Public Health (Sewage and Disposal of Sewage and Liquid Industrial Waste Works) Regulations – Section 9

(Statutory Instruments 22/1978 and 79/2020)

S.I. 22/1978 .. in force 1 April 1978

Amended by S.I. 79/2020 .. in force 2 June 2020

ARRANGEMENT OF REGULATIONS

1. Citation
2. Interpretation
3. Administration
4. Discharge of effluent
5. Sewage and industrial effluent discharge into coastal waters
6. Sewage and industrial works
7. Application
9. Waste water treatment plant
10. Operation and maintenance of sewage system
11. Treatment plants

12. Fees
13. Penalty

PUBLIC HEALTH (SEWAGE AND DISPOSAL OF SEWAGE AND LIQUID INDUSTRIAL WASTE WORKS) REGULATIONS – SECTION 9

Commencement [1 April 1978]

1. Citation

These Regulations may be cited as the Public Health (Sewage and Disposal of Sewage and Industrial Waste Works) Regulations.

2. Interpretation

For the purposes of these Regulations—

"**activated sludge**" means flocculent sludge produced by the growth of bacteria and other organisms in raw or settled sewage when it is continuously aerated;

"**activated sludge process**" means a biological sewage treatment: process in which a mixture of sewage and activated sludge is agitated and aerated. The activated sludge is subsequently separated from the treated sewage by sedimentation and may be re-used;

"**absorption**" means the adherence of dissolved, colloidal or finely divided solids on the surface of solid bodies with which they are brought into contact;

"**aeration**" the bringing about of intimate contact between air and liquid by one of several methods, i.e. spraying the liquid in the air, forcing air through the liquid, agitating the liquid to promote surface absorption of air;

"**biochemical oxygen demand (BOD)**" means the amount of dissolved oxygen consumed by chemical and micro-biological action when a sample is incubated at 20°C for a period of 5 days;

"**biological filter**" means an artificial bed or inert material over which sewage is distributed and through which it penetrates to under drains, thus giving an opportunity for the formation of biological slimes which bring about oxidation and clarification of the sewage;

"**chemical oxygen demand**" (COD) means the amount of oxygen used in the chemical oxidation of the matter present in a sample by a specified oxidising agent under standard conditions;

"**collodial material**" means finely divided solids which will not settle but which may be removed by coagulation;

"**combined sewer**" means a sewer designed to carry both sewage and surface water;

"**crude sewage**" means sewage which has received no treatment;

"**datum**" means a place of reference for a system of levels;

"**detritus tank**" means a tank in which sand, grit and other heavy inorganic materials are removed by sedimentation from sewage;

"**digestion**" means the biochemical decomposition of organic matter using anaerobic bacteria, which results in the formation of simpler and less offensive compounds;

"**dilution**" means the ration of the volume of a stream to the volume of sewage effluent discharging to it;

"**dry weather flow**" (d.w.f.) means the daily rate of flow of sewage, together with infiltration if any, in a sewer in dry weather – measured after a period of 7 consecutive days of dry weather during which the rainfall has not exceeded 0.25 mm;

"**effluent**" means any liquid which flows out of a containing space, but more particularly the sewage or trade waste, partially or completely treated, which flows out of a treatment plant;

"**final settlement tank**" means a tank through which the effluent from a biological filter, or aeration tank, flows for the purpose of separating settleable solids. When used with a biological filter it is often called a humus tank;

"**industrial effluent**" means the fluid discharge, with or without matters in suspension, resulting wholly or in part from any manufacturing process, and including farm and research institution effluents;

"**outfall sewer**" means the final sewer of a system which carries the sewage to a treatment works or to a point of discharge;

"**oxidation**" means the chemical change which a substance undergoes when it takes up oxygen;

"**pumping station**" means an installation of pumps to lift sewage from a low level to a higher level;

"**Royal Commission Standard**" means a suspended solids content of not more than 30 mg/1 and a BOD of not more than 20 mg/1;

