




United States
CONSUMER PRODUCT SAFETY COMMISSION
Bethesda, Maryland 20814

MEMORANDUM

DATE: April 1, 2008

TO : OGC

Through: Todd A. Stevenson, Secretary, OS 

FROM : Martha A. Kosh, OS *usk*

SUBJECT: Pool and Spa Safety Act

ATTACHED ARE COMMENTS ON POOL AND SPA SAFETY ACT

<u>COMMENT</u>	<u>DATE</u>	<u>SIGNED BY</u>	<u>AFFILIATION</u>
1	3/17/08	Sandra Bailey Fire and Life Safety Educator/ Coordinator	New Kent Fire-Rescure sbailey@co.newkent.state.va.us
2	3/17/08	Kimberly Carlton	Kim.Carlton@vdh.virginia.gov
3	3/18/08	Jeff Ehleringer	Jeff.Ehleringer@bonestroo.com
4	3/24/08	Paul Sisson P.E.	Michigan Department of Environmental Quality Campgrounds & Pools Unit Drinking Water/Environmental Health Section, Water Bureau P.O. Box 30273 Lansing, MI 48909
4a	3/26/08	Paul Sisson	same as above
5.	3/24/08	Tracynda Davis Director	National Swimming Pool Health Programs Tracynda.davis@nspf.org
6.	3/24/08	David Lopez	David.Lopez@ci.austin.tx.us
7.	3/24/08	James H. Bastian Vice President for Business Development	Westport Pools & Midwest Pool Management 156 Weldon Parkway Maryland Heights, MO 63043
8.	3/25/08	Mike Wilson	nccpools@msn.com

Pool and Spa Safety Act

9.	3/25/08	Mike Young	myoung@shd.snohomish.wa.gov
10.	3/26/08	Ann Brandstrom	abrandstrom@browndeerwi.org
11.	3/26/08	Ian Rayder Sr Legislative Appropriations Associate	Cong. Debbie Wasserman Shultz 118 Cannon House Office Bldg Washington, DC 20515
12.	3/26/08	Penny Shaver Water Safety Consultant	Alpine Pool Services P.O. Box 1652 Boyd, TX 76023
13.	3/26/08	David Stingl	Jager100@aol.com
14.	3/27/08	Kathy Williams Injury Prevention Specialist,	Injury & Violence Prevention Washington State Dept. of Health P.O. Box 47853 Olympia, WA 98504
15.	3/27/08	Maurice Redmond Program Consultant	Georgia Divion of Public Health Environmental Health Section 2 Peachtree Street Atlanta, GA 30303
16	3/28/08	Alan Korn Director of Public Policy General Counsel	Safe Kids Worldwide 1301 Pennsylvania Ave, NW Suite 1000 Washington, DC 20004
17.	3/28/08	Paul Pennington	Pool Safety Consortium 336 West College Ave. Santa Rosa, CA 95401
18.	3/28/08	Gary Duren	Code Compliance Inc. P.O. Box 817 Keystone Heights, FL 32656
19.	3/28/08	Donald Mays Sr Director, Product Safety & Tech. Public Policy	Consumers Union
		Janell M. Duncan	Consumers Union
20.	3/28/08	Raj Solomom Pool Program Manager	New Mexico Environment Dept. 5500 San Antonio Dr., NE Albuquerque, NM 87109

Pool and Spa Safety Act

- | | | | |
|-----|---------|--|--|
| 21. | 3/28/08 | Carvin DiGiovanni
Sr. Director
Technical &
Standards | Association of Pool & Spa
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| 22. | 3/28/08 | Steve Jillson
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| 23. | 3/28/09 | Gary Fraser
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| 24. | 3/28/08 | Sean Debley
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Environmental Health Div.
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| 25. | 3/28/08 | Bob Poole | <u>Pooleb@co.thurston.wa.us</u> |
| 26. | 3/28/08 | Kent Wood, PE | Badger Swimpools, Inc.
5115 Excelsior Blvd, #111
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| 27. | 3/28/08 | Bob Vincent, RS
MPA, Administrator
Public Pool
Regulation,
Bureau of Water
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| 28. | 3/28/08 | Kathleen Moore
R.S., CPO | Texas Department of State
1100 West 49th Street
Austin, TX 78714 |

Stevenson, Todd

From: Sandra Bailey [sbailey@co.newkent.state.va.us]
Sent: Monday, March 17, 2008 10:25 AM
To: CPSC-OS
Subject: Pool and Spa Safety Act Comments

I have reviewed the attached and don't feel that I know enough about this particular area of interest except that the proposed draft appears to look good. My only concern is how often the required devices/actions would be inspected to ensure compliance. I'm sure this would be covered somewhere else. Overall, I think the draft was good as written.

Sandra Bailey
New Kent Fire-Rescue
Fire and Life Safety Educator/Coordinator
(804) 966-9618 ext 2
sbailey@co.newkent.state.va.us

Stevenson, Todd

From: Kimberly Carlton [Kim.Carlton@vdh.virginia.gov]
Sent: Monday, March 17, 2008 10:12 AM
To: CPSC-OS
Subject: Pool & Spa law

This is a wonderful requirement. I have also encountered the same problem w/jaccuzzi's in hotel rooms. They will suck your hair into it when you go to rinse. There definately needs to be something in place to prevent children and adults from underwater entrapment. 3 Stars for passing this into law.

Stevenson, Todd

From: Ehleringer, Jeff J [Jeff.Ehleringer@bonestroo.com]
Sent: Tuesday, March 18, 2008 2:38 PM
To: CPSC-OS
Subject: "Pool & Spa Safety Act"

I wanted to comment regarding the pool and spa safety act. Our firm designs pools, primarily for municipalities.

Drain Covers:

As I understand it, there may not be any pool product manufacturers that currently have a cover that would meet the requirements of the updated ASME A112.19.8 standard. The difficulty lies in having manufacturers develop their products, get them federally tested, get them manufactured and then having pool contractors available to install the covers and/or make physical changes to pools before the deadlines. This is especially true because of the multiple types of main drains that out there, including field fabricated outlets such as large concrete trenches with general fiberglass grating (Duradek I-4000 is a very common one used in the Midwest) which are effective and very safe but are not manufactured specifically by a pool manufacturer. To get a fiberglass manufacturer to certify such a grating cover for the specific use in a pool, even though it is completely safe, may not be possible, resulting in expensive complete replacement of drains to meet the regulation requirements without improving the actual safety.

Jeff Ehleringer, PE
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Bonestroo

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Stevenson, Todd

From: Wolfson, Scott
Sent: Monday, March 24, 2008 4:50 PM
To: CPSC-OS
Subject: FW: Main drains

For inclusion with the other public comments on the Pool and Spa Safety Act. Thanks.

From: Paul Sisson [mailto:sissonp@michigan.gov]
Sent: Friday, March 21, 2008 12:02 PM
To: Wolfson, Scott
Cc: McGeachy, Ben
Subject: Main drains

Scott,

The horror stories are starting to come in. The major hotel chains are trying to comply with the Baker Act without sufficient information. I have a hotel in Michigan in the Stanwood group with 2 square 12" x 12" drains. The hotel engineer is indicating that the corporate office, assuming that all main drains are round, is ordering them to cut a 9" diameter hole in their square main drain and attach A112 compliant drain cover.

This obviously and totally defeats the purpose of the Baker Act and violated the Michigan rules. If they modify the existing square drain cover in any way, we will be forced to order their pools closed.

It is my opinion as a state regulator that you need to IMMEDIATELY develop an implementation protocol for main drain cover replacements. The public needs to be informed that not all covers are the same and that many pools with two main drains and square drain covers are very safe and that they need to wait for suitable A112 compliant products to come on the market before changing them.

I suggest a priority be developed to determine which covers need to be changed first:

- 1 Single main drain pools, with the shallowest pools brought into compliance first. Wading pools that are 12" to 18" deep area the highest priority because of evisceration hazard. Pools to 4' or 5' are next highest. Deeper pools are next. If a pool has been fitted with an SVRS, then it's priority will be lower.
- 2 Dual main drain pools with round main drain covers. Also with the shallowest pools first.
- 3 Dual main drain pools with square main drain covers. Shallower pools and 9" x 9" drain covers first. Pools with 12" x 12" drain covers next.
- 4 Pools with other shapes and sizes of main drains must be evaluated on a case-by-case basis.
- 5 Pools with 2 gravity drains to a collector tank or balance tank. These most likely will not need to be retrofitted at all.

In all of these it is imperative to evaluate the total flow rate through the cover open area. The larger the cover compared to the flow rate, the safer the pool is. Any pool with a broken or otherwise compromised drain cover must be closed and the cover be replaced immediately.

I will be sending in my comments on your CPSC staff interpretation early next week.

Paul D. Sisson, P.E.
Campgrounds & Pools Unit

3/25/2008

Drinking Water & Environmental Health Section
Water Bureau
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STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING



JENNIFER M. GRANHOLM
GOVERNOR

STEVEN E. CHESTER
DIRECTOR

**MICHIGAN COMMENTS
ON THE CONSUMER PRODUCTS SAFETY COMMISSION (CPSC)
STAFF INTERPRETATION OF THE
VIRGINIA GRAEME BAKER POOL AND SPA SAFETY ACT OF 2007**

Introduction

The Michigan Department of Environmental Quality (MDEQ) regulates public swimming pools in the state of Michigan. The MDEQ strongly supports the intent of the Virginia Graeme Baker Pool and Spa Act of 2007 (Baker Act). We also strongly support the role of the Consumer Products Safety Commission (CPSC) in the Baker Act and the effort to clarify and interpret provisions of the Baker Act as it relates to anti-entrapment requirements for public swimming pools.

Many states, including Michigan, already have rules in place that include anti-entrapment provisions for main drain and other suction outlets. Specifically, the MDEQ main and other outlet rule (Rule 42) have required two main drains at least three feet apart, but not more than 15 feet apart, since 1971. This rule also required the maximum flow velocity through the drain covers to be no greater than two feet per second. The maximum flow velocity was changed to not more than one foot per second through the drain covers in 2001.

Consequently, the only public swimming pools in Michigan that had a single main drain were built prior to 1971 or were built without obtaining the required construction permit from the MDEQ. In 1999, the MDEQ ordered that any remaining public pools with one main drain be retrofitted with two drains, an "unblockable" drain (greater than 24 inches diagonally), or a safety vacuum release system (SVRS). These renovations/updates were substantially completed within two years.

Comments on the CPSC Staff Interpretation of the Baker Act of 2007

The Baker Act references the ANSI/ASME A112.19.8-2007 performance standard (A112-2007) to determine complying drain covers. However, the Michigan public swimming pool rules set a performance standard for drain covers, but do not reference any version of A112. Since the MDEQ is not familiar with the provisions of the A112-2007, we will rely on the CPSC staff interpretation for drain covers.

What are the variations between the 1987, 1996, and the 2007 versions of A112? Did the 2007 version make significant revisions that would render the drains that complied under the 1996 version obsolete or noncomplying?

If drains met earlier versions of A112, but not the current version, we conclude that **no existing** drain covers on any public swimming pool in the United States meet this standard. Therefore, **all** drain covers will need to be replaced by December 19, 2008. Is this your interpretation?

If this is your interpretation, then which drain covers comply with the A112-2007 standard? It is very difficult for each state to check and monitor every testing laboratory that has certified main drains. We believe that CPSC should be a one-stop location to find all drain covers that have been certified to A112-2007. The CPSC should contact all of the testing laboratories that certify drain covers to A112-2007 such as NSF International, IAPMO, UL, etc.

The MDEQ realizes that compliance with A112, or any standard, must be verified by a nationally recognized testing laboratory. This document should emphasize that the product is certified to A112-2007 by a testing laboratory before it is placed on the market, sold, or installed. Existing drain covers on pools cannot be certified, but only verified that the product met the A112 standard at the time it was manufactured.

If your interpretation is that all drain covers will not need to be replaced, then what are the criteria for determining which drains comply and which do not for existing pools? Who will be authorized to make a determination of compliance for an existing pool?

We would surmise that A112 has primarily been aimed at 8-inch or 9-inch diameter round drain covers. We would also surmise that round covers would be the most likely not to comply with A112-2007.

In the past, 9" x 9" covers and 12" x 12" covers either did not need to be listed or were not listed at all. Do 9" x 9" or 12" x 12" covers need to comply with A112-2007? What about larger drains?

The compliance date is very clear and only 9 months away. The CPSC needs to establish details of how to implement the Baker Act for existing pools more than interpretation. Some type of priority needs to be established to handle what pools and covers need to be changed first.

The MDEQ would suggest the following priority for retrofitting drain covers at existing public swimming pools:

- Pools with one main drain and no other anti-entrapment features should be the highest priority, with the shallowest pools handled first.
- Shallow pools with two main drains. Handle the pools with the smaller round main drains first.
- Handle deeper pools with round main drains next.
- Pools with square 9" x 9" and 12" x 12" drain covers.

Drain Covers

The Baker Act requires public pools and spas to be equipped with anti-entrapment devices that comply with A112-2007. Although the requirement is very good, there are several problems with implementation:

- The Michigan rules do not currently reference the A112 standard. We can only enforce our current rule (2 outlets, 1 ft/sec. max. velocity).
- Can an existing pool have someone test their drain covers for structural integrity, body/hair entrapment, and flow rate (i.e. the A112 requirements)?
- If so, who will do this testing?
- If pools need to be retrofitted with A112 drain covers, where do they obtain a listing of all covers?
- Michigan cannot allow covers that violate our 1 ft/sec. flow velocity. In the past, covers meeting A112 have allowed flow velocities and maximum flow rates up to 6 ft/sec. We do not know what velocities A112 will allow.

The major problem in Michigan with accepting drain covers that are only certified to A112-2007 is that it appears that they still allow flow velocities greater than 1.5 feet per second through the covers. Since the Michigan rules will still retain a maximum flow velocity of one foot per second through drain covers, we cannot accept drain covers at their A112-2007 "maximum flow rate." This has been a problem with anti-vortex (AV) covers and may continue to be a problem with A112-2007 anti-entrapment covers.

Single Main Drains

Michigan fortunately has very few, if any, remaining single main drain pools. Michigan rules require skimmers to be piped independently from the main drains. We also require main drains to be located at the deepest point of the pools so the pool can be drained completely.

The interpretation cites a maximum flow through the cover is 1.5 ft/sec. according to ANSI/NSPI-1. We strongly agree that there needs to be a maximum velocity through the cover open area.

Why stop at just NSPI-1? Why not also cite ANSI/APSP-7 (APSP-7)? It is our opinion that APSP-7 already answers many drain cover questions and can go a long way to properly evaluate new and existing drain covers. Your interpretations appear to mirror APSP-7 very closely.

Unblockable Drains

For existing pools, a pool drain system must be modified to provide an "unblockable drain." In Michigan, a construction permit is required to make a modification to a public swimming pool main drain system.

- The 18" x 23" or larger drain is consistent with APSP-7
- The long channel drain needs to have dimensions such as 3" x 31" as indicated in APSP-7.
- The large outlet grate with a diagonal of 29" or more is apparently a change in A112-2007 from the former 24" diagonal. This should be mentioned directly that this is a change from previous versions of A112.
- What are "circulation designs that do not include fully submerged suction outlets?" Does this mean pools without main drains?

Devices or Systems Designed to Prevent Entrapment

A distinction should be made to clearly distinguish between those anti-entrapment devices that can only be added when a pool is first constructed and those that can be added later.

Concerning the SVRS devices, there are some that can be used to retrofit an existing pool. These devices can be attached to the pump suction piping in the equipment room. Which ones are listed to ASME/ANSI A112.19.7 or to ASTM F2387?

Atmospheric vents are added when the pool is first built and are very difficult to add later. Your vent system sketch seems to show that a vent line can be located near the filtration pump. This is not hydraulically correct. In order to not continually introduce air into the filtration pump, a vent must be located very near the outlets, preferably within one foot of the drain tee.

Even though there are currently no voluntary standards for vent systems, the CPSC needs to be better at providing some design details. The Florida Swimming Pool Association has a vent system detail prepared by Horner Consulting Engineers, Inc. Although we have no requirements for vent lines, Michigan will accept vent lines designed and installed according to this document for public swimming pools.

What is the status of the ASTM vent line standard?

Except for large pools with balance or surge tanks, gravity drains and collector tanks are rare in Michigan. It is difficult to retrofit an existing pool with a collector tank. We would certainly accept a skimmer pool with a collector tank.

Even though there is no voluntary standard for collector tanks, again the CPSC needs to provide some design details better than the sketch. Florida has recommended and accepted collector tanks for many years and they will be requiring retrofit collector tanks for all pools in their revised rules (to be adopted soon). The Florida recommendations should be used as a guide to the design and installation of collector tanks.

Concerning automatic pump shut-off systems, you need to list which SVRS devices fall into this category. The statement that some "may meet this definition" is vague.

Even though vacuum limit switches in the past were slow and needed a fairly high vacuum to shut the pump off, what products now qualify? Can these devices be added to an existing pool?

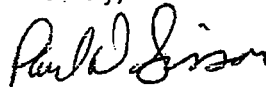
Final Comments

In the meantime, the MDEQ will publish a document on how Michigan will handle drain covers at existing public swimming pools in relation to the Baker Act. The MDEQ will be using our existing main drain rule flow velocity requirement and sections of APSP-7 to establish a priority to determine if retrofits are needed. We will also recommend A112-2007 compliant drain covers, but will restrict them to our flow velocity rather than using the listed maximum flow rates.

Michigan applauds the effort of the CPSC to try to interpret the Baker Act. We look forward to more detailed implementation priorities and procedures from the CPSC in the near future.

Please contact me at the number listed below if you have any questions or you may e-mail me at sissonp@michigan.gov.

Sincerely,



Paul D. Sisson, P.E., Environmental Engineer
Campgrounds & Pools Unit
Drinking Water and Environmental Health Section
Water Bureau
517-241-1350 Fax 517-241-1328

cc: Mr. Ben McGeachy, MDEQ

Stevenson, Todd

From: Paul Sisson [sissonp@michigan.gov]
Sent: Wednesday, March 26, 2008 9:35 AM
To: CPSC-OS
Subject: Pool & Spa Safety Act
Attachments: Michigan Comments CPSC Baker_Interpretation.pdf

Please find attached our comments about the 3/14/08 draft of the CPSC staff interpretation of the Baker Pool & Spa Safety Act of 2007. We appreciate the opportunity to comment.

Paul D. Sisson, P.E.
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sissonp@michigan.gov

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Stevenson, Todd

From: Tracynda Davis [tracynda.davis@nspf.org]
Sent: Monday, March 24, 2008 5:30 PM
To: CPSC-OS
Subject: pool and spa safety act

Office of the Secretary,
Thank you for the opportunity to comment on your staff interpretations.

- Though you did not address this in the interpretation, I have heard there currently is not a drain cover that meets ASME 2007 which is required in the federal law. If this is true, and since it is now 4 months into 2008, I believe the implementation date of Dec 2008 seems unreasonable to have all pools change out there drain covers when none are currently offered and available.
- There is no mention which agency will be enforcing these items. Federal inspectors? State and local health or building departments?
- What is the penalty's if a pool does come not come into compliance? Fines?

Thank you very much for this opportunity.

Tracynda

Tracynda Davis, M.P.H.
Director, Environmental Health Programs
National Swimming Pool Foundation
719-540-9119
www.nspf.org

Encouraging healthier living through aquatic education and research

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Stevenson, Todd

From: Lopez, David B. [David.Lopez@ci.austin.tx.us]
Sent: Monday, March 24, 2008 10:53 AM
To: CPSC-OS
Subject: Virginia Graeme Baker Pool and Spa Safety Act

One thing that stands out to me is, a *portable* wading pool does not meet their definition of a "swimming pool"...regardless of its size, availability to/use by the public, or whether or not it has any main drains/suction outlets. It seems the implication is that the term "portable" precludes the pool from having any main drains/suction outlets..

(6) SWIMMING POOL; SPA.—The term “swimming pool” or “spa” means any outdoor or indoor structure intended for swimming or recreational bathing, including in-ground and aboveground structures, and includes hot tubs, spas, portable spas, and non-portable wading pools

WESTPORT POOLS

March 24, 2008

Office of the Secretary
U.S. Consumer Product Safety Commission
4330 East West Highway
Suite 502
Bethesda, MD 20814-4408

RE: Pool & Spa Safety Act

To Whom It May Concern:

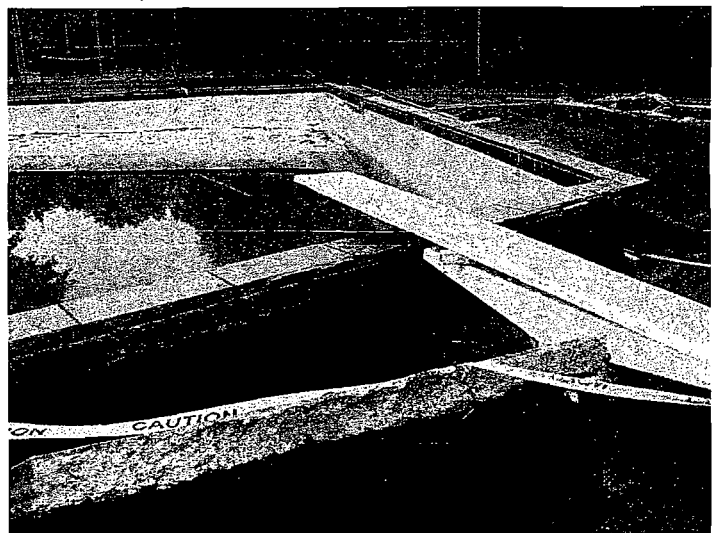
We at Westport Pools are one of the largest commercial and residential pool builders in the Midwest. We appreciate the opportunity to submit comments on the proposed Pool & Spa Safety Act. We are writing to express our support for the regulations and requirements as set forth in the Virginia Graeme Baker Pool and Spa Safety Act. Regrettably, we are writing this letter of support immediately after yet another victim of entrapment died over this past weekend. This recent tragedy serves to emphasize the need for vigilance.

It has come to our attention however, that discussions have arisen that a requirement for the installation of Safety Vacuum Safety Release Systems (SVSRS) on all pumps. We are formally registering our concern regarding this possible regulation.

This requirement, if adopted, creates serious unintended consequences for seasonal pools located in climates that require pool winterization. For the SVSRS to be effective, hydrostats located in pools that relieve pressure would need to be plugged for the SVSRS to work properly.

Failure to properly open the hydrostat to relieve pressure prior to the pool opening in the Spring leads to pools floating out of the ground due to the tremendous pressure of the underground water.

Pictured to the right is a pool in St. Louis County that had mistakenly had its hydrostat plugged. The result was the pool floated almost two feet out of the ground and having to be replaced at a cost of hundreds of thousands of dollars to the owners. Fifteen to twenty pools in St. Louis County float in this manner annually due to failure to open the hydrostat.



WESTPORT POOLS

It is our recommendation that the requirement for dual main drains creates a safe facility. We also recommend that SVSRS systems NOT be required to be installed on all pumps. Furthermore, the dual main requirement does not have the potential to cause hundreds of thousands of dollars of repair or replacement should SVSRS be installed on all pumps and those servicing the pool fail to unplug the hydrostat prior to opening.

Thank you for the opportunity to comment on these regulations. We appreciate any and all efforts directed toward enhancing the safety of aquatic facilities. Should you need any additional assistance or information, please do not hesitate to contact us at 314-432-1801.

Sincerely,



James H. Bastian, Chairman

Stevenson, Todd

From: Dave White [DWhite@WestportPools.com]
Sent: Monday, March 24, 2008 2:15 PM
To: CPSC-OS
Cc: Bert Forde; Wayne George (Wayne George); Jim Bastian
Subject: Comment on the Pool & Spa Safety Act
Attachments: cpsc comment march 24.doc

To Whom It May Concern:

Attached please find formal comments from James Bastian, Chairman of Westport Pools regarding the new Pool & Spa Safety Act. Specifically, these comments support the regulations as outlined in the Virginia Graeme Baker Pool and Spa Safety Act. We do however want to register our concern regarding any regulation requiring the installation of SVSRS on all pumps. Our concerns are outlined in the attached letter.

Dave White Vice-President for Business Development
Westport Pools & Midwest Pool Management
156 Weldon Parkway
Maryland Heights, MO 63043

PH: 314-743-4819
Fax: 314-743-4858
e-mail: dwhite@westportpools.com

website: www.westportpools.com
www.midwestpool.com

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Stevenson, Todd

From: Mike Wilson [nccpools@msn.com]
Sent: Tuesday, March 25, 2008 4:47 PM
To: CPSC-OS
Subject: Swimming pool safety concerns

When we build or install pools/spas swimming pool safety is at the top of our list . We must follow strict codes in order to complete our project and get paid. Some official from the county will inspect and sign off a sheet. This is where my concern is, customers form several big box stores can walk in and buy these soft sided swimming pools with deminsions up to and beyond 16'x32' and put them up in front of thier homes. No county official is obstructing Wal-mart from getting thier final paycheck. Lets work together and educate the store owners that need education. I am more than willing to bend over backwards in order to make my industry a much safer place to be in.

