



**CODE OF PRACTICE FOR
WASTEWATER SYSTEMS USING A
WASTEWATER LAGOON**

September 2003

*made under the Environmental Protection and Enhancement Act,
RSA 2000, c.E-12
and the Wastewater and Storm Drainage Regulation, A.R. 119/93*

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ALBERTA ENVIRONMENT

**CODE OF PRACTICE FOR WASTEWATER SYSTEMS USING A
WASTEWATER LAGOON [made under the *Environmental
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and the *Wastewater and Storm Drainage Regulation, A.R. 119/93****

September 2003

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PART 1: DEFINITIONS

1.1 All definitions in the Act and the regulations apply except where expressly defined in this Code of Practice.

1.2 In this Code of Practice:

- (a) “Act” means the *Environmental Protection and Enhancement Act*, R.S.A. 2000, c.E-12, as amended from time to time;
- (b) “designed frequency of discharge” means the number of discharges per year set out in the engineering design drawings and specifications for the wastewater lagoon and in some cases, may be zero, but does not include the withdrawal of treated wastewater for irrigation;
- (c) “disinfection” means the chemical or physical process of treating the wastewater treatment plant discharge to inactivate microorganisms;
- (d) “geometric mean” means the calculated n^{th} root of the product of all the sample analyses within the reporting period, where n equals the total number of samples within the reporting period, as follows:

$$\text{Geometric Mean: } \sqrt[n]{S_1 \times S_2 \times S_3 \times \dots \times S_n}$$

where,

n = the total number of samples within the reporting period,

S_1 = the 1st sample analysis value

S_n = the n^{th} sample analysis value;

- (e) “grab” means, when referring to a sample, an individual sample collected in less than 30 minutes and which is representative of the substance sampled;
- (f) “low pressure wastewater collection system” means a wastewater collection system from which domestic wastewater is discharged periodically into a pressure main by means of a grinder pump capable of grinding the solids in the wastewater;
- (g) “park” means any common area that is accessible to the public;
- (h) “professional engineer” means a professional engineer or registered professional technologist (engineering) under the *Engineering, Geological and Geophysical Professions Act*;
- (i) “regulations” means the regulations under the Act;

- (j) “this Code of Practice” means the *Code of Practice for Wastewater Systems Using a Wastewater Lagoon*, published by the Department, as amended or replaced from time to time; and
- (k) “vacuum wastewater collection system” means a wastewater collection system from which domestic wastewater is discharged periodically into a vacuum main, which maintains a vacuum in the system.

PART 2: GENERAL PROVISIONS

- 2.1.1 Any person who constructs, operates or reclaims a wastewater system that uses a wastewater lagoon as a wastewater treatment plant, must do so in accordance with this Code of Practice.
- 2.1.2 Any conflict between the registration application and the terms and conditions of this Code of Practice shall be resolved in favour of this Code of Practice.
- 2.1.3 The terms and conditions of this Code of Practice do not affect any rights or obligations created under any other authorization issued or adopted by Alberta Environment.
- 2.1.4 The terms and conditions of this Code of Practice are severable. If any term or condition of this Code of Practice is held invalid, the application of such term or condition to other circumstances and the remainder of this Code of Practice shall not be affected by that invalidity.
- 2.1.5 If the registration holder monitors for any substances or parameters which are the subject of limits in this Code of Practice more frequently than is required, using procedures authorized in this Code of Practice, then the registration holder shall provide the results of such monitoring as an addendum to the next report required by this Code of Practice.

Section 2.2: Analytical Requirements

- 2.2.1 With respect to any sample required to be taken pursuant to this Code of Practice, all samples shall be:
 - (a) collected;
 - (b) preserved;
 - (c) stored;
 - (d) handled; and

- (e) analyzed in accordance with:
 - (i) the *Standard Methods for the Examination of Water and Wastewater*, published by the American Public Health Association, the American Waterworks Association and the Water Environment Federation, as amended or replaced from time to time,
 - (ii) the *Methods Manual for Chemical Analysis of Water and Wastes*, published by the Alberta Research Council, as amended or replaced from time to time, or
 - (iii) a method authorized in writing by the Director.

