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SECRETARY OF THE AIR FORCE**



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Flying Operations

**COCKPIT/CREW RESOURCE
MANAGEMENT AND THREAT &
ERROR MANAGEMENT PROGRAM**

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This publication implements Air Force Policy Directive (AFPD) 11-2, *Aircrew Operations*, Air Force Instruction (AFI) 11-200, *Aircrew Training, Standardization/Evaluation, and General Operations Structure*, and is consistent with AFPD 11-4, *Aviation Service*. It establishes the Air Force Cockpit/Crew Resource Management and Threat & Error Management (CRM/TEM) Program. This publication is applicable to all civilian employees and uniformed members of the Regular Air Force, Air Force Reserve (AFR), and Air National Guard (ANG). This publication does not apply to the United States Space Force. Ensure all records generated as a result of processes prescribed in this publication adhere to Air Force Instruction 33-322, *Records Management and Information Governance Program*, and are disposed in accordance with the Air Force Records Disposition Schedule, which is located in the Air Force Records Information Management System. Submit suggested changes to this publication on Air Force (AF) Form 847, *Recommendation for Change of Publication*, through the chain of command, to AF/ACTF, usaf.pentagon.af-a3.mbx.actf-workflow@mail.mil. Major commands (MAJCOMs), direct

reporting units (DRUs), and Headquarters Air Force Field Operating Agencies (FOAs) may supplement this publication; coordinate supplements with the Deputy Chief of Staff, Operations, Directorate of Training and Readiness, and Aircrew Task Force (AF/ACTF) before publishing. The authorities to waive wing/unit level requirements in this publication are identified with a Tier (“T-0, T-1, T-2, T-3”) number following the compliance statement. See DAFI Instruction (DAFI) 33-360, *Publications and Forms Management*, for a description of the authorities associated with the Tier numbers. Submit requests for waivers through the chain of command to the appropriate Tier waiver approval authority, or alternately, as directed at [paragraph 1.4](#) Compliance with attachments to this publication are mandatory.

(AFGSC) This supplement implements and extends the guidance of AFMAN 11-290, *Cockpit/Crew Resource Management and Threat & Error Management*: This supplement provides additional information for the Air Force Global Strike Command (AFGSC) Cockpit/Crew Resource Management and Threat & Error Management (CRM/TEM) Program. This supplement is applicable to all AFGSC civilian employees and uniformed members of the Regular Air Force, Air Force Reserve (AFR), and Air National Guard (ANG). This publication may be supplemented at any level, but all direct supplements must be routed to the OPR of this publication for coordination prior to certification and approval. Ensure that all records created as a result of processes prescribed in this publication are maintained IAW AFI 33-322, *Records Management and Information Governance Program*, and disposed of IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). The authorities to waive wing and unit level requirements in this publication are identified with a tier number (“T-0, T-1, T-2, T-3”) following the compliance statement. See Department of the Air Force Manual (DAFMAN) 90-161, *Publishing Processes and Procedures*, for a description of the authorities associated with the Tier numbers. Submit requests for waivers through the chain of command to the appropriate tier waiver approval authority, utilizing guidance identified in DAFMAN 90-161. Send comments and suggested improvements to this supplement on AF Form 847, *Recommendation for Change of Publication*, through training channels, to AFGSC/A3T, AFGSC.A3T.workflow@us.af.mil.

SUMMARY OF CHANGES

This document has been substantially revised and needs to be completely reviewed. Major changes include the addition of Threat and Error Management (TEM) requirements under the umbrella of the CRM/TEM Program.

(AFGSC) This document has been substantially revised and needs to be completely reviewed. Major changes include the addition of Threat and Error Management (TEM) requirements under the umbrella of the CRM/TEM Program. Previous references to Aerospace and Operational Physiologist (AOP) have been removed and any associated duties and responsibilities to AFGSC CRM/TEM have been reassigned to squadron instructors, unit safety representatives, or missile safety officers.

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Section A—Cockpit/Crew Resource Management and Threat & Error Management (CRM/TEM) Program Description

1. Overview. The Air Force CRM/TEM program provides crewmembers with performance-enhancing knowledge and skills directly applicable to their roles in the mission of the Air Force. CRM/TEM Program training is a key component of a combined effort to identify and manage threats to ensure safe and effective mission operations. CRM/TEM Program training begins with crewmembers’ initial Air Force flying training and is continuously built upon throughout their operational careers. Training objectives are tailored to the knowledge and skill level of the crewmember. CRM/TEM Program training should emphasize performance skills more than academic objectives as the crewmember becomes more proficient.

1. (AFGSC) Overview. CRM/TEM training is a key component of a combined effort to identify and manage threats to safe and effective mission operations. Successful CRM/TEM training is designed to enable crews to maximize operational effectiveness and combat capability, preserve personnel and material resources, ensure the safety of non-combatant civilians, and facilitate mishap reduction in AFGSC crewmember operations. Combined with skills training and practice, these capabilities are the central theme of AFGSC’s CRM/TEM training program. Five different phases of CRM/TEM training (outlined in paragraph 3.6. of AFMAN 11-290, as supplemented) provide an operationally oriented repetitive practice in the use of CRM/TEM skills. Each course curricula is developed in a manner that motivates crewmembers to use the six CRM/TEM knowledge and skill sets and provides feedback on the use of that skill.

1.1. CRM/TEM Program Purpose. The CRM/TEM Program focuses on the effective utilization of all appropriate and available resources as countermeasures to operational threats and human errors so as to ensure mission success. CRM and TEM are independent, yet also

interdependent. CRM emphasizes how flight and crewmembers communicate, manage resources, and make decisions. TEM emphasizes effective management and communications regarding operational threats and human errors. Crewmembers must be proficient in CRM and TEM skills. Safe and effective operations are achieved when CRM/TEM Program skills and technical expertise are employed together.

1.2. **Goals.** The CRM/TEM Program goals are:

1.2.1. Maximize operational effectiveness and combat capability.

1.2.2. Preserve personnel and material resources.

1.2.3. Ensure the safety of non-combatant civilians and friendly forces.

1.2.4. Facilitate mishap reduction by providing skills, processes, tools, and techniques to aircrew members to effectively identify threats and mitigate errors in aviation operations.

1.3. **Objectives.** Design and manage CRM/TEM Program training to accomplish the following objectives:

1.3.1. Develop aircrew understanding and proficiency of human factors skills to cultivate a safe and effective operational environment while accomplishing mission requirements.

1.3.2. Develop aircrew skills and strategies in recognizing and responding to threats and aircrew errors to prevent conditions that may lead to mishaps.

1.4. **Waivers.** Unless otherwise specified or tiered, the Deputy Chief of Staff for Operations, Director of Training and Readiness (AF/A3T) is the waiver authority for the provisions of this publication. Route waivers through applicable channels to MAJCOM/A3 (operations or equivalent). As applicable, MAJCOM/A3s will forward requests to AF/A3T, with an info copy to AF/ACTF.

1.4. **(AFGSC) Waivers.** Waivers must be processed following the guidelines established by DAFMAN 90-161, *Publishing Processes and Procedures*. Waiver requests will be submitted using the AF Form 679, *Air Force Publication Compliance Item Waiver Request/Approval*, or via e-mail or memorandum if the form is unavailable. Requests will include, at a minimum:

1.4.1. **(Added-AFGSC)** A reference to the text of the specific requirement for which the waiver is being requested, the rationale for the waiver, the time period or circumstance the waiver will be needed, the risk mitigation measures that will be implemented during the waiver period, and the impact if the waiver is disapproved.