Thank You Mike Wilson/Owner 541 301-5112

3/26/2008

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Stevenson, Todd

From: Mike Young [myoung@shd.snohomish.wa.gov]
Sent: Tuesday, March 25, 2008 1:45 PM
To: CPSC-OS
Cc: Rick Zahalka
Subject: comments as "Pool & Spa Safety Act"

Office of the Secretary,

Washington State allows single main drain pool owners to install a pump shut off switch and alarm as one of the options to mitigate the risk of entrapment, as per WAC 246-260. We have hundreds of pools in our county alone that may take this option before the dead line of June 2008. If this option is not allowed under your rule, what will be the consequence?

Mike Young
Snohomish Health District

Stevenson, Todd

From: Ann Brandstrom [abrandstrom@browndeerwi.org]
Sent: Wednesday, March 26, 2008 12:27 PM
To: CPSC-OS
Subject: "Pool and Spa Safety Act"

Office of the Secretary:

I support the intent of the Act.

My only concern is whether there will be enough drain covers for all the different pools/spas that will need them, and if there are not, whether there will be additional guidelines.

Thank you.

Ann

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Stevenson, Todd

From: Rayder, Ian [Ian.Rayder@mail.house.gov]
Sent: Wednesday, March 26, 2008 5:54 PM
To: CPSC-OS
Subject: "Pool & Spa Safety Act"

RE: Pool & Spa Safety Act, Section 1404, Public Comment Period

To Whom It May Concern:

Congresswoman Wasserman Schultz would like to echo the follow comments of Safe Kids Worldwide in regards to the U.S. Consumer Product Safety Commission's (CPSC) staff guidance document for Section 1404 of the *Virginia Graeme Baker Pool & Spa Safety Act*.

The CPSC staff guidance document accurately states that the Act only requires additional entrapment prevention "layer of protection" on pools and spas with single main drains. The supplementary device protection in Section 1404(c)ii is not required for pools and spas with multiple drains. The fact that the Act does not require another layer of protection on the latter does not mean, however, that systems designed to prevent entrapment would not serve a safety purpose if installed on those multi-drained pools and spas. If that is the case (i.e., the safety devices/systems would also help prevent entrapments in pools and spas with multiple main drains), then Congresswoman Wasserman Schultz agrees with Safe Kids Worldwide and would urge the CPSC to recommend their use. If the CPSC determines or has determined, as indicated in its Guidelines for Entrapment Hazards: Making Pools & Spa's Safer, that the devices listed in section 1404 (c)ii do serve a valuable safety benefit no matter the number of drains at the bottom of a pool, then Congresswoman Wasserman Schultz agrees with Safe Kids in suggesting the following (or similar) language be included in the guidance document:

"The Pool and Spa Safety Act, as passed, does not require the use of additional devices or systems designed to prevent entrapment on pools and spas with multiple drains other than anti-entrapment drain covers. The CPSC does believe, however, that these devices/systems do provide an entrapment prevention benefit on pools and spas with multiple drains. Accordingly, the CPSC recommends their use on all pools and spas as a way to provide an additional layer of protection against entrapment injuries and deaths."

In its present form, the CPSC staff interpretation document fails to describe how the agency will be policing the marketplace after December 19, 2008 for violations of Section 1404, nor does it describe the ramifications for failing to comply with the requirements. The Congresswoman strongly believes that the public guidance document should address both these concepts.

Manufacturers of pool/spa drain covers and public pool/spa operators should know, at least generally, how the agency will be policing the shelves for standard compliant covers and public pools/spas for retrofitted devices. She would expect that the agency will be training its field investigators and other staff on what to look for. She agrees with Safe Kids Worldwide that at least some of the money that will most certainly be appropriated for Act implementation can and should be used for that training/policing purpose.

Additionally, the Congresswoman agrees with Safe Kids Worldwide that manufacturers and public pool/spa owners and operators be informed specifically of the statutory ramifications and penalties for

3/27/2008

non-compliance. Significantly, the P&S Act explicitly states that the requirements of section 14(b) should be treated as a consumer product safety rule under the Consumer Product Safety Act (CPSA) and that non-compliance with section 1404 (c)i [i.e., failing to retrofit pool & spas with safety devices] should be considered a violation of section 17 of that same Act. In other words, Congress has determined that failing to comply with this section carries the same ramifications that would apply to a company who fails to report under Section 15 of the CPSA. Public pool and spas owners should know that violations of section 1404 can result in civil penalties of as much as \$1.8 million. When (as opposed to if) the President signs the CPSC Reform Act of 2008, which will most certainly increase the cap on civil penalties, the CPSC should re-issue its guidance to reflect the new higher penalties. The Congresswoman agrees with Safe Kids Worldwide that including this type of information in its guidance document demonstrates the gravity of non-compliance and clearly communicates the CPSC's intent to aggressively enforce the new law.

The Congresswoman would like to thank the staff of the CPSC for all of their hard work on this issue. Please let us know how we can be helpful to you.

Ian Rayder

Senior Legislative Assistant / Appropriations Associate
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3/26/08

Consumer Products Safety Commission
DRAFT CPSC Staff Interpretation of the Pool and Spa Safety Act Section 1404

Comments due 3/28/08

Drain Covers: each public pool and spa in the United States shall be equipped with anti-entrapment devices or systems that comply with the ASME/ANSI A112.19.8 performance standard, or any successor standard:

Concern: We are all aware that there is already a successor standard, 2007. This standard is stricter than the ASME/ANSI A112.19.8 performance standard. We must ensure that all drain covers and grates are third party tested by a nationally recognized testing laboratory. I feel that the committee should take into consideration that each drain cover and/or grate is assigned a certified number and these numbers be embossed on the cover or grate itself to prove that the product is truly certified. I also feel that the website for ANSI should reflect those covers and or grates that are approved. Too often, manufacturer's state that their product exceeds the standard therefore does not need to be approved. I feel that all drain covers and/or grates be submitted to the committee regardless of whether they exceed the requirements or not.

Main Drain: The term "Main Drain" means a submerged suction outlet typically located at the Bottom of a pool or spa to conduct water to a recirculation pump.

Concern: Booster pumps that draw water from the Pool or Spa to feed water features must be included in this phrase. We need to include all suction ports other than the skimmer to be protected....Many Booster pumps have suction inlets that are plumbed (normally) to the pool wall. Too often, these suction inlets are constructed in the shallow end of the pool by the steps where children play. These suction inlets are equipped with the usual main drain covers (there are only a few that are listed for side mount). Unfortunately, just like the lights, children use these covers as steps to exit the pool. Too often, these covers are knocked off or tampered with by bored children, and then we are left with an uncovered suction inlet. I have seen too many of these suction ports without protection (the first layer being the drain cover) caused by situations like this. I'm not an engineer but if it were me, I would eliminate with all dedicated suction side wall ports all together. They should be placed in the deeper end of the pool where children can not readily get to them.

Staff interpretation: a single main drain is one submerged suction outlet with or without a skimmer connected to a pool pump.

Concern: I'm not an engineer but pool terms are as follows:

Continued from page 1 (Page 2)

: Pool terms: Main drains and sidewall suction are called suction outlets
Engineer terms: Main drains and sidewall suction are called suction inlets.

The language needs to be determined so that each person reading this knows the terminology.

In addition to this. The single main drain usually has its own line....but these days, Pool Builders are plumbing the main drain line (bottom of the pool) directly to the front hole of the skimmer then from the back hole of the skimmer directly over to the pump. It is too hard to protect a main drain line when it is plumbed to the skimmer. Some say it is safe...I say it is not. Too often, the skimmers can become plugged and then the main drains are activated. This can become a real problem. Although Safety Vacuum Release technology might be able to protect the single main drain to the single skimmer, it is would be very difficult to try and protect two main drains to two skimmers.....for some SVRS manufactures.

Staff interpretation: Section 1404 © (1) (A) (ii) of the Pool and Spa Safety Act excludes pools with multiple main drains from the requirements of Section 1404 (c) (1) (A) (ii)

Concern: Although there are two main drains at the bottom of the pool or there are two side suction ports on the wall....Do we really know for a fact that they are hydraulically balanced. The plumbing is hidden to us with gunite and plaster. There are many factors that need to be addressed here. What are the vacuum levels of the suction inlets when the skimmers are closed? What is the FPS on the trunk line to the pump? If we continue to use anti-vortex main drain covers under the ANSI/ASME A112.198 standard, there could still be a hold down force present enough to hold down a small child. The state of Texas does not regulate Pool Builders. Too often, the Builder installs huge pumps such as 3 horsepower pumps and uses small plumbing lines such as 1 ½" to 2" lines. Even if there are dual drains, the vacuum levels present are very dangerous. So, two drains can be just as dangerous as one drain. Something for you to consider.

Unblock able Drain: (7) –The term unblock able drain means a drain of any size and shape that a human body cannot sufficiently block to create a suction entrapment hazard.

As specified earlier....I feel that all drain covers, grates and now the unblock able drain long channel or large grate be assigned a certified number that way there is no confusion to what the Pool Builder can use.

Devices or Systems Designed to Prevent Entrapment: each public pool and spa in the United states with a single main drain other than unblock able drain shall be equipped, at a minimum, with 1 or more of the following devices or systems designed to prevent entrapment....

- (i) Safety Vacuum Release System Comments: SVRS technology is not a pump, not a filter, not a toy, but yet we allow SVRS's to be sold over the counter, over the internet, etc.....How do we know if the SVRS are installed properly or even tested to ensure that the product works? There are certain manufactures of SVRS's that are trying to at least train individuals about their products, and most

(ii) Continued from page 2 (page 3)

importantly, train their AST's to seek product knowledge from other SVRS manufactures so that they can make the correct choice of what SVRS to install for that particular application. Each SVRS is different, both having its benefits and its limitations. There are Retail Stores that are only displaying certain SVRS's and the consumer may not know if that particular SVRS is applicable for their system. I educate Building and Health Officials, Code Enforcement Officers as well as the Swimming Pool Industry to make sure that these products are installed correctly, however, nobody is mandating that these units be controlled or installed by only Licensed Contractors or the Manufactures Authorized Service Technicians. Since it is a safety item just like the drain covers, who's responsibility is it to ensure that the product is installed with safety in mind? I would not be a happy camper if I purchased a car and then found out the air-bag was installed by someone who was not authorized.....

(II) Suction-Limiting Vent System- A suction-limiting vent system with a tamper-resistant atmospheric opening.

Comment: Not too many people know what this is, but I can tell you...we all live in the real world here. This device may work in ideal situations, but I have seen these venting lines plugged...or simply cut off in the equipment room because people did not know what they were. Then DE from the filter or Sand got into the pipe somehow, either from the pool side or in the equipment room and then filled the venting pipe. Over a period of weeks the debris solidified and then you had no protection. Although there are no approved venting lines at this time, my only hope is that there will never be a system like this in place ever. Which brings me back to Pool Builders. We have Pool Builders that think they can still install these venting tubes and are getting away with it. WOW!

(III) Gravity Drainage system- A gravity drainage system that utilizes a collector tank.

No Comment

(IV) Automatic Pump Shut-off System- An electrical shut off system is considered to be an SVRS, however, they also have limitations.....Some may not work with check valves installed on the suction side of the pump.....We must address check valves.....

(V) Drain Disablement-A device or system that disables the drain

Comment: We can't just remove the main drains unless there are enough skimmers to handle the FPS on the trunk line. We also have to be careful where the existing skimmers are located and what each skimmer is rated for in GPM.....This paragraph needs to be broaden.....

(VI) Other Systems- Any other system determined by the Commission to be equally effective as, or better than, the systems described in sub clauses (1) through (V) of this clause at preventing or eliminating the risk of injury or death associated with pool drainage systems.

No Comments:

Continued from page 3 (page 4)

OTHER CONCERNS: There is no mentioning of the following that needs to be addressed:

- (a) Skimmers equalizer lines: As a Pool Plumber, we use to plumb the front hole of the skimmer to the wall of the pool (generally under that particular skimmer). There is a float assembly that you place in the bottom of the skimmer. When the water dropped below the surface (or skimmer) the float assembly closed off the skimmer and activated the equalizer line. Sometimes, we plumbed the equalizer line to the floor of the pool so that we could use the proper covers. There is no side suction cover that I'm aware of that you can use for these side suction equalized lines. But, what we must remember is this; it is a suction port inlet to the pool which should be hydraulically balanced just like the main drains. Here in Texas, those equalizer lines are plugged off. We would rather save the swimmer from possible entrapment in lieu of saving a pump or two.
- (b) Flow Meters: Flow meters should be part of the law....each filter pump and booster pump should have one....
- (c) Vacuum Gauges: Each filter pump and booster pump should have one.
- (d) PSI Gauges: Each filter pump and booster pump should have one.

Respectfully Submitted

Penny Shaver

817-880-4699

Water Safety Consultant

Alpine Pool Services

Stevenson, Todd

From: Penny Shaver [pennyshaver@embarqmail.com]
Sent: Wednesday, March 26, 2008 5:37 PM
To: CPSC-OS
Cc: pennyluvtexas@yahoo.com
Subject: Draft CPSC Staff Interpretation of the Pool and Spa Safety Act Section 1404 Comments due 3/28/08
Attachments: Draft Comments- Penny Shaver 3-26-08.doc

Please see letter attached regarding the Pool and Safety Act Section 1404 Comments due 3/28/08....

Respectfully submitted

Penny Shaver
817-880-4699
Water Safety Consultant
Alpine Pool Services

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Version: 7.5.519 / Virus Database: 269.22.0/1344 - Release Date: 3/26/2008 8:52 AM

3/27/2008

March 26, 2008

Scott Wolfson Project Manager, Pool & Spa Safety Act
Deputy Director, Office of Information and Public Affairs
U.S. Consumer Product Safety Commission
(301) 504-7051

Dear Scott,

Thank you for the opportunity to comment on the CPSC Staff Interpretation of the Pool and Spa Safety Act Section 1404. This section comprises two areas of pool safety. As titled, it is the Pool and Spa Drain Cover Act. The Senate also inserted what I refer to as "The Commercial Pool and Spa Retrofit" language. My comments and concerns with the interpretation are:

- 1) **Information is not given to Commercial Pool and Spa owners or Drain Cover Manufacturers and Distributors, as to what happens if they do not comply with Section 1404.** There are only 9 months left before the December 20, 2008 deadline. As drafted the interpretation has no teeth.
- 2) **The interpretation of Single Main Drain is correct only as it applies to the "Commercial Retrofit".** This was a compromise made after the bill had left Senate sub-committee and only applies to the "Retrofit" portion of the bill. It needs to state that this staff interpretation *only* applies to section 1404 and not the Act in its entirety.
- 3) **There is no technical reason for the wording regarding multiple main drains to be "no more than 6 feet apart".** As this section only applies to commercial pools and spas, we might be dealing with a huge body of water. The safe distance between the drains has to do with plumbing configuration and flow rates. A commercial pool using 12" plumbing could have a greater separation than 6 feet. A commercial spa with 1.5" plumbing might not be safe at 3 feet. ASTM has a draft standard for proper multiple drain construction. Some in our industry are trying to stop its progression. I urge CPSC to aid ASTM in going forward with this.
- 4) **There is no reason to include "and flow through the covers would not exceed 1.5 feet per second according to the requirements of ANSI/NSPI-1"** An A112.19.8 listed cover will be marked with its maximum safe flow rate.
- 5) **Drawing for the Vent System is incorrect.** I understand the drawing is for illustration purposes only, but the vent piping shown has been deemed unsafe. I will forward a more applicable drawing for your use.

- 6) **Automatic Pump Shutoff System should fall under the SVRS standards until one can be promulgated.** Such a product should pass either ASTM F2387 or ASME A112.19.17. ASTM committee 15.51 was tasked with drafting this standard. It was deemed that these devices would fall under the existing standard. APSP-7 technical committee has come to the same conclusion. Not adopting this conclusion, will lead to dangerous products entering into commerce.
- 7) **Drain Disablement by uses prescribed will not work for section 1404.** As we are only dealing with commercial pools, which are required by code to have a functioning main drain and have a heavy bather load, permanently disabling the drain is not an option. I think it would be up to the original Engineer who designed the pool to deem if reversing the flow would still provide proper sanitization for the bathers.

Comment [MSOffice1]: By not adopting this conclusion, it will lead to dangerous products entering into commerce.

If you have any questions regarding my comments on section 1404, please feel free to contact me at any time.

Respectfully,

David A. Stingl

Stevenson, Todd

From: Wolfson, Scott
Sent: Friday, March 28, 2008 9:01 AM
To: Stevenson, Todd
Cc: Elder, Jacqueline; Whitfield, Troy; Kumagai, Mark; Toro, Mary
Subject: FW: Virginia Graeme Baker Pool & Spa Safety Act
Attachments: Stingl Comments2.doc

Please catalog the attached comment from Mr. Stingl along with the others submitted regarding the Pool and Spa Safety Act. Thanks.

From: Jager100@aol.com [mailto:Jager100@aol.com]
Sent: Friday, March 28, 2008 1:30 AM
To: Wolfson, Scott
Subject: Re: Virginia Graeme Baker Pool & Spa Safety Act

Scott,

Attached are my comments regarding staff interpretation of Section 1404.

Thank You
David Stingl

Create a Home Theater Like the Pros. [Watch the video on AOL Home.](#)

Stevenson, Todd

From: Williams, Kathy (DOH) [Kathy.Williams@DOH.WA.GOV]
Sent: Thursday, March 27, 2008 3:15 PM
To: CPSC-OS
Cc: Borges, Mary (DOH); Bennett, Elizabeth; Gomez, Tony; Quan, Linda; Tansik, Martha
Subject: Pool Spa regulations comment

Here are questions that came to me when I read the draft Pool & Spa Safety Act Section 1404.

- There is nothing about regular maintenance of the drain covers and other systems in this document - can there be? Once installed, it needs to be maintained to keep working correctly.
- RE: unblockable drains - their standard represents shoulder to waist measurement of the 99th percentile adult male. Since these are regulations to mainly protect children, does this standard protect them?
- What are the penalties for pool & spa owners if they do not comply? How will compliance be monitored and enforced?

Thank you for the opportunity to comment. kjw

Kathy J. Williams, MS
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Public Health - Always Working for a Safer and Healthier Washington

Stevenson, Todd

From: Maurice Redmond [mredmond@dhr.state.ga.us]
Sent: Thursday, March 27, 2008 5:19 PM
To: CPSC-OS
Subject: Pool and Spa Safety Act

1. CPSC Staff Interpretation: All public pools and spas must have ASME/ANSI Covers.

Response: What is the definition of a drain cover (i.e anti-vortex, anti-entrapment, grates)? The definition of listed suction outlet cover/grate in ANSI/APSP-7 2006 includes both cover/grates. Do you view main drain grates or anti-vortex covers as anti-entrapment covers if they meet the ASME/ANSI standard or does it also have to be labeled anti-entrapment?

2. CPSC Staff Interpretation: Multiple main drains at least 3 feet and no greater than 6.

Response: We have a minimum of 5 ft and maximum 20 ft for main drains in pools in our state code. How would these conflicts be resolved? And ANSI/APSP-7 has no maximum drain distance.

3. CPSC Staff Interpretation: suction outlet ASME/ANSI listed.....flow through the drain (outlet) cover(s) would not exceed 1.5 fps according to ANSI/NSPI-1.

Response: In ANSI/NSPI-1 2003, 8.2 Water Velocity, the water velocity cannot exceed 1-1/2 fps flow rate through the suction grates. However, in 11.4 Water Velocity. The water velocity through suction grates shall be permitted to exceed 1.5 fps if the grates comply with the most recent ASME/ANSI A112.19.8. Additionally, our state code has 1-1/2 fps flowrate across grates and covers with a requirement of open area, at least 4 times the diameter of the pipe. Does the ASME/ANSI standard set a velocity over the grate and cover.

4. CPSC Staff Interpretation: the term unblockable drain means a drain.....

Response: In ANSI/APSP-7 2006, 6.3 Existing Installation-Single Outlet.....the existing suction outlet shall be retrofitted with either a listed single unblockable.... Will there be a requirement for listing these or do they have to meet the requirements you stated and like those under 5.5.2 in the APSP-7 standard.

5. CPSC Staff Interpretations: Systems designed to prevent entrapment. A single main drain other than an unblockable drain.....

Response: For clarification, is a single unblockable drain considered a protective cover from the various forms of entrapment hazards.

6. Under the 1404(c)(1)(B) Applicable standard. Any device or system in A(ii) shall meet requirements of ANSI or ASTM...

Response: If no standards exist, will a professionally engineered/designed system be acceptable.

7. How will the definition of a public pool be enforced in states with a conflicting definition that prevents regulating certain public pools.

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Twenty years of preventing accidental injury.



March 28, 2008

Office of the Secretary
U.S. Consumer Product Safety Commission
4330 East West Highway
Suite 502
Bethesda, MD 20814-4408

RE: Pool & Spa Safety Act, Section 1404, Call for Public Comment

To Whom It May Concern:

On behalf of Safe Kids USA, a member of Safe Kids Worldwide (hereinafter "Safe Kids"), I am writing in response to a request for comments about the U.S. Consumer Product Safety Commission's (CPSC) staff guidance document for Section 1404 of the *Virginia Graeme Baker Pool & Spa Safety Act* (hereinafter "P & S Act").

I. Introduction and Background

Safe Kids has been intimately involved with the advocacy, passage and education surrounding the new law. Our history with the P & S Act uniquely qualifies us to offer comments on the guidance document and the safeguards needed for public and residential pools and spas. Although Safe Kids does not have the technical expertise to comment specifically on a large portion of the engineering implementation of the guidance document, we can provide general supportive comments and suggestions on how to improve the public guidance for Section 1404:

II. General Comments of Support and Suggestions for Minor Improvements

A. The General Accuracy of the CPSC Guidance Document

The CPSC guidance document generally interprets the P & S Act accurately. Section 1404 of the Act basically has three requirements that need to be fulfilled by either drain cover manufacturers or public pool owners or operators by December 19, 2008. Section 1404 requires:

- 1404(b): Any pool or spa drain cover in the stream of commerce in the U.S. must conform to the entrapment standards of the ASME/ANSI A112.19.8 performance standard or any successor standard.
- 1404(c)i: Each public pool and spa in the U.S. must be equipped with anti-entrapment drain covers that comply with the ASME/ANSI A112.19.8 performance standard or any successor standard.
- 1404(c)ii: Each public pool and spa in the U.S. with a single main drain must be equipped, at a minimum, with one or more of the following devices that are designed to prevent entrapment incidents: a safety vacuum release system, a suction-limiting vent system, a gravity drainage system, an automatic pump shut-off system, a drain disablement system or another system that meets the CPSC's approval. Public pools and spas with an unblockable drain do not need to install these devices.

The CPSC staff interpretation of the above provisions is generally correct and should provide the necessary guidance to interested parties who need to fully comply with the Act by December 19, 2008. Safe Kids has been informed by other pool safety advocates that there are a few hyper-technical inaccuracies in portions of the document. As mentioned earlier, Safe Kids cannot, of course, comment specifically on those alleged inaccuracies. We will leave that to other interested parties who have more expertise than us. We do, however, urge the CPSC staff to review the tendered comments carefully to determine how the staff interpretation can be made more technically accurate.

Significantly and additionally, Safe Kids would like to emphasize that it is our understanding that the staff interpretations contained in the guidance only applies to Section 1404 and should not necessarily be used when staff publishes future guidance on other provisions of the P & S Act.

B. No Entrapment Requirement for Pools and Spas with Multiple Drains

The CPSC staff guidance document accurately states that the P & S Act only requires additional entrapment prevention "layer of protection" on pools and spas with single main drains. The supplementary device protection in Section 1404(c)ii is not required for pools and spas with multiple drains. The fact that the Act does not require another layer of protection on the latter does not mean, however, that systems designed to prevent entrapment would not serve a safety purpose if installed on those multi-drained pools and spas. If that is the case (i.e., the safety devices/systems would also help prevent entrapments in pools and spas with multiple main drains), then Safe Kids would urge the CPSC to recommend – as opposed to require – their use. If the CPSC determines or has determined, as indicated in its Guidelines for Entrapment Hazards: Making Pools & Spa's Safer, that the devices listed in Section 1404 (c)ii do serve a valuable safety benefit no matter the number of drains at the bottom of a pool, then Safe Kids would suggest the following (or similar) language be included in the guidance document:

"The Pool and Spa Safety Act, as passed, does not require the use of additional devices or systems designed to prevent entrapment on public pools and spas with multiple drains other than anti-entrapment drain covers. The CPSC does believe, however, that these devices/systems do provide an entrapment prevention benefit on pools and spas with multiple drains. Accordingly, the CPSC recommends their use on all pools and spas as a way to provide an additional layer of protection against entrapment injuries and deaths."

C. The CPSC Guidance Document is Silent as to Policing and Ramifications for Non-Compliance

In its present form, the CPSC staff interpretation document fails to describe how the agency will be policing the marketplace after December 19, 2008 for violations of Section 1404, nor does it describe the ramifications for failing to comply with the requirements. Safe Kids strongly believes that the public guidance document should address both these concepts.