2.2.2 Any analysis of a sample required pursuant to this Code of Practice shall be done only in an approved laboratory, unless otherwise specified in writing by the Director.

Section 2.3: Contravention Reporting

- 2.3.1 In addition to any reporting required under the Act, the regulations and this Code of Practice, the registration holder shall immediately report any contravention of this Code of Practice to the Director, either:
 - (a) by telephone at (780) 422-4505; or
 - (b) by a method:
 - (i) in accordance with the release reporting provisions in the Act and regulations, or
 - (ii) authorized in writing by the Director.
- 2.3.2 In addition to the immediate report in 2.3.1, the registration holder shall provide a report to the Director:
 - (a) in writing; or
 - (b) by a method:
 - (i) in accordance with the release reporting provisions in the Act and the regulations, or
 - (ii) authorized in writing by the Directorwithin seven (7) calendar days after the discovery of the contravention, or within another time period specified in writing by the Director, unless the requirement for the report is waived by the Director.

- 2.3.3 The report required under 2.3.2 shall contain, at a minimum, the following information:
- (a) a description of the contravention;
 - (b) the date of the contravention;
 - (c) the duration of the contravention;
 - (d) the legal land description of the location of the contravention;
 - (e) an explanation as to why the contravention occurred;
 - (f) a summary of all preventive measures and actions that were taken prior to the contravention;
 - (g) a summary of all measures and actions that were taken to mitigate any effects of the contravention;
 - (h) a summary of all measures that will be taken to address the remaining effects and potential effects related to the contravention;
 - (i) the number of the registration issued under the Act for the wastewater system and the name of the person who held the registration at the time the contravention occurred;
 - (j) the name, address, phone number and responsibilities of all persons operating the wastewater system at the time the contravention occurred;
 - (k) the name, address, phone number and responsibilities of all persons who had charge, management or control of the wastewater system at the time that the contravention occurred;
 - (l) a summary of proposed measures that will prevent future contraventions, including a schedule of implementation for these measures;
 - (m) any information that was maintained or recorded under this Code of Practice, as a result of the incident; and
 - (n) any other information required by the Director in writing.

PART 3: REQUIREMENTS SPECIFIC TO PORTIONS OF THE WASTEWATER SYSTEM

A. WASTEWATER COLLECTION SYSTEMS AND WASTEWATER LAGOONS

PART A3.1: ADMINISTRATION, DESIGN AND CONSTRUCTION REQUIREMENTS

A3.1.1 An application for a registration for a new wastewater system or for changes to an existing wastewater lagoon, as required under the Act and the regulations, shall contain, at a minimum, all of the following information:

- (a) engineering design drawings and specifications for the wastewater system, including the design capacity, stamped and signed by a professional engineer;
- (b) a determination of the adequacy of the discharge route for the transport of the treated wastewater to the ultimate receiving watercourse, without the occurrence of either flooding of adjacent lands or erosion of the land over which the treated wastewater discharge flows;
- (c) confirmation that an easement has been registered on the titles of all privately owned land over which the treated wastewater discharge will flow;
- (d) a statement of the designed frequency of discharge;
- (e) for low pressure wastewater collection systems or vacuum wastewater collection systems, the written opinion of a professional engineer regarding the adequacy of the design of the wastewater system, based, at a minimum, on the designed hydraulic capability of the wastewater collection system;
- (f) a statement, signed and sealed by a professional engineer:
 - (i) indicating whether the design of the project complies with all design requirements of this Code of Practice, and the regulations, and
 - (ii) in cases in which a design requirement is not met, identifying and justifying the deviation;
- (g) proposed groundwater monitoring well locations; and
- (h) any other information required by the Director in writing.

A3.1.2 No person shall dispose of treated wastewater in a manner that was not included in the registration application or in the application for the previous approval unless prior written authorization of the Director has been obtained.

- A3.1.3 An application for a written authorization under A3.1.2 shall contain, at a minimum, all of the following information:
- (a) the owner's name;
 - (b) the approval number or registration number issued under the Act for the wastewater system;
 - (c) a description of the change in method of treated wastewater disposal;
 - (d) the legal land description of the project;
 - (e) written opinion by a professional engineer whether the requirements in Part A4.1 or B, as applicable, of this Code of Practice can be met; and
 - (f) any other information required by the Director in writing.

