DEPARTMENT OF THE AIR FORCE
Headquarter US Air Force
Washington DC 20330-5000

CFETP3E4X1
Part I and II
21 OCTOBER 2022

Air Force Specialty Code (AFSC) 3E4X1

WATER AND FUEL SYSTEMS MAINTENANCE AND LIQUID FUELS MAINTENANCE SPECIALTIES

Master

Basic

Senior

CAREER FIELD EDUCATION AND TRAINING PLAN

CAREER FIELD EDUCATION AND TRAINING PLAN
WATER AND FUEL SYSTEMS MAINTENANCE SPECIALTY (AFSC 3E4X1)
LIQUID FUELS MAINTENANCE SPECIALITY (AFSC 3E4X1A)

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OPR: HAF/A4C
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Supersedes: CFETP 3E4X1C1, 1 September 2018
Pages: 70

PREFACE

This Career Field Education and Training Plan (CFETP) is a comprehensive education and training document that identifies life-cycle education and training requirements and training support resources, and minimum core task requirements for Water and Fuel Systems Maintenance and Liquid Fuels Maintenance. The CFETP provides personnel with a clear career path to success and instills rigor in all aspects of our career field training.

The CFETP consists of two parts; supervisors plan, manage, and control training within the specialty using both parts of the plan.

Part I provides information necessary for overall management of the specialty.

- Section A provides general information about how to use the CFETP.
- Section B identifies career field progression information, duties and responsibilities, training strategies, and the career field path.
- Section C associates each skill-level with specialty qualifications (knowledge, education, and training).
- Section D displays resource constraints.
- Section E identifies transition training guide requirements for Staff Sergeant to Master Sergeant.

Part II includes the following:

- Section A identifies the Specialty Training Standards (STS) to include duties, tasks, and technical references to support Air Education and Training Command (AETC) conducted training, wartime course, and correspondence course requirements.
- Section B contains the course objective list and training standards supervisors will use to determine if an Airman has satisfied training requirements.
- Section C identifies available support materials.
- Section D identifies a training course index supervisors can use to determine resources available to support training. Included here are both mandatory and optional courses, and exportable courseware.
- Section E identifies MAJCOM-unique training requirements supervisors can use to determine additional training required for the associated qualification needs.
- Section F identifies home station training references and courses material required for this specialty in support of contingency/wartime training.

Note: At unit level, supervisors and trainers must use Part II to identify, plan, and conduct training commensurate with the overall goals of this guide.

Using guidance provided in the CFETP, supervisors must ensure individuals in this specialty receive effective and efficient training at the appropriate point in their careers. This plan will enable us to train today's work force for tomorrow's jobs.

ABBREVIATIONS/TERMS EXPLAINED

Air Force Career Field Manager (AFCFM). An individual on the Air Staff charged with the responsibility for overseeing all training and career field management aspects of an Air Force specialty or group of specialties.

Air Force Enlisted Classification Directory (AFECD). The Official directory for all military enlisted classification descriptions, codes, and identifiers. The specialty descriptions and codes used to identify each Air Force job (valid requirements) describes the minimum mandatory qualifications of personnel to fill these jobs. The updated AFECD is available at AF Personnel Center's web site located at **myPers** under the military classification menu.

Air Force Civil Engineer Center (AFCEC). The focal point for all Civil Engineer (CE) training development. All CE AFSC Force Development Managers (FDMs) are located at AFCEC.

Air Force Credentialing Opportunities On-Line (AF COOL) Program. AF COOL replaced the CCAF Credentialing and Education Research Tool (CERT). Access the AF COOL Program through the **Air Force Virtual Education Center (AFVEC)**. The site provides a research tool designed to increase an Airman's awareness of national professional credentialing and CCAF education opportunities available for all Air Force occupational specialties.

Air Force Institute of Technology (AFIT). Provides vital, relevant, and connected education that enables Airmen to be ready engineers and great leaders who know how to build sustainable installations to last while leading the change for the Civil Engineer career field. Access the AFIT course list at **AFIT Civil Engineer School Course Catalog**.

Air Force Job Qualification Standard/Command Job Qualification Standard (AFJQS/CJQS). A comprehensive task list that describes a particular job type or duty position. Used by supervisors to document task qualifications. The tasks on the AFJQS/CJQS are common to all persons serving in the described duty position.

Air Force Qualification Training Package (AFQTP). A required instructional package designed for use at the unit to qualify, or aid qualification, in a duty position, program, or on a piece of equipment. AFQTPs identify the Air Forces standardized method for performing the task. The AFQTP may be printed (paper-based), computer-based, in other audiovisual media formats, or all three. Each Airman must use AFQTPs to satisfy a particular training requirement. AFQTPs for the 3E4X1/A AFSC are located on **MyLearning** and in **CE DASH**.

Career Field Education and Training Plan (CFETP). A comprehensive, multipurpose document encapsulating the entire spectrum of education and training for a career field. It outlines a logical growth plan that includes training resources designed to make career field training identifiable, to eliminate duplication, and to ensure this training is budget defensible.

Chief, Civil Engineer Force Development (CCEFD). Located at AFCEC, this individual is responsible for force development education and training associated within the 3E0 to 3E6 AFSCs.

Commercial Off The Shelf (COTS). Commercially procured training products.

Core Tasks (5^ or 7^). Mandatory tasks, which the AFCFM has identified as a minimum qualification requirement within an Air Force specialty or duty position. These tasks exemplify the essence of the career field.

Critical Tasks. Tasks identified by the workcenter supervisor as having a detrimental effect on mission accomplishment if not performed correctly. Critical tasks may or may not be the same as core tasks but are mandatory if identified as 'critical' to the individuals position by the supervisor or workcenter.

Diamond Tasks (♦). Diamond tasks are extremely important to the career field. Diamond tasks are the same as core tasks with one exception; equipment shortfalls at most locations have created problems with the actual **hands-on** training/certification of these tasks. In instances where required equipment is not available for instruction, completion of the tasks AFQTP is all that is required for upgrade and qualification training. Airmen must accomplish hands-on certification at the first opportunity when equipment is available.

Distance Learning (DL). Includes Video Tele-seminar (VTS), Video Tele-training (VTT), and CBT. Formal courses that a training wing or a contractor develops for export to a field location (in place of resident training) for trainees to complete without the on-site support of the formal school instructor. For instance, Air Force Institute of Technology, Air University, and Air Education Training Command offer on-line courses.

Duty Position Tasks. The tasks assigned to an individual for the position currently held. These include as a minimum all core tasks, critical tasks and any other tasks assigned by the supervisor.

Enlisted Professional Military Education (EPME). Enlisted Professional Military Education (EPME) introduces Airmen to appropriate institutional competencies at specific milestones throughout their career and includes two phases, Basic and Resident. Basic EPME requirements are via distance learning (DL) courses to establish a foundation for continued development. Resident EPME requirements include Airman Leadership School (ALS), NCOA, SNCOA and the Chief Leadership Course (CLC). Resident attendance is not duplicative of the basic EPME requirements, but builds upon the competencies obtained to achieve higher proficiency levels.

Expeditionary Combat Support-Training Certification Center (ECS-TCC). Total Force training center managed by the Air Force Reserve Command.

Force Development Manager (FDM). An individual assigned to the Air Force Civil Engineer Center (AFCEC) charged with the responsibility for overseeing all training and career field management aspects of a specific Air Force Civil Engineer specialty.

Just-in-Time (JIT) Training. Training required just prior to a selected deployment or tasking that delivers training necessary for mission accomplishment. Training focuses on hard-to-obtain contingency skills.

MAJCOM Functional Managers (MFMs). Senior leaders designated by the appropriate functional

authority, who provide day-to-day management and responsibility over specific functional communities at the MAJCOM, FOA, DRU, or ARC level. While they should maintain an institutional focus in regards to resource deployment and distribution, MFMs are responsible for ensuring their specialties are equipped, developed, and sustained to meet future needs of the total Air Force mission.

MyLearning. Anytime, anywhere learning within the Civil Engineer Community consisting of instructional and skill-level awarding course material specific to the AFSC.

Occupational Analysis Report (OAR). A detailed report showing the results of an occupational survey of tasks performed within a particular AFS. Use the information collected from this survey to make changes to upgrade training and Weighted Airman Promotion System Exams.

On-the-Job Training (OJT). Hands-on, over-the-shoulder training conducted to certify personnel in both upgrade (skill-level award) and job qualification (duty position certification) training.

Regional Training Site (RTS). Total Force training centers managed by the Air National Guard.

Resource Constraints. Resource deficiencies, such as money, facilities, time, manpower, or equipment that precludes desired delivery of training.

Specialty Training Standard (STS). Describes skills and knowledge that Airmen in a particular AFS need on the job. It further serves as a contract between AETC and the user to show the overall training course requirements for an AFS taught in resident or non-resident.

Specialty Training Requirements Team (STRT). Prior to a Utilization and Training Workshop (U&TW), the AFCFM along with a team of Subject Matter Experts from each MAJCOM meet to determine education and training requirements (formal and on-the-job training) for an Air Force Specialty. Use the STRT to create or revise training standards for all the types of training. The team finalizes the CFETP, specialty description and develops a standard for all courses.

Subject Matter Expert (SME). An individual with expertise in a particular subject matter, tasked to represent the subject matter to an individual or group for technical accuracy.

Supplemental Training. A formal course which provides individuals who are qualified in one or more positions of their Air Force Specialty (AFS) with additional skills/knowledge to enhance their expertise in the career field. Training is for selected career Airmen at the advanced level of the AFS.

Total Force. All Air Force components (Regular Air Force, Air Force Reserve, Air National Guard, and Civilian elements) of the United States Air Force.

Task Qualification Training (TQT). Training conducted after Chemical, Biological, Radiological, and Nuclear defense classroom training. Individuals perform wartime mission essential tasks in a simulated wartime environment while wearing full ground crew individual protective equipment.

Training Planning Team (TPT). Comprised of the same personnel as a U&TW, however TPTs are more involved in training development and address issues not found in normal U&TWs.

Utilization and Training Workshop (U&TW). An executive decision meeting to vote on funding (Course Resource Estimates) for instructor authorizations, equipment and facilities needed to support any new or revised training coming from the STRT. They will also determine which organizations will furnish resources, establish commitment and delivery dates in writing, document equipment availability dates and any problems and establish training delivery dates.

Vectored Positions. Key SNCO positions in your career field. To learn more about vectored positions go to **MyVECTOR**.

Web-Based Training (WBT). A self-paced stand-alone computer product used to deliver interactive subject and task knowledge.

PART 1

SECTION A - GENERAL INFORMATION

A1. Purpose: This CFETP provides the necessary information for AFCFMs, MFMs, commanders, unit training managers, supervisors, trainers, and certifiers to plan, develop, manage, and conduct an effective career field training program. This plan outlines the training personnel in an AFS require to develop and progress throughout their careers. It identifies initial skills, upgrade, qualification, advanced, and proficiency training.

A1.1. **Initial Skills Training.** The AFS-specific training an individual receives upon entry into the Air Force or upon retraining into these specialties for award of the 3-skill level. For our career fields, the 366th TRS at Sheppard AFB, TX provides the training.

A1.2. **Upgrade Training.** Identifies the mandatory courses, task qualification requirements, and correspondence course completion requirements for award of the 5-, 7-, and 9-skill levels.

A1.3. **Qualification Training.** Hands-on task performance training designed to qualify an Airman in a specific duty position. This training program occurs both during and after the upgrade training process. Qualification training provides the performance skills/knowledge training required to do the job.

A1.4. **Advanced Training.** A formal specialty training course used for selected career Airmen. Graduates do not receive a new AFSC upon completion.

A1.5. **Proficiency Training.** Additional training either, in-residence, exportable advanced training courses, or on-the-job training, provided to people to increase their skills and knowledge beyond the minimum required for upgrade.

A1.6. **CFETP**. The CFETP has several purposes – some are:

A1.6.1. Serves as a management tool to plan, manage, conduct, and evaluate a career field training program. Supervisors use it to identify training at the appropriate point in an individual's career.

A1.6.2. Identifies task and knowledge training requirements for each skill level in this specialty and recommends education/training throughout each phase of an individual's career.

A1.6.3. Lists training courses available in this specialty and identifies sources of training and the delivery methods.

A1.6.4. Identifies major resource constraints that affect full implementation of the desired career field training process.

A2. Uses. MFMs and supervisors will use the plan at all levels to ensure comprehensive and cohesive training programs are available for each individual in the specialty.

PART I

A2.1. AETC training personnel will develop and revise formal resident, non-resident, field, and exportable training based on requirements established by the users and documented in Part II of the CFETP. They will also work with the AFCFM and AFCEC Force Development Division (AFCEC/COF) to develop acquisition strategies for obtaining resources needed to provide the identified training.

A2.2. MFMs will ensure their training programs complement the CFETP mandatory initial, upgrade, qualification, and proficiency training requirements and identify requirements satisfied by OJT, in-residence training, vendor training, or web-based training courses. Identify MAJCOM-developed training to support this AFS in the plan.

A2.3. Unit Training Managers and supervisors must ensure each Airman completes the mandatory training requirements (including MAJCOM supplemental requirements) for the upgrade training specified in this plan.

A2.4. Each individual will complete mandatory training requirements specified in this plan. Use the list of courses in Part II of this CFETP as a reference to support training.

A3. Coordination and Approval. The AFCFM is the approval authority. In addition, the Air Force Career Field Manager will initiate an annual review of this document to ensure currency and accuracy. Major Command representatives and AETC training personnel will identify and coordinate on the career field training requirements. Using the list of courses in Part II, they will eliminate duplicate training.

PART I

SECTION B - CAREER FIELD PROGRESSION AND INFORMATION

B1. Specialty Descriptions. Water and Fuel Systems Maintenance and Liquid Fuels Maintenance Apprentice, Journeyman, Craftsman and Superintendent.

B1.1. Installs, inspects, maintains, troubleshoots, modifies, repairs, and manages plumbing, water distribution, wastewater collection systems, water and wastewater treatment systems, fire suppression, backflow prevention systems, natural gas distribution systems; **(3E4X1A Liquid Fuels Maintenance)** liquid fuel storage, distribution, and dispensing systems. Complies with environmental and safety regulations. Related DoD Occupational Subgroups: 172000.

B1.1.1. Duties and Responsibilities for Apprentice (3E431), Journeyman (3E451/A), and Craftsman (3E471/A).

B1.1.2. Installs, and operates natural gas, plumbing, water and wastewater treatment systems, fire suppression, backflow prevention systems. Monitors systems operation to ensure efficiency and compliance with local state, federal and DoD regulations for safety and environmental regulations for hazardous materials. Installs and operates field potable water treatment equipment.

