



MARYLAND
Department of Health

**Draft Regulation Changes to
COMAR 10.17.01, Public Pools and Spas**

**Unofficial Public Comment Period
February 2, 2018 – March 9, 2018**

Email Comments to: mdh.envhealth@maryland.gov

Or

Mail Comments to: MDH-CHHCS
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MARYLAND
Department of Health

Regulation Titles Related to Critical and Major Violations

CRITICAL VIOLATIONS – COMAR 10.17.01.05B(4-2)	
REGULATION NUMBER	TITLE OF REGULATION
.06-1	Replacements
.21	Barriers
.28	Suction Entrapment Prevention
.32	Illumination of Water, Deck, and Walkway
.40	Public Pool and Spa Safety
.43	Pool and Spa Operation
.45	Water Chemistry of a Pool or Spa
.48	Sanitary Quality of Water

MAJOR VIOLATIONS – COMAR 10.17.01.05B(7-1)	
REGULATION NUMBER	TITLE OF REGULATION
.21	Barriers
.25	Circulation Systems
.28	Suction Entrapment Prevention
.29	Chemical Storage Area
.40	Public Pool and Spa Safety
.45	Water Chemistry of a Pool or Spa
.46	Operating Records Required
.48	Sanitary Quality of Water

Note: A set of current and proposed regulations related to critical and major violations is highlighted and provided in Appendix A of this document. Critical violations are highlighted yellow and major violations are highlighted green.

Key to Reading Draft Regulations

Current text

(text unchanged) –used when original text is not being changed

[Text to be deleted]

[Text to be deleted since last draft]

Text to be added

Text to be added since last draft



MARYLAND
Department of Health

.05 Definitions

B. Terms Defined.

(4-2) “Critical violation” means a violation that if not corrected immediately could lead to injury, illness, or death, specifically:

(a) Failure to comply with:

(i) Regulation .06-1E;

(ii) For a public pool with a lifeguard on duty, Regulation .21 of this chapter except for §§A(10)(a)-(b), (d)-(f), and B(2);

(iii) For a public pool without a lifeguard on duty, Regulation .21 of this chapter except for §§A(10)(a), (d)-(f), and B(2);

(iv) Regulation .28 of this chapter, except for §§H(7)-(8), and I;

(v) Regulation .32A of this chapter

(vi) Regulation .40B, D and E of this chapter;

(vii) Regulation .43A and B of this chapter;

(viii) Regulation .45A(7) of this chapter; and

(ix) Regulation .48B of this chapter;

(x) Manufacturer’s instructions or directions when adding chemicals to a public pool or spa;

(b) A public pool or spa that has:

(i) No flow through the circulation system; or

(ii) A non-functioning circulation pump;

(c) A pH level in a public pool or spa that is:

(i) At or below 7; or

(ii) At or above 8;

(d) A free chlorine level in a:

(i) Pool for swimming or diving or water recreational attraction that is less than 1.5 ppm;

(ii) Wading or therapy pool that is less than 3 ppm; or

(iii) Spa that is less than 4 ppm;

(e) A free chlorine level in a public pool or spa that is greater than 11 ppm;

(f) A bromine level in a:

(i) Pool for swimming or diving or water recreational attraction that is less than 3 ppm; or

(ii) Spa, wading pool or therapy pool that is less than 4 ppm;

(g) A bromine level in a public pool or spa that is greater than 9 ppm;

(h) A temperature in a:

(i) Pool above 96°F; or

(ii) Spa above 104°F; or

(i) Hand feeding of any chemicals while patrons are in the water of a public pool or spa.

(5-1) “Hand feeding” means adding chemicals to a pool or spa by any means other than an automatic chemical feeder.



MARYLAND
Department of Health

(7-1) “Major Violation” means a violation that if not corrected within 24 hours could lead to injury, illness, or death, specifically:

- (a) Failure to comply with:
 - (i) Regulation .21B(2) of this chapter;
 - (ii) Regulation .25 of this chapter;
 - (iii) Regulation .28I of this chapter;
 - (iv) Regulation .29 of this chapter;
 - (v) Regulation .40 of this chapter except for §§B, D and E;
 - (vi) Regulation .45A(1) of this chapter;
 - (vii) Regulation .46 of this chapter; and
 - (viii) Regulation .48A of this chapter; and
- (b) A free chlorine level in a public pool or spa that is between 10 ppm and 11 ppm;
- (c) A bromine level in a public pool or spa that is between 8 ppm and 9 ppm;
- (d) A combined chlorine level in a public pool or spa that is at or above 0.5 ppm;
- (e) Except for a therapy pool, a public pool temperature between 89°F and 96°F; or
- (f) A cyanuric acid level greater than 100 ppm;
- (g) A public pool or spa that has a non-functioning disinfection system.

(20) Repair.

- (a) (text unchanged)
- (b) “Repair” does not include:
 - (i) -(iii) (text unchanged)
 - (iv) Substitutions involving a component which [do] *does* not meet the requirements of this chapter.

(20-1) Replacement.

- (a) (text unchanged)
- (b) “Replacement” does not include:
 - (i) (text unchanged)
 - (ii) [Substitutions involving a pump;
 - (iii) Substitutions involving a suction outlet sump or cover;
 - (iv)] Alterations;
 - [(v)] (iii) Installation of additional equipment; or
 - [(vi)] (iv) Substitutions involving a component which [do] *does* not meet the requirements of this chapter.

.06 Construction, Alteration, and Replacement Permits for Recreational Pools, Semipublic Pools, and Public Spas] and Alteration Permits.

- A. An owner who intends to construct or alter [a recreational pool, semipublic pool, or public spa or replace a public pool or spa component shall obtain a construction, alteration, or replacement permit from the Secretary before beginning construction,



MARYLAND
Department of Health

alteration, or replacement work] a public pool or spa shall obtain a construction or alteration permit from the secretary before beginning construction or alteration.