PART A4.1: OPERATIONAL REQUIREMENTS

General Operational Requirements

- A4.1.1 No release from the wastewater system to the environment is permitted except in accordance with this Code of Practice.
- A4.1.2 Treated wastewater from a wastewater lagoon shall be disposed of only:
- (a) by discharge in accordance with this Code of Practice;
 - (b) by treated wastewater irrigation in accordance with this Code of Practice; or
 - (c) by other methods in compliance with the Act and the regulations.
- A4.1.3 Sludge from a wastewater lagoon shall be disposed of only:
- (a) by application to land in accordance with this Code of Practice; or
 - (b) by other methods in compliance with the Act and the regulations.
- A4.1.4 The registration holder shall:
- (a) at least one week prior to the wastewater lagoon discharge, notify downstream landowners who have expressed interest in the wastewater lagoon discharge; and
 - (b) retain documentation of the notification given.

- A4.1.5 A wastewater lagoon shall be discharged into the environment only:
- (a) at a frequency not exceeding the designed frequency of discharge, or a frequency specified in writing by the Director;
 - (b) between April 1st and November 30th; and
 - (c) in a manner so that each discharge is completed within a period of three consecutive weeks, or a period authorized in writing by the Director.
- A4.1.6 The structural integrity of all portions of the wastewater lagoon shall be maintained as set out in the engineering design drawings and specifications.
- A4.1.7 No discharge from the wastewater lagoon shall cause flooding of downstream adjacent lands or erosion of any watercourse or land over which the treated wastewater discharge flows.

Certified Operator

- A4.1.8 At all times, the operation of the wastewater collection system shall be performed by, or under the direction of, a person who holds a valid wastewater collection certificate of qualification at the applicable level as set out in Table A4-1.
- A4.1.9 At all times, the operation of the wastewater lagoon shall be performed by, or under the direction of, a person who holds a valid wastewater treatment certificate of qualification at the applicable level as set out in Table A4-1.

TABLE A4-1: MINIMUM OPERATOR CERTIFICATE OF QUALIFICATION REQUIREMENTS

Population Served	Minimum Wastewater Collection (WWC) Operator Certificate of Qualification Required	Minimum Wastewater Treatment (WWT) Operator Certificate of Qualification Required
Less than 500	One operator with a Small Wastewater System Certificate	One operator with a Small Wastewater System Certificate
501 to 1,500	One operator with a Level 1 Wastewater Collection (WWC) Certificate	One operator with a Level 1 Wastewater Treatment (WWT) Certificate
1,501 to 15,000	One operator with a Level 2 Wastewater Collection (WWC) Certificate	One operator with a Level 1 Wastewater Treatment (WWT) Certificate
15,001 to 50,000	One operator with a Level 3 Wastewater Collection (WWC) Certificate	One operator with a Level 1 Wastewater Treatment (WWT) Certificate
More than 50,000	One operator with a Level 4 Wastewater Collection (WWC) Certificate	One operator with a Level 1 Wastewater Treatment (WWT) Certificate

PART A5.1: MONITORING REQUIREMENTS

A5.1.1 The wastewater lagoon discharge shall be monitored as specified in Table A5-1.

TABLE A5-1: WASTEWATER LAGOON DISCHARGE MONITORING

Parameters	Sample Type	Sampling Location	Minimum Monitoring Frequency
Carbonaceous Biochemical Oxygen Demand	Grab	Point at which treated wastewater is discharged from the wastewater lagoon	Once during discharge, after the first day of discharge
Total Suspended Solids			

A5.1.2 In addition to the monitoring of the wastewater lagoon required pursuant to A5.1.1, the following information shall also be recorded for each wastewater discharge:

- (a) the measurement, or, if measurement is not possible, estimate of the total volume of discharge; and
- (b) the dates during which discharge took place.

A5.1.3 In the event of an unauthorized release into the environment from the wastewater system:

- (a) all steps possible must be taken to stop the release;
- (b) all steps possible must be taken to mitigate all adverse effects of the release; and
- (c) the unauthorized release from the wastewater system shall be monitored in accordance with TABLE A5-2, if any portion of that unauthorized release may enter or has entered a watercourse.