B1.1.3. Maintains, inspects, and repairs natural gas, swimming pools, plumbing, water and wastewater treatment systems, fire suppression, and backflow prevention assembly and program. Performs inspection, recurring maintenance, winterize, and overhaul systems. Operationally inspects and diagnoses malfunctions in mechanical and electrical system controls and components using technical orders, manufactures' handbooks, local procedures, code and directives. Inspects condition and operation of electrical components such as motors, disconnect switches, contacts, solenoids, relays, alarms, cathodic protection systems. Performs confined space entries to accomplish system maintenance. Solves complex maintenance problems by studying layout drawings, wiring diagrams, and schematics to analyze, isolate and troubleshoot system malfunctions. Removes, repairs, and replaces defective components. Installs, modifies, repairs, and maintains a variety of new and existing utility, supply, and disposal systems and equipment such as sewage, water, oil, and gas distribution systems, and water closets, tubs, backflow prevention devices/assemblies, fire sprinkler systems, and showers. Locates and taps main lines, sets up system routes, places and cuts route openings, places hangers for proper level and slope, and determines and installs valves, traps, and unions as needed for proper operation of a variety of systems and equipment. Develops and establishes operation and maintenance procedures to ensure maximum efficiency.

B1.1.4. Locates and determines quality and quantity of water sources. Coordinates locations of field latrines and pits with engineering and medical staff. Analyzes water for chemical and physical characteristics to determine water purification treatment methods. Installs and operates field potable water treatment equipment.

B1.1.5. Performs planning activities, quality assurance to include service contracts, and facility surveys. Surveys proposed work to determine resource requirements. Prepares cost estimates and supply procurement for in-service work. Applies engineered performance standards to plan and

estimate jobs. Ensures all planning activities comply with environmental and safety regulations to include hazardous materials.

B1.1.6. **3E4X1A Liquid Fuels Maintenance.** Installs, maintains, and repairs aircraft hydrant refueling, bulk storage, and ground product dispensing systems. Operationally inspects fuel system components such as pumps, automatic/manual valves, electrical motors, switches, filtration equipment, and like items for proper operation. Performs pressure testing and maintenance on fuel system piping. Troubleshoots system malfunctions and performs appropriate repairs. Performs internal and external maintenance on above and below ground fuel tanks, to include, cleaning of tank interior. Performs confined space entries to accomplish system maintenance. Uses drawings and schematics to analyze and isolate malfunctions. Initiates fuel facility Sustainment, Restoration, and Modernization and Military Construction Projects to include project review, monitoring, and acceptance through DESC. Assists with installation, maintenance and repair of Fuels Mobility Support Equipment (FMSE), Fuels Operational Readiness Capability Equipment (FORCE), and other contingency fueling assets.

B1.2. Infrastructure System Superintendent (3E490).

B1.2.1. Specialty Summary. Manages and directs facility and infrastructure systems, daily activities devoted to water, wastewater, fuel, heating, cooling, ventilation, combustion equipment, industrial air compressors, natural gas, refrigeration, liquid fuels distribution, interior plumbing, fire suppression, sprinkler, irrigation systems, pest management, chemical application processes, and associated operations and non-electric kitchen equipment such as grease traps and other miscellaneous collection systems. Related DoD Occupational Subgroup: 172000.

B1.2.2. Duties and Responsibilities. Plans and organizes installation, maintenance, and repair of all career field systems and components to include both in-garrison and specialized training requirements. Investigates proposed work sites to determine resource requirements. Prepares cost estimates for in-service work requirements. Applies engineered performance standards in planning and estimating jobs. Coordinates measured and direct schedule work task requirements during approval, processing, and completion stages. Recommends method of accomplishment based on existing capabilities. Develops, monitors, and maintains work task priority program. Monitors work costs to ensure compliance with legal limits or support agreements and recapitalization process. Coordinates Work Order Review Board processes and provides agenda as required.

B1.2.3. Directs all daily activities and supervisory functions in utilities, liquid fuels maintenance, pest management, and heating, ventilation, air-conditioning, and refrigeration (HVAC/R) elements. Directs installation, maintenance and repair activities to include distribution, collection, plumbing, natural gas, liquid fuel, heating and cooling, and pest management activities and applications. Identifies and controls supply requisitioning of infrastructure systems, parts, fuels systems components, lubricants, refrigerants, bench stock, and technical publications. Analyzes productivity and work quality. Ensures compliance with environmental and safety regulations and practices.

B1.2.4. Advises on installing and repairing utilities and HVAC/R equipment and systems. Solves maintenance problems by studying layout drawings, wiring and schematic drawings, and analyzing construction and operating characteristics. Develops and establishes operation and maintenance procedures to ensure maximum efficiency.

B1.2.5. Performs planning activities and conducts facility surveys. Surveys proposed work to determine resource requirements. Obtains certifications, special tools, and equipment for assigned personnel. Ensures compliance with all safety and environmental regulations to include confined space programs.

B1.2.6. Coordinates, monitors, and executes contingency and Prime BEEF training requirements and associated deployment preparation programs and duties. Ensures personnel are in a constant ready state to meet deployment commitments.

B1.2.7. Coordinates, monitors, and executes contract quality assurance functions, as required.

B2. Skill and Career Progression. Adequate training and timely progression from the apprentice to the superintendent level play an important role in the Air Force's ability to accomplish its mission. It is essential that everyone involved in training must do his or her part to plan, manage, and conduct an effective training program. The guidance provided in this part of the CFETP will ensure each individual receives viable training at appropriate points in their career.

B2.1. **Apprentice (AFSC 3E431 – AB, AMN, A1C).**

B2.1.1. Upon completion of initial skills training, a trainee will work with a trainer to enhance their knowledge and skills to progress to the 5-level.

B2.1.2. Utilize the Water and Fuel Systems Maintenance CDC/DL courses, Air Force Qualification Training Packages (AFQTPs), and web-based courses for subject and task fundamentals progress in the career field.

B2.1.3. Once trained and task certified a trainee may perform the task unsupervised.

B2.1.4. After all upgrade training requirements are completed, supervisors and Unit Training Managers (UTMs) coordinate upgrade procedures.

B2.2. **Journeyman (AFSC 3E451/A – SrA, SSgt).**

B2.2.1. A journeyman may be assigned job positions such as team leader, shift supervisor, and task trainer.

B2.2.2. Complete mandatory Civil Engineer (CE) 5-Level Core Concepts Course Distance Learning (DL) product located on the **MyLearning** prior to beginning CDC/DL course.

B2.2.3 Completion of 5-level Water and Fuel Systems Maintenance CDC/DL courses and 100% of the core tasks and diamond tasks are basic prerequisites for five skill level award.

B2.2.4. Must complete the appropriate Resident EPME as outlined in Department of the Air Force Instruction (DAFI) 36-2670, *Total Force Development.*

B2.2.5. Enter into continuation training to broaden technical experience base.

B2.2.6. Use Water and Fuel Systems Maintenance CDC/DL courses and other reference material to prepare for Weighted Airman Promotion System (WAPS) testing.

B2.2.7. Pursue a Community College of the Air Force (CCAF) degree.

B2.2.8. 3E451A Qualification. Airmen must have a minimum 3E451 AFSC (SrA – TSgt) and have three years of retainability. Squadron commander must approve application.

B2.2.9. 3E451A. Completion of the Fuel Systems Maintenance Technician (Prerequisite), J6ANW3E451 04AA and the Fuel Systems Maintenance Technician (J3AZR3E451 04AC). As well as gaining experience in functionality, repair and maintenance of liquid fuel systems.

B2.2.10. Completion AFIT WMGT 301 Intro to Asset Management and WENG 170 Cyber Security for Control Systems courses are mandatory.

B2.2.11. After all upgrade training requirements are completed, supervisors and UTMs coordinate upgrade procedures.

B2.3. **Craftsman (AFSC 3E471/A – SSgt, TSgt, and MSgt).**

B2.3.1. A craftsman can expect to fill various supervisory and management positions such as shift leader, team chief, supervisor, or task certifier.

B2.3.2. Completion of CE 7-Level Core Concepts Course located on **MyLearning** and 100% of core and diamond tasks are basic prerequisites for seven skill level award.

B2.3.3. Must complete the appropriate Resident EPME as outlined in DAFI 36-2670, *Total Force Development*.

B2.3.4. Should take continuation training courses to broaden technical knowledge or management of resources and personnel.

B2.3.5. Use Water and Fuel Systems Maintenance CDC/DL courses and other reference material to prepare for Weighted Airman Promotion System (WAPS) testing. Airmen testing for the rank of E-7 through E-9 are not required to WAPS test.

B2.3.6. Continue academic education through CCAF, nationally or regionally accredited institution, or other degree-awarding institutions is encouraged.
Note: Airmen eligible for promotion to SMSgt must have a conferred (awarded) associate or higher-level degree from any nationally or regionally accredited institution on or before the

promotion eligibility cutoff date to be eligible for promotion to SMSgt (AFI 36-2502, *Enlisted Airman Promotion and Demotion Programs*).

B2.3.7. Completion AFIT WMGT 322 Intro to Project Management and WENG 370 Control Systems Cybersecurity for CE Leaders courses are mandatory. Completion of the AFIT WMGT 436 Requirements and Optimization course is highly encouraged.

B2.3.8. 3E471A. Qualification in and possession of AFSC 3E451/A.

B2.3.9. After all upgrade training requirements are completed, supervisors and UTMs coordinate upgrade procedures.

B2.3.10. Completion of Troop Construction Project Management Course (AFIT WMGT 437) is mandatory for Regular Air Force and required for promotion to MSgt. This course is highly encouraged for Air Reserve Component MSgts. **Note**: This is not a skill level-awarding course.

B2.4. **Superintendent. (AFSC 3E490 - SMSgt)**

B2.4.1. A superintendent can fill positions such as Flight Chief, Section Chief, Superintendent, and various staff positions.

B2.4.2. Completion of AFIT WMGT 570, Civil Engineer Superintendent Course is mandatory for Regular Air Force and Air Force Reserve SMSgts. This course is highly encouraged for Air National Guard SMSgt's and mandatory for promotion to CMSgt.
Note: This is not a skill level awarding course.

B2.4.3. Must complete the appropriate Resident EPME as outlined in DAFI 36-2670, *Total Force Development.*

B2.4.4. Should take continuation training course to increase knowledge of budget, manpower, resources, and personnel management.

B2.4.5. Recommend continued academic development through higher education.

B2.4.6. Must be a SMSgt for award of the 9-skill level.

B2.5. **Chief Enlisted Manager (CEM) (3E000 - CMSgt).**

B2.5.1. CEMs work in multiple leadership positions and functional areas that challenge them and effectively use their general managerial and supervisory abilities.

B2.5.2. Must be selected for CMSgt and possess qualifications in a feeder specialty (3E090, 3E290, 3E490, 3E591, or 3E691).

B2.5.3. Must complete the appropriate Resident EPME as outlined in DAFI 36-2670, *Total Force Development.*

B3. Training Decisions. The CFETP uses a building block approach (simple to complex) to encompass the entire spectrum of training requirements for the Water and Fuel Systems Maintenance and Liquid Fuels Maintenance career fields. The spectrum includes a strategy for when, where, and how to meet the training requirements. The strategy reduces duplication of training and eliminates a disjointed approach to training. A career field STRT held at Sheppard AFB, TX from 25 through 26 February 2021 made the following decisions.

B3.1. **Initials Skills Training.** The STRT members reviewed and updated the initial skills course content. See the STS for the additions, deletions, and modifications made to the course. They identified and validated the Wartime training tasks.

B3.2. **Five Level Upgrade Training Requirements.** The STRT members reviewed, validated and updated the Water and Fuel Systems Maintenance requirements. The members made additions, deletions and modifications of core tasks and proficiency codes. The CFM added the requirements to complete the AFIT WMGT 301 Intro to Asset Management and WENG 170 Cyber Security for Control Systems courses.

B3.3. **Seven Level Upgrade Training Requirements.** The STRT members reviewed, validated, and updated STS line items. The CFM added the requirements to complete AFIT WMGT 322 Intro to Project Management and WENG 370 Control Systems Cybersecurity for CE Leaders.

B3.4. **Proficiency Training.** Assign additional knowledge and skill requirements not taught through initial skills or upgrade training as continuation training. The purpose of continuation training is to provide training that exceeds minimum upgrade training requirements with emphasis on present and future duty positions. MAJCOMs must develop a training that ensures personnel in the Water and Fuel Systems Maintenance and Liquid Fuels Maintenance career fields receive the necessary training at the appropriate point in their careers. The training program will identify both mandatory and optional training requirements.

B3.5. **Supplemental Training.** The STRT reviewed supplemental training courses for technical accuracy and identified training that was no longer required. They revalidated the remaining courses to fully support career progression in the AFS.

B4. Community College of the Air Force (CCAF) Academic Programs. Enrollment in the Community College of the Air Force occurs upon completion of Basic Military Training. Community College of the Air Force provides the opportunity to obtain an Associate of Applied Sciences Degree. In addition to its associate degree program, CCAF offers the following:

B4.1. **Occupational Instructor Certification.** Upon completion of instructor qualification training, consisting of the instructor methods course and supervised practice teaching, Community College of the Air Force instructors who possess an associate degree or higher may be nominated by their school commander and commandant for certification as an occupational instructor.

B4.2. **Trade Skill Certification.** When a CCAF student separates or retires, CCAF awards a trade skill certification for the primary occupational specialty. The college uses a competency-based

assessment process for trade skill certification at one of four proficiency levels: Apprentice, Journeyman, Craftsman, or Master Craftsman.

B5. CCAF Degree Completion Requirements (60 Semester Hours). The Mechanical & Electrical Technology Associates Degree (4VGA) applies to the 3E4X1/A AFSC. Prior to completing a CCAF degree, the individual must hold a 5-level and meet the following requirements:

Course	Semester Hours
Technical Education	**24**
Leadership, Management, and Military Studies	**6**
General Education	**15**
Program Elective	**15**
Technical Education; Leadership, Management, and Military Studies or General Education	
Total	**60**

B5.1. **Technical Education. (24 semester hours)** Apply a minimum of nine (9) semester hours of CCAF institutional credit awarded from specialty-related formal training towards Technical Core subject requirements. Satisfy Technical Electives by CCAF credit or from other sources in-transfer.