1.4.2. **(Added-AFGSC)** Waivers may be approved for a period not to exceed the requested waiver period or 30 calendar days after the approving commander's tour length, whichever is shorter. Waivers that are not renewed by the incoming commander within the 30-calendar day period are invalid.

1.4.3. **(Added-AFGSC)** A copy of approved waivers provided for CRM/TEM Program requirements below the MAJCOM level will be sent to AFGSC/A3TO [afgsca3bo@us.af.mil].

2. Roles and Responsibilities.

2.1. **Headquarters Air Force, Director of Training and Readiness (AF/A3T)**. Through the ACTF, manages the CRM/TEM Program and provides resources to implement guidance in this publication.

2.2. Commanders.

2.2.1. MAJCOMs, FOAs and DRUs establish and manage their respective programs in accordance with this publication. MAJCOMs may implement their CRM/TEM Programs as either "Cockpit" or "Crew" Resource Management, based on their respective missions.

2.2.2. Provide proportional funding as necessary to support the lead MAJCOM CRM/TEM Program.

2.3. **Air Force Safety Center (AFSEC)**. Provides advice and support to AF CRM/TEM Program Working Group as defined in **Section B** of this publication.

2.4. **CRM/TEM Program Managers**. MAJCOM, FOA, and DRU CRM/TEM Program Managers develop and implement local CRM/TEM Program requirements in accordance with this manual. (T-2) See [paragraph 5.3.1](#).

2.5. **Flight/Crew Members**. Attends CRM/TEM Program training sessions and adheres to established policies and procedures in accordance with this publication. (T-3) Lead commands define "crew member" in terms of their own operational mission requirements.

2.5. **(AFGSC) Flight/Crew Members**. AFGSC crewmembers are identified as any pilot, navigator, combat systems officer, flight surgeon, career enlisted aviator, mission crew officer, electronic warfare officer, weapon systems officer, missile combat crewmember, weapons system maintainer, and enlisted specialist assigned to AFGSC. Non-AFGSC personnel assigned crewmember duties on an AFGSC weapon system are also considered AFGSC crewmembers. This includes all staff CCMD, MAJCOM, NAF, and wing crewmembers that fly/perform alert as part of their official duties.

2.6. **Air Education and Training Command** shall ensure aircrew training curricula adheres to guidance in this publication.

3. Program Requirements. Compliance with the CRM/TEM Program is mandatory for aircrew members. (T-2)

3. (AFGSC) Program Requirements. Compliance with the CRM/TEM Program is mandatory for individuals identified as AFGSC crewmembers. (T-2)

3.1. **Guidance**. Lead MAJCOMs ensure CRM/TEM Program requirements, currency, tracking, and evaluation guidance are in AFMAN 11-2 mission design series (MDS) specific volumes 1 and 2, in accordance with AFI 11-200. (T-2) Ready Aircrew Program (RAP) tasking memo or similar product may provide additional guidance. Guidance includes:

3.1.1. Establishing training frequency, required attendees, and method for tracking crewmember currencies.

3.1.1. **(AFGSC) Crewmembers**, unit designated CRM/TEM Stopgap training instructors, and contract instructor personnel are required to take CRM/TEM continuation training (CT) every 2 years (biennial). CT will be required by the end of the month, 2 years after

receiving previous CRM training. Crewmembers taking the instructor CRM course will receive credit for CT requirements. **(T-3)**

3.1.1.1. **(Added-AFGSC)** CRM/TEM training is tracked via the Aviation Resource Management System (ARMS). Crewmembers who do not accomplish CRM training within a 2-year period will be grounded/restricted from crewmember flight/alert duties until training is accomplished or a waiver is granted for the training. Waivers for CRM/TEM training currency will not exceed one year. A copy of approved waivers must be sent to AFGSC/A3TO (afgsca3bo@us.af.mil). **(T-3)**

3.1.1.2. **(Added-AFGSC)** Operations group standardization/evaluation (STAN/EVAL) will determine if new crewmembers previous CT CRM/TEM training fulfills AFGSC CT CRM/TEM training requirements. Crewmembers must present documentation of completed CRM/TEM training (by ARMS for example) to STAN/EVAL for approval. Crewmembers can submit CRM/TEM training from other MAJCOMs for consideration toward satisfying their biennial AFGSC CRM training requirement.

3.1.1.3. **(Added-AFGSC)** AFGSC Instructors and evaluators document CRM performance for all simulator, flight training, evaluation missions, and missile alerts. Document using the AF Form 4031, CRM/TEM Skills Criteria Training/Evaluation or an approved locally developed method IAW CRM/TEM skills list Tables **1 and 2** (e.g., local grade sheets, AF Form 8, AFGSC Form 95, or a locally developed tracking procedure). Units will identify and document CRM/TEM trends (both positive and negative) and report them in Training Review Boards (TRB). This reporting requirement will be incorporated into AFI 11-2 B-1, AFI 11-2 B-2, AFI 11-2 B-52, AFI 11-2 UH-1-N, AFGSCI 13-52XX series volumes, and future CRM/TEM training. **(T-3)**

3.1.1.4. **(Added-AFGSC)** [ICBM] CRM/TEM performance is evaluable criteria for crew rating. Evaluators will provide an AF Form 4031 for crew feedback/ improvement and evaluation trend analysis. Unit CRM representatives will report findings to AFGSC/A3TO (afgsca3bo@us.af.mil). Reporting of trends will be incorporated into AFGSCI 13-52XX series volumes and future CRM/TEM training. **(T-3)**

3.1.2. Use of AF Form 4031, *CRM/TEM Skills Criteria Training/Evaluation Form*, or MAJCOM/FOA/DRU approved substitute, to establish the skills training/evaluation criteria.

3.1.2. **(AFGSC)** Flight/Alert Mission and Simulator Mission Grade Sheets/Guides. CRM/TEM elements are tracked to improve the crew force. The use of grade sheets (e.g., MARs, TARs, GTARs) or other forms is for instructional, tracking, and trending purposes only. Crewmember and simulator mission grade sheets will contain CRM/TEM grading items as specified below in **Table 1** ICBM evaluators may reference **Table 1** below or the AF Form 4031. Instructors may use the CRM/TEM skill behaviors listed in the AF Form 4031 or the examples in **Table 2** as a debriefing guide.

3.1.3. If using a contract vehicle, provide a uniform CRM/TEM Program via a contract vehicle that covers all applicable units to include units gained from AFR or ANG.

3.1.3.1. **(Added-AFGSC)** CRM/TEM Program contracts must identify all data that the contractor must deliver to the government, to include background data. Contractors who receive, process, store, or otherwise handle data created for government use or data that is legally controlled by the government shall do so in accordance with AFI 33-322, *Records Management and Information Governance Program*. This includes electronic records along with any technical documentation that allows the government to use the data. Protection of government data will be IAW DOD5400.7-R_AFMAN 33-302, *Freedom of Information Act Program*.

