

SUMMARY OF MAIN FEATURES OF THE DRAFTING INSTRUCTIONS

Purpose

Trade effluent discharges and industrial sludge need to be controlled in order to ensure that:

- trade effluent and industrial sludge have no detrimental effect on the environment;
- trade effluent mixed with sewage can be treated effectively, safely and economically at the sewage treatment plants
- avoid the introduction of toxic, flammable or explosive substances are not introduced into the sewage treatment plants; and
- industrial sludge is managed or treated to allow safe transportation, reuse and/or disposal.

The regulations are based on the following principles and approaches:

- industry self monitoring of trade effluent and industrial sludge
- NEPA performing an auditing function. NEPA will take samples to determine compliance or to verify or check reports made by licensees.
- the polluter pays principle – by load based discharge fees so that licensees are encouraged to minimise effluent discharged
- incentives for the beneficial use of trade effluent (such as fertilization)
- licensees to take care of their own wastes (i.e., so that they meet standards)
- progressively severe penalties (warnings, control orders, prosecution) for violation of the regulations.

It is recognised that facilities and/or mechanisms for the treatment, use or reuse and/or safe disposal of common trade effluent and industrial sludge wastes as well as waste oil, livestock manure and sewage sludge are non-existent or underdeveloped. (The same can be said of some solid wastes (batteries, plastic bottles, and wastes from agri-processing). The regulations require generators to take care of their own trade effluent and industrial sludge.

The regulations also provide a framework on which economic instruments related to trade effluent and industrial sludge can be built. **The regulations are designed to complement market based approaches and not as an alternative to market based approaches.** In particular, where several facilities release trade effluent into a watershed or body of water (such as Kingston/Kingston Harbour) the regulations will allow:

- mechanisms to legally define and characterise trade effluent loads
- the determination of the maximum load that the watershed can sustain
- determination of load reductions in cases where the maximum sustainable load is already exceeded
- the development of mechanisms for allocation of loads among facilities in the same watershed
- the design of voluntary economic instruments/market based approaches such as trade effluent load trading (trading of the same pollutants e.g., BOD) among facilities that release BOD in the same watershed/receiving water body. [Note that pollutants involved would include BOD, nutrients and total suspended solids.] Cross-pollutant trading could

be included where the impacts of the different pollutants on water quality are clearly established, e.g., for oxygen-related pollutants.)

- Incentives that promote the use of nitrogen, phosphorus and organic carbon (using BOD as a surrogate) in trade effluent as fertilizers provided two general conditions are completely met. These conditions are:

No other pollutant or pollutants in the trade effluent pose a risk to the receiving environment

AND

The facility must develop a nutrient management plan for the use of trade effluent as fertilizer and provide annual reporting on the implementation of the plan. The nutrient management plan must demonstrate the existing condition of soils to which the waste is to be applied as fertilizer and must indicate the savings of artificial fertilizer that will result. The

- Both conditions must be met before approval to refund the discharge fees. In effect the first year's fees for N, P and BOD could serve as a deposit provided annual reporting is satisfactory
- Discharge fees for all other pollutants including will continue to be applicable.

Scope

The regulations apply to:

- persons that discharge trade effluent (alone or mixed with domestic sewage) directly into the environment or indirectly through sewage treatment plants and
- persons that generate industrial sludge.

The Trade Effluent and Industrial Sludge Regulations do not apply to facilities that discharge only domestic sewage.

The regulations include a licensing system for facilities that discharge trade effluent or industrial sludge above specified thresholds since they pose high risk to the environment. The regulations also allow NEPA to require licensing of facilities that discharge below the threshold when the effluent or sludge is deemed by NEPA to pose significant risk to the environment. The regulations also require NEPA to develop alternate strategies to manage effluent from large numbers of smaller facilities that release effluent to the environment that may also pose high risk to the environment.

Generators of industrial sludge will be held responsible for the ultimate safe disposal of sludge.

Persons hauling industrial sludge will require a licence and will be required to provide proof of the methods used for disposal of industrial sludge. The licensing of haulers of industrial sludge is to be under regulations to be developed by the National Solid Waste Management Authority (NSWMA).

Specific Features of the Trade Effluent and Industrial Sludge regulations

Name of regulation (Regulation 1)

Key definitions (regulation 2)

“Trade effluent” means any amount of liquid waste and waterborne liquid, gaseous and solid substances discharged or disposed of from any industrial, manufacturing, trade or commercial establishment including non-profit organizations, governmental agencies or business activities. Such term shall not include sewage discharged from sanitary conveniences on the premises unless such sewage is commingled with wastewater containing industrial waste or other prohibited waste.

“Industrial sludge” means any process residuals solid, semi-solid or semi-liquid sludge waste resulting from any industrial, manufacturing, trade or commercial establishment including non-profit organizations, governmental agencies or business activities.

“Hazardous wastes” means substances or wastes that have one or more of the following characteristics: explosive, flammable, liable to spontaneous combustion, emit flammable or toxic gases in contact with air or water, acutely poisonous, toxic, infectious, corrosive or ecotoxic or capable, by any means, after disposal, of yielding another material, e.g., leachate, which possesses any of the previous characteristics. Specific categories of substances defined as hazardous and substances exempt from the definitions are given in Schedule 10.

Scope and applicability (Regulation 3)

This regulation:

- Is applicable to any person that discharges trade effluent and/or industrial sludge
- Formally establishes trade effluent standards when discharge is to the environment. When trade effluent discharge from a facility is to a licensed sewage treatment plant, the influent standards for the sewage treatment plant will apply. It is understood that influent standards are to be regulated by regulations to be developed under the new Water Act.
- Identifies the need to prohibit and/or to set limits (Trade Effluent Standards) for additional substances

Coming into force and Transitional Period (Regulations 4 & 5)

Required for legal/administrative purposes

Licensing System (Regulation 6)

Persons with a licence to discharge trade effluent issued under the *Permits and Licences Regulations 1996* will be not be required to apply for a Trade Effluent and Industrial Sludge Licence until their current licence issued under the *Permits and Licences Regulations 1996* expires.

Establishes a Licensing System applicable to:

Individual facilities that discharge more than 4,000,000 l/y of trade effluent or more than 4,000 l/y of industrial sludge.

A group of facilities within a prescribed watershed management unit or that discharge into Kingston Harbour more than 4,000,000 l/y of trade effluent or

more than 4,000 l/y of industrial sludge. This will set the stage for the potential use of trading and establishing maximum daily loads for watershed management units and Kingston Harbour.

Licences are valid for 5 years and renewable for successive 5 year periods

Licences authorise the licensee to discharge trade effluent up to the maximum daily and/or annual volume and rate of discharge while meeting trade effluent standards;

Licences require minimum reporting annually

May include facility-specific monitoring and reporting requirements

Facilities that discharge trade effluent too numerous or small to licence (Moved from Regulation 16).

This allows NEPA to require licences or other means to address trade effluent releases from facilities that do not satisfy the threshold (i.e., who discharge less than 4,000,000 l/y) and where the discharge trade effluent that poses high risk to the environment. This will be applicable to hazardous pollutants for which there are currently no Trade Effluent Standards.

Review by NEPA (Regulation 7)

NEPA will have 90 days (from receipt of a completed application) to review the licence applications

Conditions for Trade Effluent Discharge Licences (Regulation 8)

Licence conditions can be attached to licences. These can include Compliance Plans where effluent exceed the standards or Spill Control measures, provision of sampling access points and additional monitoring and reporting as needed by the conditions.

Trade effluent standard can be adjusted for the presence of pollutants in the intake water [except where treatment would remove such pollutants]

Amendment of Trade Effluent Discharge licences (Regulation 9)

Amendments are required when the capacity of the facility changes

Transferability of existing Trade Effluent and Industrial Sludge Discharge licences (Regulation 10)

Licences are not transferable across facilities. When a change in ownership of a facility occurs, applications for transfer are to be made at least 90 days before change of ownership

Monitoring requirements - Trade Effluent and Industrial Sludge Discharge Licensees (Regulation 11)

The frequency of monitoring and reporting are specified based on the nature of the facility sector) and the type of effluent. Analytical methods or their equivalent are specified (in Schedule 6).

Fees and Incentives - Trade Effluent and Industrial Sludge Discharge Licensees (Regulation 12)

Load based fees

These are applicable when discharge is to the environment (not applicable when facilities discharge to a licensed sewage treatment plant)

The charging system is based on the polluter pays principle. This policy reinforces the Government's commitment to protecting and safeguarding the environment, by ensuring that industrial, trade and commercial companies take responsibility for their own actions. Discharge fees provide companies with a real incentive to minimise their discharge of harmful effluent.

Annual discharge fees are payable for the following pollutant loads

TSS, COD or BOD (if COD not specified/measured or estimated), Nitrate as NO₃, phosphate as PO₄, oil and grease, total heavy metals, caustic soda

Licence Application fees

These are based on preliminary estimates of the time to process and administer applications and licences

Fees for Amendment of licences (to be determined)

To be based on a minimum 33% of the application fee

Incentives for the Beneficial Use of Trade Effluent

Provided the facility has an approved Nutrient Management Plan and the trade effluent is demonstrated not to pose any risk to the environment, discharge fees for N, P and BOD can serve as a deposit if annual nutrient/fertilizer reporting is satisfactory. Discharge fees for all other pollutants discharged are payable annually.