Manufacturers of pool/spa drain covers and public pool/spa operators should know, at least generally, how the agency will be policing the shelves for standard compliant drain covers and public pools/spas for retrofitted devices. Safe Kids would expect that the agency will be training its field investigators and other staff on what to look for. In fact, Safe Kids believes that at least some of the money that will most certainly be appropriated for Act implementation can and should be used for that training/policing purpose.

Additionally, we suggest that manufacturers and public pool/spa owners and operators be informed specifically of the statutory ramifications and penalties for non-compliance. Significantly, the P&S Act explicitly states that the requirements of Section 14(b) should be treated as a consumer product safety rule under the Consumer Product Safety Act (CPSA) and that non-compliance with Section 1404 (c)(i) or (ii) [i.e., failing to retrofit public pool & spas with safety devices or selling non-compliant drain covers] should be considered a violation of Section 19(a)(1) of that same Act. In other words, Congress has determined that failing to comply with this Section carries the same ramifications that would apply to a company who fails to report under Section 15 of the CPSA. Public pool and spas owners should know that violations of Section 1404 can result in civil penalties of as much as \$1.8 million. When (as opposed to if) the President signs the CPSC Reform Act of 2008, which will most certainly increase the cap on civil penalties, the CPSC should re-issue its guidance document to reflect the new higher penalties. Safe Kids believes that including this type of information in its guidance document demonstrates the gravity of non-compliance and clearly communicates the CPSC's intent to aggressively enforce the new law.

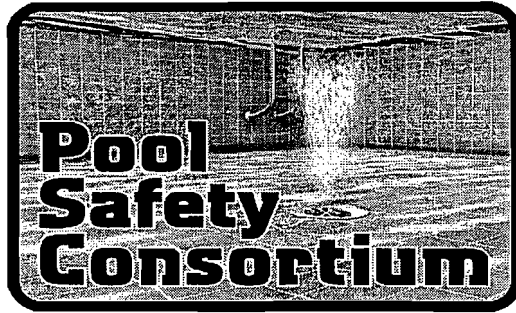
III. Conclusion

Safe Kids believes that implementation of the *Virginia Graeme Baker Pool & Spa Safety Act* is key to preventing childhood drowning related incidents. We commend the staff of the CPSC for taking a good first step at enforcing this important new law. I am available to answer any questions that the CPSC might have relating to our comments. As always, Safe Kids looks forward to working with the CPSC on this and other issues in the future.

Sincerely,

A handwritten signature in black ink, appearing to read "Alan Korn", is written over the word "Sincerely,". The signature is somewhat stylized and includes a long horizontal stroke extending to the right.

Alan Korn
Director of Public Policy & General Counsel



March 28, 2008

Office of the Secretary
 U.S. Consumer Product Safety Commission
 4330 East West Highway
 Suite 502
 Bethesda, MD 20814-4408

To Whom It May Concern:

We at Pool Safety Consortium would like to compliment you and staff for your commitment to implement the Virginia Graeme Baker Pool And Spa Safety Act in an effective and timely manner that would result in the reduction or even elimination of pool and spa drowning and entrapment accidents.

A major concern of the Pool Safety Consortium with the CPSC staff interpretation document is that it fails to describe how the CPSC will be policing the marketplace after December 19, 2008 for violations of Section 1404. Nor does it describe the ramifications for failing to comply with the requirements. We join with Safe Kids and other pool safety advocates in believing that the public guidance document should address both these concepts. Our concern is based, in part, on comments we had heard from several states and municipalities that they have not been advised by the CPSC of these new requirements. Further, many local governments are under the impression that enforcement of these regulations is solely within the purview of the CPSC and the local entities have no enforcement responsibilities.

To give stronger effect of the Act, we believe it is important that manufacturers of pool/spa drain covers and public pool/spa operators should know, at least generally, how the CPSC will be policing the suppliers for standard compliant covers and public pools/spas for retrofitted devices. The Pool Safety Consortium joins Safe Kids in expecting that the CPSC will be training its field investigators and other staff on what to look for. We believe, and seek confirmation from CPSC, that at least some of the anticipated money for the Act will be appropriated by Congress and be used for that training/policing purpose.

To further this objective, the Pool Safety Consortium joins Safe Kids and others in suggesting that manufacturers and public pool/spa owners and operators be informed specifically of the statutory ramifications and penalties for non-compliance.

Dedicated to the prevention of child drowning worldwide.

336 West College Avenue Santa Rosa, CA 95401: 877-222-4289 Fax: 707-576-8286

Significantly, the Act explicitly states that the requirements of section 14(b) should be treated as a consumer product safety rule under the Consumer Product Safety Act (CPSA) and that non-compliance with Section 1404 (c)(i) or (ii) [i.e., failing to retrofit pool & spas with safety devices] should be considered a violation of Section 19(a)(1) of the same Act. In other words, Congress has determined that failing to comply with this section carries the same ramifications that would apply to a company who fails to report under Section 15 of the CPSA. Public pool and spa owners should know that violations of Section 1404 can result in civil penalties of as much as \$1.8 million. When (as opposed to if) the President signs the CPSC Reform Act of 2008, which will most certainly increase the cap on civil penalties, the CPSC should re-issue its guidance to reflect the new higher penalties. Including this type of information in a CPSC guidance document will demonstrate the gravity of non-compliance and clearly communicate the CPSC's intent to aggressively enforce the new law.

We recognize that the CPSC is soliciting comments on Section 1404 of the Act. We anticipate that the CPSC will solicit comments on the Section 1406 of the Act later. Section 1406 has different objectives from Section 1404 and we believe, and will argue at the appropriate time, that the definition of "a single main drain" in Section 1406 (d) (1) was intended by Congress to be different from the definition of "a single main drain" in Section 1404.

As to Technical comments:

1. Section 1404 (c)(1)(A)(ii) does not exclude pools and spas with multiple drains. This section (ii) *each public pool and spa in the United States with a single main drain other than an unblockable drain shall be equipped, at a minimum with one or more of the following.....* The ACT further states that CPSC shall ensure that any such requirements are consistent with the guidelines contained in the..... Commission's publication entitled "Guidelines for Entrapment Hazards: Making Pools and Spas Safer". Several States such as Connecticut, New York, New Jersey and many more recently have passed regulations for new construction of pools and spas requiring back up layers of protection such as Gravity Systems or SVRS's. This came after much consideration and testimony regarding multiple drains only. It is our belief that it is the intent of Congress that CPSC "shall" choose the safest method to protect the bathing public. It is therefore our opinion that CPSC should require the third layer of entrapment protection (SVRS, Gravity System, Atmospheric Vent System) on all pools regardless of how many drains there are.

Attached are excerpts from the United States Senate Hearings of May 3, 2006 which were held to examine pool and spa safety issues. Please note the comments made by Ms. Jacqueline Elder who was representing CPSC. Her statement clearly acknowledges the CPSC position as recommending the extensive use of SVRS systems, and that there is "**no single solution** to addressing the entrapment hazard." Ms. Elder clearly states the need for **layers** of protection. These comments were in answer to questions regarding pools built in the future with dual drains. Please refer to the attached letter from Troy Whitfield, CPSC's Director for Engineering Sciences, dated March 21, 2002

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and also please refer to the CPSC's March 12, 2008 Power Point Presentation made to the Nation Drowning Prevention Seminar titled, "ENTRAPMENT LEGISLATION: WHAT IT MEANS TO FAMILIES".

2. On page 1 of this interpretation the last sentence should be struck out entirely:

~~Staff interpretation: suction outlets would have ASME/ANSI A112.19.8 listed covers/grates in place, and flow through the drain (outlet) cover(s) would not exceed 1.5 feet per second (fps) according to requirements of ANSI/NSPI-1.~~

- Reference to a trade association standard NSPI or APSP have been debated and soundly rejected by the U.S. Senate legislative staff and Congressional Members. There is also a question of legality in referencing a trade association standard in a Federal Law. APSP could make changes to NSPI anytime they wanted.
 - Reference to ANSI/ASME 112.19.8 has already been made. Under this Standard drain covers are stamped with a maximum allowable flow value (GPM).
 - The velocity limit of 1-1/2 fps is valuable to protect against hair entanglement, but this single criterion does not necessarily protect against suction entrapment. Larger drain grates have been shown to break in sections and drain covers have been shown to come off completely, leaving an exposed, easily accessible and very dangerous suction pipe opening. Please refer to the Tanya Nickens and Lorenzo Petersen CPSC Investigative Reports.
3. Unblockable Drain: The 18"x23" dimensions referenced do not take into account the back and the back of the arms for the 99% man. This should be a minimum of 24"x24". CPSC a few years ago completed an Epidemiologic Investigation Report, Task # 040308HCC2367, on an entrapment victim in Wheaton, Illinois who was entrapped by his back and the back of his arms. It has been recommended to ASME 19.8 Committee to change this dimension.
4. The drawing titled *Vent System to Relieve Main Drain Suction* should be removed immediately. This drawing has been unanimously rejected by every Professional Engineer (including Troy Whitfield of CPSC) on the ASTM Vent Line Committee as being very dangerous for children. Hydrostatic differentials can create excessive hold down forces, i.e. 139 lbs force on a typical 8" diameter sump with a pool depth of 8 feet. Please refer once again to the March 21, 2002 letter from Troy Whitfield, CPSC's Director for Engineering Sciences for comments.
5. Automatic Pump Shut Off System: This is an SVRS and must meet the requirements of ANSI/ASME A112.19.17. When tested, many of the pump shut

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off systems were inconsistent as to release time. Sometimes the blocking element, representing a child, would not release at all. The AO Smith E-Mod system has now been tested and listed to ASME A112.19.17 for lift applications only. To leave this option open with no third party testing requirement may lead to injury and deaths.

6. Drain Disablement Systems: This draft could lead a building official to believe that the description of a product that seals the suction outlet when the drain cover comes off is acceptable. May we remind staff that CPSC went so far as writing a letter to the State of Florida requesting that Florida disallow such a device from being used as a substitute for an SVRS or Gravity or Vent System. The Florida Building Commission outlawed its use as a substitute for safety and performance reasons. In this case, it is clear that the intent of Congress was to allow for the option of disabling the drain system, through either converting the drains to returns, or physically sealing them off so that they no longer functioned as a suction outlet. Again, please refer to the Troy Whitfield letter.

Please do not hesitate to ask for any testing or clarification of these technical comments. Thank you for your time. Our hope is that you will follow the passion for safety that has been exhibited in the past.

Sincerely,

Paul E. Pennington
Pool Safety Consortium



U.S. CONSUMER PRODUCT SAFETY COMMISSION
WASHINGTON, D.C. 20207
March 21, 2002

Raul Rodriguez, AIA, Chair
Rodriguez and Quiroga Architects Chartered
4440 Ponce De Leon Boulevard
Coral Gables, FL 33148

Dear Mr. Rodriguez:

The staff of the U. S. Consumer Product Safety Commission (CPSC) has received several inquiries regarding the use of atmospheric vent piping to relieve suction entrapment. We are concerned that the atmospheric vent arrangement referenced on the National Spa and Pool Institute (NSPI) web-site (www.nspi.org), with reference to Region VII (Florida www.fpsaonline.org), may have been accepted without consideration of all possible applications. For example, there is no mention of the pool water depth at the drain location. The CPSC staff is concerned that in wading pools, where small children have access to the main drain, or in deep pools this particular vent arrangement may not provide protection from suction entrapment.

The CPSC staff has worked closely with NSPI in developing standards, promoting pool and spa safety, and disseminating information relating to pool hazards. The CPSC supports layers of protection to address pool hazards. For suction entrapment, these layers would include hydraulically balanced multiple main drains, certified main drain covers, and a safety vacuum release system (SVRS) that either vents to atmosphere, shuts off the pump or both. The CPSC staff has been active with the ASTM International F15.51 subcommittee on SVRS, which includes representatives from NSPI and manufacturers, to develop a test protocol for manufactured SVRS. The objective of the standard is to provide criteria and procedures that can be applied uniformly to any manufactured SVRS within the scope of the standard. This means that manufactured vent systems can be considered for suction relief provided they are correctly designed and tested under various conditions with acceptable results. In the case of field-fabricated SVRS/vent systems, the conditions are site specific and not necessarily repeatable or appropriate at other sites (e.g. diving well vs. wading pool).

CPSC staff has also learned of drawings depicting the main drain fitted with an insert kit and plumbed to the pool skimmer. We have two concerns with this approach. First, the kit is intended to provide entrapment relief in the case of a missing main drain cover. The special drain cover holds the 'flapper' in an open position until the cover is removed. Once the cover is removed, the 'flapper' covers the suction outlet and prevents suction at the main drain. The flapper does not prevent a body from becoming entrapped on the main drain while the cover is attached.

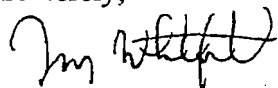
The second concern is with the proposed plumbing of the main drain line to a second suction line in the skimmer. As long as the skimmer remains operational, it may act as a second drain with a similar head to the main drain if it is plumbed as drawn.

However, skimmers are designed to catch debris and may become clogged, which we leave the main drain as the sole source of suction. If the water level drops below the skimmer, the additional suction line then becomes a vent line where the depth of the becomes an issue. We also question the feasibility of ensuring that the plumbing of the configuration in the field provides a hydraulically balanced dual main drain effect. Without test data to support the configuration shown in the drawing, it is not clear that the skimmer line will provide enough 'relief' to release an entrapped body from the drain.

The CPSC staff respectfully requests that the Florida Department of Health, and/or the Florida Building Commission, reconsider the decision approving field fabricated atmospheric vent systems to address swimming pool suction entrapment. We believe that the use of the insert kit as an approved alternative to an SVRS is inappropriate without supporting test data. Similar to atmospheric vents, correct plumbing is required if the device is to provide relief.

The above discussion represents the views of the CPSC staff and has not been reviewed or approved by the Commission. Please feel free to contact me if you need additional information or would like to discuss this issue. I can be reached by e-mail at twhitfield@cpsc.gov or by phone at 301-504-0494 x1318

Sincerely,



Troy Whitfield
Mechanical Engineer
Directorate for Engineering Sciences

Cc: Jon Bednerik, Florida Pool and Spa Association
Carvin DiGiovanni, National Spa and Pool Institute
Ron Dixon, Florida Building Commission
Robert Pryor, Florida Department of Health
Ann Stanton, Florida Department of Community Affairs
Mo Madani, Florida Department of Community Affairs
Daniel Shaw, Harrell Plumbing & Air Conditioning

UNITED STATES SENATE

HEARING TO EXAMINE POOL SAFETY ISSUES

May 3, 2006

In response to question from Senator Allen:

Ms. Elder: Well actually, in our guidelines for preventing entrapment hazards, we do recommend extensive use of SVRS type systems. We believe that there is no single solution to addressing the entrapment hazard. And again, we recommend layers of protection. For older construction where it's not possible to rework the system so that you would have multiple drains, we recommend that SVRS or equivalent technology be used. For wading pools, for public wading pools, even if they have multiple drains, we recommend also that SVRS be used since the drain is so accessible to young children.

For new construction, we believe there are designs that can basically eliminate the entrapment hazard and so in that situation, we recommend consideration of us SVRS as an additional layer of protection...So we have quite extensive recommendation within our guidelines of the suction vacuum release technology or equipment types of technology that would serve the same purpose.

Senator Allen: Do you specifically endorse these devices that shut off suction or vacuum force of the pool drains in case of entrapment? You're saying that you do endorse that as one of the layers or a different options.

Ms. Elder: We recommend them as one of the layers of protection.

Senator Allen: ...Is it your view or the view of the Commission, that dual drains by themselves are sufficient to mitigate the threat of entrapment drowning without a SVRS or other safety device?

Ms. Elder: We do believe that information that we have indicates that dual drain can be an effective way of addressing the entrapment hazard.

Senator Allen: Even without one of the suction—without a suction cutoff device?

Ms. Elder: We recommend consideration of a suction—a SVRS device when there are dual drains.

Senator Allen: Even when there are dual drains?

Ms. Elder: Uh-huh (affirmative)

Stevenson, Todd

From: paul pennington [paul@vac-alert.com]

Sent: Friday, March 28, 2008 10:42 AM

To: CPSC-OS

Cc: Wolfson, Scott

Subject: Pool & Spa Safety Act

Attachments: UNITED STATES SENATE May 3 2006.doc; scan0001.tif; CPSC Public Comment (3)-1.doc

Good Morning attached is the Pool Safety Consortium's comments on the draft language of the Pool & Spa Safety Act. Thank-you for this opportunity to give our opinion. Paul Pennington

3/28/2008

Code Compliance

Incorporated

Telephone
352/473-4070

Facsimile
352/473-1080

MEMORANDUM

Date: MARCH 28, 2008

To: Scott Wolfson
Project Manager, Pool & Spa Safety Act
Deputy Director, Office of Information and Public Affairs
U.S. Consumer Product Safety Commission

Re: COMMENTS - CPSC Staff Interpretation of the Pool and Spa Safety Act
Section 1404 (*Text portions from the Act are in blue and italics*)

GENERAL COMMENTS

We commend the CPSC for its dedication of pool safety and for the timeliness of your **CPSC Staff Interpretation of the Pool and Spa Safety Act Section 1404**.

We strongly recommend that the CPSC Staff include an "enforcement/penalty section in the interpretation. We also suggest that the current CPSC Staff - Draft Interpretation fails to properly inform states as to their current grant-eligibility status under the Pool and Spa Safety Act (PSSA).

It appears to us that the PSSA enacts a federal law that grants the CPSC rule making/enforcement authority and eligibility determination-authority for state eligibility for grants funded by the PSSA. It is important that the CPSC publicly acknowledge in its interpretation and through other means that states and local jurisdictions that adopt and currently enforce the 2003 and subsequent editions of the ICC-models meet the spirit and intent of the PSSA and are eligible for the grant monies awarded under the PSSA.

The International Codes, the International Residential Code (IRC) and International Building Code (IBC) 2003 and subsequent editions of these model codes contain minimum pool safety-barrier requirements and anti-entrapment standards. Prior to passage of the PSSA, these minimum codes have been adopted and currently being enforced by many state and local jurisdictions through-out the nation. The can be precisely verified at the ICC website: iccsafe.org. The safety prescription for preventing entrapment is simple, the ICC models minimally require;

- 1) dual drains in all pools and spas that incorporate ASME A112.19.8 listed suction fittings, [single] 18 X 23 grates or larger, or [single] approved channel drains, and
- 2) safety vacuum release system listed to ASME A112.19.17 or;
- 3) dual ASME A112.19.8 listed suction fittings, [single] 18 X 23 grates or larger, or [single] approved channel drains, and
- 4) approved gravity drainage systems.

The intent of the ICC-model codes is to provide the safest possible re-circulation system for pools and spas based on national consensus standards.

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CPSC Staff Interpretation
PSSA -03/28/08

A problem we see is that the PSSA is somewhat inconsistent with the model code safety prescription and it incorporates vague and ambiguous terminologies. Technically speaking it appears that the PSSA and the Draft Interpretation actually standardizes dual [multiple] drains a stand-alone method for entrapment avoidance. This is clearly contrary to the interests of public safety. The ICC models do not permit dual drains as a stand alone method of entrapment avoidance.

CPSC interpretation and enforcement of the PSSA effects commerce as defined under federal law. We strongly recommended that the CPSC use extreme caution in promulgation of the 2007 Edition of the A112.19.8 standard since it's enforcement will effectively (and unfairly) eliminate currently approved, safe suction outlets. According to our information there is only one A112.19.8/07- listed suction fitting available at this time.

Currently, there are numerous suction fittings listed to the A112.19.8/96-Affirmed edition. We suggest that it is premature for the CPSC to cite the 2007 Edition into a law. This will create a potential conflict for state, local code enforcement personnel, and manufacturers who rely on the ICC-model codes for safe pool construction because the I-Codes cite the '96-Affirmed edition of the A112.19.8 standard. It would be unwise for the PSSA to possibly create unfair trade practices in its enforcement and interpretations pursuant to the PSSA. Some of our client interests may be adversely affected by enforcement of the 2007 edition of A112.19.8. Our question is: Since CPSC has been empowered under the act to provide enforcement, how can a standard that is technically flawed to the extent that if adopted it will eliminate currently approved, safe suction fittings from commerce be lawfully promulgated by CPSC under the Federal Anti-trust laws?

SPECIFIC TECHNICAL COMMENTS

1. In the 03-14-08 CPSC – Staff Interpretation:

“Drain Covers: ...each public pool and spa in the United States shall be equipped with anti-entrapment devices or systems that comply with the ASME/ANSI A112.19.8 performance standard, or any successor standard;

Staff interpretation: All public pools and spas must have ASME/ANSI A112.19.8² compliant Drain Covers by December 19, 2008. The basic requirements of the ASME/ANSI standard are:

- Cover material must be tested for structural integrity
- Cover must be tested for body entrapment and hair entrapment/entanglement
- Cover must display a flow value in gallons per minute (gpm) that indicates the maximum flow rate for which the cover has been approved

² The current approved version of this standard is A112.19.8-2007. There is an Addendum moving forward through the ASME/ANSI ballot process to correct errors in the test method for UV light exposure. The prior version of this standard is 1987 (reaffirmed in 1996) and addresses only hair entrapment potential.”

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Scott Wolfson
CPSC Staff Interpretation
PSSA -03/28/08

COMMENT:

1. The 2007 Edition of the A112.19.8 standard is known to be technically flawed.

One such technical flaw is in Section 3.2.

“3.2 Ultraviolet Light Exposure Test - Twelve new fittings shall be exposed to ultraviolet light and water spray in accordance with ASTM G 154, using the Common Exposure condition, Cycle 3, found in Table X2.1 of ASTM G 154 for a period of 750 hr.”

- A. The “Cycle 3” UV requirements have been determined by ASME to be erroneous in that the UV exposure does not apply to the materials commonly utilized in the manufacture of suction fittings. Proposals to correct this error are currently under way at ASME. ASME does not attach a timeline for completion for the “proposed addenda” and it may not be published by the CPSC/PSSA-stated date for mandatory compliance in commerce.
- B. The maximum flow rate established under the '19.8 standard does not relate to safe field construction of single or multiple drains.
- C. The statement in footnote number two is not factual. The 1987 '19.8 standard addresses much more than hair entrapment potential. Structural integrity, UV resistance and body entrapment are all addressed in the '96-Affirmed '19.8 standard.

2. In the 03-14-08 CPSC – Staff Interpretation:

“Main Drain: The term “main drain” means a submerged suction outlet typically located at the bottom of a pool or spa to conduct water to a re-circulating pump.

Single Main Drain: *...each public pool and spa in the United States with a single main drain other than an unblockable drain...*

Staff interpretation: a **main drain** is a term usually referring to a plumbing fitting installed on the suction side of the pump in pools, spas and hot tubs (a **suction outlet**). Sometimes referred to as the drain, it is normally located in the deepest part of the pool, spa or hot tub. It does not literally drain the pool, spa or hot tub as a sink drain would, but rather connects to the pump to allow water to be drawn from the pool, spa or hot tub for circulation and filtration.

Staff interpretation: a **single main drain** is one submerged suction outlet with or without a skimmer connected to a pool pump.

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PSSA -03/28/08

Staff interpretation: *Section 1404(c)(1)(A)(ii) of the Pool and Spa Safety Act* excludes pools with multiple main drains from the requirements of *Section 1404(c)(1)(A)(ii)*

Staff interpretation: **multiple main drains** consist of, at minimum, two fully submerged suction outlets per pump, with drain cover centers at least 3 feet apart and no more than 6 feet apart.

Staff interpretation: suction outlets would have *ASME/ANSI A112.19.8* listed covers/grates in place, and flow through the drain (outlet) cover(s) would not exceed 1.5 feet per second (fps) according to requirements of *ANSI/NSPI-1*.”

COMMENT:

2. The CPSC Staff definition should be refined to reflect actual definitions used in the model codes.

The Uniform Swimming Pool and Hot Tub Code incorporates the following verbiage:

“Main [Drain] Outlet – The outlet fitting(s) at the bottom of a swimming pool, spa or hot tub through which water passes to the re-circulating pump. (often erroneously referred to as the “main drain”)

- A. It is fundamentally wrong and contrary to public safety to imply that pools with multiple drains as a stand alone method for entrapment avoidance are inherently safe. The exemption in the PSSA should be qualified by CPSC in a clear manner that does not degrade and misrepresent safety. The inherent safety for multiple drains is dependant much more that simply prescribing two or more outlets. Flow velocity, sump outlet port size, connecting pipe size and separation distances all have an effect on potential “hold down” force.
- B. The draft interpretation states that, *“multiple drains consist of, at a minimum, two...outlets per pump, with drain centers at least 3 feet apart and not more than 6 ft. apart.”* We recommend that the definition must be modified to delineate the minimum sump outlet port size, connecting pipe size, maximum flow and the separation distance all must be calculated so when in operation no more the fifteen pounds force exist at either outlet whether or not one is disabled. Include a footnote that mentions ASTM is working on a standard for dual drains and possible reference key safety requirements as contained in the ASTM draft. We are proposing modifications to the A112.19.8 standard to address these important “hold down” force-limiting factors.
- C. The PSSA does not incorporate any reference to NSPI-1. The CPSC Draft Interpretation generates confusion by introducing a standard that is not part and parcel to the PSSA The stated NSPI-1 flow velocity of 1.5 feet per second is in conflict with other NSPI or APSP standards.