3.1.3.2. **(Added-AFGSC)** Contract statement of work or performance work statements must include the following statement: "Contractors who receive, process, store, or otherwise handle data created for government use or data that is legally controlled by the government shall do so in accordance with AFI 33-322, *Records Management and Information Governance Program*, and public law. This includes all electronic records and technical documentation that will allow the government to use the data. Upon completion or termination of the contract, all material will be turned over to the government. Protection of government data will be IAW DOD5400.7-R_AFMAN 33-302."

3.2. **Training Program.** Each MAJCOM, FOA and DRU CRM/TEM Program Training Manager will address the following CRM/TEM Program skills. Skills must be:

3.2. **(AFGSC) Training Program.** AFGSC's CRM/TEM training program will be data driven, skills-based, and operationally integrated to improve the daily mission performance of AFGSC crewmembers. Data sources should include Air Force Safety Center (AFSEC) data, local standardization and evaluation reports, mission reports, training summaries and grade sheet analysis.

3.2.1. Integrated into flight briefings and debriefings. **(T-2)**

3.2.2. Integrated into training syllabi. **(T-2)**

3.2.3. Evaluated during initial qualification and recurring evaluations and assessed during designated CRM/TEM Program training events using the AF Form 4031, or approved MAJCOM substitute. **(T-2)** In addition, the AF Form 4031 will be used as a framework to assess CRM/TEM Program skills and strategies during all aircrew evaluations while using the AF Form 3862, *Flight Evaluation Worksheet*, or MAJCOM approved substitute. **(T-2)**

3.3. **CRM/TEM Program Model.** Mission effectiveness and safe operations represent the desired operating environment. As crewmembers encounter operational threats or make errors, there is a potential to move away from the desired operating environment. Unmitigated, the result may be an Undesired State (US)—possibly leading to a mishap. The effective application of CRM/TEM Program skills and strategies creates a proactive pathway, returning crewmembers to mission effectiveness and safe operations. **Figure 1** is a CRM/TEM Program model depicting the interaction and employment of CRM/TEM Program skills.

Figure 1. CRM/TEM Program Model.



3.4. **CRM Core Curricula.** The CRM/TEM Program core curricula includes the following knowledge and skill sets that are to be taught and demonstrated during classroom and simulator training (see AF Form 4031 or approved substitute).

3.4.1. **Mission Analysis** . Includes pre-mission analysis and planning, briefing, ongoing mission evaluation, and post mission debrief. Clearly define mission overview/goals and existing/potential threats or anticipated errors that might adversely affect mission success, along with relevant threat/error mitigation strategies. **(T-2)** Mission analysis instruction will include specific TEM tools and techniques throughout the mission/flight. **(T-2)** Debrief instruction will include aircrew responses and outcomes to threats and errors, giving emphasis to any US that may have occurred. **(T-2)**

3.4.2. **Situational Awareness (SA)** . Includes knowledge and skill objectives for identifying errors, preventing the loss of SA, recognizing the loss of SA, and techniques for recovering from the loss of SA. Recognize the need for action and verbalize/act on unexpected events.

3.4.3. **Communication** . Includes knowledge of common errors, cultural influences, and barriers (rank, age, experience, position, etc.). Skills will encompass listening, feedback, precision and efficiency of communication with all members and agencies (crewmembers, wingmen, weather, air traffic control, intelligence, etc.). Use precise terminology, acknowledge all communications, and ask questions/provide clarification as applicable.

3.4.4. **Risk Management (RM)/Decision Making.** Includes risk assessment, the RM processes (deliberate, real time RM)/tools, breakdowns in judgment and flight discipline, problem-solving, evaluation of hazards, and control measures. Identify contingencies and alternatives, gather all available decision data, and clearly state decisions.

3.4.5. **Crew/Flight Coordination** . Includes the knowledge and skills required within (i.e., internal) and outside the crew/flight members (i.e., external) for mission coordination,

flight/mission integrity contracts, team-building, leadership, command authority, responsibility, behavioral styles, assertiveness, persistence, conflict resolution, hazardous attitudes, legitimate avenues/methods of dissent, and solution driven statements. Adapt as situational demands require, focus attention on task, and ask for inputs.

3.4.6. **Task Management** . Includes establishing priorities, using available resources to manage workload, overload/under-load, complacency, management of automation, checklist discipline, standard operating procedure (SOP), the verbalization of concerns relating to tasks, and the proposal of solutions to known task issues.

3.5. **TEM Core Curricula**. Includes knowledge that TEM is a structured, proactive, systems approach to principles employed using multiple layers of defenses. Recognize and enforce that TEM strategies are intuitive, logical, and flexible, designed to identify, prevent, and mitigate threats and/or trap (allay) inevitable crewmember-made errors. TEM promotes vigilance versus complacency by implementing an active, continuous process of identifying and preparing for threats and identifying and repairing errors at the earliest opportunity. Failing to effectively manage threats or errors negatively influences safe operations, which may lead to US and possible mishaps.

3.5.1. **Threat Identification and Mitigation** . Effective threat identification and mitigation strategies enhance SA and reduce the potential for crewmember error. The appropriate response to a threat is: Identify and Prepare. The earlier threats are identified (both anticipated and unanticipated), the more quickly and effectively they can be managed. Threats not properly identified, or identified but not effectively mitigated, may result in a degradation of safe operations. Effective threat mitigation strategies include: persistently briefing known and anticipated threats along with expected actions, evaluating and confirming current and expected tasks and/or flight progress, effective wingman duties, and adhering to SOP.

3.5.2. **Error Recognition and Mitigation** . Effective error management addresses the negative consequences of human errors, either made by oneself or by another flight/crewmember. Anticipate errors based on task complexity and circumstance. The earlier an error is identified, the more quickly it can be repaired. Effective strategies for error management include: anticipation of errors (e.g., as discussed during mission planning), maintaining awareness of aircraft status and flight/crew actions, appropriate task prioritization, and confirmation of the appropriately selected automation level for the situation. Effective error-countermeasures include continuous employment of flight path management (FPM) concepts, effective pilot monitoring (PM) and crewmember monitoring (CM), and communication/ coordination techniques such as verbalize, verify, and monitor (VVM).

3.5.3. **Undesired State (US)** . A US is a safety- or mission-compromised aircraft state (position, altitude, condition, configuration, or mission crew events/performance) resulting from ineffective CRM/TEM. The appropriate response to a US is: Identify and Recover. Once the US has been identified, aircrews must take immediate corrective action—this action will likely include a combination of CRM, TEM, and technical skills. A US from which a crew does not immediately recover may lead to an incident, accident, mishap, or mission failure.

