

CAYMAN ISLANDS



Public Health Law

PUBLIC HEALTH (INFECTIOUS WASTE) REGULATIONS

(2002 Revision)

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Citation

1. These regulations may be cited as the Public Health (Infectious Waste) Regulations (2002 Revision).

Definitions

2. In these regulations —

“**continuous temperature recorder**” means a device, such as a thermocouple, which continuously monitors and records the temperature at a specific location;

“**CEHO**” means the Chief Environmental Health Officer;

“**disposal**” means the discharge, deposit, injection, dumping, spilling, leaking or placing of any infectious waste into or on any land or water so that such waste or any constituent thereof may enter the environment, be emitted into the air or discharged into any water including ground water;

“**disposal facility**” means a facility or part thereof at which infectious waste is intentionally placed into or on any land or water, and at which such waste will be left permanently;

“**EPA**” means the Environmental Protection Agency of the United States of America;

“**facility**” means all contiguous land, structures and other appurtenances and improvements on the land, used for treating, storing or disposing of infectious



waste, and may consist of several treatment, storage or disposal operational units or a combination of them but does not include storage by a generator;

“**generator**” means any person or institution whose act or process produces infectious waste;

“**health practitioner**” includes professionals in the disciplines of medicine, dentistry, nursing, radiography, medical technology and veterinary medicine;

“**incinerator**” means any enclosed devices which are integral components of combustion process and which use controlled flame;

“**institution**” includes any premises used by a health practitioner or any laboratory or premises where infectious waste is generated;

“**MOH**” means the Medical Officer of Health;

“**residence time**” means the average time for gases to pass through the combustion chamber of an incinerator;

“**sanitary landfill**” means a method of disposing of solid waste on land in a manner intended to minimise environmental hazards by compacting the solid waste to the smallest practical volume, and applying cover material thereto;

“**sharps**” means any item used in the practice of medicine which has a cutting or piercing edge;

“**solid waste**” means any unwanted residual solid or semi-solid material resulting from industrial, commercial, agricultural or community operations, and includes, but is not limited to, garbage, rubber tires, combustible and non-combustible material, street dirt and debris; and

“**treat**” or “**treatment**”, when used in connection with infectious waste, means any method, technique or process designed to render the waste non-infectious.

Approval of infectious waste incinerator

3. Before any person constructs, installs or operates an infectious waste incinerator he shall obtain the approval of the MOH.

Requirements of incinerators

4. Before approval is given under regulation 3, the CEHO shall be satisfied that the incinerator is —
 - (a) capable of a minimum combustion temperature of one thousand eight hundred degrees Fahrenheit for single chambers;
 - (b) in the case of multiple chamber units, capable of reaching a minimum of one thousand four hundred degrees Fahrenheit for the primary chamber and one thousand eight hundred degrees Fahrenheit for the secondary chambers;
 - (c) equipped with one-second residence time;
 - (d) of a maximum fuel gas temperature of three hundred degrees Fahrenheit;



- (e) equipped with a continuous recorder and log maintenance equipment; and
- (f) equipped with an annual source testing for dioxins.

Training of operators of incinerators

5. Any person proposing to operate an infectious waste incinerator is required to undergo a course of training conducted by the Environmental Health Department of the Ministry responsible for the Environment.

Storage, packaging, transportation and disposal of infectious waste

6. (1) Facilities for the storage (excluding storage by a generator), packaging, transport and treatment of infectious waste shall be capable of dealing with at least two hundred and twenty lbs. of such waste per month, must be classified as commercial facilities and approved by the MOH prior to commencement of operations, and annually thereafter.
- (2) Generators of infectious waste shall, within thirty days prior to the effective date thereof, submit to the CEHO a plan for the management of the storage, packaging and transportation of infectious waste.
- (3) The transporter of infectious waste shall keep records for at least three years of —
- (a) the amount of infectious waste transported from each generator per month;
 - (b) the name and location of any storage facilities used;
 - (c) the period during which the infectious waste was stored; and
 - (d) the dates when the infectious waste was picked up from each generator or storage facility.
- (4) The operator of every disposal facility is required to submit to the CEHO quarterly reports of the volume of infectious waste managed by the facility.
- (5) Infectious waste may be disposed of in a sanitary landfill after it has been treated. Incineration and steam sterilisation are the primary treatment methods, but sharps must be rendered unrecognisable by the process of incineration or grinding before being disposed of. Recognisable human tissue, organs and body parts must be made unrecognisable by incineration, grinding or interment.

