



To: Members of the State Board of Health

From: Greg Naugle, Field Services Section, Water Quality Control Division  
Heather Young, Field Services Section Manager, Water Quality Control Division

Through: Jennifer Opila, Acting Division Director, Water Quality Control Division-JO

Date: October 22, 2020

Subject: Rulemaking Hearing concerning 5 CCR 1003-5, Swimming Pools & Mineral Baths

---

The Water Quality Control Division ("division") is proposing revisions to 5 CCR 1003-5, *Swimming Pools and Mineral Baths* ("Pool Regulations") and is requesting that the Board of Health approve the proposed amendments as presented below. Updates to the proposal since the October 22, 2020 request for hearing are highlighted.

The division has lacked adequate resource to effectively implement the Pool Regulations for many years. This is reflected in the fact that the division has not had the ability to update the Pool Regulations for over twenty years. In the meantime, industry standards and practices have evolved, but the Pool Regulations have not kept pace with these new developments.

Faced with an ineffective state pool and spa program, a number of local health agencies have voluntarily established their own pool programs. These voluntary programs are hampered by the antiquated Pool Regulations that local health agencies issue to guide their regulatory schemes (typically by adopting the Pool Regulations verbatim as their own ordinances).

The U.S. Department of Health and Human Service's Centers for Disease Control and Prevention ("CDC") has developed the Model Aquatic Health Code ("MAHC") that addresses a broad range of practices, model codes, and guidance regarding the design, construction, operation, and management of public pools, hot tubs/spas, and waterparks. The MAHC was developed through an extensive nationwide collaborative effort of local governments, public health agencies, aquatic industry representative, and researchers. The MAHC also has a process in place to regularly undergo a review and update so that the latest industry, public health, and research can be incorporated.

The division's proposal focuses on amending the Pool Regulations to allow those local health agencies that elect to have a pool program the ability to adopt the portions of the MAHC that would enable them to more effectively implement their local pool programs.

Thank you for your consideration in this matter.

STATEMENT OF BASIS AND PURPOSE  
AND SPECIFIC STATUTORY AUTHORITY  
for Amendments to  
5 CCR 1003-5 SWIMMING POOLS AND MINERAL BATHS

Basis and Purpose.

The U.S Department of Health and Human Service's Centers for Disease Control and Prevention ("CDC") has developed the Model Aquatic Health Code ("MAHC") which is intended to represent an all-inclusive model of code that is broadly applicable to public swimming pools and spas. The MAHC brings together the latest science and best practices to help state and local government officials save time and resources when they develop and update pool codes. Pool codes are specific rules that designers, builders, and managers of pools, hot tubs/spas, and waterparks must follow to reduce illnesses.

The MAHC was created by CDC at the request of health departments, the aquatics sector, academic partners, and others because no overall science or best practices-based guidelines existed at a national level. The MAHC is a tool for government agencies and the aquatics sector to use in efforts to prevent injury and illness. It is not a federal law and only becomes law if voluntarily adopted by a state or locality. This means agencies can:

- Choose whether to adopt it
- Choose to adopt all or only certain parts
- Modify part or all of it to fit their needs

The MAHC is intended to save time and resources spent by individual jurisdictions developing and updating codes across the country, while giving agencies the benefit of the latest science and best practices to help keep swimmers and aquatics staff healthy and safe.

The CDC is working with the MAHC Council within the CDC to ensure the Code stays current. The Council works with its members from the public health and the aquatics sectors, academic partners, and the general public from across the country to ensure the latest scientific and technological improvements are addressed by the MAHC. The resulting recommendations to improve the MAHC are sent to the CDC every three years to help the CDC update the Code.

In Colorado, a number of local government and health agencies have established their own voluntary programs for the oversight of public pools, spas and aquatic venues. In some cases the existing state regulations do not reflect the current industry standards and practices, and these agencies have had difficulty effectively implementing their programs under the current regulatory framework. The division requests that the Board of Health adopt the MAHC by reference, and allow local public health agencies that wish to adopt the MAHC, in whole or only those portions that best fit the local program's needs, to do so.

Since the MAHC is a dynamic document and is currently scheduled to be updated every three years it is the department's intent to revisit the state regulations on a similar schedule to, at a minimum, ensure that the latest version of the MAHC is incorporated by reference.

This periodic review of the MAHC fits well with a phased regulation update process. Currently, there are twelve local health agencies that have voluntarily established pool programs. This first phase of the regulation update allows these jurisdictions to utilize the

MAHC to develop local pool regulations and guidelines. The Water Quality Control Division (division) will continue to work with these local health agencies to develop regulations based on the MAHC, with the intention of eventually using the results of the first phase(s) as the framework for a statewide MAHC-based update of the pool regulations.

Several comments were received during the hearing process regarding potential confusion about how locally adopted building codes are allowed under the regulations. The proposed regulatory language allows local entities to use local codes as needed. In order to provide additional clarification on this issue, the division will work with local health agencies to develop policy and guidance documents to further define the use of existing building codes. Policy and guidance documents are commonly used to further clarify regulatory implementation.

Since there are a number of counties and local health agencies that currently do not implement pool programs, and instead rely upon the existing state regulations, the existing state regulations have been left in place. The Water Quality Control Division will continue to implement the old regulations in these counties as they have done historically.

Specific Statutory Authority.

Statutes that require or authorize rulemaking:

Section 25-1-108(1)(c)(I) to 25-5-810 C.R.S. Other relevant statutes: Sections 25-5-801 through -809, C.R.S.

---

Is this rulemaking due to a change in state statute?

Yes, the bill number is \_\_\_\_\_. Rules are  authorized  required.

No

Does this rulemaking include proposed rule language that incorporate materials by reference?

Yes  URL

No

Does this rulemaking include proposed rule language to create or modify fines or fees?

Yes

No

Does the proposed rule language create (or increase) a state mandate on local government?

No.

- The proposed rule requires a local government to perform or increase a specific activity because the local government has opted to perform an activity, or;

Yes.

REGULATORY ANALYSIS  
for Amendments to  
5 CCR 1003-5 SWIMMING POOLS AND MINERAL BATHS

1. A description of the classes of persons affected by the proposed rule, including the classes that will bear the costs and the classes that will benefit from the proposed rule.

Group of persons/entities Affected by the Proposed Rule	Size of the Group	Relationship to the Proposed Rule Select category: C/CLG/S/B
Local government and health agencies with voluntary pool programs	12	CLG
Public pools and baths within the jurisdiction of the voluntary programs	~500	C
Citizens and tourist that utilize public pools and baths	1000's	B

While all are stakeholders, groups of persons/entities connect to the rule and the problem being solved by the rule in different ways. To better understand those different relationships, please use this relationship categorization key:

- C = individuals/entities that implement or apply the rule.
- CLG = local governments that must implement the rule in order to remain in compliance with the law.
- S = individuals/entities that do not implement or apply the rule but are interested in others applying the rule.
- B = the individuals that are ultimately served, including the customers of our customers. These individuals may benefit, be harmed by or be at-risk because of the standard communicated in the rule or the manner in which the rule is implemented.

More than one category may be appropriate for some stakeholders.

2. To the extent practicable, a description of the probable quantitative and qualitative impact of the proposed rule, economic or otherwise, upon affected classes of persons.

The amended rules would allow those local government and health agencies that have elected to implement voluntary pool programs the ability to adopt the Model Aquatic Health Code (MAHC), in whole or in part. The MAHC represents a more modern and applicable set of pool regulations and would allow local jurisdictions that elected to adopt any or all of the MAHC more regulatory ability to prevent water borne illness.

The amended rules would have no effect on those local government and health agencies that choose not to implement a pool program. In these instances, the status quo would be maintained, and regulation of public pools and baths in this case would fall under the state created pool regulations.

Economic outcomes

Summarize the financial costs and benefits, include a description of costs that must be incurred, costs that may be incurred, any Department measures taken to reduce or eliminate these costs, any financial benefits.

C and CLG: Adoption of the MAHC is voluntary, as the state created standards are still in place. Therefore, it is not anticipated that there will be additional costs associated with implementation of the rules beyond what are already incurred by the voluntary programs.

Please describe any anticipated financial costs or benefits to these individuals/entities.

B: Citizens and tourist that utilize public pools and baths may see increased fees if public pools and baths elect to increase fees associated with complying with new rules.

Non-economic outcomes

Summarize the anticipated favorable and non-favorable non-economic outcomes (short-term and long-term), and, if known, the likelihood of the outcomes for each affected class of persons by the relationship category.

C and CLG: Local jurisdictions that implement voluntary pool programs will be able to more effectively implement their programs. More effective programs at the local level allow these jurisdictions more latitude to prevent potential disease outbreaks and health threats associated with pools, spas, and aquatic venues.

B: Citizens and tourist that utilize public pools and baths would benefit from the reduced possibility of being exposed to a water borne disease outbreak.

3. The probable costs to the agency and to any other agency of the implementation and enforcement of the proposed rule and any anticipated effect on state revenues.

- A. Anticipated CDPHE personal services, operating costs or other expenditures:

Not Applicable - the amended rules will not change the existing level of service provided by CDPHE.

Anticipated CDPHE Revenues:

Not Applicable - There are no anticipated revenues for CDPHE.

- B. Anticipated personal services, operating costs or other expenditures by another state agency:

Anticipated Revenues for another state agency:

Not Applicable - There are no anticipated revenues for CDPHE.

4. A comparison of the probable costs and benefits of the proposed rule to the probable costs and benefits of inaction.

Along with the costs and benefits discussed above, the proposed revisions:

- Comply with a statutory mandate to promulgate rules.
- Comply with federal or state statutory mandates, federal or state regulations, and department funding obligations.
- Maintain alignment with other states or national standards.
- Implement a Regulatory Efficiency Review (rule review) result
- Improve public and environmental health practice.
- Implement stakeholder feedback.
- Advance the following CDPHE Strategic Plan priorities:

Goal 1, Implement public health and environmental priorities  
 Goal 2, Increase Efficiency, Effectiveness and Elegance  
 Goal 3, Improve Employee Engagement  
 Goal 4, Promote health equity and environmental justice  
 Goal 5, Prepare and respond to emerging issues, and  
 Comply with statutory mandates and funding obligations

Strategies to support these goals:

- Substance Abuse (Goal 1)
  - Mental Health (Goal 1, 2, 3 and 4)
  - Obesity (Goal 1)
  - Immunization (Goal 1)
  - Air Quality (Goal 1)
  - Water Quality (Goal 1)
  - Data collection and dissemination (Goal 1, 2, 3, 4, 5)
  - Implement quality improvement/a quality improvement project (Goal 1, 2, 3, 5)
  - Employee Engagement (Goal 1, 2, 3)
  - Decisions incorporate health equity and environmental justice (Goal 1, 3, 4)
  - Detect, prepare and respond to emerging issues (Goal 1, 2, 3, 4, 5)
- Advance CDPHE Division-level strategic priorities.

The costs and benefits of the proposed rule will not be incurred if inaction was chosen. Costs and benefits of inaction not previously discussed include:

In the event that the proposed amendment is not adopted, the current difficulties faced by those local government and public health agencies that wish to operate under the MAHC will continue.

5. A determination of whether there are less costly methods or less intrusive methods for achieving the purpose of the proposed rule.

The specific revisions proposed in this rulemaking were developed in conjunction with stakeholders. The benefits, risks and costs of these proposed revisions were compared to the costs and benefits of other options. The proposed revisions provide the most benefit for the least amount of cost, are the minimum necessary or are the most feasible manner to achieve compliance with statute.

6. Alternative Rules or Alternatives to Rulemaking Considered and Why Rejected.

Rulemaking is proposed when it is the least costly method or the only statutorily

allowable method for achieving the purpose of the statute. The benefits, risks and costs of these proposed revisions were compared to the costs and benefits of other options. The proposed revisions provide the most benefit for the least amount of cost, are the minimum necessary or are the most feasible manner to achieve compliance with statute.

7. To the extent practicable, a quantification of the data used in the analysis; the analysis must take into account both short-term and long-term consequences.

In the short-term the amendments are expected to assist local jurisdictions more easily implement their pool programs. The U.S Department of Health and Human Service's Centers for Disease Control and Prevention ("CDC") has committed to the long-term review and updates to the Model Aquatic Health Code ("MAHC"). The CDC works at the national level to integrate the latest scientific and practice based data into future versions of the MAHC. Long-term this process of frequent updates based on national input on the regulation of pools, spas, and aquatic venues would benefit local jurisdictions with their own pool programs, pool and spa operators, as well as bathers and swimmers.



STAKEHOLDER ENGAGEMENT  
for Amendments to  
5 CCR 1003-5 SWIMMING POOLS AND MINERAL BATHS

State law requires agencies to establish a representative group of participants when considering to adopt or modify new and existing rules. This is commonly referred to as a stakeholder group.

Early Stakeholder Engagement:

The following individuals and/or entities were invited to provide input and included in the development of these proposed rules:

Organization	Representative Name and Title (if known)
Online Stakeholder Survey (March, April and May 2019)	Local jurisdictions and industry representatives
Colorado Directors of Environmental Health (May 3, 2019)	Multiple EH Directors
Local Health Water Program Managers - Swimming Pool and Spa subcommittee (July 2, 2019)	Multiple participants from local jurisdictions with volunteer programs
CDPHE hosted stakeholder meeting (July 24, 2019)	Local jurisdictions and industry representatives
Colorado Directors of Environmental Health (July 26, 2019)	Multiple EH Directors
Local Health Water Program Managers - Swimming Pool and Spa subcommittee (August 13, 2019)	Multiple participants from local jurisdictions with volunteer programs
CDPHE stakeholder meeting in conjunction with the Colorado Parks and Recreation Association (October 10, 2019) Annual Meeting	Pool operators, industry representatives, and local jurisdictions
Local Health Water Program Managers - Swimming Pool and Spa subcommittee (November 5, 2019)	Multiple participants from local jurisdictions with volunteer programs
Colorado Chapter, Inc, of the International Code Council (February 14, 2020)	Local and national building code representatives, Colorado Department of Labor and Employment, Colorado Department of Regulatory Agencies
Written Comments after the hearing request from the: Colorado Chapter, Inc. of the International Code Council	Andrew Scott Greer, President Chapter International Code Council
Written Comments after the hearing request from the: International Code Council / Pool and Hot Tub Alliance	Justin Wiley VP of Government Relations and Grason Wiggins Senior Manager, Government Relations
Written Comments after the hearing request from the: Council of the Model Aquatic Health Code	Kristie Riester Executive Director Council for the Model Aquatic Health Code
Written Comments after the hearing request from the:	Jody Frymire, Regulatory Affairs

IDEXX	Specialist
Written Comments after the hearing request from the: Colorado Directors of Environmental Health	James A. Rada, Vice President Colorado Directors of Environmental Health

The division initiated an online survey in late March (see below) to gauge interest in the possibility of updating 5 CCR 1003-5 by incorporating the U.S. Department of Health and Human Services, Centers for Disease Control and Prevention's (CDC) Model Aquatic Health Code (MAHC) & Annex (3rd Edition - 2018) by reference, and allowing local health jurisdictions the option to voluntarily use portions of the MAHC that apply to their particular community. The survey was sent to a list of local pool and spa operators, local health agencies, and other potentially interested parties. Originally, the survey was scheduled to close at the end of April, but the division received a request for an extension, which was granted, and the survey remained open through May 17, 2019.

The overall goal of the survey was to measure the willingness of stakeholder toward three potential regulatory changes:

1. Adopt the MAHC by reference and allow local health agencies the option to adopt those parts they deemed necessary,
2. Repeal the existing antiquated regulations under the supposition that no regulations are preferable to out-of-date ones, and
3. A "do-nothing" option where the existing regulations and framework would remain in place and no regulatory changes would be proposed.

