A bill for an act

relating to waters; providing standards for use of recycled water; appropriating money; proposing coding for new law in Minnesota Statutes, chapter 103G.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MINNESOTA:

Section 1. **[103G.901] DEFINITIONS.**

Subdivision 1. **Applicability.** For purposes of sections 103G.901 to 103G.903, the terms used have the meanings given in this section.

Subd. 2. **Approved laboratory.** "Approved laboratory" means a laboratory certified by the Department of Health to perform microbiological analyses.

Subd. 3. **Coagulated wastewater.** "Coagulated wastewater" means oxidized wastewater in which colloidal and finely divided suspended matter have been destabilized and agglomerated upstream from a filter by the addition of suitable floc-forming chemicals.

Subd. 4. **Commissioner.** "Commissioner" means the commissioner of the Pollution Control Agency.

Subd. 5. **Conventional treatment.** "Conventional treatment" means a treatment chain that uses a sedimentation unit process between the coagulation and filtration processes and produces an effluent that meets the definition for disinfected tertiary recycled water.

Subd. 6. **Disinfected secondary-2.2 recycled water.** "Disinfected secondary-2.2 recycled water" means recycled water that has been oxidized and disinfected so that the median concentration of total coliform bacteria in the disinfected effluent does not exceed a most probable number (MPN) of 2.2 per 100 milliliters using the bacteriological results of the last seven days for which analyses have been completed, and the number

of total coliform bacteria does not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30-day period.

Subd. 7. **Disinfected secondary-23 recycled water.** "Disinfected secondary-23 recycled water" means recycled water that has been oxidized and disinfected so that the median concentration of total coliform bacteria in the disinfected effluent does not exceed a most probable number (MPN) of 23 per 100 milliliters using the bacteriological results of the last seven days for which analyses have been completed, and the number of total coliform bacteria does not exceed an MPN of 240 per 100 milliliters in more than one sample in any 30-day period.

Subd. 8. **Disinfected tertiary recycled water.** "Disinfected tertiary recycled water" means a filtered and subsequently disinfected wastewater that meets the following criteria:

(1) the filtered wastewater has been disinfected by:

(i) a chlorine disinfection process following filtration that provides a CT value (the product of total chlorine residual and modal contact time measured at the same point) of not less than 450 milligram-minutes per liter at all times with a modal contact time of at least 90 minutes, based on peak dry weather design flow; or

(ii) a disinfection process that, when combined with the filtration process, has been demonstrated to inactivate or remove 99.999 percent of the plaque-forming units of F-specific bacteriophage MS-2 or polio virus in the wastewater. A virus that is at least as resistant to disinfection as polio virus may be used for purposes of the demonstration; and

(2) the median concentration of total coliform bacteria measured in the disinfected effluent does not exceed a most probable number (MPN) of 2.2 per 100 milliliters using the bacteriological results of the last seven days for which analyses have been completed and the number of total coliform bacteria does not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30-day period. No sample shall exceed an MPN of 240 total coliform bacteria per 100 milliliters.

Subd. 9. **Drift.** "Drift" means the water that escapes to the atmosphere as water droplets from a cooling system.

Subd. 10. **Drift eliminator.** "Drift eliminator" means a feature of a cooling system that reduces to a minimum the generation of drift from the system.

Subd. 11. **F-specific bacteriophage MS-2.** "F-specific bacteriophage MS-2" means a strain of a specific type of virus that infects coliform bacteria that is traceable to the American Type Culture Collection (ATCC 15597B1) and is grown on lawns of E. coli (ATCC 15597).

Subd. 12. **Facility.** "Facility" means any type of building or structure or a defined area of specific use that receives water for domestic use from a public water supply as defined in section 144.382.

Subd. 13. **Filtered wastewater.** "Filtered wastewater" means an oxidized wastewater that:

(1) has been coagulated and passed through natural undisturbed soils or a bed of filter media:

(i) at a rate that does not exceed five gallons per minute per square foot of surface area in mono, dual, or mixed media gravity, upflow, or pressure filtration systems or does not exceed two gallons per minute per square foot of surface area in traveling bridge automatic backwash filters; and

(ii) so that the turbidity of the filtered wastewater does not exceed an average of two NTU within a 24-hour period; five NTU more than five percent of the time within a 24-hour period; and 10 NTU at any time; or

(2) has been passed through a microfiltration, ultrafiltration, nanofiltration, or reverse osmosis membrane so that the turbidity of the filtered wastewater does not exceed 0.2 NTU more than five percent of the time within a 24-hour period and does not exceed 0.5 NTU at any time.

Subd. 14. **Graywater.** "Graywater" means wastewater that does not include toilet waste, including:

(1) household wastewater used for bathing, laundry, and culinary operations; and

(2) commercial wastewater from car washes, commercial kitchens, and self-service laundries.

