

Three Decades of the CEP Credential and Environmental Professional Certification

Robert A. Michaels

Evolution of Environmental Professional Certification

Environmental professional certification programs evolved from earlier forms of validation, including apprenticeships, training programs, education programs, and licensing. During the Industrial Revolution, would-be professional artists and artisans apprenticed themselves to practitioners who had earned a favorable reputation. Generations of mentors and students proved themselves by practicing their trades, and, if they did what they did well, they did well. Our Information Age, however, has imposed new requirements on many practitioners. Beyond training, they might need certificates attesting to training, degrees attesting to learning, and licenses allowing them to practice. The Information Age, ironically, was compensating for information inadequacy, as the number of practitioners and specialties grew and as the distances over which practitioners were recruited expanded more rapidly than word of mouth and thus more rapidly than reputation.

With population growth also came space and resource limitations, increasing the urgency of land-use and pollution issues, and environmental practitioners to address them. They were a new breed of professional, with expertise drawn from the pedigreed disciplines, from sciences and social sciences such as physics, biology, chemistry, political science, and communications. Environmental professionals were hybrids, each mongrel breed combining a unique combination of characteristics

drawn from the traditional pedigreed disciplines. New rules emerged for accepting them.

In Darwinian fashion, as demand for environmental services increased, so did the number of specialists to fill them. In response, new forms of validation arose, such as college degrees that credited “life experience,” though the validity of these validations was itself uncertain. The growing public need to qualify environmental practitioners, coupled with the proliferation of specialties and specialists, together created a niche for organizations conferring environmental professional certification, including the Academy of Board Certified Environmental Professionals (ABCEP), which offers the CEP credential, now three decades old.

The CEP Credential

To validate senior environmental professionals, the *Certified Environmental Professional (CEP)* credential was instituted by the National Association of Environmental Professionals (NAEP), a membership organization that was founded in 1975. By 1976, NAEP had 400 members (on its way to upward of 3,000), and, by 1978, a *Code of Ethics and Standards of Practice* that in later years gained recognition (in federal court) for the environmental professions generally; that is, among environmental professionals, whether or not they were CEPs or members of NAEP.

NAEP instituted its Environmental Certification Program, conferring the CEP credential, in 1979, and appointed Sherman J. Rosen as the first Certification Review Board (CRB) Chairperson. Charles F. (“Chuck”) Zirzow succeeded Sherm Rosen in 1986. I succeeded Chuck Zirzow in 1993.

The Environmental Certification Program could not remain within NAEP. An anti-

trust case in federal court established the precedent that certifying organizations must serve entire professions, not just members of a particular professional organization. Although NAEP had ceased requiring membership for CEP candidates, the certification program also had to become administratively independent of its parent membership organization in all matters involving certification. Ultimately, NAEP divested itself of the certification program, in 1993 forming ABCEP, which substantially adopted NAEP’s *Code of Ethics and Standards of Practice*. In 1999, NAEP incorporated ABCEP as a separate, 501(c)(6) not-for-profit corporation (see Figure 1 for a time line of events relating to the CEP credential). ABCEP (2005) bylaws define these purposes (p. 1):

- (1) to periodically evaluate professional standards to which environmental professionals should adhere, (2) to maintain a certification credential for meritorious environmental professionals, (3) to evaluate candidates applying for certification, (4) to bestow upon candidates found to be meritorious relative to applicable professional standards the status of Certified Environmental Professional (CEP), (5) to maintain and enhance the credibility of the CEP credential, (6) to render the CEP credential available to qualified environmental professionals by all means consistent with the Academy’s Bylaws; and (7) to do everything necessary, proper, advisable, or convenient for the accomplishment of the Academy’s purposes and objectives and to do all other things incidental to them or connected to them that are not otherwise forbidden.

Accreditation

The problem of validating professionals, not only environmental professionals, resembles the problem of identifying a phi-

