

Waste Management Act

**WASTE MANAGEMENT ACT MUNICIPAL SEWAGE
REGULATION**

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PART 1 – INTERPRETATION**Definitions**

1 In this regulation:

“**Act**” means the *Waste Management Act*;

“**aquifer**” includes any soil or rock formation that has sufficient porosity and water yielding ability to permit the extraction or injection of water at rates greater than or equal to 5 L/minute;

“**average dry weather flow**” or “**ADWF**” means the daily municipal sewage flow to a sewage facility that occurs after an extended period of dry weather such that the inflow and infiltration has been minimized to the greatest extent practicable and is calculated by dividing the total flow to the sewage facility during the dry weather period by the number of days in that period;

“**biosolids**” means inorganic or organic solid residuals from a sewage facility, or septic tank sludge, resulting from a municipal sewage treatment process which has been sufficiently treated to reduce vector attraction and pathogen densities, such that it can be beneficially recycled;

“**BOD₅**” means the total 5-day biochemical oxygen demand;

“**continuous monitoring**” means a communications system connecting a sewage facility to the operator such that

- (a) operating conditions of the facility are continuously monitored and provide an alarm if the operating conditions deviate from established operating conditions, and
- (b) operating conditions may be remotely or by service call adjusted to within normal efficient operating range within 24 hours of any alarm;

“**contributory population equivalent**” means the number of persons and equivalent commercial and industrial contribution connected to the municipal sewage collection system based on the most current census data;

“**dilution ratio**” means

- (a) if the 2-year return period 7-day low flow is the magnitude of flow such that the average flow for 7 consecutive days is expected to be less than this magnitude once in any 2 year period, based on statistical analysis of observed stream flow, a ratio calculated by dividing 2-year return period 7-day low flow in the receiving stream by the maximum weekly (7 day) effluent flow, or
- (b) if sufficient data are not available to calculate the 2-year return period 7-day low flow or the discharge is to a lake or marine water, a ratio calculated using a method and data that are satisfactory to the manager;

“**discharge**” means the total amount of a solid, liquid or gaseous waste introduced into the environment from works, including effluent and reclaimed water;

“**discharger**” means an individual or corporation

- (a) exempt under Part 2 from section 3 (2) and (3) of the *Waste Management Act* for the purposes of discharge, or
- (b) authorized under this regulation or under the Act to discharge;

“**disinfection**” means the destruction, inactivation or removal of pathogenic micro-organisms by any means;

“**domestic sewage**” means human excrement, water borne human excretion or the water-carried wastes from liquid or non-liquid culinary purposes, washing, cleansing, laundering, food processing or ice production;

“**effluent**” means the liquid resulting from the treatment of municipal sewage;

“**embayed marine waters**” means

- (a) marine waters located on the shore side of a line up to 6 km long drawn between any two points on a continuous coastline, or located so that the maximum width of sea access by any route is less than 1.5 km wide, or
- (b) marine waters in which flushing action is considered to be inadequate by a manager;

“**facility**” means any land, building or structure and includes any machinery, equipment, device, tank, system or other work;

“**filtration**”, in the schedules, means the removal of solid particles from an effluent by passing the effluent through a filtering medium such as sand, membrane, anthracite, or any other comparable filter medium or combination of filter media, or any physical barrier or device or septum onto which the solids are deposited;

“**groundwater**” means subsurface water at or below a water table in fully saturated geologic materials and formations;

“**inflow and infiltration**” or “**I/I**” means water that enters the sanitary sewer system from direct stormwater connection (inflow) or indirectly through the land (infiltration), or both;

“**irrigation**”, in the schedules, means the application of reclaimed water at agricultural rates for the beneficial use of a crop or vegetation;

“**known**” means

- (a) identified by or made available from the Ministry of Environment, Lands and Parks, or
- (b) otherwise identified by or made available by the manager at least 60 days before registration of a discharge in accordance with section 3;

“**land**” means the solid part of the earth’s surface and includes the foreshore and land covered by water;

“**m³/d**” means cubic metres per day;

“**median**” means the middle measure in an ordered distribution;

“**mg/L**” means milligrams per litre;

“**municipal sewage**” means domestic sewage, wastewater or municipal liquid waste originating primarily from residences, but may include contributions from

- (a) holding tanks in recreational vehicles, boats and houseboats,
- (b) commercial, institutional and industrial sources, and
- (c) inflow and infiltration;

“**municipal sewage collection system**” means a conveyance system owned, operated and maintained by a municipality or regional district for the purpose of transporting municipal sewage to a sewage facility, but does not include sewage facilities;

“**NTU**” means nephelometric turbidity unit;

“**open marine waters**” means ocean waters other than embayed marine waters or water for which, in the opinion of the manager, the flushing action is considered adequate;

“**primary treatment**” means any form of treatment, excluding dilution, that consistently produces an effluent quality with a BOD₅ not exceeding 130 mg/L and TSS not exceeding 130 mg/L;

“**qualified professional**” means an applied scientist or technologist specializing in a particular applied science or technology including, but not necessarily limited to, agronomy, biology, chemistry, engineering, geology, or hydrogeology and

- (a) who is registered in British Columbia with their appropriate professional organization, acting under that association’s Code of Ethics and subject to disciplinary action by that association, and
- (b) who, through suitable education, experience, accreditation and knowledge, may be reasonably relied on to provide advice within their area of expertise;

“**reclaimed water**” means effluent from a sewage facility that is suitable for a direct designated water use or a controlled use;

“**secondary treatment**” means any form of treatment, excluding dilution, that consistently produces an effluent quality with a BOD₅ not exceeding 45 mg/L and TSS not exceeding 45 mg/L, except for lagoon systems for which the effluent quality is not to exceed a BOD₅ of 45 mg/L and a TSS of 60 mg/L;

“**septic tank**” means a water tight vessel into which municipal sewage is continually conveyed such that solids within the municipal sewage settle, anaerobic digestion of organic materials occurs and an effluent is discharged;

“**sewage facility**” means any facility or work that gathers, treats, transports, stores, utilizes or discharges municipal sewage or reclaimed water;

“**schedules**” means the schedules to this regulation;

“**stormwater**” means runoff from rainfall, snow or snowmelt;

“**TSS**” means total suspended solids or non-filterable residue;

“**unsaturated soil**”, in Schedule 4, means the soil between the land surface and the water table where the soil pore spaces contain water at less than atmospheric pressure, as well as air and other gases;

“**water quality guidelines**” means as published by the authority of the minister

- (a) the most recent “Water Quality Objectives” if established for a specific body of water, or
- (b) if no “Water Quality Objectives” have been established for the specific body of water in question, the “Approved and Working Water Quality Criteria”, or
- (c) any other water quality standard approved by the minister;

“**water table**” means the surface along which the fluid pressure is atmospheric and below which the fluid pressure is greater than atmospheric;

“**water well**” means a well supplying drinking water to a single or double unit dwelling.

**PART 2 – EXEMPTION UNDER CERTAIN CONDITIONS
FROM SECTION 3 (2) AND (3) OF THE
WASTE MANAGEMENT ACT FOR DISCHARGE**

Exemption

- 2** (1) A person is exempt from section 3 (2) and (3) of the *Waste Management Act* for the purposes of discharge if the person
- (a) registers under section 3,
 - (b) pays when due, as though registration under section 3 was a permit, an application fee calculated under section 2 of B.C. Reg. 299/92, the Waste Management Permit Fees Regulation,
 - (i) on applying for registration under section 3, and
 - (ii) on making a notification under condition 2 in Schedule 1,
 - (c) pays on the effective date of registration under section 3 and on each anniversary thereafter, as though registration under section 3 was a permit, an annual fee calculated under section 3 of B.C. Reg. 299/92, the Waste Management Permit Fees Regulation, on the quality and quantity of the discharge specified under section 3,
 - (d) subject to section 17, complies with Parts 3 to 7, and
 - (e) subject to section 17, complies with the conditions in Schedule 1.
- (2) Subsection (1) does not apply if the discharge is
- (a) authorized by a permit, approval, order or operational certificate first issued before subsection (1) comes into force,
 - (b) authorized by an operational certificate or a waste management plan approved by the minister, or
 - (c) authorized or prohibited by an order under the Act.

Registration under section 2 for an exemption

- 3** (1) An application may not be made under subsection (2) if a waste management plan authorizes the proposed discharge.
- (2) An application for registration must be made to the manager in a form acceptable to the manager and must include the following information:
- (a) the full legal name and address of the discharger;
 - (b) the name of the local contact and local address of the discharger;
 - (c) the name of the operator of the sewage facility;
 - (d) the address, legal description or name and latitude and longitude of the location of the sewage facility and of the discharge;
 - (e) the registered owner of the land on which the sewage facility is to be located;

- (f) the type of discharge including a description of the sewage facility;
 - (g) the maximum daily flow of the discharge that the discharger will not exceed;
 - (h) the manner in which the discharger will meet the standards set out in Schedules 2 to 5;
 - (i) the previous waste management permit number, if applicable;
 - (j) the intended commencement date of the discharge;
 - (k) any other relevant information requested by the manager;
 - (l) any other relevant information the discharger wishes to provide.
- (3) Registration under this section takes effect on the date application under subsection (2) is received by the manager.

PART 3 – APPLICATION OF PARTS 4 TO 8

Application of Parts 4 to 8

- 4** Despite section 2, Parts 4 to 8 apply to a discharge unless that discharge is
- (a) authorized by a permit, approval, order or operational certificate first issued before this regulation comes into force,
 - (b) authorized by an operational certificate or a waste management plan approved by the minister, or
 - (c) authorized or prohibited by an order under the Act.

PART 4 – STANDARDS FOR EFFLUENT REUSE AND DISCHARGES TO THE ENVIRONMENT

Initial dilution zone: water bodies

- 5**
- (1) If effluent is discharged into a water body, the initial dilution zone is the 3 dimensional zone around the point of discharge where mixing of the effluent and the receiving water occurs.
 - (2) For a lake or marine body of water, the following, measured from the point of discharge and from the mean low water mark, apply for purposes of calculating the initial dilution zone:
 - (a) the height is the distance from the bed to surface of the water body;
 - (b) the radius is either
 - (i) 100 m, or
 - (ii) 25% of the width of the body of water, whichever is less.
 - (3) For a stream or estuary, the following, measured from the point of discharge and from the mean low water mark, apply for purposes of calculating the initial dilution zone:

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- (a) the height is the distance from the bed to the surface of the water body;
 - (b) the width, perpendicular to the path of the stream, is the lesser of
 - (i) 100 m, or
 - (ii) 25% of the width of the stream or estuary;
 - (c) the length, parallel to the path of the stream, is the distance between a point 100 m upstream and a point, which is the lesser of
 - (i) 100 m downstream, or
 - (ii) a distance downstream at which the width of the effluent plume equals the width determined under paragraph (b).
- (4) In embayed marine waters, estuaries and lakes the initial dilution zone must not extend closer to shore than the mean low water mark.
- (5) In open marine waters, the edge of the initial dilution zone must be located outside of the shallow water zone in which surf will form along the shore.
- (6) The initial dilution zone must be located at least 300 m away from sensitive areas such as recreational areas, shellfish areas, domestic water intakes, agricultural water intakes, or any other sensitive area requiring protection as identified by the manager.
- (7) Initial dilution zones may overlap only when the combined effects do not cause water quality parameters, outside the combined initial dilution zone, to exceed any known water quality guidelines.
- (8) For discharges from an outfall diffuser the radius referred to in subsection (2) (b)
 - (i) may be measured from the first and last diffuser ports.
- (9) In this section:
- “estuary”** means that portion of a receiving water lying below the farthest point upstream of detectable changes in water movement or chemistry through mixing of fresh and salt water and due to tidal action;
- “diffuser”** means a section of pipe that diffuses the effluent into a water body through a series of orifices;
- “mean low water mark”** means
- (a) for marine waters, the datum provided on the most recently published marine chart published by the Canadian Hydrographic Service for the location,
 - (b) for lakes, the point of contact between of the water body’s surface and the shore at the time when the water surface is at its average annual minimum elevation based on the last 10 years of records, and
 - (c) for streams and rivers, the point of contact between the water body’s surface and the shore during 2-year return period 7-day flow.

Initial dilution zone: ground

- 6** (1) If effluent is discharged to ground, the initial dilution zone is the 3 dimensional subsurface zone where mixing of the effluent and ground water occurs.
- (2) The boundary of the groundwater initial dilution zone is the vertical extension into the ground of the property boundaries of the land into which the ground discharge is occurring.

