



Algoma
PUBLIC HEALTH
Santé publique Algoma

Public Pool and Spa Operator's Manual



www.algomapublichealth.com

TO: PUBLIC POOL AND SPA OWNERS AND OPERATORS

RE: Operating and Maintaining Public Pools and Spas

Swimming, playing and relaxing in pools and spas are all activities that are part of a healthy lifestyle. Thank you for providing these public facilities for Algoma residents and for operating them safely. Your everyday work is important in protecting the health of our communities.

The operation and maintenance of public pools and spas are governed by Ontario Regulation 565/90 under the Health Protection and Promotion Act, R.S.O.1990, c.H.7. To ensure compliance with this mandatory Regulation, public health inspectors carry out routine inspections of all public pools and spas.

Algoma Public Health is providing you with an updated Pool and Spa Operator's Manual to help you follow the rules and requirements of the Regulation. It contains information and guidance to help maintain safe pools and spas. This manual is also available on our website at www.algomapublichealth.com.

Owners and operators are legally responsible for ensuring that pools and spas are operated and maintained in accordance with provincial requirements. Failure to comply exposes bathers to unnecessary risks, such as water-borne communicable diseases and potentially life-threatening injuries.

After inspections, public health inspectors issue reports listing any contravention of the Regulation or the Act. Owners and operators are responsible for correcting these promptly.

If you have questions about how to safely operate your pool or spa, please call your local Algoma Public Health office, and ask to speak with a public health inspector. We welcome the opportunity to work with you so that, together, we create a safe and healthy environment for pool and spa users.

Sincerely,

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Associate Medical Officer of Health

/rm

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Introduction

As of July 1st 2018, Ontario Regulation 428/05 (Public Spas) was amalgamated with Ontario Regulation 565/90 (Public Pools). One regulation now governs both pools and spas.

Swimming pools and spas have been implicated in the transmission of infections, accidents and a number of accidental and preventable drownings.

This document is designed to provide basic information on the minimum safety standards necessary in the operation of public swimming pools and spas. It highlights some of the significant sections of the Swimming Pool Regulation 565/90 made under the Health Protection and Promotion Act, Revised Statutes of Ontario 1990 c.H.7.

It is intended to be a reference document for owners/operators and/ or lifeguards in meeting the minimum safety and sanitary requirements of the Regulation. It is **NOT** intended to substitute the professional expertise of pool and spa maintenance companies and public health inspectors.

This manual does not include the requirements for Wave Action Pools and Modified Pools.

Public Health Inspectors are available for consultation on compliance issues with regards to your pool or spa. To reach an inspector, please call your local Algoma Public Health Unit office.



Exemption from Ontario Regulation 565/90 -Public Pools & Public Spas

Not every swimming pool and spa is covered by this Regulation. The regulation does not apply to a swimming pool or spa that serves an apartment building or condominium with five or fewer units or suites, provided adequate signage is displayed. See below.

Section 4.1 (1) & (2)

The following public pools and spa are exempt from this Regulation:

1. Pools and spas used by the occupants and their visitors of an apartment building, condominium or co-operative or commune property that contains fewer than six dwelling units or suites.
2. Pools and spas used by members of a community of less than six single-family private residences.
3. Pools and spas operated on the premises of a hotel that contains fewer than six units or suites, for the use of its guests, if the following notice is displayed in a conspicuous place within the pool enclosure, printed in letters at least 25 millimetres high with a minimum five millimetre stroke:

**CAUTION
SWIM AT YOUR OWN RISK
THIS POOL IS NOT SUBJECT TO THE REQUIREMENTS OF ONTARIO REGULATION
565 - PUBLIC POOLS**

**CAUTION
USE SPA AT YOUR OWN RISK
THIS SPA IS NOT SUBJECT TO THE REQUIREMENTS OF ONTARIO REGULATION 565
- PUBLIC POOLS**

Notification of Public Pool and/or Public Spa Opening

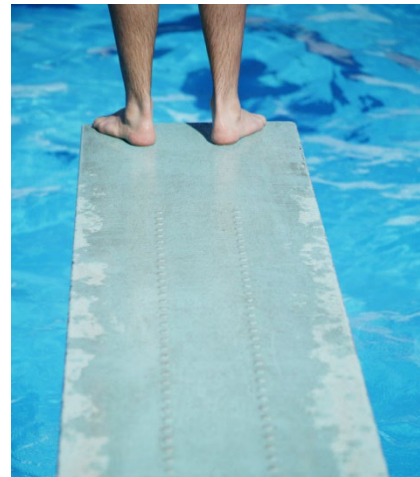
The Regulation requires owners/operators to notify the Medical Officer of Health of their intention to open or re-open a public swimming pool or spa after closure, construction or alteration (refer to Section 5(1)(2) & (3). Failure to notify may result in legal action and fines. In order to avoid such penalties, please complete the notification form (see Appendix - 2 **PUBLIC POOL/SPA OPENING NOTIFICATION FORM**) and forward it to your local Algoma Public Health office at least two weeks prior to the date of intended opening. This must be done in the following circumstances:

New Public Pool or Spa

Section 5 (1)

At least 14 days before a public pool or public spa is put into use after construction or alteration, the owner or the owner's agent shall notify, in writing, the medical officer of health or a public health inspector in the health unit where the pool or spa is situated,

- (a) of the building permit number issued for the construction or alteration of the pool or spa ;
- (b) of whether or not all the preparations necessary to operate the pool or spa in accordance with this Regulation have been completed;
- (c) of the date that the pool or spa is to be opened or re-opened for use;
- (d) in the case of a pool, whether the pool is intended to be operated as a Class A or Class B pool; and
- (e) of the name and address of the operator.



Re-opening a Public Pool or Spa After Construction

Section 5 (2)

A person who proposes to open or reopen a pool or spa after construction or alteration shall not open or reopen the pool without first obtaining permission in writing from the medical officer of health or a public health inspector for the health unit where the pool or spa is situated.



Re-opening a Public Pool or Spa after closure

Section 5 (3)

At least 14 days before the re-opening of a public pool or spa after any closure that lasts more than four weeks, the owner or operator shall notify in writing the medical officer of health or a public health inspector for the health unit where the pool or spa is situated,

- (a) of the date that the pool is to be re-opened;
- (b) of the name and address of the operator; and
- (c) in the case of a pool, whether the pool is intended to be operated as a Class A or a Class B pool.



> 4 weeks

Inspection Result Disclosure

Section 5 (4)

Every operator of a public pool or spa shall ensure that the results of any inspections conducted by a public health inspector are posted in accordance with the inspector's request.

Designated Trained Operator

Section 6 (1)

Every owner shall designate an operator.

An operator is a person designated by the owner of a public pool or public spa as being responsible for the operation of the pool or spa.



Section 6 (2)

Every operator shall be trained in public pool and public spa operation and maintenance, filtration systems, water chemistry and all relevant safety and emergency procedures.

Equipment

Section 6 (3)

Every owner and every operator shall,

- (a) maintain the public pool or public spa and its equipment in a safe and sanitary condition.

Pool/Spa Rendered Inaccessible

Section 6 (3)

Every owner and every operator shall,

- (b) ensure that, except during the daily use period, the pool or spa is rendered inaccessible to persons who are not involved with its operation, inspection or maintenance;



Circulation System and Chemical Feeders

Section 6 (3)

Every owner and every operator shall,

- (d) except for stoppage for maintenance, draining, repairs, or backwashing of filters, or for a closure for a continuous period of seven days or more, ensure that the circulation system and the chemical feeders are in continuous operation throughout the entire **twenty-four hours** of each day without regard to the daily use period.

Recirculation System

Section 6 (6)

Every owner and every operator shall ensure that,

- (a) all components of the of the pool or spa are maintained in proper working order.

Decks and Walls

Section 6 (6)

Every owner and every operator shall ensure that,

- (b) all surfaces of the pool or spa deck and walls are maintained in a sanitary condition and free from potential hazards;
- (e) the perimeter of the pool or spa deck is clearly delineated by painted lines or other means where any area contiguous to the pool or spa deck may be confused with the deck.

Changing Rooms, Toilets and Shower Facilities

Section 6 (6)

Every owner and every operator shall ensure that,

- (c) where dressing rooms, water closets and shower facilities are provided for the pool or spa, they are available for use of the bathers before entering the deck.

Chemical Storage and Handling

Section 6 (6)

Every owner and every operator shall ensure that,

- (f) provisions are made for the safe storage and handling of all chemicals required in the operation of the pool or spa.

Foot Sprays

Section 6 (6)

Every owner and every operator shall ensure that,

- (g) where footsprays are provided for the pool or spa they are maintained in good working order and are kept sanitary.

Submerged Pool Surfaces

Section 6 (6)

Every owner and every operator shall ensure that,

- (h) **in the case of a pool**, the submerged surfaces of the pool are white or light in colour, except for markings for safety or competition purposes.

How To Determine Turnover Rates

<i>Section 6(2)(c)(i) – 6(2)(c)(ii)</i>		
Type of Pool	Turnover Rate	Turnover Period
Class A Pool constructed after 30 th April 1974	4 x the total volume of the pool	1 x every 6 hours per day
Class A Pool constructed before 1 st May 1974	3 x the total volume of the pool	1 x every 8 hours per day
Class B Pool	3 x the total volume of the pool	1 x every 8 hours per day

Turnover Rate - the rate at which the volume of water is filtered, disinfected and returned to the pool each day.

Turnover Period - the period of time in which the volume of water is filtered, disinfected and returned to the pool each day.

1. Determined the volume in cubic metres (meters³)

Volume = Length in metres x Width in metres x Average Depth in metres

= _____ x _____ x _____

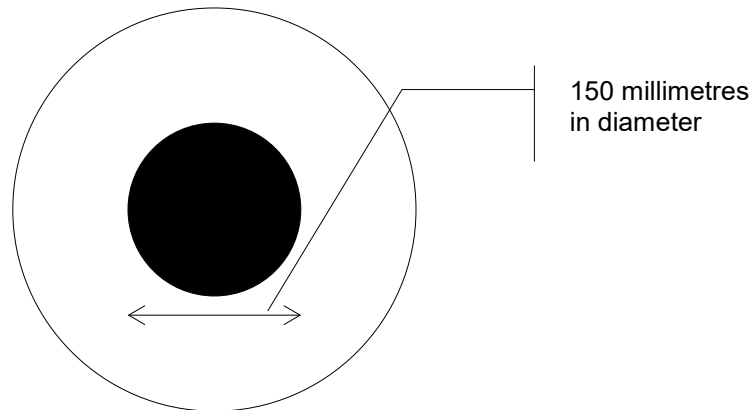
= _____ metres³

2. Converting meter³ to litres

$$1\text{m}^3 = 1000\text{L}$$

$$\text{Volume} = \text{_____ m}^3 \times 1000 \text{ l/m}^3$$

Black Disc Test and Pool Water Clarity



Section 6 (6)

Every owner and every operator shall ensure that,

- (m) in the case of a pool, a black disc 150 millimetres** in diameter on a white background is affixed to the bottom of the pool at its deepest point

Section 7 (4)

Every owner and every operator, other than an owner and operator of a modified pool or a wave action pool shall ensure that the pool water is of a clarity to permit **a black disc 150 millimetres** in diameter on a white background located on the bottom of the pool in the area at its deepest point to be **clearly visible from a point on the deck nine metres away** from the disc.

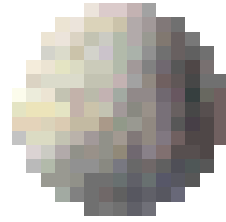
Poor pool water clarity adds to higher maintenance costs and swimmer dissatisfaction. More importantly, it significantly contributes to incidents, including drownings as a result of being unable to see a distressed bather. As well, failure to maintain good pool water clarity is contrary to the Public Pool Regulation. For these reasons, a Public Health Inspector will order a pool closed if the pool does not meet the mandatory pool water clarity requirement.

In order to locate and rescue a drowning bather it is essential that the pool water is of sufficient clarity. The Public Pool Regulation requires that a black disc on a white background be affixed to the bottom of a public swimming pool at its deepest point. The black disc is used as a standard for measuring pool water clarity. This “visibility standard” requires that the black disc must be **clearly visible** from any point on the pool deck at a distance of 9 meters away from the disc.

Black Disc Not Clearly Visible

Section 18.1

Where a public pool or spa is open for use and the clarity of the water in the pool and the available illumination or either of them decreases to a level where the visibility standard described in subsection 7 (4) is not met, the operator shall direct all bathers to leave the pool or spa, ensure that no bather remains in the water and prevent bathers from having access to the pool or spa until the water clarity and the available illumination or either of them has increased to a level where the conditions meet the required standard of visibility.



When the black disc is not clearly visible, it is the responsibility of the owner/operator to ensure that all bathers are directed to leave the pool immediately, that no bather remains in the water and that bathers are prevented from gaining access to the pool. The entire pool area must be vacated.

Pipes Colour Coded

Section 6 (6)

Every owner and every operator shall ensure that,

(p) in the case of a pool, exposed piping within the pool enclosure, inside the structure of the pool and inside appurtenant structures to the pool are identified by,

- (i)** colour coding with coloured bands at least twenty-five millimetres wide spaced along the piping at intervals not greater than 1.20 metres, or
- (ii)** painting the entire outer surface of the piping, in accordance with the following code:

Chlorine – yellow

Potable water – green.

Water Treatment (Water Balance)

In order for the sanitizer (chlorine or bromine) to destroy harmful organic matter, the pool or spa water must be in proper chemical balance. Proper chemical balance means that the pH, total alkalinity, calcium hardness, temperature and total dissolved solids must be kept at levels that ensure water is neither corrosive nor scale-forming. To ensure proper chemical balance, maintain the range outlined in Sections 7(8) (a) to 7(8) (g) of the Regulation for these.

Make Up Water

Section 6 (6)

Every owner and every operator shall ensure that,

- (j) **in the case of a pool**, at least 15 percent of the total pool water volume is capable of being withdrawn from the gutter or skimmer lines daily and discharged to waste drains.