"**sedimentation tank**" means a tank in which water or sewage containing sediment is retained for a sufficient time at a sufficiently low velocity to remove part of the sediment by gravity;

"**sewage**" means any water contaminated by domestic waste or trade effluents, water-borne human, domestic and farm waste. It may include effluent, subsoil or surface water;

"**sewage treatment**" means an artificial process to which sewage is subjected to remove or alter its constituents to render it less offensive or dangerous;

"**sewer**" means a pipeline to carry sewage or other wastes, and not normally flowing full;

"**sewerage**" means a system of sewers and ancillary works to convey sewage from its point or origin to a treatment works or other place of disposal;

"**sludge**" means accumulated suspended solids from sewage deposited in pipes or tanks, mixed with water to form a semi-liquid substance;

"**surface water**" means natural water from the ground surface, paved areas and roofs;

"**suspended solids**" mean the solids which are suspended in a sewage or effluent.

3. Administration

The Public Health Board in the absence of any specially appointed Sewage Authority shall be the Authority charged with the administration and enforcement of these Regulations.

4. Discharge of Effluent

(1) A person shall not discharge, or cause to be discharged, any sewer fluid or liquid industrial waste into any water course, river, stream, gulley or in any other place without the Board's permission.

(2) The Public Health Board may on the application of an owner or occupier permit the discharge of sewage or liquid industrial waste effluent into a water course, river, stream, gulley or in any other place if the quality is so small that dilution prevents nuisances or the sewage or liquid industrial waste is treated to the satisfaction of the Board in such a manner that the purified effluent is not offensive or deleterious when so discharged.

(3) Any person, desirous of discharging liquid effluent of any kind into any water course, river, stream, gulley or in any other place shall apply in writing, to the Public Health Board for consent.

(4) The Board may grant permission as to quality allowable of biological oxygen demand, suspended solids and other chemicals in any effluent to any stream, river, water courses etc. and in any case not below standard laid down by the Royal Commission.

5. Sewage and Industrial Effluent Discharge into Coastal Waters

(1) Any person desirous of discharging sewage liquid industrial waste effluent from industrial works into any coastal water shall make application in accordance with the next succeeding regulation.

(2) A person shall not discharge sewage liquid industrial waste from sewage or industrial works into any coastal waters without first making application in accordance with the next succeeding regulation so to do.

6. Sewage and Industrial Works

A person shall not, construct or cause to be constructed any sewage works, treatment or disposal facilities or any other thing in connection with or pertaining to sewage effluent before first making application to the Board in accordance with the next succeeding regulation requiring permission so to do.

7. Application

(1) An application is the form set out in Schedule 1. *(Substituted by S.I. 79/2020)*

(1A) An applicant shall pay the Board the application fee for the assessment and processing of a development plan, as specified in Schedule 2. *(Inserted by S.I. 79/2020)*

(1B) On receipt of an application, the Board shall cause an inspection to be conducted of the place for construction of the sewage works, treatment or disposal facilities or thing in connection with or pertaining to sewage effluent. *(Inserted by S.I. 79/2020)*

(1C) After inspection of the place for the construction of the sewerage works, treatment or disposal facilities or thing in connection with or pertaining to sewage effluent, an environmental health officer shall submit an inspection report in the form approved by the Board that includes an Environmental Sanitation Waste Disposal Form set out in Schedule 3. *(Inserted by S.I. 79/2020)*

(2) The Public Health Board shall within a period not exceeding 31 days after receipt of plans for approval of any such works signify in writing to the person submitting the application and plans approval or disapproval of the proposed works and may in case of disapproval signify any alteration before approval can be granted.

9. Waste water treatment plant

The Board shall cause a waste water treatment plant to be inspected by an environmental health officer as frequently as the Board considers necessary and at the end of each inspection, the environmental health officer shall submit to the Board a Waste Water Treatment Plant Inspection form as set out in Schedule 4.

