

# ENVIRONMENTAL *Engineer*



NEW CERTIFICATION  
**BCES**

*Class of 2011*



# BOARD CERTIFIED ENVIRONMENTAL SCIENTIST

BRIAN P. FLYNN, P.E., BCEE, PAST PRESIDENT

**O**ver the past year and a half, a dedicated team of Environmental Engineers and Scientists has developed a new class of specialty certifications for the Academy, the Board Certified Environmental Scientist (BCES). The BCES was accepted for implementation by the Academy's Board of Trustees on November 12, 2011. This article is one of a continuing series of communications with our members to make them aware of the nature and opportunities inherent in the new BCES program.

The idea of expanding the Academy's certification mission to Environmental Scientists arose from discussions within the Membership, Development and Outreach (MDO) committee in the early spring of 2010. The basic premise was that since most of the organizations that employ Academy members utilize Environmental Engineers and Scientists on multidisciplinary teams to solve environmental problems, why not certify both? In this way, the Academy will then be able to offer the users of environmental services and environmental employers a full range of professional certification services.

This is not a new idea. The Academy's Board had previously discussed it in the 1990s, but no action resulted. In this case, the committee quickly and enthusiastically formed a subcommittee to study the idea and develop a detailed actionable concept. The subcommittee consisted of six Board members (Cecil Lue-Hing, Brian Flynn, Mike Selna, Tim Haug, Jim Stahl, Jim Mihelcic), three of them being in the direct line of the Academy's presidential succession, and four other highly skilled and experienced individuals (Joe Reichenberger, Jim Patterson, Enos Stover, and B.C. Robison).

The subcommittee conducted an interview-type survey that indicated that an Environmental Scientist certification

would be positively received by the environmental professional community and by the clients of such professionals. It then developed a fairly detailed concept for the BCES and presented it to the Board of Trustees in November of 2010 for comment, not a vote. Response was favorable and a number of useful suggestions were made. Encouraged by this, the subcommittee went to work and recruited a highly experienced and distinguished Science Advisory Panel (see sidebar) and gave it a dual charge: further refining the BCES concept and addressing the issue of a potential name change for the Academy. Both activities were implemented by the development of white papers. These were combined and presented to the Board of Trustees at their next meeting (May, 2011).

In May 2011, we informed our membership of the proposed BCES and name change to the Academy. This included an Internet poll that showed very strong support among our membership for the BCES program and majority support for a name change. The resolutions for the BCES implementation and the name change passed on November 12, 2011, in the Academy's Annual Board meeting.

## WHAT IS THE BCES?

The Academy will offer a new class of certifications, called the Board Certified Environmental Scientist (BCES). Science practitioners will come from the geology/hydrogeology, biological, chemistry, toxicology, etc. branches of environmental practice. The BCES will have the same fundamental requirements (time in service, responsible charge etc.) for certification as currently exists for the BCEE. The examination process will mimic the one we already have in place,

and will have the same time in service/responsible charge requirements as the BCEE for the oral and written exam.

The BCES, like the BCEE or BCEEM, will confer a specialty certification. We are initially considering certifications in groundwater, soils, water/wastewater, sustainability, environmental biology/ecology, environmental microbiology, environmental chemistry, environmental toxicology, and air. Exams (written and oral) will be structured for each. For reference, we currently offer eight areas of specialization for BCEE/BCEEMs.

The Academy will also allow less experienced Environmental Scientists to join the Academy under the Member category, just as we do with less experienced Engineers.

## WHAT IT IS NOT

Discussions about the BCES have unearthed a number of misconceptions. We wish to lay them to rest here.

- The BCES is separate and distinct from the BCEE or BCEEM.
- It is not a license; like the BCEE and BCEEM, it is a certification of specialized knowledge in a specific area of environmental practice.
- A BCEE or BCEEM cannot become a BCES. In most cases it would be impossible because of the qualifications required; in a few rare cases, it would be possible but redundant and would unnecessarily blur the distinct bright line between our engineering and science certifications.
- Conversely, a BCES cannot become a BCEE or BCEEM for the same reasons stated in the prior point.
- The BCES confers absolutely no rights to practice engineering, just as the BCEE/BCEEM confers no rights to practice environmental science.



- The BCES is not a generalized or management certification, it is a technical specialty certification. The BCES is an entirely separate certification system from the BCEE/BCEEM. It is **not** an engineering certification. The engineering certification that our members hold today will have the same value tomorrow, because it is based on the stringency of the Academy's experience and exam requirements. The Science Certification will have the same, but separate, experience and exam requirements. Our oral exam will have a mandatory ethics question which focuses on the distinction between a scientist and an engineer.

## IMPLEMENTATION

The Science Advisory Panel has been instrumental in developing the BCES concept. These individuals were selected based on the same experience, title, and outside achievement requirements that the Academy currently attaches to its selection by eminence method of entry.