Reporting and record keeping - Trade Effluent Discharge Licensees (Regulation 13)

Annual reporting of loads, amounts of sludge generated and transported off-site

Incident reporting (spills, when trade effluent standards are exceeded)

Based on licence conditions

Records of sampling, analysis etc. to be kept for at least four years

Sanctions - Trade Effluent Discharge Licensees (Regulation 14)

The regulations provide for progressive sanctions (warning, control order, administrative penalties, and revocation of licence/plant closure (on appeal to Supreme Court for injunction))

Offences and penalties - Trade Effluent Discharge Licensees (Regulation 15)

A [preliminary] list of offences is included

Treatment of facilities that discharge trade effluent too numerous or small to licence (Regulation 16)

This allows NEPA to require licences or other means to address trade effluent releases from facilities that do not satisfy the need to obtain a licence but which discharge trade effluent that poses high risk. This will be applicable to hazardous pollutants for which there are currently no Trade Effluent Standards. Note: This has been moved to Regulation 6b.

Schedule 1	Trade Effluent Standards
Schedule 2	Industrial Sludge Standards
Schedule 2a	Standards for Industrial Sludge Suitable for Landfill
Schedule 2b	Standards for Industrial Sludge Suitable for Landfill (based on Leachate quality test results)
Schedule 3	Application Form for Trade Effluent and Industrial Sludge Discharge Licence
Schedule 4	Trade Effluent and Industrial Sludge Discharge Licence
Schedule 5	Reporting Formats for Monitoring Data
Schedule 6	Analytical methods
Schedule 7	Discharge Fees for Discharges to the Environment
Schedule 8a	Annual Reporting Form – Trade Effluent
Schedule 9	Various Water Quality Standards
Schedule 10	Application for a Licence to Transport Industrial sludge (Deleted and replaced – see below)
Schedule 10	Specific Categories of Substances Defined as Hazardous and Substances Exempt From the Definitions
Schedule 11	Reporting for Spills and Pollution Incidents
Schedule 12	Content of Nutrient Management Plans

DRAFTING INSTRUCTIONS**TRADE EFFLUENT AND INDUSTRIAL SLUDGE REGULATIONS**

[Explanatory notes are in italics]

1 Definitions and Abbreviations

A. Definitions

"Applicant" means an applicant for a licence under these Regulations;

"Authorised officer" means –

- (a) any person designated as such by the Authority, by a member of the Jamaica Constabulary Force, by an inspector appointed by the Minister under the Clean Air Act, or by a Medical Officer (Health) under the Public Health Act; or
- (b) any other person authorized in writing to act in that behalf by the Minister, by a Local Board of Health or by the Chief Medical Officer under the Public Health Act; or
- (c) any person authorized to carry out an inspection under section 62 of the Mining Act;

“Authority” means the Natural Resources Conservation Authority as defined in Section 3 of the Natural Resources Conservation Authority Act (1991).

“BOD or Biochemical oxygen demand” means a measure of the amount of oxygen that bacteria consume in the process of oxidizing organic matter.

“Combined sewer” means a sewer intended to function as a storm sewer and a sanitary sewer designed to carry sewage, storm water, or uncontaminated water.

“Contaminant” means any noise, heat, vibration or substance and includes such other substances as the Minister may prescribe that, where discharged into the environment,

- (a) endangers the health, safety or welfare of persons,
- (b) interferes or is likely to interfere with normal enjoyment of life or property,
- (c) endangers the health of animal life, or
- (d) causes or is likely to cause damage to plant life or property.

“Corrosive” means substances or wastes which, by chemical action, will cause severe damage when in contact with living tissue, or, in the case of leakage, will materially damage, or even destroy, other goods or the means of transport; they may also cause other hazards.

“Domestic septage” is either liquid or solid material removed from a septic tank, cesspool, portable toilet, Type III marine sanitation device, or similar treatment works that receives only domestic sewage. Domestic septage does not include liquid or solid material removed from a septic tank, cesspool, or similar treatment works that receives either commercial wastewater or industrial wastewater and does not include grease removed from a grease trap at a restaurant.

“Dry weight basis” means calculated on the basis of having been dried at 105 degrees Celsius until reaching a constant mass (i.e., essentially 100 percent solids)

“Ecotoxic” means substances or wastes which if released present or may present immediate or delayed adverse impacts to the environment by means of bioaccumulation and/or toxic effects upon biotic systems.

“Existing trade effluent facility” means any enterprise, construction or development having a trade effluent or industrial sludge source that is constructed, in operation, installed, or used, in Jamaica on or before [****, ##, 200*];

“Explosive substance or waste” means a solid or liquid substance or waste (or mixture of substances or wastes) which is in itself capable by chemical reaction of producing gas at such a temperature and pressure and at such speed as to cause damage to the surroundings.

“Facility” means any building, structure, establishment, installation, plant, works or activity that is capable of discharging any trade effluent into a sewage works or to the natural environment that is located on one or more adjacent properties under the ownership or control of a single person;

“Flammable liquid” means liquids, or mixtures of liquids, or liquids containing solids in solution or suspension (for example, paints, varnishes, lacquers, etc., but not including substances or wastes otherwise classified on account of their dangerous characteristics) which give off a flammable vapour at temperatures of not more than 60.5° C, closed-cup test, or not more than 65.6° C, open-cup test. (Since the results of open-cup tests and of closed-cup tests are not strictly comparable and even individual results by the same test are often variable, regulations varying from the above figures to make allowance for such differences would be within the spirit of this definition.) The word “flammable” has the same meaning as “inflammable.”

“Flammable solid” means solids, or waste solids, other than those classed as explosives, which under conditions encountered in transport are readily combustible, or may cause or contribute to fire through friction.

“Hauled waste” means any industrial waste which is transported to and deposited into any location outside of the facility in which the industrial waste was generated;

“Hazardous wastes” means substances or wastes that have one or more of the following characteristics: explosive, flammable, liable to spontaneous combustion, emit flammable or toxic gases in contact with air or water, acutely poisonous, toxic, infectious, corrosive or ecotoxic or capable, by any means, after disposal, of yielding another material, e.g., leachate, which possesses any of the previous characteristics. Specific categories of substances defined as hazardous and substances exempt from the definitions are given in Schedule 10.

“Hydrological Basin” means one of the ten hydrological basins into which the island is divided.

“Industrial Septage” means material pumped from septic tanks or other devices used in the collection, pretreatment, 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. Domestic septage mixed with any industrial or commercial septage is considered industrial septage..

“Industrial Sludge” is semi-solid or semi-liquid waste generated during the treatment of trade effluent in a treatment works or resulting from commercial, trade or industrial or agro industrial operations. It includes, but is not limited to, industrial septage; scum or solids removed in primary, secondary or advanced trade effluent wastewater treatment of trade effluent from livestock animal waste or aquaculture processes and a material derived from industrial sludge, red mud and oily waste. It does not include untreated semi-liquid or semi-solid livestock wastes.

“Infectious substances” means substances or wastes containing viable micro organisms or their toxins which are known or suspected to cause disease in animals or humans.

“Kingston Harbour” means the area bounded on the north and east by the coast of the parish of Kingston and the western part of St. Andrew, on the south by the north shore of the Palisadoes; and on the northwest and west by the entrance to the open sea is by a channel at the southwest corner. Four different regions may be defined in Kingston Harbour, namely, the Upper Basin, the Inner Harbour, the Outer Harbour and Hunt’s Bay.

“ISIC Codes” means latest version of the International Standard Industrial Classification (ISIC) codes, which is a standard classification of economic activities arranged according to the activity, that is registered into the United Nations Inventory of Classifications and approved as guidelines by the United Nations Statistical Commission.

“Liberation of toxic gases in contact with air or water” means substances or wastes which, by interaction with air or water, are liable to give off toxic gases in dangerous quantities.

“Licensee” means a person who is granted a licence under these Regulations.

“Livestock waste” means manure from farm animals including cattle, chickens, ducks, goats, horses, pigs, rabbits, sheep, and turkeys.

“Material change” means any increase that is greater than 15% of the maximum annual amount of trade effluent that a facility can produce as specified in the licence application.

“Mixing zone” means the zone extending from the sea’s surface to seabed and extending laterally to a distance of 100 meters in all directions from the discharge point(s) or to the boundary of the zone of initial dilution as calculated by a plume model approved by the Authority, whichever is greater, unless the Authority determines that a more restrictive mixing zone or another definition of the mixing zone is more appropriate for a specific discharge.”

“New facility” means any facility, other than an existing facility that commenced construction or operation or was installed in Jamaica after [September 1, 2001];

“Organic Peroxides” means organic substances or wastes which contain the bivalent-O-O- structure are thermally unstable substances which may undergo exothermic self-accelerating decomposition.

“Owner” means any person who owns or operates a facility, where trade effluent or industrial sludge are released or discharged into the environment.

“Oxidizing” means substances or wastes which, while in themselves not necessarily combustible, may, generally by yielding oxygen cause, or contribute to, the combustion of other materials.

“Poisonous (Acute)” means substances or wastes liable either to cause death or serious injury or to harm health if swallowed or inhaled or by skin contact.

“Septage” means any liquid and solid material removed from septic tanks or other holding tanks for domestic sewage.

“Sewage sludge” is solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to, domestic septage; scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator or grit and screenings generated during preliminary treatment of domestic sewage in a treatment works.

“Storm water” means rainwater runoff, water runoff from roofs, flow from foundation drains and surface runoff;

“Substances or wastes liable to spontaneous combustion” means substances or wastes which are liable to spontaneous heating under normal conditions encountered in transport, or to heating up on contact with air, and being then liable to catch fire.

“Substances or wastes which, in contact with water emit flammable gases” means substances or wastes which, in contact with water emit flammable gases Substances or wastes which, by interaction with water, are liable to become spontaneously flammable or to give off flammable gases in dangerous quantities.

“Toxic (Delayed or chronic)” means substances or wastes which, if they are inhaled or ingested or if they penetrate the skin, may involve delayed or chronic effects, including carcinogenicity.