(Inserted by S.I. 79/2020)

10. Operation and Maintenance of Sewage System

(1) All sewers and a sewage system shall be maintained in a good working order and good sanitary manner to the satisfaction of the public health inspectors.

(2) The owner of all sewage system shall keep daily, weekly, and additional records in such forms as may be specified by the regulations officer of the operation and maintenance of the sewage purification plant and any such records shall be open for inspection by the officer.

11. Treatment Plants

The undermentioned treatment plants shall comply with the following requirements—

1. SEPTIC TANKS

   (a) Except with the approval of the Public Health Board it shall be not less than 50 feet from any wall, spring or stream of water used or likely to be used by man for drinking or domestic purposes or for the manufacture or preparation of articles of food or drink for human consumption or for the cleaning of vessels with a view to the preparation for sale of articles and otherwise in such a position as not to render any such water liable to pollution.

   (b) The effluent from every septic tank shall discharge through a drain not less than 6 feet in length into an approved constructed effluent disposal system which shall be not less than 50 feet from any well, spring or stream of water as described in paragraph (a) above.

   (c) Shall have a minimum retention time of 24 hours and effective capacity from holding sludge for a minimum of 2–3 years based on the number of persons discharging to the tank on 1 DMF per person.

   (d) The minimum size of a septic tank should be 3,500 litres or 700 gallons.

   (e) Minimum water depth 1.5 meters (5 feet) to maximum 1.8 meters (6 feet).

   (f) Shall be provided with adequate ventilation.

   (g) The invert elevation of the inlet shall be one inch higher than the invert of the outlet pipe.

   (h) The inlet and outlet of septic tanks shall be fitted dip pipes or dip plates to prevent the disturbances of the scum during normal operation.

   (i) The dip pipes shall extend about 375 mm. (15 inches) below liquid level (below overflow level) but shall not extend more than 450 mm. (18 inches).

   (j) The last section of the outfall drain to a septic tank shall not be laid on a steep gradient, maximum velocity 0.9 m/s or (3 ft./sec.).

   (k) Septic tank construction shall be made with adequate strength to resist earth movement and to support the weight of the tank walls and contents and that the floor and walls be made water tight.

2. IMHOFF TANKS

   Settling compartment detention:

   2.5 to 3.0 hr. preceding bio-filters

   1.0 to 1.5 hr. preceding activated sludge.

Sludge compartment capacity per person:

0.07 to 0.10 m^3 for primary sludge

0.085 to 0.11 m^3 for primary plus humus sludge.

3. SEWAGE SETTLING TANK

(a) Sewage settling tank shall not be used for population below 100 and shall only be used for larger population and arrangements must be made for disludging and disposal of the sludge at a minimum interval of once a week.

(b) Size of settling tank shall be 5 times the width and a minimum capacity of 12 hours Dry Weather Flow (DWF).

(c) Maximum horizontal rate of flow 12 to 15 meters per hour or 40 feet to 50 feet/hour at DWF minimum of 2 tanks in parallel.

(d) Sludge pipe work shall be at a minimum diameter of 150 mm. or 6 inches.

4. SEWAGE BIOLOGICAL FILTERS

(a) Filters beds may be circular or rectangular in plan. Rectangular filters may be permitted up to a population of 50 persons.

(b) Sprinklers for biological filters (small treatment works) (300–2,000 population) shall be provided with no jets or small opening. Shall distribute effluent evenly from maximum capacity down to a mere trickle.

(c) For population over 2,000 persons sprinklers shall be of the rotating type and approved by the Public Health Board.

(d) Distributer for population over 50 persons and not more than 2,000 shall be of the rotating type with water wheels weir box and tipping trough or alternating siphon arrangement.

(e) Maximum dosage rate of BOD loading in terms of cubic meters or effluent per cubic meter of medium per day shall be 0.6 cubic meter per cubic meter/day or 0.75 cubic meter of medium per head of population for filter serving up to 10 persons for larger works BOD loading 0.06–.09 kg. BOD per cubic meter/day will be accepted. 0.08 kg. BOD per m^2 rotating disc surface area.

