Pueblo Department of Public Health & Environment

Current Code vs Model Aquatic Health Code (MAHC) Inspection Guide

Colorado Department of Public Health and Environment Swimming Pools and Mineral Baths (Current Regulations)

4.1 DISINFECTION

- ☐ Chemicals are fed through automatic or mechanical means
- ☐ Chlorine gas equipment meets all requirements

Disinfection equipment

- ☐ Is easily disassembled for cleaning
- ☐ Is designed for type of disinfectant being used
- ☐ Has controls for adjusting rate of flow
- ☐ Conforms to NSF 50
- ☐ Has Y strainers installed in the disinfectant feeder supply line?

Storage/Handling of Chemicals

- ☐ Chemicals are kept out of reach of children
- ☐ Chemicals are stored in original containers with lids securely in place, out of sunlight
- ☐ Chemicals stored in bulk bag form are stored in clearly marked corrosive resistant containers with tightly fitted lids
- ☐ Chemicals are stored away from any heat sources, open flames or electrical equipment
- ☐ Sanitizers/oxidizers are stored in area separate from pool equipment
- ☐ Liquid chemicals are not stored above or adjacent to dry chemicals
- ☐ Chemicals are not stored in same area as insecticides, herbicides, fertilizers or liquid petroleum products
- ☐ Chemicals are stored below eye level
- ☐ Shelving used for chemical storage are secure
- ☐ Acids stored separately from bases
- ☐ Chemicals in absorbent containers are kept six inches off floor on nonflammable surfaces
- ☐ Chemical storage areas are kept clean
- ☐ Chemical measuring devices are separated by material, no glass used
- ☐ Chemicals are added to water and never vice versa
- ☐ Oxidizers are not mixed with other chemicals

4.2 WATER SUPPLY

- ☐ There are no unprotected cross-connections between the potable water supply and the swimming pool recirculation piping

4.4 WATER TESTING EQUIPMENT

Swimming pool has test equipment to determine

- ☐ pH
- ☐ Disinfectants
- ☐ Total alkalinity
- ☐ Cyanuric acid (if used)
- ☐ Calcium hardness
- ☐ Temperature
- ☐ No reagents are expired

4.5 Bacterial Quality & 4.6 Natural Swimming Areas: Not Regulating

4.7 CHEMICAL QUALITY

- ☐ Pools are automatically and continuously disinfected by chemical or process which complied with National Sanitation Foundation
- ☐ Algae control chemicals are approved by CDPHE

Pools shall be immediately closed if

- ☐ Disinfection levels fall below minimum requirement (below 1 or above 10 ppm)
- ☐ pH falls below minimum requirement or above maximum requirement

Parameters	**Minimum Required**	**Maximum Required**
Free Chlorine (pool)	1.0 ppm	5.0 ppm
Free Chlorine (spa, therapy pool)	1.0 ppm	5.0 ppm
Combined Chlorine	0 ppm	1.0 ppm
Bromine (pool)	1.5 ppm	5.0 ppm
Bromine (spa, therapy pool)	2.0 ppm	10 ppm
Total Alkalinity	70 ppm	180 ppm
pH	7.2	8.0
Calcium Hardness	150	600
Temperature (pools, spas, therapy pools)	77	104
Cyanuric Acid	20 ppm	100 ppm

4.8 TURBIDITY

- ☐ Water has sufficient clarity so that grate openings on main drain are clearly visible from deck
- ☐ Failure to meet turbidity requirement is grounds for immediate closure
- ☐ No algae or foreign matter is present in the pool water

4.9 SWIMMING POOL AND SPA OPERATION

- ☐ Certified Pool Operator (CPO) is on staff
- ☐ Water chemistry readings are taken three times per day for pools
- ☐ Water chemistry readings are taken every two hours for spas/hot tubs
- ☐ Records of water chemistry readings are kept at facility and available for inspection
- ☐ Pool recirculation system is in operation at all times that swimming pool is in use
- ☐ Water turnover of pool happens every six hours, spas/hot tubs every 30 minutes
- ☐ Floating scum, sputum or debris is not allowed to accumulate in the pool/hot tub

4.10 HEATING AND VENTILATION

- ☐ Heating and electrical units are isolated/protected from contact by bathers

4.11 BATHER CONTROL

- ☐ All bathers are required to take cleansing shower before entering pool
- ☐ Any towels, bathing suits, etc. provided by facility are cleaned and sanitized

