/heat exchanger with the incinerator shall also be considered wherever possible.

XVII. Structural design of the chimney / stack shall be as per IS:6533-1989. The chimney/stack shall be lined from inside with minimum of 3 mm thick natural hard rubber suitable for the duty conditions and shall also conform to IS:4682 Part I-1968 to avoid corrosion due to oxygen and acids in the flue gas.

XVIII. The location and specification of porthole, platform ladder etc. shall be as per the Emission Regulations, Part-3 (COINDS/20/1984-85), published by CPCB.

3. Incinerator: Air Pollution Control Device

It is not possible to comply with the emission limit of 150 mg/Nm³ (corrected to 12% CO₂) for Particulate Matter, without Air Pollution Control Device (APCD). Therefore, a bio-medical waste incinerator shall always be equipped with APCD.

- i) No incinerator shall be allowed to operate unless equipped with APCD.
- ii) The incinerator shall be equipped with High Pressure Venturi Scrubber System as ordinary APCD such as wet scrubber or cyclonic separator cannot achieve the prescribed emission limit. For the facilities operating for 24 hrs a day, APCD in terms of dry lime injection followed by bag filter can be considered. The details of High Pressure Venturi Scrubber System are given in ANNEXURE-I.

4. Incinerator room and waste storage room

- i) The incinerator structure shall be built in a room with proper roofing and cross ventilation. There shall be a minimum of 1.5 m clear distance in all the directions from the incinerator structure to the wall of the incinerator room.

LICENCING FOR WASTE MANAGEMENT

Technical competence for Waste Facility Personnel A Licensee shall be technically competent for the purposes of a facility of a type listed in **Table below** if the officer operating the facility is a holder of one of the certificates in Waste Management Industry Training specified in that Table as being a relevant certificate of technical competence for that type of facility.

Table 1

| Type of facility | Relevant certificate of technical competence |
|--|--|
| A landfill site which receives special waste. | Managing landfill operations: special waste (level 1,2,3,4). |
| A landfill site which receives biodegradable waste or which for some other reason requires substantial engineering works to protect the environment but which in either case does not receive any special waste. | <ol style="list-style-type: none"> 1. Managing landfill operations: biodegradable waste (level ...); or 2. Managing landfill operations: special waste (level 4). |
| Any other type of landfill site with a total capacity exceeding ..,000 cubic metres. | <ol style="list-style-type: none"> 1. Landfill operations: inert waste (level 3); or 2. Managing landfill operations: biodegradable waste (level 4); or 3. Managing landfill operations: special waste (level 4). |
| A site on which waste is burned in an incinerator designed to incinerate waste at a rate of more than 50 kilograms per hour but less than 1 tonne per hour. | Managing incinerator operations: special waste (level 4). |
| A waste treatment plant where special waste is subjected to a chemical or physical process. | Managing treatment operations: special waste (level 4). |
| A waste treatment plant where waste is subjected to a chemical or physical process and none of the waste is special waste. | <ol style="list-style-type: none"> 1. Treatment operations: inert waste (level 3); or 2. Managing treatment operations: special waste (level 4) |
| A transfer station where— (a) biodegradable, clinical or special waste is dealt with; and (b) the total quantity of waste at the station at any time exceeds 5 cubic metres. | Managing transfer operations: special waste (level 4). |
| A transfer station where— (a) no biodegradable, clinical or special waste is dealt with; and (b) the total quantity of waste at the station at any time exceeds 50 cubic metres. | <ol style="list-style-type: none"> 1. Transfer operations: inert waste (level 3); or 2. Managing transfer operations: special waste (level 4) |

| | |
|-----------------------|--|
| | |
| A civic amenity site. | Civic amenity site operations (level 3) |

**SCHEDULE ON CONTROLLED WASTE FOR WHICH THE
LICENSEE SHALL CHARGE FOR COLLECTION, TRANSPORT,
DISPOSAL & TREATMENT**

**WASTE TO BE TREATED AS HOUSEHOLD WASTE FOR WHICH A CHARGE FOR
COLLECTION MAY BE MADE UNDER SCHEDULE ...**

1. Waste from residential premises in urban areas with a rating of—
2. Waste from a camp site.
3. Waste from a prison or other penal institution.
4. Waste from a hall or other premises used wholly or mainly for public meetings.
5. Waste from government ministry offices
6. Waste arising from the discharge by a local authority of its duty

