

## Recommended Guidelines

### *Water Discharge Best Management Practices [G-0613]*

#### Pool & Hot Tub Council of Canada

May 2013

These guidelines are issued by the Pool & Hot Tub Council of Canada as reference documents for pool, hot tub and spa owners and companies that service swimming pools, hot tubs and spas. The guidelines also serve to provide direction to municipalities that are seeking to establish programs that effectually manage and control the wastewater discharge from residential pools, spas and hot tubs into the environment.

The Pool & Hot Tub Council of Canada is a voluntary, not-for-profit association representing the interests of the aquatic leisure industry. As such, it is not considered a harmonized organization, and therefore does not qualify as an accredited national standards-writing body. Notwithstanding the above, following the directives outlined in this document will serve to minimize the environmental impact of operating pools, spas and hot tubs. These guidelines are endorsed in principle by the Pool & Hot Tub Council of Canada, and the Council recommends their widespread implementation.

Recommended Guidelines (G-0613) do not circumvent nor supersede existing requirements enshrined under federal, provincial or municipal law. Government codes take precedence over industry guidelines.

**Note:** The term “pools” in this document refers to private residential swimming pools, manmade swimming ponds, spas, hot tubs and water features.

#### Introduction

Pools are commonly drained for seasonal winterization, and also when backwashing filters, when carrying out service and repairs, and when adjusting water levels following periods of heavy precipitation. In most cases, water entering storm sewer systems from all sources is not treated by municipalities, and is typically channeled directly into streams, lakes, rivers and oceans. The low chemical concentrations typically maintained in an individual swimming pool under normal operating conditions, as listed below, are innocuous to humans:

Bromine (Br) between 2 and 4 mg/L

Chlorine (Cl) between 1 and 3 mg/L

Copper (Cu) virtually 0 mg/L

pH levels (acidity scale) between 7.2 – 7.6

Sodium Chloride (NaCl): between 0 and 6 000 mg/L

(Note: Putting this into perspective the NaCl concentration of a human tear drop is roughly 9 000 mg/L and the NaCl concentration of oceans is approximately 35 000 mg/L)

Note: 1 mg/L is equivalent to 1 ppm.

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Nevertheless, results of recent scientific studies have indicated that levels of some contaminants found in various fresh water lakes have been building up over the past several decades. Much of this increase has been attributed to road deicing agent runoff, industrial effluents, and fertilizer sediments drained from agricultural land. In an effort to minimize the cumulative, long term environmental impact of the combined wastewater released into the ecosystem from a large number of backyard swimming pools, some cities have enacted supplementary regulatory measures in order to restrict its direct discharge to storm sewers and the environment.

The following Guidelines G-0613 offer recommendations for the effective management of pool water discharge, including controls over the acidity level (pH) and the potential release of the following chemicals: chlorine, bromine, sodium chloride (salt), algaecides/fungicides, nonylphenols and nonylphenol ethoxylates, and copper.

This issue is of particular concern to communities situated near endorheic basins, particularly freshwater lakes that do not have a natural outflow and lose water solely by evaporation or underground seepage or both.

#### **Industry Recommended Best Practices**

The procedures described herein are to be followed in order to effectively control water discharge from pools situated on private, residential properties.

It is important to consult with local authorities for specific criteria as discharge parameters may vary from municipality to municipality.

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#### **DISCHARGE OPTION – 1<sup>st</sup> Choice:**

Water from pools can be discharged onto the homeowner's property if it can be completely absorbed into the ground without flowing onto a neighbouring property or road and without entering a storm sewer or the surrounding environment.

- The slope and surface of the land as well as the rate of discharge must be taken into consideration when deploying this procedure.
- Ensure that pool water is never discharged onto the ground near or down an embankment or into a ravine or valley. Pool water can cause erosion to the land banks and may cause damage to vegetation.
- Care should be taken when exercising this method to avoid flooding of the home.

#### **DISCHARGE OPTION – 2<sup>nd</sup> Choice:**

In the event that it is not possible to discharge water onto the homeowner's property, it may be discharged to the home's sanitary sewer system via a temporary or permanent connection.

- Caution is recommended when using this method as flow rates may exceed the sanitary sewer's capacity.
- Debris may block or impede flow which could result in flooding.
- It is imperative that the sanitary sewer criteria be met if using this method. The local municipality is to be consulted regarding the pertinent sewer regulations. A permanent connection to the sanitary sewer may require a permit.

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#### **DISCHARGE OPTION – 3<sup>rd</sup> Choice:**

- a) If it is not feasible to discharge water from a “conventional Chlorine/Bromine pool” onto the property of the homeowner or to the sanitary sewer, it may be released to the storm sewer system provided the chemical levels of the pool wastewater do not exceed the following limits\*:

Chlorine	0.01 mg/L or less
Bromine	0.01 mg/L or less
Copper	0.04 mg/L or less
pH	6.0 to 9.5
Sodium Chloride (salt)	0.00 mg/L
Algaecide/Fungicides*	0.00 mg/L
Nonylphenols and Nonylphenol Ethoxylates	0.00 mg/L

\* Note: The municipality shall be consulted as criteria may vary.

