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THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT

THE NATURAL RESOURCES CONSERVATION (WASTEWATER AND SLUDGE) REGULATIONS, 2013

In exercise of the power conferred upon the Minister by section 38 of the Natural Resources Conservation Authority Act and of every other power hereunto enabling, the following Regulations are hereby made:—

PART I. *Preliminary*

Citation.

1. These Regulations may be cited as the Natural Resources Conservation (Wastewater and Sludge) Regulations, 2013.

Interpretation.

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

"authorized officer" means—

(a) a person designated as such by the Authority;

(b) a member of the Jamaica Constabulary Force;

(c) any other person appointed in writing as such by the Minister;

"Class I waters" means waters in the Convention area, that due to inherent or unique environmental characteristics or fragile biological or ecological characteristics or human use, are particularly sensitive to the impacts of domestic wastewater, and includes but is not limited to—

(a) water containing coral reefs, sea grass beds or mangroves;

(b) critical breeding, nursery or forage areas for aquatic and terrestrial life;

(c) areas that provide habitat for species protected under the Protocol Concerning Specially Protected Areas and Wild Life to the Convention (the SPAW Protocol); and

(d) waters used for recreation;

"Class II waters" means water in the Convention area, other than Class I waters, that due to oceanographic, hydrologic, climatic or other factors are less sensitive to the impacts of discharges of domestic wastewater and where humans or living resources that are likely to be adversely affected by the discharges are not exposed to such discharges;

"commencement date" means the date of commencement of these Regulations;

"compliance plan" means a plan submitted in accordance with regulation 40;

"Convention" means the Convention for the Protection and Development of the Marine Environment of the Water Caribbean Region done at (Cartagena de Indias, in Colombia on the 24th of March 1983) and any amendment thereto as adopted, from time to time, as in force in relation to Jamaica;

"Convention area" means the marine environment of the Gulf of Mexico, the Caribbean Sea and the areas of the Atlantic Ocean adjacent thereto, south of 30^0 north latitude and within two hundred nautical miles of the Atlantic coast of the States referred to in Article 25 of the Convention;

"domestic septage" means material removed from a septic tank, cesspool, portable toliet or other device used in the collection, pre-treatment of any water-carried domestic waste;

"domestic wastewater" means discharges from households, commercial facilities, hotels, septage holders or any other entity and includes discharges from—

(a) toilet flushing;

(b) showers, wash basins, kitchens and laundries; and

(c) industries, provided their composition is compatible with treatment in a domestic wastewater system;

"existing treatment plant" means a treatment plant in operation at the commencement date and which meets the required standards as prescribed under regulation 18;

"industrial septage" means material removed from septic tanks or other devices used in the collection, pre-treatment or treatment of any water-carried waste resulting from any process of industry, manufacture, trade or business, where the design disposal of the waste is subsurface and includes domestic septage mixed with any industrial septage;

"industrial sludge" means a semi-solid or semi-liquid waste (with a water content of less than fifteen percent) generated during the treatment of trade effluent in a treatment plant resulting from commercial trade or industrial or agro-industrial operations and includes but is not limited to—

(a) industrial septage;

(b) scum or solids removed in treatment of trade effluent from livestock waste or aquaculture processes;

(c) red mud generated from bauxite processing; and

(d) oily waste;

"LBS Protocol" means the Protocol Concerning Pollution from Land-Based Sources and Activities to the Convention;

"licence" means a licence issued in accordance with regulation 5, 6 or 7, as the case may require and "licensee" shall be construed accordingly;

"livestock waste" means excreta from farm animals and includes waste from cattle, chickens, ducks, goats, horses, pigs, rabbits, sheep and turkeys;

"malfunction" means any sudden infrequent failure (that is not reasonably preventable) of equipment to operate in a normal manner, but does not include any failure that is primarily caused by poor maintenance or negligent operation;

"operator" means the individual or entity responsible for the operation of a treatment plant in whole or in part, whose duties include testing and evaluation to control wastewater operations and who possesses the technical skills required to operate a treatment plant;

"outfall" means any appurtenance or structure, intended for the ultimate discharge of sewage, trade effluent or domestic wastewater from a treatment plant;

"owner" means an individual or entity (whether or not incorporated) that owns a treatment plant;

"sewage collection system" means a system that collects sewage or domestic wastewater from multiple housing units (including apartment complexes) or from any community, district, town or city;

"sewage effluent" includes any effluent from a sewage disposal or sewage works;

"sewage effluent standards" means the sewage effluent standards as prescribed under regulation 18;

"sewage sludge"—

(a) means a solid, semi-solid or liquid residue generated during the treatment of domestic sewage in a treatment plant and includes but is not limited to domestic septage, scum or solids removed in primary, secondary or advanced wastewater treatment processes;

(b) but does not include—

(i) ash generated during the firing of sewage sludge in a sewage sludge incinerator; or

(ii) grit and screenings generated during preliminary treatment of domestic sewage in a treatment plant;

"trade effluent" includes any liquid, other than domestic sewage, (either with or without particles of matter in suspension in it) which is discharged from any premises—

(a) used for trade or industry; and

(b) used (whether or not for profit) for agricultural purposes or scientific research or experiment;

"trade effluent standards" means the trade effluent standards as prescribed under regulation 18;

"treatment plant" means any facility that is intended to receive and improve the quality of wastewater using physical, chemical or biological methods, singly or in combination;

"wastewater" means water that has been used and contains dissolved or suspended solids and is carried from residential, business or industrial sources.

Natural Resources Conservation Authority (Permits and Licences) Regulations, 1996, not to apply.

3. The provisions of the Natural Resources Conservation Authority (Permits and Licences) Regulations, 1996, shall not apply to any licence issued under these Regulations to construct, reconstruct or alter works for the discharge of sewage effluent, trade effluent or both or to discharge sewage effluent, trade or both.

PART II. *Class I and II Waters*

Declaration of waters within the Convention Area as Class I or II waters.

4.—(1) The Authority may, after consultation with the Water Resources Authority and in accordance with the LBS Protocol, declare the waters within the Convention area as Class I waters or Class II waters.

(2) Subject to paragraph (1), the Authority shall take steps necessary to attain or maintain the Class I waters designation.

PART III. *Licences*

Application for licence to operate a treatment plant. Form 1. First Schedule.

5.—(1) Subject to paragraph (2), a person who intends to operate a treatment plant for the discharge of trade effluent or sewage effluent shall apply to the Authority for a licence in the form set out as Form 1 in the First Schedule.

(2) A licence shall not be required if—

(a) the discharge or entry of trade effluent or sewage effluent results from domestic wastewater treated by—

(i) means of absorption or soak away pits; or

(ii) other prescribed waste disposal systems; and

(b) it is in accordance with such provisions as may be prescribed under these Regulations or any other law pertaining to such disposal.

(3) An application made pursuant to this regulation, shall be accompanied by—

(a) the application fee prescribed;

(b) where applicable, a compliance plan for approval by the Authority;

(c) an environmental impact assessment; and

(d) any other document requested by the Authority for the purpose of evaluating the application.

(4) The Authority may issue a licence pursuant to an application under paragraph (1) before approving a compliance plan, but the date of such approval shall not affect the date of issue of Such a licence.

(5) A compliance plan submitted with an application made under paragraph (1) shall form part of the terms and conditions of the licence.

Application for licence to construct a sewage wastewater treatment facility. Form 1. First Schedule.

6.—(1) Any person who intends to construct a sewage wastewater treatment plant, shall apply to the Authority for a licence so to do.

(2) An application made pursuant to paragraph (1), shall be—

(a) in the form set out as Form 1 in the First Schedule;

(b) accompanied by a plan in respect of the management and operation of the plant; and

(c) accompanied by the application fee prescribed;

(d) accompanied by any other document requested by the Authority for the purpose of evaluating the application.

(3) The Authority may issue a licence to construct a sewage wastewater treatment plant if the requirements under paragraph (2) are adhered to.

(4) Any person who constructs a treatment plant except under and in accordance with a licence issued under this regulation commits an offence.

Application for licence for discharge of trade effluent or sewage effluent into the environment.

7.—(1) A person whose business, industry, manufacturing or trade operations, involve the discharge of trade effluent or sewage effluent or both, as the case may be, from a treatment plant into the environment, shall apply to the Authority for a licence to discharge such effluent into the environment.

(2) An application for a licence under paragraph (1), shall be in the form set out as Form 1 in the First Schedule.

Form 1. First Schedule.

(3) No application shall be processed prior to the payment of the full amount of the prescribed application fee.

(4) Where the authority issues a licence under this regulation the discharge of trade effluent, sewage effluent or both, shall be in accordance with the terms and conditions of the licence granted by the Authority.

(5) The point of discharge of trade effluent, sewage effluent or both shall be clearly identified, in accordance with the Second Schedule at the site, as a warning to the public.

Second Schedule.

(6) Any person referred to in paragraph (1) whose operations discharge trade effluent, sewage effluent or both into the environment except under and in accordance with a licence issued under this regulation commits an offence.

Discharge of trade effluent or sewage effluent into sewage collection system or treatment plant.

8.—(1) A person whose business, industry or manufacturing is likely to involve the discharge of trade effluent or sewage effluent into a sewage collection system, shall, prior to the connection to such a system, provide to the Authority written approval from the licensee for the making of the connection.

(2) The person referred to in paragraph (1) shall submit to the Authority, documentation on the composition and volume of the wastewater generated from a business, industry, manufacturing or trade operation that the licensee intends to accept for treatment.

(3) Any person who contravenes paragraph (1) commits an offence.

Licensee to have Authority approval to receive wastewater *from* business, *etc.*

9. Any licensee who intends to receive wastewater from a business, industry or manufacturing, shall obtain written approval from the Authority prior to an agreement to accept such wastewater.

Licensee shall inform Authority of changes to agreement.

10.—(1) Subject to paragraph (2), a licensee shall inform and obtain the consent of the Authority in making any change to an agreement relating to the composition or volume of the effluent when the agreement is being amended or renewed.

(2) A licensee shall inform the Authority in writing within one month of any changes made to an agreement to accept wastewater as referred to in regulation 9, with respect to the—

(a) volume or composition of the wastewater; or

(b) duration of the agreement.

The Authority may consult on application.

11. During consideration of an application for a licence under these Regulations, the Authority may consult with any agency or department of government exercising functions in connection with the management and regulation of wastewater and sludge.

Renewal of licences. Form 2. First Schedule.

12.—(1) A person who intends to renew a licence to discharge sewage effluent or trade effluent into the environment or to operate a treatment plant shall make an application in the form set out as Form 2 in the First Schedule and pay the renewal fee prescribed, not less than six months prior to the date of expiration of the licence.