Subd. 15. **Landscape impoundment.** "Landscape impoundment" means an impoundment in which recycled water is stored or used for aesthetic enjoyment or landscape irrigation or that otherwise serves a similar function and is not intended to include public contact.

Subd. 16. **Modal contact time.** "Modal contact time" means the amount of time elapsed between the time that a tracer, such as salt or dye, is injected into the influent at the entrance to a chamber and the time that the highest concentration of the tracer is observed in the effluent from the chamber.

Subd. 17. **Nonrestricted recreational impoundment.** "Nonrestricted recreational impoundment" means an impoundment of recycled water for which no limitations are imposed on body-contact water recreational activities.

Subd. 18. **NTU.** "NTU" means nephelometric turbidity unit, which is a measurement of turbidity as determined by the ratio of the intensity of light scattered by the sample to

the intensity of incident light as measured by method 2130 B in Standard Methods for the Examination of Water and Wastewater, Eaton, A. D., Clesceri, L. S., and Greenberg, A. E., eds., (Washington, DC: American Public Health Association, 1998).

Subd. 19. **Oxidized wastewater.** "Oxidized wastewater" means wastewater in which the organic matter has been stabilized, is nonputrescible, and contains dissolved oxygen.

Subd. 20. **Peak dry weather design flow.** "Peak dry weather design flow" means the arithmetic mean of the maximum peak flow rates sustained over a specific period of time during the maximum 24-hour dry weather period. "Dry weather period" means periods of little or no rainfall.

Subd. 21. **Recycling plant.** "Recycling plant" means an arrangement of devices, structures, equipment, processes, and controls that produce recycled water.

Subd. 22. **Restricted access golf course.** "Restricted access golf course" means a golf course where public access is controlled so that areas irrigated with recycled water cannot be used as if they were part of a park, playground, or school yard and where irrigation is conducted only in areas and during periods when the golf course is not being used by golfers.

Subd. 23. **Restricted recreational impoundment.** "Restricted recreational impoundment" means an impoundment of recycled water for which recreation is limited to fishing, boating, and other non-body-contact water recreational activities.

Subd. 24. **Storm water.** "Storm water" means rain water or surface water.

Subd. 25. **Undisinfected secondary recycled water.** "Undisinfected secondary recycled water" means oxidized wastewater.

Subd. 26. **Use area.** "Use area" means an area of recycled water use with defined boundaries. A use area may contain one or more facilities.

Sec. 2. **[103G.9015] USES OF RECYCLED WATER.**

Subdivision 1. **Scope.** (a) This section applies only to recycled water from sources that contain domestic waste, in whole or in part.

(b) This section does not apply to the use of recycled water on-site at a water recycling plant or wastewater treatment plant if access by the public to the area of on-site recycled water use is restricted.

Subd. 2. **Irrigation.** (a) Recycled water used for surface irrigation of the areas specified in this paragraph must be disinfected tertiary recycled water, except that for filtration according to section 103G.901, subdivision 13, clause (1), coagulation need not be used as part of the treatment process if the filter effluent turbidity does not exceed two NTU, the turbidity of the influent to the filters is continuously measured, the influent

turbidity does not exceed five NTU for more than 15 minutes and never exceeds ten NTU, and there is the capability to automatically activate chemical addition or divert the wastewater should the filter influent turbidity exceed five NTU for more than 15 minutes:

(1) parks and playgrounds;

(2) school yards;

(3) residential landscaping; and

(4) unrestricted access golf courses.

(b) Recycled water used for surface irrigation of the following must be at least disinfected secondary-23 recycled water:

(1) cemeteries;

(2) freeway landscaping;

(3) restricted access golf courses;

(4) ornamental nursery stock and sod farms where access by the general public is not restricted; and

(5) any nonedible vegetation when access is controlled so that the irrigated area cannot be used as if it were part of a park, playground, or school yard.

(c) Recycled wastewater used for surface irrigation of the following must be at least undisinfected secondary recycled water:

(1) non-food-bearing trees. Christmas tree farms are included in this category if no irrigation with recycled water occurs for a period of 14 days before harvesting or allowing access by the general public; and

(2) ornamental nursery stock and sod farms if no irrigation with recycled water occurs for a period of 14 days before harvesting, retail sale, or allowing access by the general public.

(d) No recycled water used for irrigation, or soil that has been irrigated with recycled water, shall come into contact with the edible portion of food crops eaten raw by humans unless the recycled water complies with paragraph (a).

Subd. 3. **Impoundments.** (a) Except as provided in paragraph (b), recycled water used as a source of water supply for nonrestricted recreational impoundments must be disinfected tertiary recycled water that has been subjected to conventional treatment.