TABLE A5-2: UNAUTHORIZED RELEASE MONITORING REQUIREMENTS

Parameters	Sample Type	Monitoring Location	Minimum Monitoring Frequency and Minimum Number of Samples
5 day Biochemical Oxygen Demand	Grab	At the release point, before any dilution	One sample during the unauthorized release
Total Suspended Solids			
Ammonia-Nitrogen			
Total Coliform			
Fecal Coliform			

A5.1.4 In addition to any monitoring required in A5.1.3, in the event of an unauthorized release, the total volume of any unauthorized release from the wastewater system into the environment shall be:

- (a) measured, or, if measurement is not possible, estimated; and
- (b) recorded.

Groundwater Monitoring Program

A5.1.5 In addition to any other monitoring required pursuant to the Act or the regulations, or this Code of Practice, a groundwater monitoring program shall be conducted for each wastewater lagoon:

- (a) where there was a requirement to conduct groundwater monitoring, existing just prior to the application of this Code of Practice to the particular wastewater system;
- (b) that is new; or
- (c) that has undergone a structural change that has the potential to affect the treatment.

- A5.1.6 The groundwater monitoring program shall consist, at a minimum, of the following:
- (a) for:
 - (i) a new wastewater lagoon or a lagoon that has undergone a structural change that has the potential to affect the treatment, obtain one sample from each groundwater monitoring well:
 - A. prior to putting the new lagoon into operation; and
 - B. three times, approximately three (3) months apart, during the first year of operation; or
 - (ii) a wastewater lagoon set out in A5.1.5(a), obtain the remainder of the samples required to complete the monitoring required under subsection (a)(i); and
 - (b) analyze each sample in (a) for all of the following parameters:
 - (i) pH,
 - (ii) conductivity,
 - (iii) calcium,
 - (iv) magnesium,
 - (v) total hardness,
 - (vi) sodium,
 - (vii) potassium,
 - (viii) iron,
 - (ix) total phosphorus,
 - (x) nitrate-nitrogen,
 - (xi) nitrite-nitrogen,
 - (xii) ammonia-nitrogen,
 - (xiii) chloride,
 - (xiv) fluoride,
 - (xv) sulphate,
 - (xvi) carbonate,
 - (xvii) bicarbonate,
 - (xviii) total alkalinity,
 - (xix) total dissolved solids (TDS),
 - (xx) total Kjeldahl nitrogen (TKN), and
 - (xxi) chemical oxygen demand (COD).

A5.1.7 In addition to the groundwater monitoring required under A5.1.6, the following measurements shall be taken at the location of each groundwater monitoring well:

- (a) the depth to water at each groundwater monitoring well shall be measured at the same time as monitoring is conducted pursuant to A5.1.6; and
- (b) after the first year of operation of the wastewater lagoon, the depth to water at each groundwater monitoring well shall be measured:
 - (i) immediately before wastewater lagoon discharge,
 - (ii) immediately after each wastewater lagoon discharge is complete, and
 - (iii) approximately one month after the end of each wastewater lagoon discharge.

PART A6.1: RECLAMATION REQUIREMENTS

- A6.1.1 Where the land surface has been disturbed during construction, expansion, modification or repair of any portion of a wastewater collection system, reclamation of the land surface to equivalent land capability shall be performed following the construction, expansion, modification or repair, in accordance with the *Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems*, published by the Department, as amended or replaced from time to time.
- A6.1.2 At least six months prior to the wastewater lagoon permanently ceasing operation, the Director shall be informed in writing of the intention to close the wastewater lagoon.
- A6.1.3 Within six months after the wastewater system permanently ceases operation, the registration holder shall submit to the Director a reclamation plan.
- A6.1.4 The reclamation plan shall contain, at a minimum, the following information:
- (a) proposed plan for wastewater discharge and sludge management prior to reclamation;
 - (b) a proposal for reclaiming all disturbed land to equivalent land capability, or a proposal for reuse of the site;
 - (c) the depth of topsoil at the wastewater lagoon prior to construction or, in the absence of that pre-construction depth, the depth of undisturbed topsoil on property adjacent to the site of the lagoon, unless reuse of the site is proposed;
 - (d) a description of the status of, and proposed measures to address:

- (i) the final use of the reclaimed areas,
- (ii) the proposed depth of topsoil to be replaced,
- (iii) the restoration of the original contours of the land,
- (iv) erosion control,
- (v) weed control, and
- (vi) revegetation of the wastewater lagoon site; and
- (e) any other information required by the Director in writing.

