



INDIANA UNIVERSITY

OFFICE OF THE EXECUTIVE VICE PRESIDENT
FOR UNIVERSITY ACADEMIC AFFAIRS
University Environmental Health and Safety

Water Venues Program Bathing Beaches, Swimming, Spa, and Therapy Pools March 2, 2017

1. INTRODUCTION

1.1. Purpose

The purpose of the Indiana University Environmental Health and Safety (IUEHS) Water Venues Program is to ensure that bathing beaches, swimming, spa, and therapy pools owned and/or operated by Indiana University are safe for the users and staff. This Program was developed to prevent waterborne illnesses and injury, protect equipment, and respond to concerns of users and staff associated with these facilities at the University. This is accomplished through education, training, regulatory inspections, consultation, water quality and indoor air quality tests, monitoring bacteriological water reports, enforcement, and keeping informed of current aquatic trends.

This Program utilizes established state, federal and international codes and regulations and standards of best practices for these types of water venues. The applicable regulatory reference, codes, standards, and guidelines are outlined in the References section of this document. The operation of swimming, spa/therapy, and research pools in the State of Indiana are subject to the Indiana State Department of Health's (ISDH) *410 IAC 6-2.1 Public and Semi-Public Swimming Pools Rule* and Indiana bathing beaches are subject to ISDH's *410 IAC 6-7.2 Youth Camps rule*.

1.2. Scope

This Program applies to all treated and untreated water venues including: bathing beaches, swimming pools, therapy/spa pools, and all related facilities that are owned and/or operated by Indiana University and affiliated properties. Users of these facilities include staff, faculty, students, visitors, competitors from other universities and schools, lifeguards, and aquatic staff required to operate these facilities.

Exceptions:

- Water venues are subject to the construction code in effect at the time of installation. If a water venue undergoes a significant renovation, then it should be brought into substantial compliance with the current construction code. Replacing 'like with like' would not be considered a significant renovation.
- Some athletic therapy facilities are used as a drain and fill (single use) facility and therefore not regulated by state rules.
- The Marion County Public Health Department (MCPHD), inspects, regulates, and licenses water venues at IUPUI.
- The bathing beach at Camp Brosius on Elkhart Lake in Sheboygan County, Wisconsin is subject to [Chapter DHS 254.46 Subchapter IV: Recreational Sanitation](#). While it is not subject to Wisconsin's Department of Health Services (DHS) [Chapter DHS 175: Recreational and Educational Camps](#), it is recommended that the camp use [Chapter DHS 175.18\(5\) Water Activities](#) as guidance for operating the bathing beach.

2. AUTHORITY AND RESPONSIBILITY

2.1. University Environmental Health and Safety is responsible for:

- 2.1.1. Liaising with other applicable related groups and regulatory authorities, and

For all venues outside of Marion County:

- 2.1.2. Conducting pre-operational, routine, and follow up inspections;
- 2.1.3. Complaint response;
- 2.1.4. Periodic water chemistry sampling and tests;
- 2.1.5. Periodic air quality sampling and tests;
- 2.1.6. Periodic water clarity tests at bathing beaches;
- 2.1.7. Monitoring bacteriological water quality reports;
- 2.1.8. Providing technical support and consultation for IU staff that operate and maintain water venues, and the engineering staff, that design, renovate, or repair water venues;
- 2.1.9. Providing standardized forms for recordkeeping by water venue operators;
- 2.1.10. Research new aquatic trends, rules, regulations and standards;
- 2.1.11. Inform/train staff of new information, and
- 2.1.12. Emergency response and consultation.

2.2. Marion County Public Health Department (MCPHD) is responsible for:

- 2.2.1. Licensing, inspecting, and regulating recreational water venues on the IUPUI campus.