Section 7 (1)

Every owner and every operator of a public pool or public spa shall ensure that the clean water and the make-up water are free from contamination that may be injurious to the health of the bathers.

Section 7 (2)

Every owner and every operator shall ensure that the pool or spa water and its circulation system is separate from the potable water supply and from the sewer or drainage system into which it drains by air gaps or other devices that prevent the water in the pool or its circulation system from flowing back into the potable water supply, and the water in the sewer or drainage system from flowing back into the pool or spa or its circulation system.

Section 7 (3)

Every owner and every operator shall ensure that the pool or spa water is maintained free from visible matter that may be hazardous to the health or safety of the bathers.

Section 7 (13)

In the case of a public pool, every operator shall add make-up water to the pool during each operating day in a minimum amount of 15 litres per bather as determined by a water meter installed for the purpose.

Section 7 (14)

Every operator of a **public spa** with a volume that exceeds 4,000 litres shall add make-up water to the spa during each operating day in an amount that is a minimum of 15 litres per bather use, to a maximum of 20 per cent of the total spa volume.

Section 7 (16)

Every operator of a **public spa** with a volume that is 4,000 litres or less shall drain to waste and refill the total volume of water in the public spa in accordance with the following formula:

$$WRI = V \div (10 \times U)$$

where,

WRI = the maximum number of operating days that may elapse between drainings, rounded up to a whole number,

V = the total volume of the spa in litres, and

U = the total estimated number of bather uses per operating day.

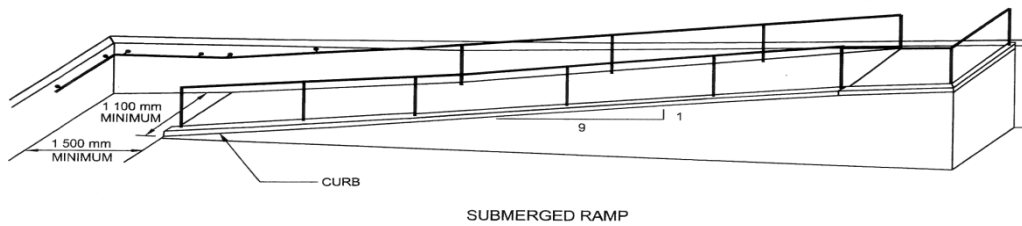
Pool and Spa water will become stale if it is not regularly refreshed with fresh water. The Public Pool Regulations require fresh water to be added to the pool on daily basis. The amount of water added is dependent on the number of bathers admitted to the pool. **In the case of a pool**, for every bather per day, 15 litres of fresh water must be added, to a maximum of 20% of the pool volume. This can be facilitated by first discharging equal amounts of pool water via the drain when vacuuming. To ensure a sufficient amount of “make-up” water (fresh water) is added to the pool, the regulation requires the fresh water line to be equipped with a water meter.

Water is also lost from the pool due to bather load (swimmers splashing water out of the pool) and through evaporation. Additional amounts of “make-up” water (fresh water) must therefore be added to a swimming pool each day. The addition of make-up water to a pool will ensure proper levels of water in the pool for the re-circulation system to operate efficiently. Adding make-up water to the pool will also help to ensure that the sanitizing agents have their maximum effect.

The amount of fresh water to be added daily to a pool is dependent on the number of bathers admitted to the pool. Ontario Regulation 565 of the Revised Regulations of Ontario 1990 Section 7 (13) requires **for every bather per day, 15 litres (3.3 imperial gallons) of fresh water be added, to a maximum of 20% of the pool volume.**

To measure the amount of make-up water, a water meter must be installed on the water make-up line. Where a permanent water meter can not be installed, a portable make-up water meter may be used provided that it is kept on the premises at all times, it is readily available and the appropriate connecting tools are available. **The operator must record the amount of make-up water added to pool each day in the daily records.**

Pools with Ramps



Section 6 (6)

Every owner and every operator shall ensure that,

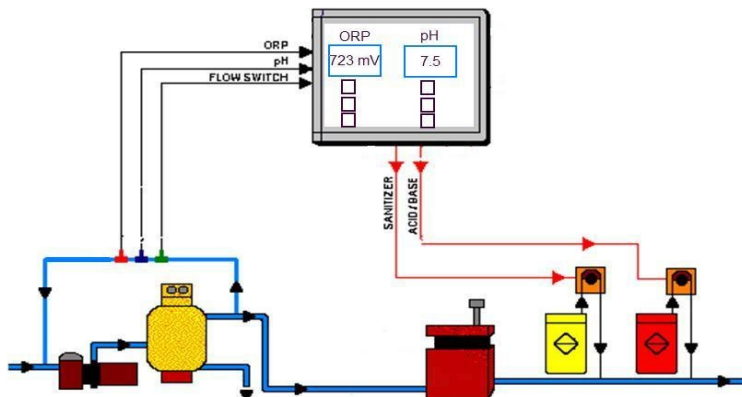
- (n) where the pool has one or more ramps that are not submerged and that are adjacent to the pool wall and that are used for access to the water, the pool is provided with a removable barrier that separates the deck from the ramp;
- (o) where the pool has one or more ramps that are submerged, that are adjacent to the pool wall and that are used for access to the water, the pool is provided with a removable barrier that separates the walkway from the deck.

Section 19

Every owner and every operator of a **public pool** shall ensure that, at a minimum, the following notices and markings are displayed in the indicated places:

- 10. Where a **pool** is provided with one or more ramps, a notice located conspicuously on each wall or fence enclosing the pool the words **CAUTION - NO DIVING**.
- 11. Where a **pool** is provided with one or more ramps that,
 - i. are not submerged, are adjacent to the pool wall and are used for access to the water and there is a removable barrier separating the deck from the ramp, the ramp shall bear a conspicuous notice on which is printed in letters at least twenty-five millimetres high the words **UNSUPERVISED BATHERS ARE NOT ALLOWED BEYOND THIS POINT**.
 - ii. are submerged, are adjacent to the pool wall and are used for access to the water and there is a removable barrier separating the walkway from the deck, the removable barrier shall bear a conspicuous notice on which is printed in letters at least twenty-five millimetres high the words **BATHERS ARE NOT ALLOWED BEYOND THIS POINT**.

Oxidation Reduction Potential (ORP)



An ORP reading on an automatic sensing device (controller) of a pool is an indicator of the sanitizer's (chlorine or bromine) ability to destroy harmful organic matter in the water, such as bacteria, viruses, human waste, etc. This is measured in milli-volts (mV).

The ORP value is affected by both the pH (hydrogen ion concentration) and the amount of cyanuric acid in the spa water. As the amount of cyanuric acid increases, the effectiveness of chlorine/bromine decreases resulting in a corresponding reduction in the ORP reading. Similarly, as pH increases there will be a corresponding reduction in the ORP reading. However, as pH decreases the production of hypochlorous acid increases, resulting in an increase in the ORP reading.

The accuracy of an ORP reading is also dependent upon proper installation and maintenance of measuring equipment. The electrodes (probes) that measure the ORP are designed to operate with a set volume of water flowing past it. Probes must be kept clean and free of any deposits to give accurate ORP readings. Further information on the proper maintenance of such equipment can be obtained from the manufacturer.

It is important to remember that the ORP is a measure of the effectiveness of chemicals in the water. Milligrams per litre (mg/l) or parts per million (PPM) is a quantitative measure of the quality of chemicals in the water. A substantial difference between the ORP reading and the manual chemical test (mg/l) means that the automatic sensing device requires maintenance.

The Regulation requires an owners/operator to record the ORP reading one-half hour before a pool is open for use and once during the operating day. Owners/operators must therefore establish the daily use period for the pool.

Daily Records

Section 7 (11)

Every operator of a public pool or public spa shall test and record the following regarding the pool or spa water each operating day, by means of manual test methods, a minimum of 30 minutes prior to opening:

1. Total alkalinity.
2. pH value.
3. Free available chlorine and total chlorine or bromine residual.
4. Water clarity.

Section 7 (12)

Where the pool or spa has an automatic sensing device, the requirements provided for in subsection (11) must be further checked and recorded at least every four hours until the daily use period has ended. For pools and spas without an automatic sensing device, the requirements provided for in subsection (11) must be further manually checked and recorded at least every two hours until the daily use period has ended.

Section 7 (14)

Every operator of a **public spa** with a volume that exceeds 4,000 litres shall add make-up water to the spa during each operating day in an amount that is a minimum of 15 litres per bather use, to a maximum of 20 per cent of the total spa volume.

Section 7 (15)

Every owner and every operator of a public pool or a public spa to which subsection (13) or (14) applies shall ensure that a water meter is provided that registers the volume of all make-up water that is added to the pool or spa, as the case may be.

Section 7 (16)

Every operator of a **public spa** with a volume that is 4,000 litres or less shall drain to waste and refill the total volume of water in the public spa in accordance with the following formula:

$$WRI = V \div (10 \times U)$$

where,

WRI = the maximum number of operating days that may elapse between drainings, rounded up to a whole number,

V = the total volume of the spa in litres, and

U = the total estimated number of bather uses per operating day.

Section 7 (17)

An operator who drains a **public spa** in accordance with subsection (16) shall, before refilling the spa, inspect all parts of the spa including, but not limited to, drain covers, suction fittings and all emergency equipment within the spa, and ensure that they are properly secured and operational

Section 8

Every operator of a public pool or public spa shall keep and sign daily records that shall set out, in relation to each operating day,

- a) the estimated number of bather uses during the operating day;
- b) the reading of the make-up water meter for pools as of the end of the day;
- c) any emergencies, rescues or breakdowns of equipment that have occurred;
- d) the time of day the emergency stop button test, where applicable, was performed;
- e) the results of the tests required under subsections 7 (11) and (12) (chemical parameters);
- f) **in the case of a public spa**, whether the public spa was drained, inspected and refilled in accordance with subsections 7 (16) (17), if those subsections apply; (make-up water)
- g) the results of the tests required under subsection 16 (2) and the times they were performed (emergency telephone); and
- h) the type and amount of chemicals added manually to the pool or spa

Owners/operators have a legal responsibility to keep proper records. These records play a significant role in every aspect of managing a pool or spa. The records show how the facility operates, help to reduce costs such as liabilities and ensure staff and bather safety. Refer to Sections 8(a) - 8(h) of the Regulation to determine what must be recorded daily.

Weekly Records

Section 16.1

e) **in the case of the pool**, where cyanurate stabilization is maintained, the operator shall determine the concentration of cyanuric acid not less than once every week.

Monthly Records

Section 16.1

Every owner and every operator of a public pool or public spa shall ensure that,

- (a) all of the water, gravity and outlet covers are inspected at least once within each period of 30 operating days;
- (b) if any of the water outlet covers is found to be loose or missing, the pool or spa is closed until the cover is repaired or replaced;
- (c) the test-buttons associated with the ground current leakage detecting and de-energizing devices are,
 - i) activated during the daily use period, and

- ii) tested either monthly or according to the manufacturer's instructions, whichever is more frequent;
- f) **in the case of a spa**, the emergency stop button and vacuum release mechanisms are tested and inspected at least once within each period of 30 operating days;
- g) a written record of each inspection under this section is made and signed by the person who performed the inspection

Record Keeping

Section 9

A record required to be kept under section 8 shall be retained for a period of one year from the date of making the record.

Water Meter

Section 7 (13), (14) and (15)

Every owner and every operator shall ensure that a water meter is provided that registers the volume of all make-up water that is added to the pool or spa.

Any body of water will go stale if not refreshed. The Regulation requires the addition of fresh water to be added daily, dependent on the number of bathers admitted to the pool. **For every bather per day, 15 litres of fresh water must be added to a maximum of 20% of the pool volume.**

This can be done by discharging water to drain when vacuuming. A water meter (a legal requirement for all pools) can be used to determine that a sufficient volume of fresh water is added.



Bather Load



Section 10 (1)

In the case of public pools, every owner and every operator, other than an owner and operator of a wave action pool, shall ensure that the total number of bathers permitted at any instant on the deck and in the pool does not exceed the maximum bather load as determined by the following formula:

$$\text{Maximum bather load} = \frac{D}{2.5} + \frac{S}{1.4}$$

Where,

D = the area in square metres of the part of the pool that is deeper than 1.35 metres; and

S = the area in square metres of the part of the pool that is 1.35 metres in depth or shallower.

Section 10 (2.1)

In the case of public spas, every operator of a public spa shall ensure that the maximum number of persons permitted to use the spa at any one time is the lesser of the following:

1. One person per square metre of surface water area.
2. The maximum bather load identified by the manufacturer of the spa

Benches or Seats

Section 10 (3)

In the case of public pools, benches or seats for temporary use during aquatic displays or competitive events attended by spectators may be placed on the deck to accommodate the spectators, provided that,

- (a) the spectator area and the access to it are separated from the remainder of the deck by a barrier placed not less than 0.60 metre from the edge of the pool; and
- (b) the benches or seats when not in use are stored outside the deck area.

Moveable Equipment

Section 10 (4)

In the case of public pools, where moveable equipment, including portable diving stands, starting platforms and swing ropes are provided for the use of the bathers, every owner and every operator shall ensure that the equipment is in place on the deck only during periods when its use is directly supervised by aquatic personnel.

Food and Beverage

Section 10 (5)

Every owner and every operator shall ensure that no food or beverage except water is supplied or consumed in the pool or spa or on the deck.



Deck, Dressing Rooms, Locker Rooms, etc.

Section 11 (1)

Every owner and every operator shall ensure that the pool or spa, the deck and, where provided, the dressing and locker rooms, toilets, showers and connecting corridors appurtenant to the pool or spa are,

- (a) kept clean, free from slipperiness and disinfected;
- (b) free of hazardous obstructions; and
- (c) ventilated so as to remove odours



Toilets

Section 11 (2)

Every owner and every operator shall ensure that where toilets are provided they are supplied with toilet paper.



Bathing Apparel and Towels

Section 12

Where the operator of a public pool or public spa supplies bathing apparel or towels, the operator shall ensure that they are,

- (a) cleaned, disinfected and stored in a sanitary manner; and
- (b) stored separately from clean apparel and towels after each use pending removal for laundering.

