

Grappling With a Killer

Presentation by:

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Decades old suction hazards to become history

With Your Help!

Let us examine a brief history of: *Main Drain Suction Entrapment*

“Historically, the pool and spa industry has never felt completely comfortable discussing safety issues.”

Bob Dumas, Technical Editor

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Entrapment cases have been documented since the 1970's

- Swimming Pool, Spa, Hot Tub and Wading Pool main drain hazards have plagued our industry for over three decades now
- For as many years, pool industry leaders have pondered causes and solutions for these problems
- *Numerous* deaths and serious injuries have been attributed to Main Drain Suction Entrapment

National Spa & Pool Institute

- Following suction related deaths, The **National Spa & Pool Institute (NSPI)** has documented testing as far back as 1974
- In June of 1974 the NSPI shared the results of those tests with the **Consumer Product Safety Commission (CPSC)**
- At that same time, **NSPI** requested the **CPSC** issue a “Press Release” relating to the hazards associated with:
Main Drain Suction Entrapment
- The National Spa & Pool Institute redoubled their efforts in December of 1976 requesting a press release
- On June 3, 1996 **CPSC** Issued Warning Release # 96-139

From January 1985 to March 2002 there have been 147 confirmed entrapment cases

- 51 of those reported cases were Hair Entanglement
- 76 Limb Entrapments
- 3 Eviscerations
- 4 Mechanical Entrapments
- 13 Unknown
- **Of those cases 36 Resulted in Death**

Above statistics: *Consumer Product Safety Commission (CPSC)*

Many more cases may have *not* been reported as *Main Drain Suction Entrapments* due to inadequate recording practices.

The Consumer Product Safety Commission (CPSC) operates from reported accidents.

“CPSC acknowledges the fact that frequency of entrapments are much greater than those that have been reported. Until the (coding) system is upgraded entrapments will continue to go inaccurately recorded.”

John Brown
Safety Consultant
Stuart, Florida

“The personnel in my company didn’t know about [suction entrapment] until about two years ago. In the past, we would have reported it as a drowning or near drowning.”

Pat Taaffe engineer with the
Cedar Hammock Fire Department
Bradenton, Florida
Pool & Spa News

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It is imperative a subcategory under Drowning is implemented on our State Accident Reports to reflect “Drowning by Entrapment”.

“I could have run across a [suction entrapment call] and never knew it.”

Paul McCain a firefighter in Sunrise, Fl.

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To date the Consumer Product Safety Commission (CPSC) recognizes five (5) types of main drain suction entrapment

- 1. Body Entrapment**
- 2. Limb Entrapment**
- 3. Hair Entrapment or Entanglement**
- 4. Mechanical Entrapment**
- 5. Finger Entrapment**

These five types of entrapment are also shared by the National Spa and Pool Institute (NSPI)

Most informed Industry experts acknowledge ***Eight (8)*** hazards associated with main drain suction entrapment

1. Hair Entanglement... (# 1 killer of children under the age of 5)
2. Body Entrapment
3. Evisceration
4. Environmental Degradation
5. Material Strength
6. Missing Covers
7. Vandalism
8. Finger Entrapment

Above criteria have all been involved in suction entrapment injuries or deaths.

The *Consumer Product Safety Commission* and *National Spa and Pool Institute* are moving forward with public awareness as well as industry to end these hazards.

Today the *pool construction industry* are building pools and spas safer.

We need to Educate our children now !

(this is where you come in)

“Education is the only real answer, it is the most important factor in all of this.”

Merle Stoner

Member of the ASTM Executive Committee

The following are immediate solutions to the problem.....

First and Foremost:
EDUCATE

Secondly:
BE AWARE

and as always:

Never Leave a Child unattended by water,
any water.

Educate our children on the Hazards Associated with Aquatic Facilities Suction Systems

Teach them:

STAY AWAY FROM DRAINS!

ALL DRAINS ARE DANGEROUS !

Please, do not be afraid to mentor.

!!! Be Aware !!!

!!! Stop Pumps !!!

While using an unprotected system

- while assisting a *handicapped swimmer* or
- proximity of drain/vacuum fitting is *within reach*
or
- *the emergency cut-off* switch is not in sight or perhaps, is not applicable.

Answers to the problem:

(consider we are dealing with **New And Existing Facilities**)

New Pool Construction:

1. **Education**
2. **Collector Tank Systems or (Safety Vacuum Release System)**
3. **Hydraulically Balanced, Multiple Drains**
4. **ANSI/NSF Standard 50 and ANSI/ASME A112.19.8M Certified main drain covers**
5. **A Safe Flow Rate through the certified drain cover**
6. **Build the pool without a main drain system**

Utilizing the above criteria main drain suction entrapment occurrences could be eradicated.