2.3. Employees are responsible for:

- 2.3.1. **Water Venue Operators:** daily water chemistry tests, weekly bacteriological water sampling, daily operation records, monitoring and maintaining bathing beach operations, and daily operation and maintenance of physical facilities of the water venue.
- 2.3.2. **Water Venue Managers:** supervising lifeguards and water venue employees, reporting facility problems, reporting injuries and illness, emergency/disaster response and preparedness, and ensuring venue users follow user sanitation rules and policies.
- 2.3.3. **Lifeguards:** lifesaving, lifesaving equipment, watching over bathers, first aid, personal floatation devices, training, maintaining certifications, and monitoring bather load to prevent overcrowding.
- 2.3.4. **University Architects Office:** plan review as detailed in Section 3.7, consultation, meetings for water venue improvement with various stakeholders within the University, and supervising contractor's work.

3. PROGRAM ELEMENTS

3.1. Inspection of Water Venues

A general inspection includes equipment, chemical storage, the pool, the spa, the beach, deck, restrooms, showers, signage, operating and water quality test records, lifesaving equipment, and an onsite water quality assessment. Bathing beach inspections also include any anchored floating docks that designate the perimeter of the water area for swimming, any water fountains, occasional water clarity checks, and associated beach sand. In addition, follow up inspections, complaint response, and other inspections may be needed.

IUEHS or a designated representative shall inspect all venues outside of Marion County at a frequency based on the risk factors of the facility. Ranking of risk is based on a combination of the chemicals used, equipment for maintenance and the number and groups of users of the facility. MCPHD will inspect Marion County facilities on a schedule as determined by their department.

- 3.1.1. Low risk includes spas and therapy pools. These facilities are considered semi-public because they are used by the same specific groups and are not open to the public. A relatively small amount of chemicals are used and stored on site. The users are young

adult athletes generally in good health. Recommended inspection frequency of 2X per calendar year.

- 3.1.2. Medium risk water venues include relatively small pools, not open to the public and the user groups do not include small children and the elderly. Recommended inspection frequency of 3X per calendar year and at least one (1) air quality sampling and test per calendar year.
- 3.1.3. High risk includes water venues where users include diaper-aged children, immunocompromised children, the elderly, very high numbers of users, open to the public, large amounts of chemicals used and stored, and a history of complaints concerning air quality and/or water chemistry. The recommended inspection frequency of these facilities will be at the discretion of the inspector and is typically 1-2X/month.

3.2. Physical Quality of Water Inspection – Bathing Beaches

IUEHS staff and maintenance staff shall conduct occasional physical quality of water inspections of the bathing beach area. Inspection elements shall include looking for and documenting:

- 3.2.1. Floating debris;
- 3.2.2. Water current. Current shall not exceed three (3) feet per second;
- 3.2.3. Turbidity/clarity: A six-inch black secchi disk placed on a white background or an 8-inch black and white secchi disk shall be readily visible from the surface of the water to a depth of at least 4 feet;
- 3.2.4. Unusual color, odor, taste, oils, and grease;
- 3.2.5. Indicators of a possible algal bloom: cloudiness, scum, foam; and
- 3.2.6. Harmful Algal Blooms (HABs): Excessive growth of algae (cyanobacteria) in response to extended periods of warm weather without heavy rainfall, such as late summer and/or early fall, and/or pollution (possible nutrients like nitrogen and phosphorus).

3.3. Water Chemistry Sampling and Testing - Swimming, Spa, and Therapy Pools

Water samples are taken from the pool water at a depth of approximately 18 inches and away from the pool inlets to test the water that the bathers use for chemistry: free residual ppm level chemical sanitizer used (chlorine, bromine), ppm level total chlorine to determine combined chlorine level (total level bromine not necessary), pH, ppm alkalinity and ppm cyanuric acid, if present. Note that cyanuric acid is used only for outdoor pools as a stabilizer for chlorine to slow down the degrading effects of direct sunlight on the free residual level of chlorine. The levels of chemicals monitored, including the minimum and maximum, are regulated by the Indiana State Department of Health (ISDH), *Public and Semi- Public Pools Rule 410 IAC 6-2.1*.