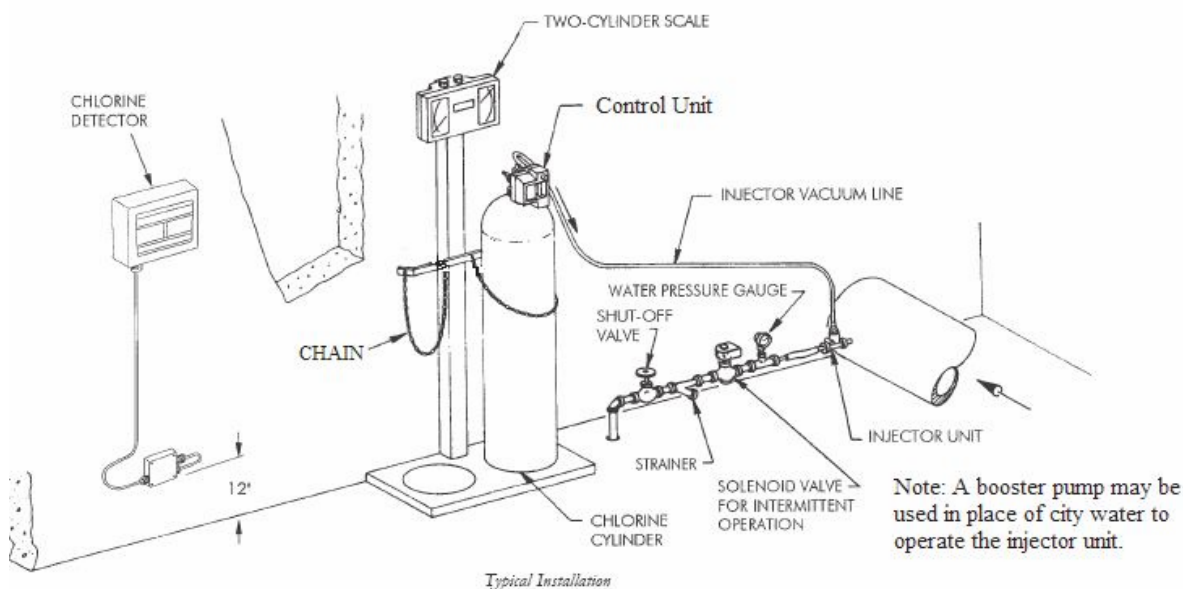


Gas Chlorination

Section 13

Where a gas chlorinator is used in a **public pool**, the owner and the operator of the pool shall ensure that,

- (a) full-face, self-contained, air-supplied respiratory equipment is provided suitable for use in a chlorine atmosphere for a period of fifteen minutes and kept in a dust-tight cabinet located outside the area of probable contamination;
- (b) the chlorination equipment is operated by a person or persons trained in the operation of chlorination equipment;
- (c) the chlorination system automatically ceases to inject chlorine solution whenever the recirculation system ceases to supply clean water to the pool;
- (d) every chlorine cylinder on the pool premises is anchored at all times to prevent its accidental movement;
- (e) except when a chlorine cylinder is connected to the chlorinator, a chlorine cylinder valve protection hood is fitted in place on the cylinder;
- (f) a wrench for operating the chlorine cylinder valve is fitted to the valve stem of each chlorine cylinder that is connected to the chlorinator;
- (g) a platform weigh scale of not less than 135 kilograms capacity for each chlorine cylinder in use is provided; and
- (h) the operator takes all steps necessary to ensure the safety of the bathers before connecting or disconnecting a chlorine cylinder.



Diving Platforms in Public Pools



Section 6 (6)

Every owner and every operator shall ensure that,

- (k) where the **pool** is equipped with a diving board or diving platform, the board or platform has a non-slip surface finish.

Section 14

Where a diving platform greater than three metres in height above the water is provided in a **public pool**, the operator shall ensure that,

- (a) the gate giving access to the platform is locked except during periods when the platform is in use for diving; and
- (b) when the platform is in use, the pool is used solely for diving unless a rigid barrier or double safety lines 300 millimetres apart supported by buoys are in place, located from the wall under the platform,
 - (i) at 11.60 metres in the case of a 5-metre platform,
 - (ii) at 12.50 metres in the case of a 7.5-metre platform, and
 - (iii) at 15.25 metres, in the case of a 10-metre platform, and activities other than diving are effectively confined to the area of the pool outside the separated diving area.

Bather Shall Shower Notice

Section 19 (5)

At the entrance to each shower area and at every entrance to the deck used by bathers, notices that set out that each bather shall take a shower using warm water and soap and thoroughly rinse off all soap before entering or re-entering the deck.

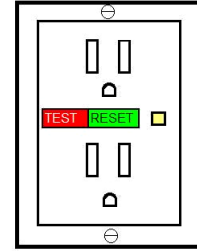


Ground Fault Circuit Interrupter (GFCI)

Section 16.1

Every owner and every operator of a public pool or public spa shall ensure that,

- (c) the test-buttons associated with the ground current leakage detecting and de-energizing devices are activated during the daily use period



If a pool or spa has underwater lighting or any electrical outlets and fixtures within 3 meters (10 feet) of the pool surface, a ground current leakage detecting and de-energizing device, otherwise known as a ground fault circuit interrupter (GFCI or sometimes GFI), must be present.

A GFCI is a small circuit breaker-like device that shuts off the associated circuit if there is an electrical leak that may cause an electrical shock hazard (a ground fault).

The GFCI should never be tested when the pool or spa is open and in-use. Neither should any work be done on the electrical system pertaining to the pool or spa when they are open for use.

A certificate from a qualified and licensed electrician certifying that the electrical system(s) is safe and in proper working condition, or is permanently disconnected is required before the pool will be allowed to re-open for use.

Written Emergency Procedure

Section 17 (1)

Every owner and every operator shall ensure that there are written emergency and operational procedures and instructions to be implemented in the event of an emergency, accident or injury and that all lifeguards and assistant lifeguards are trained in the emergency and operational procedures.

Appropriate information should be posted in locations that would prove valuable in an emergency.

Emergency Procedure

The emergency procedure should be posted near the phone/lifeguard station and should contain the following information:

1. What to do when an injury occurs

on the deck

- clear the pool/spa
- attend to the victim
- get help

in the pool

- attend to the victim
- get help
- clear the pool/spa

2. Emergency phone number (911).

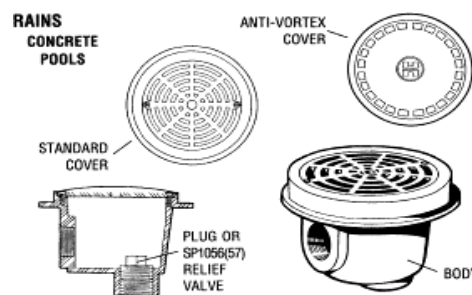
3. Address of the pool/spa and the simplest way for emergency crews to reach the pool (i.e. outside door closest and/or hallway directions to the pool.)

4. Additional phone numbers for assistance – superintendents, pool company.

Operational Procedures

The operational procedures should include instructions on how to safely operate the recirculation and electrical systems. All operations, routine and emergency (i.e. backwashing, shut down of pump), should be described in a step-by-step manner so that anyone can follow them. It is also valuable to label all switches, valves, etc.

Swimming Pool Outlet Covers



Section 6 (6)

Every owner and every operator shall ensure that,

- (i) **in the case of a pool**, the perimeter drain of the pool is kept free of debris.

Section 16.1

Every owner and every operator of a public pool or public spa shall ensure that,

- (a) all of the water, gravity and suction outlet covers are inspected at least once within each period of **30 operating days**;

- (b) if any of the water outlet covers is found to be **loose or missing**, the pool or spa is closed until the cover is repaired or replaced;
- (g) a **written record of the inspection** is made by the person who performed the inspection; and
- (h) the **written record of the inspection is retained** by the owner or operator for at least **one year** from the date the record is made.

Ontario Regulation 565 of the Revised Regulations of Ontario 1990 was amended to provide standards for the inspection of water outlet covers. These standards were established to ensure that water outlet covers are provided and maintained securely in place within pools. In 1991, a lifeguard drowned when she got her foot caught in the main drain cover of a public swimming pool. A Coroner's inquest into the incident determined this accident could have been prevented if the cover to the main drain was secured in place. As a result, the jury recommended that all water outlet covers be routinely inspected to ensure they are secured in place. This resulted in an amendment to the Public Pools Regulation 565, 1990 with the addition of section 16.1.

Pools at Day Care Facility or Day Camps

Section 17 (20)

Where a **pool** is operated in conjunction with a child care centre or day camp and the water depth of the pool does not exceed 1.10 metres, a lifeguard or an assistant lifeguard may be replaced by one or more persons sixteen years of age or over where each person has satisfied the operator that he or she is a competent swimmer, is trained in the emergency procedures for the pool and is the holder of a current first-aid certificate referred to in subsection (11).

Do I Need Lifeguards at My Pool?

It is the responsibility of the owners/operators of a **public pool** to ensure that there are adequate numbers of lifeguards on duty on the deck while the pool is in use.

Section 17 sets out requirements for the number of lifeguards to be on duty on the deck, as well as their age and qualifications. All staff supervising bathers must meet these requirements as well as be trained in the operational and emergency procedures of the pool. Please note that even where the pool is classified as Class B and supervision is provided, these requirements must be met.

Lifeguards and Assistant Lifeguards *Section 17 (5) – 17 (7)*

- must be appropriately attired so that they are readily identifiable.
- must be at least 16 years of age.
- be the holder of a current lifeguard certificate (for lifeguards) or assistant lifeguard certificate (for assistant lifeguards) that is dated not more than 2 years prior to the date on which he or she is acting as a lifeguard/assistant lifeguard.
- have available at the pool, when on duty, the certificate or a copy of the certificate certified by the operator and permit the owner, the operator or a public health inspector to examine the certificate at any time.
- must be trained in the emergency procedures for the pool.

Section 17 (8)

- **Lifeguard Certificate** means the Life Saving Society, Canadian Red Cross or another organization that provides equivalent training in lifeguarding and that is approved by the Minister



Section 17 (8)

- **Assistant Lifeguard Certificate** means the Life Saving Society, Canadian Red Cross or another organization that provides equivalent training in lifeguarding and that is approved by the Minister



- The number of Assistant Lifeguards on duty **must not exceed** the number of Lifeguards on duty.
- Where there is only one lifeguard on duty on the deck, every owner of a Class A pool and every operator shall ensure that there are on duty elsewhere on the premises and within call one or more additional persons sixteen years of age or over who are trained in the emergency procedures for the pool.

How Many Lifeguards Do I Need?

To determine the number of lifeguards a public pool requires, you need to know the following:

- Total surface area of your pool
- Maximum bather load

The following steps illustrate how this is calculated:

- The shallow area is the part of the pool that is 1.35 metres or less in depth, hence measure the length and width of the shallow end of the pool.
- The deep area is the part of the pool that is greater than 1.35 metres in depth, hence measure the length and width of the deep end of the pool.

Step 1:

Length of shallow end _____ Width of shallow end _____

Area of shallow end: Length x Width _____

Step 2:

Length of deep end _____ Width of deep End _____

Area of deep end: Length x Width _____

Calculating Maximum Bather Load

With the **Total Surface Area** of your pool calculated, the **maximum bather load** for the pool can be determined by using the following formula:

Step 3:

$$\text{Maximum bather load} = \frac{\text{Shallow Area}}{1.1} + \frac{\text{Deep Area}}{2.5} = \text{_____} \text{ \# of people}$$

Note: Section 17 (19) (b) - Class B pools with a water surface area greater than 93 square metres and with no supervision, the bather load must always be **10**, regardless of the actual calculation.

Total Surface Area = Area of shallow end + Area of deep end

Using the maximum bather load calculated in step 3, determine from the table in step 4, the number of lifeguards that will be required for the pool.

<p>Step 4: The following table will determine the total number of lifeguards and assistant lifeguards that you need at your pool:</p>			
<p align="center">Section 17 (2) Minimum numbers of lifeguards and assistant lifeguards for a public pool with a water surface area of 500 square metres or less</p>			
Where there are lifeguards and assistant lifeguards on duty		Where there are only lifeguards on duty	
Number of bathers on the deck and in the pool	Minimum number of lifeguards & assistant lifeguards on duty	Number of bathers on the deck and in the pool	Minimum number of lifeguards on duty
0-30	1	0-30	1
31-100	2	31-125	2
101-200	3	126-250	3
201-300	4	251-400	4
300 or more	One additional lifeguard or assistant lifeguard for each additional 100 bathers or fraction thereof	400 or more	One additional lifeguard for each additional 150 bathers or fraction thereof
<p>Section 17 (3) If a pool other than a wave action pool, has a water surface area that is greater than 500 square metres,</p> <ul style="list-style-type: none"> (a) the minimum number of life guards and assistant lifeguards referred to in the above Table shall be increased by one; and (b) where there are two persons who hold the National Lifeguard Service's Lifeguard Certificate on duty, the number of bathers referred to in the Table may exceed 30 but shall not exceed 60. 			

Aquatic Instructor or Coach for Public Pools

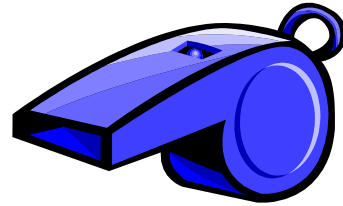
Section 17 (16)

A **public pool** is exempt from the safety supervision requirements of subsections (2), (3) and (21) if an operator ensures adequate supervision is provided during a period when the pool is being used solely by one or more groups each not exceeding 25 in number for aquatic instruction, practice, competition or display under the direct supervision of a certified aquatic instructor or coach, and the requirements in subsection (17) are met.