“Trade effluent” includes any liquid, other than domestic sewage, (either with or without particles of matter in suspension in it) which is discharged from premises used for carrying on any trade or industry; and for the purposes of this definition any premises wholly or mainly used (whether for profit or not) for agricultural purposes or for scientific research or experiment shall be deemed to be premises used for carrying on a trade.

“Trade” means of or pertaining to industry, manufacturing, commerce, trade, business, or institutions as distinguished from domestic or residential;

“Type III marine sanitation device” means a device that retains the waste onboard or treats it in a manner which does not result in any discharge into the water, and it includes recirculating and incinerating marine sanitation devices and holding tanks.

“Watershed management Unit” means one of the twenty-six areas defined by the Authority as water management units which are as follows:

1. Black River
2. Cabarita River

3. Deans Valley River
4. Drivers River
5. Great River
6. Gut-Alligator Hole
7. Hope River
8. Lucea River
9. Martha Brae
10. Milk River
11. Montego River
12. Morant River
13. New Savannah River
14. Oracabessa - Pagee River
15. Pencar - Buff Bay River
16. Plantain Garden River
17. Rio Bueno - White River
18. Rio Cobre
19. Rio Grande
20. Rio Minho
21. Rio Nuevo
22. South Negril/Orange River
23. Spanish River
24. Swift River
25. Wagwater River
26. Yallahs River

B. Abbreviations

B	Boron
Ba	Barium
Be	Beryllium
BOD	Biological oxygen demand
Ca	Calcium
Cl ⁻	Chloride
CN free	Cyanide
COD	Chemical Oxygen Demand
Cyanide (Total)	Total cyanide as CN
DO	Dissolved oxygen

F	Fluoride
Fe	Iron
Mg	Magnesium
Mn	Manganese
Na	Sodium
NH ₄	Ammonia/ammonium measured as NH ₄ ⁺
NO ₃	Nitrate as NO ₃ ⁻
PO ₄	Phosphate as PO ₄ ³⁻
S ²⁻	Sulphide
SO ₄ ²⁻	Sulphate
T	Temperature in degrees centigrade
TDS	Total dissolved solids
TOC	Total organic carbon
TSS	Total suspended solids
Ag	Silver
As	Arsenic
Cd	Cadmium
Cr	Chromium
Cu	Copper
Hg	Mercury
Ni	Nickel
Pb	Lead
Se	Selenium
Sn	Tin
Zn	Zinc

2 Citation and arrangement

- A. The regulations are to be known as the Trade Effluent and Industrial Sludge Regulations of 2004.
- B. Arrangement of parts
 - i. Part 1 of these regulations apply to persons who release or discharge trade effluent and industrial sludge directly or indirectly into the environment
 - ii. Part 2 of these regulations apply to persons who transport industrial sludge (Should this be the responsibility of the MoH)

3 Scope, Applicability and General Provisions

A. Scope and Applicability

- i. These regulations establish Trade Effluent Standards and identifies pollutants of concern in trade effluent and industrial sludge
Trade effluent standards and pollutants of concern are specified in Schedule 1. Standards for industrial sludge are set out in Schedule 2
- ii. Trade effluent
The regulations apply to any person who discharges or releases trade effluent into the environment and/or into an industrial wastewater treatment plant.
- iii. Combined trade effluent and domestic sewage

These regulations apply to any person who discharges or releases trade effluent that is combined with domestic sewage into the environment or into an industrial wastewater treatment system.

iv. Industrial sludge

The regulations apply to any person who discharges or releases Industrial sludge from industrial processes and/or storage facilities and/or from processes that treat industrial wastes, into the environment. [*The term industrial sludge does not include semi-liquid waste raw materials from agricultural operations nor does it apply to sludge generated from the treatment of domestic sewage in a sewage treatment plant.*]

v. Not applicable to effluent that consists exclusively of domestic sewage or septage

The regulations do not apply to effluent that consists entirely of domestic sewage

vi. Persons with Licenses to discharge trade effluent issued under the Permits and Licences Regulations, 1996

Any person who has an existing licence to discharge trade effluent that was issued under the Permits and Licences Regulations will:

- a) retain such a licence under the same terms and conditions until the expiry of the licence or no longer than five years since the date when the licence was issued; and
- b) be required to apply for a Trade Effluent and Industrial Sludge Licence when the existing licence expires (instead of renewing the licence issued under the Permits and Licences Regulations, 1996).

vii. Provide access [*Intended to cover persons who are and are not required to have a licence*]

Any person who discharges trade effluent or industrial sludge to the environment must allow authorised persons to enter the facility to take samples and to inspect any equipment, installation or anything to investigate the release of trade effluent to the environment

viii. Eliminate/restrict access by unauthorised persons and by animals

Establish general requirements, management practices and operational standards including vector control, for the storage and treatment of industrial sludge while on the property of the facility. The management practices are to include restriction of access by livestock, other animals and (unauthorised) humans to industrial sludge treatment and storage areas (as well as to other areas of industrial facilities).

B. General Provisions

i. Prohibitions

- a. No person shall discharge trade effluent or industrial sludge in a manner that will be harmful to the environment.
- b. No person may dilute trade effluent with cooling water or with raw intake water in order to reduce the concentrations of pollutants in trade effluent in order to meet trade effluent standards.

- c. It will be an offence for the owner of any facility to discharge into the environment any pollutant in trade effluent that exceeds the trade effluent standard, except those pollutants that are specified in Compliance Plan that is approved by the Authority.

4 Coming into force

The regulations shall come into force on the * day of ** 2004.

5 Transitional Period

[As may be needed – see 3(a.)(vi). Could address existing licences issued under the Permits and Licences Regulations, 1996]

6 Licensing System – Trade Effluent and Industrial Sludge Discharge Licence

A. Who should apply

- i. The owner of any existing and proposed facility that discharges more than 4,000,000 litres/year of trade effluent or of trade effluent that is combined with domestic sewage is required to apply for a Trade Effluent and Industrial Sludge Discharge Licence.
- ii. The owners of groups of facilities within the same watershed that choose to combine their trade effluent and discharge them from a single or multiple points and which discharges more than 4,000,000 litres/year of trade effluent or of trade effluent that is combined with domestic sewage, may if they so choose apply for a single Group Trade Effluent and Industrial Sludge Discharge Licence. Such a group Licence would be granted at the sole discretion of the Authority.
- iii. The owner of any existing facility or of a new facility, except as noted in iv. below, that discharges more than 4,000 litres/year industrial sludge is required to apply for a Trade Effluent and Industrial Sludge Discharge licence.
- iv. The owner of any existing facility that
 - a. has a Permit from the Authority to construct and use a pond or other place constructed to store industrial sludge shall be granted Trade Effluent and Industrial Sludge Discharge Licence for each pond or other such place used to store industrial sludge; the Licence shall have similar terms and conditions relating to the use of the ponds and the monitoring requirements for ground and surface water as in the Permits.
 - b. does not have a Permit to use an existing pond or other place constructed or used to store industrial sludge will be required to apply for a Trade Effluent and Industrial Sludge Discharge Licence for each pond or other such place used to store industrial sludge; the Licence will specify terms and conditions designed to monitor the impact of the storage ponds on ground and surface water.
 - c. The owner of existing facilities in i. and ii. above will be required to renew the Licences (at five year periods) until such time that the storage ponds is closed and no longer contains any liquid or semi-sold industrial sludge.

[Note that facilities that produce industrial sludge alone or in combination with trade effluent are required to apply for a Trade Effluent and Industrial Sludge Discharge Licence. Regulation of industrial sludge will be a component of the Trade Effluent and Industrial Sludge Discharge Licence; that is, there will not be a separate Licence for the disposal of industrial sludge except as noted above.]

- B. Authority may require a Licence for facilities whose effluent pose a risk to the environment although the effluent amount is below the threshold in regulation 6.

[This may apply to facilities that release pollutants of concern especially those for which there are no trade effluent standards but which are toxic or hazardous]

Notwithstanding the requirements in regulation 6(a), where any person releases or causes to be released any trade effluent or industrial sludge into the environment in quantities that are likely to cause harm to human health or to the environment, the Authority at its sole discretion may:

- i. Give notice to require such a person to apply for a Licence within 90 days of the notice
- ii. Require such persons or similar group of persons* to take such steps or measures within a time period as the Authority sees fit. Such measures may include but not limited to the development of Guidelines, Industry Best Practices or Codes of Practice that are approved by the Authority, in order to remedy the harm to the environment or human health.

**Note: Examples of such groups are restaurants, garages, dental offices, dry cleaners*

- C. Duration of Trade Effluent and Industrial Sludge Discharge Licences and renewal periods

Trade Effluent and Industrial Sludge Discharge Licences are valid for five years beginning on the date of the approval of the application for the Licence and are renewable for successive five year periods upon application for renewal. The application for the renewal of the Licence must be made at least 90 days before the expiry date of the existing Licence. Applications for renewal must be made using the form in Schedule 3.

- D. How to apply for a Trade Effluent and Industrial Sludge Discharge Licence

A person applying for a Licence to discharge trade effluent and industrial sludge into the environment must make the application as specified in the prescribed form (Schedule 3).