Technical Core	Maximum Semester Hours
AC & Refrigeration Fundamentals	6
Airfield Lighting Systems	6
Construction of Overhead Electrical Distro	3
Electrical & Electronic Control	3
Electrical Distribution Systems	3
Electrical Fundamentals	3
Electrical Power Generation/Distribution	3
Emergency Airfield Lighting System	3
Engine System & Associated Equipment	6
Environmental Control Systems	9
Fuel Subsystems	3
Generator Set Operation & Aircraft Arrest Barriers	3
Heating Systems Maintenance	3
Heating Systems Operations	6
HVAC & Refrigeration Contingency	6
HVAC/R & Civil Engineering Organization	3
Hydrant System Maintenance	3
Launch Facility Access/Security	3
Maintenance of Aircraft Arrest System	3
Maintenance Orientation	3
Mobile Generator Set Theory & Operations	6
Power Line Equipment & Pole Climbing	3
Power Production Equipment	3

Refrigeration & AC Systems	6
Special Purpose Electrical Systems	3
Special Tools and Equipment	6
Specialized Fuel System/Tank Entry	6
Utility Fundamentals	3
Water & Waste Distribution System	3

B5.2. **Technical Electives.**

Technical Electives	Maximum Semester Hours
Air Distribution and Filtering Systems	3
Alternate Heating and Cooling	3
Blueprint Reading/Schematic Diagrams	6
Building Codes and Ordinance	3
Control Systems/Maintenance	6
CCAF Upgrade Training	15
Electricity/Electronics	3
Engine Principles	3
Environmental Awareness	3
Environmental Compliance	3
Fire-Suppression Systems	6
General Chemistry	9
General Physics	4
Hazardous Materials	6
Industrial Safety	3
Mechanics of Soils	3
Motor, Starter, and Control Devices	6
Natural Gas Distribution	6
Quality Assurance	3
Specialty-Related Subjects In-Transfer	9
Technical Mathematics	3
Welding/Pipefitting	3

B5.3. **Leadership, Management, and Military Studies** (**6 Semester Hours**): Professional military education, civilian management courses accepted in transfer and/or by testing credit.

B5.4. **General Education (15 Semester Hours):** Applicable courses must meet the General Education Requirement (GER) subject criteria and in-transfer requirements.

General Education Subjects/Courses	Semester Hours
Communications:	
- Written Communication (English Composition)	3
- Oral Communication (Speech)	3
Mathematics	3
Social Science	3
Humanities	3

B5.5. **Program Elective (15 semester hours)**. Courses applying to technical education, LMMS or General Education requirements; natural science courses meeting General Education requirement application criteria; foreign language credit earned at Defense Language Institute; maximum 9 semester hours of CCAF degree-applicable technical course credit otherwise not applicable to program of registration.

B5.6. Additional off-duty education is choice that is encouraged for all. Individuals desiring to become an AETC Instructor should be actively pursuing an associate degree. A degreed faculty is necessary to maintain accreditation through the Southern Association of Colleges and Schools.

B5.7. **CCAF offers the Instructional Systems Development (ISD) Certification.** CCAF offers the Instructional Systems Development (ISD) Certification for qualified course/curriculum developers, writers and managers formally assigned to an off-campus instructional site to develop/write and manage CCAF collegiate-level credit awarding courses. The ISD Certification is a professional credential that recognizes the course/curriculum developer/writer's or managers extensive training, education, qualifications and experience required to develop/write and manage CCAF courses.

B5.8. **Air Force Credentialing Opportunities On-Line (AF COOL) Program.** CCAF manages the AF COOL Program that provides a research tool designed to increase an enlisted Airman and Guardian's awareness of national professional credentialing and funding opportunities available for all Air Force enlisted occupational specialties. AF COOL also provides information on specific occupational specialties, civilian occupational equivalencies, specialty-related national professional credentials, credentialing agencies, and professional organizations. AF COOL includes information such as:

B5.8.1. Get background information about civilian credentials, including eligibility requirements and resources to prepare for an exam.

B5.8.2. Identify credentials relevant to an AFSC, Special Duty Identifier (SDI), and Reporting Identifier (RI).

B5.8.3. Learn how to fill gaps between Air Force training and experience and civilian credentialing requirements.

B5.8.4. Information on AF COOL funding opportunities to pay for credentialing coursework, textbooks, exams, associated fees, and recertification.

B5.8.5. Resources available to enlisted Airmen and Guardians that can help them gain civilian job credentials.

B5.9. **Air University Associate to Baccalaureate Cooperative (AU-ABC).** The Air University Associate-to- Baccalaureate Cooperative (AU-ABC) program connects CCAF graduates with online 4-year degree programs. The AU-ABC program includes postsecondary institutions with institutional accreditation.

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B6. Civil Engineer Career Field Path. The following chart depicts the 3E4X1/A specialty career path:

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B7. Enlisted Training Path.

ENLISTED TRAINING PATH				
Education and Training Requirements	**GRADE REQUIREMENTS**			
	Rank	Average Sew-On	Earliest Sew-On	High Year Of Tenure (HYT) (Regular Air Force Only)
Basic Military Training School				
Apprentice Technical School (3-Skill Level) – Complete Technical School	Amn A1C	6 months 16 months		8 years
Upgrade To Journeyman (5-Skill Level) – Complete 5-level CDC – Complete CE 5-Level Core Concept web-based course – Complete all 5-level core/duty related tasks – 3E451A Complete Fuel Systems Maintenance Technician Course – Complete AFIT WMGT 301 and WENG 170 courses	SrA	3 years	28 months Below-the-Zone (BTZ) (22 months)	10 years
Trainer – Must be qualified and certified to perform task(s) to be trained – Attend AF Training Course – Recommended by the supervisor				
Upgrade To Craftsman (7-Skill Level) – Minimum rank of SSgt – Complete CE 7-Level Core Concept web-based course – Complete all core/duty related tasks – Complete AFIT WMGT 322 and WENG 370 courses	SSgt TSgt	5 years 9 years	3 years 5 years	20 years 22 years
Certifier – SSgt with 5-skill level or civilian equivalent – Attend AF Training Course – Appointed by commander – Be someone other than the trainer (for core and critical tasks only)				
MSGT – Completion of Troop Construction Project Management Course (AFIT WMGT 437) is mandatory for Regular Air Force and required for promotion to MSgt. This course is highly encouraged for Air Reserve Component MSgts. **Note**: – This is not a skill level-awarding course.				
Upgrade To Superintendent (9-Skill Level) – Minimum rank of SMSgt – CE Superintendents Course (WMGT570) (AD/AFR Only) In-residence USAF SNCOA, or sister service equivalent, graduation is for SMSgt sew-on (AD only)	SMSgt	20 years	11 years	26 years
Chief Enlisted Manager – Chief Orientation Course (AFR Only) – CE Superintendents Course (WMGT 570) (ANG only) – In-residence Chief Leadership Course is required for all CMSgt selects and CMSgts prior to 1-year time-in-grade.	CMSgt	22 years	14 years	30 years

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B7.1. **CE Occupational Badge.** The Civil Engineer badge reflects a great history and tradition. When worn, Airmen will recognize you as having achieved an expected level of competence. The multitude of engineers before you established this expectation through excellent service in both peace and war. Eligibility criteria for award and wear of AF occupational badges is in AFMAN 36-2100, *Military Utilization and Classification* and AFI 36-2903, *Dress and Personal Appearance of Air Force Personnel*.

B7.2. **CE Badge Heraldry.** The gear wheel and compass represent the engineering profession, in both the military and in the private sector. The gear represents the essence of engineering: applying scientific principles and technology to practical ends. To AF engineers, the gear symbolizes an element (representing the built environment) that meshes with others (weapon systems and trained personnel) to enable the AF to perform its mission. The compass is a precision tool historically used by engineers in designing and constructing facilities and equipment. The gear and compass together symbolize all the diverse specialties within Air Force civil engineer. Finally, the wings help to portray the fundamental linkage between the engineering and aviation components, and that the built environment is the foundation supporting Air Force mission and people.

B7.2.1. **Basic Badge.** Awarded upon successful completion of the apprentice course.

B7.2.2. **Senior Badge.** Adds a star to the top of the badge. Wear the senior badge after award of the 7-skill level.

B7.2.3. **Master Badge.** Adds a wreath around the star. Awarded to Master Sergeant or above with 5 years in the specialty from award of the 7-skill level.

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B8. Enlisted Professional Military Education (EPME).

B8.1. Basic EPME (Distance Learning). Basic EPME (Distance Learning). Airmen complete basic EPME requirements via distance learning (DL) courses to establish a foundation for continued development and include the Airman Leadership School Distance Learning Program (ALS DLP), Noncommissioned Officer Distance Learning Course (NCO DLC), and Senior Noncommissioned Officer Distance Learning Course (SNCO DLC).

B8.2. Resident EPME (In-residence). Resident EPME requirements include Airman Leadership School (ALS), Noncommissioned Officer Academy (NCOA), Senior Noncommissioned Officer Academy (SNCOA), and the Chief Master Sergeant Leadership Course (CLC). Resident attendance is not duplicative of the basic EPME requirements, but builds upon the competencies obtained to achieve higher proficiency levels. Resident EPME completion is required for promotion to the grades of SSgt, MSgt, and CMSgt.

B8.2.1. **Resident EPME Eligibility Chart.**

EPME Course	Selection Process
ALS	1. SSgts 2. SSgt-selects 3. SrA
NCOA	1. TSgts 2. TSgt-selects
SNCOA	1. SMSgts 2. SMSgt-selects 3. Non-selects to SMSgt based on combined U.S. Air Force Supervisory Examination and promotion board score (highest to lowest)
CLC	1. CMSgts 2. CMSgt-selects

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SECTION C - SKILL LEVEL TRAINING REQUIREMENTS

C1. Purpose. This section outlines the 3E4X1/A specialty qualification requirements for each skill level and establishes the mandatory requirements for entry, award and retention of each skill level. The STS in attachment 2 identifies the core tasks, diamond tasks, knowledge items, and skill level requirements.

C2. Specialty Qualification. Refer to **Air Force Enlisted Classification Directory (AFECD)** for the most current minimum requirements for entry into Water and Fuel Maintenance Systems or Liquid Fuels Maintenance career field. See AFECD attachment 4 for additional entry physical requirements.

C2.1. **Apprentice (3-Level) Training Requirements. (3E431/A)**

KNOWLEDGE	Completion of the Water and Fuel Maintenance Systems or Liquid Fuels Maintenance Apprentice course.
EDUCATION	For entry into this specialty, completion of high school or General Education Development (GED) with courses in mathematics, chemistry, biology, physics, earth sciences, drawing and specification use, and shop mechanics is desirable.
TRAINING	Completion of the Water and Fuel Systems Maintenance Apprentice course is mandatory for award of this skill level.
EXPERIENCE	None required.
OTHER	For entry, award and retention of AFSC 3E431, must possess a valid state driver's license to operate government motor vehicles (GMV) IAW with AFI 24-301, *Vehicle Operations*. Freedom from fear of confined spaces (Claustrophobia). Freedom from fear of heights (acrophobia). Normal color vision as defined in DAFMAN 48-123, *Medical Examinations and Standards.* Maintain local network access IAW AFI 17-130, *Cybersecurity Program Management* and AFMAN 17-1301, *Computer Security (COMPUSEC).*
IMPLEMENTATION	The Unit Training Manager at member's gaining unit of assignment submits for award of the 3-skill level upon graduation of the apprentice course.
TRAINING SOURCES & RESOURCES	Reference PART II, SECTIONS: B - COURSE OBJECTIVE LIST (COL); C - SUPPORT MATERIAL; D – EDUCATION AND TRAINING COURSE INDEX; E – MAJCOM UNIQUE REQUIREMENTS; F - HOME STATION TRAINING

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C2.2. **Journeyman (5-Level) Training Qualifications. (3E451/A)**

KNOWLEDGE	Must have mandatory knowledge of contingency/peacetime operations in hydraulic, electrical, mechanical theories, and principles that apply to all utility and liquid fuel systems. Has knowledge in, characteristics, physiological effects, and hazards of liquid fuel products. To include types, sizes, and uses of plumbing materials and components; mathematics; reading and interpreting drawings and specifications, military and commercial publications, and environmental regulations; maintenance of water distribution, wastewater collection, and natural gas distribution systems and corrosion prevention. Additionally, has knowledge of the Prime BEEF program and its role in supporting worldwide contingency operations.
TRAINING	Completion of 5-level Water and Fuel Systems Maintenance CDC/DL courses. Completion of all the paper-based AFQTPs and their associated web-based courses on **MyLearning** for all core (5^) and diamond (♦) tasks with a minimum passing score of 80%. Certification of all 5-skill level core tasks identified with a (5^) in the skill level column of the STS. Certification of all 5-skill level core tasks identified with a (5^) in the task column of the STS. Certification of 5-skill level diamond tasks identified with a diamond (♦) in the task column, if the equipment is available. Minimum requirement is signing off on the AFQTP Documentation Record. Supervisor certification of duty position requirements. Completion of the CE 5-Level Common Core Concept web-based course located on **MyLearning** is mandatory for award of this skill level. Complete certification of all CBRN TQT requirements identified with (TQT) after the line item in the STS in MOPP 4. Annotate the training on the AF Form 623A or AF Form 797. 3E451A - Completion of the Fuel Systems Maintenance Technician. Also, experience in repair and maintenance of liquid fuel systems. Certification of duty position requirements identified by the supervisor.
EDUCATION	The following education is desirable and strongly encouraged: CCAF Mechanical & Electrical Technology Associates Degree (4VGA). Completion of AFIT WMGT 301 Intro to Asset Management and AFIT WENG 170 Cybersecurity for Control Systems courses are mandatory.

EXPERIENCE	Qualification in and possession of AFSC 3E431/A. Experience in functions such as installation, operation, maintenance, and repair of liquid fuel systems, natural gas distribution systems, plumbing, water distribution and wastewater collection systems.
OTHER	For award and retention of AFSC 3E471/A, must possess a valid state driver's license to operate GMV IAW AFI 24-301, *Vehicle Operations*. Freedom from fear of confined spaces (Claustrophobia). Freedom from fear of heights (Acrophobia). Normal color vision as defined in DAFMAN 48-123, *Medical Examinations and Standards.* Maintain local network access IAW AFI 17-130, *Cybersecurity Program Management* and AFMAN 17-1301, *Computer Security (COMPUSEC).*
TRAINING SOURCES & RESOURCES	Reference PART II, SECTIONS: B - COURSE OBJECTIVE LIST (COL); C - SUPPORT MATERIAL; D – EDUCATION AND TRAINING COURSE INDEX; E – MAJCOM UNIQUE REQUIREMENTS; F - HOME STATION TRAINING
IMPLEMENTATION	Initiate entry into 5-level upgrade training after the individual has completed all 3-level requirements. Initiate Qualification Training any time individuals cannot perform their new duties. Use OJT, CDCs, AFJQSs, and AFQTPs concurrently to obtain the necessary qualifications. Airmen must have a minimum 3E451 AFSC (SrA – TSgt) and have three years of retainability. Squadron commander must approve application.