Transportation of infectious waste

7. Any person who transports infectious waste shall —
- (a) not accept infectious waste which is not properly packaged and labelled;
 - (b) transport infectious waste only in leak-resistant, fully covered vehicle compartments;



- (c) secure the load in such a manner as to prevent spilling;
- (d) transport untreated infectious waste in shipments consisting only of untreated infectious waste;
- (e) not grind or compact any infectious waste;
- (f) deliver the waste only to a treatment facility approved by the MOH;
- (g) deliver infectious waste from the generator to the treatment facility within twenty-four hours;
- (h) disinfect, using surface disinfection procedures approved by the CEHO, any surface of any vehicle which comes into contact with infectious waste, after unloading and before subsequent use. All fluids resulting from the disinfection procedure shall be treated and disposed of by a method approved by the CEHO;
- (i) wear clean coveralls or uniforms while loading and unloading infectious waste; and
- (j) immediately inform the CEHO of any accidental spilling which may occur during loading, transportation or unloading of infectious waste.

Autoclaving

8. Autoclaves —

- (a) shall operate at a minimum temperature of one hundred and twenty one degrees Centigrade or two hundred and fifty degrees Fahrenheit at a minimum of fifteen pounds per square inch of gauge pressure;
- (b) shall operate at the specified temperature and pressure for half an hour or longer, depending on the quantity and compaction of the load in order to achieve sterilisation of the entire load;
- (c) shall be operated with a maximum registering thermometer, except for fast exhaust loads: and
- (d) may be approved by the MOH in other combinations of operational temperature, pressure and time if the equipment has been proven to achieve a reliable and complete kill of all infectious agents in waste at design capacity.

Chemical treatment for cultures

9. (1) Approved treatment solutions are —

- (a) chlorine compounds solutions, specifically hypochlorite and chlorinated isocyanurates, at a strength of fifteen per cent and pH range of six to eight;
- (b) iodoform solutions, with 150 ppm of available iodine, and a pH range of neutral to acidic; and



- (c) any other solution approved by the CEHO.
- (2) All cultures shall be submerged for a minimum of ten minutes in the chemical.
- (3) Excess chemical solution shall be decanted from cultures before disposal.

Treatment methods

- 10.** The operational requirements for the treatment of infectious waste are incineration, steam sterilisation and any other method approved by the MOH.

Incineration

- 11.** (1) In the procedure of incineration, the loading and unloading operations shall be performed in such a manner as not to result in compaction or puncture of containers of infectious waste.
- (2) All incinerators shall follow specific quality control procedures, and shall not be charged beyond the design capacity.
- (3) The following documents shall be kept at any incineration treatment facility —
- (a) applicable public health regulations relating to infectious waste and air pollution control;
 - (b) the infectious waste permit of the facility;
 - (c) manufacturer's specifications and maintenance procedures;
 - (d) infectious waste containment and clean up procedures;
 - (e) contingency plans and emergency co-ordinator's procedures;
 - (f) quality control procedures; and
 - (g) standard operating procedures,
- and the CEHO shall ensure that operators are trained in those areas before they become responsible for the operations.
- (4) Water used for cooling ash shall be recycled into the cooling tank and any excess or overflow must be diverted into a storage system.
- (5) Treatment facilities shall use an enclosed system to transfer particulates captured by the air pollution control system into leakproof and enclosed containers.
- (6) Sludge of particulates shall be stored in leakproof containers and must contain no free liquid before disposal.
- (7) Access to the treatment facility shall be restricted to authorised personnel. For the purposes of this subregulation, the facility shall include any buildings, storage areas, decontamination areas or other areas where infectious waste may be found.

