

Chapter 7

USACE CHEMIST TRAINING AND CERTIFICATION

7-1. Introduction. This document provides policies, procedures, responsibilities, and requirements for the administration and management of the USACE Environmental Chemists Career Program, as it relates to CDQM. The guidance outlined in this document is subordinate to policy established by either the supervisory chain of command or the responsible human resources office.

7-2. Objectives. The Environmental Chemist Career Program has four main objectives.

a. To raise the professional standards and improve the practices of environmental chemistry by giving special recognition to those USACE employees who, in fulfilling prescribed standards of performance and conduct, have demonstrated and maintained a high level of competence and ethical practices.

b. To identify for USACE, its customers, and the public, persons with broad knowledge of environmental chemistry and the capability to professionally apply that knowledge.

c. To establish a continuing career development program whose goal is the improvement of individual chemistry skills and professional development.

d. To enhance the body of knowledge and standards of conduct for the practice of environmental chemistry.

7-3. Eligibility. Any USACE employee meeting the minimum requirements may apply for certification.

7-4. Certification Program. Because a nationally or internationally recognized certification program is not available for the registration of environmental chemistry professionals, the USACE has developed this certification program. For the short term, the USACE will administer this certification process using the services of the American Institute of Chemists, (AIC) Inc. In the long term, Department of Defense (DoD) administration will be sought under the umbrella of the Tri-Service Agreements.

7-5. Certification Categories. Applicants may be certified as a Senior Chemist, Chemist, or Chemistry Technician (collectively referred to as environmental chemistry professionals) encompassing HTRW assignments to laboratories, districts, regions, centers, divisions, and HQ. For each category, applicants must fulfill a set of minimum requirements and pass a written examination.

a. Minimum Requirements.

(1) Certified Senior Chemist (CSC). Applicants must complete a minimum of a baccalaureate degree with a major in chemistry, chemical engineering, or a closely related field, and possess at least five years of directly relatable work experience.

(2) Certified Chemist (CC). Applicants must complete a minimum of a baccalaureate degree with a major in chemistry, chemical engineering, or a closely related field, and possess at least three years of directly relatable work experience.

(3) Certified Chemistry Technician (CCT). Applicants must complete a minimum of an associate degree with emphasis in chemistry, chemical engineering, or a closely related field, and possess at least five years of directly relatable work experience.

(4) Calculation of Work Experience. Work experience requirements are calculated based solely on environmental chemistry work experience. If a specific work assignment involved duties other than environmental chemistry, the relatable experience shall be calculated by multiplying the total time spent on the assignment by the percentage of time engaged in chemistry activities. Time intervals during which environmental chemistry activities accounted for less than fifty percent of total work assignments will not count towards certification work experience requirements. At least three years of practical chemistry experience must consist of continuous employment applying the principles and techniques of environmental chemistry. The experience must be verifiable by documentation submitted by the candidate.

b. Examination. Each applicant must submit to a written examination, to be conducted once each year at the USACE HTRW Chemist's Meeting and at each location where the USACE HTRW program employs chemistry professionals who have met the requirements for testing. Applicants prior to 15 October 1997 will be evaluated solely on the minimum requirements for certification. Those applicants meeting the criteria will be considered "grand fathered" and as such will not be required to take the examination.

c. Resources. Participation in the chemistry professional certification program is voluntary, and use of government resources for activities relating to certification or recertification must be approved by the individual's immediate supervisor.

7-6. Procedures for Certification and Recertification by Examination.

a. Application Forms. Application forms may be obtained from HQ, U.S. Army Corps of Engineers, CEMP-RT or the U.S. Army Corps of Engineers, HTRW-CX, CENWO-HX-C. The application form may be filed at any time with either the Administrative Officer or Chairperson of the Chemistry Certification Board. Roster of the Chemistry Certification Board members will

be printed in both the Corps of Engineers news letter and chemistry news letter.

b. Examination. After the application has been reviewed by the Chairperson, Chemistry Certification Board and all prerequisites verified, the applicant will be provided with references to suggested study material in order to prepare for the examination. The applicant will be formally advised of the exact place and date of the next examination. An applicant who does not take the examination at the scheduled time and place may reschedule the examination by submitting a written request to the Administrative Officer. If the applicant does not report for examination within two years after the originally scheduled examination date, said application will be considered void, and the applicant may not sit for examination unless he or she submits a new application.

c. Examination Scoring. The results of the written examination will be scored and recorded. The minimum passing grade will be stated on the examination. The score obtained in the written examination will determine whether or not the applicant meets the qualifications for certification. An applicant who fails the written examination must wait twelve months before retaking the examination. The certification application is not required to be resubmitted.

d. Certification. Upon meeting the minimum requirements and passing the examination, the Chemist Certification Board will promptly issue a certificate attesting to certification status. If an applicant is disapproved, the Chemistry Certification Board will so advise the applicant and make known the reasons thereof. An applicant who fails to receive certification has thirty days in which to appeal the decision in writing to the Director, Environmental Division, Directorate of Military Programs.

e. Confidentiality. All details pertaining to an applicant's request for certification will be kept confidential. The Chemist Certification Board will not disclose the names of applicants who fail. The official records of each applicant and a list of those currently certified will be maintained by the USACE Chemist Certification Board or its agents for its use in verifying certification. Once each year the list of those currently certified along with copies of the certification certificate will be provided to the executive office of each command for posting on their certification/registration board.