C2.3. **Craftsman (7-Level) Training Requirements. (3E471/A)**

KNOWLEDGE	All 3- and 5-level knowledge requirements apply to 7-level.
EDUCATION	The following education is desirable and strongly encouraged: CCAF Mechanical & Electrical Technology Associates Degree (4VGA) Higher education through a civilian institution. Completion AFIT WMGT 322 Intro to Project Management and WENG 370 Control Systems Cybersecurity for CE Leaders

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TRAINING	Completion of all the paper-based AFQTPs and their associated web-based courses on **MyLearning** for all 7- skill level core (7^) and diamond (♦) tasks with a minimum passing score of 80%. Completion of the CE 7-Level Common Core Concept web-based course located on the **MyLearning** is mandatory for award of this skill level. Certification of all 7- skill level core tasks identified with a 7^ in the skill level column of the STS. Certification of 7-skill level diamond tasks identified with a diamond (♦) in the task column of the STS if the equipment is available. The minimum requirement is signing off tasks on the AFQTP Documentation Record. Certification of duty position requirements identified by the supervisor. Completion of any/all of the following advanced courses is highly desirable: Fuel Systems Maintenance Technician course. Fire Suppression Systems Maintenance course. Backflow Prevention Devices Testing course (OCONUS). AFIT WMGT 436 Requirements and Optimization
EXPERIENCE	Qualification in and possession of AFSC 3E451/A. Completion of duty position requirements identified by the supervisor.
OTHER	Maintain local network access IAW AFI 17-130, Cybersecurity Program Management and AFMAN 17-1301, Computer Security (COMPUSEC). For award and retention of AFSC 3E471/A, must possess a valid state driver's license to operate GMV IAW AFI 24-301, Vehicle Operations. Freedom from fear of confined spaces (Claustrophobia) and heights (Acrophobia). Normal color vision as defined in DAFMAN 48-123, Medical Examinations and Standards. Water and Fuel Systems Maintenance and Liquid Fuels Maintenance craftsmen should pursue additional knowledge and skill requirements not taught through initial skills or upgrade training. The purpose of ongoing training is to exceed minimum upgrade requirements with emphasis on personnel achieving the necessary training and experience at the appropriate point in their career to be more effective in present and future duty positions.
MSGT	Completion of Troop Construction Project Management Course (AFIT WMGT 437) is mandatory for Regular Air Force and required for promotion to MSgt. This course is highly encouraged for Air Reserve Component MSgts. **Note**: this is not a skill level-awarding course.

TRAINING SOURCES & RESOURCES	Reference PART II, SECTIONS: B - COURSE OBJECTIVE LIST (COL); C - SUPPORT MATERIAL; D – EDUCATION AND TRAINING COURSE INDEX; E – MAJCOM UNIQUE REQUIREMENTS; F - HOME STATION TRAINING
IMPLEMENTATION	Initiate entry into 7-level upgrade training after the individual has completed all 5-level requirements and selected for SSgt. Initiate QT any time individuals cannot perform their new duties. Use OJT, CDCs, AFJQSs, and AFQTPs concurrently to obtain the necessary qualifications.

C2.4. **Superintendent (9-Level) Training Requirements. (3E090)**

KNOWLEDGE	Principles of water distribution and wastewater collection systems, water and wastewater treatment systems, plumbing systems, natural gas distribution systems, liquid fuels distribution systems, pest management activities, controls, and components, combustion systems, air and water balancing, non-electric kitchen equipment, industrial air compressors, and backflow prevention devices. Interprets drawings and schematics, industrial wastewater treatment, and usage of maintenance materials such as pipes, valves, fittings, packing and gaskets, electrical and electronic controls that apply to these systems, wiring schematics and diagrams, military and commercial publications, environmental regulations for fuels, pesticides, refrigerants, and hazardous materials.
EDUCATION	The following education is desirable and strongly encouraged: CCAF Mechanical & Electrical Technology Associates Degree (4VGA) Higher education through a civilian institution. Completion of the grade appropriate EPME is mandatory.
TRAINING	Completion of Civil Engineer Superintendent Course AFIT WMGT 570 is mandatory for Regular Air Force and Air Force Reserve SMSgts. This course is highly recommended for Air National Guard SMSgts and mandatory for promotion to CMSgt. **Note**: This is not a skill level awarding course.
EXPERIENCE	For award of AFSC 3E490, qualification in and possession of AFSC 3E171, 3E471/A, or 3E473 is mandatory. Must be a SMSgt. Experience managing functions such as operations, facilities system maintenance, and repair of distribution, and collection systems, natural gas distribution systems, cooling towers, chillers, boilers, liquid fuels distribution systems, pest management activities, and HVAC/R systems.

OTHER	Maintain local network access IAW AFI 17-130, *Cybersecurity Program Management* and AFMAN 17-1301, *Computer Security (COMPUSEC).* Infrastructure Systems Superintendents should pursue any additional knowledge and skill requirements not taught through initial skills or upgrade training. The purpose of ongoing training is to exceed minimum upgrade requirements with emphasis on personnel achieving the necessary training and experience at the appropriate point in their career to be more effective in present and future duty positions. Recommended areas of study include but are not limited to AFIT Training courses: such as, Project Management courses and Contract Management courses. For award and retention of AFSC 3E490, must possess a valid state driver's license to operate government motor vehicles (GMV) IAW AFI 24-301, *Vehicle Operations*. Normal color vision as defined in DAFMAN 48-123, *Medical Examinations and Standards*.
IMPLEMENTATION	Initiate entry into 9-level upgrade training after the individual has completed all 7-level requirements and selected for SMSgt. Initiate qualification training any time individuals cannot perform their new duties.

C2.5. Chief Enlisted Manager. (3E000)

KNOWLEDGE	Knowledge is mandatory of managing and directing personnel resource activities, interpreting and enforcing policy and applicable directives, establishing control procedures to meet work goals and standards, recommending or initiating actions to improve operational efficiency, planning and programming work commitments and schedules, developing plans regarding facilities, supplies, and equipment procurement and maintenance.
TRAINING	In-residence Chief Leadership Course (within 1 year of CMSgt date of rank). Reserve Component Chief Orientation Course (AFRC only).
EXPERIENCE	Possess qualifications in feeder specialty prior to award of Civil Engineer Manger code 3E000. Managerial ability to plan, direct, coordinate, implement, and control a wide range of work activity.
OTHER	NA
TRAINING SOURCES & RESOURCES	Reference PART II, SECTIONS: B - COURSE OBJECTIVE LIST (COL); C - SUPPORT MATERIAL; D – EDUCATION AND TRAINING COURSE INDEX; E – MAJCOM UNIQUE REQUIREMENTS; F - HOME STATION TRAINING
IMPLEMENTATION	Selection to CMSgt enters an individual into the Civil Engineer Manager Code 3E000. They must possess the qualifications from a feeder specialty (3E090, 3E290, 3E490, 3E591, and 3E691).

PART I

SECTION D - RESOURCE CONSTRAINTS

D1. Purpose. This section identifies known resource constraints that preclude optimal training at the schoolhouse, including information such as cost and manpower. Narrative explanations of each resource constraint and an impact statement describing what effect each constraint has on training are included. Also included in this section are actions required, Office of Primary Responsibility (OPR) and target completion dates. If applicable, resource constraints will be, at a minimum, reviewed and updated annually. Currently, there are no resource constraints for the Water and Fuel Maintenance Systems or Liquid Fuels Maintenance specialties.

D2. Apprentice (3-Level) Training: None

D2.1. Constraints.

D2.1.1 Impact.

D2.1.2. Resources Required.

D2.1.3. Action Required.

D2.2. OPR/Target Completion Date.

D3. Journeyman (5-Level) Training: Minimal

D3.1. Constraints. Apprentice course graduates will use the current paper-based CDCs (A and B) for upgrade training until the new web-based CDC is on-line.

D3.1.1. Impact.

D3.1.2. Resources Required.

D3.1.3. Action Required.

D3.2. OPR/Target Completion Date.

D4. Craftsman (7-Level) Training: None

D4.1. Constraints.

D4.1.1. Impact.

D4.1.2. Resources Required.

D4.1.3. Action Required.

D4.2. OPR/Target Completion Date.

D5. Superintendent (9-Level) Training: N/A

PART I

SECTION E – TRANSITIONAL TRAINING GUIDE

"There are no transition training requirements for the Water and Fuel Maintenance Systems or Liquid Fuels Maintenance specialties. This section is reserved."

PART II

SECTION A - SPECIALTY TRAINING STANDARD

A1. Implementation. These STSs identifies the technical training provided by AETC for the Water and Fuel Systems Maintenance Apprentice course with classes beginning 12 August 2022 and graduating on or after 29 November 2022.

A2. **Purpose.** As prescribed in DAFI 36-2670, *Total Force Development,* and in collaboration with the Air Force Civil Engineer Career Field Manager (CFM), it is mandatory for all civil engineers, regardless of duty assignment; to use paper based records or an automated training record.

A2.1. **Column 1 (*Tasks, Knowledge, and Technical References*).** Lists the most common tasks, knowledge, and supporting technical references (TRs) necessary for Airmen to perform duties in the 3-, 5-, and 7-skill level.

A2.1.1. **Task Qualification Tasks (TQT)**. In accordance with AFI 10-2501, *Emergency Management Program*, TQT requirements identified by (TQT) after the line item of the STS are mandatory wartime skills that Airmen will perform while wearing Individual Protective Equipment. TQTs are recurring requirements as outlined in AFMAN 10-2503.

A2.2. **Column 2 (*Core Tasks*).** Column 2 identifies core tasks (specialty-wide training requirements) by a (5^ or 7^) in the skill level sub-column. **As a minimum, trainees must complete all core and critical tasks for skill level upgrade.**

A2.2.1. **Wartime Tasks.** All tasks in the 3-level course column are wartime tasks. In response to a wartime scenario, the schoolhouse teaches these tasks in a streamlined training environment.

A2.2.2. **Diamond Tasks.** Tasks identified by a diamond (♦) after the line item are considered contingency/war tasks and are critical to the career field. Equipment shortfalls at most locations have created problems with the actual hands-on certification of these tasks. In instances where required equipment is not available for instruction, completion of the corresponding task AFQTP is all that is required for upgrade/qualification training.

A2.3. **Column 3 (*Certification for OJT*).** Used to record completion of tasks and knowledge training requirements. Use AFTR automated training management application to document technician qualifications. **Task certification of core and critical tasks** require a training completion date and initials of the trainee, trainer, and certifier. All non-core tasks require training completion date and initials of the trainee and trainer only.

A2.4. **Column 4 (*Proficiency Codes Used To Indicate Training/Information Provided*).** Shows formal training requirements provided by AETC. Airmen demonstrate to a supervisor/trainer on the job by a graduate because of training received from AETC courses, web-based training, AFQTPs, or CDCs. See the UTM for the current CADRE/AFSC/CDC/DL Course listing.

A2.5. **Qualitative Requirements.** The CFETP proficiency code key used to indicate the level of training and knowledge provided by web-based training, in-resident training, and career development courses.

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A2.6. Job Qualification Standard (JQS). The STS becomes a JQS for OJT in an automated training application and used according to DAFI 36-2670, *Total Force Development*. Supervisors/trainers use AFQTPs to ensure Air Force-wide standardized procedures for training Core tasks. When used as a JQS, the following requirements applies:

A2.6.1. **Documentation.** Document and certify completion of training:

A2.6.1.1. **Duty position.** Duty position requirements will be developed and identified by the work center supervisor and loaded into the automated training management application. Completion of core, critical, and diamond tasks are mandatory for all duty positions. Ensure the Profile section lists the correct duty position title in the of the trainee's automated training record.

A2.6.1.2. **AFQTP Training and Documentation.** AFQTP or AFQTP assessments have been created for all core (5^ or 7^) tasks and completion are mandatory to fulfill task knowledge requirements for upgrade/qualification training. Each AFQTP provides the step–by–step procedures for the trainee, trainer, and certifier in completing each core or diamond task and instructions on how to document the training in the individual automated training record.

A2.6.1.2.1. **Training.** Documentation of the start and completion of the AFQTP in the *QTP section* located in the automated training record is required for all core tasks. The automated training record will not let you sign off any tasks in the JQS until the trainer enters a completion date. Diamond tasks require the completion of the web-based course (with the review and post-test located in the program) or completion of the AFQTP assessment located on **MyLearning** to determine if the trainee has attained the knowledge level required. Once the trainee has completed the web-based course or AFQTP assessment, Airmen provide the course completion certificate to the trainer/supervisor for annotation into the automated training record.

A2.6.1.2.2. **Hands-On Training.** *DO NOT sign off the tasks in the JQS until the trainee has completed hands-on/certification training.* For diamond tasks, if the equipment is not available at home station, the completion of the AFQTP or AFQTP assessment is the ONLY requirement for upgrade. Sign off the JQS tab in the automated training record when the trainee receives training on the equipment at home station or at a TDY location.

A2.6.2. **Transcribing from previous versions to new CFETP.** Most items should transcribe automatically during updates to a CFETP. The UTM and supervisor must conduct a review of the new STS to identify any new core, or non-core tasks and add those tasks to their duty positions.

A2.6.2.1. **Previous training certification not listed.** If previous training certifications are not listed in the individual training record, select the task to be transcribed, and click on the transcribe button. Enter the date of the original certification and sign off the task(s). The trainee will then sign off the task(s) to finalize the transcription of previous training certification(s). The automated application will place an entry into the trainee's AF Form 623a. The transcriber and trainer must acknowledge the entry.

A2.6.2.2. **Transcribing external training certification.** If a trainee attended a formal training course and received appropriate accreditation, select the formal training section of the users automated training record and locate the course title in the master task list, then enter the completion date. Contact the UTM to have a missing course loaded from the master catalog. Contact the FDM at AFCEC to have a missing course loaded into the master catalog.

A2.6.3. **Documenting Career Knowledge.** When a CDC/DL course is not available, the supervisor identifies STS training references that the trainee requires for career knowledge IAW DAFI 36-2670, *Total Force Development* and ensures, as a minimum, that trainees cover all mandatory items specified in AFM 36-2100, *Military Utilization and Classification*. For two-time CDC/DL course exam failures, the unit commander will take appropriate action IAW DAFI 36-2670. **Note:** Document career knowledge to submitting a CDC/DL course waiver.

A2.6.4. **Decertification.** When an Airman is unqualified on a task, the supervisor shall identify the task in the JQS. The supervisor shall select the Decertify button and enter a comment on the AF Form 623a explaining why the task was decertified, and then enter the Airman into qualification training. Recertify the individual using the normal certification process.

A2.6.5. **Recertification.** To recertify an Airman on an annual or bi-annual requirement use an AF Form 1098 to document training or the supervisor shall identify the task in the JQS, select the Recertify button, and enter the date the recertification was completed.

A2.6.6. **Training Standard.** Train and certify Airman to the "go" level. Go means the individual can perform the task without assistance and meets the local requirements for accuracy, timeliness, and correct use of procedures. This equates to a 3c in the proficiency code key. Use available AFQTPs to train tasks.

A2.7. **Specialty Training Standard.** The STS is a guide for development of promotion tests used in the Weighted Airman Promotion System (WAPS). Senior NCOs with extensive practical experience in their career fields develop Specialty Knowledge Tests (SKTs) at the AETC Airman Advancement Division. Subject matter experts authenticate WAPS material and reference AF Specialty-specific occupational analysis data, to develop SKTs. They develop questions based upon the study references listed in the Enlisted Promotions References and Requirements Catalog. Individual responsibilities are in AFM 36-2664, *Personnel Assessment Program.* WAPS is not applicable to the Air National Guard or Air Reserve Forces.