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CPSC Staff Interpretation
PSSA -03/28/08

Pools and spas are in service that utilize gravity drainage systems where flow velocities are at or less than 1.5 feet per second are proven to be safe even though the pool may not be equipped with ASME A112.19.8 listed suction fittings or suction fittings meeting the dimensional requirements of the model codes or the interpretation. Properly designed and installed gravity drainage systems entirely eliminate direct (dangerous) suction; therefore the suction outlet and covers are not as critical of a safety-component as in direct suction systems.

3. In the 03-14-08 CPSC – Staff Interpretation:

“Unblockable Drain: (7) *UNBLOCKABLE DRAIN - The term unblockable drain means a drain of any size and shape that a human body cannot sufficiently block to create a suction entrapment hazard.*

Staff interpretation: an unblockable drain, to be consistent with the test procedures found in *ASME/ANSI A112.19.8*, would have a minimum measure of 18” x 23”, which represents the shoulder to waist measurement of the 99th percentile adult male.

Staff further interpretation: unblockable drain may include:

- drain configurations that prevent a seal from occurring (large aspect cover, such as 18” x 23” or larger covers)
- long channels that cannot be blocked by the body (see figure a. below)
- large outlet grate (diagonal measure of 29” or more) (see figure b. below)
- circulation designs that do not include fully submerged suction outlets”

COMMENTS

3. The figures a. and b. are not representative of the text/descriptions.

A. The figures need to be corrected to be representative of the text.

4. In the 03-14-08 CPSC – Staff Interpretation:

“Devices or Systems Designed to Prevent Entrapment: *...each public pool and spa in the United States with a single main drain other than an unblockable drain shall be equipped, at a minimum, with 1 or more of the following devices or systems designed to prevent entrapment...*

SAFETY VACUUM RELEASE SYSTEM: The term “safety vacuum release system” means a vacuum release system capable of providing vacuum release at a suction outlet caused by a high vacuum occurrence due to a suction outlet flow blockage.

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PSSA -03/28/08

(I) SAFETY VACUUM RELEASE SYSTEM - A safety vacuum release system which ceases operation of the pump, reverses the circulation flow, or otherwise provides a vacuum release at a suction outlet when a blockage is detected, that has been tested by an independent third party and found to conform to ASME/ANSI standard A112.19.17 or ASTM standard F2387.

(II) SUCTION-LIMITING VENT SYSTEM - A suction-limiting vent system with a tamper resistant atmospheric opening.

Staff interpretation: A suction-limiting vent system is also called an **atmospheric vent**. It is a pipe teed to the suction side of the circulation system on one end and open to the atmosphere on the opposite end. The pipe is normally full of water equal to the same height as the pool. When a blockage occurs at the main drain, air is introduced into the suction line thus causing the pump to lose prime and relieving the suction forces at the main drain (suction outlet).

Currently there are no approved voluntary standards for suction-limiting vent systems; however, an ASTM International voluntary standards task group was formed in March 2004 and is currently developing minimum requirements for field-fabricated vent pipes. The performance of the vent, the ability to prevent obstructions from occurring within the vent, and a test procedure to assess performance are being addressed.”

COMMENT:

4. The “Vent System to Relieve Main Drain Suction” as shown has not demonstrated to provide safe vacuum release within the minimum standards when tested using the three second/fifteen pound rule contained in the ASME A112.19.17 and ASTM F2387 standards.

A. The accompanying text description and figure must be corrected to show a safe vent pipe system.

5. In the 03-14-08 CPSC – Staff Interpretation:

“(IV) AUTOMATIC PUMP SHUT-OFF SYSTEM- An automatic pump shut-off system.

Staff interpretation: An automatic pump shut-off system would be a device that could sense a drain blockage and shut off the pump system. Some safety vacuum release systems may meet this definition.

One pump motor manufacturer has developed a circuit board for its motors which monitors current to the motor and shuts the pump off when a noticeable change in current occurs, possibly caused by an entrapped bather. Currently there are no voluntary standards for automatic pump shut-off systems.”

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**Scott Wolfson
CPSC Staff Interpretation
PSSA -03/28/08**

COMMENT:

5. The text is confusing. The systems described fall under the scope of the ASME A112.19.17 standard and must be listed accordingly. (The product mentioned is listed to ASME A112.19.17"

A. An applicable standard does in fact exist.

Thank you for considering our comments. If there are any questions please do not hesitate to contact us.

CODE COMPLIANCE, INC.

Gary S. Duren

Stevenson, Todd

From: Wolfson, Scott
Sent: Friday, March 28, 2008 12:05 PM
To: CPSC-OS
Subject: FW: Virginia Graeme Baker Pool & Spa Safety Act
Attachments: 080319 CPSC Letter PSSA.doc

Another public comment on the P&SSAct.

From: Gary Duren [mailto:garyduren@msn.com]
Sent: Friday, March 28, 2008 11:59 AM
To: Wolfson, Scott
Subject: Re: Virginia Graeme Baker Pool & Spa Safety Act

Dear Scott:

Thanks for providing the draft and for permitting our input. Please see the attached MSWord document containing our comments and suggestions. Please e-mail a reply at your convenience if you have any questions or if we may be of further service.

Sincerely,

CODE COMPLIANCE, INC.
Gary S. Duren

----- Original Message -----
From: Wolfson, Scott
To: Undisclosed recipients:
Sent: Friday, March 14, 2008 5:32 PM
Subject: Virginia Graeme Baker Pool & Spa Safety Act

To CPSC's drowning prevention partners:

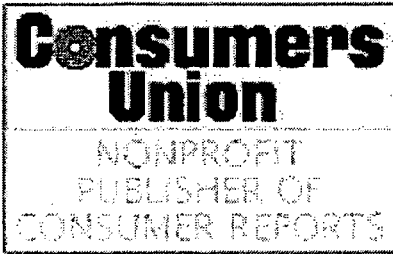
CPSC is committed to implementing the Pool and Spa Safety Act in an effective and timely manner that results in a reduction in pool and spa drownings and entrapments. As a first-step in this effort, we are opening a public comment period today regarding Section 1404 of Act. Please log on to <http://www.cpsc.gov/pssa.html> where you will find information about the law, our staff's interpretation of specific technical requirements, and how you can provide comments to CPSC.

Thank you and we look forward to working with you.

Scott Wolfson
Project Manager, Pool & Spa Safety Act
Deputy Director, Office of Information and Public Affairs
U.S. Consumer Product Safety Commission
(301) 504-7051



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*****!!!



March 28, 2008

Office of the Secretary
 U.S. Consumer Product Safety Commission
 4330 East West Highway
 Suite 502
 Bethesda, MD 20814-4408
 Via: cpsc-os@cpsc.gov

**Comments of Consumers Union of U.S. Inc.
 to the U.S. Consumer Product Safety Commission
 Virginia Graeme Baker Pool and Spa Safety Act, Sec. 1404
 Draft Guidance Document**

Introduction

Consumers Union ("CU"), publisher of *Consumer Reports*, submits the following comments in response to the U.S. Consumer Product Safety Commission's ("CPSC") draft staff guidance document interpreting the technical requirements of Section 1404 of the *Virginia Graeme Baker Pool and Spa Safety Act*¹ ("Pool & Spay Safety Act" or "the Act").

Background

In 2007, Congress passed the Pool and Spa Safety Act in an effort to reduce the number of drownings suffered in pools and spas by children younger than age 5. Section 1404 of the Act creates new Federal standards for pool and spa drain covers. In this draft guidance document, CPSC staff has provided its interpretation of the technical requirements of this section. CU has the following recommendations:

¹Pub. L. No. 110-140, 121 Stat. 1795 (2007), codified at 15 U.S.C. 8001, *et seq.*

CU's Recommendations

1. Pools with Multiple Drains Should Not be Excluded from the Standard

The Act, as passed, requires the use of additional devices or systems designed to prevent entrapment on pools and spas only for "a single main drain other than an unblockable drain." We believe that some pools with multiple drains, if the drains are unconnected and operate independently, could still pose the safety hazards contemplated by Section 1404. Because pools may be built with countless design variations, it is conceivable that pools can be designed with multiple, independent drain systems so that each drain poses a safety hazard. Specifying that this Consumer Product Safety Rule applies only to pools without multiple drains could allow owners of multiple drain pools to overlook the need to install the appropriate safety devices. Therefore, we strongly recommend that the CPSC interpret Section 1404(c)(1)(A)(ii) to require anti-entrapment devices or systems for all pools that have multiple drains – where those drains operate under independent drain systems.

2. CPSC Policing and Enforcement

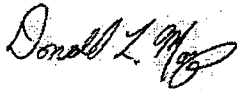
The Act mandates that, after December 18, 2008, swimming pool and spa drain covers available for purchase in the U.S. meet the requirements of Section 1404 of the Act. However, this new standard will be only as effective as the level of compliance by product manufacturers and distributors, and public pool and spa owners and operators. Section 1404(c)(3) of the Act clarifies that violations of this new Federal standard "shall be considered to be a violation of section 19(a) of the Consumer Product Safety Act (15 U.S.C. 2068(a)(1)) and may also be enforced under section 17 of that Act (15 U.S.C. 2066)." We therefore recommend that the CPSC's staff guidance document include information relating to CPSC's enforcement authority under Section 1404 of the Act, as well as potential consequences and penalties that likely would flow from non-compliance. CU believes that the staff guidance document needs to inform relevant parties of the potential consequences for the failure to comply with this

mandatory rule. Highlighting this information should indicate the gravity of non-compliance and communicate the CPSC's intent to aggressively enforce the new law.

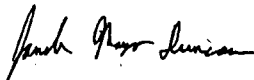
Conclusion

CU commends the CPSC's staff for taking this first step in implementing this important law designed to protect users of pools and spas. We look forward to continuing to work with the CPSC on other issues relating to the Pool and Spa Safety Act.

Respectfully submitted,



Donald L. Mays,
Senior Director, Product Safety
and Technical Public Policy
Consumers Union



Janell Mayo Duncan
Senior Counsel
Consumers Union

Stevenson, Todd

From: Solomon, Raj, NMENV [Raj.Solomon@state.nm.us]
Sent: Friday, March 28, 2008 2:39 PM
To: CPSC-OS; Wolfson, Scott
Cc: tracynda.davis@nspf.org
Subject: "Pool & Spa Safety Act: Comments"

Dear Mr. Wolfson:

Thank you for giving me the opportunity to submit comments on the Pool and Spa Safety Act. I am the Manager of the Public Swimming Pool Program for the State of New Mexico. Below are my comments on the guidance document draft prepared by CPSC staff.

1) Multiple Main Drains

Page 1 of the guidance document provides staff interpretation on Section 1404(c)(1)(A)(ii) of the Pool and Spa Safety Act. With regard to suction outlets, the guidance document states:

"Staff interpretation: suction outlets would have *ASME/ANSI A112.19.8* listed covers/grates in place, and flow through the drain (outlet) cover(s) would not exceed 1.5 feet per second (fps) according to requirements of ANSI/NSPI-1."

Comment: Suction outlets on multiple outlets are of two different types: multiple drains with an anti-entrapment cover (ASME/NAS1 A112.19.8 listed) or a grate. If a grate is used the maximum velocity, per ANSI/NSPI, must not exceed 1.5 feet per second. However, if a ASME/NAS1 A112.19.8 listed anti-entrapment cover is used on the drains, the maximum velocity permitted by ANSI/NSPI-1 is 6 feet per second. Accordingly, the language should be revised to reflect the two different velocity limits permitted by ANSI/NSPI, depending on whether a grate (1.5 feet per second) or an ASME/NAS1 A112.19.8 listed cover (6 feet per second) is installed.

2) Unblockable Main Drain

Page 2 of the guidance document states:

"Staff further interpretation: unblockable drain may include: circulation designs that do not include fully submerged suction outlets." (fourth bullet item)

Comment: This item should be deleted. Simply because a grate or an outlet is not fully submerged does not make it an unblockable drain with little or no risk of entrapment. Based on my field experience, a partially submerged grate or drain outlet or grate on a pool or spa wall has the potential for hair entanglement and/or entrapment resulting in drowning. Partially submerged outlets or grates must not be considered safe.

3) Gravity Drainage System

Page 3 of the guidance document, referring to Gravity drainage systems states:

"Staff interpretation: A gravity drainage system with a collector tank is a water storage vessel within the pool circulation system used to collect displaced by bathers. The pool circulation pump draws water from this tank, thus removing direct suction from the pool. This type of pool is also referred to as a reservoir, surge tank, or surge pit."

Comment: I recommend revising the language to include minimum design criteria for the collector tank (reservoir, surge tank, surge pit). I would recommend using the ANSI/NSPI guideline that the collector tank be sized to contain at least one gallon per square foot of pool water surface and be capable of transferring water at a rate equal to 100% of the pool's design flow rate. This is critical because the ability of the collector tank to remove direct suction from the pool depends on the size of the tank and the tank's capacity to transfer water. An inadequately sized collector tank does not remove direct suction from the pool.

Again, I thank you for providing the opportunity to provide comments. As I stated, the above are based on my field experience with public pools and spas. If your staff need further clarification or need to discuss any of the above I can be reached at (505) 222-9550.

Respectfully submitted,

Raj Solomom, P.E.

Pool Program Manager

New Mexico Environment Department

5500 San Antonio Dr. NE

Albuquerque, NM 87109

From: Tracynda Davis [mailto:tracynda.davis@nspf.org]
Sent: Mon 3/17/2008 12:51 PM
To: Tracynda Davis
Subject: FW: Virginia Graeme Baker Pool & Spa Safety Act

FYI

The deadline for comments is March 28th.

3/28/2008

Regards,

Tracynda

Tracynda Davis, M.P.H.
Director, Environmental Health Programs
National Swimming Pool Foundation
719-540-9119
www.nspf.org

From: Wolfson, Scott [mailto:SWolfson@cpsc.gov]
Sent: Friday, March 14, 2008 3:32 PM
To: Undisclosed recipients:
Subject: Virginia Graeme Baker Pool & Spa Safety Act

To CPSC's drowning prevention partners:

CPSC is committed to implementing the Pool and Spa Safety Act in an effective and timely manner that results in a reduction in pool and spa drownings and entrapments. As a first-step in this effort, we are opening a public comment period today regarding Section 1404 of Act. Please log on to <http://www.cpsc.gov/pssa.html> where you will find information about the law, our staff's interpretation of specific technical requirements, and how you can provide comments to CPSC.

Thank you and we look forward to working with you.

Scott Wolfson
Project Manager, Pool & Spa Safety Act
Deputy Director, Office of Information and Public Affairs
U.S. Consumer Product Safety Commission
(301) 504-7051



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3/28/2008

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Stevenson, Todd

From: Carvin DiGiovanni [CDiGiovanni@APSP.org]
Sent: Friday, March 28, 2008 5:14 PM
To: CPSC-OS
Cc: Whitfield, Troy; Wolfson, Scott
Subject: "Pool and Spa Safety Act"
Attachments: Comments to CPSC on 1404.pdf; APSP Technical Committee Report on Suction Outlet Safety and ANSI-7 _REV2c 10-5-2007_.pdf; COMPARISON OF BAKER POOL SAFETY ACT--Word.doc

Office of the Secretary, please see attached APSP comments and attachments to the Pool and Spa Safety Act.

Thank you,

Carvin DiGiovanni
Senior Director, Technical and Standards



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The Global Source and Voice for the Recreational Water Industry

POOL AND SPA SAFETY ACT

March 28, 2008

To: Office of the Secretary
U.S. CPSC

The following is submitted on behalf of the Association of Pool and Spa Professionals (APSP) as comments to the CPSC Staff Interpretation of The Pool and Spa Safety Act, section 1404.

1. ABOUT THE ASSOCIATION OF POOL AND SPA PROFESSIONALS (APSP)

The APSP, formerly the National Spa and Pool Institute (NSPI) is the world's largest trade association in the pool and spa (hot tub) industry whose members include manufacturers, manufacturers' agents, distributors, retailers, builders, installers and service professionals.

The safe and enjoyable use of pools, spas, and hot tubs is a priority for APSP members as demonstrated through these association activities:

- All members agree to adhere to a code of business ethics and share a commitment to promote the safe design, construction and use of pools and spas.
- The APSP promotes professional best practices through education, certification and research safety initiatives.
- The APSP is accredited by the American National Standards Institute (ANSI) as a Standards Development Organization. According to ANSI, "The process to create these voluntary standards is guided by the Institute's cardinal principles of consensus, due process and openness and depends heavily upon data gathering and compromises among a diverse range of stakeholders."
- The APSP is a strong advocate for advances in pool and spa safety, including the recently enacted Pool and Spa Safety Act, serving as a source of technical information to several of its sponsors.

The APSP has a long history of working closely with the CPSC on issues relating to pool and spa safety, including working cooperatively on the CPSC Entrapment Guidelines, and other safety initiatives. The CPSC also participated in the development of several ANSI/APSP and ANSI/NSPI Consensus Standards on safe pool and spa construction.

The APSP notes that there appear to be some potential inconsistencies in the Act as there might be in any legislation, and would like to continue to work cooperatively with the CPSC so that questions regarding the interpretation and implementation of the Pool and Spa Safety Act can be resolved to the satisfaction of both organizations, so as to better protect the public and so that APSP members and the industry as a whole can obtain guidance and act to meet any requirements in a timely manner. The CPSC

has previously received input from the APSP on the Entrapment Guidelines prior to requesting comments from the public. The APSP believes the CPSC staff and the public would continue to benefit from APSP input as CPSC staff provides additional interpretations of the Act.

2. THE CPSC SHOULD RELY ON AND REFERENCE THE ANSI/APSP STANDARDS

Section 1406 (a)(4)(A) directs the CPSC, when developing Minimum State Law Guidelines, to consider "national performance standards." While the existing CPSC guidelines will likely serve as a first step in addressing Section 1406 (a)(4)(A) requirements, there are several relatively new ANSI/APSP national voluntary consensus standards that provide improved, scientifically based approaches to entrapment prevention in pools and spas.

The ANSI/APSP-7 2006 American National Standard for Suction Entrapment Avoidance in Swimming Pools, Wading Pools, Spas, Hot Tubs and, Catch Basins is the only consensus standard that addresses all five recognized forms of entrapment injuries:

1. Hair entanglement
2. Limb entrapment
3. Body suction entrapment
4. Evisceration/disembowelment
5. Mechanical entrapment

The design and performance requirements of the Standard are based on sound engineering principles, research and repeatable scientific testing, which was observed by the CPSC in Fayetteville, TN last year.

The ANSI/APSP-7 standard was developed and approved under the rigorous ANSI standard development process by a consensus voting body which included numerous public state and local health officials, Underwriters Laboratories, the National Sanitation Foundation and various experts from within and outside the industry.

ANSI/APSP-7 incorporates performance-based criteria for each identified hazard:

1. It specifically includes an option for pools and spas to be built without a main drain. Fluid Dynamics shows that water flow is strongly dominated by inlet jets, not outlets.
2. Whenever submerged outlets are present, the ANSI/APSP-7 Standard requires that they be protected by outlet covers that comply with the most current version of ASME/ANSI A112.19.8. The ANSI/APSP Standard recognizes that approved outlet covers are the main defense against all five recognized forms of entrapment.
3. For new construction, the ANSI/APSP-7 Standard provides for either multiple outlets, or an outlet that cannot be blocked, such as a channel, by even the largest bather. Multiple outlets must be spaced at least three feet apart. A review of all reported incidents and communication with officials of all 50 states reveals not a single reported entrapment injury where properly spaced dual drains were in place.
4. The ANSI/APSP-7 Standard is the first standard that limits flow rate to a maximum of 6 feet per second (fps), or 3 fps when divided amongst dual outlets. This lower flow rate reduces suction force, helping to prevent hair entrapment and limiting the differential pressure if one of the multiple outlets is blocked.

5. Where a single outlet is present, the ANSI/APSP Standard calls for either disablement of the drain, converting the outlet to a return, addition of a properly spaced second outlet, use of a Safety Vacuum Release System (SVRS), vent line, gravity system or any other method that would comply with ANSI/ASME A112.19.17- 2002, the Standard for Manufactured Safety Vacuum Release Systems (SVRS) for Residential and Commercial Swimming Pool, Spa, Hot Tub, and Wading Pool Suction Systems. While these devices can help mitigate against at least one form of entrapment injury in a single outlet installation, scientific testing which was observed by the CPSC staff shows that an SVRS may only activate when there is blockage of the sole source of suction.¹

Hence, both the ANSI/APSP-7 Standard and the Act do not require the use of SVRS or other such devices where dual suction outlets comply with the ANSI/APSP-7 Standard. While SVRS devices may improve the entrapment safety of single outlets, they alone cannot protect against evisceration, limb, hair or some types of mechanical entrapment.

A comparison of the ANSI/APSP-7 Standard and the Act is attached, and demonstrates that the ANSI/APSP-7 Standard meets or exceeds all of the requirements found in Section 1404 of the Act and the Staff Interpretation. Any installation that complies with the ANSI/APSP Standard will comply with not only section 1404 but with the Minimum State Law Requirements on entrapment as well, as will be explained below.

APSP members and others in the industry are familiar with and are already building to comply with the ANSI/APSP-7 standard. To maximize compliance and minimize any possible confusion with regard to the Act, the Commission should explicitly state that the provisions of ANSI/APSP-7 meet or exceed those found in section 1404 of the Act. Therefore installations which are built or retrofitted so as to comply with the ANSI/APSP Standard will also comply with Section 1404.

The APSP also urges the Commission to consult the ANSI/APSP-8 Model Barrier Code which provides a series of options designed to prevent unauthorized access to pools and spas by children. It is our belief that the Layers of Protection approach found in the Model Barrier Code are consistent with the definition of Barrier in section 1403(2).

3. SPECIFIC COMMENTS ON SECTION 1404

The APSP agrees with the following CPSC Staff interpretations:

1. The requirement that all outlets in all public pools be protected by covers that comply with the most current version of ASME/ANSI A112.19.8. The ANSI/APSP-7 Standard notes there is no backup to a broken or missing cover and anytime a cover is broken or missing the pool or spa should be closed.
2. The definition of "drain" is similar to Section 3.13 of the ANSI/APSP-7 Standard.
3. Section 1404(c)(1)(A)(ii) excludes pools or spas with multiple outlets. The ANSI/APSP-7 Standard also recognizes that the devices or options listed in this section are not required and do not reliably function in such settings.
4. Section 1404(c)(1)(A)(ii) excludes pools or spas with unblockable outlets. Section 5.5 of the ANSI/APSP-7 Standard also addresses unblockable outlets.
5. Multiple outlets must be spaced a minimum of 3 ft apart as described in Section 5.3.2 of the ANSI/APSP-7 Standard.
6. The definition of "unblockable" is as shown in Section 5.5.2 of the ANSI/APSP-7 Standard.

¹ Association of Pool and Spa Professionals Technical Committee Report on Suction Outlet Safety and the Effectiveness of ANSI/APSP-7, October 5, 2007, copy attached.

The APSP wishes to raise concern with regard to these CPSC interpretations:

1. The Staff Interpretation, under "Single Main Drain" which references the 1.5 fps flow rate through outlet covers, and references ANSI/NSPI-1 in support of this provision.

The CPSC Staff Interpretation appears to misconstrue section 8.2 of the ANSI/NSPI-1 2003 American National Standard for Public Swimming Pools. This section states:

"The water velocity in the pool piping shall not exceed 10 feet (304.8 cm) per second for discharge piping (except for copper pipe where the velocity shall not exceed 8 feet (243.8 cm) per second), and 6 feet (182.9 cm) per second for suction piping, and 1 ½ feet (45.7 cm) per second flow through suction grates." (Emphasis added).

This section must be read in context with Section 11.2, which requires ASME/ANSI 19.8 approved covers on all drains that measured less than 12" x 12". When read together, it is clear that the intent and effect of the ANSI/APSP-1 Standard was to require ASME approved covers on all outlets less than 12" x 12", with a flow rate limited to 6 fps. A flow rate of 1.5 fps applies to large outlets or "suction grates" to protect against hair entanglement.

This language in the ANSI/NSPI-1 Standard predates the Act and the ANSI/APSP-7 Standard. Section 1404 of the Act and ANSI/APSP-7 2006 now require ASME A112.19.8 - 2007 covers on ALL outlets, even those 12" x 12" and larger. Hence, the 6 feet per second provision in ANSI/NSPI -1 section 8.2 applies, not the 1.5 fps intended only for large grates. As the CPSC Staff correctly notes in the Staff Interpretations, there will be no more "large grates," only approved ASME A112.19.8 - 2007 covers.

In addition, the CPSC Staff should also note that the improved resistance to hair entanglement in the approved ASME A112.19.8 – 2007 covers is accomplished through reduction in the size of the openings in the covers, resulting in a velocity higher than 1.5 fps.

If the CPSC were to combine the ASME 19.8 cover requirement with a 1.5 fps limit on all public pool and spa outlets, as suggested in the Staff Interpretation, it would in effect eliminate any residential or portable spa style ASME drain cover. This would result in the need to disable the drain systems in most hotel, multiple dwelling or other smaller public pools and in most public spas, or have them converted to large, commercial grates.

Spas are also dependant on high volumes of water combined with ASME covers with small, high velocity holes.