7-7. Certification Maintenance.

a. Certification Period. Certification is valid nominally for three years, after which recertification by the board will be required. For the purpose of establishing a uniform date for recertification, the thirtieth day of September nearest to three years from the initial date of certification shall be considered the termination date of the certification period. The certification and expiration dates will be placed on the certificate.

b. Recertification. Recertification may be accomplished by either examination or through the Professional Credit Plan. Under this plan, credits may be earned through activities that promote professional development. Twenty credits must be accumulated each three years to qualify for recertification as CSC, fifteen credits must be accumulated to qualify as a CC, and ten credits must be accumulated to qualify as a CCT.

c. Professional Credit Plan. The professional credits and the maximum that may be accrued each three years for recertification are as follows:

(1) Performed (*maximum six credits, two credits per year*). Employed as a practicing chemistry technician, chemist, supervisory chemist, or manager in an HTRW function. A statement of the work performed and the period claimed must be documented by the applicant. Maximum credit will be given for full time work in chemistry. Less than full-time work in environmental chemistry will receive credits in proportion to the percentage of full-time work actually spent in chemistry activities.

(2) Learned (*maximum six credits*). Training courses used to meet the academic eligibility requirements for recertification must be taken within three years prior to submission of application. The Certification Board will determine the validity of each course. The credits in this category will be based on Continuing Education Units (CEUs). Each CEU will be equivalent to one professional credit.

(a) Attended chemistry training, seminars, conferences, clinics, workshops, or other symposia. Credits for attendance will be based on assigned CEUs. If CEUs are not assigned, the Chemist Certification Board will determine the amount of professional credit to be awarded.

(b) Completed a chemistry course sponsored by the government, a corporation, university, college, professional society or trade association.

(c) Completed a seminar sponsored by a university or college, or school of continuing education, which awards a certificate of participation. The seminar must be of a specialized subject relating to chemistry, pertaining to the latest technological advances and trends. The claimant must explain how the seminar relates to the HTRW Environmental Program. Credits for attendance will be based on assigned CEUs.

(d) Completed a recognized environmental certification program, such as, but not limited to: Hazardous Materials Management, International Organization for Standardization (ISO) 14000 Auditor, Environmental Assessment Association, *etc.*

(3) Taught (*maximum six credits*).

(a) Participated as an instructor of chemistry courses conducted by federal agencies, a university, college, industry, state government, local community, or professional society. Maximum of one (1) credit per course taught.

(b) Submitted acceptable certification examination questions with answers to the Chemist Certification Board for use in examination. Each acceptable question and answer will receive a one-half (½) credit towards recertification. Maximum two (2) credits.

(4) Published/Presented (*maximum six credits*).

(a) Published a professional paper on chemistry in a professional journal, a nationally or internationally distributed magazine. Five (5) credits per paper.

(b) Published an article in a USACE Newsletter. One (1) credit per article.

(c) Presented a paper on chemistry at a major technical society meeting. Two (2) credits per paper.

(d) Presented a paper on environmental chemistry to any professional, governmental, community, or select audience where such delivery is beneficial to the chemistry profession. One (1) credit per formal written paper; one-half (½) credit per oral presentation.

(e) Developed or updated chemistry, agency-wide, ERs, EMs, ETLs, or Construction Bulletins (CBs). Two (2) credits per document.

(f) Presented an acceptable thesis or dissertation on a chemistry subject in partial fulfillment of the requirements for an advanced degree from an accredited college or university. Six (6) credits per thesis or dissertation.

(5) Served (*maximum six credits*).

(a) Elected as an officer or director of a national/international chemistry/environmental society. One (1) credit per year.

(b) Member of a chapter of a recognized chemistry, environmental, or QC society. One (1) credit per year.

(c) Served as a member of the Chemist Certification Board. Two (2) credits per year.

(d) Appointed as member or chairperson of a standing technical, or special ad hoc environmental committee as the USACE representative. One (1) credit per year.

(e) Participated in a voluntary professional society, state, county, municipal, or local community chemistry activity. One (1) credit per year.

d. Recertification Process. To receive credits claimed, sufficient supporting documentation must be provided with the submission. The recertification form must be mailed to the recertification board not less than three months prior to the expiration of the three year certification period. If a Certified Chemistry Professional (CCP) elects to recertify by taking the examination, he/she must notify the certification board not less than thirty days prior to the expiration of their certificate.

e. Failure to Recertify. It is the responsibility of the applicant to obtain a certification application and apply for renewal of his or her certificate no later than four months prior to expiration of the certification. Responsibility for applying for renewal in a timely manner rests solely with the certified individual. If a CCP fails to submit an application for recertification via the Professional Credit Plan prior to 15 September after the expiration year, the Chemist Certification Board will act as follows:

(1) If the recertification application is received after 1 March along with written documentation describing extenuating circumstances that made on-time submittal impossible, the Chemistry Certification Board, at its sole discretion, will decide whether or not to accept the application.