**TYPES OF HOUSEHOLD WASTE FOR WHICH A CHARGE FOR COLLECTION
MAY BE MADE UNDER SCHEDULE.....**

1. Any article of waste which exceeds 25 kilograms in weight.
2. Any article of waste which does not fit, or cannot be fitted into—
 - (a) a receptacle for household waste provided in
 - (b) where no such receptacle is provided, a cylindrical container 750 millimetres in diameter and 1 metre in length.
3. Garden waste.
4. Clinical waste from a domestic property, a vehicle or from a moored vessel used wholly for the purposes of living accommodation.
5. Waste from a residential hostel, a residential home or from premises forming part of a university, school or other educational establishment or forming part of a hospital or nursing home.
6. Waste from domestic property or a property used in the course of a business for the provision of self-catering holiday accommodation.
7. Dead domestic pets.
8. Any mineral or synthetic oil or grease.
9. Asbestos.
10. Waste from a caravan which in accordance with any licence or planning permission regulating the use of the caravan site on which the caravan is stationed is not allowed to be used for human habitation throughout the year.
11. Waste from a camp site, other than from any domestic property on that site.
12. Waste from premises occupied by a charity and wholly or mainly used for charitable purposes, unless it is waste falling within paragraph 1 of Schedule 1.
13. Waste from a prison or other penal institution.
14. Waste from a hall or other premises used wholly or mainly for public meetings.
15. Waste from a Ministry or government office.

WASTE TO BE TREATED AS INDUSTRIAL AND COMMERCIAL WASTE FOR WHICH A CHARGE FOR COLLECTION MAY BE MADE UNDER SCHEDULE....

1. Waste from premises used for maintaining vehicles, vessels or aircraft, not being waste from a private garage
2. Waste from a laboratory.
3. Waste from a workshop or similar premises not being a factory within the meaning of the Factories Act
(2) In this paragraph, "workshop" does not include premises at which the principal activities are computer operations or the copying of documents by photographic or lithographic means.
4. Waste from premises occupied by a scientific research association approved by the Agency
5. Waste from dredging operations.
6. Waste arising from tunnelling or from any other excavation.
7. Poisonous or noxious waste arising from any of the following processes undertaken on premises used for the purposes of a trade or business—
 - (a) mixing or selling paints;
 - (b) sign writing;
 - (c) laundering or dry cleaning;
 - (d) developing photographic film or making photographic prints;
 - (e) selling petrol, diesel fuel, paraffin, kerosene, heating oil or similar substances; or
 - (f) selling pesticides, herbicides or fungicides.
8. Waste from premises used for the purposes of breeding, boarding, stabling or exhibiting animals.
9. (1) Waste oil, waste solvent scrap metal, other than—
(2) In this paragraph—
"waste oil" means mineral or synthetic oil which is contaminated, spoiled or otherwise unfit for its original purpose; and
"waste solvent" means solvent which is contaminated, spoiled or otherwise unfit for its original purpose.
10. Waste from premises occupied by a club, society or any association of persons (whether incorporated or not) in which activities are conducted for the benefit of the members.
11. Waste from premises occupied by—
 - (a) a court;
 - (b) a government department;
 - (c) a local authority;
 - (d) a body corporate or an individual appointed by or under any enactment to discharge any public functions; or
12. Waste from a market or fair.

SCHEDULE II: Forms

Form I: APPLICATION/RENEWAL FOR A LICENCE- TRANSPORTATION OF WASTE

Name and address of applicant

.....

Registration number and type of vehicles to transport waste (Attach docs)

.....

Type of Waste (Household, commercial, industrial)

.....

Quantity of waste per vehicle to be transported

.....

Licensed sites/plant to which waste is to be transported

.....

Distance from Location to Landfill/ Treatment site

Route No.

Collection schedule

Any other information

Attach Inspection of Vehicles document(s) from the relevant lead agency.

Is Application for: ☐ Initial licence ☐ Renewal

Previous License Number

Date Signature.....

Designation/Title:.....

FOR OFFICIAL USE ONLY

Application received by EPA..... on20.....

Fee paid \$.....(in words)

.....

(To be completed in Triplicate)

FORM: II

LICENCE TO TRANSPORT WASTE

Licence No

Name.....

Address

.....

.....

Licence to transport waste to (sites) in City/Town/County:

.....

Category of Waste

From (location/district/county)

.....

To Landfill Site

Situated at:

Route No. Authorised

.....

Type and registration number of vehicles licensed

Retrofitting to suite the Works Inspection Report

.....

.....

Vehicle licence is valid from

....to.....

This licence is granted subject to the following conditions:

Attach Agreements/Arrangements/MoUs/Plans

Administrative Management

Financial Management

Technical

.....

.....

Date:..... **Signature**.....

.....