2. The Act has a compliance date of 12/20/08.

The industry fully supports the transition to improved outlet covers and is striving to meet this deadline. However, there are a number of practical and technical hurdles. For example, final amendments to the new cover standard,

ASME/ANSI 19.8 are in progress at the present time, and manufacturers cannot begin to test, develop or produce covers until this amendment process is completed. The purpose of the amendment is to correct a provision in the ASME A112.19.8 cover standard that requires covers to be exposed to 158 Degrees F for 750 hours, essentially making it impossible for any polymer based cover to pass UV testing without sacrificing structural properties. PVC cannot be used and other materials with high heat tolerances are brittle, causing problems in the structural testing.

Even if the amendment process is completed within the next few weeks, manufacturers advise that they would not be able to complete testing of all of the necessary type and size covers in sufficient time for pool operators and owners to comply with the December 20, 2008 deadline. It takes in excess of 40 days for each model drain cover to be tested, and there are a limited number of test labs capable of performing these certifications. While manufacturers will cease production of any covers that do not meet ASME A112.19.8 2007 by 12/20/08, it will not be feasible for most public pools and spas to install complaint covers as of that date. The APSP requests, therefore, that the Commission should adopt a "grace period" or consider an alternative compliance date of June 18, 2009.

3. The APSP requests clarification from the Commission as to whether all or what portion of the 1404 provisions (1404(a), (b) or (c)) are to be enforced as consumer product safety rules.
4. The APSP also requests that the Commission confirm that its interpretation of the entrapment language in section 1406 (d)(1) will be consistent with the current Staff interpretation, as further detailed below.

4. SPECIFIC COMMENTS ON SECTION 1406

Section 1406 gives the Commission the mandate to establish Minimum State Law Requirements with regard to entrapment. Subsection (d)(1) provides that at a minimum, these requirements must include one of several options (A – F), and that this requirement applies to all pools and spas "except for pools and spas constructed without a single main drain."

The APSP believes that while worded in a slightly different manner, the clear intent is for this section is to be interpreted consistent with Section 1404 (c), in that it exempts pools and spas with no drains or outlets as well as those with properly spaced multiple outlets.

This interpretation is not only consistent with the language in 1404 but it is also the only logical and legally permissible interpretation given the use of the word "single" in the above parenthetical phrase.

As the Commission has correctly noted in the current CPSC Staff interpretation, "single man drain" or single outlet means having only one outlet or drain.

Webster's American Dictionary defines single as:

- adj. 1. only one. 2 unmarried, - v. 3. select, n. 4. single thing. 5. unmarried person

The Random House College Dictionary defines single as:

“Only one in number; one only, unique, sole.”

Hence, pools and spas with only one drain or outlet would be subject to the requirements listed below, while pools and spas that do not have only one drain or outlet (either because they have none or more than one) would be exempt.

Any other interpretation of this section would require one to ignore the use of the word ‘single’ or treat the word as being superfluous.

The U.S. Supreme Court has consistently ruled that when interpreting or construing a statute, each and every word in the statute or relevant section is to be presumed to have meaning and not be superfluous.

In *Duncan v. Walker* 533 U.S. 167, 121 S. Ct. 2120 U.S., 2001 the court ruled:

“Further, were we to adopt respondent’s construction of the statute, we would render the word “State” insignificant, if not wholly superfluous. “It is our duty ‘to give effect, if possible, to every clause and word of a statute.”

In *Bailey v. U.S.* 516 U.S. 137, 116 S. Ct. 501 U.S. Dist. Col., 1995, the court stated:

“Looking past the word “use” itself, we read § 924(c)(1) with the assumption that Congress intended each of its terms to have meaning.”

Therefore, this interpretation is not only required by law, but is also consistent with the testing and research observed by the CPSC Staff, which confirms that while SVRS devices or other such systems can help mitigate against at least one form of entrapment injury in a single outlet installation, they do not reliably activate when there is more than one source of suction.² This is also confirmed by the SVRS standard, ASME/ANSI A 112.19.17, which only provides for testing of an SVRS where there is a single or sole source of suction.

Finally, this interpretation is consistent with the Commission’s publication “Guidelines for Entrapment Hazards: Making Pools and Spas Safer,” which is referenced in 1406 (a)(4)(B).

5. THE INTERNATIONAL CODES PUBLISHED BY THE INTERNATIONAL CODE COUNCIL

The APSP also wishes to address and call the Commission’s attention to current versions of the International Building Code (IBC) and International Residential Code (IRC). As detailed in the attached comparison table, both of these Codes are in direct conflict with the entrapment prevention language in Sections 1404 and 1406 of the Act. Some examples are:

1. Section 1404 (b) and (c) apply to all public pools and spas, new and existing, whereas the IBC applies to new construction, not to existing installations
2. Section 1404 (b) requires that ALL outlets in ALL public pools be equipped with ASME compliant covers, whereas the IBC specifically exempts larger outlets, thus exposing bathers to limb entrapment, hair entanglement, and possibly mechanical entrapment.
3. Section 1404 (a) prohibits the sale of non ASME complaint covers after a certain date. Both the IBC and IRC allow the use of non-compliant covers on larger outlets, again exposing bathers to these entrapment dangers.

² Association of Pool and Spa Professionals Technical Committee Report on Suction Outlet Safety and the Effectiveness of ANSI/APSP-7, October 5, 2007, copy attached.

4. The IRC and IBC do not contain any provision to eliminate several forms of entrapment, including hair or limb entrapment or evisceration. Sections 1404 and 1406 and the ANSI/APSP-7 Standard address ALL known forms of entrapment injury.
5. By referencing the ANSI/APSP-7 Standard, the Commission Staff interpretation would properly regulate flow rate, which is critical in preventing hair entanglement. The IRC and IBC have no provisions with regard to flow rate.
6. Unlike the IRC and IBC, Section 1404 and ANSI/APSP-7 provide that pools and spas should not be used if a drain cover is broken or missing.
7. Sections 1404 (c) and 1406 (d)(1), and the ANSI/APSP-7 Standard, correctly recognize that SVRS devices, vent systems etc., are effective on single outlet pools only. The current IBC and IRC is based on outdated understanding of the causes of entrapment and require such devices on all pools and spas, regardless of the number of outlets.

As noted in the comparison table, in each instance, ANSI/APSP -7 is completely consistent with the Act.

The APSP believes that the existence of contradictory Codes will frustrate the implementation of both Sections 1404 and 1406, reduce compliance and compromise safety. For this reason the APSP has sought to replace outdated IRC and IBC language with a reference to the ANSI/APSP-7 standard. The APSP also believes the provisions in Section 1404 of the Pool and Spa Safety Act preempt and prohibit the implementation of the IRC and IBC by a state or political subdivision of a state (Consumer Product Safety Act, Section 26, 15 U.S.C. 2075). APSP recommends that the CPSC staff inform the IBC and IRC of the Act and request that the IBC and IRC language be replaced with a reference to the ANSI/APSP-7 standard.

6. REQUEST FOR MEETINGS

The APSP requests an open meeting with the CPSC Staff to discuss the APSP comments on Section 1404 and also to discuss:

1. Issues and interpretations for the other sections stated above, as well as "Barrier" provisions;
2. Clarification and interpretation of the language in 1406(d)(1): CPSC "... shall require 1 or more of the following (except for pools constructed without a single main drain)". Confirmation that this exempts pools with no main drain and pools with multiple main drains, and applies only to pools with a single main drain based on consistency. This would be consistent with 1406(a)(1)(A)(iii). Clarification that multiple main drains must be manifolded together to count as multiple because what is important is the number of drains per pump or independent suction source; and,
3. Proposed actions to resolve IRC and IBC conflicts with the Act.

Individual APSP members have specific issues concerning enforcement matters. APSP requests closed meetings with the CPSC staff and individual APSP members to discuss these enforcement matters.

Sincerely,



Carvin DiGiovanni

Senior Director, Technical and Standards

**Association of Pool and Spa Professionals
Technical Committee Report on Suction
Outlet Safety and the Effectiveness of ANSI/APSP-7**

October 5, 2007

Introduction

Suction Entrapment has gained considerable attention over the last decade. It has been the subject of voluntary standards, building codes, and national legislation. Increased media attention due to tragic accidents has focused industry leaders, health and building officials, and code writers toward making a significant effort to protect bathers from potential entrapments. Unfortunately, the principal cause of various modes of entrapment can be confusing and difficult to understand without careful study of the underlying physical phenomena. This has resulted in widespread misunderstanding of how one can successfully avoid all modes of entrapment. Many code and standard efforts have focused primarily on the easiest of the mode of entrapment to prevent, body entrapment. This oversimplification, if not addressed, could lead to building codes, or even laws, that do not adequately protect bathers from all dangers present in pools and spas and may create a false sense of security.

A survey of the Epidemiological Reports on Suction Entrapment collected by the U.S. Consumer Product Safety Commission by the Association of Pool and Spa Professionals (APSP) Technical Committee yielded 5 distinct modes of Entrapment:

- **Hair Entrapment** - Hair becomes knotted or snagged in an outlet cover
- **Limb Entrapment** - A limb sucked or inserted into an opening of a circulation outlet with a broken or missing cover resulting in a mechanical bind or swelling.
- **Body Entrapment** - Suction applied to a large portion of the body or limbs resulting in an entrapment
- **Evisceration/Disembowelment** - suction applied directly to the intestines by a circulation outlet with a broken or missing cover.
- **Mechanical Entrapment** - Potential for jewelry, swimsuit, hair decorations, finger, toe, or knuckle to be mechanically caught in an opening of a suction outlet or cover.

There are three basic underlying physical phenomena that govern all 5 modes of entrapment:

- Suction (or delta pressure)
- Water flow rate through the outlet or cover
- Mechanical binding

The ANSI/APSP-7 standard includes methods for protecting bathers against all modes of entrapment, which include all three underlying phenomena. Unfortunately the focus is typically on only one of the three underlying causes, suction (or delta pressure) because it is very easy to grasp, while the more common cause of entrapments, flow and mechanical, is inadequately addressed. Without addressing all underlying causes, it is very difficult to build redundancy, or backup scenarios, in these latter modes of entrapment, which leads to further obfuscation of the problem. Perhaps the most regrettable legislative and regulatory impediment to protecting bathers is actually created by semantics; the term "layers of protection" has been falsely applied to the various modes of entrapment on circulation components. While this term was first used, correctly, in areas of fencing requirements, it does not apply to entrapment and

its use causes widespread misunderstandings concerning effective methods of entrapment mitigation. Extensive use of the layers of protection label just compounds industry, health, and building official's confusion about how various entrapment mitigation scenarios protect bathers.

Table 1 lists a summary of the various standards related to entrapment along with a brief scope and developmental status. These standards basically fall into two categories:

- Device and Component Standards – specific certification and test protocol for devices or field fabricated components
- Pool Construction Standards – describes methodology to construct swimming pools and spas to circumvent and/or mitigate entrapment.

While device component standards are critical for certifying operation of pool components, they address only the specific entrapment areas covered by the standard. For example, ASME/ANSI A112.19.17-2002 covers the testing and certification of Safety Vacuum Relief Systems (SVRS) involving Suction (delta pressure) relating to primarily body entrapment, but does not test or alleviate flow rate or mechanically induced entrapments involving Hair, Limb, and Mechanical categories. In addition, it explicitly excludes protection against evisceration/disembowelment. So this particular standard effectively covers only 1 of the 5 reported modes of entrapment and only attempts to alleviate one of the three root causes of entrapment, suction (delta pressure).

Similarly ASME/ANSI A112.19.8-2007 covers testing and certification for outlet covers tests a full head of hair and adds body block tests. Both of these tests are used to determine a maximum flow rating for the cover. Finger entrapment is evaluated using a probe to determine digit access. An important update to the 2007 version of the standard is the addition of UV weathering exposure prior to structural testing. Since UV degradation plays a significant role in covers breaking, this can significantly reduce the frequency of covers being easily broken or removed.

In contrast, the ANSI/APSP-7 standard addresses methodologies for pool construction that effectively cover all 5 modes of entrapment. It is a systems level approach to pool construction. It describes systems that range from elimination of entrapment hazard through completely removing fully submerged suction outlets from installation, to various methods for constructing and protecting submerged suction outlets by alternate means. It does not mandate or advocate any one method, but rather gives the pool builder the choice of constructing the pool in various modes, all of which effectively circumvent or mitigate submerged suction outlet entrapment. Additionally, it is applicable to both residential and public pools and for flow rates from a few gallons per minute to thousands of gallons per minute.

Since all methods will not work effectively with all installations, it does not mandate any one single installation method. It does not use the erroneous “layers of protection” approach, but rather depends on individual or combination of systems to address all 3 underlying physical phenomena (root causes) and consequently all 5 modes of entrapment.

Recently the “dual drain” approach has come under some criticism for being less than adequate in effectively dealing with entrapment, specifically suction (or delta pressure) entrapment. It has been asserted that when a drain cover becomes broken, missing, or one outlet is blocked, the dual outlet system ineffective and therefore a requirement should be levied for system redundancy. This committee performed testing to investigate this claim and in the process uncovered some alarming issues concerning current SVRS testing protocol. Furthermore, it has the testing confirmed that pools built in conformance with ANSI/APSP-7 do in fact prevent all modes of suction outlet entrapment.

Materials and Methods

Testing was conducted using various piping and suction outlet (drain) configurations. The test facility is pictured in Figure 1a-d. A 5000 gallon test tank is configured with various components used in pool circulation systems. Submerged piping is used on all tests as it closely replicates what one finds in the field. The test tank has a pair of bulkhead fittings that are used to pass water from the tank. It is then connected to a manifold that allows 2” suction side piping runs to be configured in 25 ft increments up to 200 ft as called out in ASME/ANSI A112.19.17-2002. In addition, return side is configurable for 25ft or 100 ft per ASTM F2387-2003. Note that ASME A112.19.17 - 2002 does not include a return side specification.

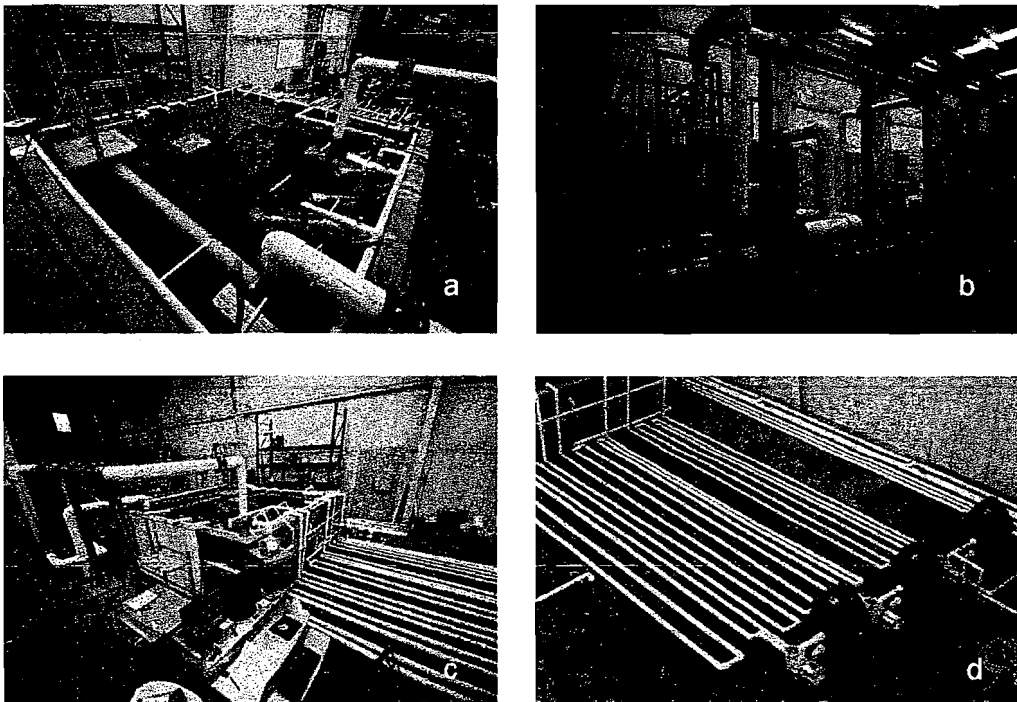


Figure 1 overall system configuration including pump elevation rack, high flow rate system pumps and parallel equipment testing configuration

Pumps are located on a rack and allow testing at -3 feet (flooded), ground Level, +3 feet, and +5 feet with distances measured from waterline to center of the pump impeller. With this design, one can rapidly change between various configurations of

pipe length and pump elevation to test a wide range of arrangements commonly found in pool and spa installations. In addition to these piping configurations for the ASME/ASTM SVRS testing protocols, there is an additional capability to test situations found outside of the small range of piping and pumps covered by these standards.

For larger commercially oriented systems, a dual 5 HP parallel pump system allows testing flow rates up to 850 GPM with larger size outlet openings. Vent tests can be conducted on extremely high flow rates on single or dual outlets up to 36 x 36 in. Should SVRS technology be developed for such large flow rates as found in large residential water features or commercial installations, the facility will easily accommodate this testing.

Finally, three flooded piping/equipment pad systems are used to make direct comparison tests on piping configurations found in typical pool systems. Each of these systems can be outfitted with identical equipment (filter, heater, pump, etc), and are plumbed with 75 ft of piping on both the return and suction side. The water can be returned through a series of return jets as commonly found in pools and spas or it can be returned through a single open pipe for low back pressure configurations. The three systems are plumbed using 2 ½, 2, and 1 ½ inch schedule 40 PVC. In this way, real time comparative tests of power consumption, flow rate, suction side loss, and system pressure can be performed. In these tests, piping size is the only variable and piping effects can be separated from overall equipment specific dependencies.

The data acquisition system is capable of 16 simultaneous channels at 200 Ksamples/second can be seen in the foreground of Figure 1c. Data is displayed during real time testing and can be stored at a wide range of data rates to be analyzed at a later time. The system includes a Balanced Flow Meter (BFM) developed by NASA, which accurately measures flow rates for all tests. This allows extremely accurate and verifiable flow rates, which are critical when determining the affect of flow rate on various tests protocols. Multiple pressure transducers are available to simultaneously measure sump, line, and pump pressures at varying locations. A complete digital video system also allows for real time recording, above and below water, at 30 frames per second for each test. Once captured with the non-linear editing system, it can be edited and distributed on DVD. The system can be reconfigured for real time streaming to the internet, should remote test viewing be required.

All SVRS testing is accomplished using the Autonomous Suction Outlet Test Apparatus (ASOTA) as shown in Figure 2a. This device allows pneumatically applied 15 lbs buoyant closed cell foam block to a test suction outlet as described in both ASME/ANSI A112.19.17-2002 and ASTM F2387-2003. Blocking element approach speeds and removal speeds are fully adjustable. In addition, it can be reconfigured to apply a known amount of downward force to a blocking element as described in tests found in ASME/ANSI A112.19.8 -2007. In addition to the test protocols of ASME/ASTM for single drains the ASOTA can be configured with a load cell to pull vertically using center or eccentric pull of the blocking element to capture the release force. The test apparatus can also be plumbed to a second outlet so that testing protocol described in both the ASTM and ASME SVRS Standards can be applied directly to dual outlet systems (Figure 2b).

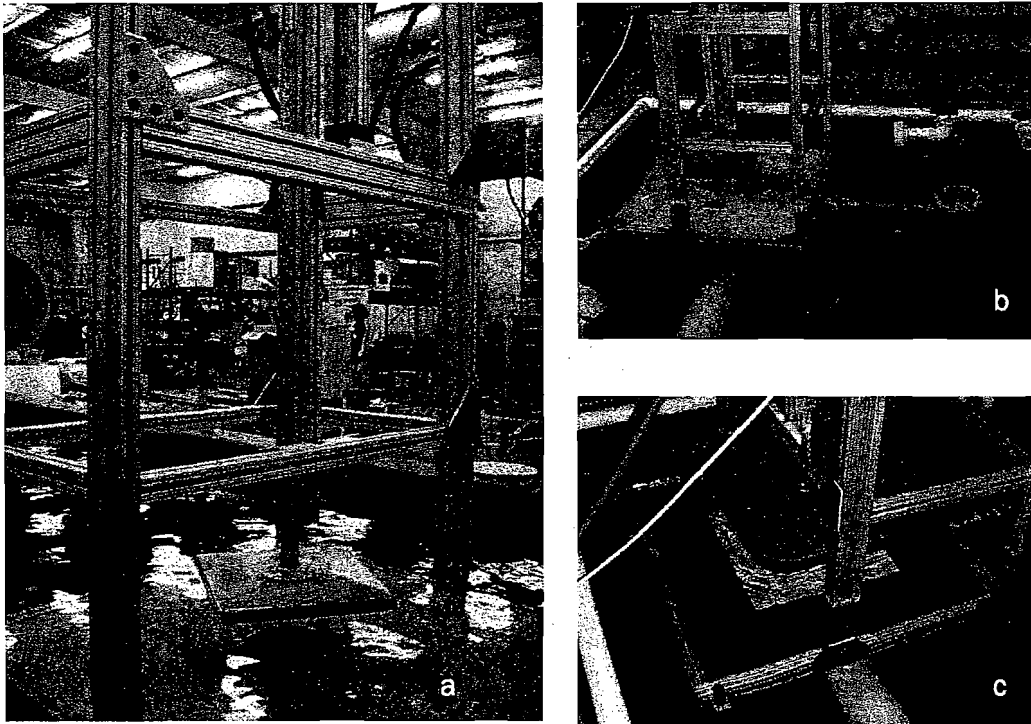


Figure 2 a) Autonomous Outlet Testing Apparatus (ASOTA) configured to test a single outlet system. b) Configured to test dual outlets analogous to ASME/ASTM SVRS Standards c) Configured for a single outlet 18 x 18 inch cover vent test

Results

Drain SVRS testing was conducted on the entire range of piping configurations and pump elevations described in both the ASTM and ASME SVRS Standards. In addition, testing was performed in configurations outside of the protocol described in both of these standards. These additional tests included larger flow rates, variable pump size, variable piping sizes, multiple outlets and ground level pump location. This additional testing was completed to verify testing protocol on a wider range of variables than are found in the published SVRS standards, but in configurations that are common in pool installations.

Various commercially available, and some not yet available, manufactured devices were tested. These tests were conducted over several months by members of the APSP Technical Committee, several SVRS manufacturers, and representatives of the Florida Swimming Pool Association (FSPA).

Initial testing, performed at the request of the FSPA, of commercially available SVRS devices produced results in many cases in which the tested SVRS device failed to trip when second outlets (e.g. drains, partially blocked drains, or skimmers) were present.

Testing performed, for the purpose of this study, focused on the underlying technology behind SVRS devices. Three basic types of SVRS technology were evaluated: venting only, venting plus pump power shut down, and pump power shut down only.

Finally, initial qualitative testing was conducted on sump venting (field fabricated vents) as described in ASTM 15.51 currently under development. Venting of various configurations of dual and single drains on flow rates as high as 420 GPM have been successfully demonstrated with various U-tube configurations.

Specifically this report will focus on:

- Single Outlet SVRS Tests with submerged pump
- Dual Outlets – 3, 6, 8, and 10 fps using ASME/ASTM SVRS protocol
- Dual Outlets – with SVRS Backup
- Single 18 x 18 outlet U-Tube venting at 20, 30, and 37 ³/₄ inch depths

Figures 4, 5 and 6 are graphs representing the results of these tests. The first series Figure 4 a-b illustrates an example of SVRS vent-only system failure on a single 8 inch drain sump. For these tests, a multiple orifice manifold was connected to the drain plug of the pump strainer. Orifice size varied from 0.075 – 0.30 in. Evaluations were made at ground level until the correct orifice size was established that could reliably release the 15 pound buoyant blocking element. In this case the size of the orifice used was approximately 0.30 inch. Once this was effectively established, the tests were repeated at the flooded (- 3 foot elevation) level. Various flow rates were tested until one was established that was right on the edge of passing. The test was repeated until several instances of pass and fail were established. Figure 4a shows a result typical of a passing test. As can be seen from the graph of pump/sump pressure vs. time, pressure (psia) is quite stable as measure at the drain sump, but there is a 0.65 psia fluctuation at the pump. This is typical of measurements at the pump.

One can easily recognize the point at which the drain becomes blocked with a severe depression in pressure. As the SVRS is releasing, one can see a pressure oscillation through the base line pressure and a positive swing that reaches nearly 20 psia. These swings are typical of SVRS releases and are a result of the dynamics of water in the pipe, in particular water hammer. In this case the release is completed in slightly less than 2 seconds and clearly passes the SVRS release standard. The pump begins to prime and the sump pressure returns to its pre test levels.

