



## HOMES AND SENIORS SERVICES

**POLICY & PROCEDURE NUMBER: 2.14**

**DEPARTMENT:** *Maintenance*

**SUBJECT:** *Pool Maintenance*

**APPROVAL DATE:** December 2019

**REVISION DATE:**

**REVIEW DATE:** March 2022; November 2022

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### **CLASSIFICATION OF PUBLIC POOL:**

The pool at Terrace Lodge is considered a **Class B** pool.

### **POLICY**

#### **POOL OPERATION:**

Every owner of a public pool shall designate an operator. O. Reg. 494/17, s.6.

Every operator shall be trained in public pool operation and maintenance, filtration systems, water chemistry and all relevant safety and emergency procedures. O. Reg. 494/17, s.6.

Every owner/operator of a public pool must ensure that:

- all components of the recirculation system of the pool are maintained in proper working order;
- all surfaces of the pool deck and walls are maintained in a sanitary condition and free from hazards;
- the pool water is maintained free from visible matter that may be hazardous to the health or safety of swimmers;
- the submerged surfaces of the pool are white or light in colour, except for markings for safety purposes;
- the perimeter drain of the pool is kept free from debris;
- where changing rooms, toilets and shower facilities are provided for the pool, they are available for swimmers use before entering the deck;
- the pool, the deck and where provided, the dressing and locker rooms, toilets, showers and connecting corridors are: kept clean, disinfected and free from slipperiness; free of hazardous obstructions, and ventilated to remove odours;
- exposed piping (within the pool enclosure, inside the structure of the pool and inside appurtenant structures to the pool) are identified by:
  - colour coding with coloured bands at least 2.5 cm wide
  - colour coding with coloured bands at least 2.5 cm wide spaced along the piping at intervals not greater than 1.2 m, or
  - painting the entire outer surface of the piping, in accordance with the following code:

**Chlorine/Bromine – YELLOW**

**Potable Water – GREEN**



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### **POOL SAFETY:**

It is the responsibility of every owner and operator of a public pool to maintain the pool and its equipment in a safe and sanitary condition. There are many factors contributing to pool safety and they are not limited to the sections outlined below.

#### **Accessibility**

The pool must remain inaccessible to people who are not involved with its maintenance and operation during hours when it is not intended to be open to the public. Therefore; the pool must be enclosed by lockable door or barriers that are capable of preventing access to the pool deck.

#### **Black Disc and Water Clarity**

A black disc 15 cm in diameter on a white background is affixed to the bottom of the pool at its deepest point.

The pool water is of a clarity to permit a black disc 15 cm in diameter on a white background located at the bottom of the pool at its deepest point to be clearly visible from any point on the deck 9 m away from the disc.

#### **Safety Equipment**

The operator of the swimming pool must ensure that the following safety equipment listed in the table below is present at the pool at all times:

1. One electrically insulated or non-conducting reaching pole.
2. Two (2) buoyant throwing aids with a six (6) mm diameter rope that is at least half the width of the pool plus three meters.
3. One (1) spine board.
4. One (1) first aid box that is fully stocked

#### **Emergency Telephone**

A Telephone for Emergency Use is accessible no farther than 30 m from the pool and must be tested daily before the pool is opened for use.

#### **Ground Fault Circuit Interrupter (GFCI) and De-energizer**

Test buttons associated with the GFCI must be tested monthly or according to the manufacturer's instructions, whichever is more frequent.



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### **Pool Water Outlet Covers**

All pool water outlet covers must be visually checked daily, if any of the pool's water outlet covers is found to be loose or missing, the pool must be **closed** until the cover is repaired or replaced.

### **Chemical Safety and Storage**

Provisions must be made for the safe storage and handling of all chemicals required for pool operation.

**NOTE:** A hazardous situation can be created when chemicals come into contact with small amounts of water, heat or flames, or due to improper mixing or contamination.

Pool chemicals that are not stored appropriately can result in fires, toxic vapours or other incidents. Ensure manufacturers' instructions are followed when storing and handling chemicals.

Ensure that personal protective equipment (PPE) is available (gloves, respirators, apron, Etc.) and that Safety Data Sheets (SDS) for all chemicals used are located on site. Do not eat or drink in the chemical storage area.

**NOTE: NEVER ADD WATER TO CHEMICALS, ALWAYS ADD CHEMICALS TO WATER.** (This note does not preclude the owner/operator from any other requirements as set out by any other Act and/or Regulations.)

