

# Lecture Hall

## Session Abstracts

National Environmental Health Association (NEHA)  
72<sup>nd</sup> Annual Educational Conference & Exhibition

### Swimming Pools/Recreational Waters

Tuesday, June 24

#### APSP Sessions

8:00 – 8:50am

##### **ANSI-11 Draft Standards for Water Quality in Public Pools and Spas**

*Ellen Meyer, PhD, Technology Manager, Arch Chemicals, Inc., TN*

The APSP-11 standard addresses the need for a national standard for sanitation levels, chemical values, and other chemical operational parameters for public pools and spas. The standard is intended to be used by state public health officials, pool/spa operators, and service companies. This standard provides specifications for chemical operational parameters for water treatment and quality for public pools and spas. Covered parameters include the sanitizers chlorine, bromine, PHMB, metal-based systems; supplemental sanitizers such as UV and ozone; water balance factors including pH, alkalinity, calcium hardness, total dissolved solids, and the Langelier Saturation Index; physical and environmental factors such as temperature, testing, and water replacement; bacteriological factors such as algae; and contaminants including combined chlorine and foam. Five factors are listed that require closing a public venue: not meeting the requirements for sanitizer or pH; failing the test for clarity; fecal and vomit accidents; and water temperature exceeding 104 °F. This standard, when completed, will be published as an American National Standard in accordance with requirements of the American National Standards Institute (ANSI).

9:30 – 10:20am

##### **Hot Water Chemistry and Recreational Water Illnesses in Spas**

*Geoffrey Brown, MS, Manager of Product Innovation, Bio Lab, A Chemtura Company, GA*

The first confirmed outbreak of Legionnaires' disease occurred in 1976 during a convention at Philadelphia's Bellevue-Stratford Hotel. Since that time our knowledge of this and other waterborne illnesses has grown tremendously. Teams of dedicated scientists, including physicians and epidemiologists, have identified the microorganisms that cause illnesses such as Legionnaires' disease, skin rashes and other diseases affecting the lungs. As a result, we now understand how best to prevent disease transmission in spas and hot tubs. However, in spite of our increased knowledge, these same microorganisms continue to threaten the safety and comfort of spa users. Reducing the number of disease outbreaks will require a multi-pronged approach. First, spa operators must understand how to properly maintain their spas and hot tubs, including preventative and corrective practices. Second, health inspectors must be trained to recognize the telltale signs of spas that may pose public health risks. Finally, operators and inspectors as well as the pool and spa industry must continue to educate the public to encourage hygienic practices in and out of the hot water environments. In addition to describing the illnesses

that are most often associated with spas and hot tubs, fact-based and common sense strategies for combating them will be provided.

11:00 – 11:50am

### **Testing Interferences**

*Tom Seechuk, Market Manager, LaMotte Company, MD*

Proper water chemistry is vital to the health of the bather and the proper maintenance of the recreational facility. The key to water chemistry is water testing. While many tests are performed without incident, occasionally problems can occur. The analyst needs to know how to recognize and overcome interferences to assure correct test results for chlorine, pH, alkalinity, hardness and cyanuric acid tests. Another key to obtaining good test results is care of test kits, reagents and meters and testing technique. An understanding of all of these factors will result in good water testing.

### **NEHA Sessions**

1:30 – 2:20pm

#### **Model Aquatic Health Code: What's Happening?**

*CAPT Charles S. Otto, III, MPA, RS, CP-FS, Innovation Team Leader/Senior EH Officer, USPHS, CDC, GA*

CDC Healthy Swimming Program and the Environmental Health Services Branch in collaboration with all segments of public health and the aquatics industry is developing a comprehensive national Model Aquatic Health Code (MAHC). This process includes local, state and federal environmental health agencies, aquatic facility operators, designers, builders, users and other stakeholders. The code development and maintenance process is modeled after the very successful national Model FDA Food Code and the consensus process of the Conference for Food Protection. This talk will outline the MAHC contents, development process, opportunities for participation, and timelines. The MAHC goal is better programs, facilities, and operations for recreational water illness prevention.

3:00 – 3:50pm

#### **Aquatic Play Feature Operators**

*Alex Antoniou, Director of Educational Programs, National Swimming Pool Foundation, CO*

What makes aquatic play features different for the pool operator? What are aquatic play features such as a catch pool, leisure river, or action river? Attractions found at aquatic play feature facilities, such as waterparks, will be described and explained. If one attempts to operate one of these aquatic facilities by applying the same rules used for traditional swimming pools, many things may not work as anticipated. You may end up with cloudy water, excessively high make-up water bills, high sanitizer/oxidizer consumption, very short filter runs, and the need for extra vigilance even though the control systems may be automated. What makes aquatic play features more challenging for the pool operator and health inspector? There are many factors, which may complicate the process of maintaining aquatic play features. This program discusses these factors and gives suggestions on how to minimize their impact at your facility. Amongst these factors is the management of water and of the waters chemistry. Issues related to chlorine and other chemical additions, filtration, and circulation concerns are addressed in this presentation. Finally, operational considerations, chloramines, and stabilization are discussed. This supplemental training program is a must for those that operator or inspect aquatic play feature facilities. This program uses a handbook along with an online training module to maximize your learning experience.

4:30 – 5:20pm

**Toolbox Approach to Identify Bacteria Sources in Lake Wheeler, Wake County, NC**

Robert L. Richardson, RS, REHS, EHS Team Leader, Wake County Dept. of Environmental Services, NC

Persistent high bacteria levels in Lake Wheeler, Wake County, NC during the spring and summer of 2006 prompted the Wake County Department of Environmental Services to close the lake to primary contact including swimming and water skiing. Field sampling, biweekly to monthly, between October 2006 through May 2007, for *Escherichia coli* (*E. coli*) and Enterococcus from twenty sites in Lake Wheeler and ten sites in Swift Creek, the primary tributary draining to the lake, showed elevated bacteria levels in a number of creek and lake sites. Correlation analyses showed a positive correlation ( $r = 0.7454$ ;  $r^2 = 0.5557$ ) between Enterococcus and *E. coli*. One-way repeated measures Analysis of Variance (Log10 transformed data) showed differences between sites for Enterococcus ( $F = 8.293^*$ ) and *E. coli* ( $F = 6.661^*$ ). Tukey Post Hoc Tests separated means from the water samples and showed for both *E. coli* and Enterococcus, nine sites in the creek and two sites in the lake were significantly different (higher values) than the remaining sites. Storm event samples showed greatly elevated levels of *E. coli* and Enterococcus at all sites sampled compared to low runoff sampling periods. Bacterial source tracking (BST) was employed at the elevated bacteria sites incorporating a “tool box” approach. Components of the toolbox included Antibiotic Resistance Analysis, UV Optical Brighteners, Polymerase Chain Reaction Multiple Enterococcus Identification and Human Bacteroidetes Identification to obtain bacteria sources from the watershed. Multiple BST methods identified humans as the primary source of bacteria contamination in Swift Creek. Also, identified were fecal sources from domestic pets, deer and other wildlife. The County is examining for leaks in sanitary sewers at sites showing elevated human and pet contamination along Swift Creek.