- E. Information required for application for a Trade Effluent and Industrial Sludge Discharge Licence

Persons applying for a Trade Effluent and Industrial Sludge Discharge Licence must supply the following types of information as specified in Schedule 3:

- i. The type of application (new, renewal or modification)
- ii. The company name, address, telephone number, electronic mail address

- iii. The owner's name, address, telephone number, electronic mail address and other relevant contact information for the owner of the facility
- iv. The name, address of the facility (plant)
- v. Company contact for trade effluent and sludge or environmental matters
- vi. Plant history
- vii. A list of all Environmental permits for the facility issued by the Authority.
- viii. A list of all Environmental Licences for the facility issued by the Authority
- ix. Type of business at this plant
- x. General and non-confidential description of plant activities
- xi. International Standard Industrial Classification (ISIC) codes that are applicable for the operations at the facility.
- xii. A map showing the location of the plant , the plant boundaries and the discharge points that should be geo referenced
- xiii. Plant capacity data including:
 - a. The maximum annual rates of production for all products at the facility
 - b. The maximum annual amounts of water that can be used at the facility
 - c. The maximum amount of raw materials, chemicals, substances and energy that will be utilised or consumed at the facility
- xiv. A description of all processes that use water and other liquids and which discharge trade effluent to the environment or a sewage treatment plant. The description shall include a list of all chemicals and raw materials used at the facility and a description of how and where all raw materials, chemicals and substances are stored and how they are used in the facility.
- xv. A description of any processes or methods used to store and treat trade effluent before it is discharged into the environment or to a sewage treatment plant
- xvi. A description of how any industrial sludge from any treatment process or from any other process or activity at the facility is generated
- xvii. A schematic process diagram which indicates how water and all raw materials, chemicals and substances are utilised within the facility
- xviii. Detailed drawings of the facility that clearly show the location of all storm water drains, all liquid process streams, storage areas or vessels for storm water and trade effluent, the locations where industrial sludge is formed or stored, all discharge points and all sampling points.
- xix. A description of the receiving environment (surface waters, groundwater or sewage treatment plant) into which trade effluent is discharged
- xx. A description of each method or process used to dispose of industrial sludge. The description must include the locations and destination on-site and off site of the industrial sludge and a list of all persons who transported industrial sludge off site and the amounts of industrial sludge that each transported off site
- xxi. An estimate of the monthly and annual volume of trade effluent discharged
- xxii. An estimate of the average concentration and loading in 2003 (or the full calendar year before the year in which the Licence application is made) for all

parameters for which there are trade effluent standards and which are released from your facility. Such estimates are to be based on the monitoring data and/or on estimation methods specified in the Trade Effluent and Industrial Sludge Guideline Document

- xxiii. The application form must be signed by the owner or operator of the facility.
- F. The application must be accompanied by an application fee as indicated in regulation 12.

7 Review of Trade Effluent Discharge Licence applications by the Authority

A. Period to review Licence applications

The Authority may require additional information from the applicant to support the Licence application. In such cases the Authority shall notify the applicant in writing of the additional requirements and shall request that the information be provided within a specified time.

The Authority shall within ninety days of receipt of a complete application grant or refuse a Trade Effluent and Industrial Sludge Discharge Licence with such terms and conditions that the Authority may specify. Where a Licence is refused, the Authority will specify the reasons for the refusal.

B. Form of the Licence

The Trade Effluent and Industrial Sludge Discharge Licence shall be in the form set out in Schedule 4.

8 Conditions of Trade Effluent and Industrial Sludge Discharge Licences

A. General Conditions

A person who holds a Trade Effluent and Industrial Sludge Discharge Licence must ensure that trade effluent discharged directly into the environment meets the Trade Effluent Standards set out in Schedule 1. If the discharge of trade effluent is to a sewage system, the person must meet the pre-treatment standards and any other conditions or limits established by the recipient of the effluent.

For electric power generation and other processes in which cooling water is discharged into a receiving water body, compliance with the Trade Effluent limit for temperature will be determined at the boundary of the mixing zone instead of at the property boundary.

A person who holds a Trade Effluent and Industrial Sludge Discharge Licence must ensure that any industrial sludge discharged directly into the environment meets Industrial Sludge Limits set out in Schedule 2. If industrial sludge is transported [using a land, water or airborne vehicle or vessel] off site, the licensee must transport such sludge using a person with a valid industrial sludge haulage Licence.

A person who holds a Trade Effluent and Industrial Sludge Discharge Licence must ensure that any industrial sludge that is discharged from a facility or stored in temporary or permanent storage ponds or other devices that there is no release from such facilities to the environment.

Facilities are responsible for the treatment of industrial sludge to render them harmless and suitable for disposal in a landfill. This requires the industrial sludge to be converted to solid waste (water content of <15%)

Where industrial sludge can not be rendered harmless and suitable for disposal in a landfill, the facility must obtain a Licence to dispose of the hazardous sludge in a secure hazardous waste landfill

A person who holds a Trade Effluent and Industrial Sludge Discharge Licence must ensure that unauthorised persons as well as livestock and other animals do not have access to areas where trade effluent and industrial sludge (especially storage/treatment ponds for industrial sludge) [in order to be protective of the health and well being of persons and animals].

- B. Adjustment of effluent standard for the presence of pollutants in the intake water
Upon the request of the owner or operator of a facility discharging a pollutant with a trade effluent standard or prohibition, the Authority shall adjust the effluent standard(s) in such Licence to reflect credit for the pollutant(s) in the owner's or operator's water supply if
- i. the facility discharges trade effluent into the same watershed as the intake water supply, and
 - ii. it is demonstrated to the satisfaction of the Authority that the pollutant(s) will not be removed by any wastewater treatment systems whose design capacity and operation can reduce the pollutant(s) to the levels required by the trade effluent standards in the absence of the pollutants in the intake water.

C. Conditions of Licences

The Authority may set conditions that will form part of the Licence. The conditions shall include but are not limited to the following:

- i. Limits on the average and/or maximum rate of discharge, time of discharge, and/or requirements for flow regulation and equalization;
- ii. Limits on the instantaneous daily and monthly average and/or maximum concentration, mass, or other measure of identified trade effluent pollutants or properties;
- iii. Implementation of a Compliance Plan as specified in Regulation 17, with well defined timelines and milestones in order to comply with trade effluent standards within a prescribed time, for direct discharges to the environment or with pre-treatment standards when trade effluent is discharged to a sewage treatment plant.
- iv. Requirements for development and implementation of spill control plans including management practices necessary to adequately prevent accidental, unanticipated or routine discharges;
- v. Requirements for installation and maintenance of inspection and sampling facilities and equipment;
- vi. Monitoring and reporting requirements including the monitoring and reporting of ambient water (surface, groundwater, coastal waters) where discharges or impoundments have the potential for affecting the quality of ambient water.

9 Amendment of Trade Effluent and Industrial Sludge Discharge Licences

Where an owner or operator makes changes that will increase the capacity of the facility by more than 15% of that stated in the licence or will change the nature and characteristics of the trade effluent the owner must apply for an amendment of the Licence.

10 Transferability of existing Trade Effluent Discharge Licences

A. Licence applicable to a facility not an owner

A Licence may not be transferred from one facility to another

B. How to apply for a transfer

At least 90 days prior to a transfer of ownership, occupancy or management of a facility with a current Licence, the new owner, occupant or operator or manager shall apply for a transfer of the Licence.

C. Conditions for approval of transfer

Approval of the transfer of the Licence shall be subject to the following conditions:

- i. The new owner or operator must submit a written application for the transfer on the application form in Schedule 3;
- ii. There is no change in equipment, facilities or processes on the licensed facility;
- iii. There is no material change in the quantity of the trade effluent discharged;
- iv. The owner or operator of the facility is in compliance with all of the conditions of the Licence at the time of the application for the transfer.

11 Monitoring requirements - Trade Effluent Discharge Licensees

[Note: The frequency and extent of monitoring will depend on the loading of the trade effluent, the consistency of the effluent and the potential for adverse impacts by the trade effluent upon water quality. As a minimum, all licensees must measure the volumes of trade effluent discharged or released into the environment or to a sewage treatment plant. The total volume of water discharged and the nature of the industry will be used as a surrogate for the loading to determine the minimum frequency for monitoring. Additional monitoring requirements may be specified as conditions of the Licence; for example, more frequent monitoring will be required in cases where trade effluent standards are exceeded and to determine the effectiveness of measures to reduce pollutant loadings.]

A. Routine monitoring requirements

- i. All licensees must measure or estimate the volumes of trade effluent that are discharged or released into the environment or are discharged into a sewage treatment plant. Methods for measurement or estimation of the volumes of trade effluent discharged or released into the environment must be made using methods as specified in the Trade Effluent and Industrial Sludge Guideline Document.
- ii. All licensees in the following categories (sectors) must sample and analyse for the following parameters according to the sampling frequency set out below.
- iii. Reports of the monitoring are to be submitted in the format specified in Schedule 5.