- B. An owner may not construct or alter a recreational pool, semipublic pool, or public spa **[or replace a public pool or spa component]** without a construction~~[.]~~ *or* alteration~~[.]~~ **[or replacement]** permit.
- C. To obtain a construction~~[.]~~ *or* alteration~~[.]~~ **[or replacement]** permit, an owner shall submit to the Secretary:
- (1) An application for a construction~~[.]~~ *or* alteration~~[.]~~ **[or replacement]** permit on an application form provided by the Secretary that includes:
 - (a) The full names and addresses of the owner and authorized agents of the owner who may act on the owner's behalf during the construction or alteration of the **pool or spa**~~[.]~~ **[or the replacement of the public pool or spa component]**;
 - (b) A statement saying "I hereby acknowledge that all items either listed or shown in these plans and specifications as not in contract, by others, or equivalent, are my responsibility. I also realize that this entire project must be completed in accordance with the approved plans and specifications and all conditions listed in the construction~~[.]~~ *or* alteration~~[.]~~ **[or replacement]** permit and meet the requirements of this chapter prior to the issuance of an operating permit by the Secretary"; and
 - (c) The owner's signature, which:
 - (i) (text unchanged)
 - (ii) Is in agreement with the statement set forth in **[§C(1)(b)] §C** of this regulation; **[and]**
 - (2) Plans and specifications for the construction~~[.]~~ *or* alteration~~[.]~~ **[or replacement]** which:
 - (a) (text unchanged)
 - (b) Are drawn to scale, in a professional and accurate manner, with sufficient clarity and detailed dimensions to show the nature and character of the work to be performed; **[and]**
 - (c) Include specific information on the quality or performance of the material or equipment when necessary to establish conformance with this chapter~~[.]~~; *and*
 - (d) *Are supplied:*
 - (i) *In triplicate as physical documents; or*
 - (ii) *As electronic documents; and*
 - (3) *The application review fee required by COMAR 10.01.17.02*



MARYLAND
Department of Health

- D. Except [for an alteration or replacement] *as provided in §E of this regulation*, an owner shall ensure that the plans and specifications required [in] *by §C of this regulation* include the following:
(1) -(18) (text unchanged)
- E. An owner shall ensure that, for an alteration [or replacement,] the plans and specifications required [in] *by §C of this regulation* include the information that pertains to the alteration [or replacement].
- F. An owner shall obtain necessary local zoning approval and building, electrical, plumbing, and other applicable local permits before beginning construction [or alteration of a recreational pool, semipublic pool, or public spa or replacement of a public pool or spa component] *or alteration work*.
- G. [Before issuing a construction, alteration, or replacement permit, the Secretary may require changes in the design of the facilities if the design does not meet the criteria set forth in this chapter.
- H. Upon an owner's compliance with the provisions of this chapter, the Secretary shall approve the plans and specifications and issue a construction, alteration, or replacement permit, which is valid for the start of the construction, alteration, or replacement for 1 year from the date of issue and for 1 additional year from the date construction, alteration, or replacement begins.
- I.] The local county health officer may not approve a local building permit for *or that includes* [recreational pool, semipublic pool, or public spa] construction, *or* alteration[, or replacement] *of a recreational pool, semipublic pool, or public spa* until the plans and specifications for [pool or spa] construction, or alteration[, or the replacement] of a public pool or spa [component] have been approved by the Secretary.
- [J.] H. The Secretary shall review the plans and application [and shall approve or deny issuance of] a construction, *or* alteration[, or replacement] permit within 30 *business* days of receipt of the application.
- [K.] I. If plans are submitted that are [not]:
(1) *Not* in compliance with the requirements of this chapter, the Secretary shall [disapprove the plans and deny the issuance of a construction, alteration or replacement permit.]:
(a) *Notify the owner of the deficiencies in the application;*
(b) *Deny the application if additional information to correct the deficiencies in the application are not received during the resubmittal window; or*



MARYLAND
Department of Health

- (c) Allow the owner a resubmittal window of 30 business days to submit information to correct the deficiencies before denying the application according to §I(1)(c) of this regulation; and
- (2) In compliance with the requirements of this chapter, the Secretary shall approve the plans and issue a construction or alteration permit, which is valid for the start of the construction, or alteration for 1 year from the date of issue and for 1 additional year from the date construction, or alteration begins.
- J. If the Secretary denies the issuance of a construction, or alteration permit, an owner shall reapply for a new construction, or alteration permit according to §C of this regulation and pay the applicable fees.
- [L.] K. An owner may not deviate from the approved plans and specifications for construction, *or* alteration[, *or replacement*] at a recreational pool, semipublic pool, or public spa unless revised plans are submitted [to and approved in writing by the Secretary] through the application review process in §C of this regulation, the owner pays the applicable fees, and the Secretary issues a construction, or alteration permit for the revised work.
- [M.] L. If a recreational pool, semipublic pool, or public spa is not being constructed, or altered [or components are not being replaced] in accordance with the approved plans, the Secretary may revoke the construction, *or* alteration[, *or replacement permit for the construction, alteration, or replacement*] permit and the owner shall immediately [shall] cease construction, *or* alteration[, *or replacement*].
- [N.] M. If the Secretary denies the issuance of a construction, *or* alteration[, *or replacement*] permit as set forth in [§K] §I of this regulation, or revokes a construction, *or* alteration[, *or replacement*] permit as set forth in [§M] §L of this regulation, the Secretary shall notify the owner in writing:
- (1) -(2) (text unchanged)
 - (3) That to preserve the right to a hearing, the owner shall contact the Department within [30] 10 business days of the receipt of the notice of denial or revocation.
- [O.] N. An owner shall ensure that a construction, *or* alteration[, *or replacement*] permit is posted in a conspicuous location at the site of construction, *or* alteration[, *or replacement*].
- [P.] An owner may make a repair to a previously approved structure, component, or piece of equipment in accordance with this chapter without:
- (1) Obtaining a construction, alteration or replacement permit from the Secretary;
 - or
 - (2) Notifying the Secretary.]