A3. Recommendations. Report unsatisfactory performance of individual course graduates to 782 TRG/TGE, 917 Missile Road, Rm 1A300, Sheppard AFB TX 76311-2368 or E-mail **782csil@us.af.mil**. Reference specific STS line item and/or paragraphs. For a quicker response, call the Customer Service Information Line (CSIL) at DSN 736-2574 anytime day or night.

PART II

SECTION B - COURSE OBJECTIVE LIST (COL)

B1. Measurement. Measure each learning objective as follows:

B1.1. Progress Check (PC) indicates formal measurement of knowledge and/or performance elements using a written or performance progress check.

B2. Standard. Standards for measurement indicate the course objectives and delineate the individual progress checklist and rubrics. The minimum standard is 70% on knowledge progress checks. Instructors assist students as the standard for performance progress checks and as warranted during the progress check. Students may be required to repeat all or parts of the learning outcomes until the student attains satisfactory performance.

B3. Proficiency Level. Most task performance is taught to the "2b" proficiency level, which means the student can do most parts of the task, but does need assistance on the hardest parts of the task (partially proficient). The student can also determine step-by-step procedures for doing the task.

B4. Course Objective List. The COL lists the objectives in the sequence taught by Blocks of Instruction. Per AETCI 36 - 2651, *Basic Military and Technical Training*, Supervisors can request a detailed listing of the initial skills course objectives by written request through the requesting organizations MAJCOM to the 366th Training Squadron, 3E4X1 Training Manager.

PART II

SECTION C - SUPPORT MATERIAL

C1. Air Force Qualification Training Packages.

C1.1. The 3E4X1/A AFQTP tracker identifies the **mandatory AFQTPs** for each skill level.

C1.2. For a complete list of up-to-date AFQTPs applicable to the 3E4X1/A AFSC, go to **MyLearning** or **CE DASH** under *documents* tab in the AFSC AFQTP folder.

C1.2.1. In addition to the paper-based AFQTPs there are web-based courses or assessments developed, for specific tasks available on **MyLearning** under AFCEC in the specialty topic area.

C2. Career Development Course (CDC) Assessment for Civil Engineer CDC/DL course.

C2.1. FDMs have developed CDC assessments for their career field and they are located on the **MyLearning** under AFCEC in the topic header Civil Engineer Career Development Courses (CDCs) Assessments.

C2.2. The CDC assessments are for the sole purpose of providing the Unit Commander, Unit Training Manager (UTM) and the supervisor, a predictive indicator of whether the trainee has studied sufficiently to successfully pass their CDC end of course (EOC) exam.

PART II

SECTION D – EDUCATION AND TRAINING COURSE INDEX

D1. Purpose. This section of the CFETP identifies training courses available for the Utility Systems and Fuels Systems Maintenance specialties. Refer to Education and Training Course Announcements **(ETCA)** web site for information on the Air Force in-residence courses.

D2. Air Force Courses/Mobile Training Team (MTT) Courses.

Course Number	Title	Developer
J8AQR3E431 01AB	Water and Fuel Systems Maintenance Apprentice (Qual I)	366 TRS
J8AQR3E431 02AB	Water and Fuel Systems Maintenance Apprentice (Qual II)	366 TRS
J3ABR3E431 03AC	Water and Fuel Systems Maintenance Apprentice (AFU)	366 TRS
J3AZR3E451 04AC	Fuel Systems Maintenance Technician	366 TRS
J3AZR3E451 01FB	Fire Suppression System Maintenance	366 TRS
J6ANW3E451 04AA	Fuel Systems Maintenance Technician (Prerequisite)	366 TRS
J7AZT3E451 03BB	Backflow Prevention Devices Testing (MTT)	366 TRS

D3. Air Force Career Development Academy (AFCDA).

Course Number	Title	Edit Code (EC)
CDC 3E451B/O	WFSM Journeyman	03
CDC 3E451A	WFSM Journeyman	04
CDC 3E451B	WFSM Journeyman	04

D4. Exportable/Web-based Courses/Information.

Course Number	Title	Developer
Web based	1500 GPH-Reverse Osmosis Water Purification Unit QTP	AFCEC/COF
Web based	Arc Flash Safety Awareness QTP	AFCEC/COF
Web based	Backhoe Operations: Excavate, Load, and Backfill Material	AFCEC/COF
Web based	Basic Expeditionary Airfield Resources Water System QTP	AFCEC/COF
Web based	Civil Engineer 5-Level Core Concepts Course	AFCEC/COF
Web based	Civil Engineer 7-Level Core Concepts Course	AFCEC/COF
Web based	Confined Space Course	AFCEC/COF
Web based	Electrical Safety Standards QTP	AFCEC/COF
Web based	Expandable Bicon Shelter (EBS) Hygiene System QTP	AFCEC/COF
Web based	Fall Protection Awareness Course	AFCEC/COF
Web based	Field Deployable Latrine QTP	AFCEC/COF
Web based	Fuel Systems Maintenance Course	AFCEC/COF
Web based	Mueller Fire Hydrant Maintenance & Tapping Machine Video	AFCEC/COF
Web based	Natural Gas Systems Course	AFCEC/COF
Web based	Repair of Water and Wastewater Piping Systems	AFCEC/COF
Web based	Shower and Shave Unit QTP	AFCEC/COF
Web based	Water Testing Course QTP	AFCEC/COF
Web based	Water and Wastewater Systems Operation QTP	AFCEC/COF
Web based	Water and Fuels Expeditionary Repair System (WaFERS)	AFCEC/COF
WMGT 322	Introduction to Project Management	AFIT

WMGT 301	Intro to Asset Management	AFIT
WENG 170	Cybersecurity for Control Systems	AFIT
WENG 370	Control Systems Cybersecurity for CE Leaders	AFIT
WMGT 436	Requirements and Optimization	AFIT
WENG 437	Troop Construction Project Management Course	AFIT

D5. Courses/CDCs under Development/Revision

Course Number	Title	Date Due
CDC 3E4X1A EC4	Water and Fuel Systems Maintenance Journeyman	2024
CDC 3E4X1B EC4	Water and Fuel Systems Maintenance Journeyman	2024

PART II

SECTION E – MAJCOM UNIQUE REQUIREMENTS

"There are currently no MAJCOM unique requirements. This area is reserved."

PART II

SECTION F - HOME STATION TRAINING

F1. Purpose. The purpose of this section is to identify the tasks, training references, and training sources available in support of contingency/wartime training. Civil Engineer forces will train to meet the full range of tasks expected in the contingency environment. Training ranges from knowledge-type training conducted in a classroom, to task-oriented hands-on training conducted in the field.

F2. Home Station Training (HST). HST is knowledge-based and hands-on training conducted at the individual's home station for contingency operations. The CE Commander ensures training is provided and documented and appoints subject matter experts to conduct training as required.

F3. Combat Skills Training (CST). CST is an integral part of any HST program. Lessons learned from past and current contingency operations have taught us the importance of maintaining a higher level of combat readiness. Although the inclusion of combat skills-focused training into HST does not fully prepare CE personnel to work in a high threat combat environment, the steps taken to enhance training will help elevate units to a readiness level capable of supporting safe and effective operations in low to medium risk combat environments.

F4. Mission Essential Equipment Training (MEET). Wartime or contingency environments often involve the use of specialized and unique mission-essential equipment that civil engineers do not use in their day-to-day operations. Mission essential contingency equipment and trainer expertise are not available at most CONUS installations due to the cost and complexity. Personnel must be hands-on certified and the certification documented in their CFETP. AFI 10-210, *Prime Base Engineer Emergency Force (BEEF) Program,* Attachment 4, identifies the minimum number of trained personnel (positions) by specialty and the frequency requirements. Inadequate training on these key equipment items can negatively affect Air Force contingency operations.

F5. Expeditionary Readiness Training (ERT). The AF must train as it fights and continually assess expeditionary readiness training across the AF continuum of learning to produce Airmen ready to support all combatant commands. Expeditionary readiness training must be relevant, timely, synchronized, standardized and integrated to ensure combatant commands provide a standard presentation of forces to support specified mission requirements, while maximizing efficiency. Expeditionary readiness training divides training into three categories to ensure Airmen receive the right training at the right time: Basic Airman Readiness, Basic Deployment Readiness, and Advanced Deployment Readiness. Refer to AFI 10-405, *Expeditionary Readiness Training Program,* for additional information.

F6. Training References.

F6.1. AFI 10-209, *RED HORSE Program,* Chapter 3 and Attachments 4-9 identify the RED HORSE recurring training requirements.

F6.2. AFI 10-210, *Prime Base Engineer Emergency Force (BEEF) Program,* Chapter 4 and Attachments 2-8 identify the Prime BEEF recurring training requirements.

PART II

F6.3. DAFI 36-2670, *Total Force Development* and AFI *10-405, Expeditionary Readiness Training Program* identifies expeditionary readiness training requirements.

F6.4. Web-based Training (WBT) products are available on **MyLearning**. Airmen completing these courses can receive credit for HST. Use group WBT products in a classroom setting to train as many personnel as possible. Document group-training attendance on a sign-in roster IAW AFI 10-210.

BY ORDER OF THE SECRETARY OF THE AIR FORCE

OFFICIAL

WARREN D. BERRY, Lieutenant General, USAF
DCS/Logistics, Engineering and Force Protection

3 Attachments
1. Qualitative Requirements (Proficiency Code Key)
2. 3E4X1/3E4X1A Specialty Training Standard (STS)
3. 3E4X1/3E4X1A AFQTP Documentation record

Attachment 1
Qualitative Requirements (Proficiency Code Key)

A1. Qualitative Requirements

This Block Is For Identification Purposes Only.		
Name Of Trainee		
Printed Name (*Last, First, Middle Initial*)	**Initials (Written)**	**SSAN (Last four)**
Printed Name Of Trainer, Certifying Official And Written Initials		
N/I	*N/I*	

Note: Place a continuation sheet behind the CFETP when additional space is required.

Proficiency Code Key		
	Scale Value	**Definition: The individual**
Task Performance Levels	1	Can do simple parts of the task. Needs instruction or shown how to do most of the task. (Extremely Limited)
	2	Can do most parts of the task. Needs only help on hardest parts. (Partially Proficient)
	3	Can do all parts of the task. Needs only a spot check of completed work. (Competent)
	4	Can do the complete task quickly and accurately. Can tell or show others how to do the task. (Highly Proficient)
Task Knowledge Levels	a	Can name parts, tools, and simple facts about the task. (Nomenclature)
	b	Can determine step-by-step procedures for doing the task. (Procedures)
	c	Can identify why and when to do the task and why each step is needed. (Operating Principles)
	d	Can predict, isolate, and resolve problems about the task. (Advanced Theory)
Subject Knowledge Levels	A	Can identify basic facts and terms about the subject. (Facts)
	B	Can identify relationship of basic facts and state general principles about the subject. (Principles)
	C	Can analyze facts and principles and draw conclusions about the subject. (Analysis)
	D	Can evaluate conditions and make proper decisions about the subject. (Evaluation)

Explanations	
5	This symbol in the core task column indicates that it is a 5-level core task.
7	This symbol in the core task column indicates that it is a 7-level core task.
9	This symbol in the core task column indicates that it is a 9-level core task.
^	This symbol in the core task column indicates that 3rd party task certification is required.
*	This symbol in the deployment/SEI/TQT column indicates that the task is a deployment task.
+	This symbol in the deployment/SEI/TQT column indicates that the task is a Special Experience Identifier
~	This symbol in the deployment/SEI/TQT column indicates that the task is CBRN Qualification Task (TQT)
2b/b	This mark in the course columns shows that training is required but not given due to resource limitations.
(I)	Use this mark in the course columns to show that training is multi-service.
♦	A diamond in the task column indicates it is a core task, however due to equipment or funding constraint at some units, the completion of the AFQTP and/or web-based training course is all that is required for upgrade. Accomplish hands-on certification at the first opportunity when equipment or funding is available.
TQT	TQT in the task column indicates the task is a CBRN Qualification Task. IAW AFI 10-2501, these tasks will also be accomplished in MOPP 4 and annotated on the 623A or AF Form 797.
▲	A black triangle in the task column indicates a AFQTP is available for use
△	A white triangle in the task column indicates a AFQTP is under development
Specific tasks not identified with a symbol or proficiency code key indicates no provided training in the course. Major commands and/or units may establish scale values and combat training as dictated by mission requirements.	
Use a task-knowledge scale value alone or with a task-performance scale value to define a level of knowledge for a specific task.	
A subject knowledge scale value is used alone to define a level of knowledge for a subject not directly related to any specific task, or for a subject common to several tasks.	

Attachment 2
3E4X1/3E4X1A Specialty Training Standard (STS)

A2. Specialty Training Standard

A2.1. Identification. In the automated training record User Profile section, the UTM will assign individuals to the correct workcenter upon in processing into the unit.

Attachment 2
3E4X1/3E4X1A Specialty Training Standard (STS)

A2.2. Water and Fuel Systems Maintenance Specialty Tasks. The following are tasks the workcenter supervisor will use to create the duty task list for each duty position created for their workcenter.