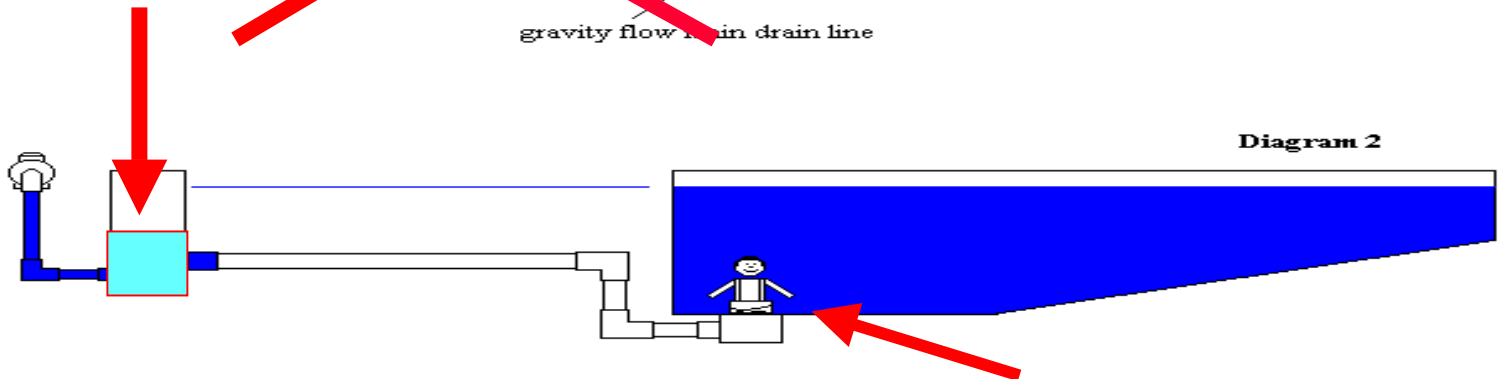
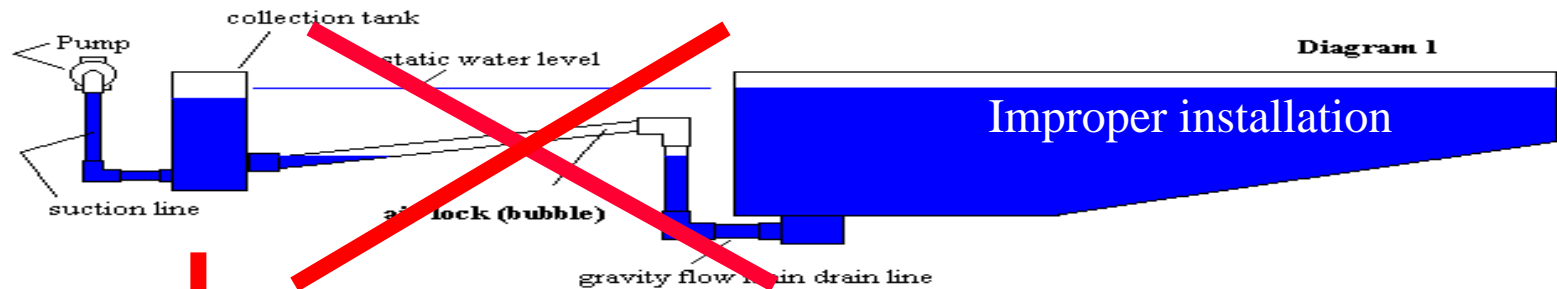
For New Public or Residential Pools: *The Collection Tank System*

- Include Class 1, 2, 3 or 4 Approved Safety Covers (if applicable)
- Insure a safe flow rate is established and adhered to, *never exceed the “rated safe flow”* criteria for any certified main drain cover

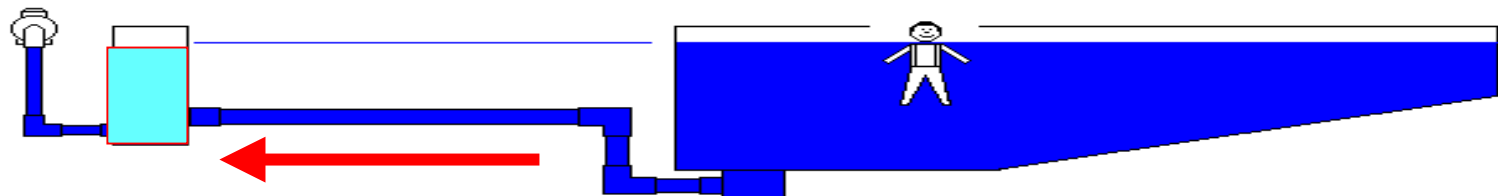
The above is a foolproof, cost effective approach to main drain suction safety in a new construction application.