3.6. CRM/TEM Program Training Phases. Each phase of training should prepare individuals to apply the knowledge and skills acquired in their specialty and motivate participants for the next phase of training. Training phases will include up-to-date CRM/TEM Program best practices. (T-2) Curricula will tailor CRM/TEM Program knowledge and skill objectives to fit the unique characteristics of each primary mission. (T-2) Discussions will include the practical application of CRM/TEM Program skills and strategies for each crew position. (T-2)

3.6.1. *Introductory or Awareness CRM/TEM Program Training.* Normally conducted in a formal training environment by Air Education and Training Command. Students learn standard CRM/TEM Program terminology and core concepts, along with TEM principles and introductory strategies (e.g., effective pilot flying (PF) and PM behaviors, flight member monitoring, CM behaviors, and VVM). Lesson plans will include a description of the building block approach to CRM/TEM Program training that the individual will participate in throughout their operational career. (T-2)

3.6.1. (AFGSC) *Introductory or Awareness CRM/TEM Program Training.* The purpose of Introductory or Awareness (Initial) CRM/TEM training during ICBM Initial Skills Training (IST)/ FTU training is to build a solid foundation of CRM/TEM principles and set the stage for Continuation Training (CT), computer-based CRM/TEM training, Unit Quarterly CRM/TEM Training, and daily CRM/TEM training that will enhance day-to-day operations and flight/alert briefings. Initial CRM/TEM courses form the bedrock upon which all subsequent Mission Design Series (MDS) CRM/TEM training is based and advances the Air Force philosophy of a continuum of learning in the critical area of Human Factors/CRM/TEM skills. All crewmembers attending an AFGSC FTU/IST course will accomplish the AFGSC FTU/IST CRM/TEM course in their respective MDS. This includes crewmembers transitioning from one MDS to another. Crewmembers cannot substitute Basic CRM training received between MDSs unless specifically tailored to a single FTU having multiple MDS assigned. Aircraft Transition CRM/TEM courses should leverage CRM/TEM knowledge gained in other weapon systems and focus on the unique CRM/TEM requirements for the new aircraft. Crewmembers returning to a weapon system they were previously certified in who did not receive basic CRM /TEM training during FTU/IST may substitute CT at the Operations Group Commander's discretion. CRM/TEM skill sets are to be included in all FTU/IST training syllabi. The 4-hour FTU/IST course can be set up in one of the following ways (as outlined in each MDS syllabi): one 4-hour block; two, 2-hour blocks; or 3 separate blocks of instruction at 2 hours, 1 hour, and 1 hour. Initial training may be accomplished during IST or upon arrival at unit. If not completed during FTU/IST, the Initial CRM/TEM course must be accomplished within 6 months of date arrived station (DAS). Waiver authority is OG/CC, and the waiver period may not extend beyond 12 months from DAS.

3.6.2. *Formal Training Unit/Combat Crew Training School CRM/TEM Program Training* . Students learn to apply knowledge and skills related to their assigned aircraft. Academic training is complemented during aircraft/simulator training. Emphasis should be placed on CRM/TEM Program techniques relating to preflight planning, briefing, in-flight utilization, and debriefing. This should include a succinct review of the CRM/TEM Program Model and CRM/TEM Program core concepts, as identified in paragraphs 3.3, 3.4, and 3.5 Mission-oriented simulator training (MOST) sessions or other simulated or

actual operational scenarios may be used as an integral part of CRM/TEM Program training. Evaluate students for technical expertise, as well as CRM/TEM skills based on the core curricula concepts. **(T-2)** If aircrew training devices are not available, students should participate in group problem-solving exercises.

3.6.2. **(AFGSC) FTU/IST CRM/TEM Training (Basic)**. This training is intended for all AFGSC crewmembers attending an AFGSC FTU/ IST. The FTU/IST course is a one-time only training requirement designed for students attending UPT/UNT, Basic Flight Engineer School, Undergraduate Air Battle Manager training, ICBM IST, or Enlisted Crewmembers Undergraduate Course. All CRM/TEM core curriculum skills will be introduced through mission relevant scenarios and interactive group exercises. The training will be designed to convey the learning objectives as mission essential skills that contribute to and enhance mission effectiveness and flight/alert safety. Crewmembers will be taught specific skills to be used during mission planning, briefing, flight/alert, and debrief activities. Improved mission effectiveness remains the primary goal. UH-1N CRM/TEM training is accomplished as required by AETC. Crewmembers not completing the FTU/IST CRM/TEM course during FTU/IST must receive the training within 6 months of date arrived station (DAS). The OG/CC may waive this requirement for a period not to exceed 12 months from DAS.

3.6.2.1. **(Added-AFGSC) FTU CRM/TEM Training (Advanced)**. [N/A for ICBM and UH-1N] This course is designed for the second tour crewmember with previous experience in the assigned MDS. Crewmembers transitioning to dissimilar MDS/aircraft will take the AFGSC FTU CRM/TEM course for that respective MDS/aircraft during the FTU program. Transitioning aircrew cannot substitute CRM/TEM training received between dissimilar aircraft MDS (i.e. single vs crew; heavy vs fighter). Aircraft transition CRM/TEM courses should leverage CRM/TEM knowledge gained in other aircraft and focus on the unique CRM/TEM requirements for the new aircraft. CRM/TEM training is to be included in all FTU training syllabi.

3.6.3. **Mission-Specific Continuation CRM/TEM Program Training** . MAJCOMs, FOAs and DRUs are responsible for CRM/TEM Program continuation training. **(T-2)** This training reinforces aircrew CRM/TEM Program academic knowledge, skills, and strategies. In addition, it bolsters the preemptive identification and mitigation of operational threats and aircrew-made errors, thereby reducing the potential for mishaps.

3.6.3. **(AFGSC)** Crewmembers will receive Mission-specific CRM/TEM CT at least once every two years [N/A for UH-1N]. Continuation training builds on the basic skills learned during FTU training and emphasizes those skills needed to safely and effectively meet weapons system mission requirements. CT courses are developed to include an overview of the core CRM/TEM skills and the required associated observable behaviors as they apply to the mission. Following the overview, at least two of the core skills directly related to mission/MDS-specific case studies will be covered in depth. CT courses incorporate skills practice opportunities and include MDS and mission-specific exercises, case studies, group interaction and skill assessment techniques. Realistic exercise and practice scenarios are designed to require specific actions by the crewmember and will be based on the most current incidents and combat or operational case studies available for that mission/MDS. These exercises are used by the crewmember to practice the effective use of CRM/TEM skills and by the instructors to validate and assess the crewmember's

understanding of the skill. Aircrew maintaining qualification in multiple MDS may satisfy the CT CRM/TEM requirement for both, provided case studies from both MDS are discussed.

3.6.3.1. Emphasize CRM/TEM Program skills and strategies in the mission qualification and continuation training programs so they become part of crewmembers' habit patterns and inseparable parts of operational practices. **(T-2)** Debriefings will include crewmembers' CRM/TEM Program performance (highlights/deficiencies) using AF 4031 (or approved substitute) as a guide. **(T-2)**

3.6.3.1. **(AFGSC)** Weapon System Trainer (WST), Missile Procedures Trainers (MPT), and Aircraft Sorties/Alert. Discussions on relevant CRM/TEM skills should be included in the pre-briefs and debriefs of all training and operational events. Positive and negative CRM skill application observations will be used to generate post flight/alert mission discussion. CRM skills should be debriefed, critiqued and documented using the AF Form 4031 (or approved substitute) on all training flight/alert missions and simulator missions.

3.6.3.2. Frequency for recurring CRM/TEM Program continuation training is defined in the AFMAN 11-2 MDS specific volume 1, a RAP tasking memorandum, or a similar product. Lead commands are responsible for providing guidance to standardize CRM/TEM Program MDS-specific training policies and requirements. All aircrew require mission-specific continuation training. **(T-2)** Separating training by crew position should normally be avoided, however, it is not mandatory to conduct this training with a complete aircrew.