1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training / Information Provided Via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI + TQT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
1.0. CIVIL ENGINEER (CE) CORE CONCEPTS COURSES TR: MyLearning											
1.1. Accomplish CE 5-level Core Concepts Course	5										
1.2. Accomplish CE 7-level Core Concepts Course	7										
1.3. CE Core Concepts Overview								A			
1.4. Complete AFIT WMGT 301 Introduction to Asset Management	5										
1.5. Complete AFIT WMGT 322 Introduction to Project Management	7										
1.6. Complete AFIT WMGT 436 Requirements and Optimization											
1.7. Complete AFITWMGT 437 Troop Construction Project Management Course											
2.0. PUBLICATIONS											
2.1. Technical orders (T.O.) TR: T.O. 00-5-1											
2.1.1. Organization								A	B		
2.1.2. Use technical orders								2b			
2.2. Military											
2.3. Commercial											
3.0. AFS-SPECIFIC HEALTH and SAFETY											
3.1. Hazards of AFSC								A(I)	B		
3.2. Safety standards applicable to AFS								A(I)	B		
3.3. Individual responsibilities								A(I)	B		
3.4. Respiratory Protection Program								A	B		
3.5. Lockout/Tagout Program								A	B		

Attachment 2
3E4X1/3E4X1A Specialty Training Standard (STS)

1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training / Information Provided Via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI + TQT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
3.6. Mechanical equipment								A	B		
3.7. Flammables								A(I)	B		
3.8. Chemicals and chemical solutions								A	B		
3.9. Remove victim from energized circuit								a	b		
3.10. Apply first aid procedures for electrical shock								a	b		
3.11. Manual lifting awareness								A(I)			
3.12. Condition tags								A(I)	B		
3.13. Initial Federal Hazard Communication Training Program								A			
3.14. Toxic and explosive gases								A	B		
3.15. Arc Flash Safety	5^							A	B		
3.16. Confined space											
3.16.1. Confined space entries	5^							A	B		
3.16.2. Atmospheric hazards indicator	5^							2b	b		
4.0. TOOLS AND EQUIPMENT											
4.1. Maintain hand/power tools								b(I)			
4.2. Use common hand/power tools								2b(I)			
4.3. Shop equipment											
4.3.1. Characteristics/Safety											
4.3.1.1. Ladders								A(I)	B		
4.3.1.2. Shoring								A(I)	B		
4.3.1.3. Scaffolding								A(I)	B		
4.3.1.4. Laboratory								A(I)	B		
4.3.1.5. Fall protection								A	B		
4.3.2. Use Shop equipment											
4.3.2.1. Ladders								a(I)	b		
4.3.2.2. Shoring								a(I)	b		
4.3.2.3. Scaffolding								a(I)	b		
4.3.2.4. Laboratory								1a(I)	b		
4.3.2.5. Fall protection								a	b		
4.3.3. Care for shop equipment											

Attachment 2
3E4X1/3E4X1A Specialty Training Standard (STS)

1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training / Information Provided Via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI + TQT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
4.4. Portable Air Compressor											
4.4.1. Characteristics								A	B		
5.0. PROJECT PLANNING											
5.1. Use building construction plans to identify											
5.1.1. Installation procedures	7^								b		
5.1.2. Materials needed									b		
5.1.3. Types of systems	7^								b		
5.2. Prepare working sketches	7^							1a(I)	b		
5.3. Prepare AF IMT 103, Work Clearance								1a(I)	b		
5.4. Prepare bill of materials request	5^							1a(I)	b		
5.5. Preventive Maintenance (PM)									B		
5.6. NexGEN IT											
5.7. Sustainment Management Systems (SMS) BUILDER											
6.0. AFS FUNDAMENTALS											
6.1. Mathematics								A(I)	B		
6.2. Metric system									A		
6.3. Biology								A(I)	B		
6.4. Chemistry								A(I)	B		
6.5. Water treatment								A(I)	B		
6.6. Pipe Fitting											
6.6.1. Measure	5^							2b(I)	b		
6.6.2. Cut	5^							2b(I)	b		
6.6.3. Ream	5^							2b(I)	b		
6.6.4. Thread	5^							2b(I)	b		
6.6.5. Solder	5^							2b(I)	b		
6.6.6. Complete solvent weld	5^							2b(I)	b		
6.7. Tubing											
6.7.1. Types								A(I)	B		
6.7.2. Fittings								A(I)	B		
6.7.3. Fabricate tubing systems								2b(I)	b		
6.8. Locate components using:											
6.8.1. Utility maps	5^							a(I)	b		
6.8.2. Electronic equipment								a(I)			

Attachment 2
3E4X1/3E4X1A Specialty Training Standard (STS)

1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training / Information Provided Via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI + TQT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
6.9. Cathodic Protection Systems								A	B		
6.10. Inspect for corrosion								a(I)	b		
6.11. Physical Characteristics											
6.11.1. Water								A(I)	B		
6.11.2. Mechanics								A	B		
7.0. INDUSTRIAL CONTROL SYSTEMS											
7.1. Fundamentals								A			
7.2. Cybersecurity concepts								A			
7.3. Complete WENG 170 Cybersecurity for Control Systems	5										
7.4. Complete WENG 370 Control Systems Cybersecurity for CE Leaders	7										
8.0. WATER SYSTEMS TR: Unified Facilities Criteria (UFC) 3-230-02; Uniform Plumbing Code (UPC); Ken Kerri, Water Distribution System Operation and Maintenance; AFM 32-1067; International Plumbing Code (IPC); American Water Works Association (AWWA) Manuals 11, 14, 17, 23											
8.1. Fundamentals of Water Distribution								A(I)	B		
8.2. Operation of water systems											
8.2.1. Wells								A(I)	B		
8.2.2. Booster stations								A(I)	B		
8.2.3. Storage tanks								A(I)	B		
8.2.4. Chemical feeders								A(I)	B		
8.2.5. Metering equipment								A(I)	B		
8.3. Install interior water system piping and components											
8.3.1. Steel								2b(I)	b		
8.3.2. Plastic								2b(I)	b		
8.3.3. Copper								2b(I)	b		
8.3.4. PEX								2b(I)	b		
8.3.5. Pipe hangers/supports								2b(I)	b		
8.3.6. Structural openings								2b(I)	b		
8.4. Inspect interior water system											

Attachment 2
3E4X1/3E4X1A Specialty Training Standard (STS)

1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training / Information Provided Via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI + TQT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
8.4.1. Perform pressure test								2b(I)	b		
8.4.2. Troubleshoot pressure loss								2b(I)	b		
8.4.3. Locate leaks								2b(I)	b		
8.5. Interior water system maintenance											
8.5.1. Thaw frozen water pipes using:											
8.5.1.1. Heaters								a(I)	b		
8.5.1.2. Torches								a(I)	b		
8.5.1.3. Electrical thawers								a(I)	b		
8.5.2. Winterize piping system								1a(I)	b		
8.5.3. Repair interior water system piping											
8.5.3.1. Steel								2b(I)	b		
8.5.3.2. Plastic								2b(I)	b		
8.5.3.3. Copper								2b(I)	b		
8.5.3.4. PEX								2b(I)	b		
8.6. Backflow prevention devices											
8.6.1. Characteristics											
8.6.1.1. Air gap								A(I)	B		
8.6.1.2. Atmospheric vacuum breaker								A(I)	B		
8.6.1.3. Pressure type vacuum breaker								A(I)	B		
8.6.1.4. Double check valve								A(I)	B		
8.6.1.5. Reduced pressure principle devices								A(I)	B		
8.6.2. Install											
8.6.2.1. Air gap								a(I)	b		
8.6.2.2. Atmospheric vacuum breaker								a(I)	b		
8.6.2.3. Pressure type vacuum breaker								a(I)	b		
8.6.2.4. Double check valve								a(I)	b		
8.6.2.5. Reduced pressure principle devices								a(I)	b		
8.6.3. Inspect											
8.6.3.1. Air gap								a(I)	b		
8.6.3.2. Atmospheric vacuum breaker								a(I)	b		
8.6.3.3. Pressure type vacuum breaker								a(I)	b		

Attachment 2
3E4X1/3E4X1A Specialty Training Standard (STS)

1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training / Information Provided Via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI + TQT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
8.6.3.4. Double check valve								a(I)	b		
8.6.3.5. Reduced pressure principle devices								a(I)	b		
8.6.4. Repair											
8.6.4.1. Air gap								a(I)	b		
8.6.4.2. Atmospheric vacuum breaker								a(I)	b		
8.6.4.3. Pressure type vacuum breaker								a(I)	b		
8.6.4.4. Double check valve								a(I)	b		
8.6.4.5. Reduced pressure principle devices								a(I)	b		
8.7. Fire hydrants											
8.7.1. Characteristics								A(I)	B		
8.7.2. Install								b(I)	b		
8.7.3. Inspect	7^							1a(I)	b		
8.7.4. Repair	5^							b(I)	b		
8.7.5. Area flow test											
8.7.5.1. Conduct static pressure test	7^							1a(I)	b		
8.7.5.2. Conduct residual and velocity tests	7^							a(I)	b		
8.7.5.3. Calculate test data	7^							a(I)	b		
8.8. Install exterior water system piping and components											
8.8.1. Plastic								2b(I)	b		
8.8.2. Steel								2b(I)	b		
8.8.3. Tap water main								b(I)	b		
8.8.4. Disinfect using chlorine								2b(I)	b		
8.9. Repair exterior water system piping											
8.9.1. Plastic **(TQT)**		~						2b(I)	b		
8.9.2. Steel **(TQT)**		~						2b(I)	b		
8.9.3. Compression couplings								2b(I)	b		
8.9.4. Clamps								2b(I)	b		
9.0. WASTEWATER SYSTEMS TR: UPC; Ken Kerri, Operation and Maintenance of Wastewater Collection Systems; UFC 3-240-01, UFC 3-240-02, UFC 3-240-03N											
9.1. Fundamentals of collection											

Attachment 2
3E4X1/3E4X1A Specialty Training Standard (STS)

1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training / Information Provided Via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI + TQT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
9.1.1. Sanitary sewer								A(I)	B		
9.1.2. Industrial waste (grease traps, oil water separators)								A(I)	B		
9.1.3. Storm Drains											
9.1.4. Sewage lift stations											
9.1.4.1. Dry well								A(I)	B		
9.1.4.2. Wet well								A(I)	B		
9.2. Collection system piping											
9.2.1. Install cast iron pipe									b		
9.2.2. Install plastic pipe	5^							2b(I)	b		
9.2.3. Establish trench grade	5^							2b(I)	b		
9.2.4. Establish pipeline slope	5^							2b(I)	b		
9.2.5. Backfill trenches	5^							a(I)	b		
9.2.6. Drain excavations	5^							a(I)	b		
9.3. Repair wastewater system piping											
9.3.1. Interior								2b(I)	b		
9.3.2. Exterior								2b(I)	b		
9.4. Inspect exterior collection systems											
9.4.1. Manholes								b(I)	b		
9.4.2. Leaks								a(I)	b		
9.4.3. Infiltration/inflow								a(I)	b		
9.4.4. Grease traps								a(I)	b		
9.4.5. Oil/water separator								a(I)	b		
9.5. Use											
9.5.1. Plunger								2b(I)	b		
9.5.2. Hand/closet auger								2b(I)	b		
9.5.3. Power auger	5^							2b(I)	b		
9.5.4. Chemicals								a(I)	b		
9.5.5. Sewer augers											
9.5.6. Commercial sewer jet								a(I)	b		
9.5.7. Sewer pumper truck ♦	5^										
9.6. Wastewater treatment											
9.6.1. Primary								A(I)	B		
9.6.2. Secondary								A(I)	B		

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1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training / Information Provided Via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI + TQT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
10.0. SWIMMING POOLS TR: UFC 3-230-02; AFM 48-149											
10.1. Operate								a(I)	b		
10.2. Maintain								a(I)	b		
10.3. Repair								a(I)	b		
11.0. NATURAL GAS SYSTEMS TR: AFM 32-1067; Department of Transportation (DOT) Small Natural Gas Operator Guide; 49 Code of Federal Regulations (CFR) Part 192											
11.1. Characteristics								A	B		
11.2. Government regulations									B		
11.3. Inspect gas system								a	b		
11.4. Maintain gas system								a	b		
11.5. Repair gas system								a	b		
11.6. Detect leaks								a	b		
12.0. FIRE SUPPRESSION TR: National Fire Protection Association (NFPA) Pamphlets; UFC 3-600-01, UFC 3-601-02											
12.1. Characteristics											
12.1.1. Wet pipe systems								A	B		
12.1.2. Dry pipe systems								A	B		
12.1.3. Deluge systems								A	B		
12.1.4. Foam systems								A	B		
12.1.5. Specialized systems								A	B		
12.2. Test											
12.2.1. Wet pipe systems											
12.2.2. Dry pipe systems											
12.2.3. Deluge systems											
12.2.4. Foam systems											
12.2.5. Specialized systems											
12.3. Repair											
12.3.1. Wet pipe systems											
12.3.2. Dry pipe systems											
12.3.3. Deluge systems											
12.3.4. Foam systems											
12.3.5. Specialized systems											

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	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI + TQT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
13.0. ELECTRICAL SYSTEMS TR: AFM 32-1065; UFC 3-560-01											
13.1. Electrical fundamentals											
13.1.1. Electron Theory								A	B		
13.1.2. Programmable logic controller (PLC)								A	B		
13.1.3. Use electrical schematics	5^							1a	b		
13.1.4. Motors								A	B		
13.1.5. Inspect electrical circuits	5^							1a	b		
13.1.6. Troubleshoot electrical systems								1a	b		
13.1.7. Replace electrical components	5^							1a	b		
13.1.8. Connect/disconnect motors	5^							1a	b		
13.2. Use test equipment to measure											
13.2.1. Voltage	5^							2b	b		
13.2.2. Resistance	5^							2b	b		
13.2.3. Current	5^							2b	b		
14.0. FIXTURES AND PLUMBING COMPONENTS TR: UPC; IPC; Manufacturer Specifications											
14.1. Characteristics											
14.1.1. Lavatories (Sinks)								A(I)	B		
14.1.2. Faucets								A(I)	B		
14.1.3. Emergency eyewash/shower								A(I)	B		
14.1.4. Water closets (Toilets)											
14.1.4.1. Floor mount								A(I)	B		
14.1.4.2. Wall hung								A(I)	B		
14.1.5. Urinals											
14.1.5.1. Wall hung								A(I)	B		
14.1.5.2. Pedestal								A(I)	B		
14.1.6. Showers											
14.1.6.1. Individual								A(I)	B		
14.1.6.2. Gang								A(I)	B		
14.1.6.3. Tub/shower								A(I)	B		
14.1.7. Industrial sinks											
14.1.7.1. Scullery								A(I)	B		

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	Core Cert ^	Deployment * SEI + TQT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
14.1.7.2. Kitchen								A(I)	B		
14.1.7.3. Utility								A(I)	B		
14.1.8. Traps											
14.1.8.1. Common seal								A(I)	B		
14.1.8.2. Deep seal								A(I)	B		
14.1.9. Mixing valves											
14.1.9.1. Manual								A(I)	B		
14.1.9.2. Pressure balancing								A(I)	B		
14.1.9.3. Thermostatic								A(I)	B		
14.1.10. Flushometers											
14.1.10.1. Diaphragm								A(I)	B		
14.1.10.2. Piston								A(I)	B		
14.1.11. Drinking fountains											
14.1.11.1. Wall hung								A(I)	B		
14.1.11.2. Pedestal								A(I)	B		
14.1.11.3. Electrically cooled								A(I)	B		
14.1.12. Water Heaters											
14.1.12.1. Electric								A(I)	B		
14.1.12.2. Gas								A(I)	B		
14.1.12.3. Tankless								A(I)	B		
14.1.13. Food grinder											
14.1.13.1. Industrial								A(I)	A		
14.1.13.2. Domestic								A(I)	A		
14.2. Install											
14.2.1. Lavatories (Sinks)								2b(I)	b		
14.2.2. Faucets								2b(I)	b		
14.2.3. Emergency eyewash/shower								b(I)	b		
14.2.4. Water Closets (Toilets)											
14.2.4.1. Floor mount								2b(I)	b		
14.2.4.2. Wall hung								2b(I)	b		
14.2.5. Urinals											
14.2.5.1. Wall hung								2b(I)	b		
14.2.5.2. Pedestal									b		
14.2.6. Showers											
14.2.6.1. Individual								2b(I)	b		