(f) Arrangements shall be made to dose filter frequently and continuously and in any case not less than 15 min. interval.

(g) Re-circulation of effluent shall be provided but may be allowed omission only with the permission of the Board.

(h) Depth of filter beds shall be 1.8 meters, 6 feet to 2.0 meter, 6 feet 8 inches depth of filter medium and all filtering medium must be approved by the public health officer.

(i) Filter media must be approved by Public Health Department before placed into use.

5. PACKAGE PLANTS

(a) Anaerobic-Aerobic:

18 hours anerobic contact retention

2 hours intermediate settling retention

6 to 8 hours aeration at air input of 63 m^3/kg. BOD per day

5 hours final settling retention.

(b) *Extended Aeration:*

All plants shall be based on 3 DWF flow. Daily organic loading shall be 0.16 to 0.32 kg. BOD per cubic meter aeration tank capacity. Detention time shall be 24 to 48 hours in aeration tank and 4 to 7 hours in settling tank.

Air supplied shall be 130 to 300 cubic meter/kg. BOD loading.

Excess sludge withdrawal 9 to 10 litres per person/ week.

Excess sludge consolidation tank 6 to 8 weeks storage capacity with air bubble stirring and periodic decantation of supernatant.

(c) Contact — stabilisation:

Contact zone 2 hour retention giving one hour absorption period at 100 per cent recirculation or capacity of 10 m3 per 11 to 16 kg. BOD per day.

Settling 2 hours retention.

Re-aeration 5 hours retention with air supply of 63 m3/kg.

BOD per day.

Aerobic digester 85L/person storage capacity.

6. OXIDATION DITCH

BOD loading shall not exceed 210 mg/1 of ditch capacity per day with:

(a) A BOD/sludge loading factor near the lower end of 0.05 to 0.15 g. BOD per day per gram activated sludge.

(b) Oxygen capacity shall be twice the BOD load to be removed.

(c) Rotor shall maintain the required velocity in order that a velocity of 0.3 m/s (one foot per sec.) of sewage is maintained in ditch.

(d) Rotor shall be immersed a minimum of 50 mm. (2 inches) and maximum of 225 mm. (9 inches).

(e) A mixed liquor suspended solids shall be maintained at 4,000 to 4,500 milligrams per litre.

(f) The volume of ditch 120 to 150 cubic meter length of rotor for small unlined ditch but may exceed that for larger plants if a lining is used 300 litres per person.

(g) Organic loading shall be maximum of 160 kg. BOD per day per 1,000 cubic meter of ditch (i.e. 160 milligrams per litre).

(h) Final settling retention time shall not be less than 1.5 hours and a maximum upward velocity of 0.9 to 1.2 meter/hour.

(i) Depth of ditch shall not exceed 1.0 to 1.5 meter.

7. OXIDATION PONDS

Oxidation Ponds shall comply with the following:

(a) All oxidation ponds shall be a minimum distance of 532 meters or 1,750 feet from any housing area.

(b) There shall be strict control by the owner of vegetation and embankment erosion and mosquito breeding.

(c) Arrangement shall be made *re* circulation of effluent.

(d) No pond depth shall be less than 600 mm. (2 feet) and not more than 1,500 mm. (5 feet).

(e) The loading shall be a maximum of 170 kg/ha or 6,000 to 10,000 persons per hectare 250 and 275 kg BOD hectare/day.

(f) In special cases the Public Health Board may permit loading of 450 to 550 kg/hectare per day.

8. INTERMITTENT SAND FILTERS

Application rates of 0.10 to 0.15 m^3/day per m^2 of surface area for secondary treatment and 0.5 to 1.0 m^3 day per m^2 for tertiary treatment. A minimum of 2 beds provided to allow alternate dosing.

12. Fees

A fee for a licence shall be such fee as prescribed in Regulations made therefor and shall be paid into the Treasury or Sub-Collector's Office.