3.4. Air Quality Sampling and Testing – Swimming, Spa, and Therapy Pools

Air samples are collected at the pool deck level at the indoor pools using a modified nitrogen trichloride (trichloramine) detection method. Excessive trichloramine exposures can lead to eye, nasal, and respiratory system irritation. Indiana University has adopted the World Health Organization (WHO) guideline of 0.5mg/m³ trichloroamine or less.

The recommended frequency of IUEHS air quality sampling and tests is 1-2X a year for indoor pools based on risk and past history of trichloramine levels. Testing can also occur in response to a complaint, event, or upon request. Testing is conducted free of charge.

3.5. Special and Temporary Events at Water Venues

3.5.1. Special Events

There are some special events held at water venues that may require an additional inspection and/or input from IUEHS to make the event safer, such as outside groups hosting pool parties, cardboard boat races, or in-pool movie screenings.

3.5.2. Temporary Event Food Service

Any event at a water venue in Indiana that includes food service must comply with the IUEHS Temporary Event Food Service Program and with *410 IAC 6-2.1-40: Food Area* which only permits food and food service in the visitor or spectator areas of the pool or in similarly separated snack areas for bathers.

3.6. Monitoring Bacteriological Water Samples

3.6.1 - Swimming, Spa, and Therapy Pools:

Each week, the respective regulatory authority receives copies of the weekly water sample reports from the Indiana State Department of Health (ISDH) Laboratory for each of the water venues in operation. After review, the regulatory authority sends report copies to the water venue operators and managers of the facilities for their records and in the case of an unsatisfactory report, additional instructions or requirements.

The procedure for sampling analysis and unsatisfactory reports is addressed in Indiana State Department of Health, *Public and Semi-Public Pools Rule, 410 IAC 6-2.1-31 Water quality standards:*

“No two (2) consecutive samples or three (3) samples collected in a six (6) week period shall demonstrate the following:

1. Contain more than two hundred (200) bacteria colonies per milliliter as determined by the heterotrophic thirty-five (35) degree Centigrade plate count.
2. Test positive (confirmed test) for coliform organisms in any of the five (5) to ten (10) milliliter portions of a sample when the multiple tube fermentation tube test is used.
3. Test positive for more than one (1) coliform organism per fifty (50) milliliters when the membrane filter test is used.
4. Show the presence of any coliform when the one hundred (100) milliliter presence/absence test is used.

Failure to collect and analyze weekly water samples during the period that a pool is open for use is considered an unsatisfactory report for the applicable week.

When the pool must be closed due to an unsatisfactory sample report, an additional water sample must be submitted to an approved laboratory. The pool may be reopened upon receipt of a satisfactory report.”

3.6.2 - Bathing Beaches:

Bathing beaches in the State of Indiana must submit copies of weekly bacteriological water quality samples to the Environmental Health Division of the Indiana State Department of Health when beaches are open for swimming or wading. Sample results may be sent directly to IUEHS (who will then share them with the beach operator) or to the beach operator (who will then share them with IUEHS). State regulation in Indiana requires temporary closure to full body contact if samples are unsatisfactory as listed below.

Water samples are collected at the bathing beach for bacteriological examination and submitted to an approved laboratory for analysis. Samples are submitted in accordance with the following: Indiana State Department of Health, *Youth Camps Rule 410 IAC 6-7.2.30(g):*

- “(8) (A) One (1) sample at least two (2) weeks prior to opening.
- (B) One (1) sample each week the bathing beach is open thereafter.
- (C) One (1) sample after a heavy rainfall of at least one-half (½) inch.
- (9) Bathing beach samples shall be collected within one (1) foot of the surface, in water having a depth of at least three (3) feet, but no more than six (6) feet and at least twenty (20) feet from swimmers and animals.

- (10) The bathing beach must be closed if the beach water quality does not meet the following water quality standards:
- (A) Escherichia coliform bacteria, using the membrane filter count, exceeds one hundred twenty-five (125) colonies per one hundred (100) milliliters as a geometric mean based on no less than five (5) samples equally spaced over a thirty (30) day period.
 - (B) Escherichia coliform bacteria using the membrane filter count exceeds two hundred thirty-five (235) colonies per one hundred (100) milliliters in any one (1) sample in a thirty (30) day period.”

