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Aquatic Accident Investigations: What Can Be Done So You Are Not Up the Lazy River Without a Paddle

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I. INTRODUCTION AND BACKGROUND

The Aquatic play industry is relatively young and rapidly changing. New play structures, rides and attractions are exploding into the marketplace. Standards, laws and regulations are slow to change and behind the curve.

Litigation involving accidents at aquatic attractions is occurring frequently. Jury awards involving aquatics are astronomical. In 2008 12.3 million dollars was awarded to the family of a girl who drowned at a Boys and Girls Club in Connecticut. In 2009 a drowning victim's family was awarded 16.3 million dollars by a Jury in Georgia. It was one of the largest judgments ever awarded in a drowning case. Even lesser injuries are sometimes awarded extreme sums. A woman was awarded \$650,000 for leg injuries sustained when she slipped and fell at the deck area of an apartment complex swimming pool.

Understanding methods of prevention and risk management, and applying them to aquatic attraction operations can reduce the potential exposure and assist in defense when accidents occur.

II. REGULATIONS

Laws, codes, regulations and ordinances for swimming pools, waterslides, aquatic play structures, and splash pads are widely dispersed through many national and local regulatory agencies. The International Building Code requirements are contained in chapter 31, "Special Construction", and more recently in the International Swimming Pool and Spa Code. Recognized standards from the American National Standards Institute (ANSI) and the Association of Pool and Spa Professionals (APSP) include ANSI/APSP-1: American National Standard for Public Swimming Pools, ANSI/APSP-2: American National Standard for Public Spas, ANSI/APSP-7 and 16: Suction Fittings and Entrapment, and ANSI/IAF-9: American National Standard for Aquatic Recreation Facilities. The International Swimming Pool and Spa Code incorporates the swimming pool standard, spa standard and suction fittings and entrapment standards into one code, however, it does not address waterslides, splash pads, or play structures.

ASTM Standards also exist, but compliance is voluntary. Standards include ASTM F2376: Standard Practice for the Design, Manufacture, Construction, and Operation of Waterslide Systems, and ASTM F2461: Standard Practice for the Design, Manufacture, Construction and Operation and Maintenance of Aquatic Play Equipment.

Local health department regulations and building ordinances are often the most comprehensive and stringent. For example, the Salt Lake Valley Health Department Regulations for the Design, Construction, and Operation of Public Swimming Pools contains 63 pages of regulation while the American National Standard for Public Swimming Pools contains only 34 pages.

Other codes also contain bits and pieces that specifically apply to aquatic facilities including the National Electric Code, The International Fuel Gas Code, the International Fire Code, the International Mechanical Code, and the International Plumbing Code.

Building inspectors perform inspections during construction that typically focus of structural elements with little to no understanding of operational items. Enforcement of operational regulations generally falls to local health inspectors with some support from fire inspectors.

Facility operators should familiarize themselves with the standards and ordinance for their jurisdiction, and consult with trade organizations, and experts to ensure they understand and operate within accepted industry standards.

III. FREQUENT PROBLEM AREAS

A. Access Control

Preventing unintentional access to swimming pools is the first and primary defense against accidental drowning. The least strict codes require a fence at least 4-feet high with self-closing, self-latching gatesⁱ. Fences must prevent the passage of a 4-inch diameter sphere. The clearance between the bottom of the fence and unpaved ground cannot exceed 2-inches. A clear zone of 36-inches around the fence should be maintained to prevent climbing. No opening greater than 1/2-inch is permitted within 18-inches of the latch. If the gate release mechanism is less than 54-inches above the ground it must be located on the inside of the gate. Local codes vary and often add to these requirements. For example, the state of Texas requires that fences be at least 6-feet tallⁱⁱ.

Recalls of gate latches occur frequently, but sales of the latches are not tracked and there is no defined method of notification for the end user.

B. Signage

Every jurisdiction has some minimum requirements for signs. Most require that emergency phone numbers be posted. Basic rules including “no running”, “No Food or Drink”, “No Glass Containers”, etc. are generally required. When lifeguards are not required or provided, signs stating “No Lifeguard on Duty” and guidelines for supervision of younger swimmers are generally required.

There has been a significant amount of research into the wording and placement of signs. The ANSI/IAF-9 standard contains guidance for minimum signage and directs that the International Association of Amusement Parks and Attractions (IAAPA) and

the World Waterpark Association (WWA) document: “Suggestions for Waterpark Signs”, should be considered.

Signs are only good if people read, understand, and follow them. If a facility posts a sign, they must enforce the provisions it requires. A pattern of non-enforcement negates the liability protection afforded by posting the sign.

C. Deck Areas

Deck areas around swimming pools are required to be non-slip, unobstructed, cleanable, and to provide positive drainage of waterⁱⁱⁱ. To satisfy the un-obstructed requirement, five feet of clear space must be provided all around the pool. Lounge chairs, tables, etc. should not be allowed in this area. Maintaining the deck in non-slip condition requires constant effort. Sunscreen and body oils mix with water and create a buildup of slime on top of concrete surfaces. Drainage standards require that water be not more than 1/8-inch deep within 20-minutes following the cessation of the addition of water to the deck.