Like the BCEE, the BCES will include specific areas of specialization. Our Science Advisory Panel considered a number of alternatives based on environmental media and academic discipline, and settled on the so-called hybrid approach, a combination of media practice areas and specific scientific discipline.

The written exam will be done in a phased approach in the same multiple-choice format as the BCEE exams.

1. The first phase will include a written test that will contain 50 multiple-choice questions in a General Section that all Board Certified Environmental Scientists (BCES) applicants will take.
2. The specialty portion of the test will be an additional 50 multiple-choice questions in the area of specialization chosen by the applicant. Some of these areas of specialization will be focused on media and others on disciplines. The initial areas of specialization will include water/wastewater, groundwater, air, environmental biology/ecology, environmental microbiology, and environmental chemistry.

3. In the second phase, depending on feedback from the environmental scientist community, more specialties could be added, including: environmental toxicology, soil science, and environmental sustainability.

Some items in the second phase may be added to the first phase list, depending on the resources for exam writing available to the Science Advisory Panel.

Each area of specialization will also include a set of oral exam questions, using the same type of scope and format used by AAEE for the BCEE exam. The new oral and written exams will be piggybacked onto the Academy's existing exam system.

The Science Advisory Panel has already developed a preliminary draft list of competencies to be covered by the new exams. This will serve as the foundation for question development, which has already occurred in draft form for the general section of the written exam.

During the first quarter of 2012, Science Advisory Panel members will be invited to apply for membership by Eminence. AAEE's Eminence Committee will go through its normal screening and evaluation procedures to vet the candidates, and recommend those it deems worthy to the BOT for

membership by eminence at the April 2012 Board meeting. This will provide the necessary core group of BCES members.

The written and oral exams should be drafted no later than mid-year 2012. We will be calling for volunteers to field test exam questions in the second half of 2012. In fact, if you have any Environmental Science colleagues that might be interested in helping with either task, please contact the Academy's Executive Director at [jcava@aaee.net](mailto:jcava@aaee.net).

The new certification will be announced to the public and applications taken, starting in the second quarter of 2012. The field testing of exam questions will be completed by the end of 2012. This allows the exams to be finalized for the normal 2013 examination cycle, which begins March 31, 2013.

Academy volunteers will provide technical assistance to committees charged with implementing the new certification. The bulk of the work of the committees will be done by the new BCES certificate holders. The BCES examination process will be integrated with the Academy's existing process, sharing common sites and facilities.

We will be sending an announcement about the BCES to some of the biggest employers of BCEEs. A number of these firms


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were interested enough in the concept to write letters of support to our Board. We anticipate that this and other actions will generate BCES applications in 2012.

The initial monetary investment by AAEE is very modest (about 1% of budget) and will result in a positive cash flow by the second year. Academy finances are very sound. In fact, we will have our first significant surplus in 10 years in 2011 and expect another modest surplus in 2012. We have abundant volunteer resources to make the new certification system a reality. If we have any future increase in Academy fees, it would not be related to the BCES. Historically, fees have risen slowly in response to inflation.

### ACADEMY NAME CHANGE

The Subcommittee and the Science Advisory panel considered whether the Academy should change its name when it offers the BCES. It concluded that it would be advisable for the following reasons:

1. A name change will better reflect the engineering and scientific membership and focus of the organizations that employ current Academy members.
2. Publicizing the interdisciplinary nature of environmental engineering through a formal name change will demonstrate that the Academy has adjusted to pertinent developments in the multidisciplinary environmental field.
3. A name change will signify the Academy as an organization that provides specialty certification to all environmental technical professionals.
4. A name change will avoid any perception of a 'two-tiered' system or lack of uniformity in certification processes or structure for the two disciplines.
5. A name change should encourage scientists practicing in the environmental field who might not show interest in participating if the parent name does not make any reference to science.

The name change will be simple. We will add "and Scientists" to the current name, making it the American Academy of Environmental Engineers and Scientists (AAEES). We have already secured the web domain name.

We do not know precisely when the name change will become official. It has to fit in with a detailed project plan for implementing the BCES. The plan should be ready by the time this article is published.


### SUMMARY

The AAEE has added a new and exciting certification system to its lineup: the Board Certified Environmental Scientist (BCES). This aligns the Academy with the modern implementation of environmental projects by including both engineers and scientists in our

organization. For consistency, the Academy will change its name to the American Academy of Environmental Engineers and Scientists in the near future.

If you want to provide the names and contact information of potential BCES applicants, please send the information to our Executive Director at [jcava@aaee.net](mailto:jcava@aaee.net).

### ABOUT THE AUTHOR

Brian P. Flynn, P.E., BCEE served as President of the Academy in 2011 and lives and works in Austin, TX. He can be reached at [bflynn4290@aol.com](mailto:bflynn4290@aol.com). 

### ENVIRONMENTAL SCIENTIST ADVISORY PANEL

| NAME                    | TITLE  |
|-------------------------|--|
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