Effluent quality

- 7** (1) A person must not discharge effluent or provide reclaimed water that exceeds the effluent quality limits for use as reclaimed water or for discharge to the environment set out in Schedules 2 to 5.
- (2) Unless specifically stated otherwise, the effluent quality limits specified in Schedules 2 to 5 are maximum values not to be exceeded.

Effluent disinfection

- 8** (1) If disinfecting the effluent is required to ensure that water quality parameters for domestic or agricultural water extraction, recreational uses or aquatic food production meet any known water quality guidelines, a person must not discharge the effluent unless the effluent is disinfected.
- (2) A person must not use chlorine to disinfect an effluent which is to be discharged to surface water unless the effluent is dechlorinated before discharge.
- (3) If dechlorination is required in accordance with subsection (2) or (7), the discharger must dechlorinate the effluent to reduce the chlorine residual below 0.01 mg/L total residual chlorine before discharge.
- (4) The discharger must review and assess alternative disinfection methods before selecting the chlorination and dechlorination disinfection option.
- (5) If disinfection is required under subsection (1), the median coliform values for 7 consecutive daily tests and any single value test must be less than the value specified in Schedules 2 to 4.
- (6) A person must not discharge effluent to ground within 300 m upgradient, of or within the zone of influence of a water well, unless the effluent has been disinfected.
- (7) For the purposes of subsection (6), chlorination must not be used unless
- (a) dechlorination is provided,
 - (b) the water quality in the water well will not be adversely impacted, and
 - (c) written permission is obtained from the manager.
- (8) In this section, “**zone of influence**” means the zone around a water well that in the opinion of a qualified professional supplies water to the well.

Toxicity

- 9** (1) A person must not discharge effluent, unless
- (a) the discharge passes a 96 hour LC50 bioassay test as defined by Environment Canada's Biological Test Method, Reference Method For Determining Acute Lethality of Effects to Rainbow Trout, Reference Method, EPS 1/RM/13, or
 - (b) if the discharge fails a bioassay test described in paragraph (a) that was conducted at a "Regular" time as specified in Schedule 6, Table 3, the discharge passes that test as conducted as a follow up under Column 5 in Schedule 6, Table 3.
- (2) Subsection (1) does not apply if
- (a) the discharge is to ground,
 - (b) the discharge quality meets a maximum BOD₅ not exceeding 10 mg/L and a maximum TSS not exceeding 10 mg/L,
 - (c) the discharge does not exceed a maximum daily flow of 5 000 m³/d and the discharger demonstrates to the satisfaction of the manager that the discharge does not adversely affect the receiving environment,
 - (d) the discharge is to open marine waters,
 - (e) the discharge is diluted such that at the outside boundary of the initial dilution zone the dilution ratio exceeds 100:1 and the discharger demonstrates to the satisfaction of the manager that the discharge does not adversely affect the receiving environment,
 - (f) reclaimed water is being provided or used in accordance with this regulation, or
 - (g) the discharger demonstrates to the satisfaction of the manager that the discharge does not adversely affect the receiving environment.
- (3) If subsection (1) applies, a person must not discharge effluent unless the discharge is monitored for toxicity in accordance with the requirements of Schedule 6, Table 3.

Use of reclaimed water

- 10** (1) A person must not provide or use reclaimed water unless
- (a) the standards for use of reclaimed water as set out in Schedule 2 are met,
 - (b) use is limited in accordance with Schedule 2 for unrestricted public access and restricted public access,
 - (c) for systems without seasonal storage, emergency storage is provided so that
 - (i) if the reclaimed water does not meet the standards required, the flow can be diverted until such time as the standards are met and designated water uses can continue, and
 - (ii) a minimum 20 days of emergency storage is provided, and

- (d) an environmental impact study has been conducted in accordance with condition 8 in Schedule 1.
- (2) A person providing or using reclaimed water must, in addition to any seasonal storage for the reclaimed water that is provided,
 - (a) provide an alternative method of disposing of the reclaimed water and describe that method in the operating plan under section 16, or
 - (b) satisfy the manager that no alternative method described in paragraph (a) is required to assure public health protection and treatment reliability.
- (3) Despite subsection (1) (c) (ii), and provided that the treatment processes are built with multiple units capable of meeting the reclaimed water standard with one unit not in operation, emergency storage may be reduced to a minimum of 2 days.
- (4) If the required emergency storage required by subsection (1) (c) is temporarily not available, the discharger must
 - (a) divert the reclaimed water to a disposal method which complies with this regulation, and
 - (b) if the disposal method is to ground and the reclaimed water meets the unrestricted public access standards, the reclaimed water may be discharged to ground provided the time of subsurface travel before a surface discharge is not less than 2 days.
- (5) The discharger must ensure that a provider of reclaimed water is prohibited from using any dual distribution system to convey reclaimed water unless the distribution system incorporates design, construction, maintenance and inspection safeguards to prevent cross connections.
- (6) In subsection (5), “**dual distribution system**” means a water distribution system that distributes 2 grades of water to the same service area; one potable and the other non-potable.
- (7) No person may provide for the use of reclaimed water unless specifically authorized
 - (a) in writing by the local health authority having jurisdiction, or
 - (b) under a local service area bylaw under which the municipality or a private corporation under contract to the municipality assumes the responsibility for ensuring compliance with this regulation and that proper operation and maintenance will be carried out.
- (8) For the unrestricted public access category, a person must not be a provider of reclaimed water unless the person
 - (a) develops, to the satisfaction of the manager, user information and communication materials related to the use of reclaimed water, and
 - (b) provides annually to all users copies of the materials required by paragraph (a).

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- (9) Methods of treatment for reclaimed water other than those included in this regulation and their reliability features may be accepted by the manager if the discharger demonstrates to the satisfaction of the manager that the methods of treatment and reliability features will assure an equal degree of treatment, public health protection and treatment reliability.
- (10) Initial dilution zones are not applicable to reclaimed water used for stream augmentation, creating impoundments, maintaining wetlands or marshes or for emergency disposal to ground unless a standard specified under condition 4 in Schedule 1 makes them applicable.

Discharges to water

- 11** (1) A person must not introduce effluent to water unless
 - (a) the effluent quality standards for discharges to water as set out in Schedule 3 or 5 are met, and
 - (b) an environmental impact study has been conducted in accordance with condition 8 in Schedule 1.
- (2) A person must not introduce effluent to a water body identified in Schedule 5 as areas of prohibited discharge.

Discharges to ground

- 12** A person must not introduce effluent to ground unless
 - (a) the effluent quality standards for discharges to ground as set out in Schedule 4 or 5 are met, and
 - (b) an environmental impact study has been conducted in accordance with condition 8 in Schedule 1.

Advanced treatment

- 13** (1) If environmental impact studies set out in condition 8 in Schedule 1 indicate the need for more stringent standards for the specified effluent quality parameters or for additional parameters in order to protect human health and the environment, the discharger may be required by the manager in writing to:
 - (a) meet more stringent or additional standards,
 - (b) provide advanced treatment beyond that specified in Schedules 2 to 5, or
 - (c) meet mass loading limits specified by the manager.
- (2) For introduction of effluent to the water bodies and above aquifer areas identified in Schedule 5, the discharger must ensure that the requirements for advanced treatment are met.

PART 5 – DESIGN AND CONSTRUCTION OF SEWAGE FACILITIES

General

- 14** (1) Release of a discharge is prohibited, unless the discharger ensures that
- (a) the design of a sewage facility registered under section 3 is capable of consistently meeting the requirements of this regulation,
 - (b) the facility design and the inspection necessary to ensure that the construction methods, materials and constructed facilities meet the design criteria are undertaken by a qualified professional who has expertise in the particular aspect of the design,
 - (c) a copy of drawings are certified correct and sealed by a qualified professional, and
 - (d) a copy of the drawings required in subsection (1) (c) are retained by the discharger for inspection by the manager at any time.
- (2) The design of a municipal sewage collection system is exempt from this Part.

Design procedure: large municipality

- 15** (1) In addition to the requirements of section 14, for discharges for which the contributory population equivalent to the sewage facility is greater than 5 000 persons, the discharger must undertake a staged approach to design as follows:
- (a) concept level planning;
 - (b) preliminary engineering;
 - (c) detailed design.

PART 6 – MANAGEMENT AND OPERATIONS

General

- 16** (1) A person must not introduce a discharge to the environment, unless
- (a) the discharger, at least 90 days before any construction commences, develops an operating plan for any sewage facility,
 - (b) the operating plan referred to in subsection (1) (a) is prepared by a qualified professional who
 - (i) is familiar with the facility, and
 - (ii) has expertise with respect to the proper operation of the facility, and
 - (c) the operating plan details the requirements for all of the following:
 - (i) proper operation and maintenance of sewage facilities;
 - (ii) for reclaimed water use on vegetation, the maximum application rate based on agrology studies for the vegetation to which the reclaimed water is applied;
 - (iii) emergency procedures;

- (iv) facility monitoring;
- (v) staff education;
- (vi) staff certification, and

is retained by the discharger, for inspection by the manager at any time.

- (2) The qualified professional responsible for the design of the sewage facilities identified in a plan prepared in accordance with subsection (1) must make a signed statement that the operating plan is adequate for the design.
- (3) This section does not apply to a municipal sewage collection system.

Commissioning new and upgraded sewage facilities

- 17**
- (1) On completion of the construction or upgrading of a sewage facility, a commissioning period is allowed during which it is not required that a discharge by the sewage facility comply with the standards set out in Schedules 2 to 5.
 - (2) Subsection (1) only applies if
 - (a) the commissioning period does not exceed 3 months,
 - (b) no adverse environmental impacts occur as a result of the discharge, and
 - (c) additional monitoring is undertaken, if required by the manager.
 - (3) Despite subsection (2) (a), the allowable commissioning period may be extended by the manager in writing, if the discharger
 - (a) demonstrates, based on the nature of the receiving environment or the discharge, that no adverse environmental impacts are likely to occur, and
 - (b) undertakes additional monitoring, if required by the manager.

Maintenance of sewage facilities

- 18**
- (1) A person must not introduce a discharge to the environment, unless the person
 - (a) inspects the sewage facility regularly,
 - (b) maintains the sewage facility in good working order, and
 - (c) notifies the manager immediately of any malfunction of these works and any condition which results or may result in the discharge exceeding the standards set out in Schedules 2 to 5.
 - (2) In addition to subsection (1) and to ensure the outfall is operating as designed, the discharger must have any outfall associated with the discharge inspected by a qualified person once every 5 years or at a frequency specified by the manager in writing.
 - (3) The outfall inspection report required by subsection (2) must be retained by the discharger for inspection by the manager at any time.
 - (4) Bypass of sewage facilities for the purpose of scheduled maintenance is prohibited unless

- (a) the maintenance cannot be reasonably undertaken without a bypass occurring,
 - (b) the discharger notifies the manager at least 30 days before the planned bypass,
 - (c) the discharger obtains written authorization from the manager for the bypass before it commences, and
 - (d) the discharger complies with any conditions imposed by the manager in giving an authorization under paragraph (c).
- (5) All unauthorized bypasses, emergency overflows and spills must be reported in accordance with B.C. Reg. 263/90, the Spill Reporting Regulation.

Municipal sewage connection to industrial sewer system

- 19** This regulation does not apply to municipal sewage discharging to an industrial sewer system, provided
- (a) the ultimate discharge to the receiving environment is authorized under the Act, and
 - (b) the ratio of the industrial discharge to the flow of municipal sewage is greater than 10:1.

Non-domestic waste connection to municipal sewage system

- 20** (1) In this section:
- “**non-domestic waste**” means liquid waste other than domestic sewage;
 - “**sewage treatment plant owner**” means a person or corporation responsible for the commissioning, operation, maintenance and performance of a sewage facility or who owns the facility, or both.
- (2) Release of non-domestic waste to a municipal sewage system is prohibited unless
- (a) the person releasing the non-domestic waste ensures that its quality meets or exceeds Column 3, Schedule 1.2 of B.C. Reg. 63/88, the Special Waste Regulation, before being released, and
 - (b) the sewage treatment plant owner ensures that the final discharge meets the requirements of this regulation and the quality of any biosolids meets the requirements of an authorization issued under the Act.
- (3) A municipality must not accept the discharge of non-domestic waste to a municipal sewage collection system, unless the municipality
- (a) has adopted a source control bylaw or equivalent measures to regulate the discharge of non-domestic waste into the sewer system, or
 - (b) demonstrates, to the satisfaction of the manager, that a source control bylaw or equivalent measures are not required to protect the sewage facility or the receiving environment.
- (4) The source control bylaw required by subsection (3) (a) must include

- (a) provision for pre-treatment of industrial, commercial and institutional discharges to the municipal sewer system, and
 - (b) pre-treatment requirements to ensure that the final discharge of effluent meets the effluent quality standards set out in Schedules 2 to 5 and that the quality of any biosolids meets the requirements of an authorization given under the Act.
- (5) In order to satisfy subsection (3) (b), the discharger may be required to conduct an environmental impact study as set out in condition 8 in Schedule 1.