1975	NAEP formed
1978	<i>Code of Ethics and Standards of Practice for Environmental Professionals adopted by NAEP</i>
	<i>Certification Program established, conferring the CEP credential</i>
1979	Sherman J. Rosen; PhD, CEP appointed as the first Certification Review Board (CRB) Chairperson
1986	Charles F. Zirzow, CEP appointed CRB Chairperson
	ABCEP formed by NAEP as an independent certifying body
1993	Robert A. Michaels; PhD, CEP appointed CRB Chairperson
1994	<i>Certification Maintenance Program established</i>
	ABCEP incorporated as a 501(c)(6) not-for-profit corporation, substantially adopting NAEP's <i>Code of Ethics and Standards of Practice</i>
1999	Richard J. Kramer; PhD, CEP appointed President of ABCEP Board of Trustees
2000	Richard E. Burke, CEP appointed President of ABCEP Board of Trustees
2001	Michael R. Herbaugh, CEP appointed President of ABCEP Board of Trustees
2002	Richard E. Burke, CEP appointed President of ABCEP Board of Trustees
	Audrey G. Binder, CEP appointed President of ABCEP Board of Trustees
2004	ABCEP receives accreditation for the CEP credential by the Council of Engineering and Scientific Specialty Boards (CESB)
2005	Irving G. Cohen; CEP, CES, CEI appointed President of ABCEP Board of Trustees
2008	James F. Yawn, CEP appointed President of ABCEP Board of Trustees

Figure 1. Certified Environmental Professional (CEP) credential, time line of events.

philosopher king as guardian of Utopia in Plato's *Republic*. Plato had strong feelings about the type of person who should serve, something along the lines of being intelligent, philosophical, objective, and benevolent . . . in short, much like Plato himself. Yet, selecting such an individual (other than oneself) was difficult because the selection would depend upon the choice of selectors. The problem was recursive: a valid philosopher king could be chosen only by validated selectors, who would have been

chosen by validated selectors of the selectors, with no clear end to the chain. Few utopias, therefore, exist.

Ominously for democracies, Plato's problem proved intractable. Ominously for many professions, including environmental, multiple certifying organizations have appeared, raising the thorny platonic issue of how each profession might select a valid philosopher king. Can the environmental

professions select a certifying body trustworthy and trusted among consumers of their services? Toward that end, certifying organizations have enhanced the credibility of their professional credentials via accreditation by organizations that serve multiple professions under one umbrella.

In April 2004, ABCEP's CEP credential received accreditation by the Council of Engineering and Scientific Specialty Boards

headquartered in Annapolis, Maryland. ABCEP's accreditation, reviewed periodically, has been maintained consistently. The council accredits certified industrial hygienists and other widely recognized professionals. Its member boards include the following not-for-profit certifying organizations (see <http://www.cesb.org>):

- AACE (Association for the Advancement of Cost Engineering) International
- Academy of Board Certified Environmental Professionals
- American Academy of Environmental Engineers
- American Board of Health Physics
- American Board of Industrial Hygiene
- American Indoor Air Quality Council
- American Society of Professional Estimators
- Board of Environmental, Health & Safety Auditor Certifications
- Building Inspection Engineering Certification Institute
- Certified Environmental, Safety and Health Trainer Board of Certification
- Institute of Hazardous Materials Management
- Institute of Professional Environmental Practice
- National Academy of Forensic Engineers
- Society of Wetlands Scientists Professional Certification Program

Philosophy of CEP Candidate Evaluation

The philosophy underpinning evaluation of CEP candidates is special. Most fundamentally, evaluation is conducted via peer review, in contrast to other credentials that are awarded based upon results of a short-answer or multiple-choice examination. CEP applicants must show evidence of having earned a college or university degree from an accredited institution; that is, one whose accreditation is recognized by the Council on Higher Education Accredita-

tion, which weeds out "diploma mills." ABCEP assumes that CEP candidates who earned such a degree were tested sufficiently via fact-based short-answer and multiple-choice questioning in their fields of expertise and beyond. Accordingly, CEP candidate examinations are conducted via essay questions completed without supervision and submitted whenever ready.

Peer review serves well in selecting CEPs from among the population of applicants, just as it serves well in selecting candidates for public office in our representative democracy, in which a broad electorate of peers can vote. Peer review also underpins the American justice system, in which defendants are judged by a jury of their peers. It underpins our system of evaluating professional manuscripts submitted for publication in academic and technical journals. In short, peer review, which is the best solution yet devised to solve the platonic problem of selecting a philosopher king, is embodied in democratic government, in the jury-based justice system, in the academic publication system . . . and in evaluation of candidates for the CEP credential.

The CEP is special also in facilitating self-evaluation by potential applicants before they apply. This is accomplished by publicizing all essay examination questions (on ABCEP's Web site, <http://www.abcep.org>) from which applicants choose five to answer. In the CEP evaluation system, questions are not sprung on candidates by surprise. Unlike correct-or-incorrect multiple-choice or short-answer questions, essay responses are tailored to each candidate's professional experience. Essay responses facilitate evaluation of the degree of depth and clarity of the candidate's thinking and his or her ability to communicate and persuade. More than being correct or incorrect, CEP candidate essay responses are judged by their quality and credibility, much like a manuscript submitted for publication. Each essay question is no more a surprise to the applicant than is the question addressed by a manuscript submitted for publication by a prospective author. In both cases, a professional-quality product is expected and, if not provided, the result typically is rejection.