(2) In lieu of the renewal fee specified in paragraph (1), a person shall pay a late renewal fee of fifty thousand dollars, where an application for renewal is made later than six months prior to the date of expiration of the licence.

(3) Where the Authority receives an application for renewal of a licence after the licence has expired, the application shall be dealt with as if it is a new application.

(4) An application for renewal shall not be processed where the discharge fee for the previous full calendar year has not been paid.

Modification of licences.

13.—(1) The Authority may modify a licence where—

(a) ownership of the enterprise, construction or development in respect of which the licence was granted has changed;

(b) the licensee proposes to change the process of operation or the technology used and this is likely to cause a change in the nature or composition of the discharge of sewage and trade effluent and wastewater;

(c) the Authority establishes new or revised standards in respect of the undertaking of any enterprise, construction or development; or

(d) any other reason exists which, in the opinion of the Authority, is relevant in determining whether a licence is to be modified.

(2) The licensee shall pay to the Authority—

(a) in a case under paragraph (1) (a), where a request for modification is made in writing to the Authority, an amount equivalent to thirty-

three percent of the application fee prescribed for the relevant category of licence;

(b) in a case under paragraph (1) (b), where an application is made in accordance with the form set out as Form 1 in the First Schedule, an amount equivalent to fifty percent of the application fee prescribed; or

Form 1, First Schedule.

(c) in a case under paragraph (1) (d), a fee to be determined by the Authority on a case by case basis.

(3) In a case under paragraph (1) (c), no fee is payable under this regulation.

Authority may suspend or revoke a licence.

14. Subject to regulation 15, the Authority may, by notice to the licensee, suspend or revoke a licence, if—

(a) the licensee fails to submit monitoring reports in accordance with regulation 25;

(b) the licensee submitted false, misleading or inaccurate information or omitted relevant information in the application for the grant or renewal of a licence;

(c) the licensee falsifies or gives misleading information in a monitoring report;

(d) there is an attempt at or falsification of any record of environmental monitoring;

(e) the licensee commits a breach of any term or condition, implied or expressed, in the licence;

(f) the licensee fails to pay fees due and payable to the Authority in respect of the licence;

(g) the level of pollution from any discharge from a treatment plant has or is likely to have, an adverse effect on public health or the environment; or

(h) the licensee fails to submit a compliance plan or other documents requested by the Authority for the purposes of these Regulations within the time specified.

Notice to suspend or revoke a licence.

15.—(1) The Authority shall, before revoking or suspending a licence, serve on the licensee of the treatment plant concerned a notice—

(a) specifying the breach and, where the breach is capable of remedy, requiring the licensee to remedy it within the time specified in the notice; and

(b) informing the licensee that he may apply to the Authority to be heard on the matter within the time specified in the notice.

(2) The Authority shall not serve a notice made pursuant to paragraph (1), in relation to a breach if a cessation order pursuant to section 13 of the Act or an enforcement notice pursuant to section 18 of the Act, is in effect in relation to such a breach.

Forms 3 and 4. First Schedule.

(3) The notices referred to in paragraph (1), shall be in the form set out as Forms 3 and 4 in the First Schedule, as the case may determine.

(4) A licensee who applies pursuant to paragraph (1) (b) to be heard on the matter of the suspension or revocation of the licence shall be heard by the Authority within one month after the receipt of the notice.

(5) Subject to the provisions of section 35 of the Act, an appeal against a decision of the Authority to suspend or revoke a licence, shall be made to the Minister.

PART IV. *Specifications of a Treatment Plant*

Complete set of drawings and plans.

16.—(1) The Authority may by notice in writing request that the owner of a treatment plant submit to the Authority, a copy of a complete set of drawings and plans of the treatment plant as constructed.

(2) The notice referred to in paragraph (1) shall state the time period during which the copy of a complete set of drawings and plans of the treatment plant as constructed shall be submitted by the owner of the treatment plant.

(3) A copy of a complete set of drawings and plans of the plant referred to in paragraph (1), shall be kept by the owner of the treatment plant or licensee, as the case may determine, at all times at the treatment plant or at a location specified by the Authority.

(4) An owner of a treatment plant who fails to comply with this regulation, commits an offence.

Flow-measuring device.

17.—(1) Every treatment plant shall be equipped with a flow-measuring device approved by the Authority.

(2) The approved flow-measuring device, shall be installed at each inlet to and the outlet from a treatment plant and the approved flow-measuring device shall be maintained in good working condition.

(3) An owner of a treatment plant who fails to comply with this regulation, commits an offence.

PART V. *Trade Effluent and Sewage Effluent Standards and Measurements*

Effluent standards. Third Schedule.

18.—(1) Subject to paragraph (2), the standards set out in the Third Schedule, shall apply to an owner or operator of a treatment plant that discharges sewage effluent, trade effluent or sludge, as the case may be.

(2) Notwithstanding paragraph (1), the Authority may from time to time, set standards for specific licences.

(3) The Authority may request an owner or operator of a plant to take samples of effluent at the end of the treatment process in accordance with a licence granted by the Authority—

(a) weekly;

(b) bimonthly;

(c) monthly;

(d) annually; or

(e) at any other interval considered necessary by the Authority, and a

Fourth Schedule.

record of such samples shall be maintained in an operating log and reported to the Authority in the appropriate form set out in the Fourth Schedule.

(4) Samples taken in accordance with paragraph (2), shall be made at approximately the same time of day and on the same day of the week of the same sampling point or chamber.

(5) Any of the following methods shall be employed for sample collection—

(a) grab samples;

(b) flow proportional composite collection techniques; or

(c) time proportional composite sampling.

(6) Where additional records of samples under paragraph (3) are required, the Authority shall except in cases of emergency, notify the licensee at least two weeks before the start of collection of data.

(7) A treatment plant shall be monitored for operational purposes in accordance with best engineering practices.

Authority may review trade effluent or sewage effluent standards.

19.—(1) The Authority may review trade effluent or sewage effluent standards every five years and apply new standards, as the case may require, to all treatment plant facilities.

(2) Before applying new trade effluent and sewage effluent standards, the Authority shall give one year's notice of the new standards to treatment plant operators, by publication of a notice in the *Gazette*.

PART VI. *Operation and Maintenance of Treatment Plants*

Operations and maintenance manual.

20.—(1) A licensee shall keep an operations and maintenance manual at all times at the treatment plant operated under the relevant licence or at a designated location specified by the licensee to the Authority.

(2) The operations and maintenance manual shall include but not be limited to the following—

(a) a description of the treatment plant;

(b) a description of the operating procedures, including details of the process operations;

(c) a list of equipment, including specifications of the equipment;

(d) maintenance requirements and procedures for the equipment and plant components;

(e) a schedule of maintenance activities to be carried out by operations staff;

(f) an effluent monitoring schedule;

(g) an emergency management plan which shall include but is not limited to risks associated with spills, floods, hurricanes or fires; and

(h) any other information relevant to the good operation of the plant.

(3) A licensee who contravenes this regulation commits an offence.

Standby power treatment plant during equipment malfunction

21.—(1) A licensee having charge or management of a treatment plant with systems that require electrical power to operate, shall ensure that the plant has a standby power supply available for use during power outages or equipment malfunctions.

(2) A licensee having charge or management of a treatment plant shall ensure that the treatment plant is equipped with the spare parts and pumps as designated in the operations and maintenance manual for the facility.

(3) Where a licensee having charge or management of a treatment plant fails to make available standby power facilities, spare parts and pumps, the Authority may require its installation and provision pursuant to a control order under regulation 39.

Periods of maintenance and upgrades of treatment plant.

22. Where major maintenance or modification of a treatment plant occurs or changes in the process of operation or technology of a treatment plant as described in regulation 13(1) (b) occur, effluent quality during the period of any such occurrence is expected to worsen, the requirements for meeting the standards required under these Regulations shall be suspended during that period subject to the following conditions—

(a) the period of suspension shall in all cases be for a period not exceeding three months;

(b) the Authority and the Minister responsible for Health shall be informed no less than two months in advance, by the owner or operator of a treatment plant, of major maintenance, modification of the plant or changes in the process of operation or the technology upgrade, in order to qualify for the period of suspension of meeting standards during the period of maintenance or upgrades; and

(c) any other condition as required by the Authority.

PART VII. *Use of Marine Outfalls and Outfall Pipelines*

Use of marine outfalls.

23.—(1) Where marine outfalls are proposed, a request may be made by an applicant to the Authority to have effluent limits relaxed.

(2) Requests for the use of marine outfalls shall be accompanied by—

(a) a model of the plume behaviour of the effluent in the coastal and marine environment;

(b) the data, studies and calculations that show that the proposed outfall will allow for an effluent quality which is still acceptable and will not affect the marine environment beyond the levels already established for the ambient water quality;

(c) the data and studies to show the effect of the effluent on the flora and fauna of the marine environment, within the sphere of influence of the plume as described in paragraph (a);

(d) a drawing of the route of the marine outfall pipe and the construction material and bio-physical survey of the route of the pipe, including the method of laying the pipeline on the floor of sea and stabilization method; and

(e) Bathymethry of the seafloor along the alignment of the pipeline.

Third Schedule.

(3) Where, after review, the request made under paragraph (2) is denied, then the standards set out in the Third Schedule shall apply.

Use of outfall pipelines.

24.—(1) A person who proposes to install outfall pipelines for the discharge of sewage effluent on the foreshore and floor of the sea shall apply for a licence, in accordance with section 5, of the Beach Control Act.

(2) Subject to paragraph (1), where the Authority approves a licence to install outfall pipelines, such pipelines shall be installed in such manner as not to interfere with the passage of marine vessels.

PART VIII. *Monitoring and Reporting*

Monitoring and reporting requirements.

25.—(1) The Authority may require the submission by a licensee of monitoring reports in relation to the parameters as outlined in the licence and any other parameter the Authority stipulates.

(2) Monitoring reports shall include geo-referenced discharge or sampling points.

(3) The licensee of a treatment plant shall prepare and submit monitoring reports to the Authority on a quarterly and annual basis.

Form 1. Fourth Schedule.

(4) Sewage effluent monitoring reports shall include the information specified in Form 1, of the Fourth Schedule.

(5) Weekly, monthly and quarterly monitoring reports for trade effluent shall be submitted to the Authority in the form specified as Form 2 of the Fourth Schedule in accordance with the licence issued by the Authority.

Form 2.

(6) A licensee of a treatment plant shall ensure that, an annual report in the form prescribed as Forms 3 and 4 in the Fourth Schedule is submitted within two months of the anniversary date of the licence each year or in accordance with such time as may be specified by the Authority and shall include such information as required pursuant to Forms 5 and 6, of the Fourth Schedule.

Forms 3 and 4.