Semi-solid wastes

- 21** (1) A person must not dispose of semi-solid waste to a sewage facility unless
- (a) the sewage facility is capable of treating these wastes, in accordance with the standards outlined in Schedules 2 to 5,
 - (b) the sewage facility discharge does not cause water quality parameters, outside the initial dilution zone to exceed any known water quality guidelines, and
 - (c) the quality of any biosolids removed from the sewage facility will meet the requirements of an authorization given under the Act.
- (2) If necessary to protect the sewage facility, the discharger must install pre-treatment or containment facilities.
- (3) In this section, “**semi-solid waste**” means septic tank pumpage, holding tank solids or sludge from sewage facilities.

Operator qualifications and certification

- 22** (1) A person must not introduce a discharge into the environment unless the person ensures that the sewage facility is
- (a) classified under the Environmental Operators Certification Program,
 - (b) operated and maintained by
 - (i) persons certified by, and in accordance with, the Environmental Operators Certification Program, or
 - (ii) persons who, in the opinion of the director, are suitably qualified in the safe and proper operation of the facility for the protection of the environment and human health, and
 - (c) if a person is operating and maintaining a reclaimed water distribution system, the person must be a Certified Cross Connection Control Inspector.
- (2) If the Environmental Operators Certification Program applies, certification of the operator must be completed to the satisfaction of the manager.
- (3) The manager must be notified of all of the following within 30 days of any change:

-
- (a) in the classification level under the Environmental Operators Certification Program of the facility;
 - (b) in the certification level required under the Environmental Operators Certification Program for the operator with the highest certification level of that facility;
 - (c) in who the operator with the highest certification level of that facility is.
- (4) If the discharger wishes to demonstrate the operator's qualifications to the director under subsection (1) (b) (ii), the discharger must retain a qualified professional with qualifications acceptable to the director.
 - (5) The qualified professional referred to in subsection (4) must
 - (a) determine staff requirements from the operating plans and prepare examinations, both written and oral, to be given to the operators,
 - (b) prepare a report on the operator's knowledge in relation to the operating plans,
 - (c) propose a training program to correct any deficiencies and provide ongoing educational upgrading, and
 - (d) prepare a report which evaluates compliance with the training program and notes changes in sewage facilities and must submit it to the manager on an annual basis.
 - (6) The manager must be notified of any change of operators within 30 days and, if applicable, the procedure outlined in subsection (4) must be followed and the qualified professional's report submitted to the manager within 120 days.
 - (7) The discharger must at all times employ operators who have the educational and experience qualifications as specified in the operating plan.
 - (8) Despite subsection (1) (b) for discharges that are, in the opinion of the manager, remote or if daily access is impractical, a discharger may install a continuous monitoring system provided modifications, repairs and maintenance to the facility are carried out by qualified operators as defined in this section.
 - (9) This section does not apply to a municipal sewage collection system.

Fees: operator certification

- 23** (1) A person demonstrating the operator's qualifications to the director under section 22 must pay a fee to the government of \$300 plus \$80/hour for time required beyond 3 hours to assess any information or reports submitted.
- (2) A fee is not payable under subsection (1) if the works are operated and maintained by persons certified within and according to the program provided by the Environmental Operators Certification Program.

PART 7 – MONITORING**General**

- 24** Discharge of effluent or use of reclaimed water is prohibited, unless monitoring of effluent or reclaimed water and the receiving environment is undertaken by the discharger to determine compliance with this regulation.

Sampling and analysis

- 25** (1) In order to satisfy the requirements of section 24, the discharger must ensure that
- (a) sampling and flow measurements are carried out in accordance with the procedures described in “British Columbia Field Sampling Manual for Continuous Monitoring plus the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment and Biological Samples” as published by the Ministry of Environment, Lands and Parks, or by a suitable alternative procedure as authorized by the manager, and
 - (b) analysis is carried out in accordance with the procedures described in “British Columbia Environmental Laboratory Manual for the Analysis of Waters, Wastewaters, Sediments and Biological Materials”, as published by the Ministry of Environment, Lands and Parks, or by suitable alternative procedures as authorized by the manager.
- (2) If flows exceed the 2.0 times ADWF and are divided into 2 different levels of treatment, as described in Schedule 3, sampling of the effluent must be undertaken by the discharger at a point after the point at which effluent flows are recombined in the outfall and at which complete mixing will have occurred.
- (3) Monitoring data required by this regulation must be submitted in accordance with B.C. Reg. 301/90, the Environmental Data Quality Assurance Regulation.

Discharge monitoring

- 26** (1) In order to satisfy the requirements of section 24, the discharger must
- (a) unless directed otherwise by the manager in writing, install a suitable sampling facility for obtaining a sample of the effluent,
 - (b) unless directed otherwise by the manager in writing, provide and maintain a suitable flow measuring device to record the effluent volume discharged over a 24-hour period, and
 - (c) monitor effluent quantity and quality as stipulated in Schedule 6, or as directed by the manager in writing.
- (2) The discharger must ensure that the projected monitoring dates for the next year must be outlined in the annual report required in section 28.
- (3) For new discharges, a person must not discharge unless monitoring is initiated within one month of the discharge commencing.

Receiving environment monitoring

- 27** (1) In order to satisfy the requirements of section 24, the discharger must
- (a) monitor the receiving environment to provide data to assess the potential impact of the discharge and to ensure that the discharge does not or will not cause water quality parameters, outside the initial dilution zone, to exceed any known water quality guidelines,
 - (b) ensure that the monitoring program is designed by a qualified professional knowledgeable in such matters, and
 - (c) when conducting a receiving environment monitoring program, provide at least one control sampling station located upstream, upgradient, or outside the influence of the initial dilution zone of the effluent.
- (2) A receiving environment monitoring program established in order to satisfy section 24 must document pre-discharge conditions, and if seasonal variations of parameters within the receiving environment are considered by the manager to be significant, pre-discharge monitoring must be carried out by the discharger during the most critical period of the year as determined by the manager.
- (3) Based on the data submitted in accordance with section 28 or any other relevant information received by the manager, the manager may, despite section 13 or Schedule 6, increase or decrease receiving environment monitoring.

Reporting requirements

- 28** (1) A person must not introduce a discharge into the environment unless the person retains the effluent flow and effluent quality data and receiving environment monitoring data for inspection by the manager at any time.
- (2) In addition to subsection (1), the discharger must submit the data required by subsection (1) and associated quality control work
- (a) by electronic transmission directly to the ministry's central computer system, or
 - (b) in a format acceptable to the manager.
- (3) For discharges for which the contributory population equivalent is less than 10 000 persons, the discharger, if requested in writing by the manager, must prepare and submit a report
- (a) on or before a date specified by the manager,
 - (b) in a format acceptable to the manager, and
 - (c) that contains any information specifically requested by the manager.
- (4) For discharges for which the contributory population is equal to or greater than 10 000 persons, the discharger must prepare and submit an annual report that includes a compendium of the data submitted under subsections (1) and (2).
- (5) When required to prepare and submit an annual report in accordance with subsection (4), the discharger must document in the annual report

- (a) any effect of the discharge on the quality of the receiving environment using appropriate statistical and graphical analysis, and
 - (b) any trends in environmental quality in receiving environments affected by the discharge using background or pre-discharge data and by using all the years of record in which the discharge has taken place.
- (6) A report submitted to satisfy subsection (5) must
- (a) be written and the analysis done by a suitably qualified professional, and
 - (b) provide interpretation of monitoring data.
- (7) In addition to the effluent and environmental monitoring data the annual report must address the following:
- (a) if source control, water conservation and education programs related to municipal sewage quantity or quality, or both, have been implemented, an update of the previous year's achievements;
 - (b) an update of the previous year's problems identified and corrective actions taken;
 - (c) any planned improvements of sewage facilities for the coming year;
 - (d) if reduce, reuse and recycle initiatives related to municipal sewage quantity or quality, or both, have been implemented, an update of the previous year's achievements;
 - (e) documentation of historic and projected contributory population and remaining plant capacity;
 - (f) if applicable, the status of any capital replacement fund established by the discharger;
 - (g) an outline of the projected monitoring dates for the next year.
- (10) The discharger must
- (a) submit the annual report to the manager within 120 days of the end of each calendar year, and
 - (b) on written request from the manager, make the annual report available to an individual requesting the report or the public by posting it on the internet or providing a copy to the local public library, or both.

PART 8 – OFFENCES AND PENALTIES

Offences and penalties

- 29**
- (1) A person who contravenes section 10 (5), (7), or (8), 14 (1), 16 (1), 18 (1), 21 (1), 22 (1) or 24 commits an offence and is liable to a penalty not exceeding \$200 000 or 6 months imprisonment, or both.
 - (2) A person who, with intent to mislead,
 - (a) submits false monitoring data,

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 Schedule 1 – Conditions for Exemption under Section 2 of this Regulation

- (b) fails to retain monitoring data under section 28 (1), or
- (c) makes a false report, or fails to submit a report under section 28 (3) or (4) commits an offence and is liable to a penalty not exceeding \$200 000 or 6 months imprisonment, or both.

**SCHEDULE 1 –
 CONDITIONS FOR EXEMPTION UNDER SECTION 2 OF THIS REGULATION**

Definition

- 1** In this Schedule, “**condition [XX]**” means section [XX] of this Schedule.

Notification of change of information

- 2** The discharger must notify the manager within 30 days of any change in the information submitted
- (a) to register under section 3 of this regulation, or
 - (b) to update information given to register under section 3 of this regulation.

Water quality standards

- 3** (1) The discharger must ensure that no person discharges effluent unless all known water quality guidelines are met.
- (2) If the discharger is directed by the manager to establish the background water quality limit required by subcondition (1) for the receiving environment in order to satisfy condition 4, the discharger must, before the discharge commences, undertake a sampling program that
- (a) determines background water quality for any parameter specified by the manager,
 - (b) is conducted upstream or upgradient of the point of discharge, and
 - (c) is conducted beyond the edge of the initial dilution zone.

Manager’s directions respecting standards

- 4** (1) In place of a standard or requirement specified in this regulation, the discharger must comply with an equivalent or more stringent standard or requirement that the manager specifies in writing for a particular discharge.
- (2) To specify an equivalent or more stringent standard or requirement, the manager must be satisfied that the standard or requirement
- (a) is necessary for the protection of human health and the environment, and
 - (b) is based on, in connection with the discharge,
 - (i) an environmental impact study required by this regulation,
 - (ii) receiving environment monitoring data, or
 - (iii) other information relevant to the discharge or the receiving environment.

Security requirements

- 5** (1) For the purpose of this condition:
 “**capital replacement fund**” means a fund

- (a) comprised of cash, securities, bonds or other financial instruments or insurance, or a combination of these, that assure that the potential cost, whenever it may arise, of full replacement of the sewage facility will be covered, and
- (b) that is not assignable or refundable, and must be replenished if contributions are made from it for capital replacement purposes, unless the manager states in writing that satisfactory alternative arrangements are made that assure that the potential cost, whenever it may arise, of full replacement of the sewage facility will be covered;

“residential development” means a dwelling or collection of dwellings that serve as the primary residence of their inhabitants all of whom rely on the discharger to provide the municipal sewage system.