A total of 38 responses were received at the conclusion of the survey in the middle of May. Over 80% of the respondents supported some form of the option of adopting the MAHC by reference. Based on the results of the survey, the division elected to go forward with a proposal to adopt the MAHC by reference.

In July of 2019, the division held a stakeholder meeting and meet with local health agencies to solicit feedback on potential revised regulatory language. Based on feedback from these meetings and conversations, the proposed revised regulatory language was developed.

One concern raised during the July 2019 stakeholder meeting was the situation where local counties building departments may have already adopted pool and spa construction codes that could be in conflict with those associated with the MAHC. Based on stakeholder feedback at the July meeting, the division proposed three potential regulatory alternatives:

1. Exclude the MAHC construction standards from the regulations.
2. Add an allowance to the regulation for locally adopted construction codes to supersede MAHC when conflicts are present.
3. Revise regulations to allow county programs to establish building codes based on local needs and processes.

On October 10, 2019 an additional stakeholder meeting was held in conjunction with the Colorado Parks and Recreation Association's annual conference. At this meeting, the revised regulatory language was presented as well as the three proposal to address the issue of conflicting building codes. Discussion of the merits of each option took place and no clear consensus was arrived at during the stakeholder meeting.

Following the October 2019 stakeholder meeting an additional survey was distributed to the entire stakeholder list. This survey requested feedback on which of the proposed construction standard alternative language proposals the group preferred. The survey was open for 33 days. Once the survey period concluded, the division had received 25 responses. The majority (48%) supported the second option that allows locally adopted construction codes to supersede the MAHC when conflicts were present. Only 28% of respondents supported explicitly removing the MAHC construction standards, with the remaining 24% in favor of allowing counties to establish building codes based on local needs and processes. Based on the results of the survey, the division updated the proposed regulatory language to allow locally adopted construction standards to supersede the MAHC standards when conflicts are present.

In February of 2020, the division attended the Colorado Chapter of the International Code Council to present the findings of the October survey that addressed pool construction standards. At the meeting, proposed regulatory changes allowing existing adopted pool and spa construction codes to supersede MAHC construction codes was discussed as the direction preferred by the majority of stakeholders participating in the October 2019 survey. Stakeholders in the meeting that commented on the survey results indicated that the approach would address their concerns.

Five sets of written comments were received after the Board of Health scheduled the hearing. Both the Colorado Chapter, Inc. of the International Code Council and the International Code Council / Pool and Hot Tub Alliance advocated for specific inclusion of the International Swimming Pool and Spa Code (ISPSC) into section 1.3.1.A of the regulations. The topic of citing specific building codes was discussed at length at the July 2019 and again at the October stakeholder meetings.

The general consensus from these stakeholder meetings was that maximum regulatory flexibility was obtained by not citing a specific building code. Both of these stakeholder meetings had broad attendance and the majority of the feedback received opted for maximum flexibility with the regulations. The current regulatory language allows the ISPSC or any other pool construction code to be utilized if it has been adopted locally.

The Colorado Chapter, Inc. of the International Code Council and International Code Council / Pool and Hot Tub Alliance also cite potential confusion on how the regulations may be interpreted. The division proposes to develop policy and guidance documents during this first phase of regulation development to clarify how to interpret the revised regulation. This would preserve the regulatory flexibility of the existing language, but would provide clarity and engage stakeholders on implementation of the regulations.

The Colorado Directors of Environmental Health (CDEH) also proposed two changes to the regulation. The first proposed change was to section 1.3.1.A to read:

“Where pool and spa construction standards in the MAHC conflict with locally adopted building, electrical, or plumbing codes, the more stringent of the conflicting code language shall have precedence.”

CDEH points out that this proposed change is more protective of public health. The division agrees that the proposed change is more protective of public health. The division updated the proposed language as requested by CDEH. The proposed policy and guidance documents will further clarify how the regulations are implemented.

CDEH has also proposed revision to section 1.3.3 that would implement the MAHC on a statewide basis. The division has committed to a phased adoption of the MAHC, and believes that this change is counter to a phased approach. The division agrees that the long-term goal is to have a version of the MAHC adopted statewide, however the phased regulatory adoption is the better approach.

During the stakeholder process, the division committed to maintaining the *status quo* for those jurisdictions that currently do not have pool programs. Statewide adoption of the MAHC would contradict those commitments. The jurisdictions without pool programs have not had to directly deal with pool regulations for some time. Adopting the MAHC statewide at this time may cause adverse impacts by causing them to commit unanticipated time and resources.

For these reasons, the division believes the CDEH proposal for statewide adoption of the MAHC is premature. Therefore, the division recommends "no change" to the language in section 1.3.3.

IDEXX submitted a letter proposing that additional bacteriologic sampling be included in the proposal, but recognizes that this may be beyond the current scope of the hearing. The division agrees that adding bacteriological sampling is beyond the scope of the current hearing. The division will consider this proposal in the future.

The Council of the Model Aquatic Health Code submitted a letter of support for the proposed regulatory updates.

#### Stakeholder Group Notification

The stakeholder group was provided notice of the rulemaking hearing and provided a copy of the proposed rules or the internet location where the rules may be viewed. Notice was provided prior to the date the notice of rulemaking was published in the Colorado Register (typically, the 10<sup>th</sup> of the month following the Request for Rulemaking).

Not applicable. This is a Request for Rulemaking Packet. Notification will occur if the Board of Health sets this matter for rulemaking.

Yes.

Summarize Major Factual and Policy Issues Encountered and the Stakeholder Feedback Received. If there is a lack of consensus, regarding the proposed rule, please also identify the Department's efforts to address stakeholder feedback or why the Department was unable to accommodate the request.

As discussed above, several stakeholders had concerns related to the adoption of the MAHC and conflicts with local ordinances and regulations. The department feels that the proposed amendments balances those concerns by allowing the MAHC to be adopted in whole or in part by a local jurisdiction.

Please identify the determinants of health or other health equity and environmental justice considerations, values or outcomes related to this rulemaking.

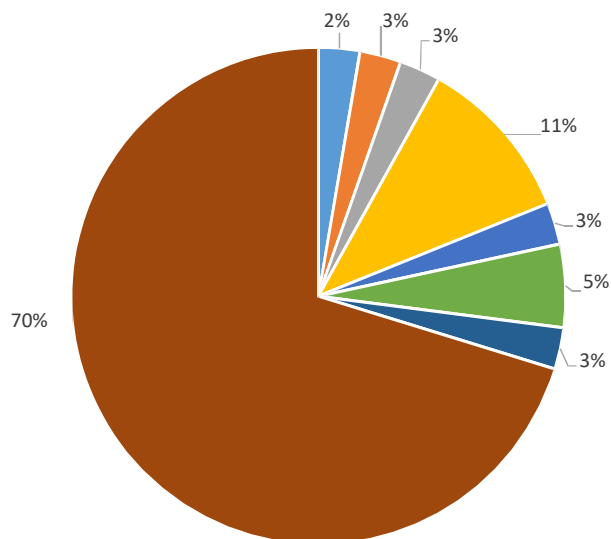
Overall, after considering the benefits, risks and costs, the proposed rule:

Select all that apply.

	Improves behavioral health and mental health; or, reduces substance abuse or suicide risk.	Reduces or eliminates health care costs, improves access to health care or the system of care; stabilizes individual participation; or, improves the quality of care for unserved or underserved populations.
X	Improves housing, land use, neighborhoods, local infrastructure, community services, built environment, safe physical spaces or transportation.	Reduces occupational hazards; improves an individual's ability to secure or maintain employment; or, increases stability in an employer's workforce.
	Improves access to food and healthy food options.	Reduces exposure to toxins, pollutants, contaminants or hazardous substances; or ensures the safe application of radioactive material or chemicals.
	Improves access to public and environmental health information; improves the readability of the rule; or, increases the shared understanding of roles and responsibilities, or what occurs under a rule.	Supports community partnerships; community planning efforts; community needs for data to inform decisions; community needs to evaluate the effectiveness of its efforts and outcomes.
	Increases a child's ability to participate in early education and educational opportunities through prevention efforts that increase protective factors and decrease risk factors, or stabilizes individual participation in the opportunity.	Considers the value of different lived experiences and the increased opportunity to be effective when services are culturally responsive.
	Monitors, diagnoses and investigates health problems, and health or environmental hazards in the community.	Ensures a competent public and environmental health workforce or health care workforce.
	Other: _____ _____	Other: _____ _____

Chart Illustrating May 2019 Stakeholder Feed Back Regarding Regulation Revisions

After reviewing the proposal regarding pool regulations with interested parties, do you support?



- All or nothing. It is too difficult to keep all the different cities straight. Either establish it as a requirement or let it continue as it is today.
- Am confused as to whether the MAHC would be incorporated into the State's existing regulations and would then apply to all pools in the State or whether the State regs would just allow the local governments having jurisdiction the option of including all
- As long as counties can choose which parts, ok with us
- Leave the rules as is
- Provide an opportunity for stakeholders to help craft a revision that is based on the MAHC as a guide.
- Repeal the rule
- Update the State code to the MAHC and as a second phase update the Statute to allow for locals to create their own regs that meet the minimum requirements of the MAHC
- Updating the rule to incorporate the 2018 MAC and give counties discretion as to which parts, if any, apply

Comments from May 2019 Stakeholder Survey  
(Pool Proposal Form (comments).pdf)

1	We have been waiting for this! I believe this is the responsible option for the Department to consider and get pushed forward. We currently are not protecting Public Health in a professional manner with the existing regulation 5CCR1003-5
2	Current regulations are incomplete and not consistent with current best practices for plan review as outlined in the MAHC.
3	The rules are in need of updating to meet current industry practice. This accomplishes that goal while still allowing locals to determine the best level of program implementation for their county. We are on the fence regarding developing a voluntary program recreational water inspection program in Larimer County, but the ability to use the MAHC as our regulatory framework would be a large step forward in making that program a reality.
4	Licensing Authority that would be clear for local public health agencies
5	The MAHC has the most current and the most robust wealth of knowledge regarding pool safety available. Inclusion of the Virginia Graeme Baker Act is crucial as it is not referenced in the current code. The Fecal/Vomit/Blood Contamination Response outlined in the MAHC gives much more information for contamination response which is not provided in the current regulations. While new recreational water facilities are not built frequently, it would be extremely beneficial to have detailed and all-encompassing plan review guidelines for new or remodeled facility designs since the current Swimming Pool and Mineral Bath Regulations are very vague on new facility requirements and the definitions that correspond to those requirements. The signage required in the MAHC alone could educate the public to prevent the spread of numerous diseases. The only signage required by the current code is for Hazardous Material signage and signage for closure of the swimming area.
6	Will WQCD be able to provide technical guidance to LPHAs as local boards evaluate the pros and cons of applying sections of the MAHC? Most LPHAs do not have staff trained in pool/spa operations and may need assistance evaluating the importance and implications of various sections of the MAHC.
7	We are interested in starting a program but not with current regs. we are likely to proceed when the applicable and appropriate portions of the MAHC adopted
8	Counties that do not have a pool program but take complaints rely on CDPHE to have a regulation in place to enforce when we have public health concerns. Also, if the State adopts the MAHC, small jurisdictions do not have to take the time to create regulations. This should be completed first to update outdated regulations and will not take as long as a legislative process. The second phase or part would be updating Statute to allow for local health agencies to adopt that meet the minimums set forth in the MAHC. Deliberation of what to include in the MAHC will be important so as to not handicap locals when adopting regs. Keeping reference to the MAHC out of statute will be important so that amendments can be made more easily. - Kurt Dahl, Pitkin County EH
9	Thank you for this! Updating the reg is critical. Only caution is to make sure portions of MAHC we don't want can be excluded by section. In other words if we can't amend the MAHC I want to make sure sections we need to adopt (disinfection) don't also contain provisions we don't want (ventilation).
10	Concern over consistency with each local department having a unique code. The goal of the MAHC was to have a uniformed pool code.

11	Local jurisdictions should have the ability to choose all or a portion of the MAHC in their regulations - not just accept the entire MAHC. This is especially necessary where local building codes may not align with the MAHC requirements.
12	With all the VRBO rentals I think that this will help out
13	Using the MAHC as a guiding standard
14	Some form of update is needed, current regs are from the 1990's
15	How will this be regulated and who will enforce?
16	grandfathering old pools
17	Per discussion at the Colo Directors of EH, TCHD supports moving forward with incorporating the MAHC by reference and that a stakeholder process with industry reps is vital to the success of a rulemaking.
18	<p>Would the adoption of MAHC require a hotel to have a lifeguard? Checking the spa or pool every 2 hours at a hotel is unrealistic. Automated feeders are extremely expensive. The MAHC regulations should be "cherry picked" depending on pool usage. At the peak of our pool use we have 3 to 5 people a week that utilize our pool and 5 to 10 people per week that utilize our spa. I can see water parks and public pools requiring strict adherence to all of the MAHC regulations due to usage but for a hotel situation, several of these regulations are over burdensome and unnecessary.</p> <p>Will all swimming pools be required to adhere to the full MAHC regulations or will it be considered on a basis of potential usage?</p>
19	I find it funny that one of the main topics is the generation of fees
20	<ol style="list-style-type: none"> <li>1. The MAHC may conflict with Building/Plumbing/Electrical/Mechanical/Fire Codes currently in place in some jurisdictions. Be sure to invite Building and Fire Officials to the Stakeholder process.</li> <li>2. Giving Counties discretion as to which parts they want to apply may open the door to complaints from the Aquatics Industry of inconsistency or lack of uniformity across the state.</li> <li>3. I've heard some statements that the MAHC may include things that by statute are not allowed to be regulated by LPHAs in a local pool inspection program, i.e., safety issues, lifeguards, etc.</li> <li>4. Coordination is needed among the 11 or so voluntary programs across the state to create as much uniformity as possible.</li> <li>5. CDPHE should tap Denver Dept. of Public Health and Environment for input regarding issues they have faced adopting the parts of the MAHC.</li> <li>6. CDPHE should also use the expertise and solicit information from the Council for the Model Aquatic Health Code and other States who have gone through a MAHC adoption process. There are many technical experts across the country who have already greased the skid on MAHC adoption.</li> <li>7. I'm not sure if adoption of local regulations will rise to the surface but if so, I believe that statute change must be pursued to allow LPHAs to adopt local regulations.</li> <li>8. The MAHC may not address issues of facilities like flow-through hot springs pools.</li> <li>9. There may be a need for some sort of Colorado Aquatics Code Coalition/Council, perhaps appointed by the State Board of Health, to deal with ongoing issues of MAHC implementation, Interpretation.</li> </ol>
21	It gives a "SET" standard.
22	As a home rule municipality who uses TriCounty, who currently defers to state for their health code, I cannot advocate to change this rule because there is no explanation as to what rule/law we would have follow. Even though we are home rule, but under TriCounty depending how you write the law will decide how we have to follow the law. I.e. We write our own code, but counties have to follow strictest code. TriCounty either a. Adopts MAHC or b. Defers to state who adopts MAHC Additionally, who will be governing Section 4, each municipality?