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	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI + TQT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
14.2.6.2. Gang								a(I)	b		
14.2.6.3. Tub/shower								a(I)	b		
14.2.7. Industrial sinks											
14.2.7.1. Scullery								a(I)	b		
14.2.7.2. Kitchen								a(I)	b		
14.2.7.3. Utility								a(I)	b		
14.2.8. Traps											
14.2.8.1. Common seal								2b(I)	b		
14.2.8.2. Deep seal								a(I)	b		
14.2.9. Mixing valves											
14.2.9.1. Manual								2b(I)	b		
14.2.9.2. Pressure balancing								2b(I)	b		
14.2.9.3. Thermostatic								2b(I)	b		
14.2.10. Flushometers											
14.2.10.1. Diaphragm								2b(I)	b		
14.2.10.2. Piston									b		
14.2.11. Drinking fountains											
14.2.11.1 Wall hung								b(I)	b		
14.2.11.2. Pedestal								b(I)	b		
14.2.11.3. Electrically cooled								b(I)	b		
14.2.12. Water Heaters											
14.2.12.1. Electric								2b(I)	b		
14.2.12.2. Gas									b		
14.2.13. Food grinder											
14.2.13.1. Industrial								b(I)	b		
14.2.13.2. Domestic											
14.3. Replace											
14.3.1. Faucets	5^							b(I)	b		
14.3.2. Lavatories (Sinks)	5^							b(I)	b		
14.3.3. Emergency eyewash/shower								a(I)	b		
14.3.4. Water closets (Toilets)											
14.3.4.1. Floor mount	5^							b(I)	b		
14.3.4.2. Wall-hung	5^							b(I)	b		
14.3.5. Wall-hung urinals	5^							b(I)	b		
14.3.6. Showers											
14.3.6.1. Individual									b		

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	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI + TQT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
14.3.6.2. Gang											
14.3.6.3. Tub/shower											
14.3.7. Industrial sinks											
14.3.7.1. Scullery								b(I)	b		
14.3.7.2. Kitchen								b(I)	b		
14.3.7.3. Utility								b(I)	b		
14.3.8. Traps											
14.3.8.1. Common seal								b(I)	b		
14.3.8.2. Deep seal											
14.3.9. Mixing valves											
14.3.9.1. Manual									b		
14.3.9.2. Pressure balancing								b(I)	b		
14.3.9.3. Thermostatic								b(I)	b		
14.3.10. Flushometers											
14.3.10.1. Diaphragm	5^							b(I)	b		
14.3.10.2. Piston	5^							b(I)	b		
14.3.11. Drinking fountains											
14.3.11.1. Wall hung								b(I)	b		
14.3.11.2. Pedestal								b(I)	b		
14.3.11.3. Electrically cooled								b(I)	b		
14.3.12. Water Heaters											
14.3.12.1. Electric									b		
14.3.12.2. Gas									b		
14.3.13. Food grinder											
14.3.13.1. Industrial								a(I)	b		
14.3.13.2. Domestic									b		
14.4. Repair											
14.4.1. Water closet components (Toilets)											
14.4.1.1. Floor mount	5^							2b(I)	b		
14.4.1.2. Wall hung	5^							2b(I)	b		
14.4.2. Common Seal Traps								2b(I)	b		
14.4.3. Mixing valves											
14.4.3.1. Manual	5^							2b(I)	b		
14.4.3.2. Pressure balancing	5^								b		

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	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI + TQT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
14.4.3.3. Thermostatic									b		
14.4.4. Flushometers											
14.4.4.1. Diaphragm								2b(I)	b		
14.4.4.2. Piston									b		
14.4.5. Drinking fountains											
14.4.5.1. Wall hung									b		
14.4.5.2. Pedestal									b		
14.4.5.3. Electrically cooled									b		
14.4.6. Water Heaters											
14.4.6.1. Electric	5^							2b(I)	b		
14.4.6.2. Gas									b		
14.4.7. Food grinders											
14.4.7.1. Industrial								a(I)	b		
14.4.7.2. Domestic									b		
14.4.8. Emergency eyewash/shower	5^							b(I)	b		
14.4.9. Faucets								2b(I)	b		
15.0. VALVES TR: UFC 3-230-02; UPC; AWWA M44											
15.1. Characteristics (Check, Globe, Gate, Ball, Altitude, Pressure regulating, Pressure relief, Quick opening)								A(I)	B		
15.2. Inspect (Check, Globe, Gate, Ball, Altitude, Pressure regulating, Pressure relief, Quick opening)								a(I)	b		
15.3. Replace											
15.3.1. Check								1a(I)	b		
15.3.2. Globe								1a(I)	b		
15.3.3. Gate								1a(I)	b		
15.3.4. Ball								1a(I)	b		
15.3.5. Altitude								a(I)	b		
15.3.6. Pressure regulating								1a(I)	b		
15.3.7. Pressure relief								a(I)	b		
15.3.8. Quick opening								1a(I)	b		
15.4. Repair											
15.4.1. Check								1a(I)	b		
15.4.2. Globe								1a(I)	b		

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	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI + TQT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
15.4.3. Gate								1a(I)	b		
15.4.4. Ball								1a(I)	b		
15.4.5. Altitude								a(I)	b		
15.4.6. Pressure regulating	5^							1a(I)	b		
15.4.7. Pressure relief	5^							1a(I)	b		
15.4.8. Quick opening								1a(I)	b		
15.4.9. Plug valve - Non-Lubricated									b		
15.5. Valve Maintenance											
15.5.1. Lubricate								2b(I)	b		
15.5.2. Packing								2b(I)	b		
15.5.3. Exercise **(TQT)**		~						a(I)	b		
15.6. Valve boxes											
15.6.1. Characteristics								A(I)	B		
15.6.2. Install								a(I)	b		
15.6.3. Inspect								a(I)	b		
15.6.4. Maintain								a(I)	b		
15.7. Pumps											
15.7.1. Characteristics											
15.7.1.1. Diaphragm								A	B		
15.7.1.2. Double diaphragm								A	B		
15.7.1.3. Centrifugal								A	B		
15.7.1.4. Deep well								A	B		
15.7.2. Inspect operation of:											
15.7.2.1. Diaphragm								a	b		
15.7.2.2. Double diaphragm								a	b		
15.7.2.3. Centrifugal								a	b		
15.7.2.4. Deep well								a	b		
15.7.3. Rebuild											
15.7.3.1. Diaphragm								1a	b		
15.7.3.2. Double diaphragm	5^							1a	b		
15.7.3.3. Centrifugal								1a	b		
15.7.3.4. Deep well								1a	b		
15.7.4. Lubricate											

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	Core Cert ^	Deployment * SEI + TQT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
15.7.4.1. Diaphragm								a	b		
15.7.4.2. Centrifugal								a	b		
16.0. WATER TESTING TR: UFC 3-230-02; Ken Kerri, Operation and Maintenance of Wastewater Collection Systems; American Society for Testing Materials (ASTM) D1253, D1293											
16.1. Perform water tests											
16.1.1. pH	5^							2b(I)	b		
16.1.2. Chlorine residual	5^							2b(I)	b		
16.1.3. Total coliform									b		
16.2. Collect Samples											
17.0. FUELS SYSTEMS FUNDAMENTALS											
17.1. Types of fuel								A	B		
17.2. Fuel Physical characteristics								A	B		
17.3. Fuel Hazards								A	B		
17.4. Hydraulics								A	B		
17.5. Fuel Systems TR: UFC 3-460-01, UFC 3-460-03; AFM 32-1067											
17.5.1. Types								A	B		
17.5.2. Standard Designs								A	B		
17.5.3. Modes of Operation								A	B		
17.5.4. Programmable Logic Controller (PLC)	7^										
17.5.5. Valve Operation								A	B		
17.6. Inspect operation of:											
17.6.1. Type I									a		
17.6.2. Type II									a		
17.6.3. Type III								2b	b		
17.6.4. Type IV									b		
17.7. Pressure/flow transmitters (PIT/DPT-Type III IV)											
17.7.1. Replace								b	b		
17.7.2. Calibrate ♦	5^							2b	b		
17.8. Troubleshoot											
17.8.1. Type I											

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	Core Cert ^	Deployment * SEI + TQT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
17.8.2. Type II											
17.8.3. Type III ♦	5^							2b	b		
17.8.4. Type IV									b		
17.9. Hydrant Outlets											
17.9.1. Characteristics								A	B		
17.9.2. Repair								2b	b		
17.9.3. Surge Arrestors								A	B		
17.9.4. Portable Pantograph											
17.10. Coupler/Single-point nozzle											
17.10.1. Characteristics								A	B		
17.10.2. Repair	5^							2b	b		
17.10.3. Hoses								A	B		
17.10.4. Perform hydrostatic hose test								a	b		
17.11. Perform pressure test											
17.11.1. Leak test								a	b		
17.11.2. Annual	5^							a	b		
17.11.3. Five year								a	b		
17.12. Double block and bleed											
17.12.1. Characteristics								A	B		
17.12.2. Inspect								a	b		
17.12.3. Repair								1a	b		
17.12.4. Replace								1a	b		
17.13. Automatic valves											
17.13.1. Characteristics								A	B		
17.13.2. Adjust	5^							2b	b		
17.13.3. Repair	5^							2b	b		
17.14. Pumps											
17.14.1. Characteristics											
17.14.1.1. Gear								A	B		
17.14.1.2. Rotary-vane								A	B		
17.14.1.3. **API 610**											
17.14.1.3.1. Standard centrifugal								A	B		
17.14.1.3.2. Deep well								A	B		
17.14.2. Inspect operation of:											
17.14.2.1. Rotary-vane								a	b		
17.14.2.2. **API 610**											

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	Core Cert ^	Deployment * SEI + TQT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
17.14.2.2.1. Standard centrifugal								1a	b		
17.14.2.2.2. Deep well								a	b		
17.14.3. Rebuild											
17.14.3.1. Rotary-vane								1a	b		
17.14.3.2. API 610											
17.14.3.2.1. Standard centrifugal								1a	b		
17.14.3.2.2. Deep well								1a	b		
17.14.4. Replace mechanical seals											
17.14.4.1. Rotary-vane								1a	b		
17.14.4.2. API 610											
17.14.4.2.1. Standard centrifugal								1a	b		
17.14.4.2.2. Deep well								1a	b		
17.14.5. Align											
17.14.5.1. Rotary-vane								a	b		
17.14.5.2. API 610											
17.14.5.2.1. Standard centrifugal	5^							2b	b		
17.14.6. Lubricate											
17.14.6.1. Rotary-vane								a	b		
17.14.6.2. API 610											
17.14.6.2.1. Standard centrifugal								1a	b		
17.15. Issue/receipt equipment											
17.15.1. Characteristics								A	B		
17.15.2. Filtration equipment											
17.15.2.1. Characteristics								A	B		
17.15.2.2. Replace filter element cartridge ♦	5^							2b	b		
17.15.2.3. Repair filtration equipment								a	b		
17.15.3. Set safety relief valve ♦	5^							1a	b		
17.15.4. Fuel meters											
17.15.4.1. Characteristics								A	B		
17.15.4.2. Calibrate meters ♦	5^							b	b		
17.15.4.3. Use master meter ♦	5^							b	b		
17.16. Storage tanks											
17.16.1. Characteristics											
17.16.1.1. Above ground								A	B		
17.16.1.2. Below ground								A	B		
17.16.1.3. Cut and cover								A	B		

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	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI + TQT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
17.16.1.4. Organizational								A	B		
17.16.2. Components											
17.16.2.1. Repair								a	b		
17.16.2.2. Inspect								a	b		
17.16.2.3. Check leak detection systems								a	b		
17.16.2.4. Inspect dikes								a	b		
17.17. Gauges											
17.17.1. Characteristics								A	B		
17.17.2. Calibrate	5^							2b	b		
17.18. Automotive dispensing system											
17.18.1. Characteristics											
17.18.1.1. Submersible								A	B		
17.18.1.2. Self-contained								A	B		
17.18.2. Inspect								a	b		
17.18.3. Troubleshoot	5^							2b	b		
17.18.4. Repair								a	b		
17.18.5. Replace								a	b		
17.18.6. Calibrate meters	5^							2b	b		
17.19. TANK/CONFINED SPACE ENTRY TR: API Standard 2015 7th Ed (Note 3b); AFM 91-203, AFM 32-1067; **MyLearning**											
17.19.1. Characteristics								A	B		
17.19.2. Complete Confined Space Course WBT	5										
17.19.3. Specialized protective equipment											
17.19.3.1. Inspect	5^							2b	b		
17.19.3.2. Use	5^							2b	b		
17.19.3.3. Maintain	5^							a	b		
17.19.3.4. Characteristics								A	B		
17.20. Perform tank inspection								a	b		
17.21. Perform tank cleaning								a	b		
17.22. Return tank to service								a	b		

Attachment 2
3E4X1/3E4X1A Specialty Training Standard (STS)

1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training / Information Provided Via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI + TQT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
17.23. DEACTIVATE FUEL SYSTEMS TR: UFC 3-460-01											
17.23.1. Characteristics											
17.23.1.1. Tanks									B		
17.23.1.2. Piping									B		
17.23.1.3. Electrical									B		
17.23.1.4. Mechanical									B		
18.0. AFS-SPECIFIC CONTINGENCY RESPONSIBILITIES TR: War Mobilization Plan											
18.1. Latrines TR: AFPAM 10-219V7; AFH 10-222V1											
18.1.1. Characteristics											
18.1.1.1. Pit		*							B		
18.1.1.2. Straddle trench		*							B		
18.1.1.3. VIP		*							B		
18.1.1.4. Burnout		*							B		
18.1.1.5. Pail		*							B		
18.1.1.6. Mound		*							B		
18.1.2. Install											
18.1.2.1. Pit		*							b		
18.1.2.2. Straddle trench		*							b		
18.1.2.3. VIP		*							b		
18.1.2.4. Burnout		*							b		
18.1.2.5. Pail		*							b		
18.1.2.6. Mound		*							b		
18.1.3. Maintain											
18.1.3.1. Pit		*							b		
18.1.3.2. Straddle trench		*							b		
18.1.3.3. VIP		*							b		
18.1.3.4. Burnout		*							b		
18.1.3.5. Pail		*							b		
18.1.3.6. Mound		*							b		
18.2. Wastewater Disposal TR: AFM 32-1067; AFPAM 10-219V7											
18.2.1. Characteristics											

Attachment 2
3E4X1/3E4X1A Specialty Training Standard (STS)

