AFSC 43E4*, Staff
AFSC 43E3*, Qualified
AFSC 43E2*, Intermediate
AFSC 43E1A, Entry

BIOENVIRONMENTAL ENGINEER
(Changed 30 Apr 23)

1. Specialty Summary. Applies engineering and scientific principles in anticipating, recognizing, and evaluating occupational and environmental health (OEH) hazards, also called OEH threats. Employs professional knowledge to protect personnel and the environment from radiation hazards. Helps designs and recommends risk control measures and other courses of action that enable Risk Management decisions, and in some cases Patient Care strategies, to ensure Force Health Protection. Constituent OPM Occupational Series: 0690 (Industrial Hygiene), 0801 (General Engineering), 0819 (Environmental Engineering), 1306 (Health Physics), and 1310 (Physics). Related DoD Occupational Groups: 260803, 260815, 260823, and 260825.

2. Duties and Responsibilities:
2.1. Executes and supervises bioenvironmental engineering (BE) programs. Applies knowledge of engineering and the sciences to assist commanders in meeting mission objectives at home station and deployed settings. Advises commanders on impact of unacceptable risk to mission and provides viable courses of action to reduce and eliminate health risk. Enables data-driven decision making, to ensure accurate OEH exposure documentation, and to support the occupational medicine enterprise. Determines the appropriateness of personnel protective equipment and individual protective equipment. Identifies and assesses effectiveness of OEH controls. Maintains liaison with local, state, and federal agencies on matters involving OEH standards.
2.2. Performs and documents health risk assessments for chemical, biological, radiological, nuclear (CBRN), and physical hazards. Participates in installation contingency response activities, including exercises.
2.3. Develops measures to control radiological hazards, including those encountered in unrestricted areas to ensure permissible limits of radiation exposure are not exceeded. Augments medical health physics activities. Enables radiological monitoring, measurement, and control for the Nuclear Enterprise. Serves as Radiation Safety Officer where required.
2.4. Directs and supervises technicians conducting base BE activities. May participate in the development of policy.
2.5. AFSC 43EXG: Provides consultation regarding planning, designing, and constructing facilities for storage, use, and disposal of radioactive material or radiation producing devices. Guides the health risk assessment of exposure to ionizing and non-ionizing radiation; and ensures adherence to prescribed safety standards by evaluating activities involving the possession, handling, transportation, storage, use, and disposition of radioactive materials, as well as activities involving use of lasers and other non-ionizing radiation sources. Enables enhanced CBRN response capability for nuclear and radiological incidents.
2.6. AFSC 43EXM: (Legacy only) Develops, institutes, and sustains medical physics programs for radiotherapy, nuclear medicine, and diagnostic imaging physics services that enable safe and effective patient care. Augments radiology resident training programs. Conducts medical physics activities, research and development on medical physics related topics.

3. Specialty Qualifications (Mandatory):
3.1. Knowledge. The following knowledge is mandatory for the following AFSCs:
3.1.1. For AFSCs 43EXA/B/D/G/M/R, knowledge of all bioenvironmental engineering principles for force health protection spanning all operational environments.
3.1.2. For AFSCs 43EXM, intentional development of this shred ended on 1 Oct 19 with Defense Health Agency (DHA) assuming medical physics requirements at Air Force medical facilities.
3.2. Education. See specialty shredouts, and:
3.2.1. For award of AFSC 43E3B/D/G/R, meet requirements of and possession of AFSC 43E3A and complete the education and/or certification requirements in respective specialty shredouts.
3.3. Training. The following training is mandatory for award of the AFSC indicated:
3.3.1. For award of AFSC 43E2A, completion of the BE Officer Course, B3OBY43E1 0A1B.
3.3.2. For award of AFSC 43E3A, completion of upgrade training IAW current BE Career Field Education Training Plan (CFETP), completion of the BE Officer Advanced Course, B3OAY43E3X 0A1A, and possession of AFSC 43E2A.
3.4. Experience. The following experience is required for award of the AFSC indicated:
3.4.1. For award of AFSC 43E3A, completion of 12 months performing the work typical of a base BE flight or element. Duties prior to attending BE Officer Course can be included in the 12 months of experience based on the discretion of the senior 43E that oversaw assigned duties.
3.4.2. The mandatory Active-Duty timeline for award of AFSC 43E3A is 48 months, time in service (TIS). Failure to accomplish award of 43E3A by 48 months TIS requires waiver approval by the 43E Associate Chief

3.5. Other. The following qualifications are mandatory for entry into these AFSCs (medical waivers may be approved by the 43E Associate Chief):

3.5.1. No record of acrophobia or claustrophobia.

3.5.2. Ability to clearly speak and communicate in the English language.

3.5.3. A valid state driver's license and ability to operate government motor vehicles in accordance with AFI 24-301, *Vehicle Operations.*

3.5.4. Normal color vision and depth perception as defined in AFI 48-123, *Medical Examinations and Standards.*

3.5.5. Must maintain local network access IAW AFI 17-130, *Cybersecurity Program Management* and AFMAN 17-1301, *Computer Security. (COMPUSEC)* and 33-152, *User responsibilities and Guidance for Information Systems*

3.5.6. Ability to carry 50 pounds of equipment in a chemical protective suit.

3.5.7. Successful medical clearance for enrollment and active participation in the Respiratory Protection Program, IAW AFI 48-137, *Respiratory Protection Program*.