3.6.3.2. **(AFGSC)** AFGSC CRM Policy. Teach CRM training in all training mediums to build on the awareness and introductory training received during FTU/IST. Classes should discuss application of CRM skills at each crew position and provide crewmembers with the opportunity to interact and learn from each other. Class composition should include crewmembers from each crew position. Use case studies to give crewmembers positive examples of CRM skill application. Include core CRM skill review during discussion of mission-specific skill application.

3.6.3.2.1. **(Added-AFGSC)** Additional CRM/TEM Training Opportunities. CRM training opportunities will be provided through computer-based presentations developed for crewmember use to avoid skill degradation. Crewmembers should use these presentations during unit training days, safety days, or any type of squadron meeting where CRM/TEM would be a useful topic of discussion. Computer based training can be conducted individually or in a group setting. Presentations will include all materials required to present the topic of interest. A different CRM/TEM skill will be emphasized each quarter. Squadron instructors are encouraged to utilize these presentations during wing/squadron/unit training sessions and during quarterly/annual safety meetings. Additional CRM/TEM training is located at <http://tms.cti-crm.com/caf/login.php> (for B-2, B-1 and B-52) and <http://tms.cti-crm.com/afgsc/login.php> (for ICBM). **(T-3)**

3.6.3.2.2. **(Added-AFGSC)** Unit Quarterly Training. Unit level presentations are designed for flight or squadron-wide training. This training is intended for use during flight meetings, safety meetings, Instructor /flight lead /mission commander

/crew commander meetings, or any other appropriate unit activity. CRM/TEM training is located at <http://tms.cti-crm.com/caf/login.php> (for B-2, B-1 and B-52) and <http://tms.cti-crm.com/afgsc> (for ICBM). Each module contains approximately 5 minutes of academics and 10 minutes of CRM/TEM skills practice using group exercise and/or case study evaluation. Each contains all of the training materials required to conduct the training, including an instructor guide and are compatible with unit audio/visual training devices.

3.6.3.2.3. **(Added-AFGSC) Daily Training Objectives.** Daily (or as scheduled to fly/alert) CRM/TEM practice will be provided through the use of a short training scenario titled Daily Training Objectives (DTO) listed on the CRM/TEM training website. The DTO will provide a short (2-3 minutes) scenario which demonstrates the effective or ineffective use of a specific CRM/TEM behavior particular to a specific MDS. This will be followed by a "what if" or "what would you do" question. Each DTO provides a specific CRM/TEM mission objective for that flight/alert, to be discussed in the briefing or debriefing and provides a daily standard against which crewmembers can compare mission performance. Crewmembers may use the DTO in conjunction with a flying/alert/simulator mission or may review the topic on an individual basis. Use of DTO's is not mandatory but highly encouraged.

3.6.4. **Flight Instructor/Evaluator Training .** All flight and simulator instructors/evaluators (military and civilian) will complete instructor and evaluator specific CRM/TEM Program training **(T-2)** This training will normally be accomplished as part of an instructor or evaluator upgrade program. **(T-2)** Existing aircrew instructors and evaluators, who have not previously attended the Instructor CRM/TEM Program course, must complete this training. **(T-2)** Courseware builds on the previous blocks of training, both to reacquaint candidates with CRM/TEM Program fundamentals and to maintain continuity of terminology and strategies. MAJCOMs, FOAs, and DRUs develop courseware related to instructing and evaluating key CRM/TEM Program skills that apply to command and aircraft-specific missions. **(T-2)** Personnel may conduct this training at operational units, formal training units, or a combination, as required. Training includes, but is not limited to, the proper use of AF Form 4031 (or approved substitute). See AFMAN 11-2MDS, Volume 1, RAP tasking memo, or similar product for specific requirements. Annotate "CRM/TEM Program Instructor" within the crewmember's training record upon completion of this course. **(T-2)**

3.6.4. **(AFGSC) AFGSC Instructor/Evaluator Training Requirements.** All instructors will complete CRM/TEM instructor training prior to assuming duties as an instructor. Instructor CRM/TEM training is a one-time requirement, exclusive of a particular weapons system and must be included in all instructor upgrade syllabi as a two-hour block of instruction. Instructors who have previously attended the Instructor CRM/TEM course may attend CRM/TEM CT to meet the two-year continuation training requirement. Taking the Instructor CRM/TEM course updates the biennial CRM/TEM training requirement [N/A for UH-1N FTU instructor upgrade]. Instructor candidates may take Instructor CRM/TEM training just prior to formally entering instructor upgrade training if not included as part of the instructor syllabus. If contractor training is not available during the period of instructor upgrade, waivers can be requested IAW

paragraph 1.4, until the next available training date but no later than one year after upgrade.

3.6.4.1. Include CRM/TEM Program instructor or evaluator training in all instructor and evaluator upgrade programs. **(T-2)**

3.6.4.1. **(AFGSC)** The continuous and daily involvement of the instructor/evaluator at the unit level is critical to the success of the CRM/TEM Program. CRM/TEM instructor/evaluator training courses are designed to prepare the individual to recognize, analyze, and evaluate CRM/TEM principles and document CRM/TEM performance in the FTU and operational unit. Instructors and evaluators will be provided with the tools and courseware instruction to allow them to integrate CRM/TEM principles into the unit's operational and training activities. These activities include (but are not limited to) pre-briefs and debriefs, flights/alerts, simulator training, and safety meetings. **(T-3)**

3.6.4.1.1. **(Added-AFGSC)** Instructor Training Objectives. CRM/TEM Instructor/Evaluator Training Course will provide proficiency in three specific areas:

3.6.4.1.1.1. **(Added-AFGSC)** Observing, assessing, and documenting CRM skills used by crewmembers in a mission environment.

3.6.4.1.1.2. **(Added-AFGSC)** Providing specific, meaningful, and standardized feedback to crewmembers regarding their CRM/TEM skills and overall mission effectiveness.

3.6.4.1.1.3. **(Added-AFGSC)** Computer based training applications, including the DTOs.

3.6.4.2. Flight instructors and evaluators should be highly proficient in all CRM/TEM Program skills and be experts in the recognition, observation, and reinforcement of these skills as they are applied by aircrew members in a mission environment.

3.6.4.3. Commanders will ensure contractor simulator instructor pilots have the CRM/TEM Program Instructor training requirement written into their performance work statement (PWS) to ensure the aforementioned instructors receive this training. **(T-2)**

3.6.5. **CRM/TEM Program Facilitator Training** . The CRM/TEM Program Facilitator Training course is intended to teach foundational CRM/TEM Program skills and principles that make CRM/TEM Program effective and motivating to aircrew members.

3.6.5. **(AFGSC) Stopgap CRM Training.** OG/CC's may request a squadron instructor, Unit Safety Representative (USR), or unit identified Missile Safety Officer (MSO) provide CRM/TEM Stopgap training (CRM/TEM continuation training courses only) in lieu of contracted services if the following guidelines are met:

3.6.5.1. CRM/TEM Program Facilitator Requirements. Formal CRM/TEM Program academic curricula must be delivered by a trained CRM/TEM Program Facilitator. **(T-2)** Facilitator training will include training in running exercises, structured crew observation, and effective academic feedback. **(T-2)**

3.6.5.1. (AFGSC) Contracted services are unavailable in a timely manner necessary to ensure compliance with this supplement.