Forms 5 and 6.

(7) Copies of all reports shall be kept by the licensee of a treatment plant, for a minimum of five years.

PART IX. *Reuse for Irrigation Purposes*

Irrigation of lawns and agricultural applications.

26.—(1) A treatment plant operator shall not, without approval from the Authority, use treated effluent for irrigation.

Table 4. Third Schedule.

(2) Any effluent from a treatment plant which is used for irrigation shall meet the standards for sewage effluent to be used for irrigation listed in Table 4, of the Third Schedule.

(3) The Authority shall, in respect of an approval under this regulation, have prior consultation thereon with the competent authorities within the Ministries responsible for health and agriculture, respectively.

(4) The Authority may, after consultation with the competent authorities within the Ministries responsible for health and agriculture, respectively, prescribe additional standards for use of treated wastewater for specific agricultural crops.

(5) The Authority may ask for a nutrient management plan and may, in consultation with the competent authority in the Ministries responsible for health and agriculture, respectively, prescribe specific standards for the use of treated wastewater for specific agricultural purposes.

PART X. *Confirmation Testing of Trade Effluent and Sewage Effluent*

Confirmation testing of trade effluent and sewage effluent.

27.—(1) A licensee of a treatment plant who does not have the services of an independent laboratory for confirmation testing of trade effluent and sewage effluent, shall ensure that confirmation testing of all parameters by an independent laboratory is carried out twice per calendar year, at a minimum of three months apart.

Parts I and II. Fifth Schedule.

(2) The sewage or trade effluent from a treatment plant shall be tested in accordance with Parts I and 11 of the Fifth Schedule.

(3) The Authority may require a licensee of a treatment plant to conduct the monitoring of parameters in accordance with Tables 2 and 3, of the Third Schedule, (as the case may require) pursuant to the licence issued by the Authority.

PART XI. *Treatment of Septage*

Domestic septage and industrial septage.

28. Domestic septage and industrial septage shall be disposed of in a treatment plant approved by the Authority.

PART XII. *Management Practices for Sewage and Industrial Sludge*

Sewage sludge.

29. No person shall—

Tables 5. Third Schedule.

(a) dispose of sewage sludge, into the environment, that does not meet the National Treated Sewage Sludge Standards as prescribed in Table 5 of the Third Schedule;

(b) sell or distribute without charge, sewage sludge that does not meet the National Treated Sewage Sludge Standards.

Treatment of sewage sludge.

30.—(1) The licensee of a treatment plant, shall treat sewage sludge in accordance with the management practices set out in guidelines thereon issued by the Authority.

(2) Sewage sludge that does not satisfy the National Treated Sewage Sludge Standards, in the form set out as Table 5 of the Third Schedule, shall be treated to meet the standards for sludge suitable for landfills, as prescribed in Table 6 of the Third Schedule and disposed of in a location approved by the Authority.

Table 6.

(3) The disposal of sludge other than in a landfill, shall be done in accordance with the management practices set out in guidelines thereon issued by the Authority.

Disposal of sewage sludge.

31. A person who intends to dispose of sewage sludge in a location other than the area referred to in regulation 30(2) or (3), as the case may be, shall provide the requisite information to the Authority as specified in Part III of the Fifth Schedule.

Part III. Fifth Schedule.

Industrial sludge shall not be released into the environment.

32.—(1) Subject to paragraph (2), each operator of a treatment plant shall ensure that industrial sludge that is discharged from the plant or stored in any temporary or permanent storage facility, is not released into the environment.

(2) Industrial sludge may only be released into the environment where—

(a) the industrial sludge is used for agricultural purposes; or

(b) the Authority has given written approval to the operator of the treatment plant for such release.

Form 6. Fourth Schedule.

(3) The operator of a treatment plant shall report on the release of industrial sludge, specifying the quarterly amounts and annual amounts as set out in Form 6 of the Fourth Schedule.

(4) The report referred to in paragraph (3) shall be submitted to the Authority in accordance with the terms and conditions specified in the licence.

Application for hazardous sludge.

33. A person who intends to store, transport, treat or dispose of industrial sludge or sewage sludge that constitutes hazardous waste, shall apply for a permit under the Natural Resources Conservation (Permits and Licences) Regulations, 1996.

Industrial sludge shall be harmless and suitable for disposal.

34. A person responsible for the treatment of industrial sludge shall ensure that the sludge is rendered harmless and suitable for disposal in a landfill, in accordance with the standards prescribed in Tables 6 and 7 of the Third Schedule.

Tables 6 and 7. Third Schedule.

Prohibition of unauthorized persons, livestock and other animals.

35. A licensee who operates a treatment plant, shall prevent unauthorized persons, livestock and other animals from having access to storage and treatment ponds for sewage sludge or industrial sludge that are a part of the plant, in order to protect health and well being.

Discharge of sewage sludge or industrial sludge.

36. A person commits an offence if he—

(a) disposes of sewage sludge or industrial sludge without the written approval of the Authority; or

Third Schedule.

(b) discharges of sewage sludge or industrial sludge that does not meet the relevant standards in the Third Schedule.

Monitoring, sampling and analysis.

37. A licensee who operates a treatment plant that produces sewage sludge or industrial sludge or both shall, before the sludge leaves the plant, monitor, take samples, analyze the sludge produced and keep records on the operation and performance of the treatment process and the final product quality.

Testing of sludge for use in agriculture. Part III. Fifth Schedule.

38. Every producer of sewage sludge shall, in accordance with Part III of the Fifth Schedule, ensure that sludge produced and supplied for use in agriculture is tested—

(a) not less than every six months; or

(b) whenever any change in the characteristic of the treated sludge occur as a result of—

(i) changes in the treatment process; or

(ii) the wastewater being treated.

PART XIII. *Control Order*

Control order may be issued.

39.—(1) The Authority may issue a control order in respect of a breach of any term or condition of a licence or contravention of any provision of these Regulations.

(2) A control order issued under paragraph (1) shall specify the—

(a) breach in respect of which it is issued;

(b) steps to be taken to mitigate its effects; and

(c) time within which the steps referred to in sub-paragraph (b) shall be taken.

(3) A person who fails to comply with the terms of a control order issued under paragraph (1), commits an offence.

PART XIV. *Compliance Plan*

The Authority may request a compliance plan.

40.—(1) The Authority may request an owner or operator of a treatment plant to submit for approval a proposed compliance plan for that treatment plant.

(2) The Authority may request the following information to be included in a compliance plan—

(a) details on how the treatment plant will be operated;

(b) a description of the current compliance status of the treatment plant including—

(i) all effluent sources;

(ii) the discharge points; and

(iii) the monitoring locations;

(c) a list of the pollutants that exceed the effluent standards;

(d) a statement of the methods used to determine the treatment plant's compliance status, including—

(i) a description of all monitoring, record keeping;

(ii) reporting and test methods; and

(iii) any other information necessary to verify compliance with or to enforce applicable requirements;

(e) a statement that the treatment plant shall continue to comply with each applicable requirement in respect of which compliance is currently achieved at the treatment plant; and

(f) in respect of each applicable requirement for which compliance is not currently achieved at the treatment plant—

(i) a detailed statement of how the treatment plant will achieve compliance;

(ii) a proposed compliance schedule which sets out the remedial measures to be taken, including a sequence of actions with milestones leading to compliance;

(iii) if the treatment plant is subject to a control order, the proposed schedule of remedial measures shall be as stringent as the order;

(iv) a schedule for submission of progress reports or compliance reports to the Authority at least once in every six months or more frequently if so required by the licence, indicating what (if any) progress has been made in relation to the schedule and the milestones;

(v) the performance targets to be achieved within two years.

(3) The Authority shall review the proposed compliance plan and shall in writing, notify the owner or operator of the treatment plant as to whether the plan has been approved or refused or if further information is required.

(4) Where the compliance plan is refused, the notification of such refusal shall—

(a) set out the reasons for its refusal; and

(b) inform the owner or operator that he is entitled to revise and resubmit the compliance plan within sixty days of the date of delivery of such notification.

(5) The owner or operator of a treatment plant shall not be liable for any fine or other penalty otherwise applicable under these Regulations in respect of a treatment plant which adheres to the provisions of a compliance plan approved by the Authority, where effluent standards are exceeded during the period of the compliance schedule referred to in paragraph (2) (e) (ii).

(6) The Authority may issue a control order to any owner or operator who fails to meet the timeline referred to in paragraph (4) (b) or to obtain approval of the compliance plan.

PART XV. *Actions by the Authority*

Authority shall issue a warning notice.

41.—(1) The Authority may issue a warning notice to any person who breaches these Regulations or fails to comply with the terms and conditions of any licence issued to that person.

(2) The warning notice shall state—

(a) the nature of the breach;

(b) the outcome required or remedial action to be taken by the licensee;

(c) a reasonable period within which the remedial action shall be carried out and notified to the Authority by the person; and

(d) that the person may apply to the Authority to be heard in relation to the breach within such time as may be specified in the notice.

(3) Where a warning notice is served on any person referred to paragraph (1), a copy of the notice shall be posted in a conspicuous place on the premises where the breach is taking or has taken place.

Other actions by Authority.

42. The Authority may in addition to the warning notice referred to in regulation 41, take one or more of the following actions in response to a breach under these Regulations—

(a) issue a control order;

(b) suspend or revoke the licence;

(c) refuse an application for renewal of the licence;

(d) apply to the Supreme Court for an injunction to prohibit the operation of the treatment plant;

(e) without further notice, take action as it thinks appropriate in accordance with the provisions of these Regulations.

Further actions.

43. A person authorized by section 20(1) of the Act may—

(a) inspect a treatment plant, including conditions relating to the nature and composition of any discharge of sewage and trade effluent;

(b) install and maintain equipment for recording the discharge of substances into the environment;

(c) examine records required to be kept under the Act, these Regulations or any term or condition subject to which a licence is granted.

PART XVI. *Fees for Effluent Discharges*

Annual effluent discharge fee.

44.—(1) The licensee of a treatment plant shall pay the prescribed annual effluent discharge fee based on the load of effluent discharged.

(2) The licensee shall pay the annual effluent fees for a calendar year on or before April 30th of the following year.

Discount on discharge fees.

45.—(1) A licensee of a treatment plant may be granted a discount on the discharge fee, provided that the effluent or sludge is used in a manner beneficial to the environment as defined in the guidelines developed by the Authority.

(2) A licensee of a treatment plant who applies for a discount referred to in paragraph (1), shall submit information supporting the claim for discount.

PART XVII. *Pollutant Release and Transfer Register*

Pollutant Release and Transfer Register.

46.—(1) The Authority shall maintain a Pollutant Release and Transfer Register in respect of each calendar year, which shall include but not be limited to, the quality of the effluent being discharged and the status of compliance for treatment plants licensed to discharge effluent.