MARYLAND
Department of Health

.06-1 Replacements.

- A. An owner may replace a component at a recreational pool, semipublic pool, or public spa prior to obtaining approval from the Secretary.*
- B. An owner shall obtain necessary local zoning approval and building, electrical, plumbing, and other applicable local permits before replacing a component at a recreational pool, semipublic pool, or public spa.*
- C. The local health department may approve a local building permit for or that includes replacement of a component at a recreational pool, semipublic pool, or public spa before the replacement application is approved by the Secretary.*
- D. An owner shall submit, on a form provided by the Secretary, an application for the replacement of a component at a recreational pool, semipublic pool, or public spa within 10 business days of completing the replacement.*
- E. If, during an inspection by the local health department, it is determined that a component has been replaced and the owner failed to submit the form required in §D of this regulation, the owner shall submit the required form to the Department within 10 business days of the local health department's inspection.*
- F. The Secretary shall inspect the replacement of a component at a recreational pool, semipublic pool, or public spa within 30 business days of receipt of the application.*
- G. If, during the inspection, the replacement of a component at a recreational pool, semipublic pool, or public spa is:*
 - (1) In compliance with the requirements of this chapter, the Secretary shall:*
 - (a) Provide the owner a copy of the inspection report; and*
 - (b) Issue an approval letter; or*
 - (2) Not in compliance with the requirements of this chapter, the Secretary shall:*
 - (a) Deny the replacement application; and*
 - (b) Notify the owner:*
 - (i) Of the reason or reasons for the denial;*
 - (ii) That the owner may request from the Secretary an opportunity for a hearing on the denial pursuant to State Government Article, Title 10, Subtitle 2, Annotated Code of Maryland, if the owner wishes to contest the denial;*
 - (iii) That to preserve the right to a hearing, the owner shall contact the Department within 10 business days of the receipt of the notice of denial; and*
 - (iv) That the owner shall cease operation of a recreational pool, semipublic pool, or public spa if the component is essential to*



MARYLAND Department of Health

operation or cease operation of the replaced component where the replacement of a component was found to violate this chapter until the violation is corrected, a new replacement application and applicable fee is submitted to the Secretary, and the Secretary inspects and approves the replacement of the component.

.06-2 Repairs.

A. An owner may make a repair to a recreational pool, semipublic pool, or public spa in accordance with this chapter without:

- (1) Obtaining a construction, alteration, or replacement permit from the Secretary; or*
- (2) Notifying the Secretary.*

.07 [Permit for Construction of Part of a Recreational Pool, Semipublic Pool, or Public Spa.

A. An owner may request a permit for construction of part of a recreational pool, semipublic pool, or public spa by submitting to the Secretary:

- (1) A detailed written explanation of why construction plans for the entire pool or spa cannot be submitted;*
- (2) Plans, information, and statements as required in Regulation .06 of this chapter that pertain to the construction of part of a recreational pool, semipublic pool, or public spa;*
- (3) A site plan;*
- (4) Information regarding the proposed water supply and waste disposal system; and*
- (5) A signed statement indicating that the permit holder for construction of part of a recreational pool, semipublic pool, or public spa will be proceeding at the owner's risk without the assurance that a permit for the construction of the rest of the pool or spa will be granted.*

B. Upon an owner's compliance with the provisions of this chapter and local codes, the Secretary shall approve the plans and issue a permit for construction of part of a recreational pool, semipublic pool, or public spa.

C. If a person submits plans for the construction of part of a recreational pool, semipublic pool, or public spa that are not in compliance with the provisions of this chapter, or if a local code prohibits the issuance of a permit for partial construction, the Secretary shall disapprove the plans and deny a permit for the construction in accordance with Regulation .06 of this chapter.

*D. A person may not operate a recreational pool, semipublic pool, or public spa until the entire project has been constructed and approved in accordance with Regulations .06—.09 of this chapter.] *Repealed.**



MARYLAND
Department of Health

.08 Approval After Construction, *or* Alteration, *or* Replacement.

- A. [After construction, alteration, or replacement of a component at a recreational pool, semipublic pool, or public spa is completed, the owner shall contact the Secretary for approval of the pool or spa within 30 days.
- B.] A person may not operate or permit the use of a recreational pool, semipublic pool, or public spa that has not received written approval from the Secretary after its [alteration or construction] *construction, or alteration.*
- [C. A person may operate or permit the use of a recreational pool, semipublic pool, or public spa for 30 days after completing the replacement of a public pool or spa component without receiving a final inspection and written approval from the Secretary.
- D.] B. The Secretary shall conduct an inspection [or inspections] to ensure that a recreational pool, semipublic pool, or public spa is constructed or altered[, or that a public pool or spa component is replaced] according to the approved plans and meets the requirements of this chapter, and shall:
- (1) Grant written approval for the pool or spa if it was constructed, or altered[, or a public pool or spa component was replaced] according to the approved plans, meets the requirements of this chapter, and the owner has received local approval for any building, electrical, plumbing, or other work that requires a local permit; or
 - (2) Deny approval for the pool or spa if it was not constructed, or altered[, or a public pool or spa component was not replaced] according to the approved plans, does not meet the requirements of this chapter, or the owner has not received local approval for any building, electrical, plumbing, or other work that requires a local permit.
- [E.] C. The Secretary shall grant written approval or deny approval of the completed construction, *or* alteration[, or replacement] of a public pool or spa [component] within [30] *15 business* days of [receipt of notice of completion from the owner] *inspecting.*
- [F.] D. If minor items that do not affect the health or safety of the public need to be corrected, the Secretary may issue a [partial] *temporary* approval for the pool or spa after construction[, alteration, or replacement of a public pool or spa component] pending full compliance according to the following conditions:
- (1) The owner shall fully comply with this chapter by the end of the [30-day] *30 business day* period in order to obtain written approval of the recreational pool, semipublic pool, or public spa; and



MARYLAND Department of Health

- (2) If at the end of the [30-day] *30 business day* period, the Secretary is unable to approve the recreational pool, semipublic pool, or public spa pursuant to [§C] §B of this regulation, the Secretary shall disapprove the construction [or alteration].