(b) Disinfected tertiary recycled water that has not received conventional treatment may be used for nonrestricted recreational impoundments if the recycled water is monitored for the presence of pathogenic organisms as follows:

(1) during the first 12 months of operation and use, the recycled water must be sampled and analyzed monthly for Giardia, enteric viruses, and Cryptosporidium. Following the first 12 months of use, the recycled water must be sampled and analyzed

quarterly for Giardia, enteric viruses, and Cryptosporidium. The ongoing monitoring may be discontinued after the first two years of operation with the approval of the commissioner of health; and

(2) the samples must be taken at a point after disinfection and before the point where the recycled water enters the use impoundment. The samples must be analyzed by an approved laboratory and the results submitted quarterly to the commissioner of health.

(c) The total coliform bacteria concentrations in recycled water used for nonrestricted recreational impoundments, measured at a point between the disinfection process and the point of entry to the use impoundment, must comply with the criteria specified in section 103G.901, subdivision 8, clause (2), for disinfected tertiary recycled water.

(d) Recycled water used as a source of supply for restricted recreational impoundments and for any publicly accessible impoundments at fish hatcheries must be at least disinfected secondary-2.2 recycled water.

(e) Recycled water used as a source of supply for landscape impoundments that do not use decorative fountains must be at least disinfected secondary-23 recycled water.

Subd. 4. **Cooling.** (a) Recycled water used for industrial or commercial cooling or air conditioning that involves the use of a cooling tower, evaporative condenser, spraying, or any mechanism that creates a mist must be disinfected tertiary recycled water.

(b) Use of recycled water for industrial or commercial cooling or air conditioning that does not involve the use of a cooling tower, evaporative condenser, spraying, or any mechanism that creates a mist must be at least disinfected secondary-23 recycled water.

(c) Whenever a cooling system, using recycled water in conjunction with an air conditioning facility, uses a cooling tower or otherwise creates a mist that could come into contact with employees or members of the public, the cooling system must comply with the following:

(1) a drift eliminator must be used whenever the cooling system is in operation; and

(2) a chlorine or other biocide must be used to treat the cooling system recirculating water to minimize the growth of Legionella and other microorganisms.

Subd. 5. **Other purposes.** (a) Recycled water used for the purposes specified in this paragraph must be disinfected tertiary recycled water, except that for filtration being provided according to section 103G.901, subdivision 13, clause (1), coagulation need not be used as part of the treatment process if the filter effluent turbidity does not exceed two NTU, the turbidity of the influent to the filters is continuously measured, the influent turbidity does not exceed five NTU for more than 15 minutes and never exceeds ten NTU, and there is the capability to automatically activate chemical addition or divert the wastewater should the filter influent turbidity exceed five NTU for more than 15 minutes:

(1) flushing toilets and urinals;

(2) priming drain traps;

(3) industrial process water that may come into contact with workers;

(4) structural fire fighting;

(5) decorative fountains;

(6) commercial laundries;

(7) consolidation of backfill around potable water pipelines;

(8) artificial snowmaking for commercial outdoor use; and

(9) commercial car washes, including hand washes if the recycled water is not heated, where the general public is excluded from the washing process.

(b) Recycled water used for the following uses must be at least disinfected secondary-23 recycled water:

(1) industrial boiler feed;

(2) nonstructural fire fighting;

(3) backfill consolidation around nonpotable piping;

(4) soil compaction;

(5) mixing concrete;

(6) dust control on roads and streets;

(7) cleaning roads, sidewalks, and outdoor work areas; and

(8) industrial process water that will not come into contact with workers.

(c) Recycled water used for flushing sanitary sewers must be at least undisinfected secondary recycled water.

Sec. 3. **[103G.9017] RECYCLED WATER; USE AREA REQUIREMENTS.**

(a) No irrigation with disinfected tertiary recycled water shall take place within 50 feet of any domestic water supply well unless:

(1) a geological investigation demonstrates that an aquitard exists at the well between the uppermost aquifer being drawn from and the ground surface;

(2) the well contains an annular seal that extends from the surface into the aquitard;

(3) the well is housed to prevent any recycled water spray from coming into contact with the wellhead facilities;

(4) the ground surface immediately around the wellhead is contoured to allow surface water to drain away from the well; and

(5) the owner of the well approves of the elimination of the buffer zone requirement.

(b) No impoundment of disinfected tertiary recycled water shall occur within 100 feet of any domestic water supply well.

(c) No irrigation with, or impoundment of, disinfected secondary-2.2 or disinfected secondary-23 recycled water shall take place within 100 feet of any domestic water supply well.