3.6.5.2. Obtaining CRM/TEM Program Facilitator Training. CRM/TEM Program Facilitator training is obtained via any Department of Defense (DoD) or non-DoD agency that provides certified or accredited CRM/TEM Program or CRM/TEM Program Facilitator training and/or is recognized by the MAJCOM CRM/TEM Program Manager. (T-2) Annotate “CRM/TEM Program Facilitator” within the crewmember’s training record upon completion of this training.

3.6.5.2. (AFGSC) Individuals providing CRM/TEM Stopgap training must be a certified CRM/TEM facilitator and must use the current contractor provided continuation training courseware appropriate to the MDS. The individual must complete a courseware review with a MAJCOM certified CRM/TEM facilitator (contract instructor) prior to teaching CRM/TEM courses. Stopgap training instructors will monitor CRM/TEM classes appropriate for the MDS during contractor provided training to better familiarize themselves with current facilitation techniques, case studies, and classroom interaction. Once all requirements are completed, each stopgap training instructor will request approval from the AFGSC CRM/TEM Program Manager prior to certification by the OG/CC in writing. This appointment will be maintained in the individuals training folder. The Operations Group CRM/TEM Program Manager and/or Missile Wing Safety Office will maintain a current list of individuals approved to provide CRM/TEM Stopgap training.

3.6.5.3. CRM/TEM Program Facilitator Responsibilities. Once trained, CRM/TEM Program Facilitators are expected to maintain knowledge of current CRM/TEM Program concepts. Though the formal CRM/TEM Program Facilitator training course provides foundational CRM/TEM Program concepts and principles, CRM/TEM Program Facilitators should continually update their CRM/TEM Program knowledge, in addition to updating their classroom academic skills.

3.6.5.3. (AFGSC) Stopgap training instructors will submit training documentation to ARMS using local procedures. A report will be provided to the AFGSC CRM/TEM Program manager via email and will include (as a minimum) the instructors name, the date training was provided, the training location, and the name and rank of people trained.

4. Supporting Information. HQ Air Force Safety Center, MAJCOM, FOA, DRU and unit safety staffs will screen mishaps and human factors-related information for human performance errors. (T-2) MAJCOM, FOA, DRU and unit safety staffs should utilize HAF and lead command safety newsletters, or equivalent, related to CRM/TEM trend analysis. This information should be available for use during all phases of CRM/TEM training, as part of academics, simulator scenarios or for CRM/TEM case studies. When specifically requested, MAJCOM safety staffs will provide sanitized, non-privileged mishap/hazard driven safety information relating to human performance to include safety metrics related to CRM/TEM.

4.1. (Added-AFGSC) AFGSC/SEF is the focal point for providing sanitized “Limited Use” mishap information and Military Flight Operations Quality Assurance (MFOQA) data to the CRM/TEM program manager. The CRM/TEM program manager will work with contractor personnel for case study and courseware development.

4.2. **(Added-AFGSC) [ICBM] AFGSC/SE will** work with the AFGSC/A3T CRM program manager, the Air Force Safety Center, and CRM contractor personnel in determining case studies to be developed for CRM courses and case studies. Upon request, AFGSC/SE will provide sanitized mishap information to include USAF produced mishap animations as well as controlled access to AFSAS for CRM contractor personnel IAW AFI 91-204, Safety Investigations and Reports.

4.3. **(Added-AFGSC) Mishaps.** The mishaps screened should include mishaps from all AFGSC MDS and not be limited to only bomber, ICBM, or helicopter mishaps. Lessons learned and CRM/TEM principles can be gleaned from across a broad spectrum of crewmembers and systems.

Section B—CRM/TEM Program Administration

5. Air Force Oversight. AF/A3T provides oversight of the AF CRM/TEM Program. The AF CRM/TEM Program Steering Committee and AF CRM/TEM Program Working Group provide a means of gathering and analyzing program effectiveness and changes.

5.1. **The AF CRM/TEM Program Steering Committee.** The Steering Committee provides resources for administrative support to the AF CRM/TEM Program Working Group and standardizes CRM/TEM Program requirements, terminology, and change management.

5.1.1. Membership.

5.1.1.1. ACTF, Chair.

5.1.1.2. Deputy Chief of Staff, Operations, Directorate of Training and Readiness, Combat Air Forces Division (AF/A3TC).

5.1.1.3. Deputy Chief of Staff, Operations, Directorate of Training and Readiness, Mobility Air Forces Division (AF/A3TM).

5.1.1.4. HQ Air Force Flight Standards Agency/Operations Directorate (AFFSA/XO).

5.1.2. **Schedule.** The Steering Committee meets prior to each Aircrew Management Executive Council (AMEC) meeting and, as needed, to review inputs and set working group agenda items.

5.1.3. **Contact information.** ACTF workflow email: usaf.pentagon.af-a3.mbx.actf-workflow@mail.mil.

5.2. The AF CRM/TEM Program Working Group.

5.2.1. **Membership.** Members of the AF CRM/TEM Program Steering Committee, AFSEC representative, MAJCOM/FOA/DRU A3 (or equivalent) representatives, and additional personnel, as designated by the aforementioned steering committee.

5.2.2. **Scope and Administration.** The Working Group reviews program execution, policy changes, industry standards, and receives feedback from command programs.

5.2.2.1. The Working Group will meet in conjunction with AMEC meetings or as designated by the AF CRM/TEM Program Steering Committee. Agenda items may be submitted to the Steering Committee for consideration.

5.2.2.2. Report recommendations and findings to the Director of Training and Readiness (AF/A3T) and then disseminate to MAJCOM, FOA and DRU operations directorates.

5.3. Command Execution and Oversight. Execution and oversight of command CRM/TEM Programs rests within the MAJCOM, FOA and DRU operations directorates. MAJCOM, FOA and DRU Safety and Surgeon General Directorates are advisors and provide respective subject matter experts to the operations directorates for inputs to course content and delivery.

5.3.1. CRM/TEM Program Manager. Each MAJCOM, FOA and DRU will appoint a CRM/TEM Program Manager within the operations (or equivalent) function that will be responsible for the command program. **(T-1)** The CRM/TEM Program Manager will:

5.3.1. (AFGSC) CRM/TEM Program Manager. AFGSC/A3TO is the MAJCOM OPR for AFGSC CRM/TEM programs. Contact AFGSC/A3TO DSN 781-7869/1513, Com. 318-456- 7869/1513 for details. [afgsca3bo@us.af.mil] The AFGSC CRM/TEM program is part of the CAF CRM program contract under ACC. As the MAJCOM CRM/TEM Program Manager, AFGSC/A3TO will:

5.3.1.1. Ensure lead command's 11-2 MDS specific volumes 1 and 2 publications (or RAP tasking memo/similar product) provide CRM/TEM Program policy guidance. **(T-2)**

5.3.1.1. **(AFGSC)** Ensure lead command's 11-2 MDS and 13-52XX specific volumes (and/or RAP tasking memo/similar product) provide CRM/TEM Program policy guidance. CRM skill evaluation criteria will be included in all MDS specific guidance, i.e., AFI 11-2 MDS-Specific V2s and AFGSC 13-52XX series volumes. **(T-2)**

5.3.1.2. Implement lead command CRM/TEM Program policy guidance. **(T-2)**

5.3.1.2. **(AFGSC)** All crewmembers are evaluated on CRM/TEM during all periodic evaluations. Unit STAN/EVAL will track and consolidate any identified trends. Ensure consolidated trends are included in periodic trends reports, as required in specific MDS guidance, but at least annually. CRM/TEM is not currently required in ICBM evaluations. However, units and evaluators will use Tables **1 and 2** or the AF Form 4031 and incorporate CRM/TEM feedback into ICBM simulator and alert evaluations.