13. Penalty

Any person failing to comply with these Regulations or with any notice served thereunder commits an offence and on summary conviction is liable to a fine not exceeding $5,000 or to a term of imprisonment not exceeding 6 months, and in the case of a continuing offence to a fine not exceeding $150 for each day the offence continues after a conviction is first obtained. *(Amended by S.I. 79/2020)*

Schedule 1

(Regulation 7(1))

APPLICATION FORM

Applicant's Name .....

Address .....

Date .....

I hereby apply for permission to construct a Sewage Disposal System at the location indicated below and submit the information listed below.

I fully understand that if permission is given it will be for carrying out construction work only, and that further approval before the installations can be put into use is required.

Location of site ..... Building type .....

Average No. of users ..... No. of Bedrooms .....

No. of Sewage Bowls ..... Urinal ..... Bidet .....

W/Basins .....

Yours faithfully

.....

Signature

I have inspected the site and report as follows:

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ENVIRONMENTAL HEALTH OFFICER

Date .....

(Inserted by S.I. 79/2020)

Schedule 2

(Regulation 7(1A))

APPLICATION FEES

ASSESSMENT AND PROCESSING OF DEVELOPMENT PLAN

1.	Residential Plans	$100.00
2.	Sub-Divisions	$250.00
3.	Institutional	$150.00
4.	Environmental Impact Assessment	$500.00
5.	Commercial Plans	$250.00 – less than 2500 sq. ft. $500.00 – 2500-5000 sq.ft. $1000.00 – above 5000 sq. ft.
6.	Agricultural Plans	$250.00

(Inserted by S.I. 79/2020)

Schedule 3

(Regulation 7(1B))

ENVIRONMENTAL SANITATION WASTE DISPOSAL INSPECTION REPORT

MINISTRY OF HEALTH

ENVIRONMENTAL HEALTH DIVISION

To: SENIOR ENVIRONMENTAL HEALTH OFFICER

I have inspected the site and submit the inspection report as follows:

PREMISES:

Type: Recreational/Commercial/Institutional/Residential/Other

Average No. of users ..... Area of building .....

SITE

Location ..... size of site .....

Gradient: Flat/Gentle/Steep

SOIL

Type: Clay/Loam/Sand/Rock/Other

Depth of top soil .....

Porcolation reading .....

Absorption capacity: excellent/good/poor

SEPTIC TANK/PIT LATERINE/OTHER

No. of chambers ..... design ..... dimension .....

EFFLUENT DISPOSAL SYSTEM

Soakaway/tile – field/other .....

Design ..... dimension .....

Distance from building .....

Distance from boundary lines .....

PROPOSED METHOD

A. WASTE WATER DISPOSAL

No. of lines ..... design ..... dimension .....

Disposal point: Sat ..... Unsat .....

B. SOLID WASTE DISPOSAL

Method ..... dimension .....

Adequate/sat .....

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COMMENTS

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WATER TANK INSPECTION FORM

MINISTRY OF HEALTH

ENVIRONMENTAL HEALTH DIVISION

DEMERIT SCORE SHEET

Inspecting Officer: .....
Time: .....
Date: .....
Name and address of Operator: .....
Phone No.: .....
Owner/Operator: .....
Supervisor/operator on duty at time of inspection: .....

		YES	NO	REMARKS
I	**PERSONAL**			
		YES	**NO**	**REMARKS**
II	**OPERATION**			
10	Delivery hoses, outlet valves should be secured and sealed against leakage.			
10	Vehicle tank, (both interior and exterior) and appurtenance devices such as hoses, pumps etc. must be routinely cleaned and maintained.			
10	Interior of metal sludge holding tank must be coated with a suitable material to reduce the occurrence of corrosion.			
10	Tank manhole must be covered with a watertight cover constructed of impervious material. Manhole cover must be kept secured with a locking device.			
10	All openings in tank must be so designed and constructed to prevent spillage of contents.			
5	Manhole must be designed, constructed and maintained to prevent the intrusion of vermin.			
10	At all times sewage should be dumped at the Water and Sewerage Company Inc.			
		YES	**NO**	**REMARKS**
10	Holding tank mounted on the truck is thoroughly cleaned, sanitized and tested for bacteriological and chemical contamination whenever – (a) Non-potable water or other contaminants are stored or comes into contact with their interior surfaces of the tank.			