Sector	ISIC	Frequency for all activities at the facility	Parameters to be monitored unless otherwise specified in Licence
Aquaculture	0502		
Mining of non-ferrous ores (including bauxite)	1320	quarterly	TSS, pH
Other Manufacturing of Food products \leq 50,000 m ³ /day	15	quarterly	BOD, COD, oil and grease, TSS, NO ₃ , PO ₄ , NH ₄
Other Manufacturing >50,000 m ³ /day	15*	monthly	pH, COD, TSS, oil and grease
Other Manufacturing \leq 50,000 m ³ /day	15*	quarterly	pH, COD, TSS, oil and grease
All others >50,000 m ³ /day	15*	monthly	pH, COD, TSS, oil and grease
Manufacture of sugar	1542	monthly during crop (factory grinding sugar cane and/or producing sugar) Quarterly out of crop (factory not grinding sugar cane and/or producing sugar)	BOD, COD, TSS, NO ₃ , PO ₄ , temperature BOD, COD, TSS, NO ₃ , PO ₄ ,
Distilling, rectifying and blending of spirits; ethyl alcohol production from fermented materials	1551	monthly	BOD, COD, TSS, NO ₃ , PO ₄ , temperature
Manufacture of malt liquors and malt	1553	monthly	BOD, COD, TSS, NO ₃ , PO ₄ , pH, Oil and grease, NH ₄ , PO ₄ , Temperature increase
Other Manufacturing of Food products >50,000 m ³ /day	15xx not previously listed	monthly	BOD, COD, oil and grease, TSS, NO ₃ , PO ₄ , NH ₄

Sector	ISIC	Frequency for all activities at the facility	Parameters to be monitored unless otherwise specified in Licence
Tanning and dressing of leather	1911	monthly	BOD, TSS, Oil and grease, total chromium, pH, sulphide
Manufacture of refined petroleum products	2320	monthly	Temperature, pH, TSS, ammonia, total chromium, hexavalent chromium, sulphide, BOD, COD, faecal coliform, total coliform, oil and grease, phenols
Manufacture of paints, varnishes and similar coatings, printing ink and mastics	2422	Monthly	pH, phenols, oil and grease, TSS, Pb, Cr, Cu, Ni, Zn, total heavy metals
Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations	2424	Monthly	BOD, COD, TSS, surfactants, oil and grease, pH
Manufacture of cement, lime, plaster	2694	Quarterly annual	TSS, oil and grease, pH, Temperature, BOD, COD, faecal coliform, total coliform, Cl, Fe, Mg, Mn, PO ₄ , TDS, Zn, Pb, Cd, As, Cr, Cu, Hg, Ni, Se, Ag, Sn
Manufacture of basic precious and non-ferrous metals (includes alumina plants)	2720	Monthly Every 6 months	Na, SO ₄ , pH, conductivity, COD, Cl, NO ₃ , TDS, Fluoride, Oxalate, Fe, Mg, Ca, PO ₄ , Zn, Cd, Hg, Pb, As, Cr, Cu, Ni, Se, Ag, Sn
Production, transmission and distribution of electricity	4010	quarterly	TSS, Cr, Cu, Ni, Zn, Fe, Oil and grease, NH ₄ , Sulphite; temperature; oil and grease, NO ₃ , PO ₄ , free available chlorine.

B. Additional monitoring requirements

- i. The Authority may, after reviewing sampling data from the facility or from similar facilities in Jamaica amend the sampling and analytical schedule as follows:
 1. Include addition of parameters that pose a risk to ambient waters or to sewage treatment plants

2. Reduce the number of parameters to be monitored for parameters that pose minimal risk to ambient water or to the sewage treatment plant
3. Reduce the frequency of sampling and analysis where releases of such parameters pose minimal risk to ambient water or to the sewage treatment plant
4. Reduce the frequency of reporting where the measurements show consistent levels.
5. Specify that methods to measure the concentration of pollutants or of other water quality parameters are representative of the discharges or releases.

C. Sample collection methods

Samples must be collected using the methods that will provide a representative sample of the effluent being discharged. Such methods include one or more of the following: grab samples, flow proportional composite collection techniques, time proportional sampling or a minimum of four grab samples.

D. Sampling and Analytical methods

All sampling techniques and pollutant analyses used for compilation of data required to be submitted in connection with the Licence under these regulations shall be performed in accordance with the techniques or methods prescribed in Schedule 6.

E. Maintenance of access points

The owner and operator of a licensed facility must maintain access to all sampling points

F. Provide access to facilities

The owner or operator must provide access by authorised officers to licensed facilities to inspect, sample, and conduct enforcement activities under these regulations;

NEPA may utilize a minimum of four grab samples to determine non-compliance with trade effluent standards or non-compliance with pre-treatment standards.

12 Fees and Incentives - Trade Effluent Discharge Licensees

A. Discharge Fees

- i. Discharge fees are waived for the year 2004 and will be payable after the first year of the Licence based on discharges for 2005.
- ii. Annual discharge fees

Facilities that do not discharge trade effluent to a municipal sewage system shall pay discharge fees based on the amounts of regulated contaminants discharged (volume of trade effluent multiplied by a concentration or other appropriate intensity factor) as given in Schedule 7.

Discharge fees are based on the load to the environment for the following parameters: TSS, COD (or BOD if COD not specified/measured or estimated), nitrate as NO₃, phosphate as PO₄, oil and grease, heavy metals, caustic soda.

- B. Application Fees are payable as follows for the following categories of trades identified by their International System for Industrial Classification (ISIC) Codes :
- i. Mining of non-ferrous metal ores (ISIC 1320) (includes bauxite, precious metals) J\$10,000
 - ii. Quarrying of stone, sand and clay (ISIC 1410) includes limestone, dolomite, gypsum, clay and industrial sand & gravel) J\$10,000
 - iii. Extraction of salt (ISIC 1422)
 - iv. Manufacture of sugar (ISIC 1542) J\$15,000
 - v. Distilling, rectifying and blending of spirits; ethyl alcohol production from fermented materials (ISIC 1551) J\$18,000
 - vi. Manufacture of malt liquors and malt (ISIC 1553) [includes manufacture of beer, stout, ale] J\$18,000
 - vii. Manufacture of soft drinks; production of mineral waters (ISIC 1554) [includes non-alcoholic beverages, soft drinks, bottled water] J\$18,000
 - viii. Other Manufacturing of Food products (ISIC 15xx) [includes manufacture or processing of fish, meat, dairy, grain mill, animal feeds, vegetable and animal oils and fats, bakery products] J\$15,000
 - ix. Tanning and dressing of leather (ISIC 1911) J\$15,000
 - x. Manufacture of refined petroleum products (ISIC 2320) J\$20,000
 - xi. Manufacture of basic chemicals (ISIC 241)
 - xii. Manufacturing of Other Chemical products (ISIC 242) [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]
 - xiii. Manufacture of cement, lime plaster (ISIC 2694) (includes cement and lime manufacturing) J\$15,000
 - xiv. Manufacture of articles of concrete, cement and plaster (ISIC 2695) [includes construction articles made of cement, plaster, wood] J\$18,000
 - xv. Manufacture of basic precious and non-ferrous metals (ISIC 2720) [includes alumina plants, manufacture of aluminium foil] J\$24,000
 - xvi. All other manufacturing (ISIC 2) \$10,000
 - xvii. Electric power generation (ISIC 4010) J\$15,000

Note: the application fees are based on estimates of the level of effort that will be required to process the application and also to be more consistent with the January 2004 revisions of Permits and Licences Regulations (P&L) fees. The Licence fees in the P&L regulations (2004) are \$9,500 (application plus granting of licence) and the minimum fees in these regulations here have been set at \$10,000. Note that Licences for sewage and Trade effluent will no longer be granted under the P&L Regulations once the Sewage and Trade Effluent and Industrial Sludge Regulations are in force.

C. Fees for the transfer of a Trade Effluent and Industrial Sludge Discharge Licence

Licensees must maintain all sampling and monitoring information for at least five years.

Records of sampling and monitoring information may be kept in paper or electronic form provided that complete records in either format (including all data, drawings, maps etc.) are maintained.

14 Sanctions - Trade Effluent Discharge Licensees

A. General requirements for compliance

The owner of a facility or licensee shall ensure that the facility is operated in accordance with these Regulations and all terms and conditions of the Licence.

B. Warning notice

The Authority may issue a warning notice to any person who fails to comply with paragraph a., stipulating the nature of the breach and may specify remedial action and reasonable time period, the required remedial action, specifying a reasonable period within which the remedial action shall be carried out to be deleted, and informing the person that he may apply to the Authority to be heard in relation to the case within such time as may be specified in the notice.

C. Additional sanctions

Where a person fails to remedy a breach stated in the warning notice issued under the previous paragraph, the Authority may

- i. issue a control order;
- ii. impose administrative penalties;
- iii. suspend or revoke any Licence;
- iv. refuse an application for renewal of any Licence;
- v. apply to the Supreme Court for an injunction to prohibit the operation of the facility or any source at the facility,
- vi. without notice prosecute the owner as it thinks appropriate, in accordance with the provisions of these Regulations.

15 Offences and Penalties - Trade Effluent Discharge Licensees

[Note – penalties to be determined in drafting based on consistent penalties for similar/existing offences]

A. General offences

Any person who -

- i. knowingly provides false or misleading information;
- ii. fails to provide information as required under these Regulations;
- iii. fails to keep records as required under these regulations
- iv. fails to allow access to facility or information relevant to the regulations;
- v. assaults or obstructs a duly authorized officer acting in the execution of his duty;

- vi. fails to report a pollution event incident as required by regulation;
- vii. contravenes any term or condition of the Licence
- viii. fails to notify the authority of change of ownership of the licensed facility
- ix. fails to request Licence transfer in the case of a new owner
- x. fails to report annual emissions
- xi. fails to comply with a notice to obtain a Licence
- xii. does not transport industrial sludge off site using a person with a Licence to haul industrial sludge
- xiii. fails to meet any milestones or other conditions specified in a Compliance Plan

commits an offence and shall be liable on summary conviction before a Resident Magistrate to a fine not exceeding fifty thousand dollars or to imprisonment for a term not exceeding 1 [one] year or to both such fine and imprisonment.

B. Any person who

- i. discharges trade effluents or industrial sludge into the environment without a licence as required under these regulations
- ii. discharges trade effluent or causes trade effluent to be discharged into the environment in amounts that exceed the trade effluent standards except as provided for in Regulation 17(g);

commits an offence and shall be liable on summary conviction before a Resident Magistrate to a fine not exceeding five hundred thousand dollars or to imprisonment for a term not exceeding 3 [three] years or to both such fine and imprisonment.