Section 17 (17)

(17) The following applies for the purposes of subsection (16):

1. Every aquatic instructor and every coach shall be at least 16 years of age and be a holder of an aquatic instructor certificate that is dated not more than two years prior to the date on which he or she is acting as an aquatic instructor or coach.
2. Every aquatic instructor and every coach shall be a holder of either a lifeguard certificate or an assistant lifeguard certificate that is dated not more than two years prior to the date on which he or she is acting as an aquatic instructor or coach.
3. Where an aquatic instructor or coach does not hold a lifeguard certificate or an assistant lifeguard certificate that is dated not more than two years prior to the date on which he or she is acting as an aquatic instructor or coach, the operator shall ensure a lifeguard is on duty on the deck during the period when the pool is being used for aquatic instruction, practice, competition or display.
4. In the case of underwater aquatic instruction, the instructor certificate mentioned in paragraph 1 must be issued by,
 - i. The National Association of Underwater Instructors,
 - ii. The Professional Association of Diving Instructors, or
 - iii. The Association of Canadian Underwater Councils.
5. Every aquatic instructor and every coach shall keep the applicable certificate, or a copy certified by the operator, available on the premises when on duty, and permit the owner, the operator or a public health inspector to examine the certificate at any time.



Section (21)

Every owner and every operator of a **Class A pool** shall ensure that there is a process in place to ensure a guardian or designated person supervises children under 10 years of age. The process must include a swimming competency test and a method of communicating the requirements of the process.

Safety Equipment

Emergency Telephone

Section 16 (1)

Every owner and every operator shall ensure that,

- (a) where a pool is a **Class A pool**, an emergency telephone is provided that is **easily accessible** and directly connected to an emergency service or the local telephone utility; or
- (b) where a pool is a **Class B pool**, a telephone for emergency use is accessible no farther than **thirty metres** from the pool.
- (c) in the case of a **public spa**, a land line emergency telephone that connects directly to an emergency service or the local telephone utility is located within 30 metres of the spa



Section 16 (2)

Every operator shall ensure before the pool is opened for use each day that,

- (a) where a pool is a **Class A pool**, the emergency telephone required under clause (1) (a) is tested to confirm that the system is in operating condition; and*
- (b) where a pool is a **Class B pool**, the telephone required under clause (1) (b) is tested to confirm that it is in operating condition.*
- (c) in the case of a public spa, the telephone required under clause (1) (c) is tested to confirm that it is in operating condition.

The emergency telephone is one of the most important pieces of safety equipment used for getting help to an injured bather or emergency situation. The telephone must be within 30 metres of a pool or spa and be connected to the local service provider. It must be tested daily. Time is crucial when emergency help is required.

Emergency Services Notice

Section 19

3. At the emergency telephone, a notice identifying it as the emergency telephone and listing the name, telephone numbers and address of persons who are available for resuscitation, medical aid and fires services or indicating the service to which it is directly connected, and a notice with the full name and address of the public pool or public spa location and all of the pool's or spa's emergency telephone numbers.

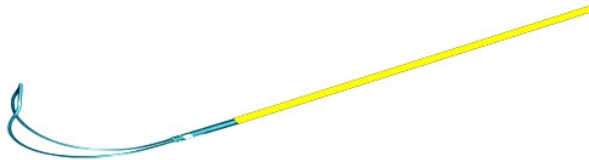
<u>Emergency Services</u>	
In Case of Emergency Speak Clearly and Slowly	
1. Dial ____ for emergency service	
2. Ask for emergency service	
3. Give location	
a. Name of Pool _____	
b. Pool is located in the ____ of the building	
c. Address _____	
d. Main intersection _____	
4. Give telephone number of pool _____	
5. State	
a. Type of emergency _____	
b. Type of accident _____	
c. Number of victims _____	
_____ owner/operator	

Section 20 (1)

Every owner and every operator of a public pool, other than an owner and operator of a wave action pool, and every owner and every operator of a public spa that has an inner horizontal dimension greater than three metres, shall ensure that there are provided in places conveniently located for emergency use,

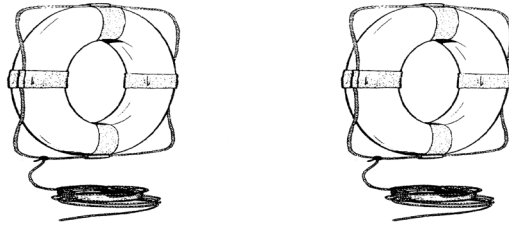
Electrically Insulated or Non-Conducting Reaching Pole

- (a) an electrically insulated or non-conducting reaching pole at least 3.65 metres long;



Buoyant Throwing Aids

(b) in the case of a pool, two buoyant throwing aids, each of which has securely attached to it a six millimetre diameter rope of a length not less than one-half the width of the pool plus three metres;

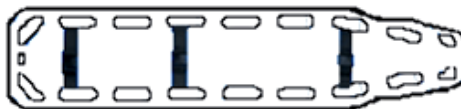


(c) in the case of a Class B pool that is in operation and has a slope of more than eight per cent, a buoy line

(d) in the case of a public spa, a buoyant throwing aid to which is securely attached a six millimetre diameter rope of a length not less than one-half the width of the pool area plus three metres;

Spine Board

(e) a spine board or device designed for lifting from the pool or spa a person who may have incurred a spinal injury.



Spine boards are required by law for the transport of spinal-injured victims. It is for use in all public pools. For this reason a spine board must be equipped with straps to secure the injured victim safely prior to transporting.

First Aid Kit

Section 20 (2)

Every owner and every operator of a public pool or public spa shall ensure that, subject to subsection (3), there is provided, in places conveniently located for emergency use, a first aid kit containing at a minimum,

- (a) a current copy of a standard first aid manual;
- (b) safety pins;
- (c) adhesive dressings individually wrapped;
- (d) sterile gauze pads, each 75 millimetres square;
- (e) 50 millimetre gauze bandages;
- (f) 100 millimetre gauze bandages;
- (g) sterile surgical pads suitable for pressure dressings individually wrapped;
- (h) triangular bandages;
- (i) rolls of splint padding;
- (j) at least one roll-up splint;
- (k) at least one pair of scissors;
- (l) non-permeable gloves, and
- (m) resuscitation pocket masks.



First Aid Kit for Public Pools

- a current copy of a First Aid Manual
- safety pins,
- adhesive dressings individually wrapped,
- sterile gauze pads, each seventy-five millimetres square,
- 50 millimetre gauze bandage,
- 100 millimetre gauze bandage,
- sterile surgical pads suitable for pressure dressings individually wrapped,
- triangular bandages,
- rolls of splint padding, and
- roll-up splint
- one pair of scissors
- non-permeable gloves
- resuscitation pocket masks

Ontario Regulation 565/90

Regulations Pertaining to Class A Pools

Class A Pool - Definition

Section 2

- 1. Class “A” pool**, being a public pool to which the general public is admitted or that is,
- i. operated in conjunction with or as part of a program of an educational, instructional, physical fitness or athletic institution or association, that is supported in whole or in part by public funds or public subscription, or
 - ii. operated on the premises of a recreational camp, for use by campers and their visitors and camp personnel.

Admission Standards

Section 17 (21)

Every owner and every operator of a Class A pool shall ensure that there is a process in place to ensure a guardian or designated person supervises children under 10 years of age. The process must include a swimming competency test and a method of communicating the requirements of the process.

Class A Pool Operating as a Class B Pool

Section 6 (5)

Despite paragraph 1 of section 2, a Class A pool may be operated as a Class B pool during periods when the pool is open solely for the uses stated in subparagraphs i to vi of paragraph 2 of section 2.

Paragraph 2 of Section 2

Class “B” pool, being a public pool that is,

- i. operated on the premises of an apartment building that contains six or more dwelling units or suites or a mobile home park, for the use of the occupants and their visitors,
- ii. operated as a facility to serve a community of six or more single-family private residences, for the use of residents and their visitors,
- iii. operated on the premises of a hotel for the use of its guests and their visitors,
- iv. operated on the premises of a campground for the use of its tenants and their visitors,
- v. operated in conjunction with,
 - A. a club for the use of its members and their visitors, or
 - B. a condominium, co-operative or community property that contains six or more dwelling units or suites for the use of the owners or members and their visitors,
- vi. operated in conjunction with a child care centre, a day camp or an establishment or facility for the care or treatment of persons who have special needs, for the use of those persons and their visitors, or
- vii. neither a Class A pool, nor exempt from the provisions of this Regulation

Class A Pool - Exemption

Section 6 (3) (c)

Every owner and every operator shall ensure that,

- (i) in a Class A pool that was constructed after the 30th day of April, 1974, a volume of water not less than four times the total capacity of the pool is filtered, disinfected and passed through the pool each day,
- (ii) in a Class A pool that was constructed before the 1st day of May, 1974 and in a Class B pool, a volume of water not less than three times the total capacity of the pool is filtered, disinfected and passed through the pool each day.

Section 6 (7)

Clause (6) (j) does not apply to a Class A pool that was constructed before the 7th day of June, 1965.

Clause (6) (j)

Every owner and every operator shall ensure that, at least 15 per cent of the total pool water volume is capable of being withdrawn from the gutter or skimmer lines daily and discharged to waste drains.

Class A Pool - Safety

Section 16 (1)

Every owner and every operator shall ensure that,

- (a) where a pool is a Class A pool, an emergency telephone is provided that is easily accessible and that is directly connected to an emergency service or the local telephone utility.

Section 16 (2)

Every operator shall ensure before the pool is opened for use each day that,

- (a) in the case of a Class A pool, the emergency telephone required under clause (1) (a) is tested to confirm that the system is in operating condition.

Class A Pool – Lifeguards

Section 17 (4)

Where there is only one lifeguard on duty on the deck, every owner of a Class A pool and every operator shall ensure that there are on duty elsewhere on the premises and within call one or more additional persons sixteen years of age or over who are trained in the emergency procedures for the pool.

Section 17 (10)

At least one person sixteen years of age or over on duty at every Class A pool or on the premises and within call shall be the holder of,

- (a) a lifeguard certificate that is dated not more than two years prior to the date of which he or she is on duty; or
- (b) a current first-aid certificate, and have available on the premises when on duty the certificate or a copy thereof certified by the operator and permit the owner, the operator or a public health inspector to examine the certificate at any time.

Section 17 (11)

For the purpose of subsection (10), "current first-aid certificate" means a standard or higher first aid certificate that is dated not more than three years prior to the date on which the holder is on duty and that is issued by one of the following agencies:

1. St. John Ambulance
2. Canadian Red Cross
3. Life Saving Society
4. Canadian Ski Patrol
5. an organization whose certificate the medical officer of health considers equivalent to a certificate referred to in paragraph (1), (2), (3) or (4).

Class A Pools - Control Stations

Section 20 (4)

A Class A pool, other than a modified pool or pool installed at a recreational camp, shall be equipped with,

- (a) where the pool area is greater than 150 square metres but not greater than 230 square metres, at least one control station; and
- (b) where the pool area is greater than 230 square metres, at least two control stations.

Control Stations

Section 20 (7)

A lifeguard control station referred to in subsection (4), (5), (6) shall be,

- (a) an elevated platform or chair not less than 1.80 metres above the water surface;
- (b) securely positioned while in use and located at the side of the pool so as to permit an unobstructed view of the pool bottom in the area under surveillance; and
- (c) restricted to the exclusive use of lifeguards and assistant lifeguards.

Regulations Pertaining to Class B Pools

Class B Pool - Definition

Section 2. 2

Class "B" pool, being a public pool that is,

- i. operated on the premises of an apartment building that contains six or more dwelling units or suites or a mobile home park, for the use of the occupants and their visitors,
- ii. operated as a facility to serve a community of six or more single-family private residences, for the use of residents and their visitors,
- iii. operated on the premises of a hotel for the use of its guests and their visitors,
- iv. operated on the premises of a campground for the use of its tenants and their visitors,
- v. operated in conjunction with,
 - A. a club for the use of its members and their visitors, or
 - B. a condominium, co-operative or community property that contains six or more dwelling units or suites for the use of the owners or members and their visitors,
- vi. operated in conjunction with a child care centre, a day camp or an establishment or facility for the care or treatment of persons who have special needs, for the use of those persons and their visitors, or
- vii. neither a Class A pool, nor exempt from the provisions of this Regulation

Class B Pool - Exemption

Section 6 (8)

Clause (6) (j) does not apply to a Class B pool that was constructed before the 1st day of May, 1974.

Clause (6) (j)

Every owner and every operator shall ensure that, at least 15 per cent of the total pool water volume is capable of being withdrawn from the gutter or skimmer lines daily and discharged to waste drains.

Class B Pool - Safety

Section 16 (1)

Every owner and every operator shall ensure that,

- (b) where a pool is a Class B pool, a telephone for emergency use is accessible no farther than thirty metres from the pool.

Section 16 (2)

Every operator shall ensure before the pool is opened for use each day that,

- (b) where a pool is a Class B pool, the telephone required under clause (1) (b) is tested to confirm that it is in operating condition.