Never Leave any child unattended in or near water, any water.

GRAVITY FLOW COLLECTION TANK SYSTEM



Pump influent pipe to tank, not pool drain.



Water will flow at approximately 3' per second through a properly plumbed main drain line from the pool to a collection tank. If the line is plumbed wrong water will not flow between the two vessels. (see **Diagram 1**) Through proper piping installation a pump can draw water from the collection tank without causing entrapment. Here's how it works:

Diagram 2 When a body obstructs the pool main drain water slows or stops flowing to the collection tank. The pump will continue to draw water from the tank until it loses prime or the tank empties. Since the tank is open to atmosphere, no suction is exerted on the main drain line. This allows the person to move from the drain without restriction.

Diagram 3 When the person or obstruction is moved from the drain the water returns to its original system of flow to the tank, moved by static pressure. The tank will refill with water and the pump will continue recirculation cycles. A collection tank has no moving parts to malfunction, no wiring to corrode or break and absolutely no potential for entrapment. In summary, the gravity flow collection tank system is the only foolproof anti-entrapment device available today!

New Residential Construction

(other than Collection Tank or no main drain systems)

Educate your pool builder:

1. Install: **Hydraulically Balanced Multiple Drain Sumps**

(minimum of two sumps per pump, spaced three feet apart or on different planes)

2. Install: **ANSI/NSF Standard 50 and ANSI/ASME A112.19.8M Certified** main drain covers

(as per manufacturers instructions)

Be advised: Multiple suction outlets could lead to multiple hair entanglement locations if the *Certified* drain cover flow rate is exceeded or potential for finger entrapment increases if the *8MM Rule* is exempt.

Existing Pool or Spa Facilities

1. Install **ANSI/NSF Standard 50 Certified** and **ANSI/ASME A112.19.8M** main drain covers
2. Adhere to the **Safe Flow Rate** stamped on the **Certified Cover**
3. Install a **Safety Vacuum Release System, (SVRS)** to be explained later in this venue.

Never leave any child unattended in or near the water, any water.

Hot tub drain problem has existed since 1970s

By Rima L. Firrone
Staff Writer

OCALA — When seven-year-old Brooke Oglesby drowned in a hot tub Aug. 13, she became the latest victim of what is called "hair entrapment."

Service Co. Named in Entrapment Suit

By Bob Dumas
Technical Editor

The grandmother of a 7-year-old girl who was sucked into a hot tub pool drain in a complex hair entrapment problem has or been visiting the recording department in the apartment.

Girl, 7, dies in hot tub

Boy caught in pool drain is awarded \$7 million

Boy, 13, dies from mishap in hot tub

A 13-year-old boy who was suctioned to the bottom of a hot tub in a Scarborough condominium.

pronounced dead at the scene. A helicopter was repeatedly called to the scene.

Boy trying to retrieve ball dies in school pool

HOLLYWOOD, Fla. — An 8-year-old boy drowned after entering a middle school swimming pool.

Entrapment Cases Continue to Alarm Industry Observers

Ironically, within weeks following a Sally Jessy Raphael show concerning whirlpools have emerged. These slots are 1/2 inch. According to Keenan, tests done on these things show that under the water for about a minute before the pump was shut off and the problem on 4B.

Drain problem well known

Big Sun page

the problem of getting hair tangled in drains. Spokesmen for World Spas Inc., Pinch-A-Penny and Central Florida Spas said spas should have a way to relieve pressure.

Mother of boy who drowned an advocate for swimming pool code

BY FERDIE DE VEGA
STAFF WRITER

GAINESVILLE — Since losing her 17-year-old son in a whirlpool spa in Ocala, the mother of the boy who died three days after the accident at the University of Florida Monday, has become an advocate for requirements for hair entrapment in pools and spas.

Ocala Pool Company Uncovered Life-Threatening Pool Problem: Experts Say Problem Is Statewide

Award is one of largest in Florida. A GIRL, 13, nearly drowned yesterday when her hair was sucked into an intake valve in a spa at a Noosa resort.

Hot tub's broken grate cited in teen's death

Club Med to review safety worldwide after pool death

Move triggered by accident that killed boy in Greek tourist resort

Girl dismembered in pool will receive \$30.9 million

Associated Press BALDWIN, N.C. — A girl who was dismembered when she drowned last June when she was 13.

Published Friday February 2, 2001 in the Miami Herald

Girl drowns when hair catches in spa

Tragedies involving uncovered pools have become a common occurrence. A girl drowned last June when she was 13.

Hot Tub Recommendations Follow Teen's Death

Please, as this battle continues, your assistance is imperative.

Thank You for Promoting Main Drain Suction Safety

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