Three side benefits result from public availability of CEP examination essay questions. First, exam security is assured: no potential applicant conceivably can gain advantage over any other by obtaining prior knowledge of exam questions, as each potential applicant has equal prior access. Second, the ability to evaluate one's readiness prior to application is enhanced. Third, the rejection rate of CEP candidates is, I believe, relatively low. When last calculated, the rejection rate was about 10%. This low percentage probably reflects the decision of less-prepared potential applicants to develop further professionally before actually applying for the CEP credential.

The CEP also is special, if not unique, in revolving around a *certification review panel* whose activities are coordinated by a *lead reviewer*. Each CEP candidate is evaluated by such a panel, to which fully seven members of the CRB are assigned. The large size of each panel protects candidates against the possibility of a "rogue review," as just over half of all respondents must favor certification; one dissenter will not prevail. Further, the panel system preserves independence of peer reviews by directing all reviews to the lead reviewer, who is the only team member who sees the full scope of panel member responses.

Mechanics of Certification

Certification program expenses are paid primarily from administrative fees to applicants and annual dues of CEPs. Environmental professionals usually download the CEP application from the ABCEP Web site, as electronic information transfer is fastest and least expensive. CEPs are awarded in any of five Functional Areas, which represent areas of emphasis for a practitioner. Applicants have a choice of five Functional Areas, ranging from emphasis on technical to academic to administrative functions, as follows:

- **Environmental assessment:** evaluation of risks to (or past impacts upon) the occupants of ecosystems, workplaces, or residences exerted by physical, chemical, or biological agents to which exposure may occur (or may have occurred)

- **Environmental documentation:** preparation of reports, presentation of facts, and completion of other actions to establish administrative records demonstrating compliance with environmental statutes, regulations, and permits
- **Environmental operations:** management of facilities in accordance with requirements of environmental statutes, regulations, and permits
- **Environmental planning:** arrangement for future facility construction, operation, and/or management in accordance with anticipated requirements of environmental statutes, regulations, and permits (or permit renewals)
- **Environmental research and education:** conducting and reporting on original investigations into the dynamics of environmental phenomena, and teaching about such phenomena as investigated by oneself and/or other investigators

When completed, the application is returned to ABCEP's office via the Internet, and an administration fee is paid. Applicant files are sent to the CRB chairperson, who assigns a certification review panel (identified by a unique number). Assigned CRB members may recuse themselves if they have a conflict of interest, which happens from time to time.

Candidates arrange to have official transcripts attesting to their studies and degrees, and eight supporting letters, sent to ABCEP's office, from which they are distributed with other application materials to the candidate's certification review panel. The Lead Reviewer arranges separate interviews with the candidate and a designated supervisor or client, at which any issues of concern expressed by panel members may be raised. Although not all panel members participate in interviews, each candidate is richly represented to each panel member. Indeed, panel members become quite familiar with candidates' education, affiliations, experience, publication record, and abilities.

ABCEP aims for completion of candidate evaluation within about three months of application assignment to a panel. Panel members are asked to return their reviews ("action reports") to the lead reviewer, ABCEP office, and CRB chairperson within

one month of assignment. The lead reviewer is asked to complete his or her own evaluation, as well as conduct interviews, within three months of assignment. The lead reviewer recommends to me as CRB chairperson either certification or denial of certification based upon synthesis of all individual panel member peer reviews into a single full-panel recommendation. My role is to make the final decision to certify or deny certification based upon consideration of all peer reviews and other communications, to assure that the full-panel recommendation was fair rather than biased. I rarely, if ever, have reversed a lead reviewer. CEP certificates are issued, signed by the lead reviewer and CRB chairperson.

Certification Maintenance

To remain certified, CEPs must keep current in their field. In 1994, ABCEP established the *Certification Maintenance Program*, requiring CEPs to demonstrate via a point system that they have kept current by engaging in a range of professional activities. Such activities have included employment, attending conferences, teaching courses and workshops, publishing articles, and serving the profession on committees or in other ways. ABCEP's program functioned on a five-year cycle of certification maintenance point evaluation. Requirements of the Council on Engineering and Scientific Specialty Boards for our continued accreditation, however, have required ABCEP to join many, if not most, other professions by adopting an annual certification maintenance cycle period.