Unsupervised Class B Pools

Section 17 (19)

A Class B pool other than a pool operated in conjunction with a child care centre or day camp that has,

- (a) a water surface area of ninety-three square metres or less is exempt from the safety supervision requirements of this section provided that the following notice that is printed in letters at least twenty-five millimetres high is displayed in a conspicuous location within the pool enclosure:

**CAUTION
THIS POOL IS UNSUPERVISED. BATHERS UNDER TWELVE YEARS
OF AGE ARE NOT ALLOWED WITHIN THE POOL ENCLOSURE
UNLESS ACCOMPANIED BY A PARENT OR HIS OR HER AGENT
WHO IS NOT LESS THAN SIXTEEN YEARS OF AGE.**

or,

- (b) a water surface area greater than ninety-three square metres and the number of bathers does not exceed ten, is exempt from the safety supervision requirements of this section provided that the following notice that is printed in letters at least twenty-five millimetres high is displayed in a conspicuous location within the pool enclosure:

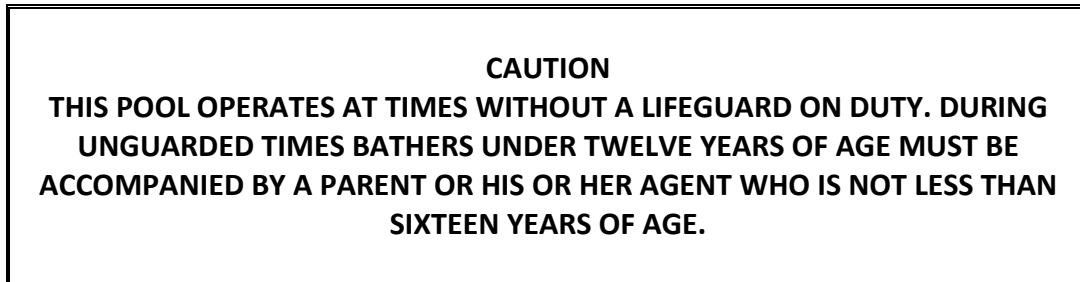
**CAUTION
THIS POOL IS UNSUPERVISED. BATHERS UNDER TWELVE YEARS
OF AGE ARE NOT ALLOWED WITHIN THE POOL ENCLOSURE
UNLESS ACCOMPANIED BY A PARENT OR HIS OR HER AGENT
WHO IS NOT LESS THAN SIXTEEN YEARS OF AGE. THE TOTAL
NUMBER OF BATHERS ON THE DECK AND IN THE POOL SHALL
NOT EXCEED TEN.**

Recommendations for Supervised Class B Pools

If lifeguard supervision is provided at a Class B pool,

- The unsupervised signs illustrated in section 17(19) (a) or 17(19)(b) must be removed.
- The maximum bather load formula illustrated in section 10(1) applies, regardless of pool size.
- The number of properly qualified lifeguards/assistant lifeguards required by section 17(2) of the Ontario Regulation 565 must be on duty.

If a Class B pool is supervised at times and unsupervised at others, it is recommended that the following sign be permanently posted:



This will warn parents and guardians not to allow unattended children to visit the pool before ensuring that they will be supervised.

Regulations Pertaining to Public Spas

Public Spa Caution Notice

Section 19.1 (1)

Every owner and operator of a public spa shall ensure that the following message is posted in a conspicuous place at each entrance to the public spa with the word CAUTION in letters not less than 50 millimetres high, with all other lettering not less than 10 millimetres high and with a minimum five millimetre stroke in either case:

CAUTION

Children under the age of 12 are not allowed in the spa unless supervised by a person who is 16 years of age or older.

Pregnant women and persons with known health or medical conditions should consult with a physician before using a spa.

Do not use the spa if you have an open sore or rash, or are experiencing nausea, vomiting or diarrhea.

Overexposure may cause fainting. 10 to 15 minutes may be excessive for some individuals. Cool down periodically and leave the spa if nausea or dizziness occurs.

Enter and exit the spa slowly, to prevent slipping.

Do not play or swim near drains or suction devices. Your body, body parts, hair, jewelry and other objects may become trapped and cause injury or drowning. People with long hair should be especially careful.

Do not enter or remain in a spa if a drain cover or suction fitting is loose, broken or missing. Immediately notify the spa operator.

No food or beverage except water is permitted within the deck or spa. No glass containers of any kind are permitted within the deck or spa.

Spa water temperature

Section 21

Every owner of a public spa shall ensure that the spa's water heater is equipped with a tamper-proof upper limit cut-off switch that,

- (a) limits the maximum temperature of the spa water to 40 degrees Celsius; and
- (b) is independent of the spa's water temperature thermostat.

Timing device

Section 22 (1)

Every owner and every operator of a public spa containing hydro-massage jet fittings shall ensure that the spa is equipped with a timing device that,

- (a) controls the period of operation of the jet pump;
- (b) can be set to a maximum of 15 minutes; and
- (c) is placed in a location that requires a bather to exit the spa to reset it.

(2) Every owner and every operator of a public spa shall ensure that a notice, in letters at least 25 millimetres high with a minimum five millimetre stroke, is posted at the timing device that identifies it as a timing device.

Spa Suction System

Section 23

Every owner of a public spa shall ensure that the suction system that serves the public spa is equipped with a vacuum relief mechanism that includes,

- (a) a vacuum release system;
- (b) a vacuum limit system; or
- (c) another engineered system designed, constructed and installed to conform to good engineering practice appropriate to the circumstances.

Spa Clock

Section 24

Every owner of a public spa shall ensure that a clock is installed in a conspicuous location that can be viewed from anywhere in the public spa.

Spa Steps

Section 25

Every owner of a public spa shall ensure that if a set of steps is provided for entry into and exit from the spa water, the set of steps,

- (a) are equipped with a handrail;
- (b) have a non-slip surface on their treads; and
- (c) have a band of contrasting colour applied along the entire juncture of the side and top of the edges of each step.

Emergency Stop Button

Section 26 (1)

Every owner of a public spa and, if applicable, every owner of a public pool shall ensure that all pumps used in the operation of the spa or pool are capable of being deactivated by an emergency stop button that,

- (a) is separate from the spa's or pool's timing device;
- (b) is located within the immediate vicinity of the spa or pool; and
- (c) activates an audible and visual signal when used.

(2) Every owner and every operator of a public spa shall ensure that the following notice, in letters at least 25 millimetres high with a minimum five millimetre stroke, is posted above the emergency stop button:

**IN THE EVENT OF AN EMERGENCY PUSH EMERGENCY STOP BUTTON AND USE EMERGENCY PHONE.
AUDIBLE AND VISUAL SIGNAL WILL ACTIVATE.**

Important Notice

Admission standards for public pools

Admission Standards for Public Pools were developed by the **Office of the Chief Coroner** to assist lifeguards and assistant lifeguards in maintaining adequate surveillance over the whereabouts and the activities of young bathers while they are inside the pool enclosure. The Ministry of Health and Long-Term Care strongly supports these recommendations for the purposes of preventing injuries and fatalities.

- Children under 10 years of age who are non-swimmers must be accompanied by a parent or guardian who is at least 12 years of age and responsible for their direct supervision. The ratio of non-swimmers to parent or guardian may be a maximum of four bathers to one parent or guardian (4:1). The ratio of non-swimmers to parent or guardian may be increased to a maximum of eight bathers to one parent or guardian (8:1) if lifejackets are worn by all non-swimmers in their charge.
- Children under 10 years of age who are swimmers (able to demonstrate comfort in the water and pass the facility swim test) may be admitted to the swimming pool unaccompanied.
- Children under 6 years of age may not be admitted to the swimming pool unless they are accompanied by a parent or guardian who is responsible for their direct supervision, with a maximum of two children for each parent or guardian.
- Guardians or group leaders are responsible for the children in their care while in the facility and must directly supervise the children at all times.
- Guardians or group leaders should be at least 12 years of age.
- Ratios of instructors/lifeguards to bathers must also be maintained as per Regulation 565.

Class B Public Pools that do not require lifeguards still require bathers under 12 years of age to be accompanied by a parent or his or her agent who is not less than 16 years of age.

Public Pools Signage Required	Lettering Size Stroke Size	Ontario Regulation section	Location posted
<p style="text-align: center;">CAUTION SWIM AT YOU OWN RISK THIS POOL IS NOT SUBJECT TO THE REQUIREMENTS OF ONTARIO REGULATION 565 – (PUBLIC POOLS)</p>	25mm	4.1 (1)	Five or fewer units; post in a conspicuous place within the pool enclosure.
<p style="text-align: center;">CAUTION THIS POOL IS UNSUPERVISED. BATHERS UNDER TWELVE YEARS OF AGE ARE NOT ALLOWED WITHIN THE POOL ENCLOSURE UNLESS ACCOMPANIED BY A PARENT OR HIS OR HER AGENT WHO IS NOT LESS THAN SIXTEEN YEARS OF AGE.</p>	25mm	17 (19) (a)	Class B Pool ≤ 93 square metres; post in a conspicuous location within the pool enclosure.
<p style="text-align: center;">CAUTION THIS POOL IS UNSUPERVISED. BATHERS UNDER TWELVE YEARS OF AGE ARE NOT ALLOWED WITH THE POOL ENCLOSURE UNLESS ACCOMPANIED BY A PARENT OR HIS OR HER AGENT WHO IS NOT LESS THAN SIXTEEN YEARS OF AGE. THE TOTAL NUMBER OF BATHERS ON THE DECK AND IN THE POOL SHALL NOT EXCEED TEN.</p>	25mm	17 (19) (b)	Class B Pool > 93 squares metres; post in a conspicuous location within the pool enclosure.
<p style="text-align: center;">Health Warning</p> <p>No person infected with a communicable disease or having open sores on their body shall enter the pool.</p> <p>No person shall bring a glass container onto the deck or into the pool.</p> <p>No person shall pollute the water in the pool in any manner and that spitting, spouting of water and blowing the nose in the pool or on the deck are prohibited.</p> <p>No person shall engage in boisterous play in or about the pool.</p> <p>The maximum number of bathers permitted on the deck and in the pool at any time is_____.</p> <p>The location of the telephone that is available for emergency use is located_____, and</p> <p>Any other information or photos that the owner or operator determines is necessary to maintain the health and safety of the persons using the pool.</p>		19 (1)(i-vii)	Post at not fewer than two places at the pool.
		19 (5)	

Each bather shall take a shower using warm water and soap and thoroughly rinse off all soap before entering or re-entering the deck.			Post at entrance to each shower area and every entrance to the deck used by bathers.
Public Pools Signage Required (continued)	Lettering Size Stroke Size	Ontario Regulation section	Location posted
Emergency Telephone		19 (3)	Post at the emergency telephone.
<p><u>Emergency Services</u> In Case of Emergency Speak Clearly and Slowly</p> <p>1. Dial _____</p> <p>2. Ask for emergency service</p> <p>3. Give location</p> <p> a. Name of pool _____</p> <p> b. Pool is located in the _____ of the building</p> <p> c. Address _____</p> <p> d. Main intersection _____</p> <p>4. Give telephone number of pool _____</p> <p>5. State</p> <p> a. Type of emergency</p> <p> b. Type of accident</p> <p> c. Number of victims _____</p> <p>_____ owner/operator</p>		19 (3)	Post at the emergency telephone.
SPECTATORS FORBIDDEN FROM WALKING UPON THE DECK WITHIN 1.80 METRES OF THE EDGE OF THE POOL		19 (4)	Post at permanent spectator gallery adjacent to the deck.
Markings; water depths indicating the deep points >2500mm, breaks between gentle and steep bottom slopes and the shallow points and the words DEEP AREA, SHALLOW AREA	100mm	19 (6)	On the deck clearly marked in figures at appropriate locations.
CAUTION – AVOID DEEP DIVES or SHALLOW WATER – NO DIVING	150mm	19 (7)	Post at a conspicuous location, where the pool has a maximum water depth of < 2.50 metres.
DANGER – AVOID DEEP OR LONG DIVES	150mm	19 (9)	Post in a location clearly visible to divers at Class B pool equipped with a diving board.
CAUTION – NO DIVING	150mm	19 (10)	Post conspicuously on each wall or fence enclosing the pool where a pool is provided with one more ramps.

UNSUPERVISED BATHERS ARE NOT ALLOWED BEYOND THIS POINT	25mm	19 (11) (i)	Post at the ramp(s) - pool with one or more ramps that are not submerged.
BATHERS ARE NOT ALLOWED BEYOND THIS POINT	25mm	19 (11) (ii)	Post at the removable barrier - pool with one or more ramps that are submerged.

Appendices

Appendix 1 – Glossary

apartment building	-a building that is divided into multiple dwelling units or suites whether leased or not but does not include a condominium, co-operative, or commune property
assistant lifeguard	-a person designated by the owner or operator to assist a lifeguard to supervise bather safety
Automatic sensing device	-determines and continuously displays a sanitizer residual in a public pool or public spa's water and pH value of a public pool and regulates the operation of chemical feeders to maintain sanitizer and pH levels
bather	-a person dressed for bathing
campground	-land or premises used as an overnight camping facility other than a recreational camp
Class A pool	<ul style="list-style-type: none">-being, a pool to which the general public is admitted-operated in conjunction with or as part of a program of an educational, instructional, physical fitness or athletic institution or association, that is supported in whole or in part by public funds or public subscription, or- operated on the premises of a recreational camp, for use by campers and their visitors and camp personnel
Class B pool	<ul style="list-style-type: none">-operated on the premises of an apartment building that contains six or more dwelling units or suites or a mobile home park, for the use of the occupants and their visitors,-operated as a facility to serve a community of six or more single-family private residences, for the use of residents and their visitors,-operated on the premises of a hotel for the use of its guests and their visitors,-operated on the premises of a campground for the use of its tenants and their visitors,-operated in conjunction with,<ul style="list-style-type: none">A. a club for the use of its members and their visitors, orB. a condominium, co-operative or community property that contains six or more dwelling units or suites for the use of the owners or members and their visitors,-operated in conjunction with a child care centre, a day camp or an establishment or facility for the care or treatment of persons who have special needs, for the use of those persons and their visitors, or-neither a Class A pool, nor exempt from the provisions of this Regulation
child care centre	-means a child care centre as defined in the <i>Child Care and Early Years Act, 2014</i>
circulation system	-a system that maintains circulation of water through a public pool or public spa by pumps, draws water from a public pool or public spa for treatment and returns it to the pool or spa as clean water, and provides continuous treatment that includes filtration and chlorination or bromination and other processes that may be necessary for the treatment of the water

clean water	-water added to the public pool after treatment in the pool circulation system
club	-an organization that operates facilities for the use of its members and their guests
daily use period	-the period of time during which a public pool is open for use in an operating day
day camp	-a camp or resort that admits persons for temporary custody for a continuous period not exceeding twenty-four hours
deck	-the area surrounding a public pool
diving board	-a flexible board and “board” has a corresponding meaning
diving platform	-a rigid platform and “platform” has a corresponding meaning
general area	-an area adjacent to the deck within a pool enclosure that is used for activities other than bathing
guest	-a person who contracts for sleeping accommodation in a hotel and includes each member of the person’s party
hotel	-a hotel, inn, motel, resort or other building or premises operated to provide sleeping accommodation for the public
lifeguard	-a person appointed by the owner or operator to maintain surveillance over the bathers while they are on the deck or in the pool and to supervise bather safety
make-up water	-water added to a public pool from an external source
mobile home park	-land or premises maintained to provide a temporary or permanent location for mobile homes
modified pool	-a public pool that has the form of a basin-shaped depression in the earth, the floor of which slopes downward and inward toward the centre from the rim
operator	-a day on which the pool is in operation
operating day	-a person who is the owner of a public pool
owner	-a person who is the owner of a public pool
recirculation system	- system that, maintains circulation of water through a pool by pumps, draws water from a pool for treatment and returns it to the pool as clean water, and provides continuous treatment that includes filtration and chlorination or bromination and other processes that may be necessary for the treatment of the water
recreational camp	-a recreational camp within the meaning of Regulation 503/17 made under the act

wave action pool

-a public pool that is provided with a means for inducing wave motion in the water

public spa

-a hydro-massage pool containing an artificial body of water that is intended primarily for therapeutic or recreational use, that is not drained, cleaned, or refilled before use by each individual and that utilizes hydrojet circulation, air induction bubbles, current flow or a combination of them over the majority of the pool area

Appendix – 2 PUBLIC POOL/SPA OPENING NOTIFICATION FORM

This is to notify the Medical Officer of Health of the intention to open the pool in accordance with Sections 5(1), (2), (3), 6(1) of Ontario Regulation 565/90 made under the Health Protection and Promotion Act R.S.O. 1990, Chap. H.7.