(d) No irrigation with, or impoundment of, undisinfected secondary recycled water shall take place within 150 feet of any domestic water supply well.

(e) Any use of recycled water shall comply with the following:

(1) any irrigation runoff shall be confined to the recycled water use area, unless the runoff does not pose a public health threat and is authorized by the commissioner of health;

(2) spray, mist, or runoff shall not enter dwellings, designated outdoor eating areas, or food handling facilities; and

(3) drinking water fountains shall be protected against contact with recycled water spray, mist, or runoff.

(f) No spray irrigation of any recycled water, other than disinfected tertiary recycled water, shall take place within 100 feet of a residence or a place where public exposure could be similar to that of a park, playground, or school yard.

(g) All use areas that are accessible to the public shall be posted with signs that are visible to the public, in a size no less than four inches high by eight inches wide, that include the following wording: "RECYCLED WATER - DO NOT DRINK." The commissioner of health may accept alternative signage and wording, or an educational program, provided the applicant demonstrates to the commissioner of health that the alternative approach will ensure an equivalent degree of public notification.

(h) All plumbing installations must comply with Minnesota Rules, chapter 4715.

(i) Recycled water may be used for irrigation above grade only when no ground frost is present.

Sec. 4. **[103G.9019] RECYCLED WATER; RECYCLING PLANT REQUIREMENTS.**

Subdivision 1. **Warrantied recycling plant.** (a) A recycling plant may be installed provided that it meets all local ordinance requirements and provided the requirements of paragraphs (b) to (e) are met.

(b) The manufacturer shall provide to the commissioner: documentation showing that a minimum of five of the manufacturer's recycling plants with similar design capabilities have been installed and operated and are under normal use for a minimum of three years.

(c) For each system that meets the requirements of paragraph (b), the manufacturer must provide to the commissioner:

(1) documentation that the system manufacturer or designer will provide full warranty effective for at least five years from the time of installation, covering design, labor, and material costs to remedy failure to meet performance expectations for recycling plants used and installed in accordance with the manufacturer's or designer's instructions; and

(2) a commonly accepted financial assurance document or documentation of the manufacturer's or designer's financial ability to cover potential replacement and upgrades necessitated by failure of the recycling plant to meet the performance expectations for the duration of the warranty period.

(d) The manufacturer shall reimburse the Pollution Control Agency $2,000 for staff services needed to review the information submitted under paragraphs (b) and (c). Reimbursements to the agency shall be deposited in the environmental fund and are appropriated to the agency for the purpose of reviewing information submitted. Reimbursement by the manufacturer shall precede, not be contingent upon, and shall not affect the agency's decision on whether the submittal meets the requirements of paragraphs (b) and (c).

(e) The manufacturer shall provide to the recycling plant owner reasonable assurance of performance of the manufacturer's recycling plant, engineering design of the manufacturer's recycling plant, a monitoring plan that will be provided to recycling plant owners, and a mitigation plan that will be provided to recycling plant owners describing actions to be taken if the recycling plant fails.

(f) The commissioner, after consultation with the commissioner of health, may prohibit a recycling plant from qualifying for installation under this subdivision upon a finding of fraud, recycling plant failure, failure to meet warranty conditions, or failure to meet the requirements of this subdivision or other matters that fail to meet with the intent and purpose of this subdivision. Prohibition of installation of a recycling plant by the commissioner does not alter or end warranty obligations for recycling plants already installed.

Subd. 2. **Certified operators.** (a) Except as provided under paragraph (b), recycling plants may be operated only by individuals certified as wastewater treatment facility operators under section 115.75.

(b) The operator of a recycling plant that utilizes only storm water for reuse need not be certified as a wastewater treatment operator.

Subd. 3. **Irrigation.** Recycling plants supplying irrigation water for use above grade must include an alternative disposal point for use during the nonirrigation season.

Sec. 5. **[103G.902] RECYCLED WATER; WATER PARKS.**

Notwithstanding sections 103G.9015 and 103G.9017, a recreational water park may dechlorinate water used in park rides, slides, or pools to be reused for irrigation. Irrigation with water under this section shall not occur within 100 feet of any domestic water supply well. Spray, mist, or runoff from irrigation under this section must not enter designated outdoor eating areas or food handling facilities and drinking fountains must be protected against contact with spray, mist, or runoff.

Sec. 6. **[103G.903] NATURAL TREATMENT PROCESS; NATURAL POOLS.**

Notwithstanding Minnesota Rules, chapter 4717, or other law to the contrary, a public pool may utilize natural treatment processes for filtration and purification provided the treatment system is warrantied according to section 103G.9019, subdivision 1. Section 103G.9015, subdivision 3, paragraph (b), applies to natural pools under this section.