### **Reasons for Pool Closure**

It is the responsibility of the owner and/or operator to ensure that the pool and its equipment are maintained in a safe and sanitary manner. When these conditions are not met, swimmers are at an increased risk for injury or illness. Therefore, the owner and/or operator must take action, including closing the pool in some cases, to eliminate the risk. The following is a list of possible risks and the concerns associated with each, that should result in a pool closure, see table below:



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**Table 1.0**

<b>Risk or Concern</b>	<b>Consequence(s)</b>
Broken, loose, or missing gravity or suction outlet	Physical body / limb entrapment, disembowelment, potential drowning.
Cloudy Water: Pool – the black disc is not clearly visible from any point on the deck 9m away from the disk	Fellow swimmers may not see a swimmer in distress at the bottom of the pool. Could also indicate unbalanced water chemistry.
No disinfectant or insufficient levels of disinfectant	Recreational water illnesses (e.g. eye, skin, irritation, etc).
No disinfectant chemical available on the premise	Recreational water illnesses (see above)
Missing or incomplete test kit	Recreational water illnesses, inability to test whether chemicals are at appropriate levels. (see above)
Circulation system not working	Recreational water illnesses (see above)
Emergency telephone not working	Inability to get needed help
Ground Fault Circuit Interrupter (GFCI) not working	Potential electrical hazard
Emergency equipment deficient/missing/not working/cannot be tested to verify that it is working.	Difficulty in getting injured swimmer the lifesaving assistance they need
Pool fouling	Recreational water illnesses (see above)

**POOL CHEMISTRY:**

**Required Pool Water Chemical Levels**

The table below outlines the chemistry requirements for pool water to ensure adequate disinfection is achieved in order to kill microorganisms that may cause recreational water illnesses.

**Table 2.0**

<b>Chemical Test</b>	<b>Required Level</b>
Free available chlorine (un-stabilized)	At least 0.5 mg/L (ppm)
Free available chlorine (stabilized)	At least 1.0 mg/L (ppm)
Bromine	At least 2.0 mg/L (ppm)
pH	7.2 – 7.8
Total Alkalinity	Minimum of 80 mg/L (ppm)

**NOTE: mg/L = milligrams per litre; ppm = parts per million**



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It is important to ensure that pH, and total alkalinity, levels are within the required ranges, as the ability of chlorine/bromine to disinfect pool water decreases when the levels of these chemicals are too high or too low.

### **Pool Fouling - Formed Stool**

1) Direct everyone to **leave** the pool, do not allow anyone to enter the contaminated pool until all decontamination procedures are completed.

2) Remove as much of the fecal material as possible using a net or scoop and dispose of in a sanitary manner. Clean and disinfect the net or scoop (e.g. after cleaning, leave the net or scoop immersed in the pool during disinfection).

**VACUUMING STOOL FROM THE POOL IS NOT RECOMMENDED.**

3) Raise the chlorine to 2 ppm (if less than 2 ppm), and ensure the water's pH is between 7.2 - 7.5 and temperature is about 77°F (25°C). The chlorine concentration was selected to keep the pool closure time to approximately 30 minutes.

Other concentrations or closure times can be used as long as the CT (Contact Time) inactivation value is kept constant.

4) Maintain the chlorine concentration at 2 ppm, pH 7.2 - 7.5, for at least 25 minutes before reopening the pool. Local Regulations may require higher chlorine levels in the presence of chlorine stabilizers, which are known to slow disinfection. Ensure that the filtration system is operating while the pool reaches and maintains the proper free chlorine concentration during the disinfection process.

### **Pool Fouling- Diarrhea**

1) Direct everyone to **leave** the pool. If you have multiple pools that use the same filter—all pools will have to be shut down. Do not allow anyone to enter the contaminated pool until all decontamination procedures are completed.

2) Remove as much of the fecal material as possible using a net or scoop and dispose of in a sanitary manner. Clean and disinfect the net or scoop (e.g. after cleaning, leave the net or scoop immersed in the pool during disinfection).

3) Raise the free chlorine concentration to 20 ppm (mg/L) and maintain the water's pH between 7.2 - 7.5 and temperature at about 77°F (25°C). The chlorine and pH should remain at these levels for at least 12.75 hours to achieve the CT (Contact Time) inactivation value of 15,300 minutes. Cryptosporidium CT values



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are based on the inactivation of 99.9% of oocysts. Laboratory studies indicate that this level of *Cryptosporidium* inactivation cannot be reached in the presence of 50 ppm chlorine stabilizer (cyanuric acid), even after 24 hours at 40 ppm free available chlorine, pH 6.5 at a temperature of about 77°F (25°C).

4) Ensure that the filtration system is operating while the pool reaches and maintains the proper chlorine level during disinfection. If necessary, before attempting the hyperchlorination of any pool, consult with an aquatics professional to determine the feasibility, the most optimal and practical methods, and needed safety considerations.

5) Backwash the filter thoroughly after reaching the CT value. Be sure the effluent is discharged directly to waste and accordance with local Regulations. Do not return the backwash through the filter. Where appropriate, replace the filter media.

6) Allow swimmers back into the pool after the required CT value has been achieved and the chlorine level has been returned to the normal operating range allowed by the state or local regulatory authority.

### **Tests and Inspections**

In order to comply with *Ontario Regulation 565 – Public Pools*, the following tests and inspections must be conducted by the owner/operator of a public pool.

