



North Carolina Department of Environment and Natural Resources

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Top 20 Frequently Asked Questions About Safety Vacuum Release Systems (SVRS) and Anti-Entrapment Drain Covers

1. What rule addresses the SVRS and the Anti-Entrapment drain cover?

Rule .2539 (b) “Effective April 1, 2006 all public swimming pools with a single main drain shall be protected from potential bather entrapment by a safety vacuum release system installed on the drain piping and single drains smaller than 12 inches in diameter shall be protected by an anti-entrapment drain cover meeting ASME/ANSI A112.19.8M Standard”.

2. What type of public swimming pools will this new rule affect?

Any pool that has a single main drain as part of any circulation system.

Many pools built prior to adoption of Rules Governing Public Swimming Pools were built with a single main drain and a skimmer(s) and will require a SVRS with Anti-entrapment drain cover by April 1, 2006.

Pools built since the effective date of the Rules Governing Public Swimming Pools (1991) will have dual main drains connected by a “T” pipe, however the EHS should not overlook a pool based solely on the construction date.

3. There have been problems with suction injuries at wading pools in the past. Does this rule apply only to wading pools?

No.

The SVRS and an Anti-Entrapment drain cover are required at any wading pool, swimming pool, or spa that utilizes a single main drain as part of the suction outlets to a pump.

4. Does this rule apply only to recirculation pumps?

No.

Any pump that has suction from a single drain outlet will be affected. This includes hydrotherapy pumps on spas and feature pumps on specialized water recreation attractions.

5. When flow to a pump is from multiple outlets, how will the EHS identify pools that need to have SVRS & Anti-entrapment drain covers?

This rule change will affect any pool, spa or wading pool that has flow to the pump balanced from a skimmer (or skimmers) and a single main drain. The number of skimmers is insignificant when attempting to determine the application of rule .2539(b). If there is potential to isolate flow through a single main drain suction outlet, then a SVRS with Anti-Entrapment drain cover will be required.

6. Can a single drain swimming pool with a skimmer(s) operate by simply locking the skimmer valve in the “open” position without a SVRS on the drain line and without installing an anti-entrapment drain cover?
No.

A swimming pool with a single main drain and a skimmer(s) can no longer operate by simply keeping the skimmer valve locked in the “open” position. Single main drain pools will always be required to keep the “skimmer valve in the open position and immobilized with a lock, tie or other method to secure against tampering” according to rule .2539 (b), but now a SVRS and anti-entrapment drain cover are also required.

Failure to keep the “skimmer valve in the open position and immobilized with a lock, tie or other method to secure against tampering” will result in immediate suspension of the operation permit even if a SVRS is installed.

7. What are the “layers of protection” I’ve been hearing about?

The “layers of protection” are critical points of suction hazard prevention. Any single layer is capable of reducing the risk of a suction hazard but adding additional layers has a cumulative effect which significantly decreases the risk that a suction hazard or drain entrapment.

Each of the 4 “layers of protection” must be present for a single main drain pool to be permitted at the beginning of the season or an immediate permit suspension should be issued if one of the “layers of protection” is not present. The layers are:

- (1) circulation system comprised of at least one skimmer and one main drain,
- (2) skimmer valve locked or immobilized in the “open” position,
- (3) anti-entrapment drain cover on any main drains less than 12 inches in diameter,
- (4) SVRS installed on the main drain pipe

8. What options are available to pool owners and operators of affected pools?

Affected public swimming pools have three options to incorporate by April 1, 2006:

(1) The pool can be retrofitted with an additional main drain to meet the current construction requirement of two main drains “connected by a “T” piping”. When the drain is added to the bottom of the pool, there must be 3 feet of clear separation between the two drains. See rule .2518 (k) for main drain installation details.

(2) A SRVS can be installed on the main drain pipe with an anti-entrapment drain cover meeting the ASME/ANSI definition if the drain is less than 12 inches in diameter.

(3) The pool can choose to discontinue operation. If the pool does not perform option (1) or (2), the EHS will not issue a permit for the season or if the condition is discovered during an inspection, an immediate suspension will be issued.

9. What is the ANSI definition of Safety Vacuum Release System?

“A Safety Vacuum Release Systems is a system or device capable of providing vacuum release at a suction outlet caused by a high vacuum occurrence due to a suction outlet blockage. SVRS devices must allow for the vacuum release with or without the suction outlet cover(s) in place, and shall operate in such a way as to not defeat or disengage other layers of protection installed to protect against suction entrapment.”