23	While the MAHC is excellent in many ways, there remain some aspects that are problematic and likely will be updated in the coming years. Having new regulations that could apply statewide that use the MAHC as a guide when formulated would be a solid approach. Requirements for application of the regs can always be at the State's discretion. However, it is more likely that folks will want to adopt if the code can be drafted with local concerns and feedback considered.
----	---

## Google Analytics for October 2019 Stakeholder Stakeholder Survey

# Swimming Pools Regulation Stakeholders

25 responses

## Name

25 responses

Johnathan Nies

Rick Fuller

Hillary Osmack

Luke Martinez

Mitch Brown

Jim Rada

Kevin

John Bosco

Zach Venn

Duane Dominguez

John Plano

C.J. Jarecki

Andrew W Blake

Brad Solon

John Bergstrom

Janice Weed

Brendan Scanland

Chris Manley

Bruce Kral

Matt Archer

CJ Jarecki

Will Birchfield

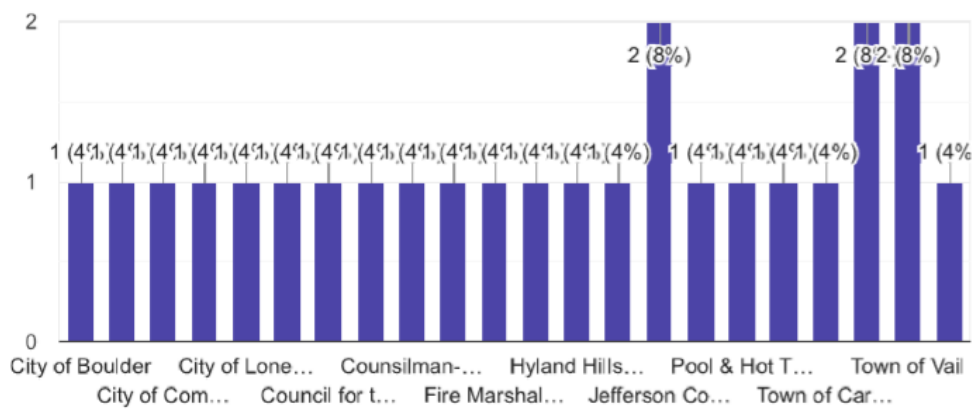
Kathy Ulsh

Jennifer Hatfield

Douglas Sackett

### Organization

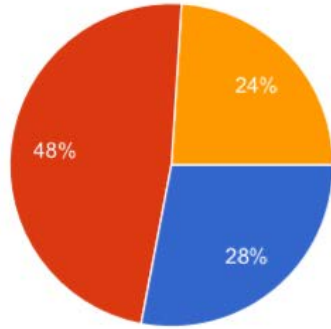
25 responses



### Construction Options

### Select one

25 responses



- Exclude MAHC construction standards from the regulations.
- Add an allowance to the regulation for locally adopted codes to supersede MAHC when conflicts are present.
- Revise regulations to allow county programs to establish building codes based on local needs and processes.

## Comments and Feedback

10 responses

Add an allowance to the regulation for locally adopted codes that when jurisdictions utilize multiple codes and conflicts exist between the codes (and my understanding is that there aren't that many conflicts between the MAHC and ISPSC), the most stringent code in effect in that jurisdiction will supersede the others for that particular requirement. Hopefully any potential conflicts would be ironed out during the local regulation development process. There may be instances when the MAHC may be the more stringent code.

I believe that the State of Colorado should follow through on MAHC adoption by reference, allowance for local regulations development which should include working with all appropriate code enforcement agencies to ensure potential conflicts are addressed.

CMAHC, ICC and PHTA need to work hard at making all of the codes consistent. The misinformation shared by the ISPSC representative at the last stakeholder meeting was frustrating and inappropriate.

Have one code (MAHC) to address all construction and operational requirements for regulators. If conflicting regulations are at odds, choose the stricter option.

We don't have many regulations on hot tubs in South Dakota. Also, the only mineral bath operation in the area is Hot Springs - which is now Municipal owned.

We have selected option number 3. We support the adoption of the MAHC by reference allowing local public health jurisdictions to develop a code using selected portions of the MAHC that would meet our needs in Colorado and would follow the codes of other jurisdictions in Colorado.

We don't support excluding the MAHC construction standards, because we would prefer working from one code.

We don't support option number two because we want the ability to work with local building officials to work through any discrepancies between the MAHC and ISPSC or other similar local building codes.

Thank you for orchestrating an open stakeholder meeting!

We are in full support of moving forward with adopting the MAHC as a replacement for the current Colorado Swimming Pool Regulations. Allowing each jurisdiction to coordinate with area building departments on procedures for resolving possible conflicts between codes is consistent with how the current review process occurs. In many instances, the MAHC already defers to "local applicable codes", particularly in areas related to design and construction where building codes already provide direction.

The MAHC's origin is based on a need to support public health agencies with a science based code, and its content is heavily weighted towards prevention of waterborne diseases, chemical related injuries, and drowning prevention. While there are areas of overlap with building codes, the primary focus is on public health. Adoption of the MAHC shouldn't be seen as a threat to remove necessary building department reviews or inspections from the process, or to establish a statewide regulation standard.

Just as there are reviews of restaurants, water and wastewater treatment facilities, tattoo parlors, schools, and child care centers from both a public health and a building department perspective; adoption of the MAHC should be viewed as an opportunity to update the tool local public health agencies are using to review and inspect swimming facilities, not an attempt to change existing partnership between these agencies.

MAHC would create conflicts with adopted ISPSC.

The potential conflict between the two Codes would create problems. I prefer to stay in the family of the I-code's where we have consistency and redundancy through out the family of adopted codes.

The ISPSC addresses both public AND residential construction of pools and spas. Using the ISPSC for design and construction harmonizes training and educational efforts for designers, contractors, and code officials.

PHTA appreciates the opportunity to provide feedback, and supports the Department's effort to update their existing rules. However, we believe at this time it is best to exclude any reference to the MAHC construction & design standards to ensure no conflicts or any potential confusion is created. This is due to the fact over 40 localities in CO already have adopted the ISPSC, when it comes to pool & spa, design and construction. This number continues to grow. Having a consistent code for design and construction, which is simple, understandable, and verifiable makes life easier for builders, inspectors, and other government officials. Less confusion over multiple codes and interpretations means safer pools for everyone. We encourage the Department to exclude MAHC construction standards from the proposed regulation, and if anything, consider referencing the ISPSC design and construction standards to assist in consistency with the localities that have already adopted it.

This content is neither created nor endorsed by Google. [Report Abuse](#) - [Terms of Service](#) - [Privacy Policy](#)

Google Forms

1 **DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT**

2 **Water Quality Control Division**

3 **SWIMMING POOLS AND MINERAL BATHS**

4 **5 CCR 1003-5**

---

6 **ARTICLE I**

7 **GENERAL**

8  
9 **1.1 Authority**

10 This regulation is adopted pursuant to Sections 25-1-108(1)(c)(I) and 25-5-801, et  
11 seq., C.R.S., and is consistent with the requirements of the State Administrative  
12 Procedure Act, Section 24-4-101, et seq., C.R.S.

13 Nothing in this regulation limits the department's authority to close swimming pools or  
14 areas as authorized under state law.

15 **1.2 Incorporation by Reference**

16 1. This regulation incorporates by reference (as indicated within) material originally published  
17 elsewhere. Such incorporation, however, excludes later amendments to or editions of the  
18 referenced material.

19 -  
20 2. The Colorado Department of Public Health and Environment, Water Quality Control Division  
21 shall maintain copies of the complete text of the incorporated materials, which shall be available  
22 for public inspection during regular business hours, and shall provide certified copies of the  
23 materials at cost upon request. For information regarding how the incorporated materials may  
24 be obtained or examined, contact:

25 \_\_\_\_\_  
26 Division Director  
27 Water Quality Control Division  
28 Colorado Department of Public Health and Environment  
29 4300 Cherry Creek Drive South  
30 Denver, Colorado 80246-1530

31 **1.3 Use of the Model Aquatic Health Code Authorized**

32 -  
33 1. The U.S. Department of Health and Human Services, Centers for Disease Control  
34 and Prevention's (CDC) Model Aquatic Health Code (3<sup>rd</sup> Edition – 2018) is hereby  
35 incorporated into these regulations by reference and is available from the CDC's  
36 website at <https://www.cdc.gov/mahc/editions/current.html>.  
37

38 A. Where pool and spa construction standards in the MAHC conflict with  
39 locally adopted building, electrical, or plumbing codes, the more  
40 stringent of the conflicting code language shall have precedence.

41  
42 2. A city, town, a city and county, or a county or district board of public health  
43 established pursuant to section 25-1-508, C.R.S. may, at its sole discretion,  
44 voluntarily choose to adopt the Model Aquatic Health Code, in whole or in part,  
45 into its local ordinances or rules, to be administered and enforced by such city,  
46 town, city and county, or local public health agency.

47 -  
48 3. The department is not authorized to administer/enforce the Model Aquatic  
49 Health Code, and instead shall administer/enforce the regulations below in  
50 jurisdictions that do not have a voluntary swimming pool and mineral bath  
51 program.

#### 52 ~~1.1~~ **AUTHORITY:**

53 ~~Sections 25-5-801, 25-5-802, 25-5-803, 25-5-804, 25-5-805, 25-5-806, 25-5-807, 25-5-808, 25-5-809, 25-~~  
54 ~~5-810 and 25-1-107, C.R.S. 1973, as amended.~~

#### 55 **Summary Closure:**

56 ~~When a bathing area is in such condition as to pose an imminent threat to the health of the public, the~~  
57 ~~department shall order the bathing area to be dosed until such time as the conditions are brought into~~  
58 ~~compliance with minimum requirements. This action shall be taken by issuing an order in writing under~~  
59 ~~the provisions of Section 25-1-107(m) or Section 25-1-506(e) Colorado Revised Statutes.~~

#### 60 **ARTICLE 1.2 - Material Incorporated By Reference**

61 ~~These regulations incorporate by reference (as indicated within) material originally published elsewhere.~~  
62 ~~Such incorporation does not include later amendments to or editions of the referenced material. Pursuant~~  
63 ~~to Section 24-4-103 (12.5) CRS, the Department of Public Health and Environment maintains copies of~~  
64 ~~the complete text of the incorporated materials for public inspection during regular business hours.~~  
65 ~~Information regarding how the incorporated material may be obtained or examined is available from:~~

66 ~~Information Center Librarian~~  
67 ~~Colorado Department of Public Health and Environment~~  
68 ~~4300 Cherry Creek Drive South, Building A~~  
69 ~~Denver, Colorado 80222-1530~~

70 ~~Additionally, any material that has been incorporated by reference after July 1, 1994 may be examined at~~  
71 ~~any state publication/depository library. Copies of the incorporated materials have been sent to the State~~  
72 ~~Publication Depository and Distribution Center, and are available for inter-library loans.~~

#### 73 **1.31.4 DEFINITIONS:**

74 The following definitions shall apply in the Interpretation and enforcement of this regulation. The word  
75 "shall" as used herein indicates a mandatory requirement

76 1. "Abbreviations" (technical):

- 77 A. "DE" means diatomaceous earth;
- 78 B. "fps" means feet per second;
- 79 C. "gpm" means gallons per minute;
- 80 D. "mg/l" means milligrams per liter. When requirements in this regulation specify limits for  
81 liquid volume measurements using mg/l or ppm, either may be used depending on the  
82 type of testing equipment available;
- 83 E. "NSF" means National Sanitation Foundation;
- 84 F. "ORP" means oxidation reduction potential;
- 85 G. "ppm" means parts per million. See notation under mg/l for use.
- 86 2. "Cross-Connection" means any physical arrangement whereby a potable water supply is  
87 connected, directly or indirectly, with any other water supply system, pool, sewer, drain, conduit,  
88 tank, plumbing fixture, or other device which contains, or may contain, contaminated water,  
89 sewage, or other waste, liquid or gas of unknown or unsafe quality which may be capable of  
90 imparting contamination or pollution to the potable water supply as a result of backflow. Bypass  
91 arrangement, jumper connections, removable spools, swivel or changeover devices, four-way  
92 valve connections, and other temporary or permanent devices through which, or because of  
93 which, backflow could occur are considered to be cross-connections.
- 94 3. "Department of Health" means the Colorado Department of Health and its duly authorized agents  
95 and employees.
- 96 4. "Handhold" means a structure not over twelve inches above the water line around the perimeter  
97 of the pool wall, affording physical means for the bather to grasp the pool sides.
- 98 5. "Instructional Program" means any pool activity which utilizes an instructor who is  
99 managing/controlling the activity (such as, but not limited to swim lessons, water aerobics, life  
100 saving class, scuba diving class, swim team practice and canoeing class).
- 101 6. "Lifeguard Station" refers to the designated work station/area of a lifeguard.
- 102 7. "Natural swimming area" means a designated portion of a natural or impounded body of water in  
103 which the designated portion is devoted to swimming, recreative bathing, or wading and for which  
104 an individual is charged a fee for the use of such area for such purposes. Appurtenances used in  
105 connection with the natural swimming area shall also be included.
- 106 8. "Person" means individual, firm, partnership, association, corporation, company, governmental  
107 agency, club, or organization of any kind.
- 108 9. "Plumb" means a line perpendicular to water surface and extending vertically to a point located at  
109 the front end of the diving board and at the center line directly in front of the diving board.
- 110 10. "pool" means swimming pool, wading pool, spray pool, spa or the like.
- 111 11. "Private pool" means any pool which is constructed in connection with or appurtenant to single  
112 family dwellings, condominiums or apartment houses, and which is used solely by the persons  
113 maintaining their residence within such dwellings, condominiums or apartment houses and the  
114 guests of such persons. Private pools are exempt from these regulations.



- 115 12. "Public Bath" includes any mineral bath, bath house, public baths, and similar facilities which  
116 provide a contained water environment for immersion of the body, or provide a hot vapor  
117 environment for any purpose.
- 118 13. "Public Pool" means a pool that is not a private pool under definition 11, non semi-public pool  
119 under Definition 17.
- 120 14. "Radius of curvature" means the radius arc denoting the curved surface from the point or  
121 departure from the springline (vertical sidewall) of the pool to the pool bottom.
- 122 15. "Remodeled" means an extension, enlargement or modification of any public swimming area or  
123 related facility.
- 124 16. "Safety Ledge" means a subsurface slip resistant ledge attached to the side of the pool used as a  
125 foot hold.
- 126 17. "Semi-public pool" means a pool associated with hotels, motels, country clubs, health clubs and  
127 mobile home parks.
- 128 18. "Spa" or "Hot Tub" means a pool designed for relaxation, recreational, or therapeutical use where  
129 the user is sitting, reclining, or at rest and the pool is not drained, cleaned, or refilled for each  
130 user. The spa may include, but not be limited to, hydrojet circulation, hot water, cold water,  
131 mineral baths, or air induction bubbles or any combination.
- 132 19. "Spray pool" means a pool or artificially constructed depression for use by bathers in which water  
133 is sprayed, but is not allowed to pond, in the bottom of the pool.
- 134 20. "Superchlorination" means the periodic addition of sufficient amounts of an oxidizer to eliminate  
135 combined chlorine compounds (ammonia nitrogen or chloramine products) normally formed in  
136 pool or spa water.
- 137 21. "Swimming area" means a designated body of water of such volume and depth that one or more  
138 persons can swim in it and which is used for the purpose of swimming, recreative bathing, or  
139 wading and includes natural swimming areas and swimming pools.
- 140 22. "Swimming pool" means a body of water, other than a natural swimming area, maintained  
141 exclusively for swimming, recreative bathing, or wading and includes appurtenances used in  
142 connection with the swimming pool.
- 143 23. "Therapeutic pool" means a pool used for physical therapy including but not limited to post-  
144 operative and pre-operative strength training, assistance of buoyancy of water, and other one-on-  
145 one training.
- 146 24. "Turnover rate" means the time necessary to circulate the entire volume of the pool water through  
147 the filtration system.
- 148 25. "Vertical" means a line perpendicular to the water surface that is not greater than 11 percent off  
149 plumb.
- 150 26. "Wading Pool" means any artificial pool of water equal to or less than 18" deep and intended for  
151 wading purposes.  
152  
153  
154  
155

156 **ARTICLE II**

157 **SUBMISSION OF PLANS AND SPECIFICATIONS:**

158 At least thirty (30) days prior to the construction, extension, enlarging, remodeling or modification of a  
159 public swimming area or related facilities, the plans and specifications complete with piping layout,  
160 equipment and mechanical specifications along with design calculations, shall be submitted for review  
161 and recommendations to the Colorado Department of Health which may direct that such plans and  
162 specifications be submitted to the municipality or other political subdivision in which the swimming area is  
163 or may be located rather than to the Department of Health. This section does not prohibit any municipality  
164 from requiring that the plans also be submitted to the proper authority of the municipality.