Class <input type="checkbox"/> A <input type="checkbox"/> B If spa <input type="checkbox"/> NA	<input type="checkbox"/> Indoor <input type="checkbox"/> Outdoor	Intended Date of Pool/Spa Opening: Month/Day/Year
Building Permit: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	Permit Number:	Date Pool/Spa Built: Month/Day/Year

Name of Pool/Spa:	
Address:	Phone (at the Pool/Spa):
Registered Owner of the Premises (Company):	
Mailing Address:	Phone:
Name of Operator (Print): _____ has been designated by me to operate the pool.	
Signature of Signing Officer:	Date: _____ Month/Day/Year

Operator of Pool/Spa	
----------------------	--

Pool/Spa Company:	
Address:	Phone:
Name of Signing Officer (Print):	
Signature of Operator/ Signing Officer:	Date: Month/Day/Year

[illegible]

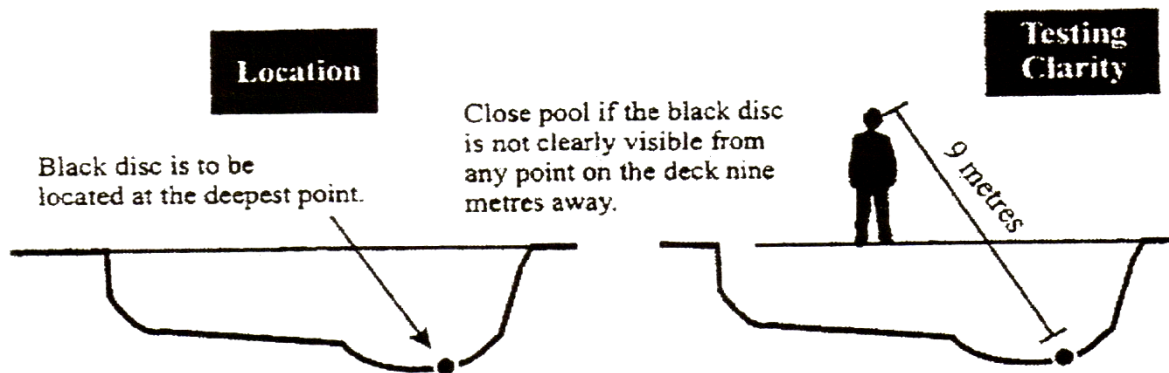
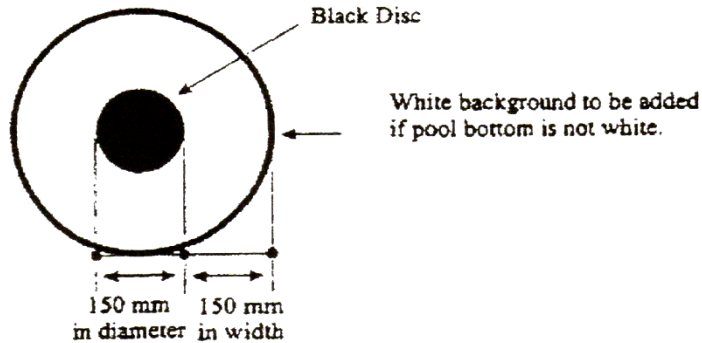
Company:	
Address:	Phone:
Name of Signing Officer:	
Signature of Signing Officer:	Date: Month/Day/Year
Superintendent's Name: Apt:	Phone:

Note: Any changes to the above mentioned information shall be immediately indicated in writing to Algoma Public Health. In order to meet a request for the Public Health Inspector to attend the premises prior to the opening, **two weeks advance notice of the opening date is required.**

Personal information on this form is collected under the authority of the Health Protection and Promotion Act, R.S.O. 1990, c. H. 7. The information is used for enforcing the Act, processing demand calls, and aggregate statistical reporting.

Appendix – 3

Black Disc on a White Background



Ontario Public Pools Regulation 565 section 6(4)(m) requires public pools to have,

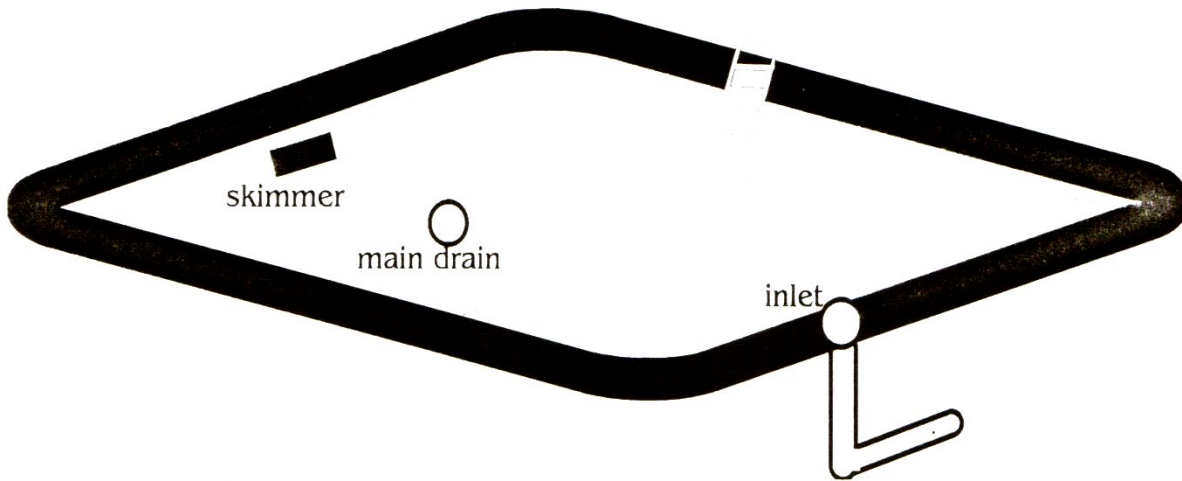
“a black disc 150 millimetres in diameter on a white background affixed to the bottom of the pool at its deepest point.”

Black	Will change to grey as the water becomes cloudy.	Affixed to the bottom	Affixed – so it will always be there.
Disc 150mm in diameter	Size and shape helps determine if the water is clear.	At the deepest point	So you have look through all the water.
On a white background	To help the black disc stand out.		

If the black disc is not clearly visible from the deck of the pool, clear the pool of bathers and close the pool.

Appendix - 4

Pool Circulation



Inlet

- where water enters the pool
- usually has an adjustable eye for directing the water flow

Pool Flow

- direction of flow of the pool water
- water should move around the pool towards the skimmers

Skimmers

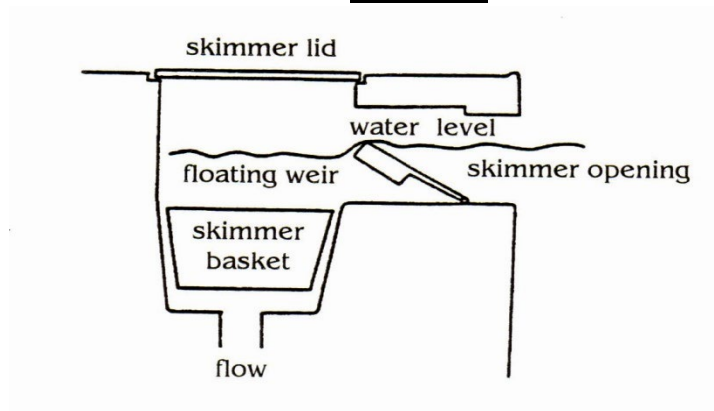
- draws surface water from the pool

Main Drain

- draws water from the bottom of the pool

Appendix - 5

Skimmer



Skimmer Opening

- water level of the pool must be maintained at the center of the opening
- depth of the pool designed to the level
- skimmer designed to be most efficient at this level

Floating Weir

- a device that provides proper skimming action

Skimmer Basket

- intended to strain out large debris (hair, leaves) before the pool water enters the piping system

Skimmer Lid

- allows access to the skimmer for cleaning and maintenance
- must be kept in good condition and properly installed to protect bathers

Circulation

Without proper circulation pool water will not be properly filtered or chemically treated. Ontario Regulation 565 (Public Pools) requires the equivalent of the pool water volume to pass through the filter system 4 times a day for a Class A pool and 3 times a day for a Class B pool.

All pools require a flow meter device to determine if adequate flow is maintained.

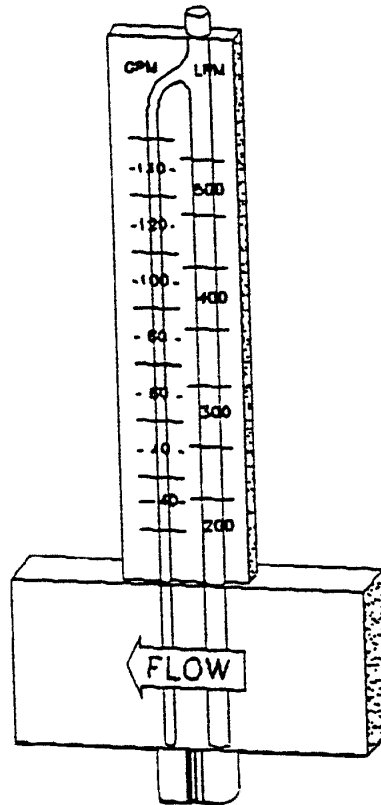
A flow meter displays the rate of gallons or litres per minute passing through the system. To determine the rate of flow for the pool, take the pool volume and divide by:

480 - Class B pool

360 - Class A pool.

Appendix - 6

Flow Meter



The flow meter is a device used to measure the litres per minute of water flow through a pool re-circulation system. This device is a clear plastic rectangular shaped block with a tube located inside the block (see above diagram).

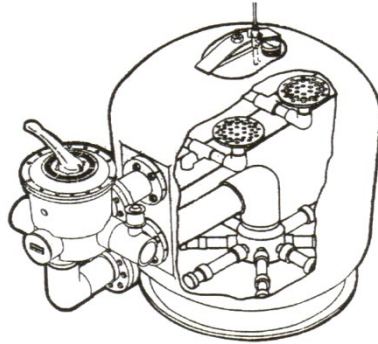
The flow meter is required on all pools, as per the Ontario Building Code for determining the turnover rate of the system.

For the flow meter to function properly, it should be placed on the pressure side of the pump, after the filters. There should be at least 10 pipe diameters of straight uninterrupted line on the upstream of the flow meter and at least 5 pipe diameters of straight uninterrupted line on the downstream side for accurate reading of the flow meter.

Other types of flow meters may be used e.g. electronic or analog.

Appendix - 7

Filtration



Filtration is the mechanical process of removing insoluble matter from swimming pool water. A pool filter consists of a tank containing some fine grain material such as sand or diatomaceous earth through which water is forced. Pool water carrying particles is passed through the filter media and returned to the pool clearer with each passing.

Filter Head Operation

Filter head settings have different titles or require slightly different or additional steps to perform procedures such as filtration, re-circulation, backwashing and draining.

A filter has 4 major settings:

1. Filter

- normal operation
- directs water down through the filter medium prior to going to the pool

2. Re-circulate

- allows sand and water to settle
- directs water directly back to pool by passing the filter

3. Backwash

- to clean the filter medium
- directs water up through the filter medium and to waste (opposite flow to "Filter" setting)

4. Drain

- directs water directly to waste by by-passing the filter

Appendix - 8

Swimming Pool Filter Parameters

Type of Filter	Operating Rate	Backwash Rate	When to Backwash
Rapid Flow Sand (low rate, sand & gravel)	3 gpm/sq. ft.	12- 15 gpm/sq.ft	7- 8 P.S.I. pressure difference
Hi-Rate Sand	15-20 gpm/sq.ft.	15-20 gpm/sq.ft.	15 P.S.I. pressure difference
Pressure D.E.	1.5-2gpm/sq.ft.	N/A	15 P.S.I. pressure difference
Vacuum D.E.	1.5-2gpm/sq.ft.	N/A	16" Hg of vacuum

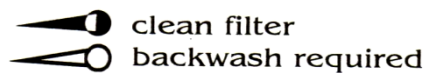
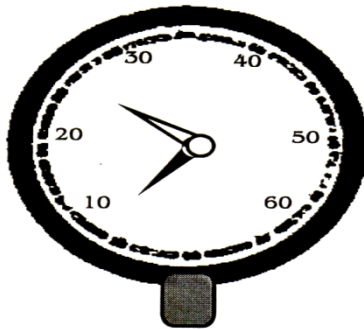
One common mistake is to backwash the sand filters too often, before they reach the above parameters. This practice will result in a poor filtration.

Appendix - 9

Gauges

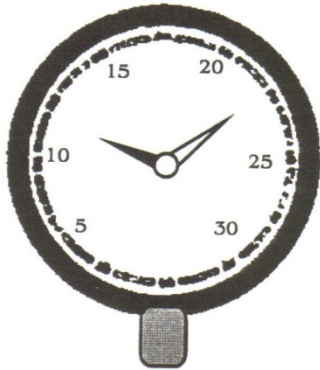
Since one cannot see into a filter to determine how clogged it has become, filters are provided with either one or two pressure gauges which are usually located on the filter head.