5.3.1.2.1. **(Added-AFGSC)** At OG/CC discretion squadron instructors, unit safety representatives, and missile safety officers who are CRM/TEM facilitator certified can assist the assigned office with training requirements for local CRM/TEM programs. These individuals may provide the following:

5.3.1.2.1.1. **(Added-AFGSC)** Conduct quarterly/monthly unit and wing level CRM training during stopgap measures.

5.3.1.2.1.2. **(Added-AFGSC)** Provide safety briefings or special topics presentations during stopgap measures.

5.3.1.2.2. **(Added-AFGSC)** CRM/TEM continuation training (CT) class sizes will have at least 4 crewmembers but typically no more than 20. CRM/TEM CT classes that do not have an appropriate number of participants may be cancelled by the instructor. Unit schedulers must notify the contractor of any scheduling changes at least 48 hours in advance. CRM/TEM FTU/IST and instructor class sizes should

normally be at least 4 crewmembers but no more than 20. Exceptions will be at the instructor's discretion.

5.3.1.2.3. **(Added-AFGSC)** Squadron commanders will designate an office, such as Training Flight, to oversee the squadron CRM/TEM program and advise the commander on its status. These representatives will monitor participation in unit quarterly training and Daily Training Objectives. CRM/TEM performance tracking products such as mission grade sheets and AF Form 4031s will be reviewed to determine positive and negative trends in unit application of CRM/TEM skills. Both positive and negative CRM/TEM trends will be reported in the Training Review Board. Each squadron will coordinate with the OG/CC CRM/TEM representative in all aspects of the unit CRM/TEM program. **(T-3)**

Table 1. (Added-AFGSC) Crewmember Grade Sheet Requirements.

Item	Grade Sheet	CRM/TEM Grading Items
1	Flight/Alert Mission and Simulator	Mission Analysis, Situational Awareness, Communications, Risk Management/Decision Making, Task Management
2	Formation or Tactical Employment	Flight Coordination
3	Crew MDS	Crew Coordination

Table 2. (Added-AFGSC) CRM/TEM Brief/Debrief Guide.

Item	CRM Skill	Positive Factors	Negative Factors
1	Communication	Clear, concise, listens, interprets, efficient, gets or gives constructive feedback.	Interrupts, withholds, discounts, ambiguous, mumbles.
2	Crew / Flight Mission Coordination	Leads, identifies roles and expectations, sets tone, respects, encourages, assertive.	Judges, ridicules, overreacts, ignores, imposes, accepts error.
3	Mission Analysis	Organized, clearly assesses and defines mission, environment, aircraft, and situation; covers contingencies; checks understanding. Provides objective, thorough feedback, non-threatening, recaps key points, solicits inputs, provided corrective actions.	Neglects, rushed, incomplete, blames, vague, ignores.
4	Risk Management / Decision Making	Identifies and assesses problems, explores solutions, makes appropriate decisions,	Avoids, delays, vacillates, argues, fails to consider consequences of decision.

Item	CRM Skill	Positive Factors	Negative Factors
		involves and informs flight members/crewmembers.	
5	Situational Awareness	Anticipates, monitors, prevents loss, recognizes own/other loss, regains.	Disorientated, confused, lost, fixated.
6	Task Management	Prioritizes, assigns tasks, creates time, plans, delegates, checklist discipline, system knowledge.	Rushed, overloaded, complacent, improper prioritization.

5.3.1.3. Ensure each applicable CRM/TEM Program training phase ([paragraph 3.6](#)) is implemented and evaluated. **(T-2)**

5.3.1.4. Forward AF Form 4031 (or approved substitute) trend data to CRM/TEM Program instructors/facilitators. **(T-2)**

5.3.1.5. Ensure a system is in place to collect topic-relevant aircrew performance information (e.g., Standardization and Evaluation trends, sanitized mishap data, hazardous air traffic reports (HATR), military flight operations quality assurance (MFOQA) analysis, Line Oriented Safety Audit (LOSA) findings, Airman Safety Action Program (ASAP) reports, and inspector general reports), and send to CRM/TEM Program Facilitators and Instructors. **(T-2)**

5.3.1.6. Evaluate contractor implementation of CRM/TEM Program objectives. **(T-2)** Where discrepancies are identified, initiate corrective actions. **(T-2)**

5.3.1.6. **(AFGSC)** The AFGSC/A3TO program manager will visit AFGSC locations where CRM training is conducted as required. The purpose of the visits is to inspect contract performance and to meet with unit CRM representatives as required.

5.3.1.7. Ensure quality assurance representatives (QARs) and Inspectors General have current evaluation guidance to evaluate CRM/TEM Program objectives. **(T-2)** Where discrepancies are identified, initiate corrective actions. **(T-2)**

5.3.1.8. Provide feedback to the AF CRM/TEM Program Working Group regarding program status covering: training continuum, standardization, and research and development needs. **(T-2)**

5.3.1.9. Interact with MAJCOM, FOA or DRU CRM/TEM Program advisors (Safety, Aerospace Physiology, etc.), ensuring CRM/TEM Program training is effective and minimizes redundancies with other programs as provided by Safety, Aerospace Physiology, etc. **(T-2)**

5.3.1.10. Provide training to develop and improve CRM/TEM Program knowledge and skills, based on paragraphs [3.3](#), [3.4](#), [3.6](#), information procured via the AF Form 4031 (or approved substitute), and sources deemed pertinent by the MAJCOM CRM/TEM Program Manager. **(T-2)** Sources may include: AFSEC and MAJCOM safety reports, military and civilian aviation mishaps, ASAP reports, MFOQA analysis,

MAJCOM standardization/evaluation information, Federal Aviation Administration (FAA) Advisory Circulars, FAA Safety Alerts, LOSA recommendations, and findings from the aviation industry.

5.3.1.11. Ensure continuation training incorporates real-world operational experiences, sanitized mishap data, research findings, critiques, and flight evaluation trends. **(T-2)** Courseware will contain up-to-date case studies covering human factors elements and will be presented in an interactive format so as to exercise students' decision making and reasoning skills and, where appropriate, stimulate discussion. **(T-2)** The CRM/TEM Program knowledge and skill objectives taught will be tailored to the unique characteristics of the MAJCOM's, FOA's, DRU's primary missions. **(T-2)**

5.3.1.12. Identify the process for gathering, analyzing, and incorporating CRM/TEM Program trend data from MAJCOMs into existing training and evaluation programs. **(T-2)**

5.3.1.13. Ensure continuity of course content with Air Education and Training Command's Introductory or Awareness CRM/TEM Program Training. **(T-2)** See [paragraph 3.6.1](#).

5.3.1.14. Ensure that data collected and/or generated through CRM/TEM Program and trend gathering processes are not used for monitoring aircrew performance to initiate punitive or adverse action. **(T-2)**

5.3.1.15. The above requirements are not all inclusive and MAJCOMs may augment their CRM/TEM Program training with aviation industry standard practices or methodologies. Training for CRM/TEM Program or other programs should comply with MAJCOM-specific supplements, if any, to this publication. MAJCOMs will continue to adhere to the training requirements outlined in this publication. **(T-2)**

5.3.2. **Command Steering Committees.** MAJCOMs, FOAs and DRUs may establish command steering committees to identify the most effective methods for delivering and administering CRM/TEM Programs.