(2) The Authority shall keep a copy of the Register referred to in paragraph (1).

PART XVIII. *Requirement to Report Spills and Leaks*

Requirement to report spills and leaks. Form 5. Fourth Schedule.

47.—(1) A person shall report to the Authority, spills and pollution incidents in the form prescribed as Form 5, of the Fourth Schedule.

(2) Any person who submits a form pursuant to paragraph (1), shall affix his signature to the form submitted.

PART XIX. *Fees*

Fees. Sixth Schedule. Parts A and B.

48.—(1) The fees set out in the Sixth Schedule shall be payable in respect of the matters specified in Parts A and B respectively, in relation thereto in the first column of that Schedule.

Part C.

(2) The types of discharge set out in the first column of Part C of the Sixth Schedule shall reflect the parameters in the second column in relation thereto.

Part D.

(3) The method used to calculate discharge fees is set out in Part D of the Sixth Schedule.

PART XX. *Civil Remedies*

Recovery of annual discharge fees.

49. If a licensee of a treatment plant fails to pay annual discharge fees, the Authority shall be entitled to recover such fees as a civil debt without limit of amount in a Resident Magistrate's Court.

PART XXI. *Transitional*

Licences for construction and operation of treatment plants.

50.—(1) Where a person at the commencement date—

(a) holds a licence for the construction or operation of a treatment plant which construction or operation is scheduled to commence within one year after the commencement date; and

(b) intends to carry out the scheduled construction or operation, the person shall apply for a licence pursuant to regulation 5 or 6, as the case may require.

(2) A person who, on the commencement date, is the holder of a licence to discharge trade effluent or sewage effluent issued under section 12 of the Act—

(a) may subject to sub-paragraph (b), continue to operate the treatment plant to which that licence relates, until the date of expiration of the licence; and

(b) shall not less than six months before the expiration of that licence or twelve months after the commencement date, whichever is shorter, apply for a licence under regulation 5(1).

Unlicensed effluent discharges.

51.—(1) Within twelve months of the commencement date, every owner or operator of an existing treatment plant shall, apply for a licence to—

(a) operate the treatment plant; and

(b) discharge effluent.

(2) Where, later than one year after the commencement date, an owner or operator of an existing treatment plant discharges effluent without a licence as required under these Regulations, the owner or operator commits an offence under section 12 of the Act.

(3) A person applying under paragraph (1), shall submit an audit report of its operations and compliance plan as required by the Authority.

Sewage treatment plant to meet new standards. Table 2. Third Schedule.

52. All operators of treatment plants shall ensure that those plants meet the standards set out in Table 2 of the Third Schedule by December 31, 2015.

Sewage effluent standards. Table 2.

53. A licensee (other than a person licensed to meet the standards in Table 1 of the Third Schedule) shall ensure that sewage effluent discharged from treatment plants meet the standards in Table 2 of the Third Schedule, unless the sewage effluent is used for irrigation in accordance with requirements of regulation 26.

Discharging of trade effluent from treatment plant. Table 3. Third Schedule.

54. A licensee shall ensure that trade effluent discharged from treatment plants (other than those where effluent is used for irrigation), meets the Trade Effluent Standards listed in Table 3, of the Third Schedule.

Waiver of discharge fees.

55. Notwithstanding the provisions of regulation 48, effluent discharge fees shall not be payable for the remainder of the year in which these Regulations come into operation.

Signs. Second Schedule.

56. A licensee of a treatment plant shall post signs at all treatment plants in accordance with the Second Schedule in the case of plants—

(a) in existence on the commencement date, within six months after that date; and

(b) constructed after the commencement date, at the time of commissioning of each such plant.

PART XXII. *General Penalty*

General penalty.

57. Any person who commits an offence under these Regulations for which a penalty is not specifically provided, shall on summary conviction in a Resident Magistrate's Court be liable to a fine not exceeding fifty thousand dollars or to imprisonment for a term not exceeding one year or to both such fine and imprisonment.

FIRST SCHEDULE (Regulations 5, 6, 7, 12 and 13)

FORM 1

THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT

THE NATURAL RESOURCES CONSERVATION (WASTEWATER AND SLUDGE) REGULATIONS, 2013

Application (pursuant to Regulations 5, 6, 7 and 13) for—

Licence to Operate Treatment Plant for the Discharge of Trade Effluent or Sewage Effluent

Licence to Construct a Treatment Plant

Licence to Reconstruct or Alter a Treatment Plant

Licence to Discharge Trade Effluent or Sewage Effluent into the Environment

Application No.: _____

Application Date: _____

Note: Please read the follwoing instructions before completing this form.

Application Requirements:

1.1 This form shall be filled and submitted with the necessary supporting documentation in quadruplicate (unless otherwise indicated) to:

National Environment and Planning Agency
10 Caledonia Avenue
Kingston 5

1.2 The attached forms and information requirements shall be answered in full in order to avoid delay in processing the application. Where attached sheets and other technical documents are utilized in lieu of the space provided. Indicate appropriate cross-references in the relevant areas of the application form. Paragraphs that are not applicable to your application shall be marked "N/A".

1.3 A separate application shall be made for each point of discharge.

1.4 If you are in doubt about any provision of this application form, please consult with an authorized officer of the Authority before completing it.

FIRST SCHEDULE, *contd.*

1.5 The completed form shall be accompanied by:

☐	List of all documents attached to support the application
☐	Site location plan (drawn to scale)
☐	Engineering report justifying each component and its size including description of processes, flow diagram and details of construction phases if applicable
☐	Facility layout plans (drawn to scale) showing: • The various components making up the plant • Set backs from property boundary and buildings • Significant features of the area up to 1 km beyond the site boundary • Discharge and sample points • Wells, sinkholes and surface water bodies (including wetlands)
☐	Coordinates (JAD 2001) for discharge outlet and sampling points
☐	Plan view detail of each component
☐	Cross sectional view of each component
☐	Copies of any other permit or licence granted by a government department or organization in respect of the application (including date of issue and expiration)
☐	Proof of tenure. (*If the applicant is not the registered owner, a letter from the registered owner, witnessed by a Justice of the Peace must be provided authorizing the applicant to use the property for the use to be licensed.)—Only one copy is required*
☐	A non-refundable fee for each licence applied for.*(Certified cheques made payable to the Authority, debit and credit cards (Visa and MasterCard) are accepted).*

For official use only

Application checked for completion by: _____
Signature of officer

_____
Name and Title (*Please print or type*)

_____
Date

FIRST SCHEDULE, *contd.*

2.1 Applicant (*Note: The applicant is the person or entity in whose name the Licence will be issued*)

Name of Applicant: _____

TRN. No.: _____ Certificate of Registration (*for Company or Business*): _____

Name of Authorized Representative (for Company or Business): _____

Address: _____

_____

Tel. No.: _____ Cell No.: _____ Fax No.: _____

Email: _____

2.2 Owner (*If different from applicant*)

Name of owner: _____

TRN No.: _____ Certificate of Registration (*if the owner is a company*): _____

Name of Authorized Representative (*if the agent is a company*): _____

Address: _____

_____

Tel. No.: _____ Cell No.: _____ Fax No.: _____

Email: _____

2.3 Agent (Note: The Agent is a person or entity who is authorized to apply on the behalf of the applicant: a letter of authorization by the applicant witnessed by a Justice of the Peace must be provided at the time of application—*Only one copy is required*)

Name of Agent: _____

TRN No.: _____ Certificate of Registration (*if the owner is a company*): _____

FIRST SCHEDULE, *contd.*

Name of Authorized Representative (*if the agent is a company*): _____

Address: _____

_____

Tel. No.: _____ Cell No.: _____ Fax No.: _____

Email: _____

2.4 Application for Licence to: (*Note: Tick all relevant Licences as needed*)

☐ Construct Treatment Plant

☐ Reconstruct or Alter Sewage Treatment Plant

☐ Operate Treatment Plant for the Discharge of Sewage Effluent

☐ Operate Treatment Plant for the Discharge of Trade Effluent

☐ Discharge Sewage Effluent into the Environment

☐ Discharge Trade Effluent into the Environment

3.1 Treatment Plant:

Name of plant: _____

Address/Location of the treatment plant: _____

_____

Land Valuation No.: _____ Volume No.: _____ Folio No.: _____

3.2 Sewage Effluent:

☐ Community System *(serving multiple housing units in a single development including a hotel)*

☐ Municipal System: *(serving multiple development/areas)*

List Areas/Facilities Served by the Plant: (*Attached additional pages as needed*)

Name of Areas/Facilities (*Indicate if Boundary Map Attached by ticking the box*)	Population Served (*indicate No. of people, houses or rooms*)	Volume (M^3/*day*)
☐		
☐		
☐		

FIRST SCHEDULE, *contd.*

3.3 Trade Effluent:

Business activity generating trade effluent (include ISIC Code):

Source of water: _____ Water Consumption(*litres/day*): _____

Engineering Report should include the following information (*in addition to information requested in 1.5*):

☐ List of types and quantities of intermediate and final products derived from enterprise

☐ Description of processes including secondary processes (such as cleaning of equipment generating trade effluent

☐ List of types and quantities of chemical used, stored or manufactured

☐ List of types and quantities of material delivered or stores on site which may end up in the trade effluent by accident or by design and effect the environment.

