Western Plains
PUBLIC HEALTH

STANDARD OPERATING PRACTICES AND PROCEDURES FOR PUBLIC AND SEMI-PUBLIC SWIMMING POOLS

FOREWORD

This manual has been prepared as a minimum requirement for the operation of all public swimming pools located within the boundaries of Custer Health Unit so as to protect the health, safety and general welfare of the public.

I - DEFINITIONS

1.1 "Pool Facility" means any structure, basin, chamber or tank containing an artificial body of water for swimming, diving, recreational bathing, and therapy. This includes spas, hot tubs, whirlpools, special-use pools, and therapy pools

1.2 "Public swimming pool" means any swimming pool usually open to any member of the public. This includes but is not limited to municipal, apartment, lodging facilities, and recreational facilities.

1.3 "Residential swimming pool" means any swimming pool located on private property under the control of the homeowner. The use is limited to swimming or bathing by members of the homeowners family or their invited guests.

1.4 "Shock Chlorination" Shock treatment adds a larger than normal amount of oxidizing chemicals to pool water. This additional dose destroys organic contaminants and oxidizes ammonia and nitrogen compounds to rid the area of irritating chloramine odor and, if chlorine is used for the purpose, to sanitize the water. Shocking should be done with the pump and filter operating, but after sundown to avoid the loss of chlorine to the sun's ultraviolet (UV) rays.

1.5 "Superchlorination" is used for shock treatment with chlorine products when 5 or more ppm of Free Available Chlorine is added. This mode of shock treatment — in addition to oxidizing undesired wastes – is used to rid the pool of algae and bacteria that might be hiding in filters and hard-to-sanitize areas. Superchlorination also gets rid of chloramine odor. Adding 10 times the level of combined chlorine or chloramines in the water achieves so-called breakpoint chlorination when there is enough extra chlorine to consume the irritating chloramines.

1.6 "Breakpoint" means raising the chlorine residual where the concentration of available chlorine becomes great enough to oxidize all organic matter and ammonia compounds in a pool completely. Chlorine added thereafter will be in an uncombined or free state.

II - APPROVAL OF PLANS

No person may construct, alter or reconstruct any public or semipublic swimming pool without submitting the plans and specifications to the state plumbing board and appropriate local public health authority for approval. All plans must be signed by an engineer licensed within the state of North Dakota.

III - STAFF QUALIFICATIONS

3.1 Every public pool must be supervised by a person qualified in the fields of lifeguard training, CPR, first aid, equipment operation and pool sanitation. Individuals are considered qualified in lifeguard training, CPR and first aid if they hold an appropriate Red Cross or YMCA certification or other recognized certificate..

3.2 Lifeguards shall be provided at municipal public swimming pools as currently required by American Red Cross and YMCA standards.

3.3 It is recommended that facility representatives become Certified Pool Operators (CPO).

IV - POOL BASIN

4.1 All pool materials must be non-toxic, durable, waterproof and easily cleanable. The color of the pool basin and sides if painted must be light in color.

4.2 The pool basin and sides must be smooth, free of cracks, leaks, and protrusions.

4.3 Bather loads for swimming pool facilities will be determined as follows:

a. Spas/whirlpools: allow one bather per 10 square feet (.93 square meters) of pool area.

b. Indoor swimming pools: allow one bather per 24 square feet (2.23 square meters) of pool area.

c. Outdoor swimming pools: allow one bather per 27 square feet (2.5 square meters) in water depths over 5 feet (1.52 meters) deep and one bather per 15 square feet (1.4 square meters) in water depths less than 5 feet (1.52 meters) deep.

V - POOL WATER QUALITY

5.1 The water supply serving the pool must meet the requirements of the North Dakota Department of Health for potable water.

5.2 Every pool shall be provided with testing equipment for the determination of disinfectant residuals and pH concentration. The disinfectant residual tester shall have a range of at least 0.0 to 5.0 mg/l and be compatible with the disinfectant being used. The pH tester shall be able to indicate pH between 6.0 and 8.0. Test kit chemicals shall be replaced according to manufacturers recommendations. Chemicals must be stored in accordance with manufacturers recommendations.

5.3 If the main drain of the pool is not visible due to cloudy water, the pool shall be closed until the water is clear enough to see the main drain. The recirculation system shall be operated continually 24 hours per day during months of operation.

5.4 Swimming may not be permitted when water temperature falls below sixty-five degrees Fahrenheit (18 degrees Centigrade). Spa water shall not exceed one hundred four degrees Fahrenheit (40 degrees Centigrade). Therapy pool temperatures may exceed one hundred four degrees Fahrenheit (40 degrees Centigrade) with the approval of the local public health authority.

5.5 Pool water shall be maintained using the following values:

a) a pH between 7.2 and 7.8.
b) a free chlorine residual of 1-3 mg/l on all pools.
c) a free chlorine residual of 3-5 mg/l on all spas/whirlpools.
d) total chlorine residuals shall be no greater than 1 milligram per liter above free chlorine levels.
Break Point chlorination shall be performed when total chlorine residuals are 1 mg/l or greater.

5.6 Keep the pool surface free of floating dirt and film and the pool bottom free of sediment.

5.7 Require all patrons to take a cleansing shower using warm water prior to entering the pool.

5.8 Exclude all patrons showing symptoms of infection such as skin rashes or open lesions from entering the swimming pool.

5.9 Pool water must be sampled at least weekly and submitted it to a laboratory certified by the North Dakota Department of Health for bacteriological analysis. Failure to perform the testing as required may result in closure of the pool.

Any detection of coliform bacteria, a bacteria count greater than 200 ml from a standard plate count or a voided presumptive bacteria test will require superchlorination/shock treatment and resampling of the pool water. The pool may reopen once disinfectant residuals reach safe levels. In the event the resample fails for fecal coliform bacteria, the facility will close until a negative sample is achieved.

5.10 All swimming pools must be superchlorinated/shock treated to between ten and fifteen mg/l prior to seasonal start-up and at any time during operation when required.

5.11 Swim diapers shall be worn by all infants and children entering the water that are not toilet trained.

5.12 A visible fecal or vomitus release into any pool facility will result in facility shut down for superchlorination/shock treatment. The length of shut down will be for a period of time which allows for one complete turnover of the pool water. Prior to reopening, chemical parameters must meet recommended levels. A water sample must be submitted for microbiological testing at that time.

VI - MECHANICAL EQUIPMENT

6.1 The recirculation system shall consist of pumps, hair and lint catchers and filters, together with all necessary pipe connections to the inlets and outlets of the pool and for back-washing of the filters. As an integral part of the system, equipment must be provided for disinfecting the water and adding any necessary chemicals and for providing make-up water.

6.2.1 The recirculation system must have adequate filtration and pumping capacity to: provide:

a.) one complete turnover of the swimming pool water within six hours,
b.) one complete turnover of a whirlpool/spa within thirty minutes.
c.) one complete turnover for a wading pool, plunge pool, or health pool within two hours, and develop the necessary suction required for cleaning when a suction type vacuum is used.

Existing wading pools/baby pools not currently meeting the requirements of this section will not be required to meet these standards unless the facility undergoes alteration or reconstruction. The recirculation system shall be operated continually 24 hours per day during months of operation.

6.3 Suction cleaners either of the portable type or as part of the permanent piping system are required.

6.4 All portions of the potable water supply serving the pool and auxiliary facilities must be protected against backflow. Potable water introduced into the pool shall be supplied through an air gap or an approved-type backflow preventer. All pool equipment shall be installed and valved in accordance with the North Dakota State Plumbing Code.

6.5 A rate-of-flow indicator capable of measuring at least one and one-half the design flow rate must be installed on the filter effluent line leading to the pool. The indicator must be calibrated to read in gal/min or l/min and capable of measuring both water for filtration and backwash where applicable.

6.6 Pressure/vacuum gauges are required on all filter systems to indicate a need for filter cleaning or back-washing.

6.7 All swimming pools, whirlpools, therapy pools, and wading pools with only one main drain per recirculation pump shall be equipped with Aanti-vortex plates@. All Aanti-vortex plates@ will be secured in a way that they can only be removed with the use of tools. In the event a main-drain cover is broken or not in place, the pool facility will be immediately closed until the cover is replaced. If two or more main drains are used they must be at least three feet apart, shall be connected in parallel and shall not permit any drain to be individually valved off.

VII - DISINFECTION EQUIPMENT

7.1 Equipment must be provided to adequately disinfect the pool at all times. The most common means of pool disinfection is through the application of chlorine, but other elements of the halogen group such as iodine or bromine may be used with proper metering and test equipment.

7.2 All public pools must be equipped with automatic chemical feeding equipment for controlling disinfectant and pH.

7.3 Chlorine gas, when used, must be supplied by means of a cylinder mounted vacuum operated gas chlorinator of the fail safe type.

7.4 The housing for the gas chlorinator and all appurtenances must meet the following specifications:

a. Be a separate reasonably gas-tight, corrosion-resistant mechanically vented enclosure or room. The room shall be at ground level and permit easy access to all equipment. The door of the room shall open to the outside and shall not open to the swimming pool or equipment room area.

b. The exhaust fan must be capable of one or more air exchanges per minute. The fan must be located at floor level or equipped with an

intake extending to within six inches (15.2 centimeters) of floor level exhausting to an outside atmosphere in an unrestricted area. Fresh air intake louvers near the top of the enclosure are required.

c. A clear glass window must be installed in the door or wall of the chlorinator room to permit the chlorinator to be viewed without entering the room.

d. All electrical switches must be located outside of the chlorine room. It is recommended that all electrical switches for artificial lighting and ventilation be activated by the operation of the door.

e. It is recommended that a gas mask approved by the United States Bureau of Mines be provided for protection against chlorine gas leaks. In the event of a chlorine gas exposures, contact your local fire department.

f. Scales must be provided for the daily weighing of chlorine cylinders.

g. Safety chains shall be provided for securing chlorine cylinders to prevent tipping. Cylinders shall be chained on the upper half of the chlorine cylinder.

h. A cylinder wrench shall be attached to the top of each cylinder being used. A fresh ammonia bottle shall be provided to detect chlorine gas leaks. Ammonia shall be replaced yearly.

VIII - BATHHOUSE

8.1 When provided, the bathhouse must be located to provide entrance to the pool area near the shallow end of the pool only.

8.2 Floors must be of smooth, nonslip, impervious construction and sloped to drains at one quarter inch (6.4 millimeters) per foot (30 centimeters) . Adequate floor drains must be installed in all areas subject to water accumulation.

8.3 Dressing room booths and furnishings must be of simple design and must be constructed of impervious and smooth materials that will permit hose cleaning. Partitions in booths shall terminate six inches (15 centimeters) above the floor.

8.4 Adequate hose bibs having backflow prevention must be provided for area cleanup.

8.5 Natural or artificial ventilation must be provided.

8.6 All area lighting shall provide at least ten foot candles at a point three feet (1 meter) from the floor and must be available during both day and night.

8.7 Sufficient space must be allowed for dressing and clothing storage.

8.8 Showers shall be located adjacent to dressing rooms. Warm water must be provided at all shower heads. At least one shower head per forty patrons is required.

8.9 At least one sink with hot and cold running water shall be provided for each sixty patrons. Soap dispensers, single use hand towels, or mechanical dryers shall be provided for lavatories. At least one water closet and one urinal per 60 males and one water closet per 30 females shall be provided.

8.10 An approved potable water supply shall be provided. Angle jet or other approved type drinking fountains shall be provided.

8.11 All pool facilities and bathhouses serving the public shall meet the requirements of the Americans with Disabilities Act.

8.12 The bathhouse will be cleaned and disinfected on a daily basis.

IX - DECKING/POOL AREA

9.1 Pool decks and walkways shall be cleaned and disinfected on a daily basis.

9.2 A six foot (2 meters) high chain-link fence or equivalent enclosure shall completely encircle the pool area.

9.3 Diving areas shall meet current standards of the National Swimming Pool Foundation.

9.4 All steps or stairs entering a public pool a shall have nonslip surfaces. They shall have sturdy and easily visible handrails on either side and at the top leading out over the water. Ladders or stairs must be located at the shallow end and at both sides of the deep end of the pool.

9.5 The depth of water in the pool shall be plainly marked at points of maximum and minimum depths, at the break between the deep and shallow areas, and at intermediate depths spaced at not more than 25 foot (7.62 meters) intervals. The markers shall be placed on the pool basin wall at or above the water level and on the top edge of the deck. The markers shall be at least 4 inches (10.2 centimeters) in height and of contrasting color and shall be located on both sides and both ends of the pool. The depth or depths of water in a whirlpool or therapy pool must be plainly marked above the water surface on the pool wall and/or on the deck next to the pool.

10.2 The depth of the wading pool must not exceed twenty-four inches (61 centimeters).

10.3 Water supplied to the wading pool must meet the same water quality standards as those required for swimming pools.

XI. RECORDS

A daily operation record of the recirculation system, chemical additions, bather load, pH, and disinfectant residuals shall be kept for all pool facilities. The pH and disinfectant residuals shall be monitored and recorded a minimum of three times daily and be performed during bather activity.

XII. GUIDELINES FOR POOL CLOSURE:

Pool closure is required if:

1. There is inadequate recirculation or filtration, insufficient or excessive disinfectant or the pool fails to meet other chemical standards, water clarity is lacking and the pool bottom is not visible from the pool deck.

2. The bottom drain plate or grate is not in place, not secured, or is broken.

3. An unsafe condition is present, such as a broken electrical pool light, fecal release in the water, or a gas chlorine leak.

4. Water temperature is over 104° F (40° C) or below 65°F (18° C)

5. Failure to monitor.

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