165 Public pool or semi-public pool facilities shall be built so as to conform to minimum design standards set  
166 forth in Article II below. The owner or his agent shall notify the Colorado Department of Health at the time  
167 of the beginning and completion of the pool to permit adequate inspection of the pool and related  
168 equipment. Upon completion of construction, a written certification from the public pool owner or his agent  
169 stating that the facility was built as approved must be submitted to the Colorado Department Health. The  
170 public pool or semi-public pool shall not be placed in use until all facilities necessary for compliance with  
171 the requirements of these regulations are installed and operable and approved by The Colorado  
172 Department of Health.

173 Professional service or creative work including consultation, investigation, evaluation planning, design  
174 surveying, and supervision of construction for the purpose of assuring compliance with these  
175 specifications and design requirements must be performed by a Registered Professional Engineer.

176 Request for review of plans and specifications form is included at the end of these regulations. The form  
177 must be completed and submitted with the plans and specifications.

178 **ARTICLE III**

179 **DESIGN CRITERIA:**

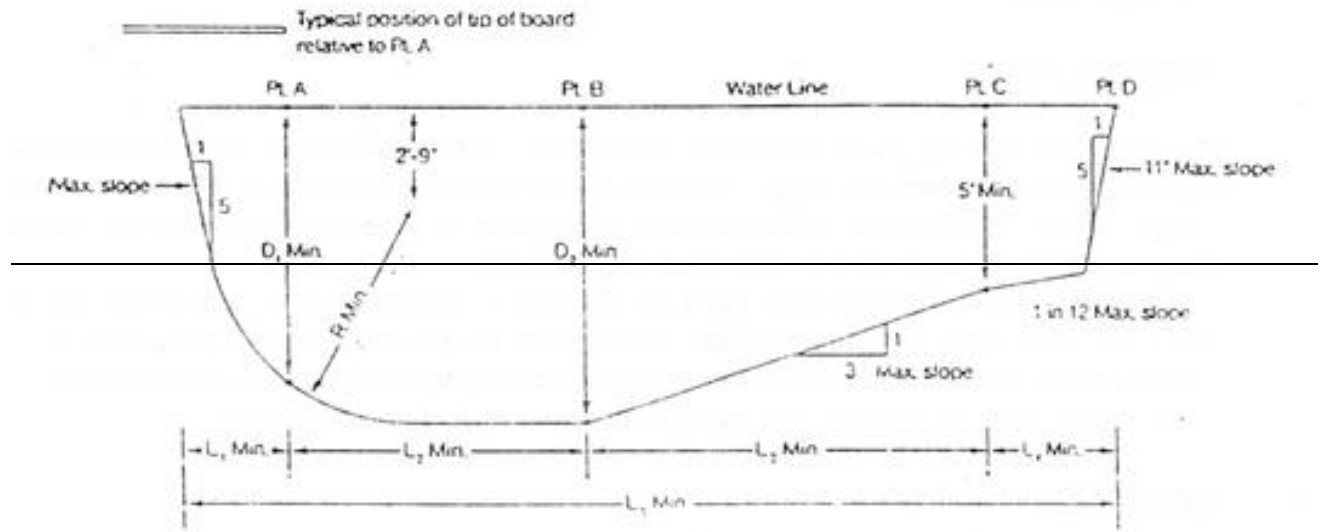
180 Public pools or semi-public pools built or remodeled after the effective date of these regulations shall  
181 conform to these minimum design criteria.

182 **3.1 SURFACE. SHAPE. DESIGN. SLOPES:**

183 Spas will be a maximum of four (4) feet deep. Wading pools will be a maximum of eighteen (18) inches  
184 deep in the center and twelve (12) inches at the sidewalls. The public pool shall be designed and  
185 constructed so that efficient and safe control of the area and bathers can be accomplished and so that the  
186 recirculation of water in the pool is not impeded. The slope of the bottom of any portion of the pool having  
187 a water depth of less than five (5) feet shall not be more than one (1) foot in twelve (12) feet and said  
188 slope shall be uniform.

189 In portions at the break where the shallow end (water five (5) feet deep or less) goes into to the deep end  
190 of the pool, the slope shall not exceed one (1) foot in three (3) feet. Walls of a pool shall be either (a)  
191 vertical for water depths of at least six (6) feet or (b) vertical for a distance of three (3) feet below the  
192 water level below which the wall may curve to the bottom.

193 Depth markers shall be a minimum of four (4) inch numerals in a contrasting color on the deck, and four  
194 (4) inch numerals in a contrasting color on the vertical wall at or above water level. The dimensions of the  
195 pool in the diving area shall conform to the following table. (This drawing does not show shallow portions  
196 of the pool.)



197

198

199

200

Note: L4 is a minimum dimension to allow sufficient length opposite the board. This may of course be lengthened to form the shallow portion of the pool.

Related Diving Equipment		Minimum Dimensions								Minimum Width of Pool at		
Max Diving Board length	Max Board Height Over Water	D1	D2	R1	L1	L2	L3	L4	L5	PT.A	PT.B	PT.C
210'	26" (2/3 meter)	7'-0"	8'-6"	5'-6"	2'-6"	8'-0"	10'-6"	7'-0"	28'-0"	16'-0"	18'-0"	18'-0"
12'	30" (3/4 meter)	7'-6"	9'-0"	6'-0"	3'-0"	9'-0"	12'-0"	4'-0"	28'-0"	18'-0"	20'-0"	20'-0"
16' 1	1 meter	8'-6"	10'-0"	7'-0"	4'-0"	10'-0"	15'-0"	2'-0"	31'-0"	20'-0"	22'-0"	22'-0"
16' 3	3 meter	11'-0"	12'-0"	8'-6"	6'-0"	10'-6"	21'-0"	0	37'-6"	22'-0"	24'-0"	24'-0"

201 L1, L3, L4, combined represent the minimum distance from the tip of board to pool wall opposite diving equipment.

202 At least fifteen (15) feet of free and unobstructed head room including free from electrical wires and  
 203 fixtures, shall be provided above diving boards. Horizontal separation of ten (10) feet shall be provided  
 204 between the center line of diving boards and side walls except this may be reduced to eight (8) feet for  
 205 surface boards less than 1/2 meter above water surface.

206 The minimum depth of water in areas dedicated for competitive events shall be four (4) feet. Attached  
 207 wading areas shall be separated from the main pool(s) by a safety barrier or buoy line attached to the  
 208 side walls. Separate wading pools shall be completely fenced with a three (3) foot high fence.  
 209

210 **3.2 DECK AREAS:**

211 The deck areas of all pools shall have a minimum of five (5) feet of unobstructed deck width measured  
 212 from the water's edge. The deck area shall be impervious and easily cleanable and entirely surround the  
 213 pool. Water will not be allowed to puddle or pond on the deck. The deck area shall have a slope of not  
 214 less than 1/4 inch per foot and not more than 1/2 inch per foot directed to adequate drains or away from the  
 215 pool. The deck shall have a non-slip finish. When deck drains are provided they should be so located that  
 216 the deck drain will service not more than four hundred (400) square feet of the deck area. Deck drains  
 217 shall be located not more than fifteen (15) feet on centers.

218 **3.3 OVERFLOW GUTTERS:**

219 The overflow gutter when provided, shall extend around the entire perimeter of the pool, except at steps  
220 or recessed ladders. The overflow gutter lip shall be level within .3 inch. This gutter shall be capable of  
221 continuously removing 100 percent of the recirculated water for return to the filter. All overflow gutters  
222 shall be connected to the recirculation system through a properly designed surge system. The gutter,  
223 drains and return piping to the surge system shall be designed to rapidly remove overflow water caused  
224 by recirculation displacement, wave action or other causes produced from the maximum pool bathing  
225 load. Gutters shall be designed to prevent entrance or entrapment of bathers. The overflow outlets shall  
226 be provided with outlet pipes which shall in any case be at least two (2) inches in diameter. Outlets shall  
227 be a maximum of fifteen (15) feet apart and opening in grating less than 1.5 times cross-sectional pipe  
228 area.

### 229 **3.4 SKIMMERS:**

230 All skimmers, when provided, shall comply in all respects with the NSF standards. At least one skimmer  
231 shall be provided for each 400 square feet of water surface or fraction thereof, with a minimum of two  
232 skimmers on opposite sides and at opposite ends. The skimmers shall be capable of continuously  
233 removing 100 percent of the designed turnover rate. The skimmers shall be built into the pool wall. The  
234 skimmers shall be adjustable and shall operate freely with continuous action to variations in water level  
235 over a range of at least four (4) inches.

236 All parts of the skimmer must be in place and in good operating condition. An easily removable and  
237 cleanable, properly fitting basket or screen shall be provided, through which all overflow water must pass  
238 to trap trash and debris with deck top access to facilitate cleaning. Each skimmer shall be provided with  
239 an equalizer line and skimmer equalizer line check valves. The equalizer pipe shall provide an adequate  
240 amount of water for pump suction should the water of the pool drop below the weir level. Weirs and float  
241 valves must be in place and in proper working condition. If any other device, surge tank or arrangement is  
242 used, a sufficient amount of water for pump suction shall be assured.

### 243 **3.5 INLETS:**

244 Pool inlets shall be submerged a minimum of twelve (12) inches below the water surface and located to  
245 produce uniform water and chemical circulation throughout the pool with a maximum interval of fifteen  
246 (15) feet on walls. Wall and floor inlets shall have adjustable orifices; and if side wall inlets are used, they  
247 must have adjustable directional flow capability. Stainless steel gutters are exempt but must meet  
248 manufacturers specifications.

249 Floor inlets shall be placed at fifteen (15) foot intervals, and the distance from floor inlets to wall shall not  
250 exceed fifteen (15) feet.

251  
252

### 253 **3.6 MAINDRAINS:**

254 All pools shall be provided with a minimum of two maindrains, connected to a common line and evenly  
255 spaced at the deepest point to facilitate proper bottom circulation and permit the pool to be completely  
256 and easily emptied. Each maindrain must have the capacity to handle 100 percent of designed turnover  
257 rate. Maindrains shall be covered by proper grating which is secured. Openings of the grating shall be at  
258 least four (4) times the area of the suction line. No direct connections to sewers shall be permitted.

### 259 **3.7 STEPS, LADDERS, DIVING PLATFORMS AND DIVING TOWERS:**

260 Steps or ladders shall be provided at the shallow end of the pool if the vertical distance from the bottom of  
261 the pool to the deck or walk is over two (2) feet. Recessed steps or ladders shall be provided at the deep  
262 portion of the pool and if the pool is over thirty (30) feet wide, such steps or ladders shall be installed on  
263 each side. Ladders shall be located so that divers need not turn back to reach them. Stairs leading into

264 the pool shall be of non-slip design, have a minimum tread width of twelve (12) inches and a maximum  
265 height of ten (10) inches. A minimum of one handrail shall be required at the stairs leading into the  
266 shallow end. The stairs shall have a two (2) inch wide contrasting color tread edge, and shall be clearly  
267 visible to the user. There shall be a clearance of not more than five (5) inches nor less than three (3)  
268 inches between any ladder and the pool wall. Ladders shall have non slip treads. If steps are inserted in  
269 the wall or if stepholes are provided, they shall be of such design that they may be cleaned readily and  
270 shall be arranged to drain into the pool to prevent the accumulation of dirt therein. Stepholes shall have a  
271 minimum tread depth of five (5) inches. Where stepholes and ladders are provided within the pool, there  
272 shall be a handrail at the top of both sides thereof, extending over for the edge of the coping or the edge  
273 of the deck. Stepholes shall have a contrasting color to the wall in which they are placed. Supports,  
274 platforms and steps for diving boards/towers shall be of substantial construction and of sufficient  
275 structural strength to safely carry the maximum anticipated loads. Steps shall be of corrosion-resistant  
276 material and of non-slip design. Handrails shall be provided at all steps and ladders leading to diving  
277 boards more than ½ meter above the water. Platforms and diving boards more than ½ meter high shall be  
278 protected with guard railings.

279 Starting blocks must be structurally sound and secured in place. Starting blocks must be removable.  
280 Maximum height of starting blocks over water less than to four (4) feet deep is eighteen (18) inches above  
281 the water surface. Starting blocks shall be clearly labeled, "NO DIVING."

### 282 **3.8 HOSE BIBBS:**

283 A sufficient number of hose bibbs with hose bibb vacuum breaker backflow preventers for cleaning the  
284 deck areas shall be provided. These hose bibbs shall be placed to allow the proper cleaning of entire  
285 deck with a maximum hose length of fifty (50) feet. Water pressure shall be sufficient to provide effective  
286 cleaning and shall not effect the water pressure in other parts of the building or the appurtences serving  
287 the pool.

### 288 **3.9 SUCTION CLEANER:**

289 Equipment shall be provided to remove sediment, sludge and other accumulations from the bottom of the  
290 pool. The pool shall be provided with adequate suction to operate the cleaning device. Adequate suction  
291 is defined as the ability to sufficiently remove all normal accumulations from the pool bottom. Vacuum  
292 pipes shall be at least 1 ½ inches in diameter and vacuum hoses shall have a diameter of at least 1 ½  
293 inches.

294  
295  
296

### 297 **3.10 EQUIPMENT ROOMS/RECIRCULATION SYSTEMS/APPURTENANCES:**

298 The recirculation system shall consist of pumping equipment, hair and lint baskets, filters, flowmeters,  
299 valves, backflow preventers, and gauges, together with all necessary pipe connections to the inlets and  
300 outlets of the pool and means for backwashing filters. All of the above mentioned equipment shall be in  
301 good working order. Disinfection equipment, with the exception of chlorine gas may be housed in the  
302 equipment room. The entire system and all of its component parts shall be capable of producing a  
303 minimum of a six (6) hour turnover in all pools with the exception of spas and wading pools. Wading pools  
304 shall have a minimum turnover rate of one (1) hour and spas shall have a minimum turnover rate of ½  
305 hour, if the pump is located above the overflow level of the pool, the pump shall be self-priming. Pumps  
306 shall be capable of supplying the required recirculation rate at the maximum total dynamic head attained  
307 during operation. The hair/lint basket shall be installed on the suction side of the pump when the pump  
308 precedes the filter. The hair/lint basket shall have the following design features:

309 1. Water shall pass through the basket from the inside to the outside.

- 310 2. The basket shall be constructed of corrosion resistant material.
- 311 3. The area of the basket openings shall be at least ten (10) times the area of the inlet pipe into the  
312 basket.
- 313 4. The width or the diameter of the basket mesh openings shall not be more than 1/8 inch.
- 314 5. A removable basket with perforated openings shall be provided unless sufficient cause can be  
315 shown for using some other type.
- 316 6. Two appropriate baskets, one in use and one spare, shall be on hand for each hair/lint pot.

317 The recirculation system shall be installed in accordance to all manufacturers specifications.

### 318 **3.11 DISINFECTANT AND CHEMICAL FEEDERS:**

319 All chemical feeders shall comply in all respects with the standards of the NSF covering such equipment.  
320 Feeders shall be of sturdy construction and materials which will withstand wear, corrosion or attack by the  
321 solutions being fed. Feeders shall have a graduated and clearly marked dosage adjustment to provide  
322 flows from full capacity to 25 percent of such capacity. The device shall be capable of continuous delivery  
323 within 10 percent of the dosage at any setting and shall be capable of supplying dosages at the rates  
324 needed to provide the residuals required by these regulations and standards. The feeder shall incorporate  
325 failure proof features, so the chemicals/disinfectant cannot feed directly into the pool, water supply or the  
326 pool enclosure under any type of failure of the equipment or its maintenance. The feeder shall be capable  
327 of supplying at least the minimum equivalent of one (1) pound of chlorine per twenty-four (24) hours for  
328 each ten thousand (10,000) gallons of pool capacity under conditions of maximum load. All chemicals  
329 shall be introduced downstream from the heater.