D. Steps and Ladders

Slip resistant surfaces with handrails are required. Pool steps are especially challenging. They are the place where all the sunscreen, soap, sweat, and body oil get washed off as a person enters the pool. The residues build quickly creating very slippery steps. A regular maintenance program for the steps should be developed and followed, with written documentation of the maintenance.

E. Certified Operators

Certified operators are required at public and semi-public swimming pools. National certifications are required first with local certifications often a secondary requirement. National certification is available through the National Recreation and Parks Association or through the National Swimming Pool Foundation. At large waterparks and dedicated public swimming pools this is generally not a problem. However, it can present a challenge for hotels. The certified operators often are the maintenance staff who have little or no background in aquatic operations.

F. Record Keeping

Written records of “...all information pertinent to the operation, maintenance, and sanitation of each pool facility” must be maintained. Standards vary from jurisdiction to jurisdiction, but generally “These records must include disinfectant residual in the pool water, pH and temperature of the pool water, pool circulation rate, quantities of

chemicals and filter aid used, filter head loss, filter washing schedule, cleaning and disinfecting schedule for pool decks and dressing rooms, occurrences of fecal release into the pool water or onto the pool deck, bather load, and other information required by the local health department. The pool operator must keep the records at the facility, for at least two operating seasons.”^{iv}

Written records of staff training, both initial and in-service are critical to reducing liability when accidents occur. Meticulous record keeping shows that owner and operators are concerned with the operation and safety of the facility. Sloppy, incomplete records demonstrate the opposite condition. Record keeping at hotels is often sub-par. Hotel staff should be taught the importance of the records and be diligent in maintaining them.

G. Frequency of testing

Different jurisdictions have different requirements. Physical testing also varies depending on the degree of automation employed at the facility. At a minimum, testing is generally required 4 times per day. Many waterparks and heavy use facilities perform physical testing every hour during operation. Operators should consult with the local jurisdiction and develop a written plan of water testing.

H. Virginia Graeme Baker Act (VGB)

The VGB act^v added new requirements for suction outlets at swimming pools and spas. The requirements are retro-active and apply to all pools, regardless of when they were constructed. A minimum of two outlets are required at each suction system or an approved suction limiting device must be installed where only a single outlet exists. All outlets must be covered with tested, certified, and approved covers.

Record keeping of Virginia Graeme Baker Act items is also required. This includes the installation date and certificates of suction outlet covers as well as operational testing of suction limiting and shutoff devices.

I. Patron Responsibility

The ASTM standards define some responsibilities of the patrons. Specifically, they state that, “There are inherent risks in the participation in or on any amusement ride, device, or attraction. Patrons of an amusement ride, device, or attraction, by participation, accept the risks inherent in such participation of which the ordinary prudent person is or should be aware. Patrons have a duty to exercise good judgment and act in a responsible manner while using the amusement ride, device, or attraction and to obey all oral or written warnings, or both, prior to or during participation, or

both.”^{vi} Patrons also have a duty to properly use all ride or device safety equipment provided.

IV. RAPIDLY CHANGING INDUSTRY

The aquatic industry is rapidly changing. Manufacturers are continually providing new innovating products to increase entertainment and excitement. The new products often exceed the limits of current codes and standards. Responsibility for the safe operation falls to the facility, with guidance from the manufacturer. ASTM standards require that manufacturers notify the owners when incidents occur. Specifically, “The manufacturer shall notify the owner(s)/operator(s) of similar waterslides of an incident that resulted in serious injury promptly upon the determination by the manufacturer that the incident is significantly repeatable.

Hotels are installing water slides, splash pads, and play equipment to attract and entertain guests. Hotel staff should be taught the requirements and accept the responsibilities of aquatic facility management.

V. LIFEGUARDS

Installation of waterslides, splash pads, or play equipment often require that lifeguards be provided. Traditional hotel swimming pools were exempt from the lifeguarding requirement and therefore, hotel owners, operators, and managers are often not prepared to effectively implement and manage a lifeguard program.

Lifeguards must be trained and certified. There are several recognized lifeguard certification programs. Facilities should choose one entity and comply with its standards. It is critical that lifeguards receive recurrent, ongoing training. Most programs specify minimum in-service training requirements. Written documentation of the in-service training should be maintained.

VI. CONCLUSION

Understanding of aquatic facilities and the requirements for operation is vital to providing a safe environment for guests and patrons. Facilities can implement policies, procedures and methods that will provide compliance with codes, regulations, and standards thereby increasing the safety of their guests and reducing their liability when accidents occur.

ⁱ 2012 International Building Code, Section 3109.3

ⁱⁱ Texas Administrative Code Title 25 Rule 265.200

ⁱⁱⁱ 2012 International Swimming Pool and Spa Code, Section 306

^{iv} Utah Administrative Code 39.302.29

^v Virginia Graeme Baker Pool and Spa Safety Act. Sec. 1402.

^{vi} ASTM F2376: Standard Practice for Classification, Design, Manufacture, Construction, and Operation of Water Slide Systems & ASTM F770: Standard Practice for Ownership, Operation, Maintenance, and Inspection of Amusement Rides and Devices.