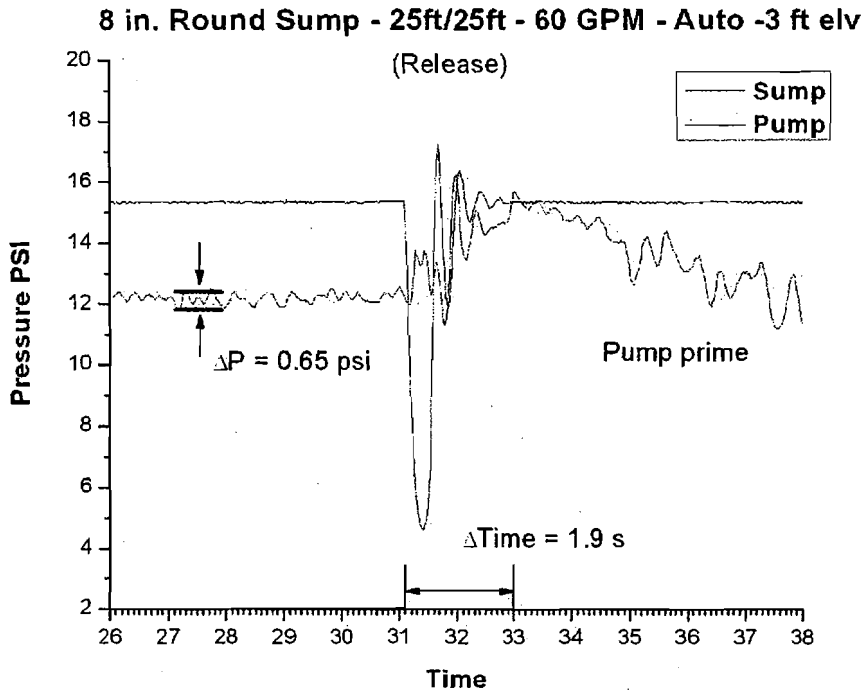


Figure 4a

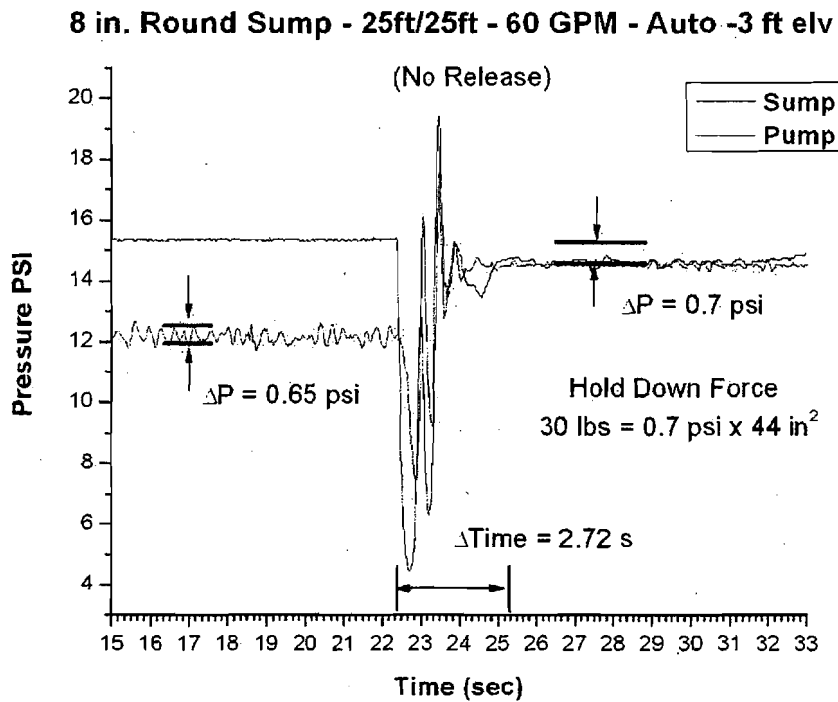


Figure 4b

An Identical test shows a dramatically different result. In this case the blocking element does not release. Baseline pressure levels were identical to the first test. In this case water hammer and dynamic effects continued for 2.72 seconds – nearly as long as allowed for release in the standard. Because the blocking element does not release both the sump and pump pressures end at the same value. What is interesting about this new depressed level, 0.7 psia, is the effect of the pump trying to prime. Even though the SVRS is tripped, the pump continues into remove air from the system at the rate the SVRS allows air into the pump. This results in a hold down force of 30 lbs – double of what is allowed in both the ASTM and ASME standards.

This result could easily be repeated using smaller orifice sizes. What this revealed is that a device can be calibrated and “pass” the limited piping and pump configurations set out in the test protocol then fail as shown in Figure 4 b. This leads to the concern that current standards do not adequately test these devices to the release levels and times called out under the ASME/ASTM standard’s scope. The limited, pump size, piping size and flow rates specified in these standards do not approach those found in the field and they do not evaluate piping elevation versus water level.

With this result a similar set of tests were performed using dual-outlet standard 8 inch sumps, 3 ft separation, with one cover missing and the other in place (Figure 5 a-c). The blocking element was applied to the sump via the ASOTA with the missing cover while the remaining drain was allowed to flow. It should be mentioned that this was exactly the test configuration where several SVRS devices certified to the ASME and/or ASTM standards did not successfully detect a blockage. In this case blocking was attempted with the automatic test device as described in the ASME/ASTM standard at line velocities of 3, 6, 8 and 10 fps. In 2 inch pipe this represents 31.4, 62.8, 83.7, and 104.6 GPM. The test allowed the blocking element to be momentarily contacted with the open (uncovered drain) in the analogous fashion to SVRS testing.

In each case during the automatic testing the blocking element is never trapped on the uncovered drain – *even at flow rates that exceed the ANSI/APSP-7 standard maximum of 6 fps*. These were surprising results and so the test was repeated, except that the blocking element was held in place manually for several seconds allowing water dynamics to subside. Figure 5 b shows this result. At 3 and 6 fps, the blocking element releases; however, at 8 and 10 fps the blocking element is held down as can be seen in both the sump and pump depression of pressure (Figure 5 c), after which the blocking element was manually removed. This could be repeatedly performed and underscores an important flaw in the testing protocol of the ASME/ASTM tests. At flow rates greater than allowable rates prescribed in ANSI/APSP-7 the Dual Drain passes the ASME/ASTM test protocol, but in similar tests that allows water dynamics to subside, fails.

Dual Drain - 25 ft/100 ft 8in. Opened/Blocked
 Sump 3 ft Separation 2 in. Pipe 3-10 fps Auto

ASME/ASTM SVRS Protocol - Passed

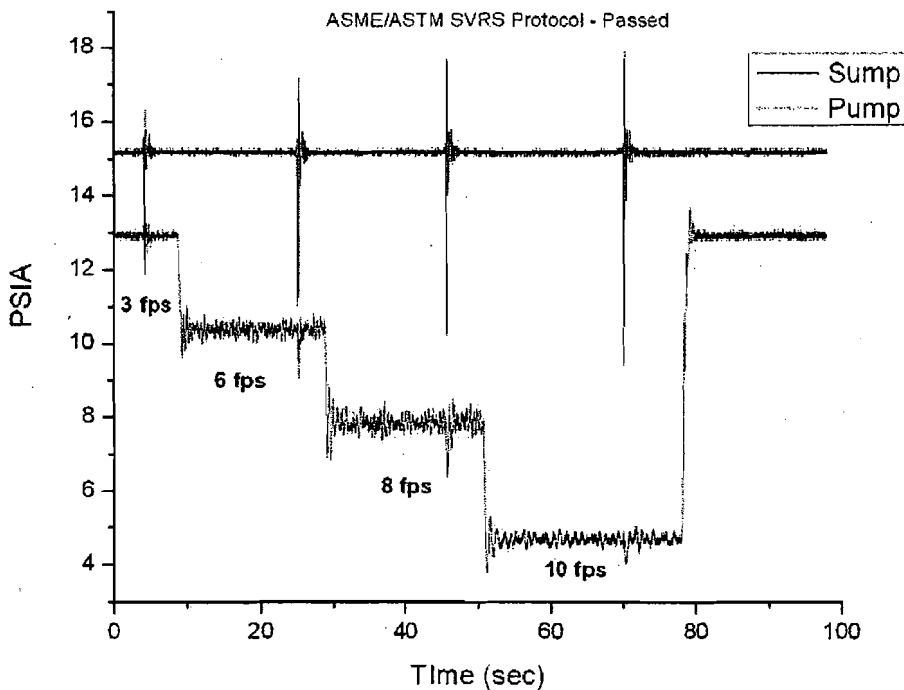


Figure 5a

Dual Drain - 25 ft/100 ft 8in. Opened/Blocked
 Sump 3 ft Separation 2in. Pipe 3-10 fps Manual

Fails Holddown Test Above ANSI/APSP - 7 Limit

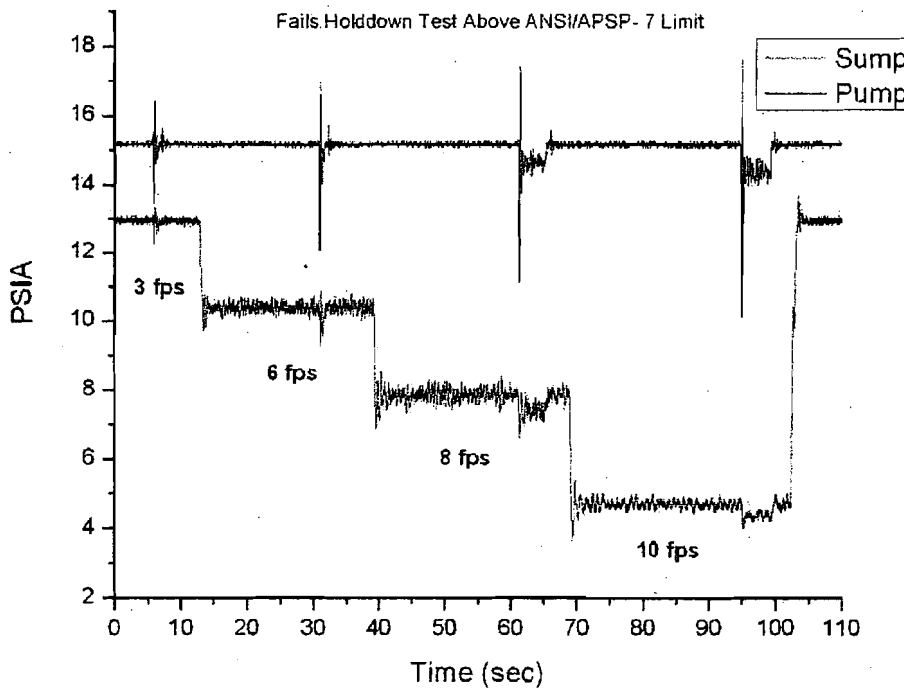


Figure 5b

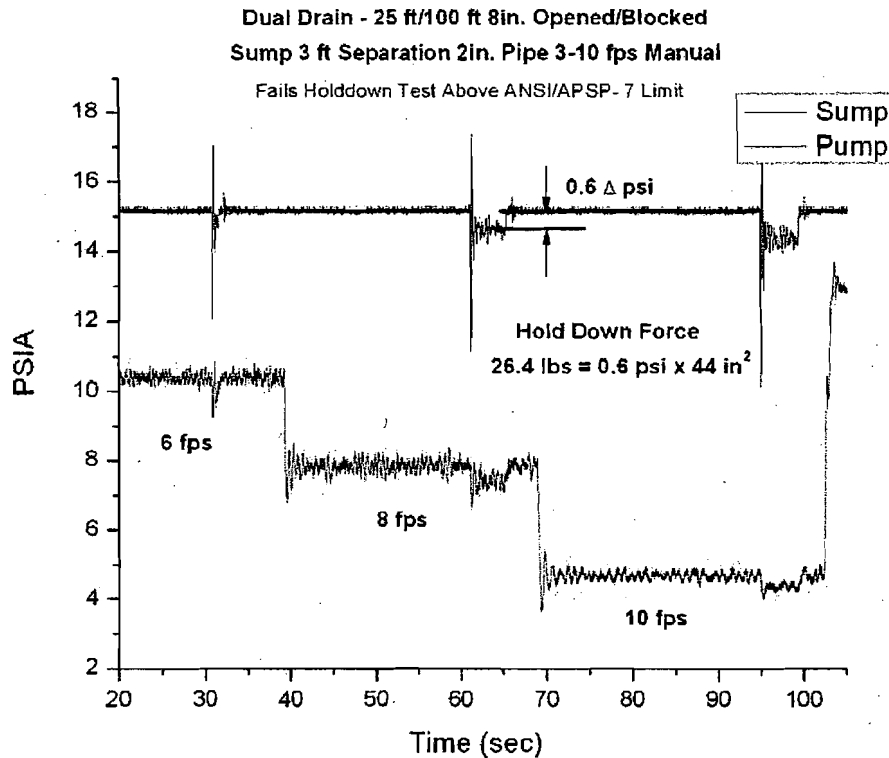


Figure 5c

A series of tests were conducted as a qualitative assessment of vent line designs for very large piping and flow configurations. The ASTM 15.51 writing subcommittee is currently drafting a standard to address field fabricated vent design. This vent test system used 6" piping with a dual 5 HP pumps. Flow rate through the single 18 x 18 inch cover averaged 420 GPM. A 1" PVC U-Tube vent was connected suction side piping approximately 11 feet from the sump, just under waterline. Tests were conducted with the U-Tube depth at 20, 30, and 37 ¾ inches from water level. Maximum drawdown at 37 ¾ depth was 10." Figure 6 a-d show the results of these tests. Test shown in Figure 6 a-c use a larger buoyant blocking (See Figure 2c) to completely block the single suction outlet and in Figure 6 d a Human was used to block the flowing single suction outlet.

In each case using the blocking element, the sump pressure depresses down, trips the vent and in a very short interval (2.5-3.2 sec), the sump returns to the pre-blocking pressure levels. In the case of the Human Blocking attempt (Figure 6d), it was impossible for the test subject to block this large 18 x 18 inch cover alone. The test subject was placed on his back on the flowing single drain with arms down along the sides to seal both edges. The test subject was then forced down on the cover by a second person pressing down on the center of the test subject's chest. According to the test subject the actual blockage was almost imperceptible from a "suction" point of view, but the test subject did report feeling the flow of water around his body, in particular between his arms and torso. It was reported that the actual sensation was no where near the sensation of blocking off an 8 inch single sump. The vent trip, even at 37 ¾ inches of depth, was very fast and efficient at alleviating all delta pressure at the sump.

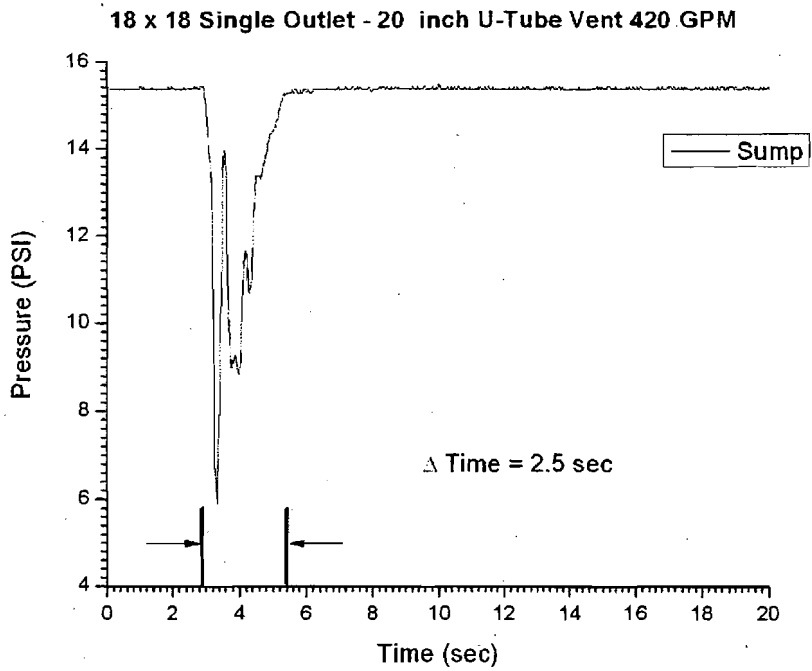


Figure 6a

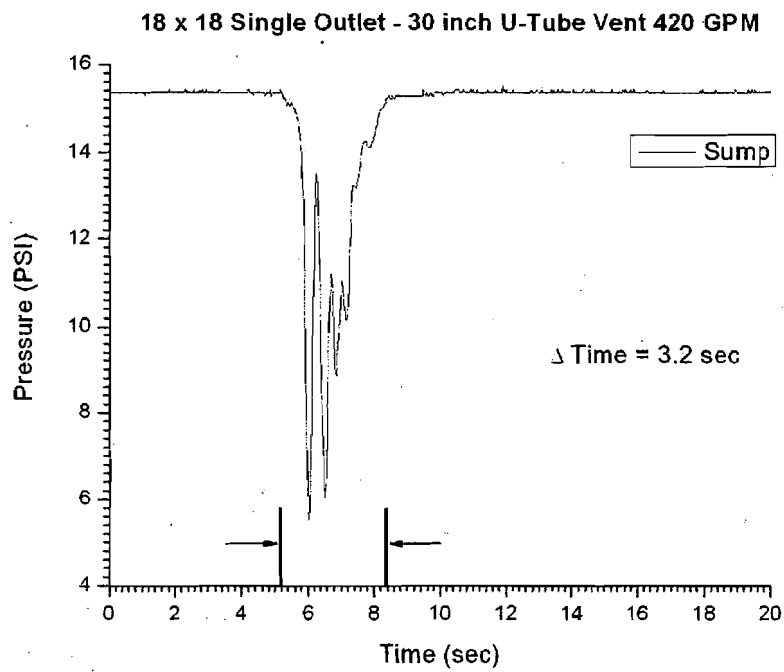


Figure 6b

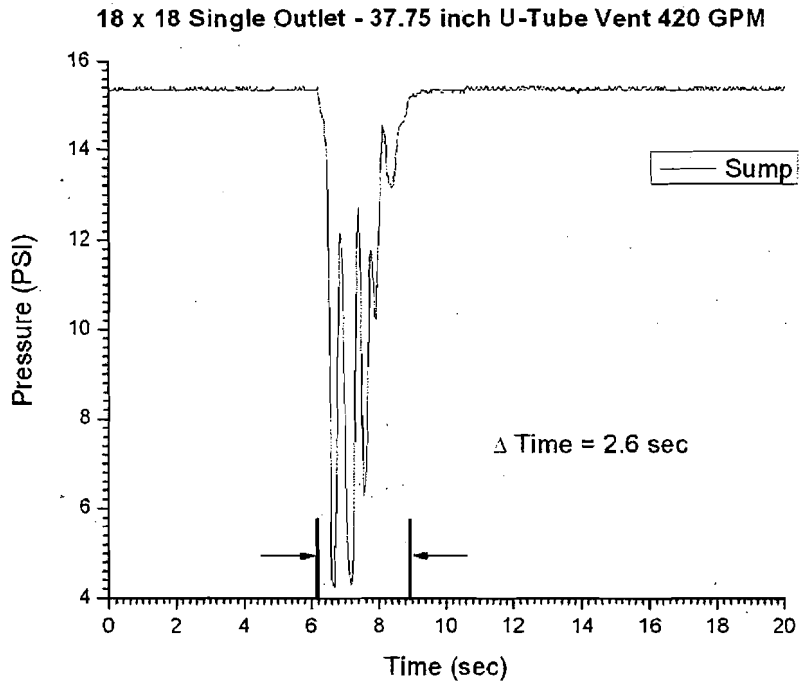


Figure 6c

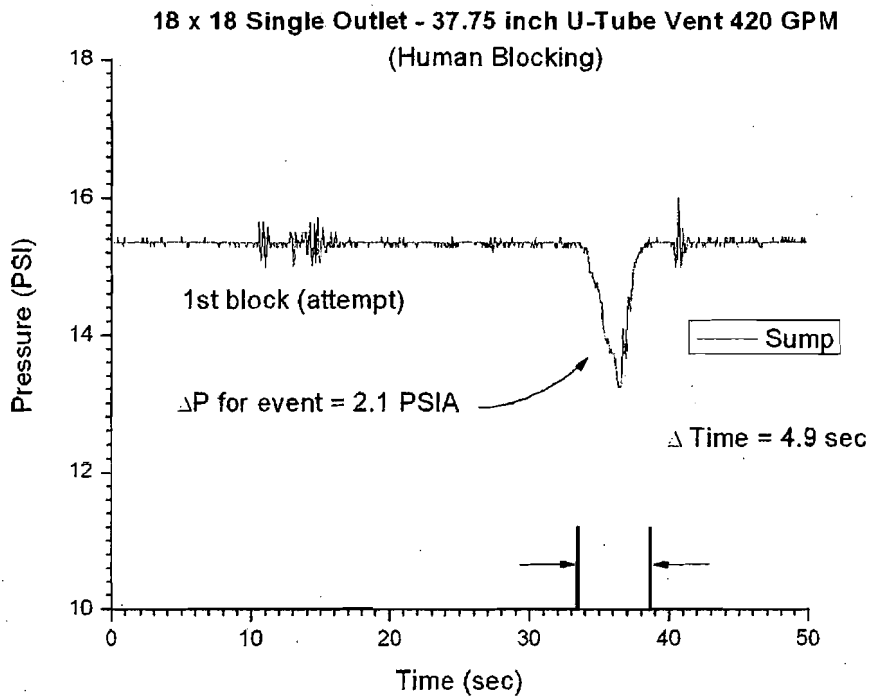


Figure 6d

Conclusion and Recommendations

The APSP Technical Committee Tests have demonstrated the validity and comprehensive approach of the ANSI/APSP-7 standard. It is recommended that in future code and legislative language one move away from the narrow definition of bather entrapment as being dominated by "suction" or delta pressure across an open or improperly covered sump/drain. The solution requires a multi-dimensional approach such as that mandated in ANSI/APSP-7. The assertion that a simple "back-up" or redundancy can protect bathers from improperly installed or maintained pool circulation systems is misleading and dangerous.

The scientific/engineering data presented has clearly moved the basic knowledge beyond the limited approach taken just a few short years ago. The ANSI/APSP-7 is a published American National Standard and has endured numerous levels of scrutiny. It effectively addresses all 5 modes of entrapment and all 3 underlying phenomena that represent the physical root cause. First and foremost ANSI/APSP-7 is a pool construction standard and as such does not include the individual certification of components. The ANSI/APSP-7 is comprehensive where current code language does not address flow and often exempts large suction outlet covers from testing and certification. In addition, this standard contemplates all pools, including large commercial installations, complex residential installations, and provides alternate approaches to achieve safe circulation system construction in all installations.

Tests conducted on dual outlets configured as described in ANSI/APSP-7 demonstrate:

- The size of the outlets and piping do have an effect on safe installation
- Water velocity tested in excess of the 6 fps ANSI/APSP-7 recommended maximum *passed* an analogous ASME/ASTM SVRS test protocol, but *failed* testing that included a damping period for water dynamics
- Although data has been circulated that suggest a dual drain cannot achieve the 15 lbs release force, this is very cover, flow rate, and sump specific. When one uses covers that pass the latest revision (ASME A112.19.8-2007) along with piping as described in ANSI/APSP-7 this concern is completely alleviated.
- Multiple submerged outlets, when installed according to ANSI/APSP-7, are a backup for suction outlet entrapment. Multiple outlets pass the same tests; react faster than the 3 seconds described in ASTM/ASME standards, and work properly in combination with skimmers.

Tests conducted on SVRS systems and both the ASME/ASTM SVRS standards demonstrate:

- Not all SVRS tested to the ASME/ASTM SVRS Standards will reliably "trip" when combined with dual outlets and/or skimmers – Those that fail seem to interpret residual flow from the second outlet as a priming pump.
- Not all SVRS tested to the ASME/SVRS Standards "trip" with partial blockage, e.g. towel or deflated toy over drain.
- Venting only SVRS technology may pass the ASME/ASTM SVRS testing protocol, but when used in submerged suction (e.g. raised spas) and with a NSF rated self-priming pump such devices may continue to expose bather to hold down forces in excess of what is currently allowed by the ASME/ASTM SVRS standard.

- All tests conducted by APSP used submerged piping typical of that found in pools and spas in the field. When piping is elevated above waterline, release is artificially assisted by water seeking its own level, a condition rarely found in the field.
- Water dynamics, in particular water hammer can facilitate release. Once the block is forced off the cover by these spikes in pressure, it floats to the surface. Neutrally buoyant blocks have been documented to “hammer” on and off open pipes for several seconds.
- Water dynamics continue for several seconds. The longest on an SVRS test lasted 2.72 seconds and this length of time may call into question the validity of the arbitrary 3 second limit.

Tests conducted on a U-Tube Vent on a single 18 x 18 suction outlet demonstrates:

- A single 18 x 18 drain grate can be successfully vented operating at 420 gpm with a 1 inch PVC vent pipe.
- Release is very fast – shortest release was 2.5 seconds
- While it was difficult to completely block the drain using a Human test subject, it was possible to do so sufficiently to trip the vent. The actual suction sensation of this experience was far less than what is experienced when an 8 inch sump is blocked.

Based on this testing, it is clear dual outlets, vents, and SVRS technology all have a role protecting bathers from entrapment hazards. While not tested or demonstrated for this report, gravity flow systems can also achieve superior levels of bather protection and are allowed by ANSI/APSP-7. Not all current codes address the wide range of requirements for large public pools, residential pools with water features, multi-speed pumping systems, and various elevated spa installations. These all necessitate an inclusive comprehensive approach with the best entrapment mitigation methods from ANSI/APSP-7 used. Sometimes the hazard can be simply eliminated completely by removing all submerged suction outlets. Other times a vent or SVRS can be effectively used. Multiple outlets dramatically reduce the opportunity for hair entrapment by dividing the flow between 2 or more covers rated at 100% of the flow. Unlike SVRS systems, they are not defeated by check valves commonly used on spas and hydrostatic valves necessary for pools installations in areas of high water table. Vents can also be effectively used at extremely high flow rates that are beyond the scope of the current SVRS ASME/ASTM standards.