4.12 WASTE DISPOSAL

- ☐ There is no direct connection between sewer system and drain from swimming pool/recirculation system (must have suitable air gap)
- ☐ Bather load does not exceed limit

4.14 DISEASE CONTROL

- ☐ Fecal accidents are handled according to regulations

4.15 FACILITIES TO BE KEPT CLEAN AND IN GOOD REPAIR

- ☐ Hosing down of facilities and disinfection of public areas is required daily
- ☐ Animals not permitted in pool or pool area
- ☐ Pool and pool facilities are maintained in good repair (no cracks/defects in floors)

2022 Pueblo County Model Aquatic Health Code (Future Regulations)

Parameters	Minimum Required	Maximum Required
Free Chlorine (pool)	1.0 ppm	10 ppm
Free Chlorine (spa, therapy pool)	3.0 ppm	10 ppm
Combined Chlorine	0.0	0.4
Bromine (pool)	3.0 ppm	8.0 ppm
Bromine (spa, therapy pool)	4.0 ppm	8.0 ppm
Total Alkalinity	60	180
pH	7.2	8.0
Calcium Hardness	150	2,500
Temperature (pools, spas, therapy pools)	70	104
Cyanuric Acid	0	90

5.1 OPERATING CERTIFICATES

- ☐ Aquatic facility obtained certificate to operate through Pueblo Department of Public Health and Environment
- ☐ Certificate is posted in location conspicuous to the public

5.4 AQUATIC FACILITY AND VENUE OPERATION AND MAINTENANCE Facility Plans

- ☐ Written comprehensive preventative maintenance plan is available including planned routine facility inspection, maintenance, and replacement of recirculation components
- ☐ Comprehensive inventory of all mechanical equipment is available including
  - Equipment name and model number
  - Manufacturer and contact information
  - Local vendor/supplier and technical representative
  - Replacement or service dates and details
- ☐ Operation manuals for mechanical equipment are available (if manual is not available- facility shall create written document with Standard Operating Procedures (SOP) outlined)

5.5 AQUATIC VENUE STRUCTURE Pool/Deck Area

- ☐ Depth markers are clearly and permanently marked at the minimum depth, maximum depth, on both sides and at each end of the pool, at the break in the floor slope between shallow and deep portion of the pool
- ☐ Pools five feet or shallower have markings reading “No Diving” along with universal international symbol for No Diving
- ☐ Cracks are repaired when they change to increase potential for leakage, trips or falls, lacerations, impact the ability to properly clean and maintain the aquatic venue area
- ☐ Surface cracks are documented and monitored for movement
- ☐ Sharp edges are removed
- ☐ If main drain is not visible due to light levels the aquatic venue is closed
- ☐ Underwater lights are operational and maintained as designed
- ☐ Cracked light lenses are replaced or aquatic venue is closed
- ☐ Glare does not impede visibility of bottom of pool

HVAC/Electrical

- ☐ Air handling systems are maintained and operated to meet original system design, there is a program of standard air handling system operation, maintenance, etc.
- ☐ Air handling system operates continuously
- ☐ Air handling system original operating manuals and records are kept and available
- ☐ Air quality action plan with procedures for purging the indoor aquatic facility is developed and available
- ☐ Repairs/alterations to electrical equipment follow local codes
- ☐ Any electrical work done complies with local codes
- ☐ Grounding conductors are repaired immediately, aquatic venue is closed until grounding conductors are re-inspected
- ☐ Temporary extension cords are not used as substitute for permanent wiring
- ☐ All parts of extension cord are a minimum or six feet away from water (unless wall exists between extension cord and body of water- GFCI outlet must be used though)
- ☐ Emergency exit routes are established and maintained (well lit, unobstructed, and accessible)

Plumbing

- ☐ Plumbing is in good repair with no leaks/discharge
- ☐ Potable water is available at all times to patrons
- ☐ Water supplying pool (directly or through recirculation system) is supplied through air gap or other method to prevent backflow or back siphonage
- ☐ Drinking fountains are clean, in good repair, and water is not spilling out of catch basin
- ☐ Wastewater (including backwash) is disposed of in accordance with local codes
- ☐ Backwash lines, deck drains, etc. are be discharged through air gap
- ☐ No standing water is present

Solid Waste

- ☐ Outside waste/recycling containers are maintained in good repair and clean condition
- ☐ Outside waste containers are not attracting vectors or causing odor
- ☐ Waste is disposed of in compliance with local codes