**NOTE:** Where pool water is controlled by automatic sensing devices and the pH value and the disinfectant residual (free available chlorine or bromine) are automatically determined and displayed, or continuously recorded, the operator shall, at least once every day, manually determine the following to ensure that the automatic sensing devices continue to work properly:

- the pH value;
- the free available, and
- the total bromine residual.

### **Daily Recordings (Monday to Friday):**

It is the responsibility of every operator to maintain and sign daily records in logbook (**See Appendix A**) that outline the following: ORP, Bromine, pH, Clarity, PSI, Temperature, Total Alkalinity, Swimmers, H<sub>2</sub>O amount, makeup water meter reading, time of day when the Emergency Telephone and Outlet Covers were checked.



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### **Daily Tasks:**

Housekeeping to ensure that the pool deck, and the dressing and locker rooms, water closet, showers and connecting corridors appurtenant to the pool or spa are, kept clean, free from slipperiness and disinfected and free of hazardous obstructions.

### **Weekly Tasks:**

Operator to backwash and vacuum pool; clean all strainers; and ensure area is ventilated so as to remove odours and record in logbook (**See Appendix A**).

### **Monthly Tasks:**

It is the responsibility of every operator to, maintain and sign monthly records that outline the time of day the emergency stop button, water, gravity and suction outlet covers in the pool and the Ground Fault Circuit Interrupter (GFCI) are tested or checked. Physical check/verify that the main drains are intact and record in logbook (**See Appendix A**).

### **Record Keeping**

All pool records must be kept for at least one year, be signed by the operator who conducted the tests and inspections, and be available for the Public Health Inspector when requested.

### **Test Kit and Testing Method**

A fully equipped test kit must have the appropriate chemical reagents to test for the following:

- total chlorine or total bromine;
- total alkalinity;
- pH.

### **Make-up Water**

To reduce the effects of total dissolved solids, *Ontario Regulation 565 - Public Pools* requires that **15 litres of Make-up Water per bather per day** must be added to pool water each operating day, as determined by a water meter. The pool and its recirculation system must also be separate from the make-up water supply and from the sewer or drainage system into which the Make-up Water drains.

### **Water Meter**

Every owner and operator shall ensure that a water meter is provided that registers the volume of all Make-up Water that is added to the pool. Make-up Water can be calculated using the following formula:



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**Make-up Water = 15 L x average daily number of swimmers**

### **Turnover Rate**

Turnover Rate is the time it takes (in hours) for the circulation system to move an amount of water equivalent to the volume of the pool through the filtration system one time. Once processed through the filter, water is disinfected and then returned to the pool. Turnover Rate is calculated using the following formula:

**Turnover Rate (hours) = Pool Volume ÷ Flow Rate ÷ 60 minutes**

### **Pool Volume**

Pool volume is calculated using the following formula:

**Volume = Length x Width x Average Depth**

### **Flow Meter**

Public pools must be equipped with a flow measuring device that displays the rate of water flowing through the circulation system. Flow Meters must be properly sized for the design flow rate (the flow rate necessary to meet all operational requirements). The Flow Meter is an important device designed to help the owner or operator determine whether the appropriate pool water turnover rate is being achieved. The flow meter gauge must be located in a manner that permits easy observation.

### **Calculating the Maximum Swimmer Load**

The surface area of the pool water needs to be calculated before the calculation can be done to determine the maximum number of swimmers that are allowed to be within the pool enclosure. The shallow and deep areas of the pool must be calculated separately.

- The shallow area of the pool is the part that is 1.35 metres (4.5 feet) or less in depth.
- The deep area of the pool is the part that is greater than 1.35 metres (4.5 feet) in depth.

### **Formula for Maximum Swimmer Load:**

**Maximum Swimmer Load = Area of deep end divided by 2.5 + Area of shallow end divided by 1.4 = \_\_\_\_\_ people**





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### **SIGNAGE:**

The following signage must be posted:

- General Pool Rules Signs
- Maximum Bather Load
- Shower Signs
- No Diving Sign
- Unsupervised Pool Sign

### **Deck Markings**

On the deck of the pool, the water depths must be clearly marked in figures not less than 10 cm high indicating:

- deep points;
- shallow points, and
- breaks between gentle and steep bottom slopes.

In addition, the words **DEEP AREA** and **SHALLOW AREA** must be marked in figures not less than 10 cm high at their appropriate locations on the deck.

### **Emergency Telephone Sign**

A sign including the information outlined below must be posted at the location of the Emergency Telephone or the Telephone for Emergency Use:

**THIS PHONE IS FOR EMERGENCY USE ONLY**

**IN CASE OF EMERGENCY**

- ❖ PLEASE LIFT RECEIVER
- ❖ “PRESS” PAGE BUTTON
- ❖ AND ANNOUNCE THE EMERGENCY

**TERRACE LODGE 911 NUMBER – 49462 Talbot Line**

### **INCIDENT REPORTING:**

All pool related incidents must be reported to the Home Administrator and an incident report must be filled out and submitted to the Home Administrator and Human Resources.