4.1 Components of Plant: (*Note: State type of treatment and list components*)

Type of Treatment Plant: _____

Component for Pre-Treatment: _____

Component for Primary Treatment: _____

Component for Secondary Treatment: _____

Component for Tertiary Treatment: _____

Flow Meter: ☐ Inflow Type: _____

☐ Outflow Type: _____

Total Energy Used: _____ Source of Energy: _____

Stand by Power Supply: ☐ On site or ☐ Off site at _____

☐ Wells<1km downstream: _____

☐ Water bodies<1km downstream: _____

Depth to the groundwater (*m*): _____

Land use of adjacent properties: _____

Setback from nearest building (*m*): _____ Land use: _____

FIRST SCHEDULE, *contd.*

Setback from nearest property boundary (*m*): ____ Land use: _____

4.2 Effluent:

☐ Continuous or ☐ Intermittent discharge

Total Design Flow (m^3/*day*): _____ Peak Flow (m^3/day): _____

For phased implementation, state design capacity for each phase (m^3/*day*): _____

Location Discharge Point (*JAD 2001 Coordinates*): N _____ ; E _____

Location Sampling Point (*JAD 2001 Coordinates*): N _____ ; E _____

4.3 Residuals:

☐ Sludge Dry Volume (tons/year): _____

Method of Processing: _____

☐ Used for: _____ ☐ Disposed at: _____

☐ Bio-mass Dry Volume (*tons/year*): _____

Method of Processing: _____

☐ Used for: _____ ☐ Disposed at: _____

4.4 Receptors: (*Indicate environment of final discharge and % of discharge that goes to each environment*)

☐ Discharge to Stream or Gully % ___ Conditions of disposal: _____

☐ Paved ☐ Seasonally or ☐ Perennial (*continuously*) Flowing: _____

☐ Discharge to Absorption System %: __ Conditions of disposal: _____

Surface are (m^2): ___ Depth:(*m*) _____ Percolation rate(*mm/hr*): ___

Soil type: ____

☐ Discharge to Irrigation %: _____ Conditions of disposal: _____

Area for irrigation (m^2): Percolation rate (*mm/hr*): _____ Soil type: _

☐ Discharge to Coastal wetland %: ____ Conditions of disposal: _____

FIRST SCHEDULE, *contd.*

☐ Discharge to Deep Well %: _____ Conditions of disposal: _____
(*note: this option requires a Permit from Water Resources Authority*)

☐ Depth below surface (*m*): _____ Geology: _____

Discharge to Pond or Lake %: ____ Conditions of disposal: _____

☐ Surface area (m^2): _____ Depth(*m*): _____

Discharge to Marine Outfall %: ____ Conditions of disposal: _____
(*note: this option requires a Beach Licence*)

Configuration of outfall: _____ Construction material: _____

Depth below mean sea level (*m*): _____ Diameter (*cm*): _____

Length from the shoreline (*m*): _____ ☐ Plume Behaviour Model attached

Declaration by Applicant:

I hereby declare that the information contained in this application is true and complete to the best of my knowledge and belief. I further agree to maintain and operate the undertaking in accordance with the Act and any regulations thereunder, the standards and guidelines established by the Natural Resources Conservation Authority and any conditions set out in the licence, if granted. I will pay all fees payable to the Authority. I understand that the licence, if granted, is not transferable. I shall promptly notify the Authority upon the sale or legal transfer of the undertaking and shall furnish the names and addresses of the purchaser(s) thereof to the Authority.

_____
Signature of applicant or authorized representative

_____
Name and Title (*Please print*)

_____
Date

FIRST SCHEDULE, *contd.*

FORM 2

THE NATURAL RESOURCES CONSERVATION AUHTORITY ACT 1991

NATURAL RESOURCES CONSERVATION AUTHORITY (WASTEWATER AND SLUDGE) REGULATIONS, 2013

Application for Renewal of Licence to Operate Treatment Plant and Discharge Effluent (Pursuant to Regulation 12)

Renewal Application Date: _____

This Form is designed to provide information on your licensed activity to the Natural Resources Conservation Authority in accordance with Section 12 of the Act and Regulation 12 of the Natural Resources Conservation (Wastewater and Sludge) Regulations.

A non-refundable renewal fee of $40,000, shall accompany the application. If the application for renewal is made after six months prior to the date of expiration, an additional fee of $50,000 for late submission shall be paid.

The application for renewal can only be accepted when the Agency in possession of all monitoring and annual reports since the issuing of the current licence and the discharge fee due for all previous full calendar years.

(*Note: Certified cheques made payable to the Authority are accepted*).

Application for renewal of Licence to: (*Note: Tick all relevant Licences as needed*)

☐	Operate a Treatment Plant for the Discharge of Sewage Effluent	Licence No.: _____
☐	Operate a Treatment Plant for the Discharge of Trade Effluent	Licence No.: _____
☐	Discharge Sewage Effluent	Licence No.: _____
☐	Discharge Trade Effluent	Licence No.: _____

FIRST SCHEDULE, *contd.*

For official use only

Application checked for competion by: _____
Signature of officer

_____
Name and Title (*Please print or type*)

_____
Date

1.1 Applicant/Licensee: (*Note: The applicant is the person or entity in whose name the Licence was issued*)

Name of Applicant: _____

TRN: _____ Certificate of Registration (*for Company Business*): _____

Name of Authorized Representative (*for Company or Business*): _____

Address: _____

_____

Tel. No: _____ Cell No.: _____ Fax No.: _____

E-mail: _____

1.2 Owner: (*If different from applicant*)

Name of owner: _____

TRN: _____ Certificate of Registration (*if the owner is a company*): _____

Name of Authorized Representative (*if the owner is a company*): _____

Address: _____

_____

Tel. No: _____ Cell No.: _____ Fax No.: _____

E-mail: _____

1.3 Agent: (*Note: The Agent is a person or entity who is authorized to apply on behalf of the applicant; a letter of authorization by the applicant witnessed by a Justice of the Peace shall be provided at the time of application—only one copy required*)

Name of Agent: _____

TRN: _____ Certificate of Registration (*if the agent is a company*): _____

FIRST SCHEDULE, *contd.*

Name of Authorized Representative (*if the agent is a company*): _____

Tel. No: _____ Cell No.: _____ Fax No.: _____

E-mail: _____

2.1 Treatment Plant:

Name of the plant: _____

Address/Location of the treatment plant: _____

Land Valuation No.: _____ Volume No.: _____ Folio No.: _____

Name of Environmental Manager: _____

Tel. No.: _____ Tel No.: _____ Tel. No.: _____

E-mail: _____

Name Contact Person on site: _____

Tel. No.: _____ Tel No.: _____ Tel. No.: _____

E-mail: _____

2.2 Sewage Effluent:

Areas/Facilities served by the plant: (*Attach additional pages as needed*)

Name of Areas/Facilities (*Indicate if Boundary Map Attached:*)	Population Served (*indicate No. of people, houses or rooms*	Volume (M^3/*day*)

2.3 Trade Effluent:

Business activity generating trade effluent (include ISIC Code): _____

_____

Source of water: _____ Source of water _____

Engineering Report on the state of the treatment plant (including but not limited to the integrity of the plant, the condition of pipelines and pumps, photographic evidence) not older than one month and signed by an engineer.

FIRST SCHEDULE, *contd.*

3.1 Components of Plant: (*Note: state type of treatment and list components*)

Changes made to the treatment plant since the issuance of the Licence:

Total Energy Used: _____ Total Energy Used: _____

☐ Continuous *or* ☐ Intermittent discharge of effluent

Installed Capacity (m^3/day): _____

Location Sampling Point (*JAD 2001 Coordinates*): N_____ ; E _____

Location Sampling Point (*JAD 2001 Coordinates*): N_____ ; E _____

3.2 Receptors: (*Indicate receptors of final discharge and % of discharge that goes to each receptor, and the condition under which the effluent is disposed in to each receptor*)

_____

_____

_____

_____

3.3 Residuals:

_____

_____

_____

_____

_____

3.4 Beneficial Use:

_____

_____

_____

_____

FIRST SCHEDULE, *contd.*

4.1 Breaches:

Date: _____ Specify the Condition of the Licence Breached: _____

Actions taken to remedy breach: _____

_____

4.2 Annual Reports:

Year 1 Date submitted to NEPA: _____

Year 2 Date submitted to NEPA: _____

Year 3 Date submitted to NEPA: _____

Year 4 Date submitted to NEPA: _____

Notes: *Any person who provides information which he knows to be incorrect in a material respect or recklessly makes any statement which is incorrect in a material respect or knowingly omits any information, commits an offence.*

Declaration by Applicant to the Authority:

I/We the undersigned, being the Licence holder of the abovementioned Licence, hereby apply under Regulation 12 (Wastewater and Sludge) Regulations for the renewal of such Licence for the conduct of the abovementioned specified process. I/ We hereby declare that the particulars of the abovementioned specified process including any relevant plans, nature and discharge of any effluent, the fuel usage, the water usage, raw materials and products are substantially unchanged and that the particulars provided are correct.

_____
Signature of applicant or authorized representative

_____
Name and Title (*Please print*)

_____
Date

FIRST SCHEDULE, *contd.*

FORM 3

THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT

THE NATURAL RESOURCES (WASTEWATER AND SLUDGE) REGULATIONS, 2013

Notice of Intention to Suspend Licence
(Pursuant to Regulation 14)

Licence No. _____

To: Name of licensee and address or registered office:

TAKE NOTICE that whereas the Natural Resources Conservation Authority (the Authority) issued Licence No.

To: Name of Licensee

Of: Address of Licensee

To undertake: Category of Development Approved

At: Location of Enterprise

AND WHEREAS the Authority is satisfied that there has been a breach of the condition (s) subject to which the licence is granted:

(Include conditions breached)

AND WHEREAS on the _____ day of _____, 20 _ the Authority gave Notice of each of the said terms or conditions subject to which the Licence is granted:

AND WHEREAS the Authority is satisfied the breach has not been satisfactorily remedied:

The Authority hereby SUSPENDS Licence No. _____ until such time as the said breach has been remedied to the satisfaction of the Authority.

ALL ACTIVITIES BEING CONDUCTED UNDER THE TERMS OF THE LICENCE SHALL CEASE UPON THE EFFECTIVE DATE OF THIS NOTICE

An appeal against this suspension may be made to the Authority within ____ days of the effective date hereof.

Notwithstanding any appeal against this suspension, it will remain in effect pending the final determination of the appeal.

Dated this the _____ day of _____ , 20___ .

FIRST SCHEDULE, *contd.*

The effective date of this Notice is the_____ day of _____, 20 ____.

_____
Chief Executive Officer, National Environment and Planning Agency
For and on behalf of the Natural Resources Conservation Authority

FIRST SCHEDULE, *contd.*

FORM 4

THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT

THE NATURAL RESOURCES (WASTEWATER AND SLUDGE) REGULATIONS, 2013

Revocation Notice
(Pursuant to Regulation 14)

Licence No. _____

To: Name of licensee and address or registered office:

TAKE NOTICE that whereas the Natural Resources Conservation Authority (the Authority) issued Licence No.

To: Name of Licensee

Of: Address of Licensee

To undertake: category of Development Approved

At: location of Enterprise

AND WHEREAS the Authority is saisfied that there has been a breach of the condition(s) subject to which the licence is granted:

(Include conditions breached)

AND WHEREAS on the _____ day of _____, 20 ___ the Authority gave Notice of each of the said terms or conditions subject to which the Licence is granted:

AND WHEREAS the Authority is satisfied the breach has not been satisfactorily remedied:

The Authority hereby REVOKES Licence No. _____ with effect from the ____ day of _____, 20 ____ .

ALL ACTIVITIES BEING CONDUCTED UNDER THE TERMS OF THE LICENCE SHALL CEASE UPON THE EFFECTIVE DATE OF THIS NOTICE

An appeal against this revocation may be made to the Authority within _____ days of the effective date hereof.

Notwithstanding any appeal against this revocation, it will remain in effect pending the final determination of the appeal.