A6.1.5 Any person conducting reclamation shall do so in accordance with the reclamation plan, as authorized by the Director in writing.

A6.1.6 Within one (1) year from the date of completion of reclamation, the registration holder shall submit a final reclamation report to the Director.

A6.1.7 The final reclamation report required under A6.1.6 shall contain, at a minimum, the following information:

- (a) a statement of whether the site has achieved equivalent land capability;
- (b) if the site has not achieved equivalent land capability, an explanation of the reason;
- (c) confirmation of whether the topsoil was replaced in accordance with the reclamation plan;
- (d) a description of the final land use;
- (e) a description of the land contours of the site;
- (f) a statement of whether the original contours of the site have been restored;
- (g) if the original contours of the site have not been restored, an explanation of the reason;
- (h) a description of steps taken to control erosion;
- (i) a statement of the degree of success of the erosion control steps and further steps that will be taken;
- (j) a list of species used for revegetation;
- (k) a description of the weed control measures undertaken; and
- (l) any other information required by the Director in writing.

PART A7.1: REPORTING REQUIREMENTS

Annual Reporting

- A7.1.1 In addition to any other reporting required under the Act, the regulations, and this Code of Practice, the registration holder shall submit an annual report to the Director by February 28 of the year following the year in which the information was collected.
- A7.1.2 The annual report required in A7.1.1 shall contain, at a minimum, all of the following information:
- (a) the results of the treated wastewater discharge monitoring and measurements required in A5.1.1 and A5.1.2;
 - (b) the groundwater monitoring information required in A5.1.6 and A5.1.7, and an interpretation of the analytical results with respect to any potential adverse effect or unsatisfactory liner performance;
 - (c) information regarding treated wastewater irrigation, as required under B6.1.1 and B6.1.2; and
 - (d) information regarding sludge application to land, as required under C5.1.1.
- A7.1.3 The annual report shall be submitted by a method:
- (a) in compliance with the Act and the regulations; or
 - (b) authorized in writing by the Director.

Electronic Reporting

- A7.1.4 The Director may, by notice in writing, require the registration holder to submit periodic reports under this Code of Practice:
- (a) in an electronic format; and
 - (b) more frequently than specified in A7.1.1 of this Code of Practice.
- A7.1.5 The registration holder who receives a notice as specified in A7.1.4 shall comply with the notice.

PART A8.1: RECORD KEEPING REQUIREMENTS

- A8.1.1 The registration holder shall:
- (a) record; and
 - (b) maintain for the life of the wastewater system an operating record, which shall contain, as a minimum, all the following information:

- (i) a wastewater lagoon site evaluation report,
- (ii) a copy of all registrations and authorizations issued under the Act regarding the wastewater system,
- (iii) as-built drawings for the wastewater lagoon showing the final grades and structural components,
- (iv) the current version of the design for the wastewater system,
- (v) operating procedures for the wastewater system,
- (vi) any complaints received regarding any potential adverse effect of the wastewater lagoon operation, and how they were resolved,
- (vii) the date and nature of all maintenance conducted at the wastewater lagoon,
- (viii) all documentation informing the Director regarding all extensions and replacements of any portion of the wastewater system,
- (ix) a copy of all documentation informing the Director of the intention to conduct treated wastewater irrigation or sludge application to land,
- (x) documentation of all notifications given to downstream land users as required under A4.1.4,
- (xi) treated wastewater irrigation information required under B7.1.1,
- (xii) sludge application information required under C6.1.1,
- (xiii) copies of the annual reports required under this Code of Practice,
- (xiv) a copy of all documentation informing the Director of a contravention as required under 2.3.3,
- (xv) a copy of all inspection reports issued by the Department regarding the wastewater system,
- (xvi) a copy of the reclamation plan as required in A6.1.3 and A 6.1.4,
- (xvii) a copy of the final reclamation report as required in A6.1.6, and
- (xviii) a record of the names of all past and current certified operators, including updates.

