

Rolette County Public Health District

AQUATIC FACILITY

Rules and Regulations



Public Health
Prevent. Promote. Protect.

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ROLETTE COUNTY PUBLIC HEALTH DISTRICT

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I. NOTICE OF RULES AND REGULATIONS

The following rules and regulations pertain to the inspection, operation, and monitoring requirements of aquatic facilities within the boundaries of **ROLETTE COUNTY PUBLIC HEALTH DISTRICT (RCPHD)**.

These rules and regulations are necessary and proper for the preservation of public health and safety. All facilities are required to adhere to these rules and regulations. The provisions of these rules and regulations shall be enforced.

We believe that, if the operational practices outlined below and throughout this manual are observed, your facility can serve as a safe and healthful environment. Note: improperly designed, operated, and maintained aquatic facilities are a menace to the health and general welfare of the public and are hereby declared a nuisance; and are subject to the requirements specified under North Dakota Century Code (NDCC) Section 23-35-08 and Section 23-35-09. Any person who violates the provisions of these rules and regulations can be found guilty of a class B misdemeanor, Section 23-35-13.

All aquatic facility operators shall be knowledgeable about these rules and regulations. Aquatic facilities located in **Rolette County, not including tribal and trust lands** shall operate in a manner that follows all rules and regulations set forth in this document.

The Model Aquatic Health Code (MAHC), published by the U.S. Department of Health and Human Services for Disease Control and Prevention (CDC) may be used as a reference for any areas not addressed within these rules and regulations.

These rules and regulations shall be effective on and after February 19, 2015.

II. DEFINITIONS

For the purposes of these rules and regulations, certain terms or words used herein shall be interpreted as follows: the word "shall" is mandatory; the words "should" and "may" are permissive.

"Applicant" shall mean any person who applies for a license to operate an aquatic facility.

"Approving Authority" shall mean the Environmental Health Division of Lake Region District Health Unit (LRDHU); as appointed by the Health Officer.

"Aquatic facility" shall refer to public or semi-public pools, spas, wading pools, interactive water fountains; spray grounds; splash pads; wave pools; zero depth entry; lazy rivers; slides; and other systems. Aquatic facility and pools shall be used synonymously in this document.

"Bather load" shall mean the total number of bathers within the pool enclosure.

"Board of Health" shall mean Rolette County Public Health District Board of Health.

"Calcium hardness" shall mean the level of calcium.

"Cartridge filter" shall mean a type of pool water filter that uses paper or fabric-like cartridges as its filtering medium.

"Combined chlorine" shall mean "spent sanitizer", and refers to the formation of chlorine chemically bonding to nitrogen-containing compounds to form chloramines.

"Competition pool" shall mean any pool intended for use for accredited competitive aquatic events. Competition pools may also be used for recreation and instruction.

"Customer" shall mean any member of the public who is provided access to a pool in exchange for a fee or other compensation, or any individual who, in exchange for a fee or other compensation, is afforded use of a device as a benefit of membership in or access to a health club, condominium ownership, apartment complex activity center, hotel or motel room rental or other offer

"Diatomaceous earth filter" shall mean a type of pool water filter, pressure or vacuum type that uses diatomaceous earth or volcanic ash as a filter medium. It is commonly called D.E. filter.

"Deep areas" shall mean areas of the pool exceeding five (5) feet in depth.

"Diving area" shall mean any pool area that is designed and constructed primarily for diving and does not have a shallow end.

"Free (available) chlorine" shall mean "active sanitizer", and is the chlorine that is available to kill bacteria or algae. It is the most active form of chlorine that is free to kill bacteria and algae.

"Lake Region District Health Unit" shall mean the counties represented by the Lake Region District Health Unit, which are Benson, Eddy, Pierce, and Ramsey counties; with the administration office located at 524 4th Avenue NE, Unit 9, Devils Lake, ND 58301.

"NDCC" – shall mean the North Dakota Century Code.

"Operator" shall mean an individual designated by the license holder to manage the facility, to assist and instruct the public as needed, and to be responsible for compliance with these rules and regulations.

"pH" shall mean the measure of the acidity of water. The pH scale runs from 0 to 14 with 7 being the midpoint or neutral. A pH of less than 7 is on the acid side of the scale, while a pH of more than 7 is on the basic (alkaline) side of the scale.

"ppm" shall mean the abbreviation for "parts per million" and is equal to 1/10,000 of 1%. Parts per million is calculated in weight units. In dilute water solution, the weight-volume relationship of milligrams per liter (mg/l) may be substituted.

“Person” shall mean: any individual, LLC, firm, partnership, association, corporation, company, society, government agency, club, or organization of any kind.

“Plunge pool” shall mean a pool located at the exit end of a waterslide flume and is intended and designed to receive sliders emerging from the flume.

“Pool facility” means any structure, basin, chamber, or treatment tank containing an artificial body of water for swimming, diving, relaxation use and also include special purpose pools and wading pools. This includes spas, hot tubs, whirlpools, special-use pools, and therapy pools.

“Pools with wading areas” shall mean any pool that has a portion of the shallow end with a maximum depth of twenty-four (24) inches.

“Public swimming pool” shall mean any swimming pool usually open to any member of the public. This includes, but is not limited to municipal, recreational facilities. *Its main purpose/function is to provide swimming for the public.*

“Recreational Water Illness” or “RWI”, both microbial and chemical, are caused by swallowing, inhalation of aerosols, or contact with contaminated water or air in swimming pools, hot tubs, water parks, water play areas, interactive fountains, lakes, rivers, or oceans. RWI’s can be a wide variety of infections, including gastrointestinal, skin, ear, respiratory, eye, neurologic and wound infections. The most commonly reported RWI manifestation is diarrhea. Diarrheal illnesses can be caused by germs such as Crypto (short for *Cryptosporidium*), *Giardia*, *Shigella*, norovirus, and *E. coli* 0157:H7.

“Residential swimming pool” shall mean any swimming pool located on private property under the control of the homeowner or his agent. The use is limited to swimming or bathing by members of the homeowners or renters family or their invited guests. *Residential pools are inspected when there is a childcare facility affiliation and when there is a complaint received by the Health Unit.*

“Sand filter” shall mean a type of water filter that uses sand, or sand and gravel as a filter medium.

“Shallow” shall mean those portions of a pool ranging in water depth from two (2) to five (5) feet.

“Spa” shall mean any whirlpool, hot tub, jacuzzi, health pool, or treatment pool. Spas have a water agitation system in addition to the recirculation system. Spas are not drained, cleaned, or refilled for each use.

“Semi-public swimming pool” shall mean any swimming pool, other than a residential pool or a public pool, which is intended to be used by numbers of persons for swimming or bathing regardless of whether a fee is charged for such use. This definition includes swimming pools located in hotels, motels, lodging facilities, health clubs, condominiums, and apartment house complexes.

“Slide” shall mean any pool slide device used to enter a pool by sliding down an included plan or equipment similar to a playground slide.

“Special purpose pool” shall mean any pool used for purposes other than recreational to include but not limited to competition, therapy, and treatment.

“Spray grounds” shall mean the buildings and appurtenances used in conjunction with a splash pad in which sprayed water is continually drained and collected in a treatment and recirculation system or drained in to a sanitary sewer.

“Super-chlorination or Breakpoint Chlorination” is defined as and accomplished by increasing the chlorine dosage to a point where all ammonia compounds and other un-desirable organic materials are completely burned out (oxidized) and removed by chlorine reaction. Chlorine added thereafter will be in an uncombined or “free chlorine” state. No bathers may be present in a pool or spa during any part of a process of super-chlorinating/shocking or until levels are within acceptable range.

“Total Chlorine” is the sum of the free chlorine and combined chlorine residuals.

“Treatment tank” shall mean the enclosed pool, not intended for bathing, used at spray ground to treat the water prior to recirculating it through the features at the facility.

“Turnover rate” shall mean the period of time, expressed in hours, required to circulate a volume of water equal to the maximum pool-water capacity through the pool-water treatment system. *Turnover rates are as follows: Wading pools – one hour; spas- one half hour; wave pools-two hours; zero depth pools-two hours; pools with wading areas-two hours; competition pools-six hours; diving pools-12 hours; all other pools-six hours.*

“Wading pool” shall mean a pool with a maximum depth of twenty four (24) inches.

“Waterslide” shall mean a recreational ride that is a sloped trough-like or tubular structure using water as a lubricant and method of regulating rider velocity and terminated in a plunge pool, swimming pool, or a specifically designed deceleration structure.

“Wave pool” shall mean any pool having a bottom sloped upward from the deep end to the surface at the shallow end with equipment installed at the deep end to create wave motions in the water.

“Zero depth pool” shall mean any pool with a bottom sloped upward from the deep end to the surface level at the shallow end.