JOSEPH T. GUASTELLA, Jr., Lt Gen, USAF
Deputy Chief of Staff, Operations

(AFGSC)

MICHAEL A MILLER
Brigadier General
Director of Operations and Communications

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

(Added-AFGSC) AFGSCI 13-5201 Vol 1, *Rapid Execution and Combat Targeting (REACT) Crew Training and Certification*, 4 January 2022

(Added-AFGSC) AFGSCI 13-5201 Vol 2, *Rapid Execution and Combat Targeting (REACT) Standardization and Evaluation*, 6 February 2022

(Added-AFGSC) AFI 11-403, *Aerospace Physiological Training Program*, 29 November 2012

(Added-AFGSC) AFI 33-322, *Records Management and Information Governance Program*, 22 Mar 2020

(Added-AFGSC) AFMAN 11-2 B-1 Vol 1, *B-1 Aircrew Training*, 29 October 2020

(Added-AFGSC) AFMAN 11-2 B-2 Vol 1, *B-2 Aircrew Training*, 19 August 2020

(Added-AFGSC) AFMAN 11-2 B-52 Vol 1, *B-52 Aircrew Training*, 12 February 2019

(Added-AFGSC) AFMAN 11-2 UH-1-N Vol 1, *UH-1-N Aircrew Training*, 14 November 2018

AFPD 11-2, *Aircrew Operations*, 31 January 2019

AFPD 11-4, *Aviation Service*, 12 April 2019

AFI 11-200, *Aircrew Training, Standardization/Evaluation, and General Operations Structure*, 21 September 2018

DAFI 33-360, *Publications and Forms Management*, 1 December 2015

(Added-AFGSC) DOD5400.7-R_AFMAN 33-302, *Freedom of Information Act Program*, 25 April 2018

AFI 33-322, *Records Management and Information Governance Program*, 23 March 2020

(Added-AFGSC) DAFMAN 90-161, *Publishing Processes and Procedures*, 15 April 2022

Prescribed Form

AF Form 4031, *CRM/TEM Skills Criteria Training/Evaluation Form*

Adopted Form

AF Form 847, *Recommendation for Change of Publication*

AF Form 3862, *Flight Evaluation Worksheet*

Abbreviations and Acronyms

A3—Operations

AF—Air Force

AFI—Air Force Instruction

AFR—Air Force Reserve

AFSEC—Air Force Safety Center
AMEC—Aircrew Management Executive Council
ANG—Air National Guard
ASAP—Airman Safety Action Program
CM—Crewmember Monitoring
CRM—Cockpit/Crew Resource Management
(Added-AFGSC) CT—Continuation Training
DAFI—Department of the Air Force Instruction
DAFPD—Department of the Air Force Policy Directive
DOD—Department of Defense
DRU—Direct Reporting Unit
(Added-AFGSC) DTO—Daily Training Objective
FAA—Federal Aviation Administration
FPM—Flight Path Management
FOA—Field Operating Agency
(Added-AFGSC) FTU—Formal Training Unit
HATR—Hazardous Air Traffic Report
(Added-AFGSC) ICBM—Intercontinental Ballistic Missile
(Added-AFGSC) IST—Initial Skills Training
(Added-AFGSC) LAN—Local Area Network
LOSA—Line Oriented Safety Audit
MAJCOM—Major Command
MDS—Mission Design Series
MFOQA—Military Flight Operations Quality Assurance
MOST—Mission-Oriented Simulator Training
PF—Pilot Flying
PM—Pilot Monitoring
PWS—Performance Work Statement
QAR—Quality Assurance Representative
RAP—Ready Aircrew Program
RM—Risk Management
SA—Situational Awareness

SOP—Standard Operating Procedure

(Added-AFGSC) STAN/EVAL—Standardization and Evaluation

TEM—Threat & Error Management

(Added-AFGSC) UPT/UNT—Undergraduate Pilot Training/Undergraduate Navigator Training

US—Undesired State

VVM—Verbalize, Verify, Monitor

(Added-AFGSC) WST—Weapon System Trainer

Office Symbol

(Added-AFGSC) OG/CC—Operations Group Commander

Terms

A3—Standard A-Staff two-digit office symbol for Operations.

Cockpit/Crew Resource Management (CRM)—The effective use of all available resources (people, weapon systems, facilities, equipment, and environment) by individuals or crews to safely and efficiently accomplish an assigned mission or task.

Communication—The act of sharing information with others to cause action: to direct, to inform, to question, or to persuade.

Coordination—As used in this publication, the act of working with all the members of the crew/flight to accomplish the tasks of the mission.

Crew—As used in this publication, any collection of Air Force personnel who routinely work together to accomplish an Air Force mission. For example, an air task order-designated team of fighter pilots and airborne battle managers prosecuting an interdiction mission uses "crew" skills to maximize effectiveness.

Crewmember Monitoring (CM)—A crewmember who is not in direct maneuvering control of the aircraft, yet jointly responsible for actively monitoring the aircraft's current/projected flight path and energy state, intervening if necessary.

Decision Making—The ability to choose a course of action using logical and sound judgment based on available information.

Errors—Actions or inactions that lead to deviations from organizational or flight crew intentions or expectations, reduce safety margins, and increase the probability of adverse operational events on the ground or in flight. Unmanaged and/or mismanaged errors can lead to an undesired aircraft state. Errors in the operational context tend to reduce the margins of safety and increase the probability of adverse events.

Flight Discipline—The judgment and actions exercised by AF personnel to adhere to the spirit, intent, and written word of governing guidelines in the presence of temptation to do otherwise, while executing the Air Force flying mission. It also includes the prioritization of tasks based on crew responsibilities to ensure safe mission accomplishment while demonstrating the highest degree of integrity in the performance of flight duties.

Flight Path Management (FPM)—The planning, execution, and monitoring of the aircraft's guidance, trajectory, and energy state. FPM applies anytime the aircraft is in motion—in flight or on the ground. All cockpit crewmembers must ensure that effective FPM is a primary and shared responsibility during all phases of flight.

Mission Debrief—Reviewing and discussing mission accomplishment, looking at what was achieved, what barriers were encountered, and how the mission could be accomplished better next time.

Mission-Oriented Simulator Training (MOST)—Training presented as a part of a CRM/TEM Program in a realistic, operationally-based simulator environment in real time.

Mission Planning—Taking all of the information for a mission and developing short term, long term, and contingency plans to coordinate, allocate, and monitor crew/flight and aircraft resources. Effective planning leads to flight conduct that removes uncertainty, increases mission effectiveness, and enhances safety.

Performance Work Statement (PWS)—In layman's terms, a document incorporating standards that inform the contractor of specific contractual requirements and relevant desired outcomes.

Pilot Flying (PF)—The pilot at the flight controls who is in direct maneuvering control of the aircraft. The PF is primarily responsible to control and monitor the aircraft's current/projected flight path and energy state (including autoflight systems, if engaged).

Pilot Monitoring (PM)—The pilot at the flight controls who is not in direct maneuvering control of the aircraft, yet is primarily responsible for actively monitoring the aircraft's current/projected flight path