A8.1.2 The registration holder shall provide any records or data regarding the wastewater system to the Director or inspector upon request.

B. TREATED WASTEWATER IRRIGATION

PART B3.1: ADMINISTRATION, DESIGN AND CONSTRUCTION REQUIREMENTS

B3.1.1 No person shall commence irrigation using treated wastewater for the first time at a particular site:

- (a) for irrigation of a crop authorized within the *Guidelines for Municipal Wastewater Irrigation*, published by the Department, as amended or replaced from time to time, unless the Director has been informed in writing of the intention to conduct treated wastewater irrigation; or
- (b) for irrigation of any other vegetation, except in accordance with the written authorization of the Director for the wastewater irrigation.

B3.1.2 The written information in B3.1.1(a) or application for written authorization in B3.1.1(b) shall contain, at a minimum, all of the following:

- (a) the registration number issued by the Department for the wastewater lagoon from which the treated wastewater will be taken for use in irrigation;
- (b) the location of the land that will be used for the proposed irrigation;
- (c) the proposed irrigation rate;
- (d) a description of how the proposed irrigation rate was derived;
- (e) the method and description of the proposed irrigation;
- (f) written consent to the proposed irrigation from:
 - (i) all registered owners of land on which the treated wastewater will be irrigated, and
 - (ii) the local authorities of all municipalities in which the land to be irrigated is located; and
- (g) any other information requested in writing by the Director.

B3.1.3 In addition to any requirements in the Act, the regulations, or this Code of Practice, the design of a new, or expansion of existing, wastewater irrigation shall meet as a minimum the assessment protocols and requirements set out in *Guidelines For Municipal Wastewater Irrigation*, published by the Department, as amended or replaced from time to time, for the following areas:

- (a) assessment of municipal wastewater quality for wastewater irrigation;

- (b) assessment of land suitability for wastewater irrigation; and
- (c) assessment of system design needs for wastewater irrigation.

B3.1.4 For wastewater irrigation of a golf course or park, the design of the wastewater irrigation operation shall include capability for disinfection of the treated wastewater prior to irrigation.

PART B4.1: OPERATIONAL REQUIREMENTS

B4.1.1 No person shall conduct treated wastewater irrigation except in accordance with:

- (a) this Code of Practice;
- (b) the regulations; or
- (c) an approval, as the case may be.

B4.1.2 The registration holder shall not conduct treated wastewater irrigation at an irrigation rate that exceeds the application rate specified in the written information provided to the Director in accordance with B3.1.2.

B4.1.3 No person shall cause or permit any connection between the treated wastewater irrigation equipment and any waterworks system.

B4.1.4 The surface impoundment, other than the wastewater lagoon site, storing treated wastewater to be used for irrigation shall have signs placed around the perimeter of the impoundment, identifying that treated wastewater is stored in the impoundment.

B4.1.5 Any treated wastewater irrigation must comply with the following setbacks:

- (a) a setback distance of at least 15 metres shall be provided between all irrigated land and all adjacent property unless permission is received from all of the registered owners of all adjacent land to lessen this distance to a particular distance;
- (b) a setback distance of at least 60 metres shall be provided between all irrigated land and all occupied dwellings; and
- (c) a setback distance of at least 30 metres shall be provided between all irrigated land and all watercourses, public roads, railway lines, or water wells.

- B4.1.6 Treated wastewater irrigation shall not occur during the following periods, unless otherwise authorized in writing by the Director:
- (a) outside the growing season;
 - (b) during and for 30 days prior to the harvesting of crops on the land irrigated or to be irrigated;
 - (c) during and for 30 days prior to grazing by dairy cattle on the land irrigated or to be irrigated; and
 - (d) during and for 7 days prior to pasturing by livestock other than dairy cattle on the land irrigated or to be irrigated.

Wastewater Irrigation of a Golf Course or Park

B4.1.7 through B4.1.9 apply in addition to the requirements under B4.1.1 through B4.1.6 of this Code of Practice

- B4.1.7 Prior to any irrigation of a golf course with treated wastewater, signs shall be posted in the clubhouse and throughout the golf course stating that treated wastewater is being used to irrigate the golf course.
- B4.1.8 Prior to any irrigation of a park with treated wastewater, signs shall be posted at each entrance of the park, and at locations throughout the park, stating that treated wastewater is being used to irrigate the park.
- B4.1.9 Treated wastewater irrigation shall:
- (a) commence after closing of the golf course or park, at a time when no members of the public are present; and
 - (b) end a minimum of one hour before opening of the golf course or park to members of the public.