[G.] E. If the Secretary does not grant approval for the pool or spa after it is constructed, or altered, [for a public pool or spa component is replaced,] the Secretary shall notify the owner in writing:

- (1) Of the reason or reasons for the disapproval;
- (2) That the [person] *owner* may request from the Secretary an opportunity for a hearing on the disapproval pursuant to State Government Article, Title 10, Subtitle 2, Annotated Code of Maryland[, if the person wishes to contest the disapproval]; [and]
- (3) That to preserve the right to a hearing, the [person] *owner* shall [contact] *submit a written request for a hearing to* the Secretary within [30] *10 business* days of the receipt of the notice of disapproval[.]; *and*
- (4) *That the owner shall submit a new plan review application and pay any applicable fees according to Regulation .06 of this chapter.*

.09 Permits for Operation.

A. A person may not operate a public pool or spa without an annual operating permit issued by the Secretary, except that in the case of a pool or spa that has received a [partial] *temporary* approval of construction or alteration pursuant to Regulation [.08E] *.08D* of this chapter, the Secretary may issue a [nontransferable 30-day] *nontransferable* permit for the temporary operation of the pool or spa *valid for 30 business days*.

B. - D. (text unchanged)

.10 Suspension or Revocation of an Operating Permit.

A. Suspension.

- (1) (text unchanged)
- (2) The Secretary may summarily suspend an operating permit pursuant to §A(1)(b) of this regulation for any: [of the following:
 - (a) Residual disinfection levels in violation of Regulation .44 of this chapter;
 - (b) Sanitary water quality in violation of Regulation .48 of this chapter;
 - (c) Water pH in violation of Regulation .45A(1) of this chapter;
 - (d) Water clarity in violation of Regulation .45A(7) of this chapter;
 - (e) A malfunctioning or nonworking recirculation or disinfection system;



MARYLAND
Department of Health

- (f) A condition that may endanger the health and safety of an individual using a pool or spa, for example, a missing drain cover or other suction outlet entrapment hazard; and
- (g) A life guard has not been provided as required in Regulation .40 of this chapter.]

- (a) *Critical violation not corrected immediately; and*
- (b) *Major violation not corrected within 24 hours.*

.55 Standardization and Audits of Local Health Departments

A. The Department shall:

- (1) *Standardize one local health department employee as the local standardization officer related to the enforcement of this chapter for each local health department;*
- (2) *Audit local health department pool and spa programs related to the enforcement of this chapter once every four years according to the current audit protocols; and*
- (3) *Provide to the local health department a pool and spa program review final report.*

B. Local health departments shall submit to the Department responses to any deficiencies within the pool and spa program as identified within the pool and spa program review final report within 30 business days of receipt of the report.



MARYLAND
Department of Health

Appendix A – Highlighted Critical and Major Violations

.06-1 Replacements.

E. If, during an inspection by the local health department, it is determined that a component has been replaced and the owner failed to submit the form required in §D of this regulation, the owner shall submit the required form to the Department within 10 business days of the local health department’s inspection.

.21 Barriers.

A. Except as set forth in §§B, C, and D of this regulation, an owner shall ensure that a recreational pool, semipublic pool, or public spa, including the required deck area, is completely surrounded by a barrier that complies with the following requirements:

- (1) The top of the barrier is at least 72 inches above grade measured on the side of the barrier that faces away from the pool or spa;
- (2) The maximum vertical clearance between grade and the bottom of the barrier is 4 inches measured on the side of the barrier that faces away from the pool or spa;
- (3) Except when the entrance gate is open, an opening in the barrier and in the gate does not allow passage of a sphere 4 inches in diameter;
- (4) Fence pickets have a maximum separation of 4 inches;
- (5) The barrier does not have openings or footholds that make the barrier easy to climb;
- (6) A barrier with horizontal members less than 45 inches apart measured top to top does not have:
 - (a) Vertical openings greater than 1-3/4 inches in width; and
 - (b) Horizontal members on the outside of the barrier;
- (7) The barrier does not have decorative cutouts greater than 1-3/4 inches in width;
- (8) A chain link fence has a maximum mesh size of 2-1/4 inches;
- (9) A lattice fence has a maximum mesh size of 1-3/4 inches;
- (10) The barrier main access gate:
 - (a) Is located toward the shallow end of a pool;
 - (b) Has a latch release located at least 54 inches from grade level;
 - (c) Is lockable;
 - (d) Is hung to open away from the pool or spa;
 - (e) Has a minimum width of 4 feet; and
 - (f) Complies with Regulation .37 of this chapter; and
- (11) Doors and windows that open into the pool or spa area enclosed by the barrier have locks or latches to prevent unauthorized entry.

Only a Critical Violation for a pool without a lifeguard.



B. An owner shall ensure that a barrier at a semipublic pool or semipublic spa:



MARYLAND
Department of Health

- (1) Has a minimum height of 60 inches;
- (2) Has a gate that is self-closing and self-latching; and
- (3) Complies with the requirements in §A(2)—(11) of this regulation.

C. Except as provided in §D of this regulation, an owner may surround a pool and spa, multiple pools, or multiple spas at one facility with one barrier instead of separate barriers for each pool or spa.