10. Which products meet the ASME/ANSI definition of a SVRS?

As of April 6, 2005, VAC-ALERT has completed the tested by a third party to meet the definition of a SVRS. The Stingl-Switch has completed testing and is anticipated to be approved in the near future once documentation of standard compliance is received. Other products may be in third party testing so the best advice is to ask for documentation that the product has been tested and it has been shown to meet the ASME/ANSI standard for a SVRS.

11. Is an anti-entrapment drain cover the same as an anti-vortex drain cover?

No. Anti-entrapment drain covers are designed with safety features not necessarily present in all anti-vortex designs. Anti-entrapment covers must meet the ASME/ANSI A112.19.8M standards.

12. What products meet the ASME/ANSI A112.19.8M definition of an “Anti-Entrapment” drain cover?

Much like the SVRS, an EHS wanting to determine if a drain cover is approved according to ASME/ANSI standard must request the owner/operator to provide documentation of the approval. Many drain covers that meet the standard will have a statement to that effect provided on the installation instruction cut sheet. Some manufacturers have the AMSE/ANSI standard number embossed on the cover. Some information about compliant and non-compliant drains with pictures are available on the world wide web at http://www.drainsafe.com/print_summary.htm.

13. Will plans be required when pools either (1) install the SVRS/Anti-Entrapment cover or (2) install a second main drain?

No.

The rules make exception for a public swimming pool to bypass the plan review process if the purpose of the improvement is to alleviate a suction hazard.

14. Will plumbing code impact the installation of the SVRS?

No.

Plumbing code does not typically cover any of a public swimming pool’s circulation system.

15. Will EHS be responsible for testing the function of the SVRS in the field?

There are no testing requirements for the SVRS that are mandatory for the EHS to perform. The EHS must determine if an approved system has been installed. It is recommended the EHS take advantage of any opportunity to meet with an installer or ask a pool operator to demonstrate how the system works whenever practicable.

16. Can a SVRS be installed by a pool owner/operator or can only a pool builder install the device?

A knowledgeable pool owner/operator can accept the responsibility for installing the SVRS and Anti-Entrapment cover. The rules do not specify who must do the installation.

17. What course of action should an EHS take this pool season to help ensure compliance by the effective date?

Look for pools which will be affected by the rule next season and share information with the owner or operator about what must be done to bring the pool into compliance. The EHS should inventory pools that will be affected this year (see questions 2& 3) as the pool seasons progresses. It may be helpful to general comment the effective date along with the requirements on this season’s inspection form if the pool has a single drain with flow balanced from a skimmer(s).

18. Where can I find more information on the identification of suction hazards?

There are several good sources available on the internet. Consumer Products Safety Commission has one of the most complete documents entitled "Guidelines for Entrapment Hazards: Making Pools and Spas Safer".

The document can be viewed at:

<http://www.cpsc.gov/cpsc/pub/pubs/363.pdf#search='suction%20hazards'>

A description and pictures of pool drains with compliance information are available at:

http://www.drainsafe.com/print_summary.htm

For an explanation of a typical pool circulation system, there is an excellent depiction available at:

<http://home.howstuffworks.com/swimming-pool3.htm>

19. When does the rule .2539 (b) take effect?

April 1, 2006. After this date all single drain pools, wading pools and spas will need to install a SVRS with an Anti-Entrapment drain cover or install an additional main drain connected with a "T" pipe in order to receive an operational permit for the season.

20. What if I have read this document and still have questions or difficulty determining the precise operation of a circulation system or the application of rule .2539 (b)?

Contact your local Regional Environmental Health Specialist or Jim Hayes. The 4 REHS's and their corresponding counties are listed on the DENR website at: <http://www.deh.enr.state.nc.us/ehs/pd3.htm>

The 4 regional specialists are:

Pamela Grubbs (Northeast) Pamela.Grubbs@ncmail.net (919) 570-0872

Cindy Williams (Southeast) Cindy.Williams@ncmail.net (252) 442-1000

Phil Thompson (Piedmont) Phil.Thompson@ncmail.net (336) 446-6905

Brian Ferguson (West) Brian.E.Ferguson@ncmail.net (704) 235-2120

Jim Hayes (Branch Head) Jim.Hayes@ncmail.net (919) 715-0924

*This document does not substitute for the NC Rules Governing Public Swimming Pools and should only be used as a reference tool to some common situations and questions regarding rule .2539(b).