C. Failure to pay annual discharge fees

Where any licensee or person who fails to pay annual discharge fees that person shall be liable for a civil debt equal to the discharge fees and the Authority shall be entitled to recover these fees summarily as a civil debt in the resident magistrate court without limitation of amount in the parish in which the facility is located.

- D. A person who commits an offence for which no specific penalty is provided under these Regulations shall be liable upon conviction [before a Circuit Court] to a fine not exceeding fifty thousand dollars or to imprisonment for a term not exceeding [two] years, or to both such fine and imprisonment.

16 Administrative Penalties

Allow persons who commit offences that do not result in a discharge to the environment [as listed in regulation 15(a) BUT NOT in 15(b)], the opportunity to pay an administrative penalty instead of being prosecuted.

Administrative penalties for each offence would be a fixed amount (J\$10,000) if paid within say 30 days of the Authority filing a notice and a daily amount of J\$5,000 for each day above 30 days that penalty is not paid.

If more than three administrative penalties for the same offence are charged to the same owner for the duration of a licence (5 years), the Authority must prosecute the owner.

- 17 Treatment of facilities that discharge trade effluent too numerous or small to Licence
- A. Authority may require a Licence for facilities whose effluent pose a risk to the environment although the effluent amount is below the threshold in regulation 6.
[This may apply to facilities that release pollutants of concern]

Notwithstanding the requirements in regulation 6(a), where any person releases or causes to be released any trade effluent or industrial sludge into the environment in quantities that are likely to cause harm to human health or to the environment, the Authority at its sole discretion may:

- i. Give notice to require such a person to apply for a Licence within 90 days of the notice
- ii. Require such persons or similar group of persons* to take such steps or measures within a time period as the Authority sees fit. Such measures may include but not limited to the development of Guidelines, Industry Best Practices or Codes of Practice that are approved by the Authority, in order to remedy the harm to the environment or human health.

**Note: Examples of such groups are restaurants, garages, dental offices, dry cleaners*

- 18 Compliance Plans
- A. As part of the requirements of an application for the grant or renewal of a licence or of a control order, the Authority may require the submission of a Compliance Plan in accordance with this regulation if the discharge from any source or activity at the facility exceeds any applicable trade effluent standard.
- B. If the applicant is in compliance with all applicable trade effluent standards a Compliance Plan is not required.
- C. A Compliance Plan shall include –
- i. a description of the current compliance status of the facility with respect to all applicable requirements, including all discharge points that exceed trade effluent standards, the monitoring locations of the trade effluent, and any other administrative or other requirements that have not been satisfied;
 - ii. a list of the pollutants that exceed the trade effluent standards
 - iii. a statement of the methods used to determine the facility's compliance status, including a description of all monitoring, record keeping, reporting and test methods, and any other information used to determine compliance with standards or other applicable requirements;
 - iv. a statement that the facility will continue to comply with each applicable requirement in respect of which compliance is currently achieved at the facility; and

- v. For pollutant listed in ii, and for each applicable requirement for which compliance is not currently achieved at the facility, the owner shall provide –
 - a. a detailed statement of how the facility will achieve compliance;
 - b. a proposed compliance schedule setting forth the remedial measures to be taken, including a sequence of actions with milestones leading to compliance;
 - c. if the facility is subject to a control order, the proposed schedule of remedial measures shall incorporate the order and shall be at least as stringent as the order;
 - d. a schedule for submission of progress reports to the Authority at least once in every six months or more frequently if so required by the licence; and
 - e. a schedule for the submission of 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.
- D. The Authority shall review a Compliance Plan within ninety days of the receipt thereof, and shall, before the end of that period, notify the person who submitted the plan as to whether the plan is approved, refused, or if further information is required.:
- E. When a Compliance Plan is submitted as part of the requirements of a licence application, such plan shall be reviewed along with all other aspects of the licence application and all provisions relating to the time period for review of licence applications shall apply to the review of the Compliance Plan.
- F. Where a Compliance Plan is approved as part of the review of a licence application, such plan shall be affixed to the licence and shall form a part of the terms and conditions of the licence. The Compliance Plan will not in any way alter the existing date of the licence.
- G. During the development and implementation of the Compliance Plan, the owner of a facility will not be liable to fines for those pollutants that exceeded trade effluent standards as specified in Regulation 17c (ii) and upon which the Compliance Plan was based.
- H. Discharge fees will be payable for all pollutants regardless of the requirement for a Compliance Plan.
- I. During the development and implementation of the Compliance Plan, the owner of a facility will remain subject to warnings, penalties and prosecutions based on non-compliance with the Compliance Plan or with any other provision of the regulations.

Schedules**Schedule 1 Trade Effluent Standards**

PARAMETER	TRADE EFFLUENT STANDARD
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
Calcium	No standard
Chemical Oxygen Demand (COD)	100 mg/l or 0.1 kg/1000 kg product
Chloride	300 mg/l
Colour	100 TCU
Cyanide (free)	0.1
Cyanide (Total as CN)	0.2
Detergent	15 mg/l
Dissolved oxygen (DO)	>4 mg/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	10mg/l or < 0.01 kg/1000 kg product
pH	6.5 – 8.5
Phenols	5.0 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	<150 mg/l
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

PARAMETER	TRADE EFFLUENT STANDARD
Selenium	0.5 mg/l
Silver	0.1 mg/l
Tin	-
Total Heavy Metals	2.0 mg/l

Schedule 2 Industrial Sludge Standards

Schedule 2a Standards for Industrial Sludge Suitable for Landfill

Leachate test results not to exceed 100mg/l for the following parameters

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

Schedule 2b Standards for 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

**Schedule 3 Application Form for Trade Effluent and Industrial Sludge Discharge
Licence**

See inserted pages following

*Natural Resources Conservation Authority***Application Form: Trade Effluent and Industrial Sludge Licence**

1. APPLICATION FOR:	YES	NO	DATE OF RECEIPT:	___/___/___
INITIAL LICENCE	<input type="checkbox"/>	<input type="checkbox"/>		(yyyy/mm/d d)
MODIFICATION OF EXISTING LICENCE	<input type="checkbox"/>	<input type="checkbox"/>		
CHANGE IN OWNERSHIP	<input type="checkbox"/>	<input type="checkbox"/>	COMPLETION DATE	___/___/___
RENEWAL	<input type="checkbox"/>	<input type="checkbox"/>		(yyyy/mm/d d)
APPLICATION FEE ENCLOSED	<input type="checkbox"/>			

Applications for a Trade Effluent and Industrial Sludge Licence must be submitted by owners or operators of existing or proposed facilities as specified in the regulations.

Applications for Licence renewals must be submitted not later than the 3 months prior to the expiration date.

Please print or type all information requested. A completeness review will be made utilising a Completeness Checklist. The completed Licence application form must be submitted to:

Natural Resources Conservation Authority
10 Caledonia Avenue
Kingston 5

GENERAL OWNER AND PLANT INFORMATION

2. Company' legal name and address	
Company name:	
Company mailing addressLine1:	
Company mailing addressLine2:	
Company mailing addressLine3:	
Company Phone No.:	()
Company FAX No.:	()
Company email address:	
3. Owner name and address	
Owner's name:	
Owner's mailing addressLine1:	
Owner's mailing addressLine2:	
Owner's mailing addressLine3:	
Owner's Phone no.:	()
Owner's FAX no.:	()
Owner's electronic mail address:	

4. Plant name and address	
Plant name:	
Plant mailing addressLine1:	
Plant mailing addressLine2:	
Plant mailing addressLine3:	
Plant Phone no.:	()
Plant FAX no.:	()
Electronic mail address:	

5. Company contact for environmental issues:	
Contact name:	
Title:	
Phone no.:	()
FAX no.:	()
Electronic mail address:	

6. Plant History	
Began operating on (mm/yyyy)	(Use yyyy/mm/dd format)
Previous plant name1: _____	Date of name change1: _____
Previous plant name2: _____	Date of name change2: _____
Previous plant name3: _____	Date of name change3: _____
Previous plant name4: _____	Date of name change4: _____
Previous plant name5: _____	Date of name change5: _____

7. Current permits for the facility issued by NRCA			
Identify all current required Permits to Operate for this and any other plants owned by the owner.			
Use yyyy/mm/dd format for dates			
AO#	Date	AO#	Date
AO#	Date	AO#	Date
AO#	Date	AO#	Date

GENERAL OWNER AND PLANT INFORMATION (Continued)

8. Current Licence(s) for the facility issued by NRCA

Identify all current required Trade Effluent and Industrial Sludge Discharge Licences for the owner of this facility.

	yyyy/mm/dd	yyyy/mm/dd
NRCA # _____	Date Granted: ___/___/___	EXPIRY Date: ___/___/___
NRCA # _____	Date Granted: ___/___/___	EXPIRY Date: ___/___/___
NRCA # _____	Date Granted: ___/___/___	EXPIRY Date: ___/___/___
NRCA # _____	Date Granted: ___/___/___	EXPIRY Date: ___/___/___
NRCA # _____	Date Granted: ___/___/___	EXPIRY Date: ___/___/___
NRCA # _____	Date Granted: ___/___/___	EXPIRY Date: ___/___/___
NRCA # _____	Date Granted: ___/___/___	EXPIRY Date: ___/___/___
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NRCA # _____	Date Granted: ___/___/___	EXPIRY Date: ___/___/___
NRCA # _____	Date Granted: ___/___/___	EXPIRY Date: ___/___/___

9. Type of business at this plant:

10. General and non-confidential description of plant activities:

11. Standard Industrial Classification (SIC) Codes (Four digit code(s) (See Instructions):

ISIC1	_____	Description
ISIC2	_____	Description
ISIC3	_____	Description
ISIC4	_____	Description

12. Description of processes at the plant.

Describe the processes carried out at the facility and include a detailed description of all processes that use water and/or discharge trade effluent to the environment or to a sewage treatment plant. The description shall include how and where all raw materials, chemicals and substances are used in the facility

13. Plant capacity data including

Water use and source	Rate of use or supply	Units or
a) Maximum Annual water use		
b) Maximum daily water use		litres/day
c) Source(s) of water		(litres/year)
1		
2		
3		

d) The maximum annual rates of production for all products at the facility

Product	Annual capacity production	Units

e) The maximum amount of raw materials, chemicals, substances and energy that will be utilised or consumed at the facility

Raw Materials and chemicals (Use chemical names where possible – avoid trade names)	CAS Number	Annual capacity production	Units in kg or tonne

Treatment of trade effluent and industrial sludge

14. Trade Effluent Treatment

a) Treatment units

Description of all processes or methods used to treat trade effluent before it is discharged into the environment or to a sewage treatment plant.

b) Impoundments (including red mud ponds/recirculating systems)

Dimensions

Describe the impoundment including the dimensions (e.g., length, width, depth from water surface at capacity, depth from natural ground level, and depth of freeboard) and the type of liner used in the impoundment. For impoundments with irregular shapes, provide the maximum distances in two perpendicular directions as well as the surface area, the average depth, and the maximum depth below natural ground level.