D. An owner shall ensure that a wading pool or infant pool is separated from a pool or spa by a barrier that has:

- (1) A minimum height of 36 inches;
- (2) A maximum 2-inch separation between the deck and the bottom of the barrier;
- (3) No opening that allows the passage of a sphere 4 inches in diameter; and
- (4) An entrance gate with a latch.

.25 Circulation Systems.

A. Gauges and Release Valves. An owner shall ensure that the circulation system for a recreational pool, semipublic pool, or public spa includes the following:

- (1) A pressure gauge on the filter or on the influent side of the filter piping;
- (2) A pressure gauge on the effluent side of the filter piping;
- (3) A vacuum or compound gauge on the influent side of a pump;
- (4) A flow meter that:
 - (a) Indicates the rate of flow through the circulation system;
 - (b) Has a permanent scale readable in gallons per minute;
 - (c) Is accurate to within 10 percent of the actual flow; and
 - (d) Reads in the range encompassing the minimum and maximum flow rate;
- (5) A thermometer on the return line to a pool or spa if the circulation system includes a heating system; and
- (6) A manually operated air release valve on a pressure filter or a separation tank, or both.

B. Turnover Rate. An owner shall ensure that:

- (1) A recreational pool, semipublic pool, or public spa is constructed to produce the following minimum turnover rates, with continuous 24-hour flow:
 - (a) Pools for swimming and diving: Minimum turnover rate = volume of pool in gallons/480 minutes;
 - (b) Pools for water recreational attractions and therapy: Minimum turnover rate = volume of pool in gallons/360 minutes;
 - (c) Pools for wading have a minimum turnover rate equal to the greater of:
 - (i) Volume of pool in gallons/120 minutes; or
 - (ii) The minimum flow required for the skimmer system and main drain to operate according to the manufacturer's specifications; and



MARYLAND Department of Health

- (d) Spas: Minimum turnover rate = volume of spa/30 minutes;
- (2) The flow through a circulation system is maintained between the minimum turnover rate and the design capacity of the filter system and associated piping; and
- (3) A limited public-use pool has a turnover rate in conformance with:
 - (a) American National Standard for Residential Inground Swimming Pools; or
 - (b) American National Standard for Aboveground/Onground Residential Swimming Pools.

C. Head Loss Calculations. An owner of a recreational pool, semipublic pool, or public spa shall ensure that head loss calculations include the following:

- (1) Piping head loss, found by using:
 - (a) The Hazen-Williams formula which is: piping head loss per 100 feet of pipe = $0.2083 (100 / C)^{1.852} (Q^{1.852} / D^{4.865})$
where: D = nominal inside diameter of pipe;
Q = gpm;
C = constant for inside roughness of pipe; or
 - (b) Standard engineering tables;
- (2) Equipment head loss, including filters, valves, heaters, and other circulation equipment, based on the manufacturers' specifications for the equipment at the design flow rate, and filter pressure differential with the filter in a clean and in a dirty condition;
- (3) Elevation of pump suction and discharge in relation to the pool or spa water surface level; and
- (4) Determination of the total dynamic head of the circulation system for use in pump selection.

D. Surface to Bottom Flow Ratio.

- (1) An owner of a recreational pool, semipublic pool, or public spa shall ensure that:
 - (a) Piping for surface outlets is designed to accommodate 80 percent of the flow; and
 - (b) Piping for bottom outlets is designed to accommodate 20 percent of the flow.
- (2) An owner of a recreational pool or semipublic pool may have a gutter surface overflow system with a flow design of 50 percent from the surface outlets and 50 percent from the bottom outlets.

E. Filter Capacity. An owner of a recreational pool, semipublic pool, or public spa shall ensure that a filter:

- (1) Operates within the filter design flow rate;



MARYLAND
Department of Health

(2) Has a filtration capacity sufficient to operate in the range between the minimum turnover rate and the filter design flow rate when the circulation system is at the:

(a) Lowest level of calculated total dynamic head when the filter is in a clean condition; and

(b) Highest level of calculated total dynamic head when the filter pressure differential is at the maximum allowed in Regulation .43E of this chapter.

F. Interconnections Between Pools. An owner of a recreational pool, semipublic pool, or public spa shall ensure that a pool is not interconnected with a:

- (1) Spa or wading pool except during the filling of a spa or wading pool; and
- (2) Spray pool.

.28 Suction Entrapment Prevention.

To prevent a suction entrapment hazard, an owner shall ensure that:

A. A vacuum fitting is capped when not in use;

B. A vacuum line valve is in the closed position when not in use;

C. Except as provided in §§F and G of this regulation, the main drain for a public pool or spa complies with 15 U.S.C. §8003 and is:

- (1) Connected to a minimum of two main drain outlets that are:
 - (a) Not isolated by a valve or other means;
 - (b) Spaced at least 3 feet from edge to edge; and
 - (c) Hydraulically balanced; or
- (2) An unblockable drain.

D. A drain is covered with a securely attached drain cover in compliance with the:

- (1) American National Standard for Public Swimming Pools; and
- (2) 15 U.S.C. §8003.

E. A skimmer is:

- (1) Connected to an equalization line, main drain line, vent, or another skimmer that cannot be isolated by a valve or other means, or
- (2) Provided with a vented lid;

F. A pool or spa constructed before February 10, 1997 is provided by June 1, 2002, with:

- (1) At least two hydraulically balanced drain outlets spaced a minimum of 3 feet from edge to edge that cannot be isolated to create a single outlet for each circulation pump, as illustrated in Regulation .28-1A of this chapter;



MARYLAND
Department of Health

- (2) A channel drain system that is at least 3 feet from edge to edge, as illustrated in Regulation .28-1B of this chapter; or
- (3) An approved safety vacuum release system.