III. INTENT

- A. These rules and regulations are written in accordance with the authority granted the Board of Health in the North Dakota Century Code, 23-35 and 54-40 and the Rolette County Public Health District, hereby providing minimum standards and criteria for aquatic facilities following good public health practices. The primary goal of these rules and regulations is to ensure safe and sanitary facilities.
- B. In any case, where a provision of these rules and regulations is found to be in conflict with a Provision of any zoning, building, safety, or health ordinance or code, the provision which establishes the more stringent standard for the promotion of health and safety shall prevail.
- C. If any section, subsection, sentence, clause, phrase, or portion of these rules and regulations are for any reason held to be invalid or unconstitutional by the decision of a court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of these rules and regulations.

IV. APPLICABILITY –ADOPTION OF RULES AND REGULATIONS

- A. The RCPHD Board of Health have adopted these rules and regulations to regulate any public or semi-public aquatic facility. These rules and regulations apply to all persons who possess or operate public or semi-public aquatic facilities.
- B. These rules and regulations establish health and safety requirements and limitations who may use an aquatic facility and may prohibit any practice that the Board of Health deems unsafe or a threat to public health.

V. FACILITY – LICENSING REQUIREMENTS

- A. No person, firm, partnership, joint venture, association, business trust, corporation, or organized group of persons shall operate an aquatic facility without first obtaining a license issued by the Approving Authority under these rules and regulations.
- B. It is prohibited to obtain or attempt to obtain any facility or operator license by means of fraud, misrepresentation, or concealment.

- C. An issued license is valid for one year, unless revoked for cause.
- D. The current facility license shall be posted in a prominent and visible area at the facility where it can be readily observed by customers.
- E. A license for an aquatic facility shall not be transferable from one place or person to another.
- F. The license shall be renewed on or before a renewal date set by the Approving Authority, or before construction and opening of a new facility.

VI. APPLICATION

- A. An applicant for a license to operate a facility shall submit a completed application for a license, on a form provided by the Approving Authority. The application must include blue print design plans and construction specifics of the facility and any other information reasonably required for the administration of these rules and regulations. Blueprint design plans and construction specifications shall be approved prior to construction and/or use of any facility, before the preoperational inspection. All facilities shall meet minimum construction standards.
- B. The Approving Authority will conduct a preoperational inspection prior to initial licensure or changes in ownership to ensure operator compliance and understanding of these rules and regulations.

VII. FEES

- A. The license fee to operate an aquatic facility shall be established by the Approving Authority's fee structure. *The license fee established shall be based on the cost of conducting routine and complaint inspections, enforcement actions, and the cost of preparing and sending inspection reports and license documents.*
- B. The license fee is non-refundable and non-transferable.
- C. An additional fee established by the Approving Authority's fee structure shall be imposed upon renewal if the license is not renewed before a date set by the Approving Authority's fee structure.
- D. A reduced license fee in the amount of one-half the applicable license fee may be charged for a new facility that begins operation after July first of each year, for facilities open year round. Fees collected must be deposited in the Approving Authority's operating fund.

VIII. INSPECTION

- A. These rules and regulations require that all aquatic facilities be inspected yearly or as often as necessary throughout the year to ensure compliance with these rules and regulations.
- B. Inspections shall take place unannounced whenever possible and at a reasonable hour and in a reasonable manner.
- C. The Approving Authority shall properly identify themselves upon entering a facility to make an inspection.
- D. It is unlawful for any person to interfere with the Approving Authority in the performance of duties.
- E. A copy of the inspection report shall be furnished to the license holder or operator of the facility, with the Approving Authority retaining possession of the original.

VIV. INVESTIGATING COMPLAINTS

- A. In addition to inspecting aquatic facilities, the Approving Authority has the responsibility to investigate all facility reported complaints received.
- B. If, after investigation, the Approving Authority should find that a licensee is in violation of these rules and regulations, the approving Authority shall advise the licensee, in writing, of its findings and instruct the licensee to take steps to correct such violations within a reasonable period of time.
- C. If the Approving Authority has reasonable cause to suspect that a communicable disease is or may be transmitted by use of the facility, due to unsanitary or unsafe conditions that may adversely affect the health of the public, upon written notice to the owner or operator, the Approving Authority may do any or all of the following:
 - a.) Issue an order excluding any or all operators from the licensed facility who are responsible, or reasonable appear responsible, for transmission of any communicable disease, until the Approving Authority determines there is no further risk to the public's health.
 - b.) Issue an order to immediately suspend the license for the facility until the Approving Authority determines there is no further risk to public health. Such an order shall state the cause for the action.

X. DENIAL – SUSPENSION, OR REVOCATION OF LICENSE

- A. Violation of these rules and regulations adopted is a class B misdemeanor. The Approving Authority shall deny issuance of a license to an applicant, or suspend or revoke any license issued under these rules and regulations if the applicant or license holder, or an employee of the applicant or license holder, violates these rules and regulations or any policies adopted to implement these rules and regulations, or if the applicant or license holder does any of the following:
 - a.) Submits false or misleading information in the application or in reports.
 - b.) Fails to construct, operate or maintain the facility in accordance with the application and these rules and regulations.
 - c.) Operates the facility in a way that causes or creates a nuisance or hazard to the public's health or safety.
 - d.) Violates any condition upon which the license was issued and in accordance with these rules and regulations.
 - e.) Fails to allow the Approving Authority to inspect the facility at a reasonable hour and in a reasonable manner for the purpose of determining compliance with these rules and regulations.
 - f.) Fails to pay the license fee.
- B. Licenses issued under the provisions of these rules and regulations may be denied, suspended, or revoked temporarily or permanently.
- C. The Approving Authority has the authority to abate the use of any facility until such time as the facility is no longer deemed a health or safety hazard. If a facility is closed, the facility shall not reopen for service without the permission of the Approving Authority.
 - a.) A facility's compliance with these rules and regulations does not relieve the owner or any employee of the facility from liability for injury sustained by a customer.
- D. When a facility is found to be in violation and the license will be suspended, the operator shall be

notified in writing that the license is, upon service of this notice, immediately suspended by the Approving Authority for failure of the holder to comply with the requirements of these rules and regulations.

- a.) The written notice shall contain a statement informing the license holder or operator the reasons for suspension, the time frame within which the proprietor must meet the requirements, and state that an opportunity for a hearing will be provided if a written request for a hearing is filed with the Approving Authority.
 - b.) The Approving Authority may permanently revoke a license after five days following service of the notice unless a request for hearing is filed within the five day period with the Approving Authority by the license holder.
- E. Any person whose license has been suspended may, at any time, make application for reinstatement of the license.
- a.) Within 10 days of receipt of a written request, including a statement signed by the applicant that in his or her opinion the conditions causing the suspension have been corrected, the Approving Authority shall re-inspect the facility or evaluate documentation provided by an operator.
 - b.) If the applicant is in compliance with the provisions of these rules and regulations, the license will be reinstated.
- F. For repeated or serious (any rules and regulations infraction that threatens the health of the customer or operator) violations of any of the requirements of these rules and regulations or for interference with the Approving Authority in the performance of their duties, a license may be permanently revoked after a hearing.
- a.) Before taking such action, the Approving Authority shall notify the license holder or operator in writing, stating the reasons for which the license is subject to revocation and advising the license holder or operator of the requirements for filing a request for a hearing.
 - b.) A license may be suspended for cause, pending its revocation or hearing relative thereto.
- G. Hearings provided for in these rules and regulations must be conducted at a time and place that is designated by the Board of Health.
- a.) On the basis of the record of the hearing, the Board of Health shall make a finding and may sustain, modify, or rescind any official notice or order considered in the hearing.
 - b.) A written report of the hearing decision must be furnished to the license holder or operator by the Approving Authority.

XI. OPERATOR – MANAGEMENT - REQUIREMENTS

- A. The operator of an aquatic facility shall keep the following information on file on the premises of a facility and available for inspection by the Approving Authority:
 - a.) Employee information for facility operations/management
 - b.) Facility owner and management contact information and facility hours of operation
 - c.) Daily operation, maintenance and other pool records for the pool, including monthly bacteriological analyses
 - d.) A copy of these rules and regulations

- B. All public and semi-public swimming pools and spas shall meet minimum standards set forth in the following sections:

- a.) Aquatic facilities in operation before 2015 may be exempted from certain items detailed in the parts of this code that deal with the actual physical facility at the discretion of the Approving Authority, but shall abide by all requirements in all other sections.
 - b.) Aquatic facilities built after these rules and regulation are in place shall abide by all requirements in all sections of this code.
 - c.) Aquatic facilities built before 2015 that upgrade their filtration or disinfection systems or any plumbing or mechanical parts of the circulation system or that do work that modifies 50 percent or more of the surface area of the pool basin or decking shall make the necessary modifications to bring the facility into complete compliance with all requirements in all sections of this code.
- C. Aquatic facility operators and personnel shall conduct operations and maintenance of the facility, conduct routine bacteriological sampling of the pool/spa.
- D. Each aquatic facility shall submit water samples from the swimming pool(s) and/or spas, to a laboratory certified by the North Dakota State Department of Health (NDDoH), for a bacteriological analysis.
- a.) Water samples shall be submitted: before opening for the first time for the season, reopening after closure, and once per month minimum during its months of operation.
 - b.) Documentation from the testing laboratory shall be sent to the Approving Authority within one week of receiving the bacteriological water results. *Water samples shall be deemed satisfactory by the laboratory before opening for the first time, before opening for the season, and before re-opening after closure from lab confirmed Coliform bacteria. Sampling shall start at least one week prior to the opening or reopening of any pool. Closure conditions requiring water testing sampling/re-sampling shall be designated by the Approving Authority.*
 - c.) Pool water shall meet the same standards (maximum contaminant level, MCL) as drinking water for bacteria content. A minimum of one sample per month shall be submitted for each month that the pool and/or spa are open for use by the public. 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 super-chlorination/shock treatment and re-sampling of the same pool or spa water until a satisfactory report is achieved for that month. A water sample shall be taken and sent in monthly from each water source (If there is a main pool and a wading pool or spa, both shall be tested monthly. Water samples shall not be taken from the mechanical room.
- E. Based on the risks of RWI inherent to aquatic facilities, during inspections the person in charge shall demonstrate knowledge of RWI prevention, appropriate operation standards, and the requirements of these rules and regulations. The operation of the facility shall be monitored by an employee, board member, or contractor who may be required to have CPO (Certified Pool Operator) training or "pool training/education" (excluding CPR or lifeguard training) validated by the Approving Authority, based on inspection/investigation report(s). *Proof of any pool trainings taken (excluding CPR/lifeguard training) shall be provided to the Approving Authority.*

XII. REPORTS OF INJURY

- A. If a customer of a facility regulated under these rules and regulations reports an injury or illness to that facility as a result of using the aquatic facility, the owner shall provide the customer with written information on how to report the alleged injury to the Approving Authority.
- B. If a health care provider treats a patient for injury or illness, in the exercise of professional judgment, that the injury or illness occurred as a result of using the aquatic facility, the health care provider shall report the circumstances to the Approving Authority.
 - a.) The report sent to the Approving Authority shall include:
 - i. The name of the affected individual and date of the actual or alleged injury or illness.

- ii. The name and location of the facility.
 - iii. The nature of the alleged injury or illness.
 - iv. Any other information considered relevant to the situation.
 - v. The name and address of the health care provider and treatment, if any.
- C. A licensed health care professional making or not making a report in good faith pursuant to this section is immune from liability for making or not making a report.

XIII. REQUIREMENTS FOR CONSTRUCTION, EQUIPMENT, AND CONDITIONS

- A. The following are minimum requirements for construction, materials, and general condition of an aquatic facility:
- a.) All new or extensively remodeled facilities shall submit a scale drawing and floor plan of the proposed facility for a plan review by the Approving Authority, as part of the licensing application process.
 - b.) The facility shall use only equipment and supplies manufactured and certified to comply with aquatic facility standards. Equipment manuals, related materials, inspection reports, and maintenance shall be retained and available.
 - c.) All walls, floors, doors, ceilings, and fixtures shall be in good repair and kept cleaned.
 - d.) Facility grounds shall be maintained. Garbage and refuse shall be collected, stored, and disposed so the aquatic facility is kept clean, litter free, and in a sanitary manner. In addition, the entrance and exit to and from the facility shall be kept cleaned and unobstructed.
 - e.) Effective measures shall be taken to protect against entrance into the facility and against the breeding or presence of insects, vermin, and rodents, and other animals.

XIV. RECORDS:

- A. Daily Operation Records: A daily operation record shall be kept on site for all pools/spas.
- a.) All swimming pools and spas shall be super-chlorinated to a level that is at least 10 ppm higher than the normal operational chlorine range for at least six hours prior to seasonal startup.
 - b.) Before any bathers are allowed to enter the pool or spa at the beginning of each day's operation, the following water chemistry items need to be tested: free chlorine, combined chlorine, pH, and temperature.
 - c.) Records shall include the free chlorine, total chlorine, pH, amount of chlorine added, and any other chemicals that have been added.
 - d.) Calcium hardness and alkalinity shall be checked regularly.
 - e.) If using stabilized chlorines, cyanuric acid levels shall be checked regularly.
 - f.) Temperatures, pH and chlorine levels shall be recorded at least four times daily for public pools and two times daily for semi-public pools.
 - g.) Any maintenance done to the pool or equipment shall be recorded.
 - h.) Records shall be kept at least three years to facilitate the newer pool operators in the following years.
 - i.) Copies of the bacterial tests shall be kept with the daily records and readily available at the time of inspections.

XV. FACILITY POOL BASIN:

- A. Pool Materials: Materials for the pool basin must be non-toxic, durable, water proof, and easily cleanable. The basin must be of a light color such that swimmers are visible by the lifeguards in all parts of the pool, including on the pool floor.
 - a.) An exception to the light pool color shall be made for these areas of the pool: competitive lane markings, step or edge markings, markings between break in grades between the shallow and deep portions of the pool, or other approved design.
- B. Condition of Pool Basin: The pool basin and sides must be smooth, free of cracks, leaks, and protrusions. Paint shall be of pool quality and in good condition to protect the basin material from cracking or chipping.
- C. Depth Markers: The depth of water in the pool shall be plainly marked at the points of maximum and minimum depths, on both sides and at each end of the pool, at the break between the deep and shallow portions of the pool, and at intermediate depths spaced at not more than 25 foot intervals. The markers shall be placed on the vertical pool wall (at or above water level) and on the top edge of the deck, positioned to be read while standing on the pool deck facing the pool. The markers shall be constructed of a durable material resistant to local weather conditions, slip resistant, at least four inches in height, marked in units of feet/inches (to the nearest 6 inches), of a contrasting color, and located on each side of the pool.
 - a.) Where depth markings cannot be placed on the vertical wall at/above the water level, under-sized depth markers shall be placed on the vertical wall. In addition other means may be required so the markings are plainly visible to persons in the pool, such as placing 4 inch high markers on the wall/fence.
 - b.) For pool water depths five feet or shallower, "NO DIVING" signs, at least 4 inches in height, w with the international symbol for "NO DIVING" directly adjacent to the depth marker shall be required. NO DIVING signs shall be slip-resistant and constructed of a durable material resistant to local weather. "NO DIVING" signs are not required at spas or wading pools.
- D. Skimmers, Gutters, Baskets, and Inlets: Skimmers and gutters must have proper water height to function properly. Baskets and skimmers shall be cleaned regularly to facilitate water flow, and inlets must be kept operational to circulate pool water properly and maintain proper water levels.
- E. Lifeline/Deep End Separation: The facility shall provide a floating lifeline at or within one foot of the break in grade between the shallow and deep portions of the pool, if the deep part of the pool exceeds five feet. It must be at least three-fourths inch in diameter, supported by colored floats, and shall be securely fastened to both sides of the pool walls with non-corrosive recessed connectors. The lifeline shall be in place at all times that the pool is open, except for those times designated for lap swimming only.
 - a.) For pools deeper than five feet, a straight line of contrasting color, not less than 2 inches and not more than 6 inches in width, shall be clearly and permanently installed on the pool floor at the shallow side of the break in the floor slope, and extend up the pool walls.
- F. Water Depth: Approximately three-fourths of the pool area should be from three to five feet in depth, not including the diving area. The diving area must have adequate depth and clearance for safe diving. No diving shall be allowed in water less than 5 feet deep.
- G. Diving Boards: Public pools shall not have diving boards over 10 feet in height above the water level. If more than one board is used, they must be a minimum of eight feet apart and at least 10 feet from obstructions, pool walls, and at least 16 feet from overhead obstructions.
- H. Fence/Other Barrier: A high fence or other barrier at least 6 feet high shall completely encircle the pool and deck area and shall be locked when unattended.