Decks

- ☐ Food preparation and consumption only happening in designated areas
- ☐ Glass containers are prohibited (food/beverage containers, furniture)
- ☐ Deck perimeter shall be free of obstructions
- ☐ Diaper changing at designated diaper changing station only, prohibited on deck
- ☐ Decks shall be clean, free of debris, have no standing water, have clean/unclogged drains

Maintenance

- ☐ Diving boards/platforms should be designed to prevent slips, trips and falls. Any cracks/loose bolts on diving boards/platforms should be fixed
- ☐ Steps and railings should be secure and should be maintained to reduce slips and falls
- ☐ Slime and biofilm should be removed on all aquatic feature surfaces
- ☐ Flow rates should be within manufacturers specifications
- ☐ Water is tested to verify chemicals are within parameters
- ☐ Fencing, barriers, and gates are maintained at all times

- ☐ Gates, locks, and alarms are tested daily prior to opening
- ☐ Aquatic venue is kept clean of debris, organic materials, and slime/biofilm in accessible areas
- ☐ Vacuuming is only done when aquatic venue is closed

5.7 RECIRCULATION AND WATER TREATMENT

Recirculation Systems and Equipment

- ☐ Recirculation systems run 24 hours per day
- ☐ Minimum clarity and disinfectant levels are met daily
- ☐ 80% of flow is through skimmers/gutters, 20% of flow is through main drains
- ☐ Skimmers/gutters are free of debris, water level is high enough for skimmers/gutters
- ☐ Skimmer strainer baskets are cleaned as necessary
- ☐ Weir doors are in place
- ☐ Suction outlet covers are secured and in good repair
- ☐ Flow meters are maintained and in working order
- ☐ Turnover rate is within regulations
- ☐ Filters are cleaned and backwashed per manufacturer's instructions; filters are backwashed until water is clear
- ☐ Backwashing is not happening when bathers are present
- ☐ Cartridge filters are being cleaned per the MAHC (see 5.7.2.4.3.3)
- ☐ A set of spare cartridges is available on site in a clean and dry location

Water Treatment Chemicals and Systems

- ☐ Only primary disinfectants outlined in MAHC (5.7.3) are used and EPA registered
- ☐ Chlorine gas complies with MAHC 5.7.3.1.4 safety and housing requirements
- ☐ Salt Electrolytic Chlorine Generators (etc.): Only pool grade salt is being used, saline content is maintained in required range, cleaning is performed as recommended by manufacturer, corrosion protection systems are maintained in pool basin
- ☐ UV Light: UV light systems only operate while recirculation system is operating, secondary UV systems are operated to not exceed maximum validated flow rate or exceed minimum validated output intensity needed. Other water quality requirements still apply. UV sensors are calibrated, calibration records are maintained.
- ☐ Ozone: Ozone systems are operated and maintained according to manufacturer's instructions, ozone residual stays below 0.1 ppm, SOP is provided, all employees are properly trained, other water quality requirements still apply.
- ☐ pH is adjusted with muriatic acid, sodium bisulfate, carbon dioxide, sulfuric acid, sodium bicarbonate, and soda ash.
- ☐ Automated chemical feed systems are interlocked
- ☐ Interlock events are handled per MAHC
- ☐ Chemical interlock systems are tested monthly
- ☐ Chemical feed systems are kept clean and in good repair
- ☐ Chemical testing reagents/equipment are used and not expired
- ☐ Chemical testing reagents are stored per manufacturer's instructions (proper temperature)

Water Sample Collection and Testing

- ☐ Water samples are collected 18 inches below water surface, at water depth 3-4 ft and in between inlets
- ☐ Water sample should come from deepest end of pool at least one time per week

Water Quality Chemical Testing Frequency

- ☐ Free Chlorine (FC), Total Chlorine (TC) and pH are tested daily before opening venue
- ☐ For any system without automated controller- FC and pH is tested every two hours
- ☐ For systems with automated controllers, FC and pH is tested every four hours
- ☐ Cyanuric acid is tested 24 hours after addition, also tested monthly
- ☐ Total dissolved solids are tested quarterly
- ☐ Water temperature is recorded whenever TC/pH are tested
- ☐ Salt levels are tested weekly (only at facilities with in-line electrolytic chlorinators)
- ☐ Copper and silver are tested daily at applicable aquatic facilities