330 Owners applying chemicals for controlling pH through chemical feed equipment shall provide equipment  
331 with:

- 332 1. Adequate size and design to allow routine cleaning and maintenance;
- 333 2. Material resistant to chemical action;
- 334 3. Means for automatic shut off when pool flow is interrupted;
- 335 4. Means for automatic or mechanical chemical feed equipment for pH control shall be used on all  
336 pools of fifty thousand (50,000) gals volume or greater;
- 337 5. Any pool feeding caustic soda (NaOH), carbon dioxide(CO<sub>2</sub>), or Department of Health approved  
338 disinfectants shall be automated, metered and controlled as directed by the manufacturer and the  
339 Department of Health.

### 340 **3.12 SAND FILTERS:**

341 All sand filters shall comply in all respects with the standards of the NSF covering such filters. Sand filters  
342 shall be properly sized to achieve the proper turnover rate without exceeding the maximum flow rate for  
343 the filter design. Rapid sand filters shall be sized for a filter rate not to exceed 3-5 gal./min./sq.ft. High rate  
344 sand filters shall be sized to operate at a filter flow rate of 15-20 gpm/sq.ft. The underdrain system shall  
345 be of corrosion resistant and durable material so designed and of such material that the orifices or other  
346 openings will maintain an approximate constant area. It shall be designed to provide even collection or  
347 distribution of the flow during filtration and backwashing. The filter system shall be provided with a rate of  
348 flow indicator, a method of air release of the filter tank, and pressure gauges, all in good operating  
349 condition. A backwash sight glass shall be provided. The recommended sand specifications must be

350 provided with each filter on a plate on the filter tank in an easily readable location. Backwash lines shall  
 351 not be restricted in any way between the filter and the sanitary sewer.

### 352 **3.13 DIATOMACEOUS EARTH FILTERS:**

353 All diatomaceous earth (OE) filters, whether of the vacuum or pressure type, shall comply in all respects  
 354 with the standards of the NSF covering such filters. Rate of Filtration: The filter area shall be such that the  
 355 rate of filtration shall not be greater than 1.5 gpm/sq. ft. or that specified by the NSF for the specific filter  
 356 in use to achieve the proper turnover rate for the pool. Where DE body feed is provided, the device shall  
 357 be accurate, within 10 percent, and shall be dependable. The filter and all component parts shall be of  
 358 such materials, design and construction to withstand normal continuous use without significant  
 359 deformation, deterioration, corrosion or wear which could adversely effect filter operation. The filter shall  
 360 be so designed and constructed to eliminate the possibility of introduction of the DE into the pool. The  
 361 filter plant shall be provided with such pressure, vacuum or compound gauges as are required to indicate  
 362 the condition of the filter. All filters shall be equipped for cleaning. Provisions shall be made to completely  
 363 and rapidly drain the filter. A rate of flow indicator shall be provided on the filter system. Backwash lines  
 364 shall not be restricted in any way between the filter and the sanitary sewer.

### 365 **3.14 CARTRIDGE FILTERS:**

366 Cartridge filters must meet NSF standards. Maximum flow rate is .375 gpm/F2. Air relief valve pressure gauges  
 367 must be in place and in good operating condition. There must be no filter by-pass of any kind.

### 368 **3.15 MAKE-UP WATER FACILITIES AND CROSS CONNECTIONS:**

369 All potable pool makeup water shall be introduced through a reduced pressure principle backflow preventer (RP)  
 370 accepted by the Colorado Department of Health, Water Quality Control Division or fill spout with an air gap at least  
 371 twice the diameter of the fill pipe. The pool fill spout shall be located under a low diving board or adjacent to a  
 372 handrail and not extrude past the edge of the pool more than 1-½ times the diameter of the pipe. Water pressure shall  
 373 be such so as to allow the fill line to operate at full valving and not interfere with water pressure in the other parts of  
 374 the facility.

375 All other accessories to the recirculation system, such as chemical solution feeders and water fed  
 376 chlorinators shall be protected against backflow into the water supply system by installation of an  
 377 approved reduced pressure principle backflow preventer. The backflow preventer must be tested on  
 378 installation and at least annually thereafter by a certified cross-connection control technician.  
 379  
 380

### 381 **3.16 PIPING SYSTEM:**

382 The piping system shall be so designed to reduce friction losses to a minimum with maximum flow rate.  
 383 The maximum rate of flow in suction plumbing shall not exceed 7 feet per second. The maximum rate of  
 384 flow in return plumbing shall not exceed 10 feet per second. Flanged joints or unions shall be inserted at  
 385 intervals to permit any part of the system to be taken down for cleaning or repairs. The piping system of  
 386 the pool shall be labeled and color coded to identify filtered water, raw water, wastewater, vacuum  
 387 cleaning lines and heating lines. The color code shall be as follows:

Raw Water	Yellow
Filtered Water	Green
Wastewater	Black
Heated Water	Red
Vacuum Cleaning Lines	Blue

388 A vacuum gauge shall be installed in the suction line prior to the pump. A flow meter shall be provided to  
 389 measure the total flow of the system. Flow meters shall be placed on a pipe length of no less than eight  
 390 (8) feet and away from elbows and other flow restrictive equipment in accordance to manufacturer's

391 specifications. Directional flow arrows shall be in place on all lines. A complete schematic diagram of the  
392 entire pool system shall be in place in the mechanical room and be of such size and design as to be  
393 easily read. It shall be of such construction so as to remain in good condition and readable at all times.  
394 The schematic shall include a valve legend, pump schedule and complete operating instructions for the  
395 entire system.

### 396 **3.17 EMERGENCY SHUTDOWN CONTROL:**

397 An emergency shutdown station shall be provided at a place that is relatively convenient to the lifeguards,  
398 yet secured from the public. This station shall disable all pool circulation, mechanical, chemical feed and  
399 electrical devices and must be accessible to a standing adult.

### 400 **3.18 MECHANICAL ROOM**

401 This room will provide a (2) two foot minimum clearance and/or in accordance to manufacturers  
402 specifications around all pool mechanical and recirculation equipment to allow access for servicing and  
403 repairs. The room shall be located in such a manner that it may not be entered from the shower rooms or  
404 from the pool area by unauthorized persons. The floors shall have a minimum slope of  $\frac{1}{4}$  inch per foot  
405 toward the drains. The floor drains shall be of such number and placement so as to ensure a dry floor at  
406 all times. The drains from the mechanical equipment room shall not discharge to a sewer or drain which  
407 may overload. Miscellaneous equipment, chemicals, and appurtenances shall not be stored in the pool  
408 mechanical equipment room.

### 409 **3.19 LIGHTING ELECTRICAL REQUIREMENTS:**

410 All pools constructed with underwater lighting shall have not less than 500W/1000 sq.ft. of pool surface  
411 area. All indoor pools and all outdoor pools operated at night shall have artificial lighting sufficient to  
412 permit the maindrawing to be clearly visible, at all times. Such lights shall be spaced to provide  
413 illumination so that all portions of the pool may be readily seen without glare. Area lighting shall provide at  
414 least 0.6 W square foot of deck area and/or surrounding area within the enclosure around the pool. If  
415 such light is used for night swimming, area and pool lighting combined shall provide at least 10-foot  
416 candles of illumination per square foot of pool area. Ground fault interrupters-shall be provided for all  
417 lights and electrical outlets of the pool complex, including dressing rooms and mechanical equipment  
418 rooms. All electrical wiring shall conform with the current National Electrical code of the National  
419 Underwriters Laboratory or equivalent. No overhead electrical wiring shall pass within 20 feet of the pool  
420 enclosure.

### 421 **3.20 DRESSING ROOMS:**

422 The dressing rooms shall be located adjacent to the locker or checkroom and showers. The layout of the  
423 dressing rooms for the exclusive use of swimmers shall be such that the bathers, on leaving the dressing  
424 room, shall pass the toilets and showers enroute to the swimming pool.

425 Dressing rooms, toilet facilities and shower rooms are required for all pools except those provided in  
426 connection with lodging facilities where the pool is not available to the public not occupying such facilities  
427 (hotels, motels, mobile home parks, campgrounds) and shall be handicapped accessible.

428 Floors of toilet and shower rooms shall have a minimum slope of one-fourth ( $\frac{1}{4}$ ) inch per foot Floors of  
429 toilet, shower rooms and dressing rooms shall be of smooth non-slip finish and shall be impervious to  
430 moisture. No carpeting is permitted.

431 Hose bibbs of three-fourths ( $\frac{3}{4}$ ) inch minimum size and served by not less than three-fourths ( $\frac{3}{4}$ ) inch  
432 pipe shall be provided to enable the entire toilet and shower room to be conveniently flushed by hose.



433 The material used for walls, partitions, and furniture shall be such that it can be easily cleaned and will not  
434 be damaged by frequent hosing, wetting, or disinfection.

435 Dressing rooms to be used simultaneously by both males and females shall be divided into two parts  
436 separated by a tight solid partition, with no openings; each part shall be designed for males or females.  
437 The entrances and exits shall be screened to break line of sight.

### 438 **3.21 TOILETS:**

439 Toilet facilities shall be provided for both males and females and shall be accessible to disabled persons.

440 Flush water closets with elongated bowls, and urinals shall be provided and shall be kept clean and  
441 properly maintained. The ratio of water closets shall be one (1) closet and one (1) urinal for each sixty  
442 (60) men and one (1) water closet for each forty (40) women expected at the time of maximum load. All  
443 fixtures shall be properly protected against back siphonage. Partitions, walls and ceilings shall be  
444 constructed of material not adversely affected by steam, water, or disinfectants.

445 Toilet rooms shall be ventilated so that no odor nuisance can exist.

### 446 **3.22 SHOWER FACILITIES:**

447 Separate shower facilities shall be provided for males and females shall be accessible to disabled  
448 persons, and, when provided for the exclusive use of swimmers, shall be so located that bathers must  
449 pass through the shower room before entering into the swimming pool area. The minimum number of  
450 showers provided shall be in proportion of one (1) to each forty (40) bathers expected at the time of  
451 maximum load. The ceilings and walls of the shower room or area shall be constructed of smooth,  
452 impervious, easily cleanable material, not adversely affected by steam or water. The floors of the shower  
453 room or area shall be constructed of non-slip, impervious, easily cleanable material, not adversely  
454 affected by steam or water.

455 Showers shall be supplied with water at a temperature of at least 90°F with a minimum rate of three (3)  
456 gallons of water per shower per minute. Thermostatic tempering, or mixing valves shall be installed if  
457 necessary to prevent scalding of bathers.

458 Where shower booths are provided in the shower room, the booth partitions shall be of a material which  
459 will not be damaged by shower water and shall have a minimum clearance of six (6) inches above the  
460 floor. Shower rooms shall be provided with at least ten (10) foot candles of light upon all surfaces so that  
461 all parts are visible for easy cleaning.

### 462 **3.24 FENCING**

463 Every swimming pool in a non-restricted public place shall be fenced to prevent unauthorized access to the pool  
464 except through controlled entrances. A building or structure can serve as a fence or barrier. Fencing shall be a  
465 minimum of sixty inches (60") high, and shall have self-closing, self-latching gates, with the latch a minimum of  
466 fifty four (54) inches high. Wrought Iron fence picket spacing shall not be greater than four (4) inches. Entrances  
467 shall be handicapped accessible. Local building codes or ordinances shall preempt this requirement, provided that  
468 said codes or ordinances are more stringent than the requirements in this section.

## 469 **ARTICLE IV**

### 470 **SANITARY STANDARDS:**

471 All public and semi-public pools shall conform to these minimum standards.

### 472 **4.1 DISINFECTION**

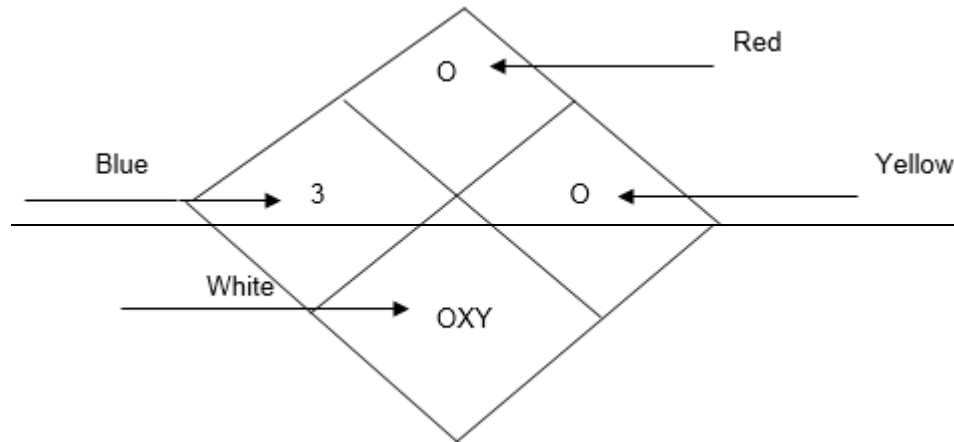
473 1. Disinfection Equipment General:

- 474 A. All pools shall be provided with an automatic or mechanical means of adding a  
475 disinfectant to the swimming pool water. Manual addition of chemicals or chemical  
476 solutions will be allowed only under special or emergency conditions which require that  
477 the pool be closed. During such condition, the pool must remain closed at least one pool  
478 turnover or until such time as the chemical is thoroughly dispersed throughout the pool  
479 water. After hand treatment for breakpoint disinfection and algae prevention, use of the  
480 pool may be resumed when the free disinfectant level drops within the range specified in  
481 Table 1, Section 4.7.
- 482 B. General Requirements (Disinfection Equipment): Chemical feeder equipment shall  
483 comply with all of the following:
- 484 1. Equipment shall be capable of being easily disassembled for cleaning and repair.
  - 485 2. Equipment shall be constructed of corrosion-resistant materials.
  - 486 3. Equipment shall be constructed to permit repeat adjustments without loss of  
487 output rate accuracy.
  - 488 4. Equipment shall be constructed to minimize a stoppage from debris, chemicals  
489 intended to be used therein and/or from foreign materials that may be contained  
490 in said chemicals.
  - 491 5. Equipment shall be designed specifically for the type of disinfectant to be used.
  - 492 6. Equipment shall be provided with controls for adjusting rate of flow of  
493 disinfectant.
  - 494 7. Equipment shall conform to the National Sanitation Foundation, (Standard 50)  
495 Swimming Pools, Spas, and Hot Tubs Circulation System Components, February  
496 1, 1993.
  - 497 8. Y strainers shall be installed in the disinfectant feeder supply line.
  - 498 9. No connection shall be made to an external water supply for disinfection system  
499 operation.
- 500 C. Disinfection Point of Application: The application point of disinfectant shall be located in  
501 the return line downstream of the filter, recirculation pump, heater, and flow meter.