Status and Stature of the CEP Credential

As shown, the CEP credential was unique and forward looking in 1979, its year of inception. Today it remains so. I know of no other credential that has achieved accreditation based upon such a dynamic, broad body of knowledge that is defined, not as much by a list of facts, but by a list of the journals and other sources of emerging information. CEP examinations are tailored to the specialization of each candidate via the choice of responding to five essay questions from a larger, wide-ranging list.

CEPs are certified based not upon their ability to memorize lists of facts but based upon their ability to function in a regimen of fast-paced publication of research and administrative developments. In my own experience, for example, regulatory changes soon may respond to findings in recent years that airborne particulate matter (PM) can exert adverse health effects with brief (real time) exposure (Michaels, 1996, 1997, 1998; Michaels and Kleinman, 2000). Regulatory limits on airborne PM currently reflect the previous belief that only longer-term exposures could damage health, resulting in today's regulatory limits on only the daily and annual average concentrations of airborne PM. This example indicates clearly that no short-answer or multiple-choice questions will reflect our evolving understanding of the public health and regulatory issues relating to airborne PM . . . but essayists can conduct research into the scientific and/or regulatory literature to produce a professional-quality explication of the pros and cons of adding, say, a 1-h average to the US Environmental Protection Agency's arsenal of airborne PM regulations.

The uniqueness of the CEP credential has garnered respect and acceptance. Indeed, as a result, the CEP has earned broad recognition in hiring, salary determination, and career advancement in government, industry, consulting, academia, and the military. The military, for example, has exhibited a special interest in the CEP credential, in part because military environmental professionals must maximize their credibility among civilian populations where military-base closures in or near civilian communities are planned or under way. These projects are enormous, and enormously expensive. Their costs can be mitigated significantly if base closure proposals are accepted by civilian stakeholders. For example, my firm, RAM TRAC Corporation, was engaged to provide my services as a CEP to assess risks potentially posed to children if they contacted or ingested lead bullets being found occasionally at a former Army firing range on which an elementary school had been built as part of closure of the Plattsburgh Air Force Base in Upstate New York. In short, competence enhances credibility, and credibility enhances economy.

That reasonable people are more likely to accept reasonable proposals that are presented by credible professionals is a truism in almost any arena, not just in the military. The CEP credential has contributed significantly to validation of senior environmental professionals in many or most arenas. Having earned my own CEP in the Functional Area of Environmental Assessment has enhanced my career as an environmental professional specializing in toxic substances and assessing risks to human health potentially posed by environmental factors. I am proud of ABCEP and the CEP credential conferred on me, which have enhanced my credibility and career, just as so many of my CEP colleagues have expressed similar feelings about the positive role of ABCEP and the CEP credential in their careers.

Acknowledgments

The National Association of Environmental Professionals (NAEP) and involved NAEP members

exhibited pioneering vision in establishing the CEP credential. They exhibited continued vision in sustaining it throughout its tenure within NAEP, and they exhibit continuing vision today in supporting the Academy of Board Certified Environmental Professionals (ABCEP) as the CEP's new guardian. Past and present members of the Certification Review Board (CRB) and of ABCEP have exhibited admirable dedication and volunteerism in serving the CRB, ABCEP, and the environmental professions. They did so, and continue to do so, in a manner that has preserved and enhanced our credibility over the past three decades. I especially acknowledge the inspiring contributions of my predecessors as CRB chairperson: Sherman Rosen (1979–1986) and Charles F. ("Chuck") Zirzow (1986–1993), whose funeral at Arlington National Cemetery I proudly and sadly attended in 1997.

References

[ABCEP] Academy of Board Certified Environmental Professionals. 2005. *Bylaws*. ABCEP, Towson, MD, 17 pp.

Michaels, R. A. 1996. Airborne Particle Excursions Contributing to Daily Average Particle Levels May Be Managed via a One-Hour Standard, with Possible Public Health Benefits. *Aerosol Science and Technology* 25(4):437–444.

Michaels, R. A. 1997. Particulate Matter Policy [Letter]. *Science* 278(5344):1696.

Michaels, R. A. 1998. Permissible Daily Airborne Particle Mass Levels Encompass Brief Excursions to the "London Fog" Range, Which May Contribute to Daily Mortality and Morbidity in Communities. *Applied Occupational and Environmental Hygiene* 13(6):385–94.

Michaels, R. A., and M. T. Kleinman. 2000. Incidence and Apparent Health Significance of Brief Airborne Particle Excursions. *Aerosol Science and Technology* 32(2):93–105.

Address correspondence to: Robert A. Michaels, President, RAM TRAC Corporation, 3100 Rosendale Road, Schenectady, NY 12309; (phone) 518-785-0976; (email) bam@ramtrac.com.