Water Clarity

- ☐ Water is clear (main drain is visible from 30 feet away)

5.8 DECKS AND EQUIPMENT

Spectator Areas

- ☐ Deck drains have cross-connection devices that are in good working order
- ☐ Surfaces are clean and in good repair
- ☐ Finish and profile of deck surfaces are maintained to prevent slips and falls
- ☐ Tripping hazards are avoided
- ☐ Perimeter deck is maintained clear of obstructions for four feet around entire pool

Starting Platforms

- ☐ Starting platforms are only used for competitive swimming/training under coach supervision
- ☐ Starting platforms are prohibited from use during recreational hours

Lifeguard and Safety Related Equipment: See guidance document attached

Barriers and Enclosures

- ☐ Barriers and enclosures are maintained to prevent unauthorized entry
- ☐ Primary public access gates/doors are self-closing and self-latching
- ☐ Doors used for after-hours maintenance are locked when not in use

5.9 FILTER/EQUIPMENT ROOM

Chemical Storage

- ☐ Chemical handling follows local codes, OSHA, EPA, and safety data sheet requirements
- ☐ Chemicals are not accessible by unauthorized individuals
- ☐ Chemicals are protected from getting wet
- ☐ Chemicals are stored so if packages leak no materials would mix
- ☐ Possible ignition sources (gasoline, diesel, natural gas, gas powered equipment, etc.) are not stored in chemical storage space
- ☐ Smoking is prohibited in chemical storage space
- ☐ Lighting is bright enough for operators to read labels on containers
- ☐ Chemical storage space is separate from equipment room (waivers available for those that need one)
- ☐ Warning signs in compliance with NFPA/HMIS ratings are posted on chemical storage doors

Chemical Handling

- ☐ Chemical containers are labeled according to OSHA and EPA materials labeling requirements
- ☐ Chemicals are only added manually when bathers are absent

5.10 HYGIENE FACILITIES

Plumbing Fixture Requirements

- ☐ Hygiene facility fixtures are cleaned and sanitized daily
- ☐ Hygiene facility fixtures are kept clean and free of visible mold and mildew
- ☐ Hand wash stations are supplied with sink, soap dispenser, hand drying device, trash receptacle
- ☐ Diaper changing stations are present (required upon adoption) with disinfectant provided
- ☐ Bar soap is prohibited in hygiene facilities
- ☐ Wooden racks, duckboards, and wooden mats are prohibited in hygiene facility

Provision of Suits, Towels, and Shared Equipment

- ☐ Towels provided are washed rinse and dried
- ☐ Attire provided is washed according to manufacturer specification
- ☐ Equipment provided by facility is cleaned and sanitized between uses
- ☐ All equipment provided is in good repair

5.12 SPECIAL REQUIREMENTS FOR SPECIFIC AQUATIC VENUES

Spas

- ☐ Spa filtration systems are operated 24 hours per day
- ☐ Spas are drained, cleaned, scrubbed before refilling

Imminent Health Hazards

1. Failure to provide supervision and °staffing of the aquatic facility
2. Failure to provide the minimum disinfectant residual levels
3. pH below 7.0
4. pH above 8.0
5. Failure to continuously operate the aquatic venue filtration and disinfection system
6. Use of an unapproved or contaminated water supply source for potable water use
7. Unprotected overhead electrical wires within 20 feet horizontally of the aquatic venue
8. Non GFCI protected electrical receptacles within 20 feet of the inside wall of the aquatic venue
9. Failure to maintain an emergency lighting source
10. Absence of all required lifesaving equipment on deck
11. Aquatic venue bottom not visible
12. Total absence of or improper depth markings at an aquatic venue
13. Plumbing cross-connections between the drinking water supply and aquatic venue water or between sewage system and the aquatic venue including filter backwash facilities
14. Failure to provide and maintain an enclosure or barrier to inhibit unauthorized access to the aquatic facility or aquatic venue when required
15. Use of unapproved chemicals or the application of chemicals by unapproved methods to the aquatic venue water
16. Broken, unsecured, or missing main drain gate or any submerged suction outlet grate in the aquatic venue
17. Number of bathers/patrons exceeds the theoretical peak occupancy
18. Broken glass or sharp objects in aquatic venue or on deck area
19. Water temperature exceeds 104 °F
20. Bacteria exceeds acceptable limits in two consecutive lab-tested water samples
21. Any other item determined to be a public health hazard by PDPHE