Note: The above water quality standards are for full body contact with the water (i.e. - swimming). The water quality standard limit, according to the Environmental Protection Agency, for partial body contact (wading, boating, fishing, etc.) is not to exceed 1,000 *Escherichia coliform* bacteria colonies per 100 milliliters based on the geometric mean of all samples collected during a single sampling event.

3.7. Plan Review for Swimming, Spa, and Therapy Pools

Plans with specifications, prepared by a registered engineer or licensed architect, shall be submitted to the designated regulatory authority for review and comment prior to construction. The regulatory authority must also provide input for upgrades at water venues. The plans must meet the following Indiana construction code and operation and maintenance regulation:

3.7.1. Indiana State Department of Health, *Public and Semi-Public Pools Rule 410 IAC 6-2.1-26* requires:

New construction; Sec. 26.

(a) Public and semi-public pools, excepting those on the premises of a tourist home, shall be designed, constructed, maintained, and modified in accordance with *675 IAC 20-2*.

3.7.2. Department of Homeland Security, Division of Fire Prevention and Building Safety, *The Indiana Swimming Pool, Spa and Water Attraction Code 675 IAC 20-1* Content of plans; filing requirements:

Sec.1.

(a) Plans and specifications of all public pools shall be submitted under *675 IAC 12*, the general administrative rules, for design release prior to the construction, rehabilitation, or alteration of any public swimming pool, or semipublic swimming pool.

(b) All projects required to comply with this article shall be prepared by a design professional and submitted in accordance with *675 IAC 12-6*.

Note: Replacement of “like with like” would not require the submission of plans to the Indiana Department of Homeland Security, however, it would require notification of the regulatory authority. Additionally, for Marion County facilities, the MCPHD requires a construction permit from their office for the construction or renovation of chlorinated recreational water venues under their purview.

4. COMPLIANCE AND ENFORCEMENT

4.1. Enforcement Guidelines

The MCPHD provides corrective action oversight on the IUPUI campus in a manner consistent with this program and applicable state and local rules.

Violations cited at water venues shall be corrected in a timely manner. Follow up inspections will occur following the closure of a water venue during a routine inspection. Progressive enforcement

for repeated non-compliance will continue to escalate, as described below, until compliance has been achieved.

Furthermore, Section 43 of *Title 410 IAC 6-2.1: Public and Semi-Public Swimming Pools Rule* details reasons for the closure of a swimming pool or spa.

A facility shall close when any of the following occurs:

1. Failure to meet the following requirements in *Title 410 IAC 6-2.1: Public and Semi-Public Swimming Pools Rule*:
 - a) bacteriological requirements of section 31(f), 42.1(b)(15), or 42.1(b)(16);
 - b) disinfectant concentrations of section 30(b), 42.1(b)(1); or
 - c) the water clarity requirements of section 31(a) or 42.1(b)(13)
2. The grate on the main drain is missing or broken, or failure to meet the requirements of section 32(e).
3. Failure to meet lifeguard requirements of section 35, where applicable.
4. A pump, filter, or disinfectant chemical feeder is not operational.
5. A fecal accident.
6. The spa water temperature exceeds one hundred four (104) degrees Fahrenheit.
7. pH values less than 6.8 or equal to or greater than 8.0.
8. If Combined Chlorine is .5 ppm or above, the pool must be super-chlorinated to breakpoint chlorination. The pool shall be closed and remain closed until the chlorine level drops to the maximum allowable level of 7 ppm.
9. If the concentration of Cyanuric Acid exceeds 60 ppm the pool must be closed until appropriate measures are taken to lower concentration. Cyanuric acid stabilizers shall not be used in indoor pools.
10. If the department determines a condition, situation, or installation is created, installed or maintained that may:
 - a) cause or result in a health or safety hazard; or
 - b) cause or transmit disease.