- (2) For the purpose of this condition and conditions 6 and 7, **“assurance plan”** means a program, the insurance instruments of which are provided by a company registered under the *Insurance Act* with the Superintendent of Insurance, having sufficient quality assurance and technical, financial and management resources to provide, or warrant the provision of, repairs to, or operation, maintenance or replacement of each sewage facility registered with the program.
- (3) If the discharger is an individual, company or strata corporation, the discharger must not treat, reuse or dispose of municipal sewage generated by a residential development unless
 - (a) a capital replacement fund is established,
 - (b) the discharger provides, within 90 days of the end of the discharger’s fiscal year, audited annual financial statements of the capital replacement fund to the manager, and
 - (c) the discharger ensures that the manager can act in a timely manner as set out in subcondition (7) respecting the capital replacement fund.
- (4) If the discharger is an individual, company or strata corporation, the discharger must not treat, reuse or dispose of municipal sewage generated by a residential development unless
 - (a) security is provided, and
 - (b) the discharger ensures that the manager can act in a timely manner as set out in subcondition (7) respecting the security.
- (5) The security under subcondition (4) must be
 - (a) calculated in accordance with subcondition (6),
 - (b) maintained with a financial institution, in a form approved by the manager, and
 - (c) be adjusted annually to match inflation based on Statistics Canada capital equipment index of the Industrial Products Price Index with 1999 as the base year.
- (6) Security is calculated using the following formula and rounded up to the nearest \$1 000:

$$\text{security} = \$1400Q,$$
 where **“Q”** is the maximum daily flow in m³/d.
- (7) Contributions from the capital replacement fund, the security under subcondition (4), or a combination of both may, at the discretion of the manager, be accessed and used for the repair, operation, maintenance, replacement or improvement of the sewage facility or for the payment of any insurance policy premiums or deductibles, provided

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- (a) the manager notifies the discharger in writing that the contribution is required if the discharger does not make the repair, operation, maintenance, replacement or improvement or make payment of any insurance premiums or deductibles within a reasonable time specified by the manager, and
 - (b) the discharger does not make the repair, operation, maintenance, replacement or improvement or make payment of any insurance premiums or deductibles within the time specified by the manager under paragraph (a).
- (8) The discharger must forward proof of security, and of establishment of the capital replacement fund, to the manager at least 30 days before construction of a sewage facility.
- (9) Subconditions (3) and (4) do not apply to a discharger that
- (a) is a municipality, or
 - (b) discharges from a service area defined and governed by a local service area bylaw.
- (10) If a discharger has submitted written proof to the manager that the discharge is registered with an assurance plan, approved in accordance with condition 6 (4), subconditions (3) and (4) do not apply to the discharger.

Approval of assurance plan

- 6**
- (1) The director may establish a roster of expert consultants to assist in the reviewing of an assurance plan.
 - (2) Before submitting an assurance plan for approval under subcondition (4), a person, subject to subcondition (3), must, at their expense, ensure that an expert consultant selected from the roster established under subcondition (1) has reviewed the assurance plan and has made a recommendation to the director on the acceptability of the assurance plan.
 - (3) For the purpose of selecting a consultant, the person must not select a consultant from the roster that has been involved in developing the assurance plan being reviewed or has a personal or business relationship with the person requiring the review.
 - (4) On receipt of an assurance plan that has the findings of the reviewing consultant appended, the director may approve the plan provided the director is satisfied that it adequately provides for sufficient quality assurance and technical, financial and management resources to provide operation, maintenance, repairs or replacement of the sewage facilities.

Report to the director

- 7**
- (1) The discharger must, on or before March 31 in each year, provide to the director an annual report detailing what quality assurance and technical, financial and management resources are in place under the assurance plan and how effective the quality assurance and technical, financial and management resources have been during the previous calendar year.
 - (2) On receipt of the report under subcondition (1), the director may require the discharger to
 - (a) make amendments to an individual's or organization's assurance plan as approved under condition 6, or
 - (b) submit a new assurance plan to the director for review and approval.

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- (3) If the discharger ceases to be covered under an approved assurance plan, the discharger must notify the director in writing within 30 days of the date of the change in status.

Environmental impact studies

- 8** (1) This condition and conditions 9 and 10 do not apply to discharges or use of reclaimed water authorized under the Act prior to this regulation coming into force, unless the manager notifies the discharger in writing that they apply.
- (2) A discharger must not discharge effluent or provide for use reclaimed water, unless the discharger
- (a) ensures that a qualified professional conducts and completes, based on the effluent quality standards in Schedules 2 to 5 being met or exceeded, an environmental impact study
 - (i) at least 90 days before the construction of any facility commences,
 - (ii) that considers uses of the receiving environment or groundwater,
 - (iii) that establishes, before and after discharge commences,
 - (A) receiving environment monitoring locations, and
 - (B) sampling parameters and frequencies, and
 - (iv) that demonstrates, as appropriate to the nature of the discharge and the receiving environment, that the proposed treatment, reuse or disposal system will not adversely affect human health and the environment, and
 - (b) retains, for inspection by the manager at any time, the completed environmental impact study.

Combined and sanitary sewer overflows

- 9** If condition 15 or 16 applies to a discharge, the discharger must
- (a) ensure that a qualified professional conducts and completes, at least 90 days before the construction of any facility commences, an environmental impact study that identifies,
 - (i) any water quality requirements necessary to protect the receiving environment, and
 - (ii) the treatment needed to protect the designated uses of the waters receiving combined sewer overflows or sanitary sewer overflows, and
 - (b) retain, for inspection by the manager at any time, the completed environmental impact study.

Sewage facilities

- 10** (1) The discharger must ensure that no person discharges effluent from sewage facilities
- (a) installed or proposed to be installed on and after the effective date of this regulation, or
 - (b) proposed to be expanded to accommodate an increase in flow greater than 20% of the maximum authorized flow applicable before this regulation came into force, except in the case that the expansion was planned and assessed as part of the authorization granted before this regulation came into force, unless the discharger

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- (i) ensures that a qualified professional conducts and completes an environmental impact study
 - (A) at least 90 days before the construction of any facility commences, and
 - (B) as appropriate to the nature of the treatment facility and the surrounding environment, consider provisions for controlling any environmental impact during development, construction and operation of the facility or site, and
- (ii) retains, for inspection by the manager at any time, the completed environmental impact study.

Design standards

- 11** The discharger must ensure that no person introduces a discharge to the environment, unless the minimum standards for the design of the sewage facilities as set out in Schedule 7, or equivalent standards, are met.

Construction of a facility

- 12** The discharger must not commence construction of a facility from which a discharge may be made until 90 days after registration under section 3 of this regulation.

For conditions 14 to 17

- 13** (1) For the purpose of this condition and conditions 14 to 17:
- “**combined sewer overflow**” means a discharge from a combined sewer system to a location other than a sewage facility;
 - “**sanitary sewer**” means a municipal sewage collection system;
 - “**sanitary sewer overflow**” means a discharge from the sanitary sewer to a location other than a sewage facility.
- (2) The minister may, on written request from the discharger, extend any date in conditions 15 to 17.

Combined sewers

- 14** (1) In this condition, “**combined sewer system**” means ditches, drains, sewers, treatment facilities and disposal facilities that collect, transport, treat or dispose of a combination of municipal sewage and stormwater in a single system.
- (2) The discharger must ensure that no person constructs or expands a combined sewer system.
- (3) Emergency repairs to existing combined sewer systems are permitted, however, the discharger must ensure that the person responsible for the municipal sewage collection system assesses the feasibility of sewer separation and, wherever possible, separates the storm and sanitary sewers at the time of repair.

Combined sewer overflows

- 15** (1) On and after January 1, 2004, the discharger must ensure that no person allows a combined sewer overflow to occur during storm or snowmelt events with less than a 5-year return period, unless

- (a) for municipal sewage collection systems for which the contributory population equivalent is equal to or greater than 10 000 persons, the person responsible for the municipal sewage collection system addresses as part of a liquid waste management plan existing combined sewer overflows including undertaking measures to eliminate overflows, or
 - (b) for municipal sewage collection systems for which the contributory population equivalent is less than 10 000 persons, the person responsible for the municipal sewage collection system develops a liquid waste management plan or conducts a study and develops and implements measures such that combined sewer overflows are eventually eliminated.
- (2) Despite subcondition (1), the discharger must ensure that the person responsible for the municipal sewage collection system, within 2 years of the date that this regulation comes into force
- (a) estimates the existing flow quantity, frequency and number of individual combined sewer overflow occurrences,
 - (b) based on paragraph (a), estimates the total annual volume of all combined sewer overflows which occur during storm or snowmelt events with less than a 5-year return period,
 - (c) takes steps to reduce the quantity, frequency and number of combined sewer overflow occurrences,
 - (d) reduces the volume estimated in paragraph (b) by an average of 1.0 % per year calculated over each 10 year reporting period,
 - (e) assesses the potential impact on the receiving environment at all overflow locations,
 - (f) maintains a database of all overflows which occur during storm or snowmelt events with less than a 5-year return period, and
 - (g) retains the information for inspection by the manager at any time.
- (3) The discharger may not employ storage or conveyance facilities to reduce the amount of sewer separation required, unless the facilities immediately reduce and ultimately prevent the occurrence of combined sewer overflows.
- (4) If facilities are used under subcondition (3) and primary and secondary treatment are available, the discharger must
- (a) provide at least primary treatment for the flows greater than 2.0 times the ADWF,
 - (b) utilize the full secondary capacity of the treatment plant,
 - (c) combine the primary and secondary effluent prior to discharge,
 - (d) maintain a minimum receiving environment to discharge dilution ratio of 40:1, and
 - (e) if disinfection is required, provide adequate excess disinfection capacity to ensure disinfection of the entire discharge flow.

Sanitary Sewer Overflows

- 16** (1) On and after January 1, 2004, The discharger must ensure that no person allows a sanitary sewer overflow to occur during storm or snowmelt events with less than a 5-year return period, unless

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- (a) for municipal sewage collection systems for which the contributory population equivalent is equal to or greater than 10 000 persons, the person responsible for the municipal sewage collection system addresses as part of a liquid waste management plan existing sanitary sewer overflows including undertaking measures to eliminate overflows, and
 - (b) for municipal sewage collection systems for which the contributory population equivalent is less than 10 000 persons, the person responsible for the municipal sewage collection system develops a liquid waste management plan or conducts a study and develops and implements measures such that sanitary sewer overflows are eliminated.
- (2) Despite subcondition (1), the discharger must ensure that the person responsible for the municipal sewage collection system, within 2 years of the date that this regulation comes into force,
- (a) estimates the existing flow quantity, frequency and number of individual sanitary sewer overflow occurrences,
 - (b) based on paragraph (a), estimates the total annual volume of all sanitary sewer overflows which occur during storm or snowmelt events with less than a 5-year return period,
 - (c) takes steps to reduce the quantity, frequency and number of sanitary sewer overflow occurrences,
 - (d) reduces the volume estimated in paragraph (b) by an average of 10.0 % per year calculated over each 10 year reporting period,
 - (e) assesses the potential impact on the receiving environment at all overflow locations,
 - (f) maintains a database of all overflows which occur during storm or snowmelt events with less than a 5-year return period, and
 - (g) retains the information for inspection by the manager at any time.
- (3) The discharger may not employ storage or conveyance facilities to reduce the amount of I/I reduction required, unless the facilities immediately reduce and ultimately prevent the occurrence of sanitary sewer overflows.
- (4) If facilities are used under subcondition (3) and primary and secondary treatment are available, the discharger must do all of the following:
- (a) provide at least primary treatment for the flows greater than 2.0 times the ADWF;
 - (b) utilize the full secondary capacity of the treatment plant;
 - (c) combine the primary and secondary effluent prior to discharge;
 - (d) maintain a minimum receiving environment to discharge dilution ratio of 40:1;
 - (e) if disinfection is required, provide adequate excess disinfection capacity to ensure disinfection of the entire discharge flow.

Inflow and infiltration

- 17** (1) On and after January 1, 2004, the discharger must ensure that no person allows inflow and infiltration so that the maximum average daily flow exceeds 2.0 times ADWF to occur during storm or snowmelt events with less than a 5-year return period, unless

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- (a) if 2.0 times ADWF is exceeded at the treatment plant and for municipal sewage collection systems for which the contributory population to the treatment plant is equivalent to or exceeds 10 000 persons, the discharger addresses how I/I can be reduced as part of a liquid waste management plan, or
 - (b) if 2.0 times ADWF is exceeded at the treatment plant and for municipal sewage collection systems for which the contributory population equivalent to the treatment plant is less than 10 000 persons, the discharger either develops a liquid waste management plan or conducts a study and develops and implements measures that are developed in either the liquid waste management plan or the study such that I/I is reduced.
- (2) Despite subcondition (1), if reductions below 2.0 times ADWF are not possible or cost effective based on a cost/benefit analysis, the discharger must, on and after January 1, 2004
- (a) provide full secondary treatment for the entire flow at all times, or
 - (b) undertake all of the following:
 - (i) provide at least primary treatment for flows greater than 2.0 times the ADWF;
 - (ii) utilize the full secondary treatment capacity of the treatment facility;
 - (iii) combine the primary and secondary effluent prior to discharge;
 - (iv) maintain a minimum receiving environment to discharge dilution ratio of 40:1;
 - (v) if disinfection is required, provide adequate excess disinfection capacity to ensure disinfection of the entire discharge flow.