Single Pressure Gauge System

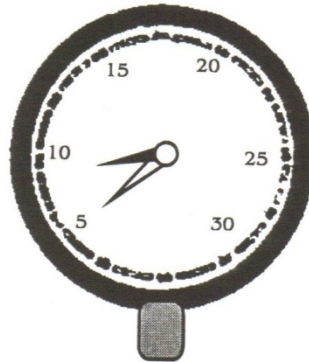


The single gauge measures the back pressure the filter medium places on the water being pumped into the filter. A clean filter will have a low reading. As it collects dirt and begins to clog, the pressure level will begin to rise. The filter requires backwashing when the pressure gauge indicates an increase of 8-10 lbs/in² or manufacturers' recommendation on pressure increase.

Two Pressure Gauge System



Influent (Incoming) Gauge



Effluent (Outgoing) Gauge

The two pressure gauge system has an influent (incoming) gauge that measures the back pressure caused by the filter medium (as does the single gauge system) as well as an effluent (outgoing) gauge that measures the pressure in the water leaving the filter. The gauges are usually located on the filter head.

With clean filter the two gauge will have similar readings. As the filter gathers dirt and becomes clogged, one pressure gauge will show a decrease in pressure and the other an increase. When there is a difference of 15 lbs/in² or manufacturers recommended pressure differential backwashing is required.

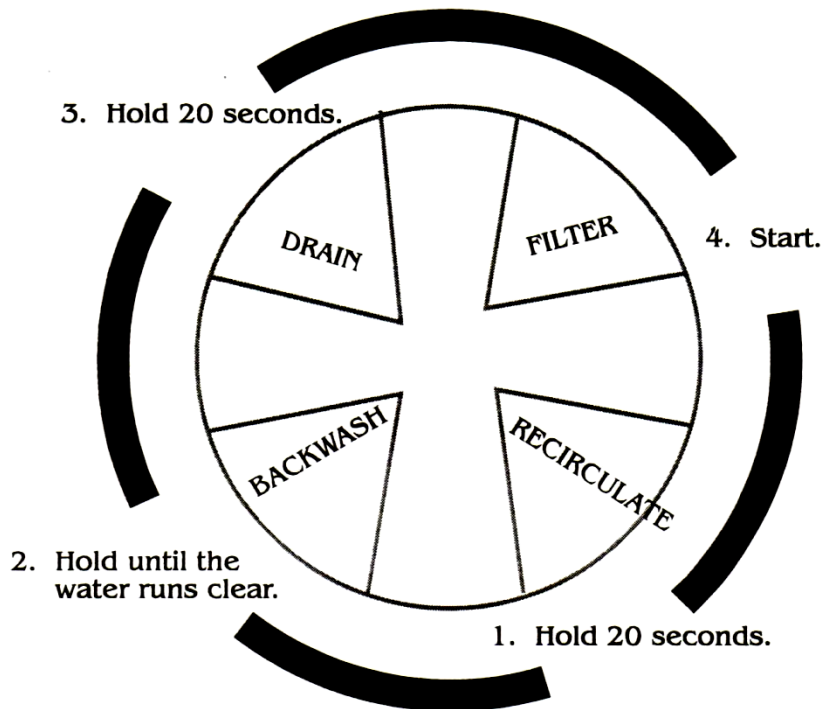
Why Follow the Gauges?

When the filter is clogged, the amount of water flowing through it decreases to the point that it is inefficient.

Following the gauges will allow you to obtain the efficient operation of the filter.

Appendix - 10

General Backwash Procedure



How to Backwash

Note: Prior to changing valve position turn the pump(s) off.

1. Turn filtered setting from “filter” to “recirculate” for 20 seconds. This allows the water in the filter to settle.
2. Turn filter head to “backwash” and start the pump. Leave it there until the water running to waste is clear.
3. Turn filter head to “drain” for 20 seconds. This allows the sand and the water to settle.
4. Turn filter head to “filter” and start the pump. This returns filter to normal operation.

Appendix - 11

Water Balance

Water balance is the correction of 5 factors to appropriate levels so that the water is not corrosive or scaling. Two of the factors, temperature and total dissolved solids, are of minor significance. pH, total alkalinity and hardness are of greater significance to balance pool and spa water.

Under normal operating conditions, the parameters or factors to maintain balanced water should be in the following ranges:

Water Balance Factors	Levels for Pools	Levels for Spas
pH	7.2 – 7.8	7.2-7.8
Total Alkalinity	80 -120 ppm	80-120 ppm
Calcium Hardness	200 - 400 ppm	200-400 ppm
Temperature	20°C - 32°C (70°F - 90°F)	40° C (104° F) maximum
Total Dissolved Solids Other than electrolytic chlorine generators also known as salt generators	Less than 2000 ppm	Less than 2000 ppm

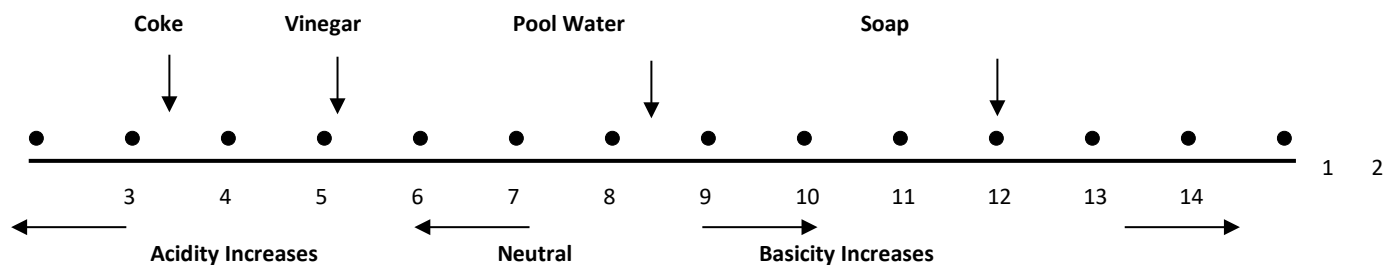
If one or all of the ranges are exceeded, the probability of scale formation will be greatly increased. If one or all of the ranges are low, corrosion of grout and piping etc. may occur.

Appendix - 12

pH

- pH is the measure of the hydrogen ion concentration. It is a measure of acidity or basicity. The scale ranges from 0 (the most acidic) to 14 (the most basic) with 7 being the neutral point.
- pH (potenz hydrogen) stands for hydrogen power. The required pH range for swimming pool/spa water is 7.2 to 7.8.

Chemical	Limits	Frequency of Test
pH	7.2 – 7.8	<p>Without ORP: ½ hour before opening and every 2 hours while pool is open</p> <p>With ORP: ½ hour before opening and every 4 hours while pool is open</p>



Effects of pH

Problem	Solution
<p>Low</p> <ul style="list-style-type: none"> • free chlorine active • eye irritation • overactive chlorine • corrosion • pool liner wrinkles 	<p>To raise the pH of pool water</p> <ul style="list-style-type: none"> • add soda ash (sodium carbonate) or, • add pH up.
<p>High</p> <ul style="list-style-type: none"> • chlorine effectiveness decreases • eye irritation 	<p>To lower the pH of pool water</p> <ul style="list-style-type: none"> • add muriatic acid or,

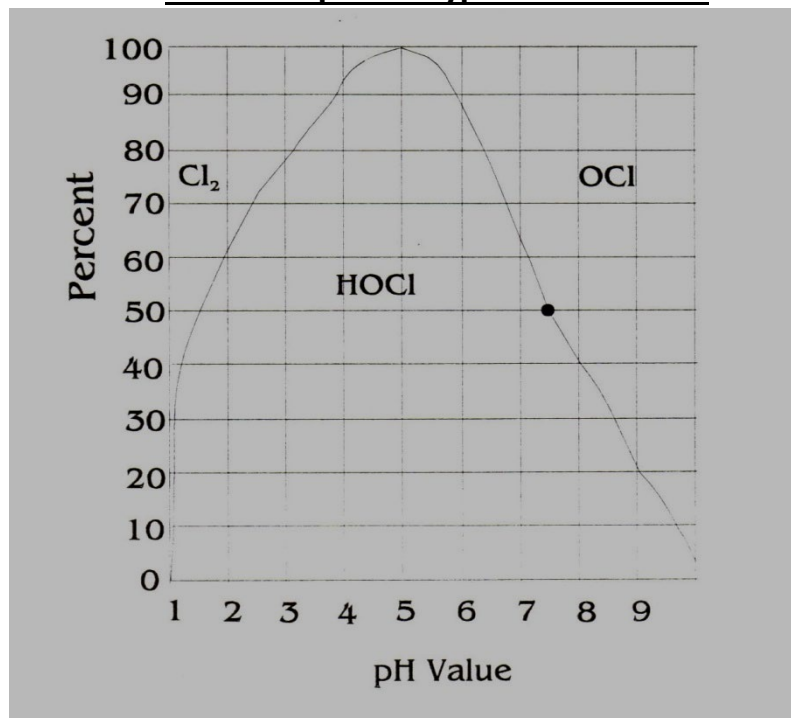
- chlorine inefficiency
- short filter runs
- scaling

- add carbon dioxide or,
- add pH down.

Note: When mixing chemicals, add them slowly. Never add water to the chemicals, always add the chemicals to the water.

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Effects of pH on Hypochlorous Acid



- At a pH of 7.5, 50% of the Free Available Chlorine is in the Hypochlorous acid (HOCl) state and 50% is in the hypochlorite ion (OCl^-) state.
- As pH increases above this value, the effectiveness of the chlorine decreases.
- As the pH decreases below this value, the effectiveness of the chlorine increases.

Total Alkalinity (TA)

Total alkalinity is the ability of a body of water to resist changes in pH.

It is the measure of dissolved bicarbonate in pool water.

Chemical	Limit	Frequency of Test
Total Alkalinity	Minimum 80 mg/l	Daily

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Chemicals and Effects on Pool Water

Type of Chemical	Effect on the Pool Water
Sodium Carbonate	<ul style="list-style-type: none">• increases alkalinity• increases pH
Sodium Bicarbonate	<ul style="list-style-type: none">• increases alkalinity• increases pH
Acid	<ul style="list-style-type: none">• decreases alkalinity• decreases pH

Effects of Total Alkalinity

Problem	Solution
Low <ul style="list-style-type: none">• pH bounce• Staining• Increased corrosion	<ul style="list-style-type: none">• Add sodium bicarbonate to raise total alkalinity
High <ul style="list-style-type: none">• High acid demand• pH usually high• Bicarbonate scale	<ul style="list-style-type: none">• Add muriatic acid or pH decreaser to lower total alkalinity with the pump turned off

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Calcium Hardness

- Calcium Hardness is the term used to describe the ability of water to form suds. It is a measure of dissolved calcium and or magnesium in pool/spa water.
- If the calcium hardness is low, water is corrosive. If the calcium hardness is high, scaling occurs.

Effects of Calcium Hardness

Problem	Solution
<p>Low</p> <ul style="list-style-type: none">• Increases corrosion• Etches plaster• Shorter plaster life• Shorter vinyl life• Rough plaster, hard to clean• Creates pores for algae roots	<p>Under 100 ppm critical</p> <ul style="list-style-type: none">• Use calcium chloride to raise calcium hardness• Apply directly to pool water, never through the skimmer• Add 1/3 total treatment no sooner than every six hours
<p>High</p> <ul style="list-style-type: none">• Cloudy water• Scale on all surfaces• Discoloration• Rough surface, hard to clean• Causes heater scale• Piping scale reduces recirculation	<p>Over approximately 450 ppm</p> <ul style="list-style-type: none">• Dilution of pool water

Total Dissolved Solids

Total Dissolved Solids is the sum of all dissolved chemicals which have accumulated in the pool. Pools/Spas with total dissolved solids over 2000 ppm have a slight saline (salt) taste.

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Types of Chlorine Residuals

Free Available Chlorine:

The amount of uncombined chlorine in the water available to sanitize, oxidize organic contaminants and to kill bacteria.

Total Chlorine:

The sum of the combined chlorine and the free available chlorine.

Combined Chlorine:

Free available chlorine which has combined with wastes to produce chloramines. Combined chlorine has little disinfecting power and causes chlorine odour in a pool. It is also responsible for eye irritation

Frequency of Water Tests

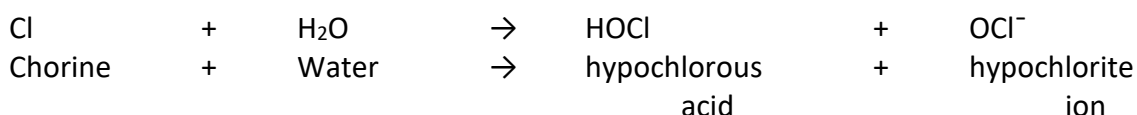
Chemicals	Range Pools	Range Spas	Frequency of tests
Free Available Chlorine (FAC)	0.5 mg/l- 10.0 mg/l (unstabilized) 1.0 mg/l- 10.0 mg/l (stabilized)	5.0 mg/l- 10.0 mg/l	Without ORP: ½ hour before opening and every 2 hours while pool is open With ORP: ½ hour before opening and every 4 hours while pool is open
Bromine	2.0 mg/l- 4.0 mg/l	5.0 mg/l- 10.0 mg/l	
pH	7.2 – 7.8		
Total Chlorine	Recommended not to exceed the sum of FAC reading plus 0.5 mg/l		
Total Alkalinity	Minimum 80 mg/l		
Cyanuric Acid (if applicable)	Minimum 60 mg/l		Weekly

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Chlorination

Chlorination is the addition of chlorine to pool or spa water. Chlorine is added to sanitize and destroy harmful bacteria and to oxidize or burn out organic contaminants.

When chlorine is added to pool/spa water, it produces hypochlorous acid and hypochlorite ion.