G. As an interim measure, until a pool or spa constructed before February 10, 1997 is in compliance with §F of this regulation:

- (1) A pool or spa has a minimum of two outlets that cannot be isolated to create a single outlet per pump; and
- (2) These outlets are provided by connecting the main drain line to a skimmer line so that the lines cannot be isolated to create a single outlet, as illustrated in Regulation .28-1C of this chapter, assuring that:
 - (a) The skimmer line does not become blocked within the skimmer housing at any time;
 - (b) Associated valves are locked in an open position to prevent the drain or the skimmer from becoming a single source of suction; and
 - (c) Associated valves are permanently tagged with a warning to maintain the valves in the open position at all times when the pool or spa is in use;

H. A pool or spa is in compliance with the following:

- (1) A suction outlet is provided with a cover that complies with the American National Standard for Public Swimming Pools;
- (2) A suction fitting complies with 15 U.S.C. §8003;
- (3) Suction outlet covers are in good condition, with no breaks, cracks, or other defects that could affect the structural integrity of the cover;
- (4) Suction outlet covers are secured according to manufacturers' directions and in such a way that the covers cannot be removed without the use of tools;
- (5) A pool or spa that does not have suction outlets in compliance with this regulation has all pumps immediately shut off until the pool or spa has been brought into compliance with this regulation;
- (6) The maximum velocity in the design of the drain piping does not exceed 6 feet per second when 100 percent of the circulation system design flow is drawn through the drain piping of any single drain;
- (7) A pool or spa facility has a comprehensive written maintenance program that addresses the following:
 - (a) If a suction outlet cover is cracked or broken, the pump shall be immediately shut off and the cover shall be replaced;
 - (b) Covers shall be anchored in accordance with the manufacturer's specifications and supplied parts, and only manufacturer specified, noncorrosive fasteners may be used;
 - (c) Lines and equipment shall be labeled or color coded for ready identification; and
 - (d) The on/off switch for circulation pumps shall be clearly identified and labeled; and



MARYLAND Department of Health

(8) Check valves in the suction line to pumps are removed to allow backflow of water or air to release the suction when the pump is shut off or when an influent blockage detection device is activated; and

I. A pool and spa operator completes the Pool and Spa Entrapment Hazards Checklist provided by the Secretary, or an equivalent form, on a daily basis before the pool or spa is open for that day's use.

.29 Chemical Storage Area.

An owner shall ensure that a recreational pool, semipublic pool, or public spa has a chemical storage area that:

A. Is protected against the weather, excess heat, and moisture; and

B. Has:

- (1) A lockable door which can be opened from the inside;
- (2) Ventilation that is sized at 2 cfm per square foot of floor area and that exhausts to the open air;
- (3) A minimum of 20 footcandles of illumination; and
- (4) Storage for chemicals in accordance with the material safety data sheet for a particular chemical.

.32 Illumination of Water, Deck, and Walkway.

An owner shall ensure that an indoor recreational pool, semipublic pool, or public spa, or one used during nighttime, is provided with:

A. Even illumination of the water, deck, and walkways;

B. Illumination of the water and deck that is:

- (1) A combination of underwater lighting and deck lighting so that the:
 - (a) Underwater lighting yields at least 0.5 watt per square foot of water surface area; and
 - (b) Deck lighting yields at least 0.6 watt per square foot of required deck area or at least 15 footcandles; or
- (2) Overhead lighting yielding at least 2 watts per square foot of required deck area or at least 20 footcandles of light that is directed onto the deck and the water surface so that the entire pool or spa bottom is clearly visible;

C. Lighting that minimizes reflection from the water surface so that the visibility of the pool or spa bottom is not obscured; and



MARYLAND
Department of Health

D. Walkway lighting yielding at least 15 footcandles of light.

.40 Public Pool and Spa Safety.

A. First Aid and Lifesaving Equipment. An owner shall ensure that:

(1) A recreational pool is provided with:

- (a) A first aid kit as recommended by the American Red Cross;
- (b) A face mask for CPR;
- (c) Disposable medical grade examination gloves;
- (d) A bloodborne pathogen control kit;
- (e) A backboard designed for medical emergency use that is equipped with straps and head immobilizer;
- (f) A light, strong rescue pole not less than 10 feet long; and
- (g) A rescue tube designed for lifesaving for each required lifeguard;

(2) Except as set forth in §A(3) of this regulation, a public spa is provided with the safety equipment required in §A(1)(a)—(e) of this regulation;

(3) A semipublic spa is provided with the safety equipment required in §A(1)(a)—(d) of this regulation; and

(4) A semipublic pool is provided with a:

- (a) Light, strong rescue pole not less than 10 feet long; and
- (b) Ring buoy or similar approved floatation device with an attached throwing rope measuring 50 feet in length or 1-1/2 times the width of the pool, whichever is longer.

B. Telephone. An owner shall ensure that, in case of an emergency, a telephone is available within the pool or spa enclosure to individuals using a public pool or spa that:

(1) Can directly reach a 911 emergency service without the use of a coin and without connection to an internal switchboard;

(2) Is posted with:

- (a) The names and phone numbers of the nearest available police, fire, and ambulance or rescue unit; or
- (b) 911 or with any numbers necessary to reach a 911 emergency service center directly; and

(3) Is posted with the name and location of the pool or spa facility.

C. Lifeguard Chair.

(1) An owner shall ensure that a recreational pool is equipped with lifeguard chairs in compliance with the American National Standard for Public Swimming Pools.

(2) An owner may use a deck-level lifeguard chair in a designated area on the deck adjacent to shallow water instead of an elevated lifeguard chair.