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 Schedule 2 – Permitted Uses and Standards for Reclaimed Water

**SCHEDULE 2 –
 PERMITTED USES AND STANDARDS FOR RECLAIMED WATER**

(Section 10 of this Regulation)

Reclaimed Water Category and Permitted Uses (1)	Treatment Requirements (2)	Effluent Quality Requirements (3)	Monitoring Requirements (5)
UNRESTRICTED PUBLIC ACCESS			
URBAN - Parks (6) - Playgrounds - Cemeteries - Golf Courses (6) - Road Rights-of-Way - School Grounds (6) - Residential Lawns - Greenbelts - Vehicle and Driveway Washing - Landscaping around Buildings - Toilet Flushing - Outside Landscape Fountains - Outside Fire Protection - Street Cleanings AGRICULTURAL - Aquaculture - Food Crops Eaten Raw - Orchards and Vineyards - Pasture (no lag time for animal grazing) - Frost Protection (17), Crop Cooling and Chemical Spraying on crops eaten raw - Seed Crops RECREATIONAL (18) - Stream Augmentation - Impoundments for Boating and Fishing - Snow Making for Skiing and Snowboarding	Secondary (7) Chemical Addition (8) Filtration (4) Disinfection (9) Emergency Storage (2)	pH = 6 - 9 ≤ 10 mg/L BOD ₅ ≤ 2 NTU (10) number of fecal coliform organisms ≤ 2.2/100 mL (11) (12) General (13) (14) (15)	pH - weekly BOD - weekly Turbidity - continuous Coliform (16) - daily
RESTRICTED PUBLIC ACCESS			
AGRICULTURAL - Commercially processed food crops (19) - Fodder, Fibre - Pasture (20) - Silviculture - Nurseries - Sod Farms - Spring Frost Protection (17) - Chemical Spray - Trickle/Drip Irrigation of Orchards and Vineyards URBAN/RECREATIONAL (18) - Landscape Impoundments - Landscape Waterfalls - Snow Making not for Skiing and Snowboarding CONSTRUCTION - Soil Compaction - Dust Control - Aggregate Washing - Making Concrete - Equipment Washdown INDUSTRIAL (24) - Cooling Towers - Process Water - Stack Scrubbing - Boiler Feed ENVIRONMENTAL (18) - Wetlands (25)	Secondary (7) Disinfection (9)	pH = 6 - 9 ≤ 45 mg/L BOD ₅ ≤ 45 mg/L TSS (26) number of fecal coliform organisms ≤ 200/100 mL (11)(21)(22) General (14)(23)	pH - weekly BOD - weekly TSS - daily Coliform - weekly

Numeric values in parentheses refer to numbered explanations in the explanatory notes, Appendix 1 to Schedule 2
 ≤ means less than or equal to ≥ means greater than or equal to > means greater than

APPENDIX 1 TO SCHEDULE 2
EXPLANATORY NOTES

- 1 The type of reclaimed water use permitted must be one of those indicated on this Schedule. Other proposed types of reclaimed water use will be assessed by the director on an individual basis and must, in consultation with the Ministry of Health, be approved in writing by the director.
- 2 Reliability must be provided for all treatment processes as set out in Schedule 7. For the unrestricted public access category, emergency storage must satisfy the requirements of section 10 of this regulation.
- 3 Effluent quality limits must be calculated as running mean values and apply to the reclaimed water at the point of discharge from the treatment facility or, if storage is provided, at the point of distribution or use.
- 4 Sixty day storage after secondary treatment is acceptable in lieu of filtration provided the final effluent quality requirements are met and the discharger demonstrates to the satisfaction of the manager that no short circuiting is occurring or likely to occur and that no viruses at levels of concern to local health authorities are detected in the reclaimed water.
- 5 Subject to Note 1 Appendix 1 to Schedule 6, these requirements take precedence over the requirements of Schedule 6.
- 6 Remote areas of parks, school grounds during vacation periods, and golf courses may be considered under the restricted public access category, provided: a minimum of 60 days storage is provided; the discharger demonstrates to the satisfaction of the manager that access is controlled, that environmental concerns are addressed and that any concerns of the local health authorities are resolved; and, the manager, in consultation with the local health authorities, approves the use in writing.
- 7 Secondary treatment as defined by section 1 of this regulation.
- 8 Chemical addition includes coagulant or polymer prior to filtration. Use is restricted to those coagulants and polymers shown to be non-toxic.
- 9 For distribution of reclaimed water, the discharger must ensure that minimum total chlorine residual of 0.5 mg/L is maintained at the point of initial use. This requirement may be waived by the manager, provided the discharger demonstrates, to the satisfaction of the manager and local health authorities, that fecal coliforms remain below levels prescribed by this Schedule at the point of use and that the users are adequately informed regarding appropriate use of the reclaimed water.
- 10 Turbidity limit must be met prior to disinfection. The average turbidity must be based on a 24-hour time period. The turbidity must not exceed 5 NTU at any time. If TSS is used in lieu of turbidity, the average TSS must not exceed 5 mg/L.
- 11 The median value, as determined from the bacteriological results of the last 7 samples for which analyses have been completed, must not exceed the coliform limits specified.
- 12 For unrestricted public access use, the number of fecal coliform organisms must not exceed 14/100 mL in any sample.

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- 13 The reclaimed water provider must demonstrate that reclaimed water does not contain pathogens or parasites at levels which are a concern to local health authorities. Reclaimed water must be clean, odourless, non-irritating to skin and eyes and must contain no substances that are toxic on ingestion.
- 14 Where available agricultural (crop) limits must govern criteria for metals. High nutrient levels may adversely affect some crops during certain growth stages. Crop limits and season must govern nutrient application.
- 15 The reclaimed water provider must obtain monitoring results, and confirm that water quality requirements are met, prior to distribution.
- 16 Based on an initial 60 days of compliance with the quality limit, the discharger must conduct weekly presence or absence testing for coliform monitoring. If presence of any coliform is detected daily fecal coliform testing must be reinstated until the quality limit is in compliance. Fourteen tests must be conducted to demonstrate that the discharge is back in compliance and then weekly presence/absence testing must be resumed.
- 17 Discharger must consult with the Ministry of Agriculture and Food regarding the difference between spraying for frost protection and spring frost protection techniques.
- 18 If chlorine is used as a disinfectant then dechlorination is necessary to protect aquatic species of flora and fauna. The use of alternative disinfection methods is recommended. Possible effects on groundwater must be evaluated. Receiving water quality requirements may necessitate additional treatment. The temperature of the reclaimed water must not adversely affect the ecosystem. Nutrient removal may be necessary to limit algae growth in impoundments.
- 19 Commercially processed food crops are those that, prior to sale to the public or others, have undergone chemical or physical processing such as, but not limited to, canning, heat treatment, fermentation and pickling, sufficient to destroy pathogens.
- 20 Milking animals must be prohibited from grazing for 6 days after irrigation ceases. Other cattle must be prohibited from grazing for 3 days after irrigation ceases unless the meat is inspected under the Federal Meat Inspection Program.
- 21 For restricted public access use, the number of fecal coliform organisms must not exceed 800/100 mL in any sample.
- 22 Worker contact with reclaimed water must be minimized. A higher level of disinfection to achieve the number of fecal coliform organisms < 14/100 mL must be provided where frequent worker contact with reclaimed water is likely.
- 23 Setback distance to potable water well must be > 30 m. A provider of reclaimed water must ensure that windblown spray will not exceed the boundaries of the property to which the reclaimed water are being applied and that windblown spray must not reach areas accessible to the public.
- 24 A provider of reclaimed water must consult specific industry's recommended water quality limits for make-up water.
- 25 Notwithstanding note 20, for wetlands where no diving, swimming, or wading activities occur, the number of fecal coliform organisms must not exceed 1 000/100 mL as determined in accordance

with note 11 to this Appendix and the number of fecal coliform organisms must not exceed 4 000/100 mL in any sample.

26 For lagoon systems, the maximum TSS level must not exceed 60 mg/L.

SCHEDULE 3 – STANDARDS FOR DISCHARGES TO WATER

(Section 11 of this Regulation)

PORTION OF EFFLUENT BEING DISCHARGED	RECEIVING WATER (1)(5)(6)					PARAMETER
	<i>Streams, Rivers & Estuaries with Dilution Ratio (2)</i>			<i>Marine</i>		
	<i>Column A</i> ≥40:1 (3)	<i>Column B</i> ≥10:1 (3)	<i>Column C</i> Lakes (surface area ≥ 100 ha)(7)	<i>Column D</i> Open Marine Waters	<i>Column E</i> Embayed Marine Waters	<i>Column F</i>
	Maximum Daily Flow ≥ 50 m ³ /d					
Treatment requirement for daily flows up to 2.0 times ADWF	Secondary	High Quality Secondary	Secondary	Secondary	Secondary	
Effluent Quality for daily flows up to 2.0 times ADWF (4)	45	10	45	45	45	BOD ₅ , mg/L
	45	10	45	45	45	TSS, mg/L (13)
	6.0-9.0 (8) (11)	6.0-9.0 (8) (11)	6.0-9.0 (8) (11)	6.0-9.0 (8) (11)	6.0-9.0 (8) (11)	pH
	1.0 (10)	1.0 (10)	1.0 (10)	-	1.0 (10)	Total phosphorus (P), mg/L
	0.5 (10)	0.5 (10)	0.5 (10)	-	0.5 (10)	Ortho phosphate as (P), mg/L
	(12)	(12)	(12)	(12)	(12)	Ammonia
Interim Treatment requirement for daily flows greater than 2.0 times ADWF (4)	Primary	High Quality Secondary	Primary	Primary	Primary	

PORTION OF EFFLUENT BEING DISCHARGED	RECEIVING WATER (1)(5)(6)					PARAMETER	
	Streams, Rivers & Estuaries with Dilution Ratio (2)			Marine			
	Column A ≥40:1 (3)	Column B ≥10:1 (3)	Column C Lakes (surface area ≥ 100 ha)(7)	Column D Open Marine Waters	Column E Embayed Marine Waters		Column F
	Maximum Daily Flow ≥ 50 m ³ /d (continued)						
Interim Effluent quality for daily flows greater than 2.0 times ADWF (4)	130	10	130	130	130	BOD ₅ , mg/L	
	130	10	130	130	130	TSS, mg/L	
	(8) (11)	(8) (11)	(8) (11)	(8) (11)	(8) (11)	Disinfection, Coliforms	
	(12)	(12)	(12)	(12)	(12)	Ammonia	
Maximum Daily Flow <50 m³/d and ≥10 m³/d							
Treatment requirement	Secondary	High Quality Secondary	Secondary	Primary	Secondary		
Effluent quality for all flows	45	10	45	130	45	BOD ₅ , mg/L	
	45	10	45	130	45	TSS, mg/L (13)	
	(8) (11)	(8) (11)	(8) (11)	(8) (11)	(8) (11)	Disinfection, Coliforms	
Maximum Daily Flow < 10 m³/d							
Treatment requirements	Secondary	High Quality Secondary	Secondary	Septic Tank(9)	Septic Tank(9)		
Effluent quality for all flows	45	10	45	--	--	BOD ₅ , mg/L	
	45	10	45	--	--	TSS, mg/L (13)	
	(8) (11)	(8) (11)	(8) (11)	--	--	Disinfection, Coliforms	

Numeric values in parentheses refer to numbered explanations in the explanatory notes, Appendix 1 to Schedule 3

< means less than

≤ means less than or equal to

≥ means greater than or equal to

APPENDIX 1 TO SCHEDULE 3 EXPLANATORY NOTES

- 1 Effluent quality standards for all receiving water discharges are based on the use of an outfall which provides a combination of depth and distance to produce a minimum 10:1 initial dilution within the initial dilution zone.
- 2 For estuaries, the stream flow is the fresh water content.