502 2. Chlorine Gas Equipment:

- 503 A. All chlorine gas equipment must comply with Section 4.1(1)(A&B).
- 504 B. Housing: A dedicated, well ventilated house or room at ground level shall be provided  
505 exclusively for chlorine gas purposes. The lockable door shall have a foot square "one-  
506 light" shatterproof and gas tight window to allow observation of conditions in the room  
507 prior to entering. The door shall not open to the swimming pool or deck and shall open to  
508 the outside. The door of the chlorine room shall have "panic hardware." The house or  
509 room shall be located so that chlorine gas, if accidentally released, will not flow into the  
510 pool area, mechanical room, or into the building ventilation, (i.e., opposite side of pool  
511 from the direction of prevailing winds)

- 512 C. Exhaust Ventilation: Sufficient ventilation shall be provided to allow one complete air  
513 change in the chlorination room every minute. The air exhaust duct shall be located  
514 within six (6) inches of the floor level. A louvered fresh air intake shall be provided near  
515 the ceiling to serve as a make-up air supply when the exhaust fan is operating. The  
516 exhaust fan shall be wired to a control switch which is located outside and adjacent to the  
517 chlorine room door. The exhaust ducting shall terminate at a point not less than 8 (eight)  
518 feet above surrounding grade. Exhaust duct termination point shall be outside of the  
519 building, away from any occupied area or any fresh air intake.
- 520 D. Lighting: A minimum of 10 (ten) foot candles of illumination shall be provided and  
521 electrical switches for control of the lighting shall be located on the outside and adjacent  
522 to the chlorine room door.
- 523 E. Chlorine Feeder Seals: A new washer or gasket approved for use on chlorine gas shall  
524 be used each time a chlorine cylinder is connected to the chlorinator. Spare  
525 washers/gaskets shall be kept on site.
- 526 F. Vent Line: The vent line exhaust duct and/or pressure relief valve from the gas chlorinator  
527 and/or chlorine room shall vent away from any occupied area or any fresh air intake.
- 528 G. Leakage Test Kit: A leakage test kit consisting of ammonia (23° Baume) water and shall  
529 be provided.
- 530 H. Respiratory Protection Equipment: At least one Self-Contained Breathing Apparatus  
531 (SCBA) minimum thirty (30) minute capacity certified by the National Institute for  
532 Occupational Safety and Health (NIOSH)-shall be provided, operative and hung to a  
533 conspicuous place outside the chlorination room in an area easily accessible to pool  
534 employees. A cabinet may be utilized to provide security for the SCBA. Monthly working  
535 condition checks of the SCBA shall be done and records kept thereto. Pool employees  
536 shall be trained in the proper use of SCBA equipment.  
537  
538
- 539 I. Chlorine Cylinders: Chlorine cylinders shall be anchored in an upright position to prevent  
540 falling over. A valve stem wrench shall be maintained on any cylinder in use, so the  
541 supply can be shut off quickly in case of an emergency. The valve protection hood shall  
542 be kept in place, except when the cylinder is connected to the feeder. Empty chlorine gas  
543 cylinders shall be tagged as such. Full and empty chlorine gas cylinders shall be stored  
544 only in the chlorine room.
- 545 J. Platform Scales: Platform scales for chlorine cylinders shall be provided for cylinder(s) in  
546 use. Said scales shall be capable of indicating gross weight within one half (½) pound  
547 accuracy.
- 548 K. The chlorinator shall be a solution-feed type, capable of delivering chlorine at its  
549 maximum rate without releasing chlorine gas to the atmosphere.
- 550 L. The chlorinators shall be designed to prevent the backflow of water into the chlorine  
551 regulator.
- 552 M. The gas chlorine room shall have a Hazardous Materials classification sign affixed to the  
553 entry door. This sign shall use the National Fire Protection Association Hazard Rating  
554 System as shown below specific for gas chlorine.



555

556 N. The recirculatory pump and chlorine booster pump motor controls shall be interlocked so  
 557 that the booster pump cannot operate when the recirculating pump is off or during the  
 558 back wash cycle.

559 3. Chlorinated Hypochlorites and Chlorinated Isocyanurates:

560 A. All hypochlorite and Chlorinated Isocyanurate dispensing equipment shall comply with  
 561 Section 4.1(1)(A&B).

562 B. When a hypochlorite solution is used, it shall be fed through hypochlorinator equipment.  
 563 Such equipment shall also provide the following additional features:

564 (1) Positive feed under all conditions of pressure in the circulating system, without  
 565 artificial constriction of the pump suction line, whether this line is under vacuum  
 566 or pressure.

567 (2) Regulation to insure constant feed with varying supply of back pressure.

568 (3) Positive features to prevent backflow from recirculation system to the solution  
 569 container and provision for reducing to a minimum the entry into swimming pool  
 570 of free calcium released from calcium hypochlorite.

571 (4) Provision to prevent siphoning of hypochlorite solution when the recirculation  
 572 pump and hypochlorinator are both turned off. (This applies to above swimming  
 573 pool level installations only.)

574 C. Pools using Chlorinated Isocyanurate or Chlorinated Hypochlorites shall have onsite and  
 575 available either a Self-Contained Breathing Apparatus as required in Section 4.1(2)(H) or  
 576 have available a canister type respirator approved by either the U.S. Bureau of Mines or  
 577 NIOSH for use with chlorine. Canister type respirators must have available canisters  
 578 which have not exceeded their manufactures expiration date. Canister dates should be  
 579 checked monthly and recorded on the record. This respiratory protection device shall be  
 580 stored outside the chlorine area, be kept in good working order, and be easily accessible  
 581 to the employee.

582 4. Bromine:

583 Bromination equipment, if employed, shall meet the provision of Section 4.7

584 5. Other Disinfectant Equipment and Methods:

585 Other disinfecting equipment or materials may be used if they have been adequately demonstrated to the  
586 Colorado Department of Health and/or its authorized agent to provide a satisfactory residual effect which  
587 is easily measured or where demonstration and analysis provide assurance that results are effective  
588 under conditions of use to meet the water quality standards set forth in these regulations and not be  
589 dangerous to public health, create objectionable physiological effects, or, impart toxic properties to the  
590 water.

591 6. Storage and Handling of Chemicals:

- 592 A. All chemicals shall be kept out of reach of children.
- 593 B. Chemicals shall be stored in original containers; with the original lids securely in place;  
594 out of the sunlight; in a cool, dry, well ventilated area. Chemicals supplied in bulk bag  
595 form shall be stored in clearly marked corrosive resistant containers with tightly fitted lids.
- 596 C. Chemicals shall not be stored near a heat source, open flame, or electrical equipment.
- 597 D. Sanitizers or oxidizers shall not be stored in the same area as pool equipment.
- 598 E. Liquid chemicals shall not be stored above or adjacent to dry chemicals.
- 599 F. Pool chemicals shall not be stored in the same area as insecticides, herbicides, fertilizers  
600 or liquid petroleum products.
- 601 G. Chemicals shall not be stored above eye level.
- 602 H. Shelving used for chemical storage shall be secure.
- 603 I. Acids shall be stored separately from all bases.
- 604 J. Chemicals packaged in absorbent containers shall be kept at least six (6) inches off the  
605 floor on nonflammable surfaces.
- 606 K. All chemical storage areas shall be kept clean.
- 607 L. Manufactures label instruction shall be complied with.
- 608 M. Separate measuring devices for each chemical shall be used. These measuring devices  
609 shall be clean, dry and constructed of material compatible with the chemical to be  
610 measured. Glass shall not be used.
- 611 N. Chemicals shall be added to water, water shall never be added to chemicals.
- 612 O. Oxidizers shall not be mixed with any other chemicals.
- 613 P. Chemicals shall not be mixed with powdered chlorine or liquid chlorine.
- 614 Q. Smoking, eating, or drinking shall not be allowed when using chemicals.
- 615 R. Disposal of chemicals and/or empty containers shall be in accordance with label  
616 instructions.

617 **4.2 EQUIPMENT AND PERSONNEL: (Rule 4.2 was not extended by SB 96-236 and therefore**  
618 **expired May 15, 1996)**

619 **4.3 SWIMMING POOL WATER SUPPLY:**

620 1. The potable water supply serving the swimming pool, plumbing fixtures, drinking fountains,  
621 showers, and other water using devices shall be to compliance with the minimum sanitary  
622 standards for drinking water as set forth in Colorado Primary Drinking Water Regulations, 5  
623 C.C.R. 1003-1.

624 2. The potable water supply shall be delivered at a sufficient rate to enable the swimming pool and  
625 all other water using devices to be operated satisfactorily.

626 3. There shall be no unprotected cross-connections between the potable water supply and the  
627 swimming pool recirculation piping.

628 **4.4 WATER TESTING EQUIPMENT:**

629 Every swimming pool shall be provided with water testing equipment for the following determinations:

630 1. A test-kit for determining the hydrogen ion concentration in the pH range of six and eight-tenths  
631 (6.8) to eight (8.0).

632 2. A test-kit determining the residuals of the disinfectants in current use. This test kit must  
633 encompass the minimum to maximum range denoted in Table 1, Section 4.7.

634 3. A test-kit for the determination of total alkalinity.

635 4. A test-kit for the determination of the cyanuric acid concentration if said chemical is being used as  
636 a chlorine stabilizer.

637 5. A test-kit for determination of calcium hardness.

638 6. A hand thermometer accurate to  $\pm 2^{\circ}\text{F}$  shall be available to check the temperature of the water in  
639 the pool itself.

640 All test-kits must have reagents that are not outdated. Other testing equipment may be required by the  
641 Colorado Department of Health with changing technology or use of other specific methods of disinfection.

642 **4.5 BACTERIAL QUALITY:**

643 1. The bacterial quality of the water in pools shall not have a fecal coliform density in excess of one  
644 per 100 ml at any time.

645 2. Any water sample obtained from pools shall not contain more than 200 bacteria per milliliter, as  
646 determined by the Standard (35 degrees Celsius) Plate Count per the 18th edition of Standard  
647 Methods for the Examination of Water and Wastewater (1992).

648 3. The water samples used in any bacterial analysis will be examined using the procedures outlined  
649 in the 18th edition of Standard Methods for the Examination of Water and Wastewater (1992).

650 4. Should any two consecutive water samples taken from pools exceed the bacterial standards in  
651 "1" and/or "2" above, the facility shall be immediately closed until the bacterial quality of the water  
652 is within the required parameters.

653 **4.6 WATER QUALITY STANDARDS FOR NATURAL SWIMMING AREAS**

- 654 1) Natural swimming areas are required to meet the following standards for bacteriological quality.
- 655 A. Maximum contaminant level is:
- 656 1. 235 Escherichia coli. per 100 ml sample [see appendix B].
- 657 B. Natural swimming areas shall take bacteriological samples at a minimum of once every  
658 seven (7) days and no less than five (5) times in a calendar month during use periods. At  
659 least one time per calendar month, natural swim areas shall take bacteriological samples  
660 at least 24 hours prior to the beginning of a peak-use period and within 24 hours after the  
661 end of the same peak use period. Timely response to water quality problems require that  
662 the results of this sampling must be known within 3 days of the sampling.
- 663 C. If several bacteriological samples are taken in one day, those parts of the natural  
664 swimming area with results exceeding the maximum contaminant levels listed in (A)  
665 above must be closed to the public.
- 666 D. Except as provided in subsection E., a natural swimming area shall be closed  
667 immediately upon receipt of any sampling result which indicates that the E. coli density  
668 exceeds 235 organisms per 100 ml.
- 669 E. Owners/operators of natural swimming areas that have entered into a memorandum of  
670 agreement with the Colorado Department of Public Health and Environment pursuant to  
671 this subsection, and that are operating in full compliance with such agreement, shall  
672 close all natural swimming areas immediately upon receipt of sampling information which  
673 indicates that the results of a second sample for E. coli density exceed 235 organisms  
674 per 100 ml, where the second sample is taken from the same location and within 2 hours  
675 of receiving an initial sampling result for E. coli density that exceeds 235 organisms per  
676 100 ml, and shall close all natural swimming areas where the result of any single sample  
677 for E. coli density exceeds 576 organisms per 100 ml. When the E. coli level in the initial  
678 sample exceeds 235 organisms per 100 ml, a notice must be posted at the natural  
679 swimming area warning swimmers of the presence of elevated levels of bacteria (see  
680 appendix C). Entering into the Memorandum of Agreement is voluntary, however, such  
681 memorandums of agreement shall contain provisions that require the following:
- 682 1. Daily completion of a Data Log Form that records all observable information  
683 relevant to potential E. coli impacts to the specific swimming area.
- 684 2. Personnel on site, during all times the natural swimming area is open to the  
685 public, responsible for observing and recording such relevant information.
- 686 3. E. coli sampling at the natural swimming area, in addition to the minimum five  
687 samples per month, during identified occurrences that are likely to increase the  
688 E. coli level above the 235 organisms per 100 ml. Such occurrences shall be  
689 defined in the MOA.
- 690 4. Delivery of all samples to a Department approved laboratory within six hours of  
691 taking the sample, for initiation of analysis the same day as delivery. Results  
692 must be received the following day;
- 693 5. Protocols for control samples;

- 694 6. Such other provisions as the parties of the MOA determine to be necessary to  
695 predict, to prevent, and to control levels of E. coli in excess of 235 organisms per  
696 100 ml;
- 697 7. The parties of the MOA may revise or eliminate terms and conditions required by  
698 this subsection to be included in any MOA, where the parties of the agreement  
699 determine that the required term or condition is not providing relevant or  
700 necessary information for the protection of public health. Either party to the MOA  
701 may cancel the MOA by providing written notification 30 days in advance.
- 702 F. The first sample of the swimming season shall be taken at least 5 days prior to opening  
703 the area.

704 Failure to meet any of these requirements shall constitute grounds for closure of the natural swimming  
705 area and must be reported to this department or its designated agent by telephone call or FAX, as soon  
706 as possible but no later than 24 hours after determination. Signs must be posted to inform the public of  
707 such closure at the accesses to the area.

708 2) The natural swimming area may re-open when [see appendix B or C]:

709 A. The sample result shows that the level of Escherichia coli is less than 235 per 100 ml  
710 sample.

711 B. Samples must be taken at the same location as the original sample(s). If more than one  
712 sample is taken on any day, the highest result must be used for compliance purposes.

713 3) The samples shall be taken [see appendix D]:

714 A. In the area of the greatest bather load or activity,

715 B. During regular business hours,

716 C. Where the water depth is approximately 3 feet,

717 D. From within approximately 12 inches of the surface,

718 E. By an individual trained in proper sampling techniques.

719 All samples taken shall be examined in accordance with the 19th edition of Standard Methods for The  
720 Examination of Water and Wastewater (1995), Parts 9221 A, C, E; 9222 A, D, E; 9211B; 9212 B; 9213 D;  
721 9221 F; 9223 A, B; and 9020 or by other method accepted by the Colorado Dept. of Public and  
722 Environment. Records of all sampling results must be maintained at the facility for a period of three (3)  
723 years. All bacteriological sampling results taken in any month must be submitted to this department or its  
724 designated agent by the 15th of the following month.

725 4) Each natural swimming area shall have an approved management plan at each facility, which  
726 must be submitted to this department or its designated agent by May 15, 1998. The sanitary  
727 issues contained in this plan shall be approved by the Colorado Department of Public Health and  
728 Environment or its designated agent. The plan shall be based on, but not limited to, the following  
729 criteria:

730 A. Person(s) responsible for and procedures for notification of the state or local health dept.  
731 and the public through the news media, as appropriate, when the water quality is out of  
732 compliance with section 1 above,



- 733 B. Number and location of additional bacteriological samples due to size of area,
- 734 C. Public information on water quality and associated risks, proper hygiene, steps the  
735 swimmers can take to reduce their risk, and the steps swimmers should take to report  
736 any illness they believe that they had contracted from the swimming area,
- 737 D. Minimum number and location of toilet facilities [see appendix E],
- 738 E. Control of diaper wearing individuals and changing stations,
- 739 F. Control of pets,
- 740 G. Voluntary closure when water quality may exceed the standards,
- 741 H. Maximum bather loads,
- 742 I. Lifeguards and other personnel,
- 743 J. Personnel qualifications and training,
- 744 K. Control of inlet water or other practices to affect water quality,
- 745 L. Use of sanitary surveys for closing portions of the area due to presence of bacteria,
- 746 M. Maintenance of reports of health complaints,
- 747 N. Maintenance of analytical costs.