Additionally, as detailed in section 30(s), a pool or spa shall be closed for at least one hour following the manual addition of a chemical directly to the pool water.

Bathing beaches shall also close if the water quality does not meet the following water quality standards:

1. Escherichia coliform bacteria, using the membrane filter count, exceeds one hundred twenty-five (125) colonies per one hundred (100) milliliters as a geometric mean based on no less than five (5) samples equally spaced over a thirty (30) day period.
2. Escherichia coliform bacteria using the membrane filter count exceeds two hundred thirty-five (235) colonies per one hundred (100) milliliters in any one (1) sample in a thirty (30) day period.
3. The water has aquatic vegetation, deposits, growths, oil, grease, chemicals, or other substances capable of creating toxic reactions, skin or membrane irritations, or a health or safety hazard.

4.2. Procedures

4.2.1. Routine Inspection

Routine inspections will occur at facilities at a frequency based on risk as detailed in the 'Inspection of water venues' section of this document. Any deficiencies will be cited on the report and the report will be provided to the appropriate stakeholders at the completion of the inspection. The inspector will make a determination of whether or not to conduct a follow-up inspection based on the findings of the routine inspection report.

4.2.2. Second Consecutive Routine Inspection with Repeat Violations

Whenever repeat violations are observed on a second consecutive routine inspection, water venue operators shall submit a written inspection response form detailing their corrective action plan and timeline to garner compliance with repeat violations. The

response shall be submitted to IU-EHS Public Health within ten (10) business and should use the provided form.

4.2.3. Third Consecutive Routine Inspection with Repeat Violations

Whenever repeat violations are observed on a third consecutive routine inspection, water venue operators shall meet with IU-EHS Public Health to determine a path to compliance. Water venue operators, in conjunction and with the approval of IU-EHS Public Health staff, shall draft and submit their corrective action plan and timeline for compliance.

4.2.4. Fourth Consecutive Routine Inspection with Repeat Violations

Whenever repeat violations are observed on a fourth consecutive routine inspection the venue will be closed until compliance is achieved.

4.2.5. Follow-up Inspection

Follow-up inspections will occur following the closure of a water venue during a routine inspection. The inspection will determine whether or not a facility may resume operations.

5. TRAINING AND RECORDKEEPING

5.1. Training

Swimming, Spa, and Therapy Pools:

Lifeguard training is required as detailed in *410 IAC 6-2.1-35*:

“Lifeguards shall possess a current nationally recognized certification in each of the following:

- (1) Lifeguard training,
- (2) Adult/infant/child cardiopulmonary resuscitation, and
- (3) First aid.

Copies of these certificates shall be kept on site and available for inspection. The operators of all public pools shall provide annual lifeguard orientation and training that includes training in bloodborne pathogens. New guards shall also receive training when they are employed.”

It is recommended that water venue operators receive and maintain accreditation as a Certified Pool Operator® (CPO) in order to practice and demonstrate pool and pool safety knowledge.

Bathing Beaches:

Lifeguard training and requirements as detailed in *410 IAC 6-7.2-30*:

“(a) An individual currently certified as a lifeguard and having a current cardiopulmonary resuscitation (CPR) certification must direct swimming, boating, canoeing, watercraft, water skiing, and other aquatic activities.”

“(c) At each aquatic site, a minimum of one (1) currently certified lifeguard for each thirty (30) campers must be provided.”

“(g)(12) At least one (1) qualified lifeguard shall be on duty when the bathing beach is open to swimmers”

5.2. Recordkeeping

In Indiana, all bathing beach, swimming, spa, and therapy pool records of bacteriological water sample reports are maintained by the regulatory authority and copies are sent to the pool and beach operators and managers for retention.

Per *410 IAC 6-7.2-30(11)* the results of each camp bathing beach water sample analysis in must be reported to the department.