MARYLAND
Department of Health

D. Lifeguards.

- (1) An owner of a public pool shall comply with:
 - (a) Local codes requiring lifeguards if the requirements of the local codes are stricter than the requirements set forth in §D(2)—(5) of this regulation; or
 - (b) §D(2)—(5) of this regulation if no local codes exist, or if the local codes requiring lifeguards are not as strict as the requirements of §D(2)—(5) of this regulation.
- (2) Except as set forth in §D(1) and (3) of this regulation, an owner of a recreational pool shall have at least one lifeguard on duty on the deck observing the pool while an individual is in the pool, and shall have at the pool:
 - (a) Lifeguards who are appropriately trained and certified for the type of facility and activity in the pool;
 - (b) A sufficient number of lifeguards so that a lifeguard is on duty for each group of 50 individuals, or fraction thereof, in the pool; and
 - (c) In addition to the number of lifeguards required in §D(2)(b) of this regulation, additional lifeguards on duty if:
 - (i) The shape, dimensions, layout, use, activities, or features of the pool create potential safety hazards;
 - (ii) The vision of the required lifeguard or lifeguards is obstructed;
 - (iii) The capabilities of the individuals using the pool are substandard; or
 - (iv) Another condition exists that compromises the ability of a lifeguard to monitor the pool.
- (3) An owner may use a lifeguard on the deck of a swimming pool to monitor an adjacent wading pool, but if a wading pool is the only pool at a facility or if the wading pool cannot be observed from the deck of the swimming pool, the owner shall ensure that lifeguards are provided at the wading pool in accordance with §D(1) and (2) of this regulation.
- (4) In addition to meeting the other requirements of this chapter, an owner or operator of a facility specified in the following paragraphs shall ensure that a:
 - (a) Limited public-use pool has water safety supervision for pool activities in compliance with Regulation .15 of this chapter;
 - (b) Child care center has water safety supervision for pool activities at a child care center in compliance with COMAR 07.04.02.41; and
 - (c) Youth camp has water safety supervision for pool activities at a youth camp in compliance with COMAR 10.16.06.
- (5) The owner may only use or employ a lifeguard who holds a valid lifeguard certification from:
 - (a) The American Red Cross;
 - (b) The Boy Scouts of America, not including a lifesaving merit badge;
 - (c) The Young Men's Christian Association;



MARYLAND
Department of Health

(d) Ellis and Associates' National Pool and Waterpark Lifeguard Training;
or

(e) An organization that has a lifeguard training program equivalent to the American Red Cross lifeguard training.

(6) Except as set forth in §D(1) and (3) of this regulation, an owner of a semipublic pool that has a water surface area greater than 2,500 square feet or that is part of a multiple pool facility within one enclosure that has a combined water surface area greater than 2,500 square feet shall ensure that at least one lifeguard is on duty on the deck observing a pool in the ratio of one guard per 50 individuals in the water:

(a) During the peak seasonal use of the pool from Memorial Day to Labor Day; and

(b) During the use of an indoor, heated pool throughout the entire year.

E. CPR and First-Aid Personnel. Except at a semipublic spa, an owner of a recreational pool, public spa, and a limited public use pool shall ensure that:

(1) When the pool or spa is open for use, an individual is present and on site, holding a valid certification for:

(a) Infant/child/adult or professional rescuer cardiopulmonary resuscitation (CPR); and

(b) First aid; and

(2) The CPR and first aid certifications of the individual required in §E(1) of this regulation are from:

(a) A national organization offering certification in CPR or first aid, such as the:

(i) American Red Cross;

(ii) American Heart Association; or

(iii) National Safety Council;

(b) The Emergency Medical Services; or

(c) An organization that has a certification program in CPR or first aid that is approved by one of the organizations listed in §E(2) of this regulation.

F. Safety Signs. An owner of a public pool or spa shall ensure that:

(1) The size, color, design, application, symbol, and visual layout of a safety sign is in compliance with the ANSI Z-535 series of standards for Safety Signs and Colors as referenced in American National Standard for Public Spas;

(2) A spa safety sign is posted in a permanent location adjacent to a spa in compliance with the American National Standard for Public Spas;

(3) The spa safety sign includes the user load of the spa;

(4) A chemical warning sign is posted at the entrance door to a chemical storage area and includes the text "Caution! Chemical Storage Area";

(5) A chemical vat, feeder, pump, and line is labeled to identify the chemical in use;



MARYLAND
Department of Health

- (6) A chlorine gas warning sign reading "Danger—Chlorine Gas" is posted at the entrance to a chlorine gas feed room and storage area;
- (7) Other warning, health advisory, and safety signs are posted if necessary to protect the public health and safety, for example, "Danger! No Diving In Shallow Water";
- (8) A semipublic pool or public spa that does not have a lifeguard on duty has a conspicuous sign posted adjacent to entrances to the pool or spa reading "WARNING; NO LIFEGUARD ON DUTY. **SWIM AT YOUR OWN RISK. DO NOT SWIM ALONE. CHILDREN UNDER 15 SHOULD NOT USE THE POOL WITHOUT ADULT SUPERVISION.**"; and
- (9) House rules are posted at the entrance to a pool or spa.

.43 Pool and Spa Operation.

An owner shall ensure that a certified pool and spa operator:

- A. Is on site at all times when a recreational pool is open;
- B. Is available at a semipublic pool, public spa, and at a limited public-use pool for performance of all requirements of this chapter and is able to respond to operational problems within 15 minutes when not available on site;
- C. Measures and records, or supervises and verifies the measurement and recording of, all information required in Regulation .46 of this chapter;
- D. Performs all duties related to the operation of a pool or spa as required in this chapter;
- E. Cleans the filtration system when the filter pressure differential reaches a level specified by the equipment's manufacturer or as specified below:
 - (1) High rate sand filters at 15 psi;
 - (2) Rapid rate sand filters at 8 psi;
 - (3) Cartridge filters at 10 psi;
 - (4) Pressure diatomaceous earth filters at 10 psi; and
 - (5) Vacuum diatomaceous earth filters at 15 inches of mercury;
- F. Maintains disinfection residuals according to Regulation .44 of this chapter;
- G. Maintains water chemistry according to Regulation .45 of this chapter; and
- H. Adds a nonstabilized oxidizer into the pool or spa water equivalent to an amount of free chlorine equal to at least 10 times the measured combined chlorine residual plus sufficient free chlorine to oxidize the ammonia and nitrogenous compounds in the water,



MARYLAND Department of Health

on a recommended schedule of once per week for a pool and once per day for a wading pool and for a spa.