	(b) A new holding tank is installed on the truck. (c) Tank has not been utilized for an extended period of time.			
10	Certificate of analysis from a certified laboratory.			
5	Valid Public Health Licence			
5	Identification number is required to be inscribed (in a conspicuous area) on holding tank that is not permanently attached to the water truck.			

Tank No.: .....

Score: .....

Comments:

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(Inserted by S.I. 79/2020)

Schedule 4

(Regulation 11(9))

WASTE WATER TREATMENT PLANT INSPECTION FORM
MINISTRY OF HEALTH
ENVIRONMENTAL HEALTH DIVISION
DEMERIT SCORE SHEET

Inspecting Officer: .....

Name of Establishment: .....

Date: .....

Time: .....

Type of Plant: .....

Design Flow: .....

Operator: .....

Address: .....

Phone: .....

		YES	**NO**	**REMARKS**
1	GENERAL CONDITIONS			
1	Condition of landscaping			
1	Condition of roads			
1	Condition of fencing			
1	Condition of drying beds			
	Cleanliness of site			
II	HYDRAULIC STRUCTURES			
2	Significant leakage from structure or pond			

2	Overall condition of structure			
2	Overall condition of lagoons			
2	Overall condition of the wet well			
2	Condition of disinfection chamber			
		YES	**NO**	**REMARKS**
2	Condition of discharge structure			
III	CONDITION MECHANICAL ITEMS			
2	Piping			
2	Valves			
2	Weirs			
2	Gates			
2	Bar Screens			
2	Clarifier equipment			
2	Aeration equipment			
2	Disinfection equipment			
IV	CONDITION OF ELECTRICAL ITEMS			
1	Emergency generators			
2	Control Panels			
2	Instrumentation			
2	Meters			
V	EFFLUENT QUALITY			
4*	BOD Compliance			
4*	TSS Compliance			
4*	Faecal Coliform compliance			
2	Phosphate compliance			
4*	Chlorine residual			
3	Nitrate compliance			
2	Absence of noticeable foul odour			
2	Absence of solids, scum, grease, floating oils or suspended materials or weed growth in treatment units			
		YES	**NO**	**REMARKS**
VI	HEALTH AND SAFETY			
2	First aids and safety equipment			
2	Emergency plan			
2	Facility secure			
2	Adequate supply of potable water			
2	Adequate sanitation facilities			
2	Functional communication system			

VII	STAFF			
2	Adequately staffed			
3	Staff trained			
VIII	DOCUMENTATION			
2	Operation and maintenance manual			
2	Current maintenance records			
1	Current design plans of facility			
IX	OPERATION AND MAINTENANCE ITEMS			
5*	Operation of wastewater treatment processes			
2	Maintenance proper and current			
1	Spare parts and supplies available			
1	Required tools available			
		YES	**NO**	**REMARKS**
X	QUALITY ASSURANCE			
4*	Third party effluent testing results available			
	*Critical items requiring immediate action rating score	("100") less weight of items violated		

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Environmental Health Officer

(Inserted by S.I. 79/2020)

Public Health (Slaughterhouse) Regulations – Section 9

(Statutory Instruments 69/1980 and 30/2020)

S.I. 69/1980 .. in force 1 April 1978

Amended by S.I. 30/2020 .. in force 16 March 2020

ARRANGEMENT OF REGULATIONS

1. Citation
2. Interpretation
3. Registration
4. Certificate of health
5. Persons allowed inside slaughterhouse
6. Other Uses
7. Premises - hygienic requirements
8. Provisions for water and receptacles
9. Repairs
10. Prohibited animals
11. Informing environmental health officer
12. Unfit animals
13. Inspection of carcass
14. Location