What is apparent is that codes and legislation can not continue focus on single underlying events, i.e. suction, as the only hazard to address. At the same time one must move away from the notion of “layers of protection” and must move toward a more comprehensive approach that always protects bathers from all 5 modes of entrapment and the 3 underlying root causes of entrapment: Flow rate through the outlet, Suction (or delta pressure), and mechanical. These have been placed in a Venn diagram in Figure 7a. It is evident from this diagram that all modes of entrapment fall into one of the three underlying physical phenomena. The approaches prior to ANSI/APSP-7 were all driven by individual solutions seeking to address one of the five hazards. If properly addressed during pool construction and renovation, all potential hazards can be completely alleviated.

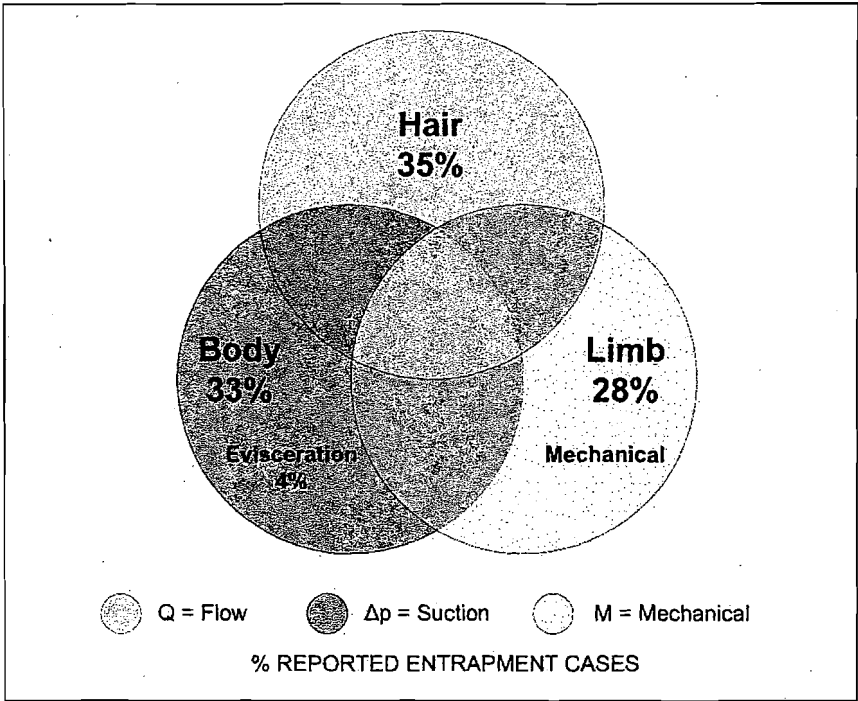


Figure 7a

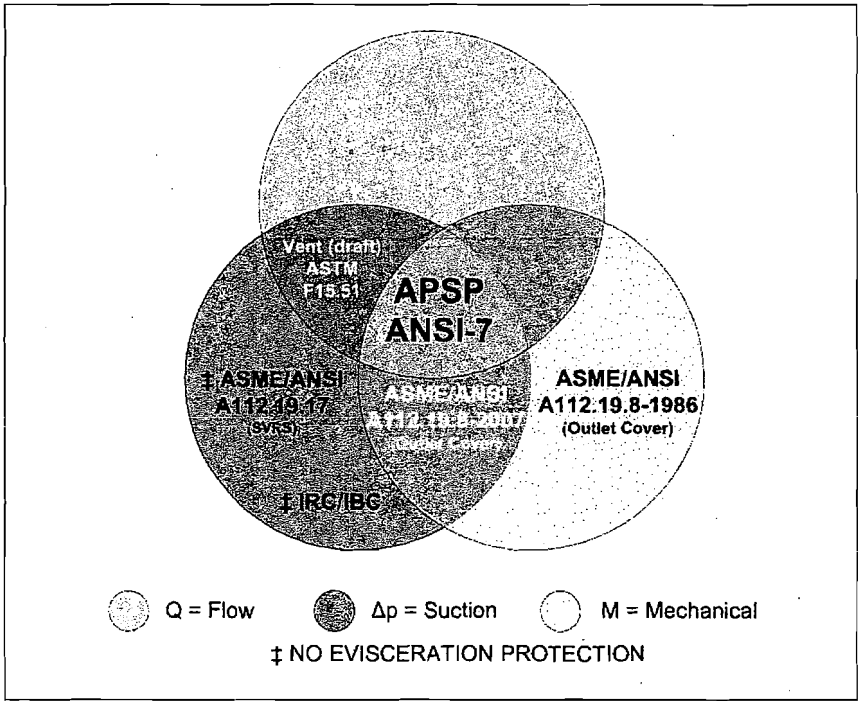


Figure 7b

The regulatory and legislative question is; how can one best protect all bathers from all hazards related to submerged suction outlets? The clear answer, as illustrated above in Figure 7b, is ANSI/APSP-7. What ANSI/APSP-7 has brought to the table is a comprehensive approach to pool construction that prevents, to the maximum extent any standard can, an entrapment from occurring. Figure 7b shows all current standards, published and under development, on a diagram against a backdrop illustrating the three underlying root causes of all entrapments. As can be seen, only ANSI/APSP-7 addresses all 3 root causes and it incorporates by way of reference all the other relevant standards shown. Based on the results achieved in the testing outlined above, the ANSI/APSP-7 *Standard for Suction Entrapment Avoidance in Swimming Pools, Wading Pools, Spas, Hot Tubs, and Catch Basins* stands alone as the only standard offering comprehensive protection against all known entrapment hazards.

Table 1 – Summary of Standards Related to Entrapment

Standard Title	Brief Scope of Standard	Current Status
<p>ANSI/APSP-7 American National Standard for Suction Entrapment Avoidance in Swimming Pools, Wading Pools, Spas, Hot Tubs, and Catch Basins</p>	<p>Building standard covering design and performance criteria for circulation systems, including standards for fittings, safety devices and piping to protect against all suction entrapment hazards.</p>	<p>Approved as an American National Standard September 2006. Reaffirmed by ANSI February 2007 following a Withdrawal for Cause challenge by proponents of competing safety language. Competing language replaced by ANSI/APSP-7 in Florida.</p>
<p>ASME/ANSI A112.19.8M -1987 (Reaffirmed 1996) Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, Hot Tubs, and Whirlpool Appliances</p>	<p>Suction Fitting standard which requires UV stabilizers, flow rating based on Ponytail hair test, structural testing on new parts.</p>	<p>Effectively for 2007, this is the current standard, because the 2007 version published March 30, 2007. The new standard will impact product Listing when they renew annually.</p>
<p>ASME/ANSI A112.19.8 -2007 Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, and Hot Tubs</p>	<p>Updated version tests a full head of hair and adds body block tests both of which are used to determine maximum flow rating. UV weathering now precedes structural testing, and finger entrapment is now evaluated using a probe to determine digit access.</p>	<p>This version was approved March 30, 2007.</p>
<p>ASME/ANSI A112.19.17-2002 Manufactured Safety Vacuum Release Systems (SVRS) for Residential and Commercial Swimming Pool, Spa, Hot Tub, and Wading Pool Suction Systems</p>	<p>SVRS standard which tests vacuum breaking devices on a single, eight inch suction fitting connected to two inch pipe flowing at 60 gpm. This system is then blocked with a 15 lbs buoyant blocking element which is allowed to float free the moment it touches the suction outlet fitting. An American National Standard.</p>	<p>Current version. The ASME Task Group is working on the next version which will address known issues, including large pumps and small flow rates, water hammer and buoyancy of the blocking element.</p>
<p>ASTM F2387-2003 Standard Specification for Manufactured Safety Vacuum Release Systems (SVRS) for Swimming Pools, Spas and Hot Tubs</p>	<p>SVRS standard similar to ASME's SVRS standard. Tests vacuum breaking devices on a single eight-inch suction fitting connected to two inch pipe flowing at 60 gpm through 100ft of suction pipe and 100ft of pressure pipe. This system is then blocked with a 15 lbs buoyant blocking element that is allowed to float free the moment it touches the suction outlet fitting.</p>	<p>Current version. This SVRS standard is not widely referenced or recognized because the ASME standard is an American National Standard which has gone through more structured approval process.</p>
<p>ASTM F15.51 Sub-Committee developing a Vent Line and Vent Line Cap Standard.</p>	<p>This draft vent standard will provide performance criteria for Professional Engineers to design vent systems that limit differential pressure at suction outlets. A second standard addresses the vent termination point, which can be a molded part or even a custom tile.</p>	<p>Draft in progress. This standard will likely be referenced by other standards and within building codes.</p>
<p>NSF 50 – 2005 Circulation system components and related materials for swimming pools, spas/hot tubs</p>	<p>This standard evaluates circulation system components for performance, toxicity and efficacy. Included is a pump self-priming test that requires pumps be able to remove air from the suction piping when place 10 feet above water level.</p>	<p>Current version. Widely referenced in APSP standards and in commercial building codes.</p>

COMPARISON OF VIRGINIA GRAEME BAKER POOL AND SPA SAFETY ACT, ANSI/APSP-7 AND ICC CODES

<p>1404 (b) FEDERAL MANDATE Requires that all covers be tested and certified to ASME/ANSI A112.19.8-2007</p>	<p>Yes Section 4.5</p>	<p>No Section 3109.5.1 Exempts drains 12 x 12 or larger Exempts channel drains References</p>
<p>1404(b) FEDERAL MANDATE Requires future covers to comply with “any successor standard” or version of 19.8</p>	<p>Yes Section 4.5</p>	<p>No Section Referenced Standards ASME/ANSI A112.19.8M -1987 (R1996) edition only</p>
<p>1404 (c)(1)(A)(i) FEDERAL MANDATE Requires ASME/ANSI certified covers on all drains regardless of size in public pools and spas</p>	<p>Yes Section 1.1 Section 4.5</p>	<p>No Section 3109.5.1 Exempts drains 12 x 12 or larger Exempts channel drains</p>
<p>1404 (c)(1)(A)(ii) FEDERAL MANDATE Public pools and spas with a single drain that is not unblockable to have added protection</p>	<p>Yes Section 1.1 Section 6.3 Note: single blockable drain prohibited in new construction</p>	<p>Yes Section 3109.5.2</p>
<p>1404 (c)(1)(A)(ii) (I-VI) FEDERAL MANDATE Allows all options recognized in ASME/ANSI A112.19.17 to protect single drain installations in public pools and spas</p>	<p>Yes Section 7</p>	<p>No Section 3109.5.2 Prescriptive language requires “atmospheric vacuum relief” eliminating reversing circulation flow inconsistent with ASME Section 1.4 <i>Safety Vacuum Release System</i></p>

**COMPARISON OF
VIRGINIA GRAEME BAKER POOL AND SPA SAFETY ACT, ANSI/APSP-7 AND ICC CODES**

<p>1404 (c)(1)(A)(ii) (I-VI) FEDERAL MANDATE Allows all devices that comply with ASTM F2387 to protect single drain installations in public pools and spas</p>	<p style="text-align: center;">Yes Section 7.1</p>	<p style="text-align: center;">No Section 3109.5.2 Sub 1.</p> <p>Referenced Standards (ASTM) pages 559-565, 2006 IBC does not include ASTM F2387</p>
<p>1404 (c)(1)(A)(ii) FEDERAL MANDATE Recognizes that SVRS or other devices are not required on public pools or spas with multiple drains or an unblockable drain</p>	<p style="text-align: center;">Yes Section 5.5.2</p>	<p style="text-align: center;">No Section 3109.5.2</p>
<p>1406(a)(1)(A)(iii) Expressly permits pools without any main drains</p>	<p style="text-align: center;">Yes Section 5.2</p>	<p style="text-align: center;">Unclear Section 3109.5</p> <p>“Suction outlets shall be designed to product circulation throughout the pool or spa.”</p>
<p>1406(a)(1)(A)(iii) GRANT PROGRAM New construction to have multiple drains, unblockable drain or no drain</p>	<p style="text-align: center;">Yes Section 5</p>	<p style="text-align: center;">Unclear Section 3109.5</p>
<p>1406(a)(1)(A)(iv) GRANT PROGRAM Requires ASME/ANSI certified covers on all drains that are not unblockable</p>	<p style="text-align: center;">Yes Section 4.5</p> <p>Note: requires certified covers on all drains.</p>	<p style="text-align: center;">No Section AG106.2</p> <p>Exempts channel drains and drains 18 x 23 or larger, some of which may not be unblockable</p>
<p>1406(a)(1)(A)(iv) GRANT PROGRAM Requires such covers to comply with “any successor standard” or version of ASME/ANSI A112.19.8</p>	<p style="text-align: center;">Yes Section 4.5</p>	<p style="text-align: center;">No Section AG108 Standards</p>

**COMPARISON OF
VIRGINIA GRAEME BAKER POOL AND SPA SAFETY ACT, ANSI/APSP-7 AND ICC CODES**

VIRGINIA GRAEME BAKER POOL AND SPA SAFETY ACT		
<p>1406(d)(1)(A-F) GRANT PROGRAM Existing pools with single drain that is not unblockable to have added protection</p>	<p align="center">Yes Section 6.3</p>	<p align="center">Yes Section AG106.3</p>
<p>1406(d)(1)(A-F) GRANT PROGRAM Allows all options recognized in ASME/ANSI A112.19.17 to protect single drain installations in residential pools and spas</p>	<p align="center">Yes Section 7</p>	<p align="center">No Section AG106.3 Prescriptive language requires "atmospheric vacuum relief" eliminating reversing circulation flow inconsistent with ASME Section 1.4 <i>Safety Vacuum Release System</i></p>
<p>1406(d)(1)(A-F) GRANT PROGRAM Allows all devices that comply with ASTM F2387 to protect single drain installations in residential pools and spas</p>	<p align="center">Yes Section 7.1</p>	<p align="center">No Section AG106.3 Sub 1. Section AG108 Standards: ASTM F2387 not included</p>
<p>1406(d)(1)(A-F) GRANT PROGRAM Recognizes that SVRS or other devices are not required on pools or spas with multiple drains or an unblockable drain in residential pools</p>	<p align="center">Yes Section 5.5.2</p>	<p align="center">No Section AG3109.5.2</p>

Stevenson, Todd

From: steve.jillson@dhhs.ne.gov
Sent: Friday, March 28, 2008 5:26 PM
To: CPSC-OS
Subject: Pool & Spa Safety Act

1. What is the justification for the multiple drain cover centers at least 3-feet apart and no more than 6-feet apart? The Recommend Standards for Swimming Pools (also known as 10 States) states that main drain spacing shall be "at least 3-feet apart but not greater than 20-feet apart on center". We have this in our regulations here in Nebraska too. Basically, why does the CPSC state no more than 6-feet?

Thank you.

Steve

Steve Jillson
Environmental Engineer II
Department of Health and Human Services
Division of Public Health
P.O. Box 95026, Lincoln, NE 68509-5007
(402) 471- 6448 fax: (402) 471-6436
E-Mail: steve.jillson@hhss.ne.gov

Stevenson, Todd

From: Fraser, Gary (DOH) [Gary.Fraser@DOH.WA.GOV]
Sent: Friday, March 28, 2008 7:14 PM
To: CPSC-OS
Cc: Nogler, Tim (CTED)
Subject: Pool and Spa Safety Act
Attachments: CPSC pool and spa safety act.doc

Office of the Secretary, US Consumer Product Safety Commission,

I have attached comments for the Pool and Spa Safety Act regarding your staff interpretation of section 1404 and some general comments and questions on Title XIV in general. Thanks for the opportunity to provide input.

<<CPSC pool and spa safety act.doc>>

Gary Fraser

Water Recreation Program

Local Health Support, Office of Environmental Health and Safety

Washington State Department of Health

PO Box 47825

Olympia, WA 98504-7825

(360) 236-3073 (phone); (360) 236-2261 (FAX)

<http://www.doh.wa.gov/ehp/ts/WaterRec/default.HTM>

Public Health Always Working for a Safer and Healthier Washington

3/28/2008

TO: Office of the Secretary
Consumer Product Safety Commission

Scott Wolfson
Project Safety Manager, Pool and Spa Safety Act
Deputy Director, Office of Information and Public Affairs

FROM: Gary Fraser, Manager
Water Recreation Program

SUBJECT: Staff interpretation of the Pool and Spa Safety Act Section 1404 and general comments/questions on Title XIV HR6.

I appreciate the opportunity to provide input on this new Act and to ask some questions regarding the new rule and its implementation. The first section of comments is in relation to the CPSC staff interpretation on Section 1404. The second section of comments presents general questions and issues on Title XIV for further consideration.

Part 1: Response to CPSC staff comments:

Drain Covers:

I support the movement to upgrade all drain covers to the new ASME A112.19.8-2007. With the addendum for the ASME standard still in process, will the timeline of December 19, 2008 be possible to meet? Could this mean that people will have to install a main drain grate that meets an earlier A112.19.8 standard, which will not provide the same level of protection?

How will the placement of drain covers be evaluated and verified? Will CPSC accept a bill of sale from the owner of a facility, showing the purchase of a new grate that complies with the new ASME standard? Who will be responsible to verify the sizing of the grate to the flow? With the ASME standard establishing a lifetime for the drains, will the manufacturer/retailer have some tracking mechanism to remind owners when it is necessary to replace the grates? If not, what process is there for the tracking/replacement schedule?

Single Main Drain:

The staff interpretation of multiple main drains describes main drains that are at least 3 feet apart measured from the centers of the grate and no more than 6 feet apart. This will have a far-reaching effect on the majority of our pools built with multiple main drains. Some examples of this include:

- a. Older pools built in the 50's through 80's with dual or multiple drains were generally allowed to be spaced up to 20 feet apart.
- b. Since 1990, newly constructed pools have been required to install 2 main drains at least 6 feet apart (and that was measured from the inside edge of the drain not the center of the drain cover), where we stated in our 1990 code

“A minimum of two drains spaced: twenty feet or less apart nor closer than six feet; or (as far as possible from each other in pools seven feet or less linear floor distance)”. Every pool built between 1990 and 2004 in our state would be out of compliance with this interpretation.

- c. Many pools built since October, 2004 in our state should generally be in compliance with the CPSC staff interpretation, as we shortened our distance to 3 feet between the drains, but we didn't prevent contractors from maintaining a 6 foot separation. Again our current codes measure the distance from the edges of the drain. If we have multiple drains that don't meet CPSC staff interpretation, are these drains to be treated the same as a single main drain?
- d. We understand the law provides for consideration of the Unblockable Drain. While we understand its intent and purpose to reduce the potential of body entrapment, there are concerns that if the grate is broken or removed, it will leave a victim open to potential evisceration, body or limb entrapment.

Devices or Systems Designed to Prevent Entrapment:

We are trying to understand the intent of recognizing the Safety Vacuum Release System in item (I) and the Automatic pump shut-off system in item (IV). It seems that if the automatic pump shut-off system in item (IV) is recognized, there is nothing in the provision about relieving vacuum conditions. Is that satisfactory with CPSC?

Drain Disablement:

The CPSC staff interpretation suggests this could mean that the main drain is removed. Could “Drain Disablement” be interpreted to mean: the drain is simply turned off; or has a gate valve that is placed in a locked closed position; or has some kind of device that somehow disables the drain for a specified condition (e.g. when people are using the pool, it remains closed)? Are any of these options something that CPSC would consider it would allow? There are several concerns and issues with the drain disablement concept that we believe need to be evaluated. We want to assure we are not trading an entrapment problem with a water quality issue, which can also have severe safety and health consequences.

Part 2: General Comments and Questions Regarding HR6.

Section 1403: (1)(A)(ii) makes provision for single main drains (other than unblockable drains). to provide one or more of the “Devices or Systems Designed to Prevent Entrapment”. It seems that the law is silent for dual or multiple main drains.

There is a general question I need to ask in relation to a rule we adopted in October, 2004. Our state gave all of our regulated facilities with **single main drains** from October, 2004 until June 1, 2008 to install as a minimum, a manual emergency shut-off switch and audible alarm. The department also recognizes alternate options, including dual main drains, SVRS, atmospheric vent lines, collection tanks, or other pre-engineered options. The question we ask the Commission on this issue is whether you will recognize the manual shut-off switch and audible

alarm as being sufficient to meet the intent of the requirements established in HR6 or will CPSC mandate further protection for these facilities? This has been a major upgrade and cost expense for our facilities in the state. We gave our existing facilities 3.5 years to provide this upgrade.

Section 1405: State Swimming Pool Safety Grant:

For a state to be eligible for accepting grants, will the law extend the responsibility to oversee existing residential pools as well?

Section 1406: Minimum state law requirements:

State minimum safety requirements are met if the law by statute requires:

- The enclosure of **all** outdoor **residential** pools and spas by barriers to entry that will effectively prevent small children from gaining unsupervised and unfettered access to the pool and spa.

It is understood that to be eligible for grants it is not necessary to meet this requirement, but it is still included as part of the minimum safety requirements to be established. Does this section apply to all existing pools and residential inflatable or portable pools that do not likely ever see a building authority for a permit?

- That **all** pools and spas be equipped with devices and systems designed to prevent entrapment by pool or spa drains.

This portion of the law appears to be retroactive for all pools and appears to include residential pools as well. Health statutes do not cover residential pools. State Building Code Council laws in our state do have authority in this area. I don't believe they have any retroactivity for existing pools within their statute. Who would be responsible for enforcement of this provision to the 125,000 plus residential spas in our state, the 30,000 plus in-ground pools and the inflatable/portable market?

- That pools and spas built more than 1 year after the date of the enactment of such statute have
 - More than 1 drain
 - 1 or more unblockable drains
 - No main drain

Who will be responsible for overseeing the protection for new facilities most of which will be at private home with the inflatable/portable market?

- Periodic notification is provided to owners of residential swimming pools or spas about compliance with the entrapment protection standards of ASME/ANSI A112.19.8.

Is it the intent that building authorities would send out notice to individual homeowners?

- The state meets such additional state law requirements for pools and spas as the Commission may establish after public notice and a 30-day public comment period.

Even if the Commission develops additional rules, the time to implement changes in state statute or administrative codes will take a couple of years to get into place. Some of the requirements may be achievable for the facilities we regulate, but to go to existing residential pools will be difficult for all state and local agencies. I believe

the State Building Code Council (SBCC) has enacted requirements in the new IBC and IRC requirements that will allow them to cover the issue for new construction, but existing pools will likely be an issue.

Section 1407: CPSC Education Program:

We applaud the intent of this portion of the rule as there is need for state health and building code officials, design engineers, pool contractors, pool maintenance companies, and pool owners to be educated on the myriad issues associated with protection of the pools in relation to entrapment protection and barriers. We ask that you work with the state health and building officials as you develop this effort. Our hopes would be that the Commission would develop several venues to get the word out, including an annual traveling road show describing the standards and their application, web sites with media presentations, DVD/CD and technical flyers and articles. If you opt to work with us, we can get more specific on the needs.

Cc: Tim Nogler, State Building Code Council

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Stevenson, Todd

From: Sean Debley [Sean.Debley@ventura.org]
Sent: Friday, March 28, 2008 7:36 PM
To: CPSC-OS
Subject: Pool & Spa Safety Act - PUBLIC COMMENT

Attachments: Public Comments Pool and Spa Safety Act.doc



Public Comments
Pool and Spa S...

Dear Sirs,

Please accept the attached document as public comments submitted on behalf of the Ventura County Environmental Health Division, Ventura, California

Should any additional information be distributed, please forward to this email or mail any documentation to:

County of Ventura
Environmental Health Division
800 S. Victoria Ave.
Ventura, CA 93009-1730

Best regards.

Sean Debley, Plan Check Specialist
Ventura County Environmental Health Division
(805) 654-2825

Public Comments – Virginia Graeme Baker Pool and Spa Safety Act 2007

Section 1403 – Definitions-

(7) UNBLOCKABLE DRAIN.—The term “unblockable drain” means a drain of any size and shape that a human body cannot sufficiently block to create a suction entrapment hazard.

Comment:

The ASME 122.19.8 – 2007 defines specific design requirements for *Field Fabricated Outlets* in section 2.3. Is the term *Unblockable Drain* intended to be synonymous with *Field Fabricated Outlets*?

SEC. 1404. FEDERAL SWIMMING POOL AND SPA DRAIN COVER STANDARD.

(a) CONSUMER PRODUCT SAFETY RULE.—The requirements described in subsection (b) shall be treated as a consumer product safety rule issued by the Consumer Product Safety Commission under the Consumer Product Safety Act (15 U.S.C. 2051 et seq.).

(b) DRAIN COVER STANDARD.—Effective 1 year after the date of enactment of this title, each swimming pool or spa drain cover manufactured, distributed, or entered into commerce in the United States shall conform to the entrapment protection standards of the ASME/ANSI A112.19.8 performance standard, or any successor standard regulating such swimming pool or drain cover.