Dated this the _____ day of _____, 20___ .

FIRST SCHEDULE, *contd.*

The effective date of this Notice is the _____ day of _____, 20 ____ .

_____
Chief Executive Officer, National Environment and Planning Agency
For and on behalf of the Natural Resources Conservation Authority

SECOND SCHEDULE (Regulations 7 and 56)

THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT

THE NATURAL RESOURCES CONSERVATION (WASTEWATER AND SLUDGE) REGULATIONS, 2013

Signs

The signs depicted below shall be of the minimum size stated and shall be posted in a visible position at the location specified at the respective licences.

Signs shall be a minimum dimension of 2m wide, 1.5m high with title lettering 100mm high and secondary lettering 50mm high:

1. Sign for Sewage Treatment Plant:

NAME OF PLANT
SEWAGE TREATMENT PLANT

Owned by: Name of Licensee
NRCA Licence No.: _____
Expiration Date: _____
yyyy/mm/dd

2. Sign for Sewage Outfall Marker for Marine and Riverine Outfalls:

WARNING

SEWAGE OUTLET

A sewage treatment plant outlet pipe is located ____ metres from this marker.

No swimming is recommended within _____ metres of the outlet pipe.

3. Sign for Sewage Outfall Marker for On-Land (including gullies and channels) Locations:

WARNING

SEWAGE OUTLET

A sewage treatment plant outlet pipe is located ____ metres from this marker.

SECOND SCHEDULE, *contd.*

4. Sign for Sewage Pond Maker:

WARNING SEWAGE POND Absolutely no domestic or recreational activities allowed in this pond.

5. Sign for Trade Effluent Treatment Plant:

NAME OF PLANT TRADE EFFLUENT TREATMENT PLANT Owned by: Name of Licensee NRCA Licence No.: _____ Expiration Date: _____ yyyy/mm/dd

6. Sign for Trade Effluent Outfall Marker for Marine and Riverine Outfalls:

WARNING TRADE EFFLUENT OUTLET A trade effluent treatment plant outlet pipe is located ____ metres from this marker. No swimming is recommended within ___ metres of the outlet pipe.

7. Sign for Trade Effluent Outfall Marker for On-Land (including gullies and channels) Locations:

WARNING TRADE EFFLUENT OUTLET A trade effluent treatment plant outlet pipe is located ____ metres from this marker.

THIRD SCHEDULE (Regulations 18, 26, 29, 30, 34, 36, 52, 53 and 54)

THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT

THE NATURAL RESOURCES CONSERVATION AUTHORITY (WASTEWATER AND SLUDGE) REGULATIONS, 2013

Sewage and Trade Effluent Standards

Effluent Standards

Table 1—*Sewage Effluent Standards for Existing Plants*

PARAMETER	EFFLUENT LIMIT
BOD_5	20 mg/L
TSS	30 mg/L
Nitrates (as Nitrogen)	30 mg/L
Phospates	10 mg/L
COD	100 mg/L
pH	6-9 pH units
Faecal Coliform	1000 MPN/100 ml
Residual Chlorine	1.5 mg/L

Table 2—*Sewage Effluent Standards for Plants other than Existing Plants*

PARAMETER	EFFLUENT LIMIT
BOD_5	20 mg/L
TSS	30 mg/L
Total Nitrogen	10 mg/L
Phosphates (PO_4-P)	4 mg/L
COD	100 mg/L
pH	6-9 pH
Faecal Coliform	1000 MPN/100 ml
Residual Chlorine	1.5 mg/L
Floatables	not visible

THIRD SCHEDULE, *contd.*

Table 3—*Trade Effluent Standards*

PARAMETER	TRADE EFFLUENT LIMIT
Ammonia/ammonium measured as NH_4	1.0 mg/L
Barium	5.0 mg/L
Beryllium	0.5 mg/L
Biological oxygen demand (BOD)	<30 mg/L
Boron	5.0 mg/L
Calcium	No standard
Chemical Oxygen Demand (COD)	<100mg/L or <0.01 kg/1000 kg product
Chloride	300 mg/L
Colour	100 TCU
Cyanide (free)	0.1 mg/L
Cyanide (Total as CN)	0.2 mg/L
Detergent	15 mg/L
Dissolved oxygen (DO)	>4mg/L
Faecal Coliform	<100 MPN/100 ml
Fluoride	3.0 mg/L
Iron	3.0 mg/L
Magnesium	No standard
Manganese	1.0 mg/L
Nitrate as NO_3	10 mg/L
Oil and Grease	10 mg/L or < 0.01 kg/1000 kg product
PH	6.5 - 8.5
Phenols	0.1 mg/L
Phosphate as PO_4	5 mg/L
Sodium	100 mg/L
Sulphate	250 mg/L
Sulphide	0.2 mg/L
Temperature	±2° of ambient
Total Coliform	<500 MPN/100 ml
Total Dissolved Solids (TDS)	1000 mg/L
Total Organic Carbon (TOC)	100 mg/L
Total Suspended Solids (TSS) (maximum monthly average)	50 mg/L
Total Suspended Solids (TSS) maximum daily average	<150mg/L

THIRD SCHEDULE, *contd.*

Table 3—*Trade Effluent Standards, contd.*

PARAMETER	TRADE EFFLUENT LIMIT
Trace Metals:	
Zinc	1.5 mg/L
Lead	0.1 mg/L
Cadmium	0.1 mg/L
Arsenic	0.5 mg/L
Chromium	1.0 mg/L
Copper	0.1 mg/L
Mercury	0.02 mg/L
Nickel	1.0 mg/L
Selenium	0.5 mg/L
Silver	0.1 mg/L
Tin	No standard
Total Heavy Metals	2.0 mg/L

Table 4—*Standards for Sewage Effluent to be used for Irrigation*

PARAMETER	STANDARD LIMIT
Oil and Grease	10 mg/L
Total Suspended Solids (TSS)	1.5 mg/L
Residual Chlorine	0.5 mg/L
Biochemical Oxygen Demand (BOD_5)	15 mg/L
Chemical Oxygen Demand (COD)	<100 mg/L
Faecal Coliform	12 MPN/100ml.

THIRD SCHEDULE, *contd.*

Table 5—*National Treated Sewage Sludge Standards for Fully Treated Sewage Sludge that can be Applied to Agricultural Land*

Pollutant	Maximum Concentration #	Annual Pollutant Loading Rates	Jamaican Cumulative loading rates %
	mg/kg (dry weight) basis)		kg/ha
Arsenic	65		
Cadmium	75		
Copper	230		
Lead	90		
Mercury	0.045		
Molybdenum	09		
Nickel	180##		
Selenium	14##		
Zinc	400		
Cr	830		165
Pathogens	<1,OOOMPN/g of total solids (oven dried mass *where Viable Helminth Ova <1 per 4g of Total Solids (Dry Weight) Salmonella <3 MPN/4g Faecal Caliform <1,OOO MPN/g*		

Based on the 95th percentile (rounded to 5mg/kg) of the level of occurrence in Jamaican soils except as noted

Based on US EPA limits

% Based on 4,400 kg dry weight compost per ha for 45 years

THIRD SCHEDULE, *contd.*

Table 6—*Standards for Solid Waste/Industrial Sludge Suitable for Landfill*

Leachate test results not to exceed 100mg/1

Parameter	
Ammonia sulphide	Maleic anhydride
Benzidine	Methylamine
Benzyl chloride	Potassium permanganate
Diethylamine	Quinoline
Ethylamine	Strychnine
Ethylenediamine	Tetrachloroethanes

Table 7—*Standards for Solid Waste/Industrial Sludge Suitable for Landfill (based on Leachate quality test results)*

Parameter	Concentration (mg/L)
Arsenic	2.5
Barium	100
Cadmium	0.5
Carbon Tetrachloride	0.5
Chromium	5
Cyanide(free)	20
DDT	3
Endrin	0.02
Heptachlor + Heptachlor epoxide	0.3
Lead	5
Lindane	0.4
Mercury	0.1
Methoxychlor	10
Methyl ethyl ketone	200
Metolachlor	5
PCBs	50
Selenium	1
Silver	5
Tetrachloroethylene	3.0
Toxaphene	0.5
Trihalomethanes	10
2,4,5-TP (Silvex)	1
Zinc	500

FOURTH SCHEDULE (Regulations 18, 25, 32 and 47)

FORM 1

THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT

THE NATURAL RESOURCES CONSERVATION AUTHORITY (WASTEWATER AND SLUDGE) REGULATIONS, 2013

Sewage Effluent Monthly Reporting Form

Date:_____ Reporting Period:_____ to_____

Name of Plant:_____

Location of Plant (include location sampling/discharge points JAD 2001 coordinates;

N_____ E _____): _____

NRCA Permit No.: _____ NRCA Licence No.:_____

Sampling and Testing:

Week of Sample	Date of Sample	Time of Sample	Inflow, Q(m^3/d)	TEST RESULTS (mg/l)[a]								
				BOD_5	TSS	COD	N	P	pH	F. Coliform	Residual chlorine	Comments
Week1												
Week 2												
Week 3												
Week 4												
Monthly Average	-	-										-

[a] F. Coli. is reported as MPN/100ml and pH as a dimensionless number.

FOURTH SCHEDULE, *contd.*

Chlorine Residual:

No. of tests: _____ No. > 1.5 mg/L._____ No. > 1.5 mg/L._____

Other Tests

Type:_____ No.____ Comments: _____

Type:_____ No.____ Comments: _____

Test Methods used for each parameter _____

_____

Regulatory Inspections/Visits:

NRCA: Yes ☐ No. _____ *EHU*: Yes ☐ No._____

☐ No _____ No ☐

OPERATION AND MAINTENANCE

Average daily flow per month of reporting period:_____ m^3/d

_____ m^3/d (Influent) (Effluent, if >375 m^3/d)

Peak daily influent flow per month of reporting period:_____ m^3/d

Septage received per month: _____ m^3, _____ m^3, _____ m^3

Sludge removed per month: _____ m^3, _____ m^3, _____ m^3

List any equipment failures including periods of power outages:

Date	Nature of problem	Duration
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

List any treatment process problems:

Date	Nature of problem	Duration
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Maintenance Inspection: Yes ☐ Date:_____

No ☐

FOURTH SCHEDULE, *contd.*

List any repairs, rehabilitation or upgrades to the plant:

Description	Start Date	End Date

List any additional Sewage Inflows received	Source	Start Date

Changes in Staffing

Comments: _____

_____

_____

_____ Date: _____

Plant Operator Signature

_____ Date: _____

Owner Signature

Copies of laboratory reports shall be attached.