- (8) Every treatment facility using incineration shall adopt and keep posted, in the immediate area of the incinerator, standard written operating procedures which shall include —
- (a) operating time;
 - (b) operating temperature;
 - (c) operating air flow; and
 - (d) maximum load quantity.

Steam sterilisation or autoclaving

- 12.** (1) The following documents shall be kept at any steam sterilisation or autocleaning treatment facility —
- (a) applicable public health regulations regarding infectious waste;
 - (b) manufacturer's specifications and maintenance procedures;
 - (c) infectious waste containment and clean up procedures;
 - (d) contingency plans, located in a place accessible to operators of the autoclaves;
 - (e) quality control procedures;
 - (f) standard operating procedures; and
 - (g) posting of emergency telephone numbers including the fire department, the local health department and the police department,
- and the MOH shall ensure that the operators are trained in each discipline prior to being put in charge of autoclave operations.
- (2) Every treatment facility which uses autoclaves shall adopt, and post in the immediate locality of the autoclave, standard written operating procedures for each autoclave. Such operating procedures shall include —
- (a) the duration of sterilisation;
 - (b) temperatures;
 - (c) pressure;
 - (d) type of waste;
 - (e) type of container;
 - (f) closure of container;
 - (g) maximum load quantity; and
 - (h) water content.
- (3) Every package of waste in a load shall have heat sensitive tape or its equivalent to indicate the attainment of adequate sterilisation conditions. If the indicator fails to indicate that the required temperature was reached during the sterilisation process the waste will not be considered as satisfactorily treated.



- (4) After autoclaving, all sharps shall be dealt with in such a manner as to eliminate the potential of those wastes causing lacerations or puncture wounds during handling, transportation or disposal.
- (5) Only authorised persons shall be allowed access to the treatment facility.
- (6) Loading, unloading, processing and storage areas of infectious waste and ash, and decontamination areas shall be paved and have drainage into a disposal system. Facilities shall have appropriate slopes and drainage to avoid settlement of water.
- (7) In this regulation-
“treatment facility” includes any building, storage area, staging area, decontamination area and other areas where infectious waste may be found.

Quality control guidelines

- 13.** (1) The guidelines set out in this regulation shall be adhered to by treatment facilities.
- (2) Incinerators shall —
- (a) continuously monitor and record primary and secondary chamber temperatures, using strip charts;
 - (b) sample stack gas after adding spores of *Bacillus Subtilis* Var. *Niger* (Globigii) to a load of infectious waste before it is incinerated. Sampling shall be by the use of standard emission testing methods. The number of spores added to the waste and the sampling time, shall be adjusted to ensure a theoretical challenge of at least one million spores in the collected sample. Monitoring shall be repeated whenever substantial repairs are made to the incinerator or when otherwise required by the CEHO or his authorised representative;
 - (c) obtain representative samples of ash, using the Simple Random Sample Method described in the EPA test methods for evaluating solid waste. The samples shall be tested monthly for the EPA toxicity characteristics utilising an independent analytical laboratory which uses the methodology provided in the EPA test methods for evaluating solid waste; and
 - (d) maintain a maintenance log.
- (3) Every autoclave shall —
- (a) calibrate all maximum registering thermometers at least every three months or when required by the CEHO or his authorised representative;
 - (b) make a daily evaluation, under full load, of conditions for the effectiveness of sterilisation with spores of *Bacillus Stearothermophilus* placed in a position in the autoclave determined to have the lowest

- temperature during full load cycle according to the manufacturer's specifications;
- (c) keep a log at the unit which shall contain —
 - (i) the date;
 - (ii) the times the cycle started and ended;
 - (iii) the name of the operator;
 - (iv) the type and amount of waste treated;
 - (v) the temperature of maximum registering thermometer; and
 - (vi) post-sterilisation reading of the temperature-sensitive tape.
 - (4) All quality control measures shall be kept in a quality control log for a minimum period of three years.