1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training / Information Provided Via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI + TQT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
18.2.1.1. Urine soakage pit		*						A	B		
18.2.1.2. Lagoons		*						A	B		
18.2.1.3. Evaporation beds		*						A	B		
18.2.1.4. Septic tanks		*						A	B		
18.2.1.5. Lift stations		*						A	B		
18.2.1.6. Leach fields		*						A	B		
18.2.2. Install											
18.2.2.1. Urine soakage pit		*						a	b		
18.2.2.2. Lagoons		*						a	b		
18.2.2.3. Evaporation beds		*						a	b		
18.2.2.4. Septic tanks		*						a	b		
18.2.2.5. Lift stations		*						a	b		
18.2.2.6. Leach fields		*						a	b		
18.2.3. Maintain											
18.2.3.1. Urine soakage pit		*						a	b		
18.2.3.2. Lagoons		*						a	b		
18.2.3.3. Evaporation beds		*						a	b		
18.2.3.4. Septic tanks w/ leach fields		*						a	b		
18.2.3.5. Lift stations		*						a	b		
18.3. Base Expeditionary Airfield Resources (BEAR) assets											
18.3.1 Small Shelter System TR: T.O. 35E5-6-11											
18.3.1.1. Set up / Maintain / Teardown								2b	b		
18.3.2. BEAR Water System TR: AFPAM 10-219V5; AFH 10-222 V11											
18.3.2.1. Characteristics		*							B		
18.3.2.2. Set up ♦	5^	*							b		
18.3.2.3. Troubleshoot ♦	5^	*							b		
18.3.2.4. Repair ♦	5^	*							b		
18.3.3. Water Production: 1500 ROWPU TR: AFPAM 10-219V5; T.O. 40W4-20-1											
18.3.3.1. Characteristics		*						A	B		
18.3.3.2. Set up ♦	5^	*						1a	b		
18.3.3.3. Operate ♦	5^	*						1a	b		

Attachment 2
3E4X1/3E4X1A Specialty Training Standard (STS)

1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training / Information Provided Via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI + TQT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
18.3.3.4. Maintain ♦	5^	*						1a	b		
18.3.4. Self-Help Laundry TR: AFPAM 10-219V5; T.O. 50D1-4-11											
18.3.4.1. Characteristics		*							B		
18.3.4.2. Set up		*							b		
18.3.4.3. Troubleshoot		*							b		
18.3.4.4. Repair		*							b		
18.3.5. Electric Kitchen Equipment Utility Support TR: AFPAM 10-219V5											
18.3.5.1. Potable water supply		*						A	B		
18.3.5.2. Waste water disposal		*						A	B		
18.3.6. Grease trap TR: AFH10-222V1											
18.3.6.1. Characteristics		*						A	B		
18.3.6.2. Install		*						a	b		
18.3.6.3. Maintain		*						a	b		
18.3.7. Portable Shower Unit & Shave Unit TR: AFPAM 10-219V5; T.O. 35E35-4-1											
18.3.7.1. Set up ♦	5^	*							b		
18.3.7.2. Perform operational test ♦	5^	*							b		
18.3.7.3. Service/Periodic maintenance ♦	5^	*							b		
18.3.7.4. Troubleshoot ♦	5^	*							b		
18.3.7.5. Repair ♦	5^	*							b		
18.3.8. Field Deployable Latrine TR: AFPAM 10-219V5; T.O. 35E35-5-1											
18.3.8.1. Set up ♦	5^	*							b		
18.3.8.2. Maintain ♦	5^	*							b		
18.3.8.3. Disassemble ♦	5^	*							b		
18.3.9. Medical facilities utility support TR: TO's -5-1 & 35E3 Series; AFPAM 10-219V 3		*						A	B		
18.3.10. Expandable Bicon Shelter (EBS) Hygiene System TR: TO 35E4-164-1											
18.3.10.1. Characteristics		*							B		
18.3.10.2. Set up ♦	5^	*							b		

Attachment 2
3E4X1/3E4X1A Specialty Training Standard (STS)

1. Tasks, Knowledge and Technical References	2. Tasks		3. Certification For OJT					4. Proficiency Codes Used To Indicate Training / Information Provided Via DL and/or Course			
	A	B	A	B	C	D	E	A	B	C	D
	Core Cert ^	Deployment * SEI + TQT ~	Tng Start	Tng Comp	Trainee Initials	Trainer Initials	Certifier Initials	3 Lvl	5 Lvl	7 Lvl	9 Lvl
18.3.10.3. Maintain ♦	5^	*							b		
18.3.10.4. Disassemble ♦	5^	*							b		
18.4. Survivability support											
18.4.1. Water Supply TR: AFPAM 10-219V5											
18.4.1.1. Alternate water											
18.4.1.1.1. Expansion of water facilities		*						A	B		
18.4.1.1.2. Surface water locations		*						A	B		
18.4.1.1.3. Shallow well development (maximum 3 foot)		*						A	B		
18.5. Sewer sucker trailer (SST)		*						A	B		
18.6. Set up Water bladders		*						a	b		
18.7. Set up Fuel bladders		*						a	b		
18.8. Water and Fuels Expeditionary Repair System (WaFERS)		*						A	A		

Attachment 3
3E4X1/3E4X1A Air Force Qualification Training Package Documentation Record

A3. AFQTP Documentation Record.

A3.1. To ensure each Water and Fuel Systems Maintenance and Liquid Fuels Maintenance Airman trains to the correct standard, an Air Force Qualification Training Package (AFQTP) for each core task. Trainees, trainers, and certifiers use these **mandated** AFQTPs in their on-the-job-training program for upgrade to the 5- or 7-level.

A3.2. These AFQTPs cover all aspects of the task sufficiently and provides additional task knowledge in preparation for hands-on training. AFQTPs summarize procedures on a task performance checklist for use by trainers, certifiers, and trainees.

A3.2.1. The UTM or supervisor can download paper-based AFQTP's. Paper-based AFQTP's are on **CE DASH** under documents in the AFQTP folder.

A3.2.2. In addition to the paper-based AFQTPs there are web-based courses or assessments developed for certain tasks that are available on **MyLearning** under AFCEC in the 3E4X1 or Home Station topic area.

A3.3. **Documentation.** Before signing off a core or diamond task in the JQS section of the individual automated training record, sign off the task first in the AFQTP section.

A3.3.1. **Core Tasks.** To document the completion the supervisor or trainer opens the individual automated training record, navigates to the QTP section, enter the start and completed date with signatures.

A3.3.2. **Diamond (♦) Tasks.** Supervisors/Trainers DO NOT sign off the corresponding JQS task until the trainee has completed hands-on training. If the required equipment is not available at your location, completion of the task's AFQTP web-based course or assessment with a passing score of 80% is all that is required for upgrade training. Accomplish hands-on certification at the first opportunity when equipment or funding is available.

Attachment 3
3E4X1/3E4X1A Air Force Qualification Training Package Documentation Record

A3.4. 3E4X1 AFQTP's for Core and Diamond Tasks Requirements.

Task Number	Tasks, Knowledge and Technical References	Core /Deployment Tasks		Certification of AFQTPs			
		Core	Deployment	Tng Start	Tng Complete	Trainee Initials	Trainer Initials
1.0.	**CIVIL ENGINEER (CE) COMMON CORE CONCEPTS COURSES**						
1.1.	Accomplish CE 5-Level Core Concepts Course	5					
1.2.	Accomplish CE 7-Level Core Concepts Course	7					
1.4.	Complete AFIT WMGT 301 Introduction to Asset Management	5					
1.5.	Complete AFIT WMGT 322 Intro to Project Management	7					
3.0.	**AFS-SPECIFIC HEALTH and SAFETY**						
3.15.	Arc Flash Safety	5					
3.16.	**Confined Space**						
3.16.1.	Confined space entries	5					
3.16.2.	Atmospheric hazards indicator	5					
5.0.	**PROJECT PLANNING**						
5.1.	**Use building construction plans to identify:**						
5.1.1.	Installation procedures	7					
5.1.3.	Types of systems	7					
5.2.	Prepare working sketches	7					
5.4.	Prepare bill of materials request	5					
6.0.	**AFS FUNDAMENTALS**						
6.6.	**Pipe Fitting**						
6.6.1.	Measure	5					
6.6.2.	Cut	5					
6.6.3.	Ream	5					
6.6.4.	Thread	5					
6.6.5.	Solder	5					
6.6.6.	Complete solvent weld	5					
6.8.	**Locate components using:**						
6.8.1.	Utility maps	5					
7.0.	**INDUSTRIAL CONTROL SYSTEMS**						
7.3.	Complete WENG 170 Cybersecurity for Control Systems	5					
7.4.	Complete WENG 370 Control Systems Cybersecurity for CE Leaders	7					
8.0.	**WATER SYSTEMS**						
8.7.	**Fire hydrants**						
8.7.3.	Inspect	7					
8.7.4.	Repair	5					
8.7.5.	**Area flow test**						
8.7.5.1.	Conduct static pressure test	7					
8.7.5.2.	Conduct residual and velocity tests	7					
8.7.5.3.	Calculate test data	7					
9.0.	**WASTEWATER SYSTEMS**						
9.2.	**Collection system piping**						
9.2.2.	Install plastic pipe	5					
9.2.3.	Establish trench grade	5					

Attachment 3
3E4X1/3E4X1A Air Force Qualification Training Package Documentation Record

Task Number	Tasks, Knowledge and Technical References	Core /Deployment Tasks		Certification of AFQTPs			
		Core	Deployment	Tng Start	Tng Complete	Trainee Initials	Trainer Initials
9.2.4.	Establish pipeline slope	5					
9.2.5.	Backfill trenches	5					
9.2.6.	Drain excavations	5					
9.5.	**Use**						
9.5.3.	Power augers	5					
9.5.7.	Sewer pumper truck	5					
13.0.	**ELECTRICAL SYSTEMS**						
13.1.	**Electrical fundamentals**						
13.1.3.	Use electrical schematics	5					
13.1.5.	Inspect electrical components/circuits	5					
13.1.7.	Replace electrical components	5					
13.1.8.	Connect/disconnect motors	5					
13.2.	**Use test equipment to measure:**						
13.2.1.	Voltage	5					
13.2.2.	Resistance	5					
13.2.3.	Current	5					
14.0.	**FIXTURES AND PLUMBING COMPONENTS**						
14.3.	**Replace**						
14.3.1.	Faucets	5					
14.3.2.	Lavatories (Sinks)	5					
14.3.4.	**Water closets (Toilets)**						
14.3.4.1.	Floor mount	5					
14.3.4.2.	Wall-hung	5					
14.3.5.	Wall-hung urinals	5					
14.3.10.	**Flushometers**						
14.3.10.1.	Diaphragm	5					
14.3.10.2.	Piston	5					
14.4.	**Repair**						
14.4.1.	**Water closet components (Toilets)**						
14.4.1.1.	Floor mount	5					
14.4.1.2.	Wall hung	5					
14.4.3.	**Mixing valves**						
14.4.3.1.	Manual	5					
14.4.3.2.	Pressure balancing	5					
14.4.4.	**Flushometers**						
14.4.4.1.	Diaphragm	5					
14.4.6.	**Water Heaters**						
14.4.6.1.	Electric	5					
14.4.8.	Emergency eyewash/shower	5					
15.0.	**VALVES**						
15.4.	**Repair**						
15.4.6.	Pressure regulating	5					
15.4.7.	Pressure relief	5					
15.7.	**Pumps**						
15.7.3.	**Rebuild**						
15.7.3.2.	Double Diaphragm	5					
16.0.	**WATER TESTING**						
16.1.	**Perform water tests**						
16.1.1.	pH	5					

Attachment 3
3E4X1/3E4X1A Air Force Qualification Training Package Documentation Record

Task Number	Tasks, Knowledge and Technical References	Core /Deployment Tasks		Certification of AFQTPs			
		Core	Deployment	Tng Start	Tng Complete	Trainee Initials	Trainer Initials
16.1.2.	Chlorine residual	5					
17.0.	**FUELS SYSTEMS FUNDAMENTALS**						
17.5.	**Fuel Systems**						
17.5.4.	Programmable Logic Controller (PLC)	7					
17.7.	**Pressure/flow transmitters** (PIT/DPT-Type III IV)						
17.7.2.	Calibrate ♦	5					
17.8.	**Troubleshoot**						
17.8.3.	Type III ♦	5					
17.10.	**Coupler/Single-point nozzle**						
17.10.2.	Repair	5					
17.11.	**Perform pressure test**						
17.11.2.	Annual	5					
17.13.	**Automatic valves**						
17.13.2.	Adjust	5					
17.13.3.	Repair	5					
17.14.7	**API 610 standard centrifugal pump**						
17.14.7.5.	Align	5					
17.15.2.	**Filtration equipment**						
17.15.2.2.	Replace filter element cartridge ♦	5					
17.15.3.	Set safety relief valve ♦	5					
17.15.4.	**Fuel meters**						
17.15.4.2.	Calibrate meters ♦	5					
17.15.4.3.	Use master meter ♦	5					
17.17.	**Automotive dispensing system**						
17.17.1.	**Characteristics**						
17.17.3.	Troubleshoot	5					
17.17.6.	Calibrate meters	5					
17.18.	**Storage Tanks**						
17.18.5.	**Gauges**						
17.18.8.2.	Calibrate	5					
17.19.	**TANK/CONFINED SPACE ENTRY**						
17.19.2.	Complete Confined Space Course WBT	5					
17.19.3.	**Specialized protective equipment**						
17.19.3.1.	Inspect	5					
17.19.3.2.	Use	5					
17.19.3.3.	Maintain	5					
18.0.	**SPECIFIC CONTINGENCY RESPONSIBILITIES**						
18.3.	**Base Expeditionary Airfield Resources (BEAR) assets**						
18.3.1.	**BEAR Water System**						
18.3.1.2.	Set up ♦	5	*				
18.3.1.3.	Troubleshoot ♦	5	*				
18.3.1.4.	Repair ♦	5	*				
18.3.2.	**Water Production: 1500 ROWPU**						
18.3.2.2.	Set up ♦	5	*				
18.3.2.3.	Operate ♦	5	*				
18.3.2.4.	Maintain ♦	5	*				
18.3.6.	**Portable Shower Unit & Shave Unit**						
18.3.6.1.	Set up ♦	5	*				

Attachment 3
3E4X1/3E4X1A Air Force Qualification Training Package Documentation Record

Task Number	Tasks, Knowledge and Technical References	Core /Deployment Tasks		Certification of AFQTPs			
		Core	Deployment	Tng Start	Tng Complete	Trainee Initials	Trainer Initials
18.3.6.2.	Perform operational tests ♦	5	*				
18.3.6.3.	Service/Periodic maintenance ♦	5	*				
18.3.6.4.	Troubleshoot ♦	5	*				
18.3.6.5.	Repair ♦	5	*				
18.3.7.	**Field deployable Latrine**						
18.3.7.1.	Set up	5	*				
18.3.7.2.	Maintain	5	*				
18.3.7.3.	Disassemble	5	*				
18.3.9.	**Expandable Bicon Shelter (EBS) Hygiene System**						
18.3.9.2.	Set up	5	*				
18.3.9.3.	Maintain	5	*				
18.3.9.4.	Disassemble	5	*				