PART B5.1: LIMITS AND MONITORING REQUIREMENTS

B5.1.1 The quality of all treated wastewater to be used for irrigation shall comply with the limits specified in TABLE B5-1.

TABLE B5-1: IRRIGATION TREATED WASTEWATER LIMITS

Parameter	Limit
Carbonaceous Biochemical Oxygen Demand	<100 mg/L
Chemical Oxygen Demand	<150 mg/L
Total Suspended Solids	<100 mg/L
Electrical Conductivity	<2.5 dS/m
Sodium Adsorption Ratio	<9
pH	6.5 to 8.5

B5.1.2 The treated wastewater used for irrigation shall be monitored in accordance with TABLE B5-2.

TABLE B5-2: MONITORING OF TREATED WASTEWATER USED FOR IRRIGATION

TREATED WASTEWATER USED FOR IRRIGATION FOR EACH IRRIGATION SITE			
Parameter	Frequency	Sample type	Sample location
Carbonaceous Biochemical Oxygen Demand	One sample each: (a) prior to each irrigation application season, and (b) at the mid point of each irrigation season	Grab	At the treated wastewater irrigation intake point
Chemical Oxygen Demand			
Total Suspended Solids			
Electrical Conductivity			
Sodium Absorption Ratio			
pH			

- B5.1.3 In addition to any other monitoring of wastewater used for irrigation required under Part B5.1, the registration holder shall measure the following:
- (a) weekly volume of irrigation wastewater applied to the site; and
 - (b) total volume of irrigation wastewater applied to the site during the application season.

Wastewater Irrigation of a Golf Course or Park

B5.1.4 In addition to meeting the quality limit requirements pursuant to B5.1.1 and Table B5-1, the irrigation wastewater used for irrigation of a golf course or park shall meet the limits in TABLE B5-3.

TABLE B5-3: GOLF COURSE AND PARK IRRIGATION TREATED WASTEWATER LIMITS

Parameter	Limit
Total coliform counts	<1000 per 100 mL, based on the monthly geometric mean
Fecal coliform counts	<200 per 100 mL, based on the monthly geometric mean
Total chlorine Residual	< 2.0 mg/L, based on the monthly arithmetic mean of daily grab samples

B5.1.5 In addition to meeting the monitoring requirements pursuant to B5.1.2, the registration holder shall monitor treated wastewater used for irrigation at a park or golf course, as specified in Table B5-4.

TABLE B5-4: MONITORING OF TREATED WASTEWATER USED FOR IRRIGATING GOLF COURSE OR PARK

TREATED WASTEWATER USED FOR IRRIGATION OF GOLF COURSE OR PARK			
Parameter	Frequency	Sample Type	Sample Location
Total coliform counts	One sample at the start of the irrigation season and then monthly for the duration of the irrigation season	Grab	At the treated wastewater irrigation intake point
Fecal coliform counts			
Total chlorine residual	One sample on each day that irrigation using chlorinated irrigation water occurs during the irrigation season		

PART B6.1: REPORTING REQUIREMENTS

- B6.1.1 The registration holder shall prepare an annual report for the treated wastewater irrigation operation, as part of the annual report required in A7.1.2.
- B6.1.2 The annual report in B6.1.1 shall include, at a minimum, the following information:
- (a) the total volume of treated wastewater used for irrigation, at each location; and
 - (b) the analytical results and measurements as required by B5.1.2, B5.1.3 and B5.1.5 of this Code of Practice.

PART B7.1: RECORD KEEPING REQUIREMENTS

- B7.1.1 The registration holder shall:
- (a) record; and
 - (b) maintain within the operating record in A8.1.1, all of the following:
 - (i) the documentation of the assessment required in B3.1.3 regarding the wastewater irrigation practice,
 - (ii) all annual reports required for the treated wastewater irrigation practice under this Code of Practice, and

- (iii) a record of all complaints received with respect to the irrigation practices, or with respect to the use of treated wastewater for irrigation, and how each complaint was resolved.