Annual report

- 14.** An annual report of the activities of an infectious waste facility shall be submitted to the MOH not later than 1st February in each year. Such a report shall contain monthly totals in the different categories of waste, and such other information as the MOH may think necessary.

Spill containment and clean up kit

- 15.** (1) Every infectious waste treatment facility shall keep a spill containment and clean up kit within the vicinity of any area where infectious waste is managed and the location of the kit shall be such as to facilitate rapid and efficient clean up of spills anywhere within the area.
- (2) The minimum requirements for a clean up kit are —
- (a) material designed to absorb liquids, such material being of an absorptive rating of ten gallons of liquid;
 - (b) one gallon of an approved chemical disinfectant in a sprayer capable of dispensing its charge in a mist and in a stream at a safe distance. The disinfectant shall be of hospital grade and effective against mycobacteria;
 - (c) two new sets of liquid impermeable and disposable —
 - (i) overalls;
 - (ii) gloves;
 - (iii) boots;
 - (iv) caps;
 - (v) protective eye wear; and
 - (vi) protective breathing devices; and
 - (d) a first aid kit, fire extinguisher, boundary tape, lights and other appropriate safety equipment.



- (3) Overalls, boots, and caps shall be oversized or fitted to infectious waste workers. Boots may be of thick rubber and gloves may be of heavy neoprene or the equivalent. Breathing protection devices shall be graded superior in filtering particulates and mists. Tape for sealing wrists and ankles shall also be in the kit.

Disinfectants

- 16.** The disinfectants used in cleaning up a spill shall be used at the specified concentrations for a minimum of ten minutes for continuous rinsing or submersion. The following disinfectants are approved for use at their expressed concentrations —
- (a) hypochlorite solution with 500 ppm available chlorine with a pH range of six to eight;
 - (b) iodoform solution with 150 ppm available iodine with a pH of neutral to acidic;
 - (c) gluteraldehyde two per cent solution with pH seven to eight; and
 - (d) other disinfectant approved by the CEHO.

Minimum clean up procedures

- 17.** Every infectious waste facility shall implement the following minimum procedures subsequent to a spill of infectious waste or to its discovery —
- (a) ensure that the clean up crew wear protective clothing during the entire clean up operation;
 - (b) limit access to the area of spill to authorised personnel only;
 - (c) spray broken containers of infectious waste with disinfectant;
 - (d) place broken containers and spillage in over-pack bags in the clean up kit to minimise exposure;
 - (e) disinfect the area and take such other clean up steps as may be appropriate to the circumstances;
 - (f) clean and disinfect non-disposable items;
 - (g) clean and disinfect clean up outfits before storing them;
 - (h) remove protective equipment and place disposable items in a clean up bag;
 - (i) take any necessary steps to replenish containment and clean up kit with items which have been used;
 - (j) make an immediate report of the spill or accident to the CEHO;
 - (k) if necessary, call the CEHO for emergency help; and
 - (l) within twenty-four hours of its occurrence, report every infectious waste spill or accident to the CEHO, using the spill or accident form prescribed

by the CEHO. The report should include any spill of infectious waste outside the limited access area.

Standards for the packaging of infectious waste

- 18.** (1) Packaging of infectious waste shall conform to the requirements specified in this regulation.
- (2) Bags shall be red in colour or conspicuously labelled with the international biohazard symbol. The bags shall be made of material of sufficient single thickness to resist tearing or bursting under normal conditions of handling. The international biohazard symbol on the bags shall be a minimum of five inches in diameter.
- (3) Bags shall be impervious to moisture, and, when containing waste, shall be securely tied or sealed so as to prevent breakage or expulsion of waste during storage, handling or transport.
- (4) Containers for infectious waste shall be labelled with the international biohazard symbol with the words “INFECTIOUS WASTE” printed on them and visible from any direction when the containers are upright.
- (5) Containers shall —
- (a) be kept clean on the outside;
 - (b) be leakproof;
 - (c) have tight fitting covers;
 - (d) be of sufficient strength to withstand the wear and tear of handling during transport without compromising their integrity; and
 - (e) be capable of being re-used after chemical disinfection,
- and, in the case of sharps, containers shall be rigid, puncture resistant, leakproof and tightly closed to prevent loss of contents.