FOURTH SCHEDULE, *contd.*

FORM 2

THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT

THE NATURAL RESOURCES CONSERVATION AUTHORITY (WASTEWATER AND SLUDGE) REGULATIONS, 2013

Weekly, Monthly or Quarterly Monitoring Report for Trade Effluent

Date:_____ Reporting period_____ to_____

Name of Plant:_____

Location of Plant (include location sampling/discharge points JAD 2001 coordinates;

N_____ E_____):_____

NRCA Permit No.:_____ NRCA Licence No.:_____

Plant ID _____

Sampling and Testing:

PARAMETER	Annual average concentration	Number of samples	Number of samples above standard	Annual loading
Biological Oxygen Demand (BOD_5)				
Chemical Oxygen Demand (COD)				
Faecal Coliform				
Nitrate as NO_3				
Oil and Grease				
pH				
Phosphate as PO_4				
Temperature				
Total Coliform				
Total dissolved solids (TDS)				
Total Suspended Solids (TSS) (maximum monthly average)				
Total Suspended Solids (TSS) maximum daily average				
Ammonia/ammonium measured as NH_4				
Barium				
Beryllium				
Boron				

FOURTH SCHEDULE, *contd.*

FORM 2, *contd.*

PARAMETER	Annual average concentration	Number of samples	Number of samples above standard	Annual loading
Calcium				
Chloride				
Colour				
Cyanide (free)				
Cyanide (Total as CN)				
Detergent				
Dissolved Oxygen (DO)				
Flouride				
Iron				
Magnesium				
Manganese				
Phenols				
Sodium				
Sulphate				
Sulphide				
Total Organic Carbon (TOC)				
Trace Metals: Zinc Lead Cadmium Arsenic Chromium Copper Mercury Nickel Selenium Silver Tin Total Heavy Metals				

Sampling and analytical methods used:

Provide a list or description of the sampling methods used:

List the analytical methods used:

Provide a reference that indicates the location within your facility of the paper or electronic copies with calibration and quality control each set of samples:

List any trade effluent treatment equipment failures or other process failures that affected trade effluent including periods or power outages:

FOURTH SCHEDULE, *contd.*

FORM 2, *contd.*

Date	Nature of problem	Duration

List any treatment process problems:

Date	Nature of problem	Duration

List any repairs, rehabilitation or upgrades to the plant:

Description	Start Date	End Date

Comments:

Copies of laboratory reports shall be attached

Signature: _____ Date: _____

FOURTH SCHEDULE, *contd.*

FORM 3

THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT

THE NATURAL RESOURCES CONSERVATION AUTHORITY (WASTEWATER AND SLUDGE) REGULATIONS, 2013

Annual Sewage Effluent Reporting Form

Date:_____ Reporting year:_____

Name of Plant:_____

Location of Plant (include location sampling/discharge points JAD 2001 coordinates

N_____ E_____): _____

NRCA Permit No.:_____ NRCA Licence No.:_____

Capacity of the Plant: _____

Month	30-day Avg. Inflow, $Q_{in}(m^3/d)$	30-day Avg. Outflow, $Q_{out}(m^3/d)$	TEST RESULTS (mg/L)[a] (Monthly Average)									
JAN.												
FEB.												
MAR.												
APR.												
MAY												
JUN.												
JUL.												
AUG.												
SEP.												
OCT.												
NOV.												
DEC.												

FOURTH SCHEDULE, *contd.*

FORM 3, *contd.*

MONITORING

Sampling and Testing:

			BOD_5	TSS	COD	N	P	F. Coli.	pH	Cl_2	Comments

[a] F. Coli. is reported as MPN/100 ml and pH as a dimensionless number.

Chlorine Residual:

No. of tests:_____ No.> 1.5 mg/L _____ No. ≤1.5mg/L _____

Other Tests

Type: _____ No. _____ Comments: _____

Type: _____ No. _____ Comments: _____

Type: _____ No. _____ Comments: _____

Regulatory Inspections/Visits:—

NEPA: Yes ☐ No. _____ EHU: Yes ☐ No._____

No ☐ No ☐

Month			

OPERATION AND MAINTENANCE

Average daily flow: :_____ m^3/d _____ m^3/d

(Influent) (Effluent, if > 375 m^3/d)

Maximum daily influent flow for the year:_____ m^3/d

Receiving Water Body_____ Watershed Management Unit_____

Technology used for treatment:_____

Total Septage received for year: _____ m^3

Total Sludge removed for year: _____ m^3

Total Volume of effluent for the year: _____ m^3

List any repairs, rehabilitation or upgrades to the plant: _____

Total amount of biomass harvested for the year: _____ hectares _____

Description	Start Date	End Date
_____	_____	_____
_____	_____	_____
_____	_____	_____

FOURTH SCHEDULE, *contd.*

FORM 3, *contd.*

Method of disposal of biomass:

_____

Annual consumption of energy: _____ kwh

_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

List any additional Sewage Inflows received

Source Start Date

_____ _____

_____ _____

_____ _____

Changes in Staffing

_____

_____

_____

Comments:

_____

_____

_____

_____

_____

_____

_____

_____

_____ Date: _____

Plant Operator Signature

_____ Date: _____

Owner Signature

Copies of laboratory reports shall be attached.

_____ _____

Signature Date

FOURTH SCHEDULE, *contd.*

FORM 4

THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT

THE NATURAL RESOURCES CONSERVATION AUTHORITY (WASTEWATER AND SLUDGE) REGULATIONS, 2013

Annual Trade Effluent Reporting Form

Date:_____ yyyy/mm/dd	Reporting year_____	Date Received _____ yyyy/mm/dd

Name of Plant:_____

Location of Plant: _____

(include location sampling/discharge points JAD 2001 coordinates):

N_____ E_____):

NRCA Permit No.:_____ NRCA Licence No.:_____

Technology used for treatment:

Total amount of biomass harvested for the year [ha]

Estimate of average flow rate of trade effluent
Method of disposal of business and annual consumption of energy kwh
Average annual flow rate of trade effluent
Monthly flow rate (litres) if the flow rate is not available, use monthly water usage

Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	YR
—	—	—	—	—	—	—	—	—	—	—	—	—

Number of reportable incidents
Community activities

_____ Date: _____

Plant Operator Signature

_____ Date: _____

Owner Signature

Copies of laboratory reports shall be attached.

FOURTH SCHEDULE, *contd.*

FORM 5

THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT

THE NATURAL RESOURCES CONSERVATION AUTHORITY (WASTEWATER AND SLUDGE) Regulations, 2013

Form to Report Spills and Pollution Incidents

Date report filed:_____

Name of Plant:_____

Location of Plant (include location sampling/discharge points JAD 2001 coordinates

N_____ E_____): _____

NRCA Permit No.:_____ NRCA Licence No.:_____

Location where spill or incident occurred	
Name and phone number of person who reported the spill and location where they can be contacted	
Date and time of spill	
Material spill	
Characteristics of material spilled	
Amount of material spilled (volume in literes or weight in kilograms)	
Duration of spill event	
Work completed and/or still in progress in the corrective actions of the spill	
Preventative actions being taken to ensure the situation does not occur again	

Copies of laboratory reports shall be attached

_____ _____

Signature Date

FOURTH SCHEDULE, *contd.*

FORM 6

THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT

THE NATURAL RESOURCES CONSERVATION AUTHORITY (WASTEWATER AND SLUDGE) REGULATIONS, 2013

Quarterly and Annual Industrial Sludge Reporting Form

1. Date:_____ yyyy/mm/dd	2. Reporting year:_____	3. Date Received: _____ yyyy/mm/dd

4. Description of the facility:

Name of Plant:_____

Location of Plant (include location sampling/discharge points JAD 2001 coordinates;

N_____ E_____):

NRCA Permit No.:_____ NRCA Licence No.:_____

5. Quarterly and Annual Release of Industrial Sludge:

Period*	Type of sludge (Include description of types A, B, C etc. in section 6)	Amount of sludge generated in period (tonne)	Stored on site at end of period (tonne)	Transferred off-site during period (tonne)	Other (specify)
Q1	A				
Q2	A				
Q3	A				
Q4	A				
Q1	B				
Q2	B				
Q3	B				
Q4	B				
Q1	C				
Q2	C				
Q3	C				
Q4	C				
Repeat groups of four rows in the report for each additional type of sludge for the quarterly amounts *Q1 (Jan. — Mar.) Q2 (Apr. — Jun.) Q3 (July—Sep.) Q4 (Oct. — Dec.)					
Annual					
Year	A				
Year	B				
Year	C				
Repeat one row for each additional type of sludge for the annual amounts					

6. Description of Sludge Types (A, B, C etc.)

FOURTH SCHEDULE, *contd.*

FORM 6, *contd.*

7. Transfer of Sludge Off-Site

Period	Type of sludge	Date transfer	Amount transferred	Recipient	Address of Recipient (Designation) of Sludge
Add rows as needed for each transfer date					

8. Comments:

_____

_____

_____

_____

_____ _____

Plant Operator's Signature Date

_____ _____

Owner's Signature Date

FIFTH SCHEDULE (Regulations 27, 31 and 38)

THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT

THE NATURAL RESOURCES CONSERVATION AUTHORITY (WASTEWATER AND SLUDGE) REGULATIONS, 2013

Approved Test for Sewage and Trade Methods

PART I. *Test Methods for Sewage Effluent*

Whereas the Test Methods listed in Appendix 2 of the National Sewage Effluent Standards, 1997 are internationally accepted methods of analysis; the proposed specific tests for the Authority compliance purposes are listed below. However, other test methods may be used if evidence is provided to prove compatibility with the test methods proposed by the Authority.

Table 1

Approved Test Methods

Whereas the Test Methods listed in Appendix 2 of the National Sewage Effluent Standards, 1997 are internationally accepted methods of analysis; the proposed specific tests for NRCA compliance purposes are listed below. However, other test methods can be used if evidence is provided to prove compatibility with the test methods proposed by NRCA.

Parameter	Standard Methods for the Examination of Water and Wastewater Test Method(s)	ISO Test Method(s)	HACH Method
Biochemical Oxygen Demand BOD5)	5210 B, 5-day BOD test	ISO 5815:1989 Dilution and seeding	
Chemical Oxygen Demand	5220 D, Closed reflux, Colorimetric		
Total Suspended Solids	2450 D, Total Suspended Solids dried at 103°C -105°C		
Nitrate as Nitrogen	4500-NO3 E, Cadmium Reduction		8039, 8171 and 10020
Total Nitrogen	4500-N, Persulphate Method	ISO 10048:1991	10071 and 10072
Phosphate as Phosphorus	4500-P E, Colorimetric or 4500-P F,	ISO 6878-1:1986 Colorimetric	8048
Total Phosphorus	4500-P I, Persulphate		8190
pH	4500-H+ B, Electrometric		
Faecal Coliform	9221 C, Multiple (5) Tube Fermentation 9222 D, Membrane Filtration	ISO 9308-2: 1990	
Oil and Grease	5520 B, Partition Gravimetric 5520 C, Partition Infrared 5520 D, Soxhlet Extraction	U.S. EPA Method 1664: Guidelines Establishing Test Procedures for the Analysis of Oil and Grease and Non-Polar	

FIFTH SCHEDULE, *contd.*

Recommended test methods for analytical analyses of effluent samples used to assess for compliance with NRCA's National Trade and Sewage Effluent Standards.