- 3 If the dilution ratio is less than 100:1 the environmental impact study must determine if effluent quality needs to be better than that shown in Schedule 3. If the dilution ratio is below 40:1 and the receiving stream is used for recreational or domestic water extraction within the influence of the discharge or for seasonal discharge, discharge is not authorized unless an environmental impact study shows that the discharge is acceptable, and, in the opinion of the manager, no other solutions are available and written authorization from the manager is obtained. For seasonal discharges or where the receiving stream is not used for recreational or domestic water extraction, the manager may in writing authorize a minimum dilution ratio of 20:1 for column A.
- 4 Treatment and effluent quality requirements are determined by daily flow multiples which require secondary treatment for all flows up to and equaling 2.0 times the ADWF. As set out in condition 17 to Schedule 1, a liquid waste management plan or specific study and implemented measures is required if flows exceed 2.0 times ADWF during a storm or equivalent snowmelt event with a less than 5-year return period. In the interim, if flows exceed 2.0 times ADWF, a lesser standard of treatment may be allowed for existing discharges, but must not be less than primary. For areas of the province where permafrost or freezing ground conditions require, in accordance with a practise approved by the local building inspector or equivalent, connection of roof drains to the sanitary sewer system, the manager may, in writing, increase the factor from 2.0 times to a maximum of 3.0 times.
- 5 All outfalls must be marked on shore with an appropriate sign. Information required is the length and depth of the outfall. The minimum size of the sign is 1.0 m^2 and the colours of the lettering and the background must be of sufficient contrast that the wording is clearly visible. The wording on the sign must be to the satisfaction of the manager.
- 6 The discharger must also ensure that requirements of Schedule 5 are met, if applicable.
- 7 See requirements of Schedule 5.
- 8 The allowable number of fecal coliform organisms in the effluent are dependent on the use of the receiving water. For discharges to shellfish bearing waters the number of fecal coliform organisms outside the initial dilution zone must be less than 14/100 mL (“the median number of fecal coliform organisms in a water sample does not exceed 14/100 mL, with not more than 10% of the samples exceeding 43/100 mL”, from “Canadian Shellfish Sanitation Program, Manual of Operations”). For discharges to recreational use waters the number of fecal coliform organisms outside the initial dilution zone must be less than 200/100 mL. Where domestic water extraction occurs within 300 meters of a discharge the median number of fecal coliform organisms must be less than 2.2/100 mL in the effluent with no sample exceeding 14/100 mL. The geometric mean, as determined from the bacteriological results of the last 5 samples for which analyses have been completed over the last 30 days, must not exceed the coliform limits specified, and for this purpose, “**geometric mean**” means the anti-logarithm of a calculation in which the logarithms of a series of numerical measures are summed and divided by the number of numerical measures.
- 9 Septic tank treatment requires a hydraulic capacity of at least 2 days minimum detention time at the design maximum daily flow. An effluent filter, screen or equivalent measures to protect pumps and prevent discharge of solids and floatables is required. For small, remote, seasonal discharges the manager may waive the requirement for an effluent filter.
- 10 The total and ortho phosphorus criteria may be waived, by the manager in writing, if it can be shown by an environmental impact study that receiving waters would not be subject to an undesirable

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 Schedule 4 – Standards for Discharges into Ground (Appendix 1 Note 1)

degree of increased biological activity because of the phosphorus addition. Alternatively, an environmental impact study may show that lower effluent concentrations than are tabulated are necessary, or that a mass load criteria may be needed.

- 11 If required to satisfy section 8 of this regulation.
- 12 The maximum allowable effluent ammonia concentration at the “end of pipe” must be determined from a back calculation from the edge of the initial dilution zone. The back calculation must consider the ambient temperature and pH characteristics of the receiving water and known water quality guidelines.
- 13 For lagoon systems, the maximum TSS level must not exceed 60 mg/L.

**SCHEDULE 4 –
 STANDARDS FOR DISCHARGES INTO GROUND (APPENDIX 1 NOTE 1)**

(Section 12 of this regulation)

General

- 1
 - (1) In this note, “**subsurface travel time**” means the actual time, including both the time the effluent spends in the unsaturated and saturated zones, required for the effluent to travel from the bottom of the disposal trench or point of release to the ground to the point if the effluent
 - (a) surfaces,
 - (b) reaches a property line, or
 - (c) is intercepted by a water well.
 - (2) The discharger must demonstrate that the subsurface travel time before effluent reaches the property boundary, is intercepted by a water well or surfaces is not less than 6 days for class A or class B effluent and is not less than 10 days for class C or D effluent as defined in Table 1.
- 2 The discharger must demonstrate that the discharge does not surface nor cause the groundwater table to be raised to the surface:
 - (a) within a distance of 30 m beyond the disposal site perimeter on the property of the discharger or Crown land or land owned by others, and
 - (b) at a distance greater than 30 m on the property of the discharger or Crown land or on land owned by others, unless it can be demonstrated to the satisfaction of the manager that the discharge does not cause water quality parameters to exceed known water quality guidelines.
- 3 For the purpose of note 2 (b) of this Schedule, it must be demonstrated that the surfaced effluent will not adversely impact property owners, residents and users.
- 4 For the purpose of this Schedule, the maximum daily flow is to be based on the requirements of note 2 and note 6 of Appendix 1, and
 - (a) if a sewage disposal system serves more than one parcel of land, the estimated or actual total flow must be calculated by summing the estimated total sewage flow of all discharges of sewage directed to the disposal system;

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Schedule 4 – Standards for Discharges into Ground (Appendix 1 Note 1)

- (b) if there is more than one sewage disposal system located within a strata plan or, if no strata plan applies, located on a parcel of land, the estimated or actual total sewage flow must be calculated by summing the estimated total sewage flow for all discharges of sewage directed to all sewage disposal systems located within the strata plan or on the parcel of land.
- 5 Effluent from an exfiltration basin is a class C effluent except that if the exfiltration basin is located within 300 m of a drinking water source its effluent must meet class A requirements.
- 6 The numeric values in parentheses refer to numbered explanations in the explanatory notes, Appendix 1 to Schedule 4.

Table 1 - Effluent Class Definition

Effluent Class	Description	Effluent Quality Parameters (maximum values)				
		BOD ₅ (mg/L)	TSS (mg/L)	Fecal Coliform (number of fecal coliform organisms /100ml)	Turbidity (NTU)	Nitrogen (mg/L)
A	high quality secondary (drinking water well within 300 m)	10	10	median - 2.2 any sample - 14	average - 2 any sample - 5	Nitrate-N - 10 Total N - 20
B	high quality secondary	10	10	*	N/A	N/A
C	secondary	45	45 (10)	N/A	N/A	N/A
D	typical septic tank	N/A	N/A	N/A	N/A	N/A

N/A means not applicable

*A fecal coliform limit of 400/100mL applies to discharges designed to meet the requirements of Row 2 to Table 3.

Table 2 - Requirements for Discharges (Maximum Daily Flow) less than 37 m³/d (2)

	Effluent Class	Drainage Pipe Length (4)	Minimum unsaturated soil depth (5) (m)	Continuous Monitoring Required
Row 1	A (3)	Table 4	0.5	Yes
Row 2	B (3)	Table 4	0.5	Yes
Row 3	C	Table 4	0.75	No
Row 4	D	Table 4	0.75	No

Table 3 - Requirements for Discharges (Maximum Daily Flow) equal to or greater than 37 m³/d (6)

	Effluent Class	Drainage Pipe Length (4)	Minimum unsaturated soil depth (5) (m)	Maximum Percentage Reduction in Disposal Field Length	Continuous Monitoring Required
Row 1	A (3)	Table 4	0.5	40	Yes
Row 2	B (3)	Table 4	0.5	40	Yes
Row 3	C (3)	Table 4	1.0	0	No
Row 4	D	Table 4	1.0	0	No

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 Schedule 4 – Standards for Discharges into Ground (Appendix 1 Note 1)

Table 4 - Minimum Drainage Pipe Length

	Number of metres of drainage pipe for each 10 m ³ /d of Maximum Daily Flow for percolation rates shown						
Percolation rate; minutes/25 mm	2 (7) (8)	5 (7)	10	15	20 (9)	25 (9)	30 (9)
Effluent Class Prior to Application: A, B or C	50	75	100	110	120	135	150
Effluent Class prior to Application: D	120	215	280	320	360	400	430

**APPENDIX 1 TO SCHEDULE 4
EXPLANATORY NOTES**

- 1 The discharger must ensure that requirements of Schedule 5 are met, if applicable.
- 2 Flow calculation must be based on B.C. Reg. 411/85, the Sewage Disposal Regulation.
- 3 The use of a drainfield in this category requires filtration to prevent solids carrying over into the disposal field. Monitoring controls must be maintained to signal an alarm when filtration begins to malfunction.
- 4 Use of chamber distribution systems with equivalent length are permissible. The bottom of the side-wall or “foot” of the chamber is considered to be the trench bottom.
- 5 Measured from the trench bottom to the highest water table including the ground water mounding effect or restrictive layer where, in this note and note 7 of this Appendix, “**ground water mound effect**” means the vertical rise in the water table that occurs in response to a discharge.
- 6 For flows equal to or greater than 37 m³/d only, and if water conservation measures are employed and a restrictive covenant is placed on each property requiring that water conservation measures are continuously employed, actual maximum daily flow may be used to design the treatment works and the disposal system. Notwithstanding Schedule 6 flow monitoring requirements, if actual maximum daily flow is used, daily discharge volume monitoring is required. If actual maximum daily flow is not used, flow calculation must be based on B.C. Reg. 411/85, the Sewage Disposal Regulation.
- 7 For discharges equal to or greater than 37 m³/d only, if the soils are well drained and if the depth to groundwater including any ground water mounding effect is greater than 1.0 m below the bottom of the drainage trench, a qualified professional may design the ground disposal system with deeper narrower trenches and the drainage pipe length may be reduced to a value equal to the product of Table 4 pipe length and a factor of $1/H^{0.5}$ or 0.8 (whichever factor is greater), where H is the drainage trench depth below pipe invert in metres.
- 8 Percolation rates less than 2 minutes per 25 mm are too fast for adequate renovation and drainfields will not be permitted, unless hydrogeological studies show that local groundwater quality can be met at the property boundary. For discharges of less than 37 m³/d only, use of AMERICAN SOCIETY OF TESTING MATERIALS C33 sand mounding or AMERICAN SOCIETY OF TESTING MATERIALS C33 sand-filled trenches to reduce percolation is permitted if Class B or A effluent is discharged by pressure distribution.

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- 9 Percolation rates more than 20 minutes per 25 mm require the construction to be supervised by a qualified professional to have been carried out in a manner which has not reduced the trench wall permeability unless, for discharges less than 37 m³/d only, the native undisturbed permeable soil depth exceeds 1.35 m.
- 10 For lagoon systems, the maximum TSS level must not exceed 60 mg/L.

**SCHEDULE 5 –
 GEOGRAPHICAL AREAS REQUIRING ADVANCED TREATMENT (8)**

(Section 13 of this Regulation)

(Numeric values in parentheses refer to numbered explanations in the explanatory notes, Appendix 1 to Schedule 5)

Table 1 - Discharges to Surface Waters

Geographical Area	Total Phosphorus (annual average in mg L) (1)(2)(3)(4)	Total Nitrogen (mg/L)(1)	Minimum Outfall Depth (m)
Okanagan Basin (*)	≤ 0.25	≤ 6.0	≥ 40
Christina Lake Basin	≤ 0.25	--	--
Thompson River at Kamloops	≤ 0.25	--	--
Cowichan River	≤ 0.25	--	--
Nicola River at Merritt	≤ 0.25	--	--
Cheakamus River at Whistler	≤ 0.25	--	--

* discharges from treatment facilities not owned by a municipality are prohibited

Table 2 - Discharges to Land.