XVI. POOL WATER QUALITY:

- A. Color/Clarity: The color of the pool water should be sparkling and clear. Any tint to the water indicates a chemical or algae problem. Surfaces shall be kept free of film and floating dirt and the bottoms shall be kept free of sediment. Visible dirt on the bottom and walls of the pool shall be removed at least every 24 hours or as often as necessary. Scum, oils, or floating matter on the water surface or walls of a pool shall be removed continuously by skimming, flushing or other effective means when the pool is open for use. The water shall be of sufficient clarity that the main drain in the deepest area of the pool is readily visible from the deck.
- B. Algae: Algae must be taken care of immediately before staining occurs. Algae may be taken care of by super-chlorination of the pool and by brushing the dead algae off of the pool basin. If left untreated, algae will blossom rapidly and the pool will become cloudy and unusable.
- C. Grease Line: If a grease line is visible, the film should be cleaned at the end of the day to prevent permanent staining.
- D. Main Drain Visibility/Clarity: The water shall be clear enough to easily see the main drain in the deep end of the pool. *If the main drain in the deep end of the pool is not visible, swimming shall NOT be allowed, and the pool shall close until such time as proper water clarity can be achieved and maintained.* For indoor pools, the lighting must be bright enough to be able to easily see the main drain.
- a.) In addition to the main drain being used as the primary means of determining visibility of the pool, a standard test disc; a 4-square inch marker tile, or other means of reference, located at the deepest part of the pool, and in a contrasting color to the pools surface, may be used for determining visibility of the bottom of the pool.
- E. Water Testing: Every pool shall provide testing equipment/a test kit for the determination of sanitation residuals chlorine (Cl) and hydrogen ion (pH) levels. For facilities using electronic monitoring test kits, checks for accuracy/assurance shall be conducted as required by the manufacturer. In addition, a test kit shall be capable of measuring total alkalinity. When a cyanurate is used as a chlorine stabilizer, the test kit shall be capable of measuring cyanuric acid concentrations. Test strips or sticks are not suitable for use in place of a test kit.
- a.) Storage and Replacement: Testing equipment/test kit chemicals shall be stored in accordance with the manufacturer's recommendations. Test equipment reagents shall be replaced every six months or at the beginning of each swimming season. The date of purchase shall be documented.
- b.) Range: Test equipment shall be capable of giving chlorine residual readings in increments that are not larger than 0.5 ppm (mg/l). The hydrogen ion tester shall have a pH range of from 7.0 to 8.0 in increments that are not greater than 0.2.
- c.) Testing/Sampling: Water testing/sampling, including the monthly microbiological testing, shall take place from the pool/spa basin and in between water inlets. The pH and the free and total chlorine levels shall be recorded and within the acceptable range before the pool opens for the day.
- d.) pH: pH is measured on a scale from 0 – 14, with a pH of 7 being neutral. Below 7, the water is acidic and above the water is basic (alkaline). The pH range recommended for pool/spa waters is slightly alkaline, which assists bather comfort, as the pH of the human eye is about 7.5. Hydrogen ion testers shall be able to indicate a pH range between 6.8 and 8.4. A pH value between 7.2 and 7.8 shall be maintained for pools/spas.
- If the pH value falls outside this range, the pool/spa facility shall be closed immediately. The pool/spa shall be closed until the levels return to a value between 7.2 and 7.8.
- e.) Free Chlorine: Free chlorine is the chlorine available to kill bacteria or algae. Free chlorine residuals shall be maintained at 1–5 ppm for pools; and a free chlorine residual of 2–10 ppm shall be maintained for spas. This will assure proper sanitizing of the pool water.

- If the free chlorine level of a pool facility falls below 1 ppm, the pool facility shall be closed. If the level decreases below 2 ppm for a spa, the spa shall be closed. If the level increases above 5 ppm, the pool shall be closed. If the level increases above 10 ppm for a spa, the spa shall be closed. The pool/spa shall be closed until the levels return to the level required for that pool/spa.
- f.) Combined Chlorine: Combined chlorine is the chloramine formed by the reaction of free chlorine with ammonia wastes from the bathers. Chloramines (or combined chlorine) cause the characteristic “chlorine odor” of heavily used pools and cause eye and mucous membrane irritation. Such irritation can be noticed at levels as low as 0.2 ppm. Combined chlorine has little sanitizing capability. The combined chlorine levels shall be no more than 0.5 ppm for all pools/spas.
- Achieve break-point chlorination (super-chlorination) as soon as possible when combined chlorine levels are greater than 0.5 ppm.
- g.) Total Chlorine : Total chlorine (TC) is the sum of the free chlorine (FC) and the combined chlorine (CC) residuals and is recorded as: $TC = FC + CC$. The total chlorine level shall not be higher than 0.5 above the FC plus the CC levels combined.
- If the total chlorine level is more than 0.5 ppm above the free chlorine level, the pool shall be super-chlorinated.
- h.) Temperature: The ideal water temperature in a pool is 78 F to 84 F degrees. Swimming should not be permitted when the water temperature is below 65 F. A manual thermometer shall be located in the pool or at a minimum shall be readily available for immediate reading of the pool's temperature. The temperature shall be recorded a minimum of two times daily. Spa water should not exceed 104 ° F. Therapy pool temperatures may exceed 104 ° F. with the approval of the local public health authority. A thermostatic control device must be installed to prevent the temperature from exceeding the maximum.
- If the spa water temperature exceeds 104 ° F., the spa shall be closed immediately.

XVII. MECHANICAL EQUIPMENT

- A. Filters: All pools must have a filter system installed in the main re-circulating system. It can be any one of three types: sand, diatomaceous earth, or cartridge. These must be maintained/black-flushed/exchanged/cleaned in accordance with the manufacturer's specifications and design limits.
- B. Gauges: Pressure/vacuum gauges are required on sand and cartridge filter systems. They must be used to tell when the filter needs to be cleaned or back-flushed. Rate of flow gauges are used to indicate any problems within the pump and circulating inlets and outlets.
- C. Feeders: All recirculation systems shall include a feeder and monitor for the introduction of soda ash or other chemicals to control the pH of the water.
- D. Recirculation Pump: The facility shall provide adequate pumping equipment. The pumps shall have sufficient capacity to:
- a.) Provide for the maximum turnover of the pool;
 - b.) Provide adequate pressure for back-washing of filters; and
 - c.) Develop necessary suction required for cleaning when suction type bottom vacuum is used.
- E. Valving: All piping and plumbing shall be installed in compliance with the North Dakota State Plumbing Code. The valving for all skimmers, drains, filters, and pumps shall be adequate to perform all of the functions necessary for proper pool functions and maintenance. A hydrostatic relief valve shall be installed in all new pools to prevent pool damage from high ground water levels.

- F. Recirculation System: The recirculation system shall consist of adequate pumps, filters, and hair and lint catchers, together with all necessary pipe connections to the inlets and outlets of the pool and for back-washing of the filters.
- a.) This system shall be operated continually 24 hours per day during months of operation.
 - b.) This system must have adequate filtration and pumping capacity to provide ONE COMPLETE TURNOVER OF THE POOL WATER EVERY 6 HOURS FOR SWIMMING POOLS, ONE HOUR FOR WADING POOLS, AND 30 MINUTES FOR SPAS.
 - c.) The main drain and skimmers must function in accordance with the pools design standards. (Refer to Section 8.3 for exceptions to wading pool recirculation systems).
- G. Cross Connections: All plumbing must be installed in accordance with the North Dakota State Plumbing Code. Hose bibs must have a proper backflow prevention device installed.
- H. Maintenance: All mechanical equipment, plumbing, filtration equipment, etc., must be maintained in proper working order.
- a.) The mechanical equipment room/premises shall be cleaned and disinfected on a regular basis to prevent injury from physical objects as well as contaminated surfaces.

XVIII. SANITATION - EQUIPMENT

- A. Continuous Chlorination: Equipment at the facility shall provide adequate sanitizer to the pool at all times. Chlorine is the most common. Products used for the pool/spa other than chlorine (such as other elements in the halogen group, including iodine or bromine) shall be approved for use by the Approving Authority before use.
- a.) *Chlorinated isocyanurates and cyanuric stabilizers are not allowed to be used in any indoor pool.*
 - b.) *If chlorinated isocyanurate or cyanuric acid stabilizers are used in an outdoor recreational aquatic facility, the concentration shall be recorded. The Approving Authority may require maximum levels if there are concerns noted.*
 - c.) *Only in pools where chlorine is used as a sanitizer can cyanuric acid be used as a stabilizer.*
- B. Chemical Feeding Equipment: All public pools must be equipped with automatic chemical feeding equipment for controlling sanitizer and pH.
- C. Chlorine Room: Due to dangerous health and safety concerns with chlorine gas, it is not recommended for use at a pool facility. When gas chlorine is used, a separate chlorine room is needed that is reasonably gas tight, corrosion resistant, fire resistant, and mechanically vented. Floor drains are not allowed in chlorine rooms. An evacuation plan shall be in place for staff.
- a.) Access: The room shall be at ground level to provide easy access. The door shall open to the outside and shall not open in to the pool area. The door shall be locked at all times except during servicing by approved personnel. The door shall have an 18-inch window for viewing the interior of the room.
 - b.) Exhaust Fan: Exhaust fan inlets must be located near the floor as chlorine gas is heavier than air. The exhaust must be vented to the outside, not by the pool area. All electrical switches must be located on the outside of the enclosure.
 - c.) Platform Scale: A platform scale shall be provided at the facility for the daily weighing of the chlorine cylinder.
 - d.) Safety Chains: Safety chains shall be provided at the facility for securing chlorine cylinders to prevent tipping. Cylinders shall be chained on the upper half of chlorine

cylinders.

- e.) Chlorine Room Equipment: A cylinder wrench for turning off the cylinder should be attached to the top of each cylinder being used.
 - f.) Ammonia: An ammonia bottle should be used to detect any small leaks of chlorine gas; ammonia should be replaced yearly. A Chlorine Institute safety kit is recommended for all pools using gas chlorine.
 - g.) Operator Use and Personal Protective Equipment (PPE): All swimming pool operators that handle chlorine gas shall meet all current and future certifications required for the safe handling of chlorine gas.
- D. Chemical Storage: Chemicals shall be stored in accordance with the chemical manufacturer recommendations. Chemicals shall not be stored in the gas chlorine room. Chemicals may be stored in rooms that use chemical feeders. However, caution must be used to prevent chemicals from coming in contact with each other or contaminating the pool or having adverse chemical reactions. Chemicals should be stored at least six inches above the floor to allow for flushing the area in the case of a spill.
- a.) All Safety Data Sheets (SDS) for chemicals shall be stored on site and available.
 - b.) A sign with legible letters at least four inches high warning "DANGER-HAZARDOUS CHEMICALS" shall be posted on or adjacent to the entrance to the pool chemical feed and chemical storage rooms.
- E. Super-Chlorination should be conducted when needed to remove organic materials or algae.