(1) Clesceri, L; Greenberg, Arnold and Trussel, R. (Editors). 1989. Standard Methods for the Examination of Water and Wastewater, 17th Edition. APHAAWWA-WPCF. Publication Office: APHA, 1015 Fifteenth Street NW, Washington,DC 2005.(APHA = American Public Health Association.' AWWA = American Wastewater Association. WPCF = Water Pollution Control Federation)

(2) ISO. 1994. ISO Standards Compendium, Environment, Water Quality, Vol. 2—Chemical methods, 1st Edition. ISO, Case Postale 56, CH-1211 Geneve, Switzerland. (ISO = International Organization for Standardization)

(3) ISO. 1994. ISO Standards Compendium, Environment, Water Quality, Vol. 3—Physical, biological and microbiological methods, 1st Edition. ISO, Case Postale 56, CH-1211 Geneve, Switzerland.

Part II. *Test Methods for Trade Effluent*

For the Trade Effluent, the proposed analytical methods for the Authority compliance purposes are listed below. Other test methods can, however, be used if evidence is provided to prove compatibility with the test methods proposed by the Authority.

Table 2

For the Trade Effluent, The proposed Analytical methods for NRCA compliance purposes are listed below. However, other test methods can be used if evidence is provided to prove compatibility with the test methods proposed by NRCA.

Parameter	Standard Methods for the Examination of Water and Wastewater Test Method(s)	ISO or U.S EPA Method
Ammonia/ammonium measured as NH_4	4500-NH3	
Barium	3500-Ba	
Beryllium	3500-Be	
Biological oxygen demand (BOD)	5210	ISO 5815:1989, Dilution and seeding
Boron	4500-B	
Calcium	3500-Ca	
Chemical Oxygen Demand (COD)	5220	
Chloride	4500-Cl-	
Colour	2120	
Cyanide (free)	4500-CN I	
Cyanide (Total as CN)	4500-CN C	
Detergent	5540	
Dissolved oxygen (DO)	4500-O	
Faecal Coliform	9221	ISO 9308-2:1990

FIFTH SCHEDULE, *contd.*

Parameter	Standard Methods for the Examination of Water and Wastewater Test Method(s)	ISO or U.S EPA Method
Fluoride	4500-F-	
Iron	3500-Fe	
Magnesium	3500 Mg	
Manganese	3500-Mn	
Nitrate as NO_3	4500-NO3-	
Oil and Grease	5520	U.S. EPA Method 1664: Guidelines Establishing Test Procedures for the Analysis of Oil and Grease and Non-Polar Material
pH	4500-H+B, Electrometric	
Phenols	5530	
Phosphate as PO_4	4500-P	ISO 6878-1:1986, Colorimetric
Sodium	3500-Na	
Sulphate	4500-SO4	
Sulphide	4500-S2-	
Temperature	2550	
Total Coliform	9221	
Total dissolved solids (TDS)	2540 C	
Total organic carbon (TOC)	5310	
Total suspended solids (TSS) (maximum monthly average)	2540 D	
Total suspended solids (TSS) maximum daily average	2540 D	
Trace Metals: Zinc Lead Cadmium Arsenic Chromium Copper Mercury Nickel Selenium Silver Tin Total Heavy Metals	3500-metal	

FIFTH SCHEDULE, *contd.*

Part III. *Test Methods for Sludge*

A. Sampling Frequency and Method:

The Sludge produced shall be sampled every six months
A sample set shall consist of a set of five samples taken at random from a batch of sludge, with each sample consisting of not less than 100 ml in the case of liquid sludge or 100g in the case of dried sludge;

Where analysis of samples over a period of six consecutive months shows that none of them contain Salmonella species, or more than 102 units of E. coli, the interval before the next sampling may be increased to three months.

B. Tests to be done:

Each sample shall be analyzed so as to determine:

(i) The presence of E. coli; and

(ii) The presence of Salmonella species, where the batch of sludge in question has undergone a treatment process designed so as to reduce the amount of E. coli present in the sludge by not less than 99.9999 per cent;

(iii) Methods of Analysis;

(iv) The percentage content of dry matter;

(v) The percentage organic matter on a dry weight basis;

(vi) The percentage of nitrogen on a dry weight basis;

(vii) The percentage of phosphorus on a dry weight basis;

(viii) The concentrations in milligrams per kilogram of dry matter of—

(a) Chromium

(b) Zinc

(c) Copper

(d) Nickel

(e) Cadmium

(f) Lead

(g) Mercury

C. Methods of Analysis:

(1) Enteric viruses. ASTM Designation: D 4994-89, "Standard Practice for Recovery of Viruses From Wastewater Sludges", 1992 Annual Book of

FIFTH SCHEDULE, *contd.*

ASTM Standards: Section 11 — Water and Environmental Technology, ASTM, 1916 Race Street, Philadelphia, PA 19103-1187.

(2) Faecal coliform. Part 9221 E. or Part 9222 D., "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, American Public Health Association, 1015 15th Street, N.W., Washington, DC 20005.

SIXTH SCHEDULE (Regulations 5, 6, 7, 48 and 49)

THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT

THE NATURAL RESOURCES CONSERVATION AUTHORITY (WASTEWATER AND SLUDGE) REGULATIONS, 2013

Schedule of Fees

PART A

Application Fees

ISIC[1]	Source of Wastewater Discharge	Fee (J$)
0502	Aquaculture	50,000
1320	Mining of non-ferrous metal ores (includes bauxite, precious metals)	50,000
1410	Quarrying of stone, sand and clay includes limestone, dolomite, gypsum, clay and industrial sand and gravel	50,000
1422	Extraction of salt	50,000
1542	Manufacture of sugar	65,000
1551	Distilling, rectifying and blending of spirits; ethyl alcohol production from fermented materials	65,000
1553	Manufacture of malt liquors and malt (includes manufacture of beer, stout, ale)	65,000
1554	Manufacture of soft drinks; production of mineral waters (includes non-alcoholic beverages, soft drinks, bottled water)	65,000
15xx	Other Manufacturing of Food products (includes manufacture or processing of fish, meat, dairy, grain mill, animal feeds, vegetable and animal oils and fats, bakery products)	65,000
1911	Tanning and dressing of leather	65,000
2320	Manufacture of refined petroleum products	75,000
2411 and 2412	Manufacture of basic chemicals including fertilizers and nitrogen compounds	65,000
242x	Manufacturing of other Chemical products (Pharmaceuticals, medicinal chemicals and botanical products, paints varnishes and similar coatings, printing ink and mastics, pesticides and other agro-chemical products, soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations)	65,000
2694	Manufacture of cement, lime plaster (includes cement and lime manufacturing)	65,000
2695	Manufacture of articles of concrete, cement and plaster (includes construction articles made of cement, plaster, wood)	65,000
2720	Manufacture of basic precious and non-ferrous metals (includes alumina plants, manufacture of aluminium foil)	75,000

SIXTH SCHEDULE, *contd.*

ISIC*	Source of Wastewater Discharge	Fee (J$)
15** and 2***	All other manufacturing	50,000
4010	Electric power generation	65,000
5141	Wholesale of solid, liquid and gaseous fuels and related products	50,000
9000	Sewage	65,000

* International Standards Industrial Codes.

PART B

Discharge Fees per Tonne for Discharges into the Environment

Pollutant	Fee J$/Tonne
BOD_5	300
COD	150
Total N	500
Total P	500
Oil and grease	500
TSS	150
Total heavy metals (As, Cd, Cr, Cu, Pb, Hg, Se, Zn)	3,000
As	300
Cd	7,500
Cr	500
Cu	200
Pb	700
Hg	20,000
Se	1,500
Zn	100
Faecal coliform	
(a) 200 to 5,000 organisms per 100ml	1,000
(b) 5,000 to 20,000 organisms per 100ml	2,000
(c) more than 20,000 organisms per 100ml	3,000
* For Faecal Coliform the fee rate is in $/1,000,000 litres	

SIXTH SCHEDULE, *contd.*

PART C

Assessable Pollutant for each Licensable Discharge

Types of Discharge	Parameter Present
Sewage Effluent	• Biochemical Oxygen Demand • Faecal Coliform • Total Suspended Solids • Total Nitrogen • Phosphate • Total Phosphorous
Trade Effluent	• Chemical Oxygen Demand • Total Suspended Solids • Oil and Grease • Heavy Metals • Total Heavy Metals • Phosphate • Metals
Combine Sewage and Trade Effluent	• Biochemical Oxygen Demand • Chemical Oxygen Demand • Total Suspended Solids • Oil and Grease • Faecal Coliform • Total Heavy Metals • Total Nitrogen • Phosphate • Total Phosphorous

PART D

Method to Calculate Discharge Fees

Calculation of Discharge Fee:

The base discharge fee is determined by—

(1) Adding $(1+f)$, the value of f depending on the nature of the receiving environment or receptor into which the discharge occurs. The weighting is such that discharges to receptors where impacts are of greater concern attract higher fees and (see table below).

(2) Multiplying by the value $(1 + f)$ by the dollar value of the discharge fee per tonne of discharge (B) for each pollutant.

(3) Adding the costs associated with monitoring and inspection (M.I.) which includes, the costs for direct labour hours and materials that involve site visits over a five year period, travelling costs among others. One fifth of this cost shall be applied to the annual discharge fee where stated in the formula given below.

SIXTH SCHEDULE, *contd.*

(4) Discounting the cost by subtracting savings (U) made through the beneficial use of effluent and /or treated sludge that meets specified standards to be used for irrigation or soil amelioration.

The final equation is given as follows—

$$DF = M.I. + B(1 + f) - U$$

Receptor	Weighting Factor, *f*	Comment
Ground water	0.3	
Surface water (including dry gully)	0.5	Streams, rivers, watercourses, gullies
Sensitive marine waters	0.7	Coastal waters inside reefs
Enclosed (and semi-enclosed) water bodies	0.8	Harbours, ponds
Open sea	0	Areas outside reefs with depths of at least 50m and 100m from the shore or reef

Dated this 24th day of April, 2013.

R. PICKERSGILL
Minister of Water, Land, Environment
and Climate Change.

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