FORM : III
TRACKING DOCUMENT

Transporter

Serial No.

A

Registered Name of Transporter.....

Usual Municipality/District of operation.....

License number

Issuing Authority

CONSIGNMENT NOTE FOR THE CARRIAGE AND DISPOSAL OF SOLID WASTE

B

Description of the waste

Area collected

Type of Waste.....

Description and physical nature of waste.....

Quantity/size of waste

Number of containers.....

C

Disposer's Certificate

I certify that I have received the waste as described in A and B above..

The waste was delivered in vehicle

_____ **(Registration No.) at**

_____ **(time) on**

_____ **(date) and the carrier gave**

his/her name as _____

on behalf of _____.

The waste shall be disposed of as per disposal licence conditions issued by the Agency.

Process: Landfill/Incineration

Signed: _____

Name: _____

Position: _____

Date: _____

On behalf of:

FORM IV : APPLICATION/RENEWAL FOR A LICENCE TO OWN/OPERATE A WASTE TREATMENT OR DISPOSAL SITE

(To be completed in Triplicate)

I hereby apply for a licence to own/operate a waste treatment plant/disposal site, of which particulars are given below:-

Name and address of applicant.....

.....
.....
.....

Location and district of plant/site

.....
.....
.....
.....

Approval of Town/Country Planning Authority

.....
.....
.....
.....

Types of waste to be disposed of at plant/site

.....
.....
.....
.....

Quantity being disposed of/per annum (tonnes/kg)

.....
.....
.....

Type of facilities/treatment to be carried on at plant/site:

(a) Land fill

(b) Compost.....

(c) Incinerator.....

Other (specify) Capacity/ Type of Waste

.....

Estimated life span of plant/site.....

Proposed hectareage/area of plant/site (include plan or designs).....

.....

Executive summary of environmental impact statement (please attach)

Is Application for: ☐ Initial license ☐ Renewal

Previous License Number

.....

E.I.A. License Number

.....

Any other Information.....

.....

.....

.....

Date:..... Signature:.....

Designation/Title:.....

FOR OFFICIAL USE ONLY

Application received

by.....on.....20.....

Fee paid \$.....(in words).....

.....

.....

FORM V

**LICENCE TO OWN/OPERATE WASTE TREATMENT
PLANT/DISPOSAL SITE**

Licence No.

Name.....

Address.....

**You are hereby licensed to own/operate a treatment plant/waste disposal
site:**

.....
(Plot No., division, district, County)

This licence is valid from.....20...

to.....20.....

This licence is subject to the following conditions:

.....
.....
.....
.....
.....
.....

Date:..... Signature.....

.....

Waste Disposer's Certificate

I certify that I have received the waste as described in A and B above.

The waste was delivered in vehicle.....

(Registration No.) at (time)

on (date) and the carrier gave

his/her name as on behalf of

.....

**The waste shall be disposed off as per disposal permit issued by the
Licensee.**

Signed: Name:

.....

Position:

Date:

On behalf of:

**A GUIDE TO:
COMPREHENSIVE INFORMATION REQUIRED FOR APPLICATION FOR WASTE
MANAGEMENT LICENCES
ITEM ACTIVITY/FACILITY TO BE LICENCE**

Vertical:

TRANSPORTATION

LANDFILL

INCINERATION

COMPOSTING

RECYCLING

Horizontal Guide:

- 3. Land registration number**
- 4. Site plan**
- 5. Conceptual model of the site**
- 6. Engineering design of the site**
- 7. Details on securing site**
- 8. Proposed controls for handling emissions**
- 9. Proposed methods for nuisance control**
- 10. Details of measures to control fire**
- 11. Accidents and emergency procedure**
- 12. List of equipment to be used on site**
- 13. Equipment maintenance programme**
- 14. Environmental monitoring plan**
- 15. Proof of technical competence of the operator**
- 16. Details of any environmental management system in place**
- 17. Health and safety procedures and equipment**
- 18. Evidence of financial provision**
- 19. Operating temperature range**
- 20. Residence time of waste**
- 20. Method to be used to dispose off ash**
- 21. Proposed final use of product**
- 22. Details on the proposed quality standard of the product**
- 23. Detail(s) of any relevant conviction of the operator(s)**
- 24. Geographical area covered by the operator**
- 25. Capacity of each vehicle used to carry waste**
- 26. Certification from the Agency that the vehicles are appropriate for the waste carried**
- 27. Tracking document to be used for waste movements**
- 28. Confirmation that vehicles are labelled appropriately**
- 29. Proof that the vehicles are insured to transport waste**