(2) In all other cases, the certification will expire and may be reacquired by application and examination only.

f. Appeal. If an applicant fails in recertification, he or she has thirty days to appeal the decision to the Director, Environmental Division, Directorate of Military Programs.

7-8. Implementation. Verification of entry level qualification, continuing education, training, and certification of chemistry professionals assigned to the USACE's HTRW Program is critical to successful implementation of the QA Program. The Chief Chemist assigned to the HTRW-Center of Expertise (CX) is responsible for maintaining documentation for all HTRW design district senior chemists, each CMQAL chief chemist and for all staff chemists and chemistry technicians assigned to the HTRW-CX and Ordnance and Explosives (OE) CX. The senior chemist assigned to each designated HTRW design district is responsible for maintaining similar documentation on each chemist assigned to the HTRW/OE function within that district's geographical boundaries of responsibility. Each CMQAL chief chemist is responsible for maintaining similar documentation on each chemist and chemistry technician assigned to HTRW/OE activities at the laboratory. Chemistry professional qualifications, continuing education, and certification files will be audited by HQUSACE during technical systems audits.

7-9. Administration.

a. Responsibility. Responsibility for planning, directing, and administering the program rests with the Chemist Certification Board. A majority of the members present at any meeting constitutes a quorum and will allow the board to conduct its affairs. The Chemist Certification Board is appointed by the Director, CENWO-HX (HTRW-CX).

b. Certification Board. The USACE Chemistry Certification Board or its agents is responsible for preparing the examinations, sample questions, and study guide.

c. Examination Administrator. An examination administrator will be appointed by the USACE Chemistry Certification Board to administer each examination. The identity of the examination administrator will not be made known to the general public until the day of the examination.

d. Examination Proctors. Examination proctors will conduct the examination. These persons will be selected by the USACE Chemistry Certification Board from the list of those currently certified.

e. Certification Board Function. The Certification Board shall not determine who shall engage in or practice chemistry, but rather shall certify applicants who are qualified and capable of being recognized as USACE CCPs.

7-10. Training. As chemistry professionals and supervisors outline their individual career development plans and Total Army Performance Evaluation System documents, they should consider the material presented in this document. The USACE standard is for each individual to participate, on average, in one week of formal training per fiscal year. During the initial years of service, it is recommended that chemistry professionals seek to attend the following training: (1)HTRW Overview; (2) Safety and Health for Hazardous Materials (as well as the eight-hour refresher course at required intervals); (3) Implementation of Hazardous and Toxic Waste Environmental Laws and Regulations on USACE Projects; (4) Risk Assessment for HTRW Sites; (5)HTRW New Chemist Orientation; and (6) HTRW and TPP Overview Workshop.

7-11. Professional Development. No matter what career goals an individual chemist may have, chemists should continue to grow professionally. The below listed characteristics are sought after in chemistry professionals assigned to the USACE; therefore, individual development plans (IDPs) should seek improvement in these areas:

- (1) Ability to apply knowledge to solving problems;
- (2) Ability to work on problems as a member of a team;

- (3) Ability to make written and oral presentations;
 - (4) Knowledge of classical chemistry and its relationships with instrumental techniques;
 - (5) Ability to design experiments to produce meaningful results with minimal effort;
 - (6) Recognition of the importance of sampling;
 - (7) Ability to find information required for problem solving;
 - (8) Ability to interact with individuals from a variety of backgrounds;
 - (9) Familiarity with regulatory requirements;
 - (10) Understanding of basic principles of biology, geology, hydrology, and environmental chemistry in aquatic, atmospheric, and hydrogeologic settings; and
 - (11) Ability to perform field studies and related modeling of environmental systems.
- 7-12. Use of the Certification Designations. A certified individual may use the CSC, CC, or CCT designation with his or her name on government business letters and business cards. Certification is for the individual only. The CSC, CC or CCT designations may not be used to imply that an organization's chemistry/environmental program is certified.

7-13. Expiration or Revocation of Certification. If a certified individual does not accumulate the required professional credits on time or be recertified by examination, his or her certification shall be terminated unless in the judgement of the Chemist Certification Board extenuating circumstances exist and the deficiency can be readily corrected. Certification may be revoked for causes such as violation of the "Principles of Ethical Conduct for Government Officers and Employees" (Executive Order 12674), falsification of information on the applications, malpractice, or unethical behavior. In addition the certification does not follow the individual to employment sites outside the USACE HTRW Program.

EM 200-1-6
10 Oct 97