Copies of the Swimming Pool Record of Operation logs are given to water venue operators for their recordkeeping as required by the Indiana State Department of Health *Public and Semi-*

Public Swimming Pools Rule 410 IAC 6-2.1, Sec. 38 – which requires that operating records be kept at a minimum of one (1) year and shall include data on:

- a. Disinfectant residuals and combined chlorine concentrations,
- b. pH readings,
- c. Volume of fresh water added,
- d. Operating periods of pool water recirculation pumps and filters and the corresponding rate of flow meter readings,
- e. Amounts of chemicals used,
- f. Maintenance and malfunctioning of equipment, and
- g. Date and time of any fecal events occurring in the pool, whether it involved formed stool or diarrhea, and the free chlorine or pH levels at the time of observation of the event. Before reopening the pool, the a) free chlorine and pH levels, b) procedures followed in response to the fecal accident, including the process used to increase chlorine levels (if necessary); and c) contact time; must be recorded.

Injury/incident reports: using a form prescribed by the regulatory authority, reports shall be made for each occurrence that: results in death, requires resuscitation, results in transportation to a hospital or other facility for medical treatment, or results in an illness connected to the water quality at the water venue. Accident and illness reports are submitted to IUEHS for the respective campus.

Inspection report: Inspection, water chemistry, water clarity, and air quality reports are kept at IUEHS. Copies are sent to the water venue operators and managers for retention.

Emergency response planning and consultation: providing and maintaining current information and plans for emergencies; fecal accidents, blood and vomit in the pool water, body fluid on deck, recreational water illnesses, contact surface diseases associated with pool and locker rooms, communicable disease prevention, lightning, tornadoes, floods, earthquakes, fires, chemical accidents.

Emergency plan for bathing beaches: 410 IAC 6-7.2 (22)(c):

“(c) Camps offering aquatic activities must have an emergency plan that includes procedures for rescues, accounting for each camper, evacuations, and the method for notification of emergency services. Weekly orientation in using the aquatic emergency plan must be conducted.”

6. REFERENCES

Regulatory References, Industry Guidance, Applicable to all Campuses (Unless otherwise specified)

Indiana: Pools, Spa, Therapy Pools

- [Indiana State Department of Health, *Public and Semi-Public Swimming Pools Rule 410 IAC 6-2.1, effective August 26, 2010 \(current rule for operation and maintenance\)*](#)
- [Indiana Department of Homeland Security, Fire Prevention and Building Safety Commission; *Swimming Pool, Spa and Water Attraction Code, 675 IAC 20, third edition \(current construction code for new construction/renovation\)*](#)
Note: Construction codes are not retroactive, current code at the time of construction/renovation applies.
- IUPUI facilities are also subject to: [The Code of the Health and Hospital Corporation of Marion County: Chapter 16: Public Pools, Spas, and Beaches](#)
- Bradford Woods facilities subject to internal policies: [Safety Policy \(2.24 - Pools & Waterfront\), Lifeguard Policy, Personal Floatation Device Policy, and Emergency Action Plan](#)
- Memorandum of Understanding-Partnership Agreement, Indiana State Department of Health and Indiana University

Indiana: Bathing Beaches

- [Indiana State Department of Health, Indiana State Department of Health Rule 410 IAC 6-7.2 Youth Camps](#)
- [Recommended Standards for Bathing Beaches, Great Lakes-Upper Mississippi River Board of State Public Health & Environmental Managers](#) (Indiana is a member state)
- [Environmental Protection Agency \(EPA\) beach](#)
- [Centers for Disease Control, Healthy Swimming](#)
- Bradford Woods facilities subject to internal policies: Safety Policy ([2.24 - Pools & Waterfront](#)), [Lifeguard Policy](#), [Personal Floatation Device Policy](#), and Emergency Action Plan)