Column A - Name of Aquifer	Column B - Location	Column C - Total Nitrogen Limit (mg/L) (5)
Abbotsford-Sumas Aquifer	Abbotsford	10
Hopington	Langley	10
Langley/Brookwood	Langley	10
Lower Nechako River	Prince George	10
Lower Cowichan River	Duncan	10
Grand Forks	Grand Forks	10
Merritt	Merritt	10
Osoyoos West	Osoyoos	10
Osoyoos East	Osoyoos	10
(**)	Osoyoos Lake to Tuc-el-Nuit Lake	10
Vedder River Fan	Chilliwack	10
(**)	Tuc-el Nuit Lake to Vaseux Lake	10

** As described in column B

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 Schedule 5 – Geographical Areas Requiring Advanced Treatment (8)

Table 3 - General

Geographical Area	Requirements
Saanich Inlet	discharge restricted (6)
Shuswap Lake, Mara Lake and Lakes with a surface area less than 100 ha	discharge restricted (7)
Southern Interior Region, Interior Douglas Fir Biogeoclimatic Zone, the Ponderosa Pine Biogeoclimatic Zone, Montana Spruce Biogeoclimatic Zone or the Bunchgrass Biogeoclimatic Zone	discharge to surface waters restricted (7)
Within the boundary of a commercial shellfish lease or known native or recreational shellfish harvesting area	discharge prohibited

**APPENDIX 1 TO SCHEDULE 5
 EXPLANATORY NOTES**

- 1 These levels refer to limits for direct discharges only; irrigation activities within the watershed are exempt.
- 2 Alternative limits may be specified in writing by the manager.
- 3 In lieu of an annual average, a maximum seasonal loading rate may be established by the manager.
- 4 No single value is to exceed 2.0 mg/L. Annual average to be calculated based on sampling method and frequency to be established by the manager.
- 5 The manager may impose alternate requirements based on the recommendations of an environmental impact study conducted by the discharger.
- 6 Moratorium on discharges subject to an enhanced environmental impact study to be undertaken as recommended by the Saanich Inlet Study.
- 7 The discharger must conduct an environmental impact study with the terms of reference to be established in consultation with the manager and must demonstrate to the satisfaction of the manager that advanced treatment will protect the receiving environment.
- 8 Limits specified in this Schedule are effluent quality limits. Requirements of this Schedule are in addition to requirements imposed by Schedule 3 or 4.

**SCHEDULE 6 –
MONITORING REQUIREMENTS⁽¹⁾⁽²⁾**

(Section 26 of this Regulation)

(Numeric values in parentheses refer to numbered explanations in the explanatory notes, Appendix 1 to Schedule 2)

Table 1 - Discharges to Surface Waters

Flow Category	Maximum Daily Flow Range (m ³ /d)	Frequency of Data Submission to Manager	Flow (4)			BOD ₅ (3), TSS		NH ₄ -N, PO ₄ -P, total phosphorus Discharge to Fresh-water Receiving Environment		NH ₄ -N Discharge to Marine Receiving Environment		Fecal Coliforms (5)	
			Freq.	Freq.	Type	Freq.	Type	Freq.	Type	Freq.	Type	Freq.	Type
0	<10	2X/Y	2X/M	Q(6)	G	N	--	N	--	N	--	N	--
1	≥10 - <500	2X/Y	W	Q	G	N	--	N	--	Q	G	Q	G
2	≥500 - <5000	2X/Y	2X/W	M	G	6 X/Y	G	Q	G	6 X/Y	G	6 X/Y	G
3	≥5000 - <50,000	2X/Y	D	W	G	M	G	6 X/Y	G	M	G	M	G
4	≥50,000 - <200,000	Q	D	2 X/W	C ₃	2 X/M	C ₃	M	C ₃	2 X/M	G	2 X/M	G
5	≥200,000	Q	D	5 X/W	C ₃	W	C ₃	2 X/M	C ₃	W	G	W	G

< means less than

≥ means greater than or equal to

Table 2 - Discharges to Land

Effluent Class	Flow Category	Maximum Daily Flow Range (m ³ /d)	Frequency of Data Submission to Manager	Flow (4)			BOD ₅ (3), TSS		Nitrogen Total, NO ₃ as N		Turbidity		Fecal Coliforms	
				Freq.	Freq.	Type	Freq.	Type	Freq.	Type	Freq.	Type	Freq.	Type
D	1	<50	2X/Y	W	N	--	N	--	N	--	N	--	N	--
D	2	≥50 - <500	2X/Y	2 X/W	N	--	N	--	N	--	N	--	N	--
D	3	≥500	Q	D	N	--	N	--	N	--	N	--	N	--
C	1	<50	2X/Y	W	Q	G	N	--	N	--	N	--	N	--
C	2	≥50 - <500	2X/Y	2 X/W	M	G	N	--	N	--	N	--	N	--
C	3	≥500	Q	D	2 X/M	C ₃	N	--	N	--	N	--	N	--
B	1	<50	2X/Y	W	M	G	N	--	N	--	N	--	N	--
B	2	≥50 - <500	2X/Y	2X/W	2 X/M	G	N	--	N	--	N	--	N	--
B	3	≥500	Q	D	W	C ₃	N	--	N	--	N	--	N	--
A	1	<50	2X/Y	W	M	G	M	G	M	G	M	G	M	G
A	2	≥50 - <500	2X/Y	2 X/W	2 X/M	G	2 X/M	G	W	G	W	G	W	G
A	3	≥500	Q	D	W	C ₃	W	C ₃	D	C ₃	D (7)	C ₃	C ₃	

< means less than

≥ means greater than or equal to

Table 3 - Toxicity Monitoring Requirements for Discharges to Surface Waters

Flow Category	Maximum Daily Flow Range (m ³ /d)	Frequency of Data Submission to Manager	Toxicity (8)			
			Column 4 - Regular (9)		Column 5 - After Confirmed Failure (10)	
			Freq.	Type	Freq.	Type
0	<10	N	N	--	N	--
1	≥10 - <500	1/3Y	1/3Y	G	Q	G
2	≥500 - <5000	1/2Y	1/2Y	G	Q	G
3	≥5000 - <25000	A	A	G	6X/Y	G
3a	≥25000 - <50,000	2X/Y	Q	C ₃	2X/M	C ₃
4	≥50,000 - <200,000	Q	6X/Y	C ₃	W	C ₃
5	≥200,000	M	M	C ₃	W	C ₃

< means less than

≥ means greater than or equal to

APPENDIX 1 TO SCHEDULE 6 EXPLANATORY NOTES

- 1 All of these requirements are minimum for the first two years of discharge after which, based on the monitoring data, written recommendations of a qualified professional, or any other information related to the discharge or the receiving environment, the manager may in writing alter these requirements.
- 2 Sampling Frequency (Freq.) and Type
 - N = No monitoring requirement
 - 1/3Y = Once every three years
 - 1/2Y = Once every two years
 - A = Annually
 - Q = Quarterly
 - 2 X/Y = Two times per year
 - 6 X/Y = Six times per year
 - M = Monthly
 - 2 X/M = Two times per month
 - W = Weekly
 - 2 X/W = Two times per week
 - 5 X/W = Five times per week
 - D = Daily
 - C₃ = Sample composited in proportion to flow over 24 hours.
 - G = Grab sample
- 3 COD may be used in place of BOD₅ if BOD₅ is examined with COD every fifth sampling.
- 4 For seasonal or intermittent discharges, the discharger must meet the requirements for frequency and sampling methods of flow measurements and parameters to be analyzed as established by the manager.

- 5 Monitoring for fecal coliforms is only required if disinfection of the effluent is a requirement.
- 6 For marine discharges in this flow category, monitoring of BOD₅ and TSS is not required.
- 7 Based on an initial 60 days of compliance with the quality limit, the discharger must conduct weekly presence or absence testing for coliform monitoring. If the presence of any coliform is detected, daily fecal coliform testing must be reinstated until the quality limit is in compliance. Fourteen tests must be conducted to demonstrate that the discharge is back in compliance and then weekly presence/absence testing must be resumed.
- 8 When conducting a confirmation toxicity test in accordance with note 9 or when monitoring in accordance with column 5, the discharger must also monitor ammonia levels at the same time. The temperature and pH of the sample at the time of sampling must be recorded.
- 9 If a toxicity test is failed, the discharger must notify the manager immediately and conduct a confirmation toxicity test within 7 days of the date of the previous toxicity sample was taken.
- 10 If two consecutive toxicity tests are failed, monitoring is to be conducted at a frequency specified by column 5, until three consecutive toxicity tests are passed, after which testing reverts to the frequency specified in column 4.

SCHEDULE 7 – DESIGN STANDARDS FOR SEWAGE FACILITIES

(Condition 11 in Schedule 1)

1 General

- (1) Environmental impact studies must be undertaken for facility siting, as set out in condition 8 of Schedule 1.
- (2) The discharger must demonstrate to the satisfaction of the manager that any proposed alternative measures:
 - (a) meet or exceed the requirements of this Schedule;
 - (b) do not adversely affect the performance of the sewage facility;
 - (c) do not adversely affect the receiving environment.
- (3) Based on any information related to the discharge or the receiving environment, or both, the manager may require additional or alternative measures to protect the environment.

2 Treatment Facilities

- (1) Treatment facilities must be designed to achieve the applicable effluent quality standards in Schedules 2 to 5 at all times.
- (2) Design criteria must ensure that average effluent values are substantially better than the maximum limits specified such that the maximum limits are met at all times.
- (3) The design must consider the operation certification level of staff and the availability of professional or specialist advice.
- (4) Duplicate or standby facilities are required as described in Appendix 1 to Schedule 7.

- (5) Reliability categories must be determined based on the environmental impact study results.
- (6) Reliability categories are defined as follows:
 - (a) Category I - Treatment works for reclaimed water or that discharge to waters or land that could be permanently or unacceptably damaged by effluent that is degraded in quality for even a few hours (for example, discharges near drinking water sources, shellfish waters or waters used for contact sports where “**shellfish waters**” means water bodies that have or could have sufficient shellfish quantities that recreational or commercial harvesting would take place or water for which commercial shellfish leases have been issued);
 - (b) Category II - Treatment works that discharge to waters or land that would not be permanently or unacceptably damaged by short term effluent degradation, but would be damaged by continued (several days) effluent quality degradation (for example discharges to recreational land and waters);
 - (c) Category III - Treatment works not otherwise designated as Category I or II.
- (7) Biosolids or sludge must not be discharged into outfalls.
- (8) Disinfectants must be completely mixed with effluent before entering the contact tanks.
- (9) Septic tanks must have a hydraulic capacity of at least 2 day minimum detention time at maximum daily flow.

3 Pumping Facilities

- (1) A minimum of 2 pumps are required with each pump capable of pumping peak design flows.
- (2) For larger pumping stations where multiple pumps are required, the station must have sufficient capacity to pump peak design flow with largest pump out of service.
- (3) Standby power is required as follows:
 - (a) for a 2 pump station, a receptacle for a portable generator;
 - (b) for multiple pump station, an on-site generator.
- (4) Provision must be made so that standby power is activated prior to the hydraulic capacity of the pump station being exceeded.

4 Outfalls

- (1) Outfall analysis and design must be carried out by a qualified professional.
- (2) Outfall design must be according to initial dilution zone specifications (section 5 of this regulation) and incorporate the following minimum standards:
 - (a) an outfall diffuser must be designed and located
 - (i) at a sufficient depth to maximize the frequency that trapping of the effluent below the surface of the water body occurs,
 - (ii) to ensure that the discharge does not cause water quality parameters, outside the initial dilution zone, to exceed known water quality guidelines,

- (iii) to intercept the predominant current and avoid small currents that tend to move in toward the shore, and
- (iv) in the channel in which most of the water of the river or stream flows to achieve maximum dilution;
- (b) an outfall to marine waters, estuaries, or lakes with a surface area greater than 100 ha, must meet the depth, flow and distance standards set out in Appendix 2 to Schedule 7;
- (c) subject to the requirements of Schedule 5, the minimum depth below mean low water for any outfall located in marine waters, or lakes with a surface area greater than 100 ha, is 10 m;
- (d) a diffuser section that will provide a minimum 10:1 dilution within the initial dilution zone;
- (e) the prevention of air entrapment;
- (f) protection from wave, boat and marine activity;
- (g) adequate weighting to prevent movement from currents, ice or possible entrainment of air;
- (h) corrosion protection;
- (i) protection from damage during construction.

5 Discharges into Ground

- (1) Design must be carried out by qualified professional.
- (2) The following standards must apply to exfiltration and rapid infiltration basins:
 - (a) at least 2 basins must be provided, to allow cleaning of one basin to proceed while the others is in operation, and to act as a safety factor for unusual conditions;
 - (b) for 2 basin systems, each basin must be capable of accepting all the effluent under annual average rainfall conditions;
 - (c) setbacks as specified in subsection (3) (h) must be provided.
- (3) If disposal is by sub-surface means, the following standards must apply:
 - (a) the land area must be sufficient to permit application rates as shown in Schedule 4;
 - (b) percolation rates must be determined in accordance with established procedures described in, B.C. Reg. 411/85, the Sewage Disposal Regulation, under the *Health Act*. Alternatively, a qualified professional may use soil classification, coefficient of permeability or other suitable information to determine an equivalent loading rate;
 - (c) examination by a qualified professional is required and if percolation time is greater than 20 minutes, the bed hydraulics must be confirmed by a hydrogeological assessment;
 - (d) sub-surface fields and a surrounding buffer strip at least as wide as the distance prescribed by Row 2 of the Table H must be kept free of building or hard surfacing of any kind and must not be put to uses which may cause damage to the system or interfere with its operation;
 - (e) septic tanks have a screen or filter and must be accessible for pumpout, inspected annually and must be pumped out a minimum of once every 3 years or at a frequency sufficient to ensure that sludge accumulation does not exceed 20% of the tank depth.