Both these products are measured as Free Available Chlorine, however, hypochlorous acid is much more efficient as a sanitizer.

Gas Chlorine

Pale greenish-yellow poisonous gas of marked odour, irritating to the eyes and throat.

Active strength 100%

Available chlorine content 100%

Advantages

- Least expensive of chlorine sanitizer

Disadvantages

- Expensive feed equipment required
- Dangerous to handle
- Lowers pH dramatically
- Chlorine residual of pool dissipates rapidly in sunlight

Electronic Chlorine Generators /Salt Generators

A process in which salt is added directly into the pool or spa water. As the dissolved salt passes through the electronic cell(s), gas chlorine, caustic soda and hydrogen gas are created. Gas chlorine is rapidly absorbed into the water, thus resulting in chlorination of pool water.

Salt levels 2500 – 3500 ppm

Advantages

- Relative pH neutral

Disadvantages

- Must maintain salt level

Sodium Hypochlorite

Liquid form

Strength 10% -15%

pH 13

Large acid demand

Advantages

- Low cost
- Readily available
- Useful for sanitation of other surfaces

Disadvantages

- Loses effectiveness during storage
- Large storage area

Calcium Hypochlorite

White granules with a strong chlorine odour. Sometimes called High Test Hypochlorite (HTH).

Active Strength 70%

Available chlorine content 70%

pH 11

Advantages

- Easily handled
- No significant storage

Disadvantages

- Can cause turbidity, scale, or clogged filters if pH and or total alkalinity are high.

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Superchlorination

Superchlorination is the addition of high doses of chlorine to remove organic contaminants and improve water quality. The continual addition of chlorine, dirt and micro-organisms eventually causing a build-up of combined chlorine (CC) compounds. CC causes eye irritation and chlorine odour. To rid the pool of these, add large doses of free chlorine (FC) to about ten times the amount of CC. To find CC, use the following calculation: $TC^* - FAC = CC$

For example, if a 55,000 gallon pool has a $TC = 2.3\text{ppm (mg/l)}$ and a $FC = 1.5\text{ppm (mg/l)}$. How much chlorine should be added to achieve superchlorination?

Step 1: Find the CC.

$$2.3\text{ppm} - 1.5\text{ppm} = 0.8\text{ppm}$$

Step 2: Multiply CC by 10.

$$10 \times 0.8\text{ppm} = 8\text{ppm}$$

Therefore, 8ppm of chlorine should be added to achieve superchlorination.

*TC is total chlorine

Stabilization

Stabilization is the addition of cyanuric acid to pool water to help minimize chlorine loss due to evaporation from sunlight. Stabilized chlorine contains both stabilizer and chlorine in its composition. For indoor pools (totally or partially covered by a roof) and all spas, no cyanurate stabilization shall be used.

Chemical	Limit	Frequency of Test
Cyanuric Acid	Maximum 60 mg/l	Weekly

Cyanuric acid is a weak organic acid which binds the chlorine residual of the pool water and greatly reduces chlorine loss by the sun's ultraviolet rays. Chlorine residuals that have been stabilized will last 3 to 4 times longer. The cyanurates slightly reduce the disinfection power of the chlorine, thus higher levels of chlorine must be maintained usually greater than 1.0 mg/l.

Stabilizer does not dissipate or wear-out, therefore, high levels of cyanurates can only be reduced by adding fresh water. This must be done if levels are greater than 60 mg/l. Stabilizer is most effective in the range of 25-50 mg/l.

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Bromination

Bromination is the addition of bromine to the pool or spa water to prevent the growth of disease causing organisms.

When bromine is dissolved in water it produces Hypobromous Acid, an extremely powerful disinfectant. Comparisons to Hypochlorous acid shows certain advantages e.g. increasing bacterial kill efficiencies relative to chlorine at pH values above 7.5.

Bromine sanitizer efficiency is essentially independent of the pH; however, its use reduces the pH of pool or spa water and subsequently reduces the total alkalinity. No known bromine stabilizer.

Chemical	Range Pools	Range Spas	Frequency of Test
Bromine	2.0 mg/l- 4.0 mg/l	5.0 mg/l- 10mg/l	Without ORP: ½ hour before opening and every 2 hours while pool is open With ORP: ½ hour before opening and every 4 hours while pool is open

Effects of Bromination

Problem	Solution
<ul style="list-style-type: none">Destroys Total Alkalinity (TA), therefore, pool could be corrosive. Causes bicarbonate to leave the pool as carbon dioxide, therefore, lowers TAReduces pHCauses pH reaction with reagent changing the colour to look as though the pH is higher	<ul style="list-style-type: none">Use Sodium Bicarbonate to increase TATA not to exceed 120 ppm

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Recommendations for Cleaning a Pool Fouling

(Liquid Stool/Diarrhoea)

Normal chlorine levels cannot cope with a pool grossly fouled by vomit and feces. It is essential that quick action be taken when such an occurrence happens.

1. Evacuate bathers and close the pool immediately as soon as a fouling is observed.
2. Switch off the recirculation and disinfection systems.
3. Remove foreign matter by skimming. Hose off pool deck, if necessary.
4. Direct discharges from skimming and vacuuming to the sewer; if this is not possible, operate recirculation pump but by-pass the filter.
5. Raise the chlorine level in the pool water to 20 ppm free available chlorine by adding chlorine directly to the pool while recirculation system is off and ensure the pH is in the range of 7.2 to 7.5.
6. Test the pool water after addition of chlorine to ensure that 20 ppm free available chlorine residual level has been reached. Maintain pH at 7.2 to 7.5.
7. Resume recirculation systems 1/2 hour after addition of chlorine. Let circulate for 12.75 hours and then perform backwash procedures. Backwashing helps to reduce high chlorine levels. You may need to add fresh make-up water to the pool after backwashing.
8. If necessary, clean the pool and deck surfaces and sanitize them with a disinfectant solution having a strength equivalent to at least 50 ppm chlorine.
9. Test the pool water levels for free available chlorine and pH. Free available chlorine residual should be within the range of 1.0 – 2.0 ppm, and pH within the range of 7.2 – 7.8. Addition of chlorine neutralizer can be used to lower chlorine levels faster.
10. Disinfect all equipment used by immersion in disinfectant solution having a strength equivalent to at least 50 ppm chlorine.
11. Record test level results in the Pool Log including occurrences of pool foulings. The Public Health Inspector may ask to see the Pool Log at a later date.

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Recommendations on Localizing Minor Foulings

(Formed Stools)

1. Evacuate bathers and close the pool immediately as soon as a fouling is observed.
2. Switch off the recirculation and disinfection system.
3. Scoop up as much of the fouling as you can by skimming.
4. Raise the free available chlorine to 2 ppm by adding chlorine directly to the pool while the recirculation system is switched off, and ensure the pH is within the range of 7.2-7.5.
5. Apply a local shock treatment at the point of fouling, suggest minimum of 1 gallon of 12% liquid chlorine, ensuring residual of at least 1.5 ppm free available chlorine to all areas of the pool.
6. Resume recirculation and disinfection system for at least ½ hour.
7. Re-open to bathers after a minimum of ½ hour has elapsed since shock treatment and the pH of the water is within the range of 7.2 to 7.8.
8. Disinfect all equipment used by immersion in disinfectant solution having a strength equivalent to at least 50 ppm chlorine.
9. Record test level results in the Pool Log including occurrences of pool foulings. The Public Health Inspector may ask to see the Pool Log at a later date.

Recommendation

For safety reasons, these procedures should only be carried out in the presence of another person.

Recreational Water Daily Records

Spa

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Public Pool and Spa Incident Report		
Facility Name:	Address	
Date of Incident:	Time of Incident:	Date of Report:
Location of incident (circle all that apply)		
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <ul style="list-style-type: none"> Dressing Rooms Deck Location _____ Shallow End Deep End Spa </div> <div style="width: 30%;"> <ul style="list-style-type: none"> Fence Pool Steps Handrails Diving Board </div> <div style="width: 30%;"> <ul style="list-style-type: none"> Wading Pool Outdoor Indoor Water Slide Other _____ </div> </div>		
Victim's Information		
Name of person involved:		
Address:		
Phone:	Age:	Sex
Details of incident (include activity at the time of incident):		
Description of injuries (including exact location of body):		
Treatment or action taken by staff (include if treatment refused):		
Treatment given by emergency services (Ambulance, Police, Fire, etc):		
Parent / Guardian contacted (circle one) Yes or No	Victim followed all rules and safety procedures (circle one) Yes or No	
Environmental conditions		
Water (temperature, visibility, etc.);		
Air (temperature, wind, etc)		
Deck (condition etc,)		
Witness Information		
Name:		
Address:		
Phone:	Age :	Sex:
Staff involved		
Name (Print):		

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Criteria For Closing a Swimming Pool

A swimming pool is subject to immediate closure when any of the following conditions are observed:

- Pool not made inaccessible when closed.
- Water clarity poor or black disc not available for clarity test.
- Fouling e.g. feces, vomit, blood or chemical.
- Filtration or circulation system is not operative or malfunctioning.
- Drain cover or fittings missing or not in good repair.
- Any of the outlet covers are found to be loose or missing
- Equalizer(s) valves open.
- Emergency telephone missing or malfunctioning.
- Lifesaving safety equipment not available or not in good repair.
- Ground Fault Circuit Interrupter missing or malfunctioning.
- Disinfectant not detected in pool water and not available on site to rectify the lack of disinfectant in pool water immediately.
- Lifeguard qualifications not available or lifeguard not available where applicable.
- Underwater light disconnected and not certified in writing by an electrician.
- Any other conditions that may constitute a health hazard eg. power outage, confirmation of pathogenic agents such as cryptosporidium.



Appendix - 25

Handling Chemicals Safely

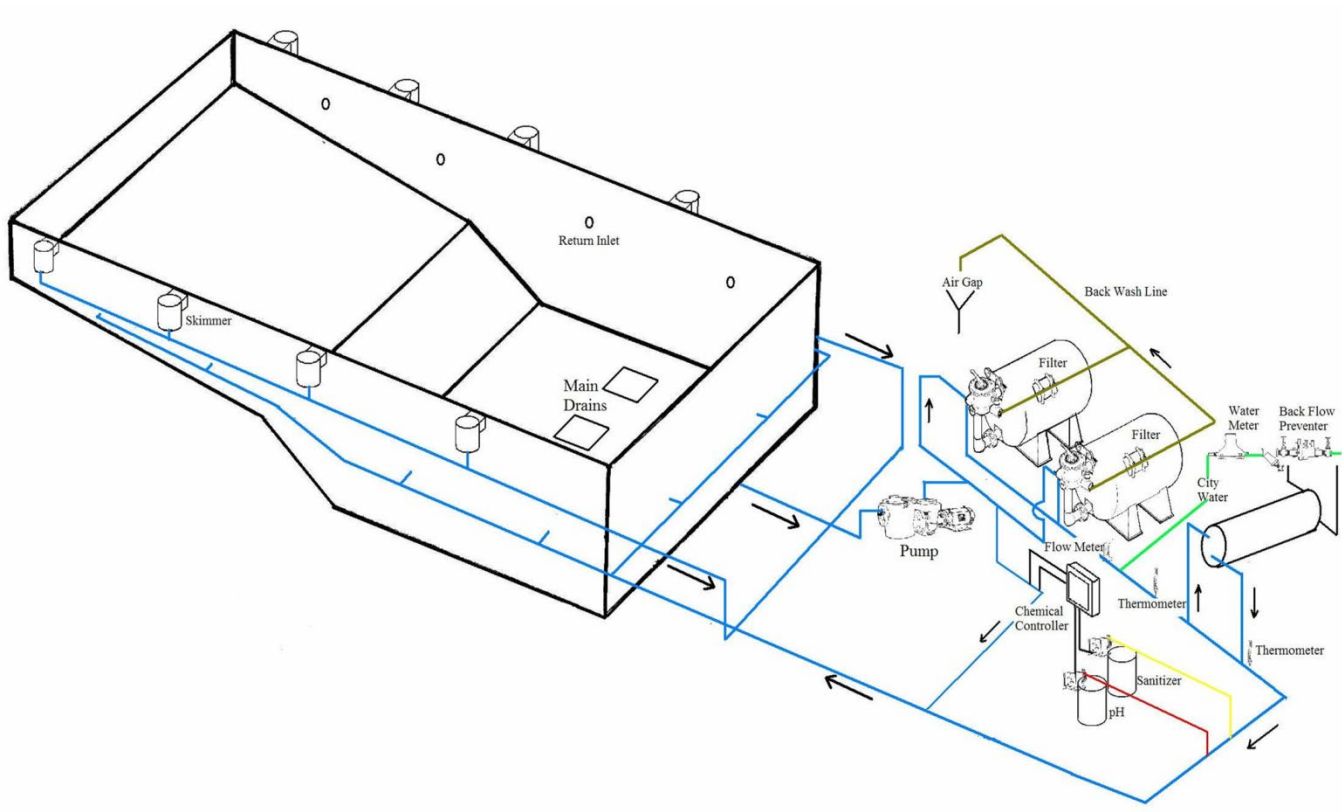
Section 6 (6) (f)

Every owner and every operator shall ensure that,

- Provisions are made for the safe storage and handling of all chemicals required in the pool operation.
- Store pool chemicals in a cool, dry and ventilated area.
- Keep corrosive materials away from other chemicals.
- Keep all chemicals away from hot surfaces and flames.
- Have personal protective equipment available as required.
- Safety Data Sheets must be made available to employees for every chemical in use.
- Do not eat, drink or smoke in the chemical storage area.
- Ensure the chemical storage room is inaccessible to unauthorized persons.
- Handle chemicals with clean and dry scoops only. Each chemical must have its own scoop. Use scoops provided by the manufacturer if available.
- Keep containers closed when chemicals are not in use.
- Label all containers with the chemical name.
- Never re-use empty chemical containers for the storage of other chemicals.
- Never mix contaminated chemicals with your fresh supply.
- When mixing chemicals, add them slowly. Never add water to the chemicals, always add the chemical to the water.

Appendix - 26

A Detailed View of a Typical Pool Setup



Notes

Notes

Notes