Use of chutes forbidden

- 19.** The use of chutes is strictly forbidden in the transfer of infectious waste.

Storage of infectious waste

- 20.** (1) Generators, transporters and treatment facilities storing infectious waste shall —
- (a) store infectious waste in a safe manner and place;
 - (b) maintain the waste in a non-putrescent state, using refrigeration or freezing, if necessary;
 - (c) lock the outside of storage areas which contain infectious waste to prevent unauthorised access;



- (d) designate and label storage areas by posting a sign marked “WARNING - INFECTIOUS WASTE” in a conspicuous place and also displaying the international biohazard symbol at all points of access; and
 - (e) cause infectious waste to be stored in such a manner that animals have no access to it, and it does not provide a breeding place or source of food for insects or rodents.
- (2) Generators shall not store infectious waste on their premises longer than seven days at a time, except that sharps containers, currently in use, are exempt from this provision if their generators satisfy subregulation (1).
- (3) Treatment facilities shall not store infectious waste longer than fourteen days at a time. Such facilities shall formulate a contingency plan, a copy of which shall be given to the MOH. A contingency plan shall —
- (a) meet *all* the requirements of subregulation (1) in relation to the removal of infectious waste to an alternative treatment facility;
 - (b) be maintained at the treatment facility; and
 - (c) designate an emergency co-ordinator and an alternate emergency co-ordinator.

The contingency plan shall be implemented if treatment facility exceeds or is reasonably expected to exceed the storage capacity of the treatment facility.

Registration of generators of infectious waste

- 21.** (1) Every health practitioner in active practice and practising alone, every medical institution and every other generator shall register with the MOH as a generator of infectious waste. In the case of a new generator, he or it shall register within thirty days of opening operations.
- (2) An application for registration shall relate to each premises owned or operated by the generator and the validity of a generator’s certificate shall be for a period of one year.
- (3) Any person who, by reason of his state of health, uses disposable sharps for home testing or for self-administration of injectables (such as insulin) shall not be required to register as a generator; but in any such case the health practitioner or pharmacy from whom or from which the sharps were acquired shall ensure the safe disposal of such sharps according to these regulations.

Fees

- 22.** (1) The fee for registration under regulation 21(1) is one hundred dollars payable upon first registration and thereafter on the anniversary of such registration.
- (2) Every generator shall pay a fee of two dollars per pound for the collection, transportation and disposal of infectious waste.



- (3) The fee for an approval of the MOH under regulation 6(1) is two hundred and fifty dollars per annum.

Registration of vehicles

- 23.** (1) Every transporter of infectious waste shall register with the MOH the vehicle used to transport infectious waste.
- (2) A registered transporter shall obtain an amended infectious waste permit from the MOH whenever motor vehicles listed under the current registration certificate are either removed from service, or replaced, or more vehicles are added for use by the transporter to transport infectious waste. Application for an amended permit shall be made on a form prescribed by the MOH, not more than thirty days before the proposed utilisation for transport of infectious waste. If the number of motor vehicles in the fleet decreases, the MOH shall not refund to the transporter any portion of a registration or renewal fee applicable to a motor vehicle transferred or otherwise removed from use for transporting such waste. If the number of motor vehicles in the transporter's fleet increases, the application for the amended infectious waste permit shall be accompanied by a fee prorated on an annual basis according to the time remaining in the registration cycle.
- (3) It is an offence to use an unregistered motor vehicle to transport infectious waste.

Offences and penalties

- 24.** Any person who is in breach of these regulations is guilty of an offence and liable on summary conviction to the penalty laid down in section 70(2).

**Publication in consolidated and revised form authorised by the Governor in Council
this 30th. day of April, 2002.**

Carmena Watler
Clerk of Executive Council