C. SLUDGE APPLICATION TO LAND

PART C3.1: ADMINISTRATION, DESIGN AND CONSTRUCTION REQUIREMENTS

C3.1.1 No person shall commence application of sludge:

- (a) to agricultural land, unless the Director has been informed in writing of the intention to apply sludge to agricultural land; or
- (b) to land other than agricultural land, except in accordance with the written authorization of the Director for the sludge application.

C3.1.2 The written information in C3.1.1(a) and the application for a written authorization in C3.1.1(b) shall contain, at a minimum, all of the following:

- (a) the registration number issued by the Department for the wastewater lagoon from which the sludge will be taken for application to land;
- (b) the location of the land that will receive sludge;
- (c) the proposed sludge application rate;
- (d) a description of how the proposed application rate was derived;
- (e) the method of sludge application;
- (f) a completed copy of the form in Appendix B of the *Guidelines for the Application of Municipal Wastewater Sludges to Agricultural Lands*, published by the Department, as amended or replaced from time to time; and
- (g) written consent to the proposed project from:
 - (i) all registered owners of land on which the sludge will be applied, and
 - (ii) the local authorities of all municipalities in which the land on which sludge will be applied is located, and
 - (iii) any other information required by the Director in writing.

- C3.1.3 In addition to any requirements under the Act, the regulations or this Code of Practice, the design of a sludge application program shall comply with the sludge and site characterization requirements set out in *Guidelines For The Application of Municipal Wastewater Sludges to Agricultural Lands*, published by the Department, as amended or replaced from time to time, for the following:
- (a) determining the suitability of the site for application of the sludge;
 - (b) determining the suitability of the sludge for application on agricultural land;
 - (c) determining the most limiting application rate for the sludge, based on the sludge and site conditions;
 - (d) determining the need for application of lime and the required lime application rate; and
 - (e) determining the method of sludge application.

PART C4.1: OPERATIONAL REQUIREMENTS

- C4.1.1 Sludge from a wastewater lagoon shall be disposed of only:
- (a) by application to land in accordance with this Code of Practice;
 - (b) in accordance with the written authorization of the Director; or
 - (c) by other methods in compliance with the Act and the regulations.
- C4.1.2 The registration holder shall conduct the sludge application in accordance with the requirements for land treatment program design as set out in *Guidelines For The Application of Municipal Wastewater Sludges to Agricultural Lands*, published by the Department, as amended or replaced from time to time.
- C4.1.3 No person shall apply sludge on land unless that person has obtained prior written consent to the proposed application from:
- (a) all owners of land on which sludge is applied; and
 - (b) the local authority of all municipalities in which land that is affected by the project is located.
- C4.1.4 The registration holder shall not apply sludge at a rate that exceeds the application rate specified in the written information provided to the Director in accordance with C3.1.2.
- C4.1.5 Sludge shall not be released from the land on which it was applied.

- C4.1.6 If, in the determination under C3.1.3, the soil pH requires adjustment, lime shall be applied in accordance with the determination in C3.1.3.
- C4.1.7 Sludge shall be incorporated into the land within 48 hours following the sludge application.
- C4.1.8 Sludge shall not be applied to soil that is frozen or snow covered unless the sludge can be incorporated in accordance with C4.1.7.
- C4.1.9 No sludge shall be released in any location other than the land specified pursuant to C3.1.2.

PART C5.1: REPORTING REQUIREMENTS

Annual Report

- C5.1.1 Each year, within two months following the end of the sludge application program, the registration holder shall prepare an annual sludge application program summary report, as part of the annual report in A7.1.1, including:
 - (a) actual sludge and lime application rate for each section of land;
 - (b) location of land to which sludge was applied; and
 - (c) a record of any public concerns respecting the sludge application program.

PART C6.1: RECORD KEEPING REQUIREMENTS

- C6.1.1 The registration holder shall maintain the information required under C3.1.1 within the operating record of the wastewater system

PART 4: CODE OF PRACTICE ADMINISTRATION

- 4.1 This Code of Practice will be reviewed as changes in technological or other standards warrant.