XVIV. BATHHOUSE/DRESSING ROOM/LOCKER ROOM/RINSE SHOWER

- A. Bathhouse Location: The bathhouse must be located to provide entrance to the pool area near the shallow end of the pool only. The bathhouse facilities should protect the pool area from prevailing winds.
- B. Floors and Walls: The floors and walls shall be of smooth, non-slip, non-absorbent material. Floors, walls, and ceilings shall be kept clean and free of visible mold and mildew.
 - a.) Floor drains: Adequate floor drains shall be installed in all areas subject to standing water.
 - b.) Matting: Rubber, non-slip matting may be used on floor if it is disinfected daily. Carpet is not allowed.
- C. Space: The bathhouse/dressing room area shall provide sufficient space for dressing and a clothing storage area.
- D. Ventilation and Lighting: Adequate ventilation shall be provided to eliminate excessive humidity that may cause damage or encourage mold and bacteria growth. Indoor air quality standards shall be designed and maintained to support the health and safety of the building patrons. Lighting must be in working order; UL approved, shielded, and be at least 10 foot candles at the floor surface.
 - a.) A complete system of artificial lighting shall be provided for all pools, spas, bathhouses and dressing rooms that are to be used at night. The pool shall not be open at night if the light levels are such that the main drain and all areas of the pool are not visible by lifeguards while on their stands. Lifeguards on duty at night shall be of adequate number and be on their stands at all times patrons are in the aquatic facility.
- E. Showers: When a bathhouse is available, showers shall be located adjacent to the dressing rooms. Warm water (<120 F.) shall be provided at all shower heads. At least one shower head per forty patrons is required. The shower area must be provided with sufficient floor drains to handle the waste water.

- a.) For indoor pools without a bathhouse, a rinse shower that provides warm water shall be located in or adjacent to the pool area, near the shallow end of the pool, to allow all bathers to rinse off prior to entering the pool. Soap is advised to be provided in the shower area. The shower water shall drain directly in to the sewer system and not in to the pool or on the deck.
 - b.) A sign shall be posted near the entrance to all pools/spas that states that all individuals shall take a shower prior to entering the pool. Pool staff, when available, shall enforce patrons to shower before using the pool/spa. A bather leaving the pool to use the toilet shall take another cleansing shower before returning to the pool enclosure.
 - c.) Any patron showing symptoms of infection shall be excluded from entering the swimming pool.
- F. Toilet Facilities: The facility shall provide at least one sink with hot (<120 degrees F) and cold running water for each sixty patrons. At least one toilet and one urinal shall be provided for every 60 male bathers and at least one toilet shall be provided for every 40 female bathers. **Toilet paper shall be provided for each stall and protected from contamination.**
- a.) Hand soap, along with single-use hand towels or mechanical dryers and a waste receptacle shall be provided and readily available at all times near the hand washing sinks. Disposable paper towels shall be stored to prevent contamination.
 - b.) For facilities without a bathhouse, at least one restroom shall be located adjacent to or in the pool area. The restroom(s) shall have a diaper-changing station or the facility shall designate an appropriate area for diaper-changing.
 - c.) At least one covered waste receptacle shall be provided in each **women's** toilet stall/facility. Receptacles with waste in them shall be emptied daily. Receptacles shall be kept clean.
- G. Maintenance: The bathhouse, including the locker rooms, showers, and toilet facilities shall be cleaned and then disinfected (hot soapy water followed by an approved EPA disinfect product) a minimum of two times a day, and more often when necessary to prevent injury from physical objects as well as contaminated surfaces.
- a.) On days the pool is in service, but not in use by the public, the premises shall be cleaned and disinfected at least once before the pool reopens.
 - b.) Disinfectant solutions prepared shall be properly and clearly labeled.
 - i. A test kit or other device that accurately measures the concentration of disinfectant solutions in parts per million (ppm) may be required.
 - ii. Disinfectant solution information should be recorded and readily available.

XX. DECKING/POOL AREA

- A. Decking Design: Decks and sidewalks around the pool shall be at least eight feet wide, not including the coping, and extend entirely around the pool. Instructional outdoor pools should have at least 20 foot wide decks to satisfy the needs of the aquatic program. A complete separation of the spectator area from the pool shall be enforced.
- B. Decking and Walkway Slope: Decks and walks shall have a slope of 1 to 40 away from the pool to deck drains. Deck drains shall not be connected to the recirculation system. Standing ponded water shall be removed to prevent algae and fungal growth. Water from the deck shall drain away from the basin to drains that are not hooked up to the recirculation system. *If spray grounds are present, they shall not have ponding water on the pad, and water shall drain to the treatment system or to the sanitary sewer.*
- C. Walkway and Deck Material/Texture: The finish texture of decks, including the perimeter deck

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must be smooth, slip resistant, non-porous material that is comfortable to bare feet. Carpet, floor matting, walkways, or other porous materials, such as areas that are not properly caulked, which interfere with floor cleaning or provide a place for bacteria and fungi to multiply, are prohibited. Walkway/deck areas shall be maintained free from obstructions, including patron seating, to preserve space required for life saving and rescue. Cracks shall be repaired when visible, to prevent tripping hazards.

- D. Cleaning and Disinfecting: The pool deck area shall be cleaned and disinfected with an EPA-approved product a minimum of two times a day for pools that are open for more than 6 hours per day; a minimum of once per day for pools open 6 hours or less per day. *Cleaning and disinfecting shall be before the pool opens for the day.* Standing water must be removed to prevent algae and fungal growth.
- E. Steps and Exit Ladders: All steps or stairs entering a public pool shall have a slip resistant surface and the edges of stair treads shall be outlined with a contrasting color, plainly visible to persons both above and in the water. 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.** Exit ladders shall be slip resistant and adequately secured as not to move during use.
- F. Water Supply: The facility shall provide an approved public potable/drinking water supply such as angle jet or other approved type drinking fountain **that is easily accessible.** An alternative water supply shall be available and approved by the Approving Authority if a public water supply is not available.
- G. Diving Standards: Diving areas shall meet current standards of the National Swimming Pool Foundation. All diving boards must have a non-slip surface and be in good physical shape with no visible cracking. Board standards must be secured to the deck. Diving stands higher than 21 inches measured from the deck to the top of the butt end of the board shall have handrails and steps or a ladder. Diving stands any distance off of the deck shall have handrails. If diving boards are present, a sign shall be displayed in the diving area with diving board rules.
- H. **Lifeguards and Lifesaving Equipment: At any time lifeguards are in use, they shall be trained and have adequate lifeguard chairs at all times when patrons are using the pool. Lifeguards shall not use an alternative chair at a lower elevation than a standard lifeguard chair, except when used in addition to the lifeguard chair. If a lifeguard chair is not available, a standard operating procedure shall be in place for lifeguards to stand at the deck side and walking the length of area assigned, if allowed by the Approving Authority and management.**
- a.) Whenever the pool areas is open for use and no lifeguard service is provided, warning signs shall be placed in plain view at the entrances and inside the pool area that state "Warning-No Lifeguard on Duty".
- The facility shall provide at least one set of lifesaving equipment that is in good repair, stored within 20 feet of the pool, visible, readily accessible, and consisting of:
- a.) One or more rigid non-telescopic, non-conductive poles 15 feet to 16 feet in length with blunted ends, having a shepherd's crook with an aperture of 18 inches or more between the tip of the hook and the pole. A shorter pole may be used as long as the pole is at least one half the width of the pool plus two feet long. *Fiberglass poles are recommended for use for outdoor pools.*
- b.) Two or more U.S. Coast Guard approved throwing rings/rescue tubes
- c.) Lifeguard chairs equipped with throw rings or rescue tubes at each guard chair.
- d.) If the pool facility has diving boards or slides: at least one backboard with at least three tie down straps and a head immobilizer.
- e.) An adequate first aid kit that is kept filled and ready for use when the pool is open for use.
- I. Telephone: A working telephone shall be provided adjacent to the pool area for emergency use.

At the telephone, there shall be a legible list of emergency phone numbers and the physical address of the pool facility

- J. Pool Rules Posted: Swimming pool rules must be posted in an easily viewed location where swimmers can see them. The print shall be easy to read and large enough to view from all areas of the pool.