.45 Water Chemistry of a Pool and Spa.

A. An owner or operator shall ensure that the water chemistry of a public pool or spa is maintained according to the following requirements:

(1) The pH of the water is maintained between 7.2 and 7.8;

(2) The total alkalinity of the water is maintained between 60 ppm and 180 ppm;

(3) The calcium hardness of the water is maintained between 150 and 400 ppm;

(4) The Langelier Saturation Index of the water is maintained between -0.5 and +0.5 as calculated by:

(a) The Langelier Saturation Index formula: $Langelier\ Saturation\ Index = pH + TF + CF + AF - 12.1$ where: TF = temperature factor, CF = calcium hardness factor, and AF = alkalinity factor, and

(b) The following factor table:

Temperature (°F)	Temperature Factor	Calcium Hardness (ppm)	Calcium Factor	Total Alkalinity (ppm)	Alkalinity Factor
32	0.0	5	0.3	5	0.7
37	0.1	25	1.0	25	1.4
46	0.2	50	1.3	50	1.7
53	0.3	75	1.5	75	1.9
60	0.4	100	1.6	100	2.0
66	0.5	150	1.8	150	2.2
76	0.6	200	1.9	200	2.3
84	0.7	300	2.1	300	2.5
94	0.8	400	2.2	400	2.6
105	0.9	800	2.5	800	2.9
128	1.0	1000	2.6	1000	3.0

(5) The amount of total dissolved solids is maintained so that it does not exceed 1,500 ppm, except for a salt water pool where the total dissolved solids may not exceed 3,000 ppm;

(6) The amount of dissolved metals is maintained so that it does not exceed the following levels:

(a) Iron, 0.3 ppm,

(b) Manganese, 0.3 ppm, and

(c) Copper, 1.3 ppm; and

(7) The water clarity is maintained so that either a 6 inch seechi disc placed in the deepest part of a pool or spa or the main drain is clearly visible and sharply defined when observed from the side of the pool or spa.



MARYLAND
Department of Health

B. An owner or operator shall ensure that:

- (1) Water additives and treatment chemicals are used according to manufacturers' instructions; and
- (2) When chemicals are added directly to a pool or spa, no one is allowed in the water until the chemicals are dissolved and diffused throughout the pool or spa.

C. An owner or operator shall ensure that the water temperature for a heated public pool or spa does not exceed:

- (1) 88°F for a pool;
- (2) 104°F for a spa; and
- (3) 96°F for a therapy pool.

.46 Operating Records Required.

An operator shall maintain operating records on a form provided by the Secretary or an equivalent form and shall:

A. Except as provided in §B of this regulation, record the information required in §C(1)—(3) of this regulation in 2-hour intervals for a recreational pool and for a public spa, and three times per day for a limited public-use and semipublic pool and record the information required in §C(4)—(9) of this regulation a minimum of three times per day for a public pool and spa, beginning 1/2 hour before opening;

B. For a public pool or spa where an approved automatic controller is used, record the information required in §C of this regulation:

- (1) A minimum of three times per day in conformance with the following schedule:
 - (a) The first recording of the day shall be made 1/2 hour before the pool or spa opens;
 - (b) The second recording shall be completed between 12 p.m. and 2 p.m.; and
 - (c) The final recording shall be completed 2 hours before closing; and
- (2) More frequently if required by the Secretary due to conditions such as high bather load, high temperatures, bright sunlight, or inadequate water quality;

C. Record the following information in the intervals required in §§A and B of this regulation:

- (1) Disinfectant residual;
- (2) Combined chlorine level, if chlorine is used;
- (3) pH;
- (4) Water clarity;
- (5) Water temperature, if heated;
- (6) Flow rate;



MARYLAND
Department of Health

- (7) Filter influent pressure and effluent pressure;
- (8) Pump vacuum; and
- (9) Total number of bathers;

D. Record in 1-week intervals for a public pool and in 1-day intervals for a public spa:

- (1) Total alkalinity level;
- (2) Calcium hardness level; and
- (3) Cyanuric acid level, if used;

E. Record daily for a public pool or spa:

- (1) The time of filter backwash or cleaning;
- (2) An injury or accident at the pool or spa;
- (3) Chemicals added to the water; and
- (4) Malfunctioning or broken equipment;

F. Date and sign each record sheet;

G. Record the results of the following inspections in the specified intervals to complete a Pool and Spa Entrapment Hazards Checklist:

- (1) Daily check before the facility is open to verify that:
 - (a) Drain covers, vacuum fitting covers, skimmer equalizer covers, and any other suction outlet covers are in place, secure, and unbroken;
 - (b) Skimmer baskets, weirs, lids, flow adjusters, and suction outlet lines are free of any blockage;
 - (c) Inlet and return covers or fittings are in place, secure, and unbroken;
 - (d) Safety warning signs are in place around the pool or spa, including emergency instructions and phone numbers; and
 - (e) On/off switches for pumps are clearly labeled and the location of the pumps is clearly identified; and
- (2) Check all information required in §G(1) of this regulation before filling a pool or spa with water, after periodic maintenance, and after pool or filter cleaning procedures;

H. Keep the records on the premises for a minimum of 3 years; and

I. Submit the records to the Secretary upon request.

.48 Sanitary Quality of Water.

Although routine testing is not required, an owner shall ensure that the water in a public pool or spa:

- A. Has a coliform bacteria level of less than 1 coliform per milliliter; and
- B. Is free of pathogenic organisms.