- Wastewater released must meet all applicable discharge parameters.
- Wastewater must be discharged as closely to the storm sewer as is practicable.
- Avoid discharging water over sidewalks, driveways or roadways.
- Ensure the effluent is debris free and does not obstruct or restrict the storm sewer or its flow.
- Make sure the storm sewer is not clogged and is receiving water (e.g., Leaves may block flow in autumn).
- Ensure there is no erosion of property, roadways, curbs, etc.
- Wastewater may not enter the storm sewer if the drainage system is already full (e.g., after heavy rainfall).

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b) Test kits to measure the levels of chemicals in the water are commercially available. If chemical levels exceed the prescribed limits, the following steps are to be taken in order to bring the water to within the required specifications prior to discharging to a storm sewer:

- **Chlorine/Bromine** levels must be determined initially, and the water treated if the limit of 0.01 mg/L has been exceeded. Dechlorination granules may be added to the pool, hot tub or spa to neutralize the entire body of water.

Chlorine/Bromine concentrations in the wastewater (effluent) discharged to the storm sewer must also be tested, and neutralized with commercially available dechlorination tablets used in feeders.

- **pH** levels must be tested and adjusted to meet the discharge criteria. High pH can be reduced with the addition of muriatic acid or sodium bisulfate. Low pH can be increased with the addition of sodium carbonate (soda ash).

After an acid wash or a chlorine wash of a pool, the water must be neutralized to storm sewer limits before it is discharged.

- **Algaecides/Fungicides** dissipate over time. Do not add algaecides two weeks prior to discharging, particularly when winterizing or when treating a 'green pool' (i.e., an algae contaminated pool). Test the waste water to ensure that no algaecides are present prior to discharging into the storm sewer.
- **Nonylphenols** and **nonylphenol ethoxylates** may be present in some pool chemicals and are not permitted to enter the storm sewer system.
- **Copper** levels in the water are to be tested. If present in a concentration in excess of 0.04 mg/L the copper must be removed using commercially available products.
- **Sodium Chloride (salt)** from pools may not be discharged into the storm sewer. This applies to all "saltwater pools".

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#### **DISCHARGE OPTION – 4<sup>th</sup> Choice:**

Wastewater may be removed by a Ministry of Environment licensed hauler.

#### **Additional Considerations**

- The backwash water from the filter must be filtered, dechlorinated and meet all chemical level requirements if it is to be discharged to storm sewers. Otherwise it must be discharged to the sanitary sewer or onto the owner's property if it can be fully absorbed into the ground.
- The use of a cartridge filter will eliminate the need to backwash.
- Commercially available “one way” check valves on the skimmer and return fittings (used in conjunction with an air blower) will eliminate the need to lower the water level when winterizing. (Additional means to compensate for ice expansion in the skimmer may be required.)
- Rain water or snowmelt water that has collected on a pool cover can be discharged to the storm sewer, as long as the water is free of debris. Leaves, suspended solids and viscous substances must be removed from the water prior to discharge.
- The owner, operator, tenant or service contractor of a private pool shall report any spill to provincial and municipal authorities if chemicals have entered the natural environment, such as a stream, river, lake or the storm sewer system without proper treatment.

#### **Certification Program on Pool Discharge Best Management Practices**

A course offered by the Pool & Hot Tub Council of Canada addresses requirements specific to the operation, maintenance and seasonal closure of swimming pools. The information provided by the course provides direction to pool owners and service personnel in the proper treatment of discharged water, and ensures that procedures followed comply with Sewer Use By-laws prevalent in certain communities across the country.

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### Sources of Expertise:

A list of qualified pool service companies can be obtained directly from the Pool & Hot Tub Council of Canada. [www.poolcouncil.ca](http://www.poolcouncil.ca)

### Related Standards and Publications

*Environmental Best Management Practices for Private Swimming Pools, Hot Tubs/ Spas in the City of Toronto*, issued by Toronto Water.

*Canadian Environmental Quality Guidelines*, Council for the Ministers of the Environment (CCME)

### Informative Web-links

[www.toronto.ca/water/protecting\\_quality/pollution\\_prevention/swimmingpools.htm](http://www.toronto.ca/water/protecting_quality/pollution_prevention/swimmingpools.htm)

[http://www.toronto.ca/water/protecting\\_quality/pollution\\_prevention/pdf/swimming\\_pool\\_bmp.pdf](http://www.toronto.ca/water/protecting_quality/pollution_prevention/pdf/swimming_pool_bmp.pdf)

[www.winnipeg.ca/waterandwaste/sewage/drainPool.stm](http://www.winnipeg.ca/waterandwaste/sewage/drainPool.stm)

[www.brantford.ca/Pollution%20Control%20Publication%20%20Documents/Project1\\_Layout%201.pdf](http://www.brantford.ca/Pollution%20Control%20Publication%20%20Documents/Project1_Layout%201.pdf)

[http://www.mississauga.ca/portal/residents/seasonalactivities?paf\\_gear\\_id=9700018&itemId=104800889n](http://www.mississauga.ca/portal/residents/seasonalactivities?paf_gear_id=9700018&itemId=104800889n)

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