748

749 **Strike Lines 749 through 755 to fix formatting issue**

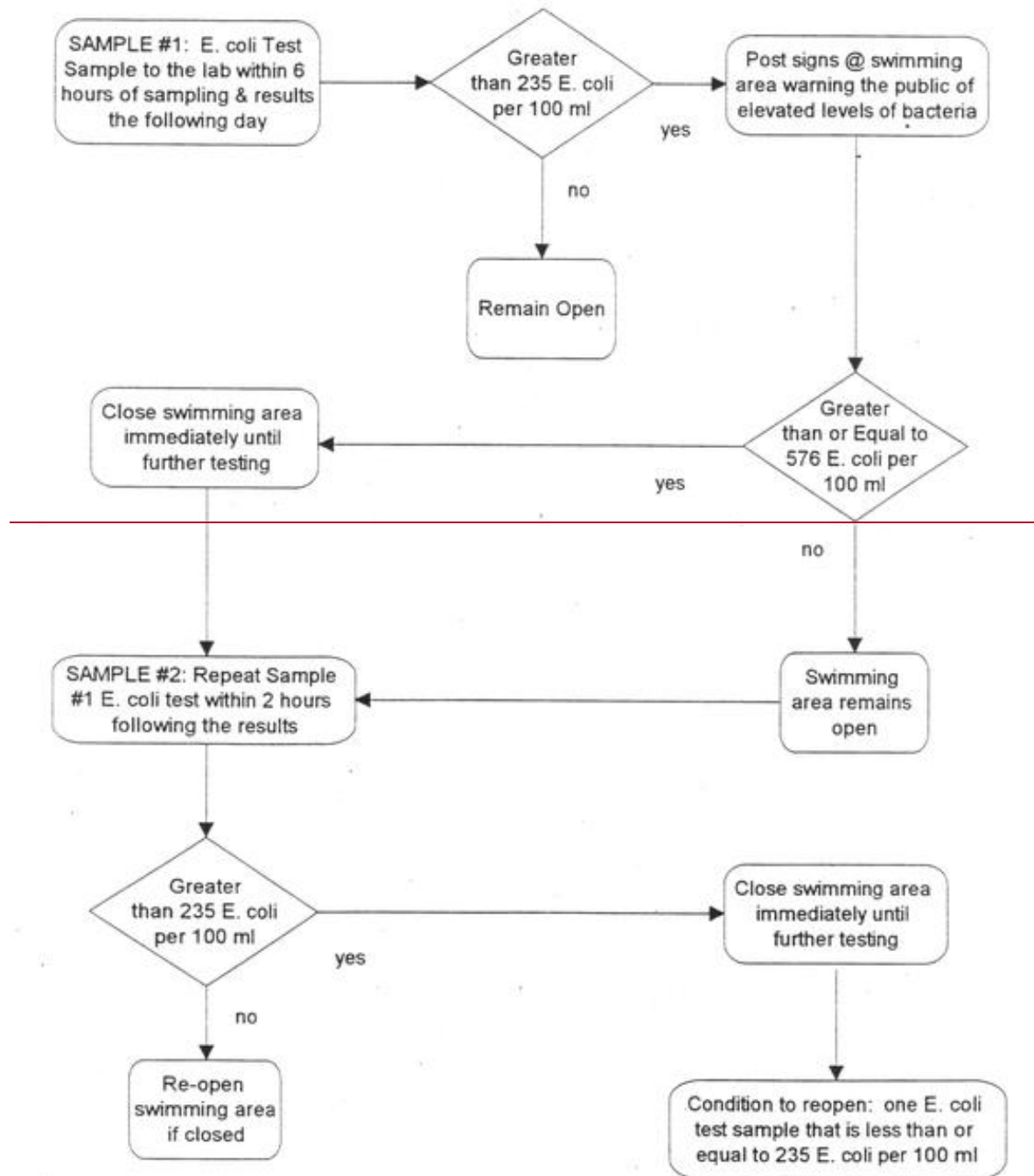
750

751

752

753 Appendix C: Biological Standard for Natural Swimming Areas who have entered into a Memorandum  
754 of Agreement

Appendix C: Biological Standard for Natural Swimming Areas who have entered into a Memorandum of Agreement



755

756 4.7 CHEMICAL QUALITY:

- 757 1. All public pools or semi-public pools shall be automatically and continuously disinfected by a  
 758 chemical or process which imparts an easily measured residual which complies in all respects  
 759 with the Standards of the National Sanitation Foundation (February 1, 1993) covering such  
 760 chemicals or process.
- 761 2. Chemicals used for algae control shall be approved by the Colorado Department of Health.
- 762 3. Other disinfecting equipment or materials may be used if they have been adequately  
 763 demonstrated to the Colorado Department of Health or its authorized agents to provide a  
 764 satisfactory residual effect which is easily measured or where demonstration and analysis provide  
 765 assurance that results are otherwise equally effective under conditions of use as the chlorine  
 766 concentration required herein, and not be dangerous to public health, create objectionable  
 767 physiological effects, or impart toxic properties to water.
- 768 4. Any pool shall be immediately ~~dosed~~ closed under the following conditions:
- 769 A. Disinfection level falls below minimum requirement.
- 770 B. pH falls below minimum requirement, or exceeds maximum requirement.
- 771 5. Table 1 lists the chemical parameters required for any public pool or semi-public pool.

## 772 SECTION 4.7: TABLE 1

PARAMETER	REQUIRED PPM		IDEAL PPM	
	Min.	Max.	Min.	Max.
Free Chlorine (pool) (DPD method)	0.25***	5.0	1.0	3.0
Free Chlorine (spa, therapy pool) (DPD)	0.25***"	5.0	3.0	5.0
Combined Chlorine	0.00	1.0	0.0	0.0
Bromine (pool) (DPD)	1.5	5.0	2.0	3.0
Bromine (Spa, therapy pool) (DPD)	2.0	10.0	3.0	5.0
Total Alkalinity (CaCO <sub>3</sub> )	70	180	****	****
Ph	7.2	8.0	7.4	7.6
Calcium Hardness	150	600	200	400
Temperature (Incl. spas, therapy pools)	77	104	*****	*****
O.R.P. (in mv) (if applicable)*	250	900	650	850
Hydrogen Peroxide (if applicable)	20	100	30	40
Ion Generator (if applicable)**				
Copper	0.25	0.95	0.3	0.5
Silver	15	50	25	40
Ozone (supplemental oxidizer only)	N/A	0.1	N/A	N/A
Saturation Index (Langlier Index)	-0.5	+05	-0.2	+0.2
Cyanuric Acid (ppm)	20	100	20	40

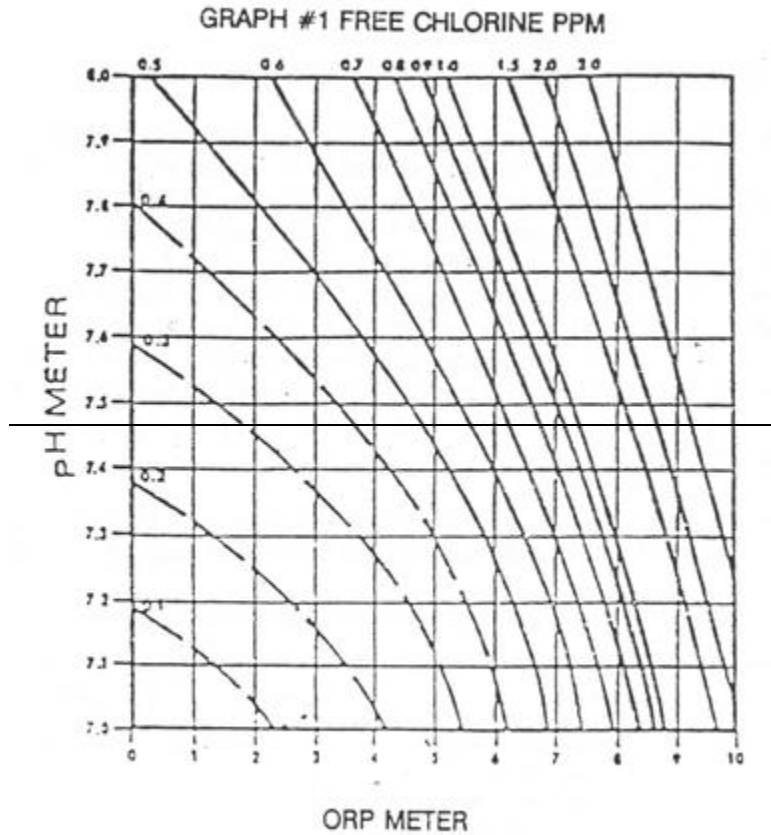
773 \*O.R.P. at a pH of 7.5, and in accordance with Graph #1.

774 \*\*In conjunction with a 0.4 ppm chlorine residual.

775 \*\*\*0.25 ppm chlorine residual only when used with an approved supplemental oxidizer.

776 \*\*\*\*Differences may occur according to pool finish, disinfectant, etc. Consult your pool manufacturers recommendations for ideal  
 777 level.

778 \*\*\*\*\*Recommended general use swimming pool temperature range + 82-84 degrees F.



779

780 **4.8 TURBIDITY:**

781 1. The water shall have sufficient clarity at all times so that the grate openings on the maindrain are  
 782 dearily visible from the deck. Failure to meet this requirement shall constitute grounds for  
 783 immediate closing of the pool.

784 2. No algae or foreign matter shall be present in the pool water.

785  
 786  
 787  
 788  
 789  
 790

791 **4.9 SWIMMING POOL AND SPA/HOT TUB OPERATION**

792 The owner or operator of each public pool or semi-public pool shall have on staff or under contract for  
 793 each facility a current Certified Pool Operator\* (CPO) (\*National Swimming Pool Foundation Certification),  
 794 an Aquatic Facility Operator\* (AFO) (\*National Recreation and Parks Association Certification), or an  
 795 NSPI Tech I (\*National Spa and pool Institute Certification Program) or other approved certification  
 796 program. All public pools or semi-public pools shall maintain a record of information regarding operations  
 797 of the pool. Included within this record shall be, but not limited to, disinfectant levels, pH, calcium  
 798 hardness levels, total alkalinity, flow meter readings, temperatures, pool balance calculations, SCBA or

799 canister-type respirator checks, gas canister expiration dates, and maintenance procedures. The  
 800 following schedule sets forth the frequency at which specific parameters of pool operation shall be  
 801 recorded in the pool record:

802 At least one (1) of the daily pool chemistry readings must be taken manually (not from an electronic  
 803 readout). It is preferred that this be the first reading of the day.

804 \*Swimming Pools (Includes therapeutic pools and wading pools)

3/Times/Day	Daily	Weekly	Monthly
Disinfectant Level PH Date ORP	Flowmeter Reading Temperature Saturation Index Calcium Hardness Total Alkalinity Maintenance Procedures	Cyanuric Acid	SCBA or Canister Type Respirator check Respirator Canister expiration

805 \*Spa/Hot Tub

2 Hour Intervals	Daily	Weekly	Monthly
Disinfectant Level PH Temperature	Flowmeter Reading Saturation Index Calcium Hardness Total Alkalinity Maintenance Procedures	Cyanuric Acid	SCBA or Canister type respirator check Respirator canister expiration

806 \* To check the balance of the pool: pH, temperature, calcium hardness and total alkalinity  
 807 must be checked simultaneously.

808 The record of the pool operations shall be kept at the facility and shall be available for inspection by  
 809 anyone upon request.

810 The pumps, filters, disinfectant units, chemical feeders, heaters, and related appurtenances shall be kept  
 811 in operation at all times that the swimming pool is in use and for each additional period as needed to keep  
 812 the pool in compliance with these regulations. Recirculation equipment shall provide a minimum turn over  
 813 of swimming pool water every six (6) hours, therapeutic pool water every four (4) hours, separate wading  
 814 pool water every one (1) hour, and spa/hot tub water every thirty (30) minutes. All equipment shall be  
 815 maintained in good working order. Floating scum, sputum or debris shall not be allowed to accumulate in  
 816 the pool.  
 817

#### 818 4.10 HEATING AND VENTILATION

819 1. Bath houses, indoor dressing rooms, shower rooms, and toilet rooms shall be properly ventilated.  
 820 Ventilation of indoor swimming pools shall be so designed that bathers will not be subjected to  
 821 drafts.

822 2. All heating units and electrical outlets shall be isolated or protected from contact by bathers to  
 823 prevent injuries.

#### 824 4.11 BATHER CONTROL:

825 1. All bathers, before entering the swimming pool, shall be required to take a cleansing shower bath,  
 826 using warm water and soap and rinsing off all soap before entering the pool. Soap shall be  
 827 provided by the facility.

- 828 2. Persons having any considerable area of exposed sub-epidermal tissue, cuts, or known or  
829 recognizable contagious diseases, shall not be permitted to use the pool. Therapy pools used  
830 exclusively for prescribed treatments are exempt from this sub-paragraph 2, and shall be closed  
831 to the public during treatment times.
- 832 3. Spitting, or blowing the nose in the pool shall be strictly prohibited.
- 833 4. If towels, bathing suits, combs, brushes, or any other such articles are furnished by the pool  
834 management, they shall be clean at the time of issue to the patron and shall have been cleaned  
835 and sanitized in a manner acceptable to the health department.
- 836 5. The bather load shall not be permitted to exceed the design limitation as determined in Section  
837 3.23. Such limitation shall be posted at facility.

838 **4.12 WASTE DISPOSAL:**

839 The sewer system shall be adequate to serve the facility, including bathhouse, locker room and related  
840 accommodations. The sewer line serving the backwash for the filter shall be 1-½ times the size of the  
841 backwash line or provide a containment vessel capable of holding a minimum of 5 minutes volume of  
842 backwash water at the backwash design rate.

843 There shall be no direct physical connection between the sewer system and any drain from the swimming  
844 pool or recirculation system. Any swimming pool, gutter drain, overflow from the recirculation system  
845 when discharged to the sewer system shall connect through a suitable air gap so as to preclude the  
846 possibility of backflow of sewage or waste into the swimming pool piping system.

847 The sanitary sewer serving the swimming pool and auxiliary facilities shall discharge to the public sewer  
848 system wherever possible. Where no such sewer is available, the method of disposal shall be in  
849 accordance with the requirements of the Colorado Department of Health or local health department.

850 **4.13 RIGHT OF ENTRY:**

851 All swimming areas shall be open to inspection and water sample collection at any time they are in use,  
852 and at any other reasonable time, by agents of the Department of Health.

853 **4.14 DISEASE CONTROL:**

- 854 1. Any person with a communicable disease, that is transmittable by water shall not be permitted to  
855 use the pool facilities.
- 856 2. Hospital therapy pools shall maintain adequate water disinfection to protect users from  
857 communicable diseases.
- 858 3. Should feces be found in the pool at any time, the following procedure shall be followed:
- 859 A. Pool shall be closed and all bathers removed.
- 860 B. Solid matter shall be removed.
- 861 C. Water chemistry shall be checked.
- 862 (1) If disinfection levels are within required parameters, the pool shall remain closed  
863 for at least 60 minutes and then re-opened.

864 (2) If disinfection levels are not within the required parameters, the pool shall be  
865 closed and the disinfection level restored. The pool may re-open 60 minutes after  
866 acceptable disinfectant levels have been attained.

867 D. If feces are in the form of diarrhea, the pool shall be closed, superchlorinated (or  
868 equivalent), remain closed for 24 hours, and then re-opened if disinfection levels are  
869 within required parameters.

#### 870 **4.15 FACILITIES TO BE KEPT CLEAN AND IN GOOD REPAIR:**

871 All shower rooms, dressing rooms, equipment rooms and appurtenant facilities shall be kept clean at all  
872 times. Daily hosing down of all facilities is required. Disinfection of public areas is required daily or more  
873 frequently as needed.

874 Animals shall not be permitted in pool or pool area, except patrol dogs accompanying security or police  
875 officers, or guide dogs and service dogs accompanying blind, visually handicapped, deaf, partially deaf  
876 and otherwise physically disabled persons.