XXI. WADING POOLS - *The following items of these rules and regulations must function to the same code as listed for swimming pools, unless specified differently.*

- A. Location and Accessibility: Wading pools shall be in a separate enclosed area, physically set apart from the swimming pool. The wading pool shall have a fence or partition that is sufficiently high which shall separate and prevent waders from entering the main pool area. Wading pools shall be in an area that can be locked when not in use.
- B. Bathhouse: The bathhouse shall be easily accessible to the wading pool patrons. A sign shall be posted that states that all individuals shall take a warm cleansing shower prior to entering the wading pool.
- C. Recirculation System: The recirculation system and filtration must function to the same codes as the larger pool. Sanitation levels must also comply and must be recorded as is the large pool on a daily record. *If the wading pool is NOT hooked up to the recirculation system, the pH and the free and total chlorine levels shall be recorded and within the acceptable range before the wading pool opens for the day and at a minimum tested each hour that it is open for use.*
- D. Pool Rules: Pool rules must be posted in the wading pool area in an easily viewed location and in large enough print to view from all areas of the wading pool.
- E. Depth and Quality: Maximum water depth for the wading pool is 24 inches. Water quality must meet the same standards as the larger pool.
- F. Diaper changing: Infants and bathers requiring diapers shall use approved swim diapers. Diaper changing for diaper-aged children shall be done in the bathhouse or other designated area. The pool facility shall provide an appropriate designated diaper changing area.

XXII. SPAS *The following items of these rules and regulations must function to the same code as listed for swimming pools, unless specified differently.*

- A. Types: Known as therapeutic, hydrotherapy, whirlpool, spa, or hot tub pools; the regulations for these small heated pools are listed below.
- B. Regulations: The following items and all applicable areas of the "pool section" of these rules and regulations must function to the same codes as listed for swimming pools, unless specified:
 - a.) Accessibility –The bathhouse/showers/restrooms shall be easily accessible to spa patrons
 - b.) Recordkeeping and Pool Rules
 - c.) Depth markers – at least two depth markers shall be provided regardless of the shape or size of the spa
 - d.) Basin/Decking
 - e.) Water Quality-Calcium hardness levels 100 to 800 ppm
 - f.) Temperature: Maximum temperature shall not exceed 104 ° F. A thermostatic control device shall be installed to prevent the temperature from exceeding maximum.
 - g.) Sanitation Levels: Free chlorine levels 2 to 10 ppm; Maximum combined chlorine: 0.5 ppm
 - h.) Recirculation System: Turnover rate for spas – 30 minutes

i.) Filtration

XXIII. OTHER:

- A. Interactive water fountains; spray grounds; splash pads; wave pools; zero depth entry; lazy rivers; slides; and other systems shall function to the same codes as listed for swimming pools, unless determined differently by the Approving Authority. *UV units may be required to be installed for "other" systems, such as those listed in this section.*
- B. All pool additions, including those listed above, shall be designed, constructed, and installed to manufacturer's/designer's specifications and provide a safe environment for all patrons utilizing the facility. *Separate recirculation systems may be required for underground tanks.*
- C. Approval for any additions to pools/spas, such as those listed above shall not be installed prior to approval by the Approving Authority.
- D. The use of any new and innovative equipment or sanitation methods other than those described herein is prohibited unless approved in writing by the Approving Authority.

APPENDIX A

CHEMICAL SAFETY

Most chemicals may be obtained from your pool supply headquarters. Some may be obtained locally. Muriatic acid may be obtained from a radiator shop and calcium chloride may be obtained from a tire store or farm implement dealer.

Caution should be used in storage of swimming pool chemicals. Chemicals may be stored in rooms that use chemical feeders; however caution must be used to prevent chemicals from coming in contact with each other. Chemical containers shall be clearly labeled as to what is in the container.

BASIC RULES FOR MIXING AND ADDING CHEMICALS: Always dilute all chemicals that are to be added to the pool water. The easiest way to do this is to mix the chemical into five gallons of water. After the chemical has been thoroughly mixed, let the solution set for 15 – 20 minutes. After any solids have precipitated to the bottom of the bucket, pour the liquid into the pool over an equal area; do not pour the entire batch into one spot. The chemical should be spread out over the entire area to facilitate mixing of the chemical with the pool water.

NEVER ADD WATER TO ACID; ALWAYS ADD THE ACID TO THE WATER. (If water is added to acid, a violent reaction may occur and splash concentrated acid back at you). Acid may not need to be stirred, but the solid chemicals should be stirred to speed up dissolving. The size of a swimming pool determines how much acid can be safely added to the water. Pools with a capacity of 175,000 gallons or less should only receive three gallons or less of acid per 24 hour period. Again, NEVER ADD WATER TO ACID; ALWAYS ADD ACID TO WATER.

When treating a pool for high alkalinity before swimming has started for the season, add acid on alternate consecutive days and allow the acid to work for 48 hours. It can take up to 48 hours for the acid to work into the water balance. Test your alkalinity before adding any more acid.

When mixing calcium chloride, soda ash and calcium hypochlorite; (never together) let the stirred mixture set for a few more minutes and you will notice some mud-like solids settle out in the bottom of the pail. This mud is of no use to the pool water. The chemicals needed are within the liquid in the bucket. When pouring the solution into the pool, only pour the liquid portion from the pail. The mud from the bottom of the pail should be discarded. If it is poured into the pool, it may cause cloudiness or plug filters.

When adding chemicals to the pool, some cloudiness may occur. This is to be expected until the water has had a chance to work and balance. This should clear up within 24 – 48 hours.

Note: Manual chemical dosing shall only be done when the pool is closed to the public. The pool shall be closed for at least one hour following the manual addition of any chemical directly to the pool water.

Safety Data Sheets (SDS) for all chemicals used at the facility should be kept in a clearly labeled binder and readily accessible on site.

APPENDIX B

WATER BALANCE RANGES

TOTAL ALKALINITY: a measure of resistance to change in pH

- Acceptable Range: 60-180 ppm
- Ideal Range: 80-120 ppm*

(*If using calcium hypochlorite, sodium hypochlorite, or lithium hypochlorite as a chlorine source, keep alkalinity from 80-100 ppm. If using chlorine gas, dichlor or trichlor, keep alkalinity from 100-120 ppm).

pH: a measure of acidity

- Acceptable Range: 7.2-7.8
- Ideal Range: 7.4-7.6

CALCIUM HARDNESS: a measure of calcium ions in water

- Acceptable Range: 150 – 1,000 ppm
- Ideal Range: 200-400 ppm

TEMPERATURE: in degrees Fahrenheit

- Pools: Competition: 78-80
Recreation: 82-84
Special Populations: 86-88
- Spas: Not to exceed 104

FREE CHLORINE: the chlorine available to kill bacteria or algae

- Pools: Acceptable Range: 1.0 – 5.0/Ideal Range: 2.0 – 4.0 ppm
- Spas: Acceptable Range: 2.0 – 10.0/Ideal Range: 3.0 – 5.0 ppm

Combined Chlorine: Super-chlorinate when levels are above the acceptable range

- Pools: Acceptable Range: < 0.5 ppm
- Spas: Acceptable Range: < 0.5 ppm

TOTAL DISSOLVED SOLIDS: a measure of minerals dissolved in the water

- Not adjustable, other than by draining off water and adding fresh water.

Cyanuric Acid: (Stabilized chlorine products are not allowed for indoor pools)

- Acceptable Range (outdoor pools): < 50 ppm; Ideal Range: <30 ppm

Bacteria:

- E.Coli: Absent
- Coliform: Absent

- Heterotrophic/Standard Plate Count (HPC/SPC): less than 200 ml
-

APPENDIX C

PROBLEMS ASSOCIATED WITH IMPROPER WATER BALANCE

Improper pH...	Too low:	Corrosion of pool fixtures, plumbing, and staining of walls; chlorine dissipates more quickly, skin/eye irritation
	Too high:	Scaling water--plugged filters, reduced circulation, cloudy water; slows chlorine activity, skin/eye irritation
Improper Alkalinity...	Too low:	Corrosive water—pool fixtures, plumbing, and staining of walls; may cause pH bounce
	Too high:	Scaling water--plugged filters, reduced circulation, cloudy pool; may pull pH level up and be difficult to change
Improper Calcium Hardness.....	Too low:	Difficulty in maintaining proper water balance; corrosive water--etching of plaster, pitting of concrete, dissolving of grout, pitting of pool decks
	Too high:	Scaling water--plugged filters, reduced circulation/cloudy pool, heater inefficiency, crystals forming on the inside walls of pool.
Improper Chlorine.....	Too low:	Bacterial and algae growth, cloudy water
	Too high:	Eye irritation, pH hard to manage, possible corrosion to plumbing
Improper Temperature	Too low:	Greater tendency to corrode
	Too high:	Greater tendency to scale

APPENDIX D

AMOUNT OF CHEMICAL NEEDED TO TREAT 10,000 GALLONS OF WATER

Chemical amounts have been rounded off.

Always follow instructions on the manufacturer's label for exact dosage amounts.

TO INCREASE FREE AVAILABLE CHLORINE 1 PPM:

- Chlorine gas (100% -green gas).....1.3 oz.
- Calcium hypochlorite (65-70% -granular/tablet)*.....2.0 oz.
- Sodium hypochlorite (12-15%-liquid commercial bleach).....13 fl. oz.
- Lithium hypochlorite (35%-white powder)...4.0 oz.
- Dichlor (56% or 62%).....2.5 oz.
- Trichlor (90%).....1.5 oz.

