Health and Seniors Care
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TECHNICAL SAFETY BULLETIN: Requirements for Microbial Analysis of Water Samples from of Public and Semi-Public Recreational Water Facilities throughout Manitoba

The *Swimming Pools and Other Water Recreational Facilities Regulation (MR 132/97)* regulates public and semi-public swimming pools, whirlpools and other water recreational facilities in Manitoba. This Regulation can be found on our department's website at https://web2.gov.mb.ca/laws/regs/current/_pdf-regs.php?reg=132/97 . It is recommended that operators of these facilities keep a copy of the *Regulation* available on site for reference.

The information outlined in this bulletin is intended to provide requirements for controlling microbiological contamination of water found in swimming pools and other water recreational facilities that can result in the growth and survival of pathogenic (disease producing) microorganisms that cause recreational water-related illnesses (RWIs) and infections to bathers.

What are Pathogens and How are they Spread?

Pathogens are disease-causing microorganisms including bacteria, viruses and protozoa that cause a majority of RWIs. They can be found in the water we swim or play in, including swimming pools, water parks, whirlpools and splash pads. They are spread by swallowing, breathing in mists or aerosols, or having contact with contaminated water.

These pathogens may be introduced into recreational water from:

- feces, vomit, mucus, skin and saliva of swimmers;
- wildlife such as birds;
- contaminated source water; and
- biofilm growth in equipment and around the pool environment (e.g. decks, shower areas and other surfaces exposed to moisture)

Prevention of Recreational Water Illnesses

A properly designed and maintained recirculation system is a pool operator's best defense in preventing the survival of these pathogens through water treatment processes including filtration and disinfection.

To ensure the recirculation system is effectively treating the water, on-going monitoring of disinfectant and pH levels is essential. It is recommended that ongoing water monitoring of disinfectants and pH levels occur 3-4 times a day. Bacterial sampling of the water must also be routinely carried out in the frequency required by the permit conditions listed on the annual Health Permit for recreational water facilities.

Microbial Requirements for Recreational Water Facilities

Except for modified and public non-conforming pools, all recreational water facilities must meet the recirculation and water quality requirements specified in *Section 16* of the *Regulation.* Microbial requirements for modified pools and public non-conforming pools are outlined in Section 30 & 37 of the

Regulation, respectively. These requirements were developed to ensure the water quality in the recreational water facility provides a safe and enjoyable environment for Manitobans.

With respect to microbial quality of the water, to prevent recreational water illnesses from occurring, Section 16(1)(f), 30(1)(a) & 37 of Regulation MR 132/97 requires:

> ***16(1) No person shall operate a swimming pool or wading pool unless…***
>
> ***(f) the bacteriological quality of the water***
>
> ***(i) is such that less than one total coliform organism is detected in 100 ml of pool water as determined by a standard testing method for total coliform.***
>
> ***(ii) in a whirlpool, in addition to meeting the requirement of subclause (i), is such that Pseudomonas aeruginosa is not detected in 100 ml of pool water as determined a standard testing method for Pseudomonas aeruginosa.***
>
> ***30(1) No person shall operate a modified pool unless…***
>
> ***(a) the bacteriological quality of the water in the pool is such that thermotolerant coliform is not detected in 100 ml of pool water as determined by a standard testing method for thermotolerant coliform;***
>
> ***37 No person shall operate a public non-conforming pool unless the bacteriological quality of the water in the pool is such that no more than 20 thermotolerant coliform are detected per 100 ml of pool water as determined by a standard testing method for thermotolerant coliform.***

Total coliforms, *Pseudomonas aeruginosa,* and thermotolerant coliforms are indicator organisms that, if present in water samples, show the disinfection system for the recreational water facility is not functioning as it should. A disinfection or filtration system that is not functioning properly may allow pathogens to survive in the water. Based on the test results, the operator must take steps to find out why bacteria are present in the pool water and take appropriate corrective action.

Manitoba Health Protection Unit requires that recreational water facilities in Manitoba sample the water in their facilities for microbial analysis in the frequencies seen in Table 1 below.

Table 1: Microbial Sampling Parameters

Pool Type	Sampling Parameter**	Sampling Frequency**	Acceptable Result
Swimming Pool	Total Coliform	**Year-Round Pools:** Quarterly **Seasonal Pools:** Monthly	< 1 CFU/100 ml sample*
Wading pool	Total Coliform	**Year-Round Pools:** Quarterly **Seasonal Pools:** Monthly	< 1 CFU/100 ml sample*
Whirlpool or any other recreational water facility having a water temperature of $\geq 30^{o}C$	Total Coliform	**Year-Round Pools:** Quarterly	< 1 CFU/100 ml sample*
	Pseudomonas aeruginosa	**Seasonal Pools:** Monthly	< 1 CFU/100 ml sample*
Modified Pool	Thermotolerant	Monthly	< 1 CFU/100 ml sample*
Public Non Conforming Pool	Thermotolerant	Monthly	< 20 CFU/100 ml sample*

*CFU/100 ml represents number of organisms detected in the sample

****NOTE: Sampling parameter and frequency requirements may vary based on facility history of number of positive results, complaints and maintenance of recirculation system.**

Sampling frequency must be reviewed with the area Public Health Inspector.

The operator should arrange for copies of bacterial results to be sent directly to the area PHI. This can be done by filling out the cc section on the lab request form.

The operator must notify the Public Health Inspector *immediately* upon receiving notification from the testing laboratory when total coliform, thermotolerant coliform, or *Pseudomonas aeruginosa* is detected in any sample.

Accredited Laboratories

All water samples collected from any recreational water facility throughout Manitoba must be submitted to an *accredited laboratory* for analysis.

Laboratories are accredited through the Canadian Association of Laboratory Accreditation Inc. (CALA) or the Standards Council of Canada (SCC).

Accreditation is a means of determining the technical competence of laboratories to perform specific types of testing. It provides formal recognition that laboratories are competent, impartial and independent, therefore providing a means for customers to identify and select reliable testing and measurement services that are able to meet their needs. To maintain this recognition, laboratories are re-assessed once every two years to ensure their continued conformance with requirements, and to check that their standard of operation is being maintained. The laboratory is also required to participate in relevant proficiency testing programs between reassessments, as a further demonstration of technical competence.

Manitoba Health Protection Unit requires accreditation for laboratories to ensure testing conducted by these labs produce accurate test results. Documentation for each accredited lab shows the *Scope of Accreditation* for the specific tests being performed. Pool water samples must be submitted to labs accredited for total coliform, *Pseudomonas aeruginosa* and thermotolerant coliform analyses.

If a lab is not an accredited lab, our department has no assurances for the quality and accuracy of the tests being performed and therefore cannot verify compliance with the *Regulation*.

For further information regarding this bulletin, please contact your area Public Health Inspector or the Health Protection Unit's general office at 204-945-4204 or at healthprotection@gov.mb.ca