877 All parts of the pool and related pool facilities and equipment shall be maintained in good repair. Floors  
878 shall be kept free from cracks and other defects. Walls, ceilings, partitions, doors, lockers and similar  
879 surfaces and equipment shall be finished in a manner acceptable to the health department and refinished  
880 as often as necessary to be kept in good repair.

881 Injunctive Relief: (25-5-807 CRS)

882 The operation of a swimming area in violation of any provision of these regulations may be restrained by  
883 the director of the Colorado Department of Health, by any city, county, city and county, or district health  
884 officer, or by any of their authorized agents in an action brought in court of competent jurisdiction  
885 pursuant to the Colorado rules of civil procedures.

### 886 **ARTICLE V**

#### 887 **PUBLIC BATH**

888 1. The water supplied for any public bath facility shall be maintained free of disease causing  
889 organisms and shall be provided under one of the following conditions:

890 A. The water shall be recirculated in accordance with the specifications in Section 3.10, and  
891 shall meet the disinfection requirements of Section 4.7, or

892 B. The water shall be exchanged by flow-through of unused water so as to provide a  
893 complete change of water in one (1) hour or less if the basin capacity is less than one  
894 thousand (1000) gallons; or in two (2) hours or less if the basin has a capacity greater  
895 than one thousand (1000) gallons, or

896 C. The use of a combination of (A) and (B) above, in any manner such that the water shall  
897 meet the bacteriological requirements of Section 4.6, based on not less than five (5)  
898 samples equally spaced over each thirty (30) day period during operation, or

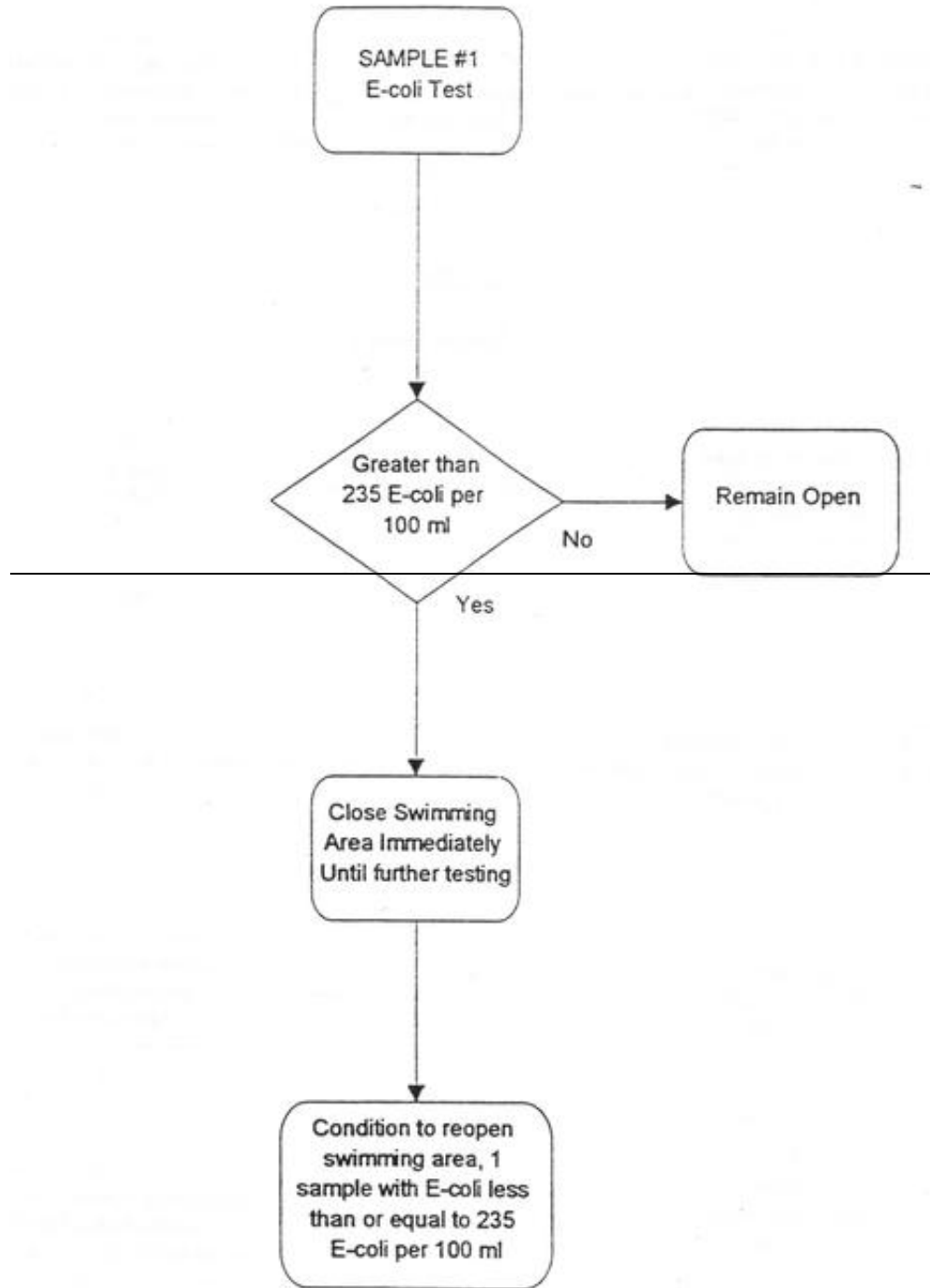
899 D. The water shall be used exclusively by one person, after which the basin shall be  
900 drained. The basin shall be cleaned and sanitized between uses. The water shall contain  
901 at least a 0.25 part per million chlorine residual (or other comparable residual) at all  
902 times.

903 2. The interior surfaces of the basin shall be clean and kept in good repair.

- 904 3. Toilet facilities shall comply with Section 3.21 of these regulations. They shall be of cleanable,  
905 impervious construction; kept in good repair; and kept clean.
  
- 906 4. Shower facilities shall comply with Section 3.22 of these regulations, unless individual facilities  
907 are provided for each bath unit. They shall be of cleanable, impervious construction; kept in good  
908 repair; and kept clean. Each person shall shower in compliance with Section 4.11(1) of these  
909 regulations prior to entering the bath water, unless the bath is an individual bath.
  
- 910 5. Dressing rooms, when provided, shall comply with Section 3.20 of these regulations. They shall  
911 be of cleanable, impervious construction; kept in good repair; and kept dean. Resting rooms or  
912 reclining facilities shall be of cleanable, impervious construction; kept in good repair; and kept  
913 dean.
  
- 914 6. Potable drinking water shall be supplied to the premises and shall meet the Colorado Primary  
915 Drinking Water Regulations. 5 C.C.R. 1003-1.
  
- 916 7. The sewer system serving the facility shall comply with Section 4.12 of these regulations.
  
- 917 8. All appurtenances to the bath facility shall be of cleanable construction; kept in good repair; and  
918 kept dean.  
919  
920  
921  
922  
923  
924  
925  
926  
927
  
- 928 Appendix B: Biological Standard for Natural Swimming Areas (Escherichia Coliform as Initial Test)



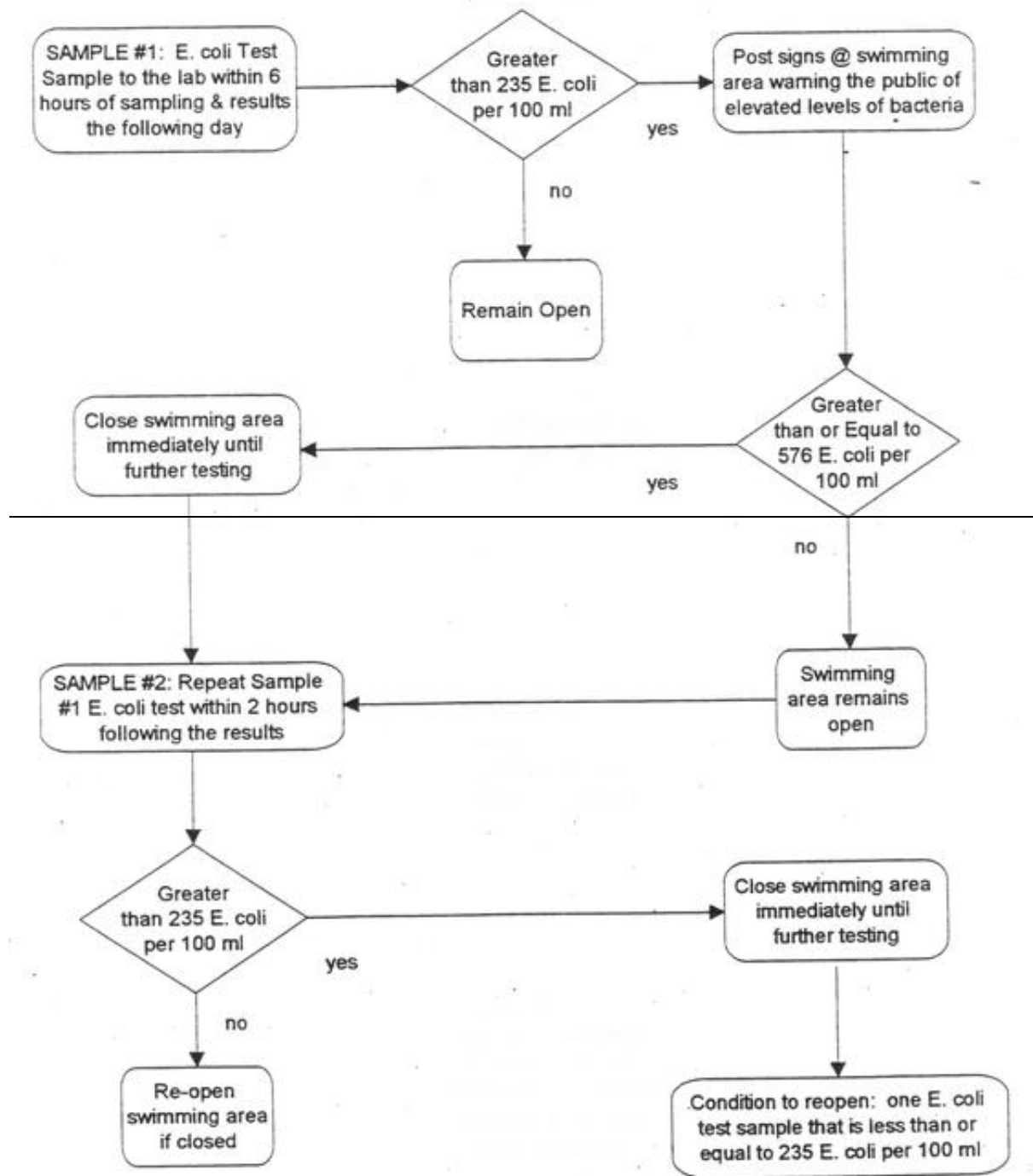
### Appendix B: Biological Standard for Natural Swimming Areas (Escherichia Coliform as Initial Test)



929

930 Appendix C: Biological Standard for Natural Swimming Areas who have entered into a Memorandum  
931 of Agreement

Appendix C: Biological Standard for Natural Swimming Areas who have entered into a Memorandum of Agreement



932

933 Appendix D: SAMPLING PROTOCOL FOR NATURAL BATHING BEACHES

934 **I. PERSONAL SAFETY AND CLEANLINESS**

935 Good personal safety and cleanliness goes a long way for promoting aseptic sampling. The following  
936 measures help to prevent the sampler from becoming part of the sample.

- 937 1. Wash hands with a bactericidal soap and water BEFORE and AFTER sampling.
- 938 2. Keep all food and drink away from sampling sites, sampling equipment, and sample containers.

939 **II. SAMPLING METHOD**

940 1. Determine where the samples are to be collected:

941 - Collect one sample for approximately every 50 meters of beach. Take the first sample  
942 near the middle of the beach and then proceed 50 meters in each direction town the  
943 beach to collect each subsequent sample.

944 - Collect sample(s) near the beach where swimmers could be exposed to contaminated  
945 water entering the lake/reservoir (e.g., storm water drains, natural contours which drain  
946 rest room or septic system areas, etc.).

947 2. Collect samples during greatest bather load (i.e., peak usage time). Allow enough time to collect  
948 the sample and have it properly shipped or delivered to a lab for analysis. Please be aware that  
949 the sample MUST be received by a lab and the analysis begun within 30 hours of collection.

950 3. Obtain one PRE-STERILIZED sample container for each sample site. Do Not open the container  
951 until you are ready to collect the sample. The sample may either be hand collected or a sampling  
952 device may be used.

953 4. Label each container with a water proof marker with the following information: date and clock time  
954 of collection, sample location (could be a predetermined ID number specific for each sampling  
955 site), and sample number (typically provided by the lab). Complete a Sample Collection Form For  
956 Multiple Sampling Sites (again, provided by the lab).

957 5. Follow the Personal Safety and Cleanliness instructions above. If a sampling device is used, wipe  
958 the entire surface of the device with a fresh alcohol swab - allow device to dry before sampling.

959 6. At each sampling site, wade out into the water far enough so the sample can be collected from  
960 where the water is approximately 3 feet deep. Disturb the bottom sediment as little as possible.

961 7. Open sample container. Be careful not to touch the inside of the container (or lid if present). DO  
962 NOT RINSE the container.

963 8. Collect the sample facing into the wind or current. Make every effort to collect as little disturbed  
964 sediment as possible (high levels of turbidity will interfere with the test method).

965 9a. Hand Sampling - Grasp sample container near the base, invert, and plunge into the water to a  
966 depth of approximately 12 inches. Slightly tilt the container into the wind or current and push  
967 forward horizontally away from your hand and body to fill. Avoid contact with the bank or bed.  
968 Remove container upright and vertically from the water.

969 9b. Sampling Device - Follow the directions for collection with a sampling device specific for the  
970 device.

- 971 10. The sample container should be nearly full when it is removed from the water. Pour out some of  
 972 the sample so the water level is just ABOVE the 100 mL line on the container (about ½ inch of  
 973 head space in the container is necessary mixing the sample in the lab).
- 974 11. Without touching the inside of the container or lid, secure the container shut Check the container  
 975 for leakage.
- 976 12. When hand sampling, change gloves before collecting another sample. When using a sampling  
 977 device, wipe the entire surface with a new alcohol swab before collecting another sample.
- 978 13. Pack the sample(s) for shipment or delivery to the lab. Ideally, the sample(s) should be shipped  
 979 with ice (or a frozen gel ice pack) to keep the sample(s) cool during shipment. Be sure to include  
 980 the sample collection form.

981 Appendix E: Guidelines for Restroom Facilities

982 Toilet facilities for the use of swimmers shall be provided for both males and females and shall be  
 983 accessible to disabled persons.

984 The required number of toilets can be determined in the following methods:

- 985 a) use the toilet section of Article 3 of these regulations for permanent facilities, or  
 986 b) use the following table, or

Peak Crowd	Average time at event (Hours)									
	1	2	3	4	5	6	7	8	9	10
250	2	2	2	2	2	3	3	3	3	3
500	2	3	4	4	4	4	4	4	4	4
1000	4	5	6	7	7	8	8	8	8	8
2000	6	10	12	13	14	14	14	15	15	15
3000	9	14	17	19	20	21	21	21	22	22
4000	12	19	23	28	28	28	30	30	30	30
5000	15	23	28	32	34	36	36	36	36	36
6000	17	28	34	38	40	42	42	42	44	44
7000	20	32	40	44	46	48	50	50	50	50
8000	23	38	46	50	54	57	57	57	57	57
10000	30	46	57	63	66	69	69	72	72	72

- 987 c) use a combination of (a) and (b) above.

988 There are many instances when portable sanitation units are necessary to accommodate the need for  
 989 restroom facilities. Under normal conditions, the average individual uses sanitary facilities once every four  
 990 hours. The consumption of food, beverages, and alcohol will increase this usage by 30-40%. The above  
 991 table assumes that the average time between uses is 2 hours.

992  
 993