4. *Specialty Shredouts:

Suffix	*Portion of AFS to Which Related*	
A	General	Possess a baccalaureate degree, or higher, from an engineering or industrial hygiene degree program accredited by the Accreditation Board for Engineering and Technology (ABET); or a Master of Science (MS) in radiation health physics; or a Bachelor of Science (BS) degree in chemistry or physics; or an engineering or radiation science program approved by the 43E Associate Chief; or, For graduates of a United States Service Academy, possess a Bachelor of Science (BS) degree in engineering, biology, chemistry, or physics. For all enlisted AFSCs, possess an ABET accredited MS degree from the Air Force Institute of Technology (AFIT) under the Enlisted-to-AFIT (E2A) program as approved by the 43E Associate Chief; or For AFSC 4B071 (Bioenvironmental Engineering Craftsmen), possess a BS, or higher, in the degrees explained in the first paragraph of A-shred (above); or, a BS or MS in a technical, science-based degree with 200-level coursework preapproved by the 43E Associate Chief. Coursework must include at least 40 semester hours of math and science. Recommended coursework must demonstrate a strong technical basis and should include selected coursework from the following: Physics (calculus-based), Chemistry, Calculus, Statistics, Analytic Geometry, Elementary Linear Algebra, Differential Equations, Classical/Engineering Mechanics, Statics, Dynamics, Thermodynamics, Mechanics of Materials, Ceramics, Material Science, Circuits, Electromagnetics, Modern Physics, Nuclear Physics, Optics, Human Anatomy and Physiology, Ergonomics, Molecular Biology, Biochemistry, Genetics, Genomics, Organic Chemistry, and other advanced engineering, physics, biology, and chemistry courses all at 200 level or higher.

B	Industrial Hygiene	Possess an MS or higher in industrial hygiene (occupational health) from an ABET accredited industrial hygiene degree program, or a non-ABET industrial hygiene degree program acceptable to the 43E Associate Chief; or, possess certification by the American Board of Industrial Hygiene (ABIH) as an industrial hygienist.
D	Environmental Engineering and Science	Possess an MS or higher in environmental engineering from an ABET accredited environmental engineering degree program, or an MS in environmental engineering and science from AFIT; or, possess a license as a Professional Engineer qualified in environmental engineering, or certification as a Board Certified Environmental Engineer by the American Academy of Environmental Engineers and Scientists (AAEES) in any specialty (other than industrial hygiene engineering or radiation protection engineering)
★G	Health Physics	Possess an MS or higher in radiation health physics, radiation protection engineering, or another field of radiation science acceptable to the 43E Associate Chief, from an ABET accredited degree program, or a graduate degree program recognized by the Health Physics Society (HPS); or, possess certification as Certified Health Physicist by the American Board of Health Physics (ABHP); or, possess a BS in physics nuclear engineering from an ABET accredited degree program and possess the Oak Ridge Associated University Applied Health Physics Full Course Certificate; or, obtain written approval from the 43E Associate Chief after providing official college transcripts from a regionally accredited college or university in graduate level physics, engineering, or health sciences courses documenting a grade of "B" or higher in the following four graduate courses: nuclear physics or radiation physics, nuclear instrumentation with laboratory or radiation detection and measurements with laboratory, radiation biology, and applied health physics or applied radiation safety; or possess the R-shred and have 36 months of experience in an operational Health Physicist role (including AFRAT), as approved by the 43E Associate Chief; or, complete the Oak Ridge Associated University Applied Health Physics Full Course Certificate and complete a one-year Health Physics HPERB Fellowship.
M	Medical Physics	No new accessions as of 1 October 2019.
R	Radiation	Personnel must possess the Nuclear Weapon Effects Policy and Proliferation (NWEPP) certification, and complete Medical Effects of Ionizing Radiation AND Nuclear Emergency Team Operations (NETOPS) course or equivalent, as approved by the Health Physics Consultant; or possess the Oak Ridge Associated University Applied Health Physics Full Course Certificate.

NOTE: The 1- and 2-skill levels are only authorized with the A suffix.