<p>Type of liner</p> <p>c) Leak detection system present?</p> <p>d) Groundwater monitoring wells List the name and/or identity and the UTM coordinates of each well</p> <p>e) References for reports, summaries, studies of groundwater data and/or leak detection system (Note: references only are required) Provide a list of References for groundwater monitoring data or studies (reports, studies, data summaries etc.) (e.g., list of hydrogeological reports, etc.)</p> <p>f) Period over which well monitoring data are available Indicate the period over which groundwater data are available for each monitoring well and the parameters monitored at each well</p>
<p>15. A description of how any industrial sludge from any treatment process or from any other process or activity at the facility is <u>formed</u></p>
<p>16. A description of how any industrial sludge from any treatment process or from any other process or activity at the facility is <u>treated</u></p> <p>a) Treatment units Description of all processes or methods used to treat trade effluent before it is discharged into the environment or to a sewage treatment plant.</p> <p>b) Impoundments or storage areas Dimensions Describe the impoundment including the dimensions (e.g., length, width, depth from water surface at capacity, depth from natural ground level, and depth of freeboard) and the type of liner used in the impoundment. For impoundments with irregular shapes, provide the maximum distances in two perpendicular directions as well as the surface area, the average depth, and the maximum depth below natural ground level. Type of liner</p>
<p>17. A description of each method or process used to <u>dispose</u> of industrial sludge.</p> <p>The description must include the locations and destination on-site and off site of the industrial sludge and a list of all persons who transported industrial sludge off site and the amounts of industrial sludge that each transported off site</p>

<p>Maps and drawings</p> <p>18. A schematic process diagram which indicates how water and all raw materials, chemicals and substances are utilised within the facility</p> <p>19. A map or drawing showing the following</p> <ol style="list-style-type: none"> a) Plant Boundaries Determine the UTM coordinates of at least one reference point on the map (e.g., the southwest corner of the property boundary). b) The location of all storm water drains, all liquid process streams, the locations where industrial sludge is formed or stored c) The location of each point of discharge of trade effluent from the property. Assign a unique ID number for each trade effluent discharge point and specify the UTM coordinates for each point. d) The location of each point of discharge of storm water from the property Assign a unique ID number for each storm water discharge point and specify the UTM coordinates for each point. e) The location of each sampling point that represents discharges from the property boundary. Assign a unique ID number for each sampling point and specify the UTM coordinates for each point. f) The location of each connection to a NWC or other sewer for treatment of domestic (or domestic combined with industrial) waste g) The boundaries of any trade effluent treatment ponds or other wastewater treatment facilities on the property h) All ponds including storage/evaporation/holding ponds on the property i) The boundary for each storage or disposal site for industrial sludge that is on the property <p>20. A map showing</p> <ol style="list-style-type: none"> a) The surrounding area in a 5 km in all directions from the plant boundary b) The discharge route out to 5 km from the property boundary or to the nearest surface stream. c) All springs, public water supply wells, monitor wells, surface water supply intakes, water treatment plants, drinking water storage facilities and sewage treatment facilities within 5 km in all directions from the plant boundary 																																						
<p>21. A description of the receiving environment (surface waters, groundwater or sewage treatment plant) into which trade effluent is discharged</p> <p>Surface freshwater - width, depth and typical flow</p> <p>Groundwater – depth to water table</p> <p>Seawater -</p>																																						
<p>Releases for the year 2003 or in the most recent full calendar year</p> <p>22. Estimate of average flow rate of trade effluent in the most recent full calendar year</p> <p>Average Monthly flow rate (litres/month) and annual flow rate of trade effluent (litres/year)</p> <p>If flow rate is not available, use monthly and annual water usage</p> <table border="1"> <thead> <tr> <th>Jan</th> <th>Feb</th> <th>Mar</th> <th>Apr</th> <th>May</th> <th>Jun</th> <th>Jul</th> <th>Aug</th> <th>Sep</th> <th>Oct</th> <th>Nov</th> <th>Dec</th> <th>YR</th> </tr> </thead> <tbody> <tr> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> </tbody> </table>													Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YR	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YR																										
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____																										

23. Estimate of the average concentrations and loadings in 2003 for all parameters for which there are trade effluent standards.

PARAMETER	Estimate of annual average concentration	Annual loading
Biological oxygen demand (BOD)		
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		
Calcium		
Chloride		
Colour		
Cyanide (free)		
Cyanide (Total as CN)		
Detergent		
Dissolved oxygen (DO)		
Fluoride		
Iron		
Magnesium		
Manganese		
Phenols		
Sodium		
Sulphate		
Sulphide		
Total organic carbon (TOC)		
Total Trace Metals: Zinc, Lead, Cadmium, Arsenic, Chromium Copper, Mercury, Nickel, Selenium Silver, Tin Total Heavy Metals		

24. Signature	Date
<hr/>	
Owner or operator of the facility	

Schedule 4 Trade Effluent and Industrial Sludge Discharge Licence

THE NATURAL RESOURCES CONSERVATION AUTHORITY ACT

Trade Effluent and Industrial Sludge Discharge Licence Regulations, 2004

LICENCE TO DISCHARGE TRADE EFFLUENT AND INDUSTRIAL SLUDGE

Licence No: yySSnnn

The Natural Resources Conservation Authority, in accordance with the Natural Resources Conservation Authority Act, pursuant to an application completed on the ___ day of _____, _____, HEREBY GRANTS a Licence to:

Company name: _____
Company mailing address1: _____
Company mailing address2: _____
Company mailing address3: _____
Company Phone No.: () _____
Company FAX No.: () _____

With facilities located at
Plant name _____
Plant mailing address1: _____
Plant mailing address2: _____
Plant mailing address3: _____

ORIGIN

This permit is based on an application submitted on the ___ day of _____, _____ and was competed on the ___ day of _____.

TYPE OF BUSINESS

The _____ conducts

DISCHARGE LIMITS

This Licence is granted for the discharge of the following with anticipated discharge rates and up to the maximum amounts shown.

Schedule 5 Reporting Format for Monitoring Data

Reports for monitoring data must include two separate reports with the following information. Details on the format (paper and/or electronic) are be specified in the Guideline document.

Report 1 Sampling and analytical methods used

Plant Name

Plant ID

Provide a description of the sampling methods used

List the analytical methods used.

Report 2 Data Report

The data report shall contain the following information for each **parameter** reported

Plant Name

Plant ID

Name or Identity of Sampling Location

UTM Coordinates of Sampling Location

Analysis date

Parameter name

Value for parameter (e.g., concentration, temperature, conductivity etc.)

Schedule 6 Analytical Methods for Trade Effluent

PARAMETER	Standard Methods for Examination of Water & Wastewater by Lenore S. Clesceri, Am Public Health ASN, Andrew D. Eaton	ISO or U.S EPA Method (to be completed)
Ammonia/ammonium measured as NH ₄	4500-NH ₃	
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) Cyanide (Total as CN)	4500-CN ⁻	
Detergent	5540	
Dissolved oxygen (DO)	4500-O	
Faecal Coliform	9221	ISO 9308-2:1990
Fluoride	4500-F ⁻	
Iron	3500-Fe	
Magnesium	3500-Mg	
Manganese	3500-Mn	
Nitrate as NO ₃	4500-NO ₃ ⁻	
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 ⁺	
Phenols	5530	
Phosphate as PO ₄	4500-P	ISO 6878-1:1986, Colourmetric
Sodium	3500-Na	
Sulphate	4500-SO ₄ ⁻	
Sulphide	4500-S ²⁻	
Temperature	2550	
Total Coliform	9221	
Total dissolved solids (TDS)	2540C	

PARAMETER	Standard Methods for Examination of Water & Wastewater by Lenore S. Clesceri, Am Public Health ASN, Andrew D. Eaton	ISO or U.S EPA Method (to be completed)
Total organic carbon (TOC)	5310	
Total suspended solids (TSS) (maximum monthly average)	2540D	
Total suspended solids (TSS) maximum daily average	2540D	
Trace Metals: Zinc Lead Cadmium Arsenic Chromium Copper Mercury Nickel Selenium Silver Tin Total Heavy Metals	3500-metal	

Flash point Test methods specified in 40 CFR 261.21.

Toxicity Characteristic Leaching Procedure Test and Equivalents

The Toxicity Characteristic Leaching Procedure Test (TCLP), method 1311, US EPA is the preferred method used for section 3.2 paragraphs (i), (ii) and (iii).