Comment:

1. If the drain cover standard becomes effective one year after the enactment of the Act, and all public pools are required to be retrofit within the first year, the two subsection conflict.

Section 1404(c) PUBLIC POOLS.—

REQUIRED EQUIPMENT.—

(A) IN GENERAL.—Beginning 1 year after the date of enactment of this title—

(i) each public pool and spa in the United States shall be equipped with anti-entrapment devices or systems that comply with the ASME/ANSI A112.19.8 performance standard, or any successor standard; and...

Comments:

2. It is unclear whether this section prescribes retroactivity. Does this apply to all new pools constructed one year after enactment? Or, does it apply to all public pools in the United States regardless of date of construction? Section 1406 appears to support an effective date, not a date for retroactivity.
3. The subsection (i) requires the installation of an ASME/ ANSI compliant suction fitting. Within the context of the A112.19.8 standard, a field constructed sump is referenced in Figure 2. Based upon this design, if retrofitting is required, gunite pool shells and plaster surfaces will require modification since most manufacturers of the suction fittings did not previously reference field built sumps in their installation instructions. This will require pool draining and inspection of all public pools in California.
4. Figure 2 further references Appendix II which requires a "*Registered Design Professional.*" What qualifies a "*Registered Design Professional?*" The definition in the standard is vague and ambiguous.
5. Are suction fittings previously listed under the A112.19.8 – 1987 standard acceptable as being in compliance with this Act?

(ii) Each public pool and spa in the United States with a single main drain other than an unblockable drain shall be equipped, at a minimum, with 1 or more of the following devices or systems designed to prevent entrapment by pool or spa drains that meet the requirements of subparagraph (B):

Comment:

6. California law requires multiple skimmers to be installed on pools greater than 500 square feet of water surface area. Common practice is to install multiple dual port skimmers on a pool, with the main drain plumbed to one of the equalizer lines. Based upon this installation, would the single main drain require modification to install 2 suction fittings or a system defined in subparagraph B?

Stevenson, Todd

From: Bob Poole [Pooleb@co.thurston.wa.us]
Sent: Friday, March 28, 2008 7:36 PM
To: CPSC-OS
Cc: Darrell Cochran; Gary.Fraser@DOH.WA.GOV
Subject: Pool & Spa Safety Act

Attachments: 2008-03-28 Comments on the 3-14-08 draft guidance document for the Pool & Spa Safety Act Section 1404.doc



2008-03-28
 Comments on the 3-14-08 draft guidance document for the Pool & Spa Safety Act Section 1404.doc
 March 28, 2008

Hello!

Attached are some comments as requested to the draft guidance document concerning Section 1404 of the Act.

Thank you in advance for your consideration of them. If you have further questions, please feel free to e-mail me.

Bob Poole
 Environmental Health Specialist
 Registered/ credentialed by the National Environmental Health Association, the Oregon Health Licensing Agency and the Washington State Board of Registered Sanitarians

I. Our County does not have the staff, money, background or expertise to determine whether the drain covers for even just the annually permitted pools and spas within our County have ASME/ANSI A112.19.8 compliant drain covers by December of 2008. In addition, given the number of residential pools and spas in this State alone, applying for the State funding as provided in the Act requires us to do residential pools and spas as well. As such, this requirement negates any possible benefit such a funding offer would provide to have us do the field work.

II. Multiple main drain interpretation: “ ..., with drain cover centers at least 3 feet apart and no more than 6 feet apart.”

1. We do not understand the need for the staff to designate that the multiple main drain covers need to be no more than 6 feet apart. For example, we have a 40 ft x 40 ft x 4-5 ft deep pool with multiple drains that are spaced greater than a distance of 6 ft apart. This pool was designed by an engineer this way. Placing the main drain outlets greater than a distance of 6 feet from each other appears to be better for reducing areas of poor water circulation than would occur with the drains clustered so that the multiple drains would be within 6 feet of each other.
2. The requirement to have at least 3 feet between drain cover centers of multiple drains may be a bit onerous. There are a number of small (600 to 1,000 gallon) spa pools that are associated with apartment complexes in our County. A number of these spa pools have their multiple main drain outlets (3 or more) located on the sidewall of the foot well. However, they are “lined up” on one or two sides of the foot well so that the distance between each one is less than 3 feet but the distance between the ones on each end of the line is greater than 3 feet.
3. There are a number of spa pools that have small diameter foot wells where the 2 drain outlets for both the circulation/treatment pump system and the 2 drain outlets for the jet pump system are within a 5 foot circumference. Certainly, I can see hair entanglement/entrapment occurring at these places, but hair entanglement/entrapment risk would seem to be greater if you installed the drain setup in a larger diameter foot well. A smaller diameter foot well could be considered more restrictive to full body coverage of both of the outlets.

III. I think we would all agree that properly installed multiple drain outlets is the preferred option to reduce the risk and should be required for all newly-constructed water recreation facilities. Because of the design needs of some water recreation facilities prior to that time, some were constructed with multiple drain outlets. Since October 31, 2004, the date that revisions to State regulations went into effect, this has been a requirement of all newly constructed facilities or facilities under going major modifications/repair in this State. Additionally, the State of Washington has required that all spas to have a spa pump(s) emergency shutoff switch that shuts off all pumps and sounds an audible alarm when activated, installed within 20 feet of the spa's edge, accessible to users of the spa, and clearly identified with signage since at least 1991. As a

result of public hearings held prior to 2004 throughout the State concerning proposed revisions to the State water recreation facility regulations, it was concluded that installing a pump emergency shutoff switch setup similar to what was already required for spa pools was a reasonable option to require of existing swimming, spray and wading pool facilities having a single main drain outlet. We have been working with operators and owners since October 31, 2004, to come into compliance with this and entry-barrier protection upgrades before the compliance deadline of June 1, 2008. Because of economic and other considerations, we have been working to upgrade the main drain outlet situation for pre-existing swimming, spray and wading pool facilities to a certain standard by June 1, 2008 since October of 2004.

It is respectfully requested that the installation of a pump emergency shutoff switch as described above be considered and allowed as an acceptable "Other Systems" alternative. There could be an argument made that although the reduction in risk would be greater with the installation of a safety vacuum release system, the difference the risk between this type of system and a pump emergency shutoff switch system may not be large enough to eliminate it as an acceptable alternative.

IV. Devices or systems designed to prevent entrapment - suction limiting vent systems and gravity drainage systems: since there are no voluntary standards that have been developed and no test procedures identified to evaluate and assure consistent and reliable performance or not, is it appropriate to identify either one of these options as viable ones when they might turn out to be a risk?

End

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Stevenson, Todd

From: Kent Wood [kwood@badgerswimpoools.com]
Sent: Friday, March 28, 2008 10:57 PM
To: CPSC-OS
Subject: Pool and Spa Safety Act

Office of the Secretary
US Consumer Products Safety Commission
4330 East West Highway, Suite 502
Bethesda, MD 20814

Comments on the DRAFT CPSC Staff Interpretation of the Pool and Spa Safety Act Section 1401 dated 3-14-08.

I am a Professional Engineer licensed in Minnesota and Wisconsin. My practice and our company's focus is in Design-Build construction of large competition pools, and resort waterparks across the upper midwest, including Indiana, Illinois, Wisconsin, Minnesota, and Iowa. We have also built larger projects in Mississippi, Nebraska, Oklahoma, and Hawaii.

1. DRAIN COVERS

The Act requires that all public pools and shall be equipped with anti-entrapment devices that comply with ASME/ANSI A112.19.8.

a. The Staff Interpretation of this requirement does not appear to address/allow "Field Fabricated Outlets" that are allowed by the ASME/ANSI standard. Most larger pool suction chambers or drains are considered to be "unblockable drains" and the covers are not required to carry the ASME/ANSI listing. However they are required not exceed 1.5 fps flow through the open area of the cover. The final document should specifically address field fabricated outlets. I would suggest that it should address specific requirements for field fabricated grates/covers.

b. We often install custom manufactured 18"x18" or 24"x24" stainless steel or fabricated pvc sumps. As I read the law and the ASME/ANSI A112.19.8 standard, these covers on these sumps would have to meet the testing standards of the standard. This creates a hardship from a practical application of the standard, The custom manufactured sumps have the same cover that we would use if we were to field fabricate the drain. It is no less safe than the field fabricated drain. However, the custom manufactured sumps are less likely to leak than a field fabricated drain. I would like to see the CPSC find a way to allow these sumps, which are no less safe than a field fabricated drain, to continue to be used in construction. I would also like to see an interpretation of whether or not the CPSC is going to require all of these sumps which have been previously installed to be retrofitted with a cover that is ASME/ANSI A112.19.8 listed, which doesn't exist at this time.

2. Staff interpretation: multiple main drains

a. The staff interpretation requires that multiple main drains consist of two fully submerged suction outlets per pump with drain covers at least 3 feet apart *and no more than 6 feet apart*. The requirement that multiple main drains be at least 3 feet apart is reasonable and necessary. I see no reason for a six feet maximum limit on this requirement. Typically in a competition pool we will install the bottom drain outlets to be 15 and 30 feet apart to allow for even circulation through the deep end of the pool. In a lazy river application we typically install an unblockable approximately every 60 feet of river length. Please remove the 6 feet maximum requirement from the final document.

b. The staff interpretation that suction outlets would have ASME/ANSI A112.19.8 listed covers or grates in place is not reasonable. There are currently no listed covers available on the market for 12"x12", 18"x18", or 24"x24" manufactured covers. Please provide direction within the guidance document as to how the engineers and pool contractors are to address this issue until listed covers become available on the market.

3. Unblockable Drain

The Unblockable Drain section of the Draft Document seems to be consistent with current design standards

3/31/2008

found in ASME/ANSI A112.19.8 and makes sense. However, I believe that it should include a maximum opening size to limit finger entrapment risks. Typically we install covers with a maximum 1/2" opening. I would suggest adding this requirement to the final document.

Thank you for your consideration.

Kent G. Wood, P.E.
Badger Swimpools, Inc.
5115 Excelsior Blvd., #111
Minneapolis, MN 55416
Phone/Fax 952.922.0554
email kwood@badgerswimpools.com



Charlie Crist
Governor

Dr Ana M Viamonte Ros, M D , MPH
Secretary

To: Consumer Product Safety Commission
Subject: Pool and Spa Safety Act

March 28, 2008

The Florida Department of Health (DOH) is interested in assuring the essential implementation of the new federal Pool and Spa Safety Act. We agree with all of your March 14, 2008 staff's interpretation of Section 1404 of the Act except the following:

- 1) Drain Covers Staff interpretation: All public pools and spas must have ASME/ANSI A112.19.8 compliant Drain Covers by December 19, 2008.

Florida has nearly 37,000 licensed public pools, spas, and other treated water venues that are jurisdictional under state DOH rule. DOH has required professional engineering design and approval of public pools in Florida since 1946, with twice per year inspections required by DOH staff from our county health departments. As technical progress and population increased, to avoid entrapment hazards, the rule was improved such that 31 years ago, Florida required gravity drainage with collector tanks for all new pools, then required suction-limiting vent systems in new spas 29 years ago, and then gravity drainage with collector tanks in all new spas 15 years ago. DOH also set the maximum water velocity across the main drain cover at 1.5 feet per second 46 years ago. We have about 6,000 pools/spas permitted and built before the dates above, so these would need retrofit systems under Section 1404 (c)(1)(A)(i) and (ii) of the new federal Act.

Florida's gravity drainage system utilizing collector tanks were recommended for new construction in your CPSC Guidelines for Entrapment Hazards, Making Pool and Spas Safer Publication # 363, appendix B, 1998 and 2005. This Guidance says these are not "suction systems", they do not produce a localized low pressure zone or vacuum at the main drain, and are not connected to a pump. Indeed, your latest CPSC interpretation of the Act reiterates this: "gravity drainage system- direct suction removed from the pool". The definition that ASME/ANSI Standard A112 19.8-2007 provides at section 1.1.2 on page 1 and the scope of the standard at 1.1.1, applies to "suction fittings". Effectively, the Standard's general scope, definition and the definitions later for indirect-suction and suction outlet appear to deem gravity drains as NOT suction outlets

DOH believes the Standard and therefore the Act exclude jurisdiction over these unique drain systems and therefore request that CPSC exempt Florida pools/spas with a gravity drainage systems utilizing a collector tank from the federal Act drain cover replacement requirement at section 1404 (c)(1)(A)(i).

DOH estimates that 37,000 drain cover replacements will cost between \$400 and \$2,000 each depending on the ease of their replacement, the need for additional drain cover sump size, the engineering, concrete cutting/patching, new marcite, pipe plumbing, and permitting. At an average of \$1200, these 37,000 will cost Florida's public pool owners about \$44,400,000. If only the 6,000 older pools without gravity drainage systems must replace their drain covers, the cost will be \$7,200,000. Should leaks to the pool/spa shell result, additional repair costs will be incurred.

2) In the interpretation paragraph III, you state:

Currently there are no voluntary standards for gravity drainage systems or collector tank specifications. Though there are no federally recognized standards, the following are criteria excerpts from Florida DOH's rule that has been duly promulgated:

CHAPTER 64E-9 PUBLIC SWIMMING POOLS AND BATHING PLACES

64E-9.002 Definitions.

(4) "Collector Tank" – A reservoir, with a minimum of 2.25 square feet water surface area open to the atmosphere, from which the recirculation or feature pump takes suction, which receives the gravity flow from the main drain line, surface overflow system or feature water source line.

64E-9.005 Construction Plan or Modification Plan Approval.

It is unlawful for any person(s) to begin construction or modification of any public pool without first having received written approval from the department. Unapproved pools and proposed modifications to previously approved aspects of pools shall satisfy the requirements of the rules in effect at the time of project plans submittal. The flow rate through the main drain grating shall not exceed 1.5 feet per second.

64E-9.007 Recirculation and Treatment System Requirements.

(10) Main Drain Outlets – All pools shall be provided with an outlet at the deepest point.

(b) Outlets must be covered by a secured grating which requires the use of a tool to remove and whose open area is such that the maximum velocity of water passing through the openings does not exceed one and one-half feet per second at 100 percent of the design recirculation flow.

(e) The main drain outlet shall be connected to a collector tank. The capacity of the collector tank shall be at least one minute of the recirculated flow unless justified by the design engineer. Vacuum filter tanks are considered collector tanks.

Thank you for your assistance with this and your perseverance in this important public health and safety project. Please call me at 850-245-4578 if you need clarification. Or email me at: bob_vincent@doh.state.fl.us

Sincerely:



Bob Vincent, RS, MPA, Administrator
Public Pool Regulation
Bureau of Water Programs
Division of Environmental Health

DOH estimates that 37,000 drain cover replacements will cost between \$400 and \$2,000 each depending on the ease of their replacement, the need for additional drain cover sump size, the engineering, concrete cutting/patching, new marcite, pipe plumbing, and permitting. At an average of \$1200, these 37,000 will cost Florida's public pool owners about \$44,400,000. If only the 6,000 older pools without gravity drainage systems must replace their drain covers, the cost will be \$7,200,000. Should leaks to the pool/spa shell result, additional repair costs will be incurred.

2) In the interpretation paragraph III, you state:

Currently there are no voluntary standards for gravity drainage systems or collector tank specifications. Though there are no federally recognized standards, the following are criteria excerpts from Florida DOH's rule that has been duly promulgated:

CHAPTER 64E-9 PUBLIC SWIMMING POOLS AND BATHING PLACES

64E-9.002 Definitions.

(4) "Collector Tank" – A reservoir, with a minimum of 2.25 square feet water surface area open to the atmosphere, from which the recirculation or feature pump takes suction, which receives the gravity flow from the main drain line, surface overflow system or feature water source line.

64E-9.005 Construction Plan or Modification Plan Approval.

It is unlawful for any person(s) to begin construction or modification of any public pool without first having received written approval from the department. Unapproved pools and proposed modifications to previously approved aspects of pools shall satisfy the requirements of the rules in effect at the time of project plans submittal. ... The flow rate through the main drain grating shall not exceed 1.5 feet per second.

64E-9.007 Recirculation and Treatment System Requirements.

(10) Main Drain Outlets – All pools shall be provided with an outlet at the deepest point

(b) Outlets must be covered by a secured grating which requires the use of a tool to remove and whose open area is such that the maximum velocity of water passing through the openings does not exceed one and one-half feet per second at 100 percent of the design recirculation flow.

(e) The main drain outlet shall be connected to a collector tank. The capacity of the collector tank shall be at least one minute of the recirculated flow unless justified by the design engineer. Vacuum filter tanks are considered collector tanks.

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Sincerely:

Bob Vincent, RS, MPA, Administrator
Public Pool Regulation
Bureau of Water Programs
Division of Environmental Health

Bob Vincent, R.S., M.P.A., DOH Bureau of Water Programs, Division of Environmental Health, 850.245.4240, 4052 Bald Cypress Way, Bin #C-22, Tallahassee, FL 32399-1742

How are we doing? Please take our survey...http://www.doh.state.fl.us/environment/water/water_survey.htm

FDOH Mission: Promote, protect and improve the health of all people in Florida.

3/31/2008



TEXAS DEPARTMENT OF STATE HEALTH SERVICES

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March 28, 2008
Comments

Draft CPSC Staff Interpretation of the Pool and Spa Safety Act Section 1404

Drain Covers.....each public pool and spa in the United States shall be equipped with anti-entrapment devices or systems that comply with the ASME/ANSI A112.19.8 performance standard, or any successor standard:

Clarification needed: Does the ASME/ANSI A112.19.8 standard as referenced in the Federal Act include the 1987 testing protocol and standard and any subsequent standard or, the 2007 ASME A112.19.8 testing protocol and standard and any subsequent standard? Staff interpretation does not clarify the effective date of the ASME/ANSI standard only that the equipment must be tested and certified for structural integrity, body entrapment and hair entanglement, and be marked with maximum gpm. The 1987 ASME standard includes this testing, certification, and marking, however, the 2007 version is more stringent. Additionally, only one cover and not a single grate have been tested and have met the 2007 ASME/ANSI A112.19.8 standard. The aquatics industry and the regulatory community must have clear guidance and interpretation as soon as possible in order to purchase and install new equipment in order to meet the compliance deadline, 12/19/2008.

Recommendation #1: Include the requirement that all ASME/ANSI testing and certification is performed by an independent third party, or is confirmed by testing of an independent third party. A paper review of a manufacturer's testing and certification of critical safety devices in pools and spas is not sufficient and does not ensure unbiased testing procedure and reporting of results.

Main Drain: The term "main drain" means a submerged suction outlet typically located at the bottom of a pool or spa to conduct water to a recirculating pump.

Supplement the Definition of "Main Drain": Entrapment on any suction outlet in a pool or spa has occurred. This includes equalizer ports, sidewall suction outlets for water features such as fountains or waterfalls, and vacuum ports. **Recommendation#1:** Clarify by supplementing the definition of "main drain" to include any suction outlet regardless of location in a pool or spa. Use of the term "main drain" is often seen as an exclusionary term, rather than an inclusive term.

Single Main Drain:...each public pool and spa in the United States with a single main drain other than an unblockable drain.

Recommendation #2: Clarify by supplementing the definition of "main drain" to include any suction outlet regardless of location in a pool or spa. Use of the term "main drain" is often seen as an exclusionary term, rather than an inclusive term.

Recommendation #3: Clarify the term "*single main drain*" to mean a single suction outlet, excluding a skimmer, through which water is drawn from a pool or spa. A skimmer should not be considered a suction outlet for purposes of protecting against suction entrapment.

Multiple Main Drains: A videotaped study by the ASTM 15.51 Sub-Committee, Demonstration of Multiple Drain and Vent Pipe Failures and Faluws-2005, showed that multiple balanced main drains, or single main drains connected to a skimmer, or multiple main drains connected to a skimmer do not prevent entrapment or hair entanglement. That is why the International Building Code required an SVRD regardless of suction outlet configuration. Limitations within the Act prevent correction by requiring an SVRD even with multiple suction outlets (main drains), fortunately there are other methods available to address this problem. **Recommendation #4:** The staff interpretation should not use the ANSI/NSPI-1 requirements limiting flow velocity through suction outlets as assurance that this will be or is complied with in all public pools and spas. The ANSI/NSPI requirements are “voluntary” standards only. Additionally, not all pool contractors are members of NSPI (now APSP), become trained in NSPI or APSP standards, nor do they construct pools and spas to meet the NSPI or APSP standards. Include the provision in the staff interpretation that the 1.5 fps velocity through “unblockable” suction outlet covers, grates, and fittings **must not** be exceeded.

Recommendation #5: Include the 1.5 fps velocity requirement for all “unblockable” suction outlet covers as a staff interpretation necessary to achieve compliance with the Act and require that proof of such must be available on site.

Suction outlet covers and grates that are tested and certified according to the ASME/ANSI A112.19.8M or the ASME/ANSI A112.19-2007 standard will often be certified for a gpm that exceeds the 1.5 fps velocity limit. If the cover or grate meets the ASME/ANSI standard at a gpm exceeding the 1.5 fps velocity limit, that should be allowed and does meet the requirements in the Act. **Recommendation #6:** Staff interpretation should include a provision allowing for exceptions to the maximum 1.5 fps ***if and only if*** the cover or grate is ASME/ANSI A112.19.8 tested and certified for a gpm that exceed the 1.5 fps velocity through the certified outlet or grate.

The entire circulatory system of a pool and spa must be constructed, operated and maintained appropriately in order to achieve the flow rates and velocities necessary to protect against entrapment and hair entanglement in single and multiple suction outlet (main drain) systems. **Recommendation #7:** Include a requirement to have installed on each circulatory system, in a pool or spa including booster pump, or pump using water from a pool or spa for a fountain or other water feature, a flowmeter and vacuum gauge. These devices are necessary to determine flow velocity through suction outlets (main drains) and to ensure the capacity of a SVRS or AVS has not been exceeded.

The design of multiple balanced suction outlet systems must take into account the limitations imposed upon a suction outlet (main drain) cover by the gpm for which it was tested and certified. For example a dual main drain system, each main drain cover is ASME/ANSI tested and certified for a maximum of 60 gpm. The flowmeter shows a flow rate of 120 gpm in the suction outlet pipe from the dual main drain system. This means that, should one of the main drains become blocked or partially blocked, the unblocked main drain, in theory, will have a higher gpm through it, which will mean it no longer meets the ASME/ANSI standard for which it is certified and now it becomes an entrapment hair entanglement hazard.

Recommendation #8: Staff interpretation should include the following: When one suction outlet (main drain) of a multiple suction outlet/main drain system made up of “unblockable” outlets is completely or partially blocked the flow rate at the remaining “unblockable” suction outlets should not exceed 1.5 fps and when the multiple main drain/suction outlet system is made up of ASME/ANSI A112.19.8 certified covers and one of the outlets is blocked or partially blocked the flow rate at the remaining certified outlets shall not exceed the approved gpm for each cover.

Devices or Systems Designed to Prevent Entrapment:.....each public pool and spa in the United States with a single main drain shall be equipped, at a minimum, with 1 or more of the following devices or systems designed to prevent entrapment....(II) Suction-Limiting Vent System..... The ASTM voluntary standards that may be developed providing minimum requirements for field-fabricated vent pipes is problematic. Individual pool contractors that install these devices do not have the expertise or training need to ensure proper engineering of an essential safety device in pools and spas. **Recommendation #9:** Require any vent system to be engineered and manufactured off-site. Require the minimum diameter of the vent to be 2 inches and that the vent cover must be installed such that the cover can only be removed with a tool.

Recommendation #10: Include a requirement to have installed on each circulatory system, in a pool or spa including on a booster pump, or pump using water from a pool or spa for a fountain or other water feature, a flowmeter and vacuum gauge. These devices are necessary to determine flow velocity through suction outlets (main drains) and to ensure the capacity of a SVRS or AVS has not been exceeded.

The State of Texas would also recommend that the CPSC develop a website with a listing of pool equipment (main drain covers and SVRD's for example) that meet the requirements found in the Virginia Graeme Baker Pool Safety Act. Regulators, pool owner/operators, pool/spa construction contractors, pool/spa service professionals, aquatic management professionals, and the general public needs access to the most current and accurate product information in a timely fashion and from a reputable source.

Stevenson, Todd

From: Moore, Katie [Katie.Moore@dshs.state.tx.us]
Sent: Friday, March 28, 2008 12:31 PM
To: CPSC-OS
Cc: Anderson, Paula
Subject: Comments - Draft CPSC Interpretations Section 1404 of the Virginia Graeme Baker Pool Safety Act
Attachments: VGBP Safety Act CPSC Recommendations .doc

Attached are comments regarding the CPSC interpretations. I appreciate the opportunity to participate in this process and would appreciate being contacted with any additional information concerning this Act, including changes or additions to staff interpretations.

If you have any questions concerning my response, please do not hesitate to contact me via email or telephone.

Thank you.

Kathleen (Katie) O. Moore, R.S., CPO
Public Health Sanitation & Consumer Product Safety Group
Policy, Standards & Quality Assurance Unit
Environmental Health Services
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This opinion is only given for the purposes of determining applicability of DSHS rules on swimming pools. This opinion cannot be used for purposes of determining safety of any particular design or determining liability for any claim.