Federal: Pools, Spa, Therapy Pools

- [Virginia Graeme Baker Pool Spa and Safety Act - 15 USC 1801 Title XIV](#)
- [National Electrical Code, Article 680](#)
- Centers for Disease Control: [Model Aquatic Health Code](#), [Healthy Swimming](#)
- [Consumer Products Safety Commission](#)
- [Americans with Disabilities Act , Revisions 2010 Title II & III, Section 28 CFR 35 & 36: accessibility, service animals](#)
- [U.S. Access Board: accessibility guidelines for buildings and facilities; recreation facilities](#)
- [Environmental Protection Agency](#)
- [American Red Cross: first aid, resuscitation, lifeguard standards, CPR standards, lifesaving equipment](#)
- [Caring for Our Children: National Health and Safety Performance Guidelines for Early Care and Education Programs](#)

Federal: Bathing Beaches

- [Clean Water Act, 33 U.S.C. §1251 et seq. \(1972\) BEACH Act \(2000\)](#)
- [Environmental Protection Agency \(EPA\) beach information, contaminants of emerging concern, climate change, watershed protection](#)
- [Centers for Disease Control, Healthy Swimming](#)
- [United States Lifesaving Association: lifeguard standards, storm safety](#)

International: Pools, Spa, Therapy Pools

- [International Code Council \(ICC\)](#)
- [World Health Organization : air quality standards for indoor pools](#)
- [Federation Internationale De Natation Amateur \(FINA\)](#)
- [University of Modena and Reggio Emilia, Department of Public Health Sciences, Modena, Italy: modified nitrogen trichloride detection procedure indoor swimming pool air \(trichloramine\)](#)

International: Bathing Beaches

- [World Health Organization, Guidelines for Safe Recreational Water Environment, volume 1 Coastal and fresh water](#)
- [American Public Health Association, Standard Methods for the Examination of Water & Wastewater, 22nd edition](#)

Aquatic Associations and Organizations: Pools, Spa, Therapy Pools

- [National Swimming Pool Foundation: references for best practices, worldwide recognized professional certifications and educational courses for pool operators](#)

- [Association of Pool & Spa Professionals: recommendations for best practices](#)
- [American Red Cross: lifeguards, first aid, resuscitation, lifeguard standards, CPR standards, lifesaving equipment](#)
- [United States Lifesaving Association: lifeguard standards, lightning safety](#)

National/International Standards: Pools, Spa Therapy Pools

- [United States Coast Guard: life ring buoy standards](#)
- [National Sanitation Foundation NSF-50: approved equipment](#)
- American National Standards Institute/American Society for Testing and Materials International:
 - [ANSI/ASME A112.19.8 performance standard, or the successor standard](#)
 - [ANSI/APSP-16 2011 compliant drain covers installed and a second anti-entrapment](#)
- American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc.,
 - [ANSI/ASHRAE 62-2001: air quality standards for indoor pools](#)
- [American Society for Testing and Materials, ASTM C609-07, color standard](#)

Additional Applicable References: Pools, Spa, Therapy Pools

- Standard method for indoor air sampling from: Ernest R. Blatchley III, Ph.D., P.E., BCEE, Purdue University, West Lafayette, Indiana

7. REVISIONS

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APPENDIX A - GLOSSARY

EHS – University Environmental Health and Safety

IUB – IU-Bloomington

IUPUI – Indiana University-Purdue University Indianapolis

MCPHD – Marion County Public Health Department

Additional definitions are available in the Indiana State Department of Health, [*Public and Semi-Public Pools rule 410 IAC 6-2.1*](#), [*Youth Camps 410 IAC 6-7.2*](#), and the Department of Homeland Security, Division of Fire Prevention and Building Safety, [*Indiana Swimming Pool, Spa and Water Attraction Code, 675 IAC 20*](#).

APPENDIX B – FORMS

[Permit Application for Construction or Alteration of a Public Swimming Pool \(Send to Indiana Department of Fire and Building Service Plan review Division and send a second copy to IUEHS for record retention\)](#)

[Temporary Event Food Service Application](#)

[Injury/Incident Report Form – Indiana State Department of Health](#)

[Swimming Pool Contamination Incident Record – Indiana State Department of Health](#)