The Authority will recognize equivalent tests such as:

- a) Alberta Waste Managers Guide. TCLP extraction test
- b) Canadian General Standards Board Leachate Extraction Procedure, # 164-GP-1-MP
- c) Schedule 4 - British Columbia Waste Management Act - Special Waste Regulation,
- d) Government of British Columbia using Canadian General Standards Board test.
- e) Schedule 4 - Regulation 347
- f) Government of Ontario using Canadian General Standards Board test.
- g) Schedule III and IV Environmental Quality Act- Hazardous Waste Regulation, Gazette officielle du Quebec using Canadian General Standards Board test.
- h) Other tests as specified in the Guideline Document.

Schedule 7 Discharge Fees for discharges to the environment

Pollutant	Fee* per tonne in trade effluent	Fee J\$/tonne
BOD	1.50	
COD#	3.00	
Caustic soda	50.00	
Total N	5.00	
Total P	5.00	
Oil and grease	5.00	
TSS	1.50	
Total heavy metals (Arsenic, cadmium, chromium, copper, lead, mercury, selenium, zinc)	100.00	
E coli		
(a) 1 000 to 5 000 organisms per 100 ml	10.00	
(b) 5 000 to 20 000 organisms per 100 ml	20.00	
(c) more than 20 000 organisms per 100 ml	30.00	

[These fees are currently expressed in US \$/tonne. Conversion to J\$ rounded up to the nearest J\$10 will be made based on the conversion rate when the regulations are promulgated.]*

Schedule 8a Annual Reporting Form – Trade Effluent

Date: _____ yyymmdd	Reporting Year: _____	Date Received _____ yyymmdd
------------------------	-----------------------	-----------------------------------

Name of Plant: _____
 Location of Plant: _____
 NRCA Permit No.: _____ NRCA Licence No.: _____

Estimate of average flow rate of trade effluent

Average annual flow rate of trade effluent or

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
_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____

PARAMETER	Annual average concentration	Number of samples	Number of samples above standard	Annual loading
Biological oxygen demand (BOD)				
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				
Calcium				

PARAMETER	Annual average concentration	Number of samples	Number of samples above standard	Annual loading
Chloride				
Colour				
Cyanide (free)				
Cyanide (Total as CN)				
Detergent				
Dissolved oxygen (DO)				
Fluoride				
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				

Number of reportable incidents

Community activities

Schedule 8b Annual Reporting Form – Industrial Sludge

Date: _____ yyymmdd	Reporting Year: _____	Date Received _____ yyymmdd
------------------------	-----------------------	-----------------------------------

Name of Plant: _____

Location of Plant: _____

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

Type of sludge	Amount of sludge generated in year	Stored on Site at year end	Transferred off-site	Other (specify)
Non-Hazardous				
Hazardous				

Schedule 9 Various Water Quality Standards**Schedule 9A Jamaican National Ambient Water Quality Standards - Freshwater**

Parameter	Measured as	Standard Range	Unit
Calcium	(Ca)	40.00-101.0	mg/L
Chloride	(Cl ⁻)	5.00- 20.0	mg/L
Magnesium	(Mg ²⁺)	3.60- 27.0	mg/L
Nitrate	(NO ₃ ⁻)	0.10- 7.5	mg/L
Phosphate	(PO ₄ ³⁻)	0.01 - 0.8	mg/L
Ph		7.00- 8.4	-
Potassium	(K ⁺)	0.74- 5.0	mg/L
Silica	(SiO ₄ or Si ₂ ⁺)	5.00- 39.0	mg/L
Sodium	(Na ⁺)	4.50- 12.0	mg/L
Sulphate	(SO ₄ ²⁻)	3.00- 10.0	mg/L
Hardness	(CaCO ₃)	127.00-381.0	mg/L (as CaCO ₃)
Biochemical Oxygen Demand		0.80- 1.7	mg/L
Conductivity		150.00-600	ΦS/cm
Total Dissolved Solids		120.00-300	mg/L
Total coliform (recreation waters)		< 2400	MPN/100 ml
Hardness (industrial use)		< 300	mg/l

Schedule 9B Jamaican National Ambient Water Quality Standards – Ambient Marine

Parameter	Measured as	Standard Range	Unit
Phosphate	PO ₄	0.001 - 0.055	mg/l
Nitrate	N	0.001 - 0.081	mg/l
Total alkalinity	CaCO ₃	131 - 168	mg/l
pH		8.0 - 8.44	mg/l
BOD		0.57 - 1.16	mg/l
Total coliform		48 - 256	MPN/100mL
Faecal coliform		<2 13	MPN/100mL

Schedule 9C Jamaican National Ambient Water Quality Standards – Irrigation standards

Parameter	Measured as	Standard Range	Unit
Conductivity		< 3,000	μs/CM

Schedule 10 Application for a Licence to transport Industrial sludge (Deleted and replaced by categories of hazardous wastes)

Schedule 10 Specific Categories of Substances Defined as Hazardous and Substances Exempt From the Definitions**Schedule 10a Specific Categories of Wastes That Are Defined as Hazardous**

Acids and Bases

Spent Solvents

Heavy Metal Solutions

Waste printing industry inks

Ink Sludge Containing Heavy Metals

Petroleum Refining Industry wastewater containing benzene and other hydrocarbons

Sludge from Refining Process

Sludge from the storage of petroleum products

Paint Waste Containing Heavy Metals

Ignitable Solvents

Ignitable Paint Waste

Strong Acids and Bases

Metal manufacturing sludge containing Heavy Metals

Cyanide waste

Paint waste

Waste Streams

Clinical wastes from medical care in hospitals, medical centres and clinics

Wastes from the production and preparation of pharmaceutical products

Waste pharmaceuticals, drugs and medicines

Wastes from the production, formulation and use of biocides and phytopharmaceuticals

Wastes from the manufacture, formulation and use of wood preserving chemicals

Wastes from the production, formulation and use of organic solvents

Wastes from heat treatment and tempering operations containing cyanides

Waste mineral oils unfit for their originally intended use

Waste oils/water, hydrocarbons/water mixtures, emulsions

Waste substances and articles containing or contaminated with polychlorinated biphenyls (PCBs) and/or polychlorinated terphenyls (PCTs) and/or polybrominated biphenyls (PBBs)

Waste tarry residues arising from refining, distillation and any pyrolytic treatment

Wastes from production, formulation and use of inks, dyes, pigments, paints, lacquers, varnish

Wastes from production, formulation and use of resins, latex, plasticizers, glues/adhesives

Waste chemical substances arising from research and development or teaching activities which are not identified and/or are new and whose effects on man and/or the environment are not known

Wastes of an explosive nature not subject to other legislation

Wastes from production, formulation and use of photographic chemicals and processing materials

Wastes resulting from surface treatment of metals and plastics

Residues arising from industrial waste disposal operations

Wastes having as constituents:

Metal carbonyls

Beryllium; beryllium compounds

Hexavalent chromium compounds

Copper compounds

Zinc compounds

Arsenic; arsenic compounds

Selenium; selenium compounds

Cadmium; cadmium compounds

Antimony; antimony compounds

Tellurium; tellurium compounds

Mercury; mercury compounds

Thallium; thallium compounds

Lead; lead compounds

Inorganic fluorine compounds excluding calcium fluoride

Inorganic cyanides

Acidic solutions or acids in solid form

Basic solutions or bases in solid form

Asbestos (dust and fibres)

Organic phosphorus compounds

Organic cyanides

Phenols; phenol compounds including chlorophenols

Ethers

Halogenated organic solvents

Organic solvents excluding halogenated solvents

Any congener of polychlorinated dibenzo-furan

Any congener of polychlorinated dibenzo-p-dioxin

Schedule 10b Specific Categories of Industrial Waste Defined As Hazardous

The following industrial waste and industrial sludge are designated as hazardous

- Sludge or liquid wastes from trades that use chlorinated solvents.
- Wastewater from trades that use cyanide solutions
- Red mud with pH > 11.5
- Sludge or liquid wastes from trades that use xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol
- Sludge or liquid wastes from trades that use cresols and cresylic acid, and nitrobenzene
- Sludge or liquid wastes from trades that use toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2- ethoxyethanol, and 2- nitropropane
- Tank sediments from the refining and storage of petroleum products
- Spent catalysts from petroleum operations
- Bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol.

Schedule 10c Specific Categories of Industrial Waste Exempt From the Definition of Hazardous Waste

- Red mud with pH less than 11.5

Schedule 11 Reporting for Spills and Pollution Incidents

Date report filed: _____

Name of Plant: _____

Location of Plant: _____

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 spilled	
Characteristics of material spilled	
Amount of material spilled (volume in litres or weight in kg)	
Duration of spill event	
Work completed and/or still in progress in the mitigation of the spill	
Preventative actions being taken to ensure the situation does not occur again	

Schedule 12 Content of Nutrient Management Plans

Any facility proposing that trade effluent be used as a fertilizer and soil conditioner must file a nutrient management plan that contains all of the following:

An aerial photograph or map, and a soil map of the field.

A current and/or planned crop production sequence or crop rotation.

Results of soil, plant, water, manure or organic by product sample analysis.

Realistic yield potentials for crops in the rotation.

A quantification (listing) of all nutrient sources.

Recommended nutrient rates, timing, form and method of application including incorporation timing for the time period of the plan.

Location of designated sensitive areas or resources and the associated nutrient management restriction.

Guidance for implementation, operation, maintenance, record keeping, and complete field-by-field nutrient budget for nitrogen, phosphorus, and potassium for the rotation or crop sequence.

A statement that the plan was developed based on current standards and that changes in any of these requirements may necessitate a revision of the plan.