Records of pumpout frequency must be submitted to the manager with the annual report;

- (f) a pressure distribution system must be used for drainage pipes fed by a dosing syphon or pump;
- (g) the drainage pipes must be provided in 2 fields with a third undeveloped field being retained as a standby area. Drainfields must be constructed with trenches on 3 m on-centre spacing. If a qualified professional determines that the performance of the drainfield is not adversely altered by varying the spacing a minimum spacing of 2 m is permissible. In the case where less than 3 m on-centre spacing is used, the standby area must be doubled. Except if reductions in length are allowed, each of the 2 developed fields is to have at least the length of drainage pipe indicated in Table 4 of Schedule 4;
- (h) drainfields setback requirements in addition to those specified in Schedule 4:

Table H - Minimum Setback Requirements

	Feature	Minimum Setback Distance	
		Maximum Daily Flow	
		<37 m ³ /d	≥ 37 m ³ /d
Row 1	property boundary	3 m	6 m
Row 2	building drain(*)	5 m	10 m
Row 3	Christina Lake	**	**
Row 4	surface water	30 m	30 m
Row 5	surface water within Okanagan basin	30 m	150 m
Row 6	water well	60 m	90 m
Row 7	water well within an unconfined aquifer	60 m(***)	300 m(****)

- (*) The sewage treatment facility itself is to be considered as a building;
- (**) As determined by adherence to Christina Lake Official Community Plan;
- (***) Based on a hydrogeological assessment to determine the minimum distance required to protect water quality of the water well distance from water well must be extended accordingly;
- (****) Based on a hydrogeological assessment conducted by the discharger to determine the minimum distance required to protect water quality of the water well, the distance from the water well may be reduced or extended as required by the manager. In no case shall the distance be less than 90 m;
 - (i) subsurface visual inspection capability must be provided;
 - (j) trenches must be a minimum of 0.6 m in width. Trench bottoms must be at least 0.3 m below the pipe invert. Pipe cover must meet local frost protection requirements but must not be less than 0.15 m. The drainage pipe must be no less than 70 mm in diameter, unless a pressure distribution system is utilized;
 - (k) seepage beds or mounds must be constructed using AMERICAN SOCIETY OF TESTING MATERIALS C33 sand and must receive written approval from the manager.

- (4) If required, monitoring wells must be installed as determined by a qualified professional in sufficient number and orientation to measure background and receiving environment water quality. Horizontal as well as vertical arrays for sampling must be considered. At least 3 wells per aquifer are necessary and at least one background monitoring well is required.

6 Reclaimed Water Application

- (1) Subject to note 1 to Appendix 1 to Schedule 2, the type of reclaimed water use must be one of those indicated in Schedule 2.
- (2) The provider of reclaimed water must ensure that the design ensures that the Health and Safety Criteria for use of reclaimed water as set out in Appendix 3 to Schedule 7 are met.
- (3) If application of reclaimed water is by irrigation, the following standards must apply:
- (a) if application of reclaimed water is not continuous, seasonal storage or an alternative method of disposal that complies with the standards set out in Schedules 3 and 4 is required;
 - (b) storage ponds must be provided to contain the design average daily effluent flow occurring outside the growing season, plus an allowance from an analysis of the cumulative volumes needed for a reduced irrigation season due to at least 5 years of wet weather equivalent to rainfall or snowmelt events with a 5-year return period. Average rain, seepage and evaporation conditions must be accounted for in the design.
 - (c) the design area to be used for reclaimed water application must be sufficient so that effluent discharge will not be necessary under the following conditions:
 - (i) outside the growing season;
 - (ii) for restricted public access category
 - (A) during and for 3 days prior to harvesting of crops;
 - (B) during and for 6 days prior to grazing by dairy cattle;
 - (C) during and for 3 days prior to pasturing by livestock other than dairy cattle unless the meat is inspected under the Federal Meat Inspection Program;
 - (d) the restricted public access reclaimed water must be confined to the area designated and approved for use by the manager;
 - (e) maximum ground surface slope must not exceed 20%, unless greater slopes are approved in writing by the manager.
- (4) For reclaimed water meeting the unrestricted public access category, the constructed drain field length, as specified in Table 4 to Schedule 4, can be reduced provided the requirements set out in condition 8 of Schedule 1 are met. If design flows have been applied for a period of 5 years without hydraulic problems, the manager may, subject to recommendation by a suitably qualified professional, allow the area of the fields to be reduced.

APPENDIX 1 TO SCHEDULE 7
EQUIPMENT AND PROCESS RELIABILITY CATEGORY FOR TREATMENT FACILITIES

Component	Reliability Category					
	I		II		III	
	Treatment System	Power Source	Treatment System	Power Source	Treatment System	Power Source
Holding basin	Adequate capacity for all flows		Not applicable		Not applicable	
Degritting		Optional		No		No
Primary sedimentation	Multiple units ^a	Yes	Same as category I	Yes	Two minimum ^a	Yes
Trickling filters	Multiple units ^b	Yes	Same as category I	Optional	No backup	No
Aeration basins	Multiple units ^b	Yes	Same as category I	Optional	Single unit permissible	No
Blowers or mechanical aerators	Multiple units ^c	Yes	Same as category I	Optional	Two minimum ^c	No
Diffusers	Multiple sections ^d		Same as category I		Same as category I	
Final sedimentation	Multiple units ^b	Yes	Multiple units ^a	Optional	Two minimum ^a	No
Chemical flash mixer	Two minimum or backup ^e	Optional	No backup	Optional	Same as category II	No
Chemical sedimentation	Multiple units ^b	Optional	No backup	Optional	Same as category II	No
Flocculation	Two minimum ^a	Optional	No backup	Optional	Same as category II	No
Effluent filters	Two minimum ^b	Yes	Same as category I	Yes	Same as category I	Yes
Disinfection basins	Multiple units ^b	Yes	Multiple units ^a	Yes	Same as category II	No
Aerobic digesters	Two minimum ^a	Yes	Same as category I	Optional	Single Unit	No
Anaerobic digesters	Two minimum ^a	Yes	Same as category I	Optional	Two Minimum	No
Facultative lagoons	Two cells ^b		Two cells		Two cells	
Aerated lagoons	Two cells ^b	Yes	Two cells	Optional	Two cells	No
Package treatment plants	Multiple units ^{b,f} or ability to repair within 48 hours	Yes	Two units or ability to repair single unit within 48 hours	Yes	Single unit may be permissible	No

- a Remaining capacity with largest unit out of service must be for at least 50% of the design maximum flow.
- b Remaining capacity with largest unit out of service must be for at least 75% of the design maximum flow.
- c Remaining capacity with largest unit out of service must be able to achieve design maximum oxygen transfer; backup unit need not be installed.
- d Maximum oxygen transfer capability must not be measurably impaired with largest section out of service.
- e If only one basin, backup system must be provided with at least 2 mixing devices (one may be installed).
- f Effluent filtration is required in conjunction with ground disposal.

APPENDIX 2 TO SCHEDULE 7
OUTFALL DEPTH, FLOW AND DISTANCE CALCULATIONS
FOR MARINE, ESTUARY AND LAKE DISCHARGES

- 1 For discharges less than 5000 m³/d,
- (a) Q_c must be greater than or equal to Q_a, where:
- Q_a = the maximum daily flow (m³/d),
- Q_c = the calculated critical flow (m³/d) and is calculated as described below,
- D = depth (m) of the shallowest diffuser port below mean low water and must be equal to or greater than 10 m, and
- d = distance (m) to the closest port of the diffuser from the mean low water mark and must be equal to or greater than 30 m
- and
- (b) Q_c must be the greater positive value of Q_{c1} or Q_{c2}, where:
- Q_{c1} = (D+0.075d-21) / 0.0029
- and
- Q_{c2} = (D+0.075d-12.225) / 0.025
- 2 For outfalls with a diffuser, the terminus, for the purposes of the calculation in note 1, must be considered as the closest and shallowest port.
- 3 For discharges greater than 5000 m³/d, depth and distance to be determined by environmental impact study and computer modeling of the discharge.

APPENDIX 3 TO SCHEDULE 7
HEALTH AND SAFETY CRITERIA FOR USE OF RECLAIMED WATER

1 Construction Criteria

- (1) All reclaimed water valves, outlets, quick couplers and sprinkler heads must be of a type or secured in a manner that only permits operation by personnel authorized by the user. All piping, valves and outlets must be marked to differentiate reclaimed water from domestic water. All reclaimed water controllers, valves, etc., must be affixed with reclaimed water warning signs. All piping must be of a distinct colour to differentiate reclaimed water from domestic water.
- (2) Use or installation of hose-bibbs on any irrigation system presently operating, or designed to operate with reclaimed water, regardless of the hose-bibb construction or identification, is not permitted unless it can be demonstrated to the manager that special circumstances justify their use.
- (3) There must be at least a 3 metre horizontal and a 0.3 metre vertical separation (with domestic water above the reclaimed water pipeline) between all pipelines transporting reclaimed water and those transporting domestic water.

- (4) There must be no irrigation or impoundment of reclaimed water within 30 metres of any water well or in-ground reservoir used for domestic supply unless it can be demonstrated to the manager that special circumstances justify lesser distances to be acceptable.
- (5) There must be no connection between a potable water supply, irrigation water or industrial wells and piping containing reclaimed water, except through an air gap separation or reduced pressure principle device.
- (6) Impoundments must have perimeter signs indicating that the reclaimed water stored is not safe for drinking (e.g. ATTENTION: RECLAIMED WASTEWATER - DO NOT DRINK, bliss symbols should be used).
- (7) Impoundments must be designed, operated and maintained to minimize fluid leakage. Any leakage must not aggravate or produce soil or bedrock instability or erosion elsewhere or impact ground or surface water quality.
- (8) The perimeter of the disposal area must be graded to prevent ponding along public roads or other public areas.
- (9) For the restricted public access category of reclaimed water, fencing or other barriers must be installed, where needed, to restrict public access.
- (10) At areas irrigated with reclaimed water, warning signs must be posted in sufficient numbers and size and at strategic locations to advise the public that reclaimed water is being used and is not safe for drinking purposes and for the restricted public use category for personal contact as well (e.g., Warning -RECLAIMED WATER - AVOID CONTACT - DO NOT DRINK; bliss symbols, and the “Mr. Yuck” symbol).

2 Operation Criteria

- (1) Restricted public access reclaimed water must be confined to the area designated and approved for use (e.g., wind blown spray must be prevented from leaving the property). For use of reclaimed water on parks, playgrounds and school grounds the reclaimed water provider must ensure that no direct contact between the reclaimed water and any person occurs while irrigation is occurring.
- (2) Precautions must be taken to ensure that reclaimed water will not have contact with any facility or area not designated for use, such as passing vehicles, buildings, domestic water facilities or food handling facilities.
- (3) Drinking water facilities must be protected from direct or wind blown reclaimed water spray.
- (4) Tank trucks and other equipment which are used to distribute reclaimed water must be clearly identified with warning signs.
- (5) Adequate measures must be taken to prevent the breeding of insects and other vectors of health significance, and the creation of odors, slimes or unsightly deposits.
- (6) Golf score cards and signage posted at visible locations must indicate that reclaimed water is used.
- (7) Irrigation with reclaimed water must not occur within 60 m of areas where food is handled or consumed.

- (8) Irrigation must be controlled to prevent ponding and run-off of reclaimed water.
- (9) Direct public contact with reclaimed water must be minimized.
- (10) A contingency plan including provisions for notification of local health authorities, must be developed outlining the action to be taken in the event effluent quality fails to meet required standards and which identifies alternative methods of disposal during a series of wet years.

3 Notification

- (1) The provider of reclaimed water must provide, on request, to the manager and to local health authorities reports containing information on:
 - (a) the quality and quantity of reclaimed water;
 - (b) the use (method of irrigation and the crop(s) and area(s) irrigated);
 - (c) the reason for non-compliance with these health criteria, if appropriate, and corrective action taken.

[Provisions of the *Waste Management Act*, R.S.B.C. 1996, c. 482, relevant to the enactment of this regulation: section 57 (1) and (3)]