Note: Other calcium hypochlorite products are available. Follow label directions for dosage amounts.

TO INCREASE TOTAL ALKALINITY 10 PPM:

- Sodium bicarbonate (baking soda).....1.5 lbs.
- Sodium Carbonate.....14 oz.
- Sodium Sesquicarbonate.....1.25 lbs.

TO DECREASE TOTAL ALKALINITY 10 PPM:

- Muriatic acid (HCL).....21.12 fl. oz. (2/3 qt)
- Dry acid (sodium bisulfate).....1.5 lbs.

TO INCREASE pH from 7.2 – 7.4:

- Sodium Carbonate (Soda Ash).....6.0 oz.

TO DECREASE pH from 7.8 – 7.6:

- Muriatic Acid (HCL).....12.0 fl. oz.

TO INCREASE Calcium Hardness:

- Calcium Chloride (100%).....1.0 lb.
- Calcium Chloride (77%).....1.2 lbs.

TO DECREASE CALCIUM HARDNESS:

- The only way to reduce calcium hardness is to remove some of the pool water.

TO NEUTRALIZE 1 PPM OF FREE AVAILABLE CHLORINE:

- Sodium Thiosulfate.....1.0 oz.
- Sodium Sulfite.....3.25 oz.

TO INCREASE 10 PPM STABILIZER :

- Cyanuric Acid.....13 oz.

TO DECREASE STABILIZER :

- The only way to reduce the level of cyanuric acid in the water is to drain and refill the pool with fresh water.

(Studies have shown that cyanuric acid residual remain in the plaster, filter elements and media, and scale in heaters and pipes).

APPENDIX E

CHEMICAL CALCULATIONS

1. Determine what you are trying to do. Find the appropriate chemical for the task in Appendix C (e.g. sodium bicarbonate). This is the Amount of Chemical needed to treat 10,000 gallons of water (e.g. 1.5#).
2. Divide the volume (e.g. 125,000) in gallons of your pool by 10,000 (e.g. $125,000/10,000 = 12.5$).
3. Determine the desired change you need to make by subtracting the value from your pool from the ideal value in Appendix A (e.g. Total alkalinity in your pool is 60 and you want to raise it to 100; the amount of change you need is 40). Take this number (e.g. 40) and divide it by the amount of change (in ppm) given in Appendix C (e.g. for free chlorine changes-this number is 1 ppm; for alkalinity and calcium hardness-this number is 10 ppm). (e.g. $\text{Desired Change} = 40/10 = 4$)
4. Take the number in "Amount of Chemical" (e.g. 1.5#), multiplied by the number in "Pool Volume" (e.g. 12.5) multiplied by the number in "Desired Change" (e.g. 4). The Total is the amount of chemical that you need to add to your pool (e.g. 75#).

(Amount of Chemical x Pool Volume x Desired Change = Total Amount Needed)

SUPER-CHLORINATION/SHOCK (BREAKPOINT CHLORINATION) GUIDELINES

Super-chlorinate the pool or spa if there is a 0.5 ppm or more difference between the Free Chlorine residual and the Total Chlorine residual test results.

TOTAL CHLORINE – FREE CHLORINE = COMBINED CHLORINE

COMBINED CHLORINE X 10 = AMOUNT NEEDED TO REACH BREAKPOINT CHLORINATION

(It takes ~10-12 ppm Free Chlorine to destroy 1 ppm Combined Chlorine)

FOLLOW THESE STEPS:

1. Go to Appendix C and find the type of chemical that you are using (e.g. Calcium Hypochlorite). From Appendix C, find the number used to treat 10,000 gallons of water (e.g. 2.0 oz. for Calcium Hypochlorite). This is the "Amount of Chemical".
2. Divide the total number of gallons of your pool by 10,000. This is your pool volume. (Gallons of Pool/10,000 = Pool Volume).
3. Multiply the Combined Chlorine number (you received from test results) by 10. This is your "Desired Change" (CC (1) x 10 = Desired Change).
4. Multiply the numbers you got for "Amount of Chemical" (Step 1) by the "Pool Volume" (Step 2) by the "Desired Change" (Step 3) to get the Amount of Chemical needed to add to your pool to achieve Breakpoint Chlorination.

(Amount of Chemical x Pool Volume x Desired Changed = Total Amount Needed)

Notes:

When shocking a pool, the chlorine-based chemical used for shocking the water must be added all at once so the concentration throughout the pool reaches breakpoint chlorination.

Chlorinated isocyanurates or stabilized chlorine shall not be used for breakpoint chlorination.

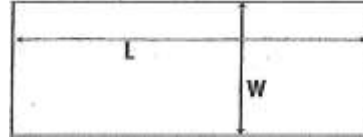
The pool shall be closed and remain closed during breakpoint chlorination until the chlorine concentration and other levels are within the correct range.

APPENDIX F

POOL VOLUME CALCULATIONS

Rectangular Pool

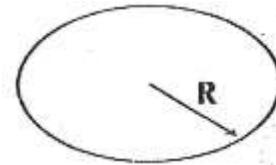
Length x width x average depth x 7.5 = Gallons



Round Pool

Radius x Radius x 3.14 = Area

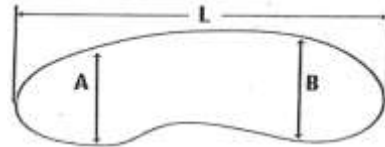
Area x average depth x 7.5 = Gallons



Jelly Bean Pool variations

$(a + b) \times \text{length} \times 0.45 = \text{Area (approx)}$

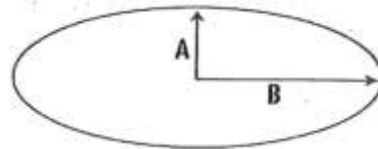
Area x average depth x 7.5 = Gallons



Oval

$A \times B \times 3.14 = \text{Area}$

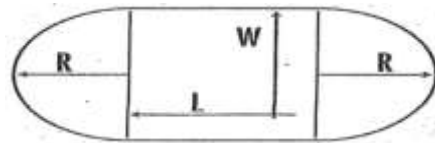
Area x average depth x 7.5 = Gallons



Oblong

$R \times R \times 3.14 + (L \times W) = \text{Area}$

Area x Average depth x 7.5 = Gallons



For other sizes and shapes of pools use a combination of the formulas to additively calculate the total volume of the basin.

1 cubic foot of volume is equal to 7.5 gallons of water. 1 cu ft = 7.5 gallons

Average depth of a constant slope or a pool that has two portions with two depths approximately 50/50 split can be calculated by taking the deepest depth plus the shallowest depth and dividing by two.

Other pools with more challenging shapes and depths can be split up into several areas and then added together for a total volume.

Note: *Make sure you include an extra volume for the circulation system, filters, and return and inlet lines for the total volume of water needed to be treated.*

APPENDIX G

FECAL, VOMIT, AND BLOOD CONTAMINATION PROCEDURES

All recreational water facilities shall have a response plan (on site and available for viewing by the Approving Authority) for responding to formed-stool contamination, diarrheal-stool contamination, vomit contamination, and contamination involving blood at the pool facility. The contamination response plan shall include procedures for response and cleanup, provisions for training staff in these procedures, and a list of equipment and supplies for clean-up. The response plan shall be reviewed regularly and updated as necessary.

A body fluid contamination response log shall be maintained to document each occurrence of contamination of the water or adjacent area by formed or diarrheal fecal material, whole stomach discharge of vomit, and blood. The log shall include: person conducting response, supervisor on duty, date and time of incident response, specific area contaminated by incident, bather load in that body of water at the time of incident (if applicable), and any other incident specifics.

FORMED STOOL IN POOL WATER (Solid, Non-Liquid):

1. Evacuate all bathers from pool or spa. Do not allow anyone to enter contaminated pools until decontamination procedures are complete (minimum of 30 minutes).
2. Remove as much fecal material as possible using a net or scoop. Vacuuming fecal material is not recommended.
3. Raise free available chlorine level to >10 parts per million (ppm); adjust the pH to between 7.2- 7.5
4. Check the filter system. Check the chlorine level to ensure it is maintained at a level of > 10 ppm for at least 30 minutes (If necessary, thio-sulfate may be used to reduce the free chlorine residual). Re-open the pool.
5. Document the date and time of the incident in the daily records. Include whether it was a formed stool or diarrhea, free chlorine, and pH levels at the time of observation of the event.

DIARRHEA IN POOL WATER (Liquid Stool):

1. Same as Step 1 for solid stool.
2. Same as Step 2 for solid stool.
3. Raise free available chlorine to 20 ppm or greater; adjust the pH to between 7.2 and 7.5, and maintain a 20 ppm level for at least 13 hours. If the turnover rate is slower than a 6 hour turnover and/or if cyanuric acid is used for the pool, an increase in available chlorine and time may be required.
4. Backwash pool filters thoroughly. Discharge the effluent directly to waste. Do not return the backwash through the filter. Where appropriate, replace filter media.
5. Document the incident in the daily records.
6. Do not allow bathers into pool until free chlorine residual is between 2-4 ppm and all other levels are within range and the filter is recharged, and circulation system is operating.

SPECIAL CONSIDERATIONS:

Low volume pools, such as wading pools and spa pools should be drained, sanitized, refilled, and filters should be back-washed.

If the person has a communicable disease, which results in shedding of cysts, such as *Giardia* or *Cryptosporidium*, sampling should be done after the above steps to assure removal or inactivation. If the agent persists, additional sanitizing may be necessary.

VOMIT IN POOL WATER:

If vomiting results from swallowing too much water, the vomit is probably not infectious. However, if the full content of the stomach is vomited, follow this guidance step:

Respond to the vomit accident as you would to a formed fecal accident. This protocol should be adequate for disinfecting a potentially infectious vomit accident.

BLOOD IN POOL WATER:

There is no public health reason to recommend closing a pool after a blood spill; as long as the blood-contaminated water is at the required minimum levels required (Refer to Appendix A). (For example: 1 ppm or greater free chlorine residual). If the pool is below the required minimum residual level, the operator shall immediately close the affected water feature until the residual is verified at or above the required minimum. Germs from blood do not survive long when diluted into properly chlorinated pool water. If the pool staff chooses to temporarily close a pool to satisfy patrons, that is the pool manager's decision.

CLEANING UP BODY FLUID SPILLS ON POOL SURFACES:

Body fluid spills, including blood, feces, and vomit, should be cleaned up, and the contaminated surfaces should be disinfected immediately. A fresh solution of regular household bleach and water should be made up right before each clean-up to make sure it is effective in cleaning and disinfecting the surface properly.

CLEAN-UP PROCEDURE FOR SURFACES-USING AN EPA-REGISTERED DISINFECTANT:

1. Block off area of the spill from patrons until clean-up and disinfection is complete.
2. Put on disposable latex gloves to prevent contamination of hands.
3. Wipe up the spill using absorbent material and place in plastic garbage bag.
4. Using an EPA-registered disinfectant, apply solution onto contaminated surface(s) based on label instructions.
5. All non-disposable cleaning materials used such as mops and scrub brushes should be disinfected by saturating with bleach solution and then air dried.
6. Remove gloves and place in plastic garbage bags with all soiled cleaning materials.
7. Double-bag and tie-up plastic garbage bags, discard the bags.
8. Wash your hands thoroughly.

APPENDIX H

SAFETY AND SANITARY STANDARDS FOR POOL/SPA CLOSURE:

It should be understood that pool/spa closure is not solely the responsibility of the Approving Authority. Pool operators need to be aware of an unsafe environment and take necessary measures to ensure swimmer safety. It is more appropriate for the pool operator to close the pool themselves (and inform the Rolette County Public Health District) than for the Approving Authority to receive a complaint or find serious violations during a routine inspection.

The Approving Authority may temporarily close any facility that has been determined to be a health or safety hazard or in the event of a failure to comply with any of the requirements of the rules and regulations contained herein. The Approving Authority may abate or cause suspension of the use of such a facility until such time as the pool/spa facility is no longer deemed a health or safety hazard.

If pool closure takes place, swimmers shall be properly warned and the pool shall not allow swimmers to enter the pool/spa until it has been approved to open again.

Safe and Sanitary Standards for Pool Closure (include but are not limited to):

- Bacteriological water samples are reported back as “unsatisfactory”.
- The main drain, located at the deep end of the pool is not clearly visible from the pool deck.
- The bottom drain plate/grate is not in place, secure, or is broken
- Spa water temperature exceeds 104 ° Fahrenheit
- Body fluid incident/contamination
- The pool fails to meet chemical standards. Those standards include:

Free Chlorine: Acceptable range: 1-5 ppm for pools; 2-10 ppm for spas.

- If the level falls below 1 ppm, the pool shall be closed.
- If the level increases above 5 ppm, the pool shall be closed.
- If the level falls below 2 ppm, the spa shall be closed.
- If the level increases above 10 ppm, the spa shall be closed.

pH: Acceptable range is 7.2 – 7.8 for pools and spas

- If the pH is below 7.2 or above 7.8, the pool or spa shall be closed.

- Weather conditions are not safe for swimmers
- An unsafe or unsanitary condition, situation, accident, or death in the pool facility.
- There is no circulation or filtration, maintenance problems are present, including: broken, exposed electrical pool lights; electrical, water, or sewer services are interrupted; a temporary chlorine leak; or equipment is not in working sufficiently.

If the Approving Authority closes the pool, the pool or spa may not reopen without the permission of the approving authority.

When a pool is not open for use, a sign should be posted stating “POOL CLOSED”.

Lake Region District Health Unit - Environmental Health Division
504 10th Street NE – Unit 9, Devils Lake, ND 58301.
(701) 662-7035

ADDITIONAL RESOURCES

MODEL RULES

MODEL DIVING BOARD RULES:

1. Use diving board only under direct supervision of a coach or lifeguard.
2. Only one person on the diving board at a time.
3. Look before diving to ensure that the area is clear.
4. Dive or jump only in a straight line from the end of the equipment.
5. No multiple bounces allowed.
6. The ladder is the only means allowed for climbing up the equipment.
7. Swim to the closest pool exit or wall immediately after completion of the dive.
8. Diving board use is prohibited when swimming is allowed in dive area.

MODEL SPA WARNING RULES:

1. Spa capacity and hours of use:
Spa use during any other times is prohibited.
2. Pregnant women, small children, elderly persons, and those suffering from heart disease, diabetes, high or low blood pressure shall not enter the spa except under advice of a physician.
3. Unsupervised use by children is prohibited.
4. Do not use spa while under the influence of alcohol, anti-coagulants, antihistamines, vasoconstrictors, vasodilators, stimulants, hypnotics, narcotics, or tranquilizers.
5. Do not use alone or for longer than 15 minutes at a time.
6. All spa users must shower with warm water before entering the spa.

MODEL POOL RULES:

1. Pool capacity and hours of use:
Pool use during any other times is prohibited.
2. No food, drugs, or alcoholic beverages allowed.
3. No glass containers.
4. No diving or jumping from deck into dive area (if diving boards are present).
5. Diving allowed only in designated areas.
6. No horseplay, running, shoving, or dunking.
7. No electrical appliances allowed.
8. No swimming if you have any communicable illness, diarrhea, vomiting, nasal, or oral discharges or skin rashes.
9. All bathers must shower with warm water before entering the pool.
10. Swim diapers required for all children that are not potty trained and for any other individuals that may be incontinent.
11. Encourage children to take regular bathroom breaks.
12. No changing diapers in pool area. Use designated diaper changing area.

MODEL SLIDE RULES:

1. Slide to be used by those of appropriate age and swim ability.
2. Look before sliding to ensure that the area is clear in water below.
3. One rider at a time.
4. Users shall slide in a feet forward position only.
5. No running, standing, kneeling, rotating, tumbling, or stopping in the flumes.
6. No diving from a flume.

7. No horseplay, shoving, or pushing on/from slide area on deck and no swimming in pool area below slide.
8. Follow the instructions of the attendance and/or lifeguard.
9. Exit plunge pool area promptly after entering.

SIX “P-L-E-As” FOR HEALTHY SWIMMING

Protection Against *Recreational Water Illnesses (RWIs)*

YOU CAN CHOOSE TO SWIM HEALTHY!

Healthy swimming behaviors are needed to protect you and your kids from RWIs and will help stop germs from getting into the pool in the first place. **EVEN A WELL MAINTAINED POOL IS ONLY AS SAFE AS THE HEALTH OF THE SWIMMERS WHO USE IT!** Here are six “P-L-E-As” that promote Healthy Swimming:

Three “P-L-E-As” for All Swimmers

*PLEASE do NOT swim when you have diarrhea...this is especially important for kids in diapers. You can spread the germs into the water and make other people sick.

*PLEASE do NOT enter the pool unless you have taken a shower first.

PLEASE Do NOT swallow the pool water. In fact, try your best to avoid even having water get in your mouth.

*PLEASE wash your hands with soap and warm water after using the toilet or after changing diapers. You can protect others by being aware that germs on your body end up in the water.

Three “P-L-E-As” for Parents with Young Kids

Follow these “P-L-E-As” to protect your child and others from getting sick and to keep RWIs out of your community:

*PLEASE take your kids on bathroom breaks or check diapers often. Waiting to hear “I have to go” may mean that it is too late.

*PLEASE change diapers in a bathroom and not at poolside. Germs can spread to surfaces and objects in and around the pool and spread illness.

*PLEASE wash your child thoroughly (especially the rear end) with soap and water before swimming. We all have invisible amounts of fecal matter on our bottoms that end up in the pool.

In addition, children ill with infectious diarrhea should refrain from swimming for two weeks after cessation of diarrhea. (Note: *Cryptosporidium* or *Giardia* may be excreted for several weeks after symptoms stop).

Reference: www.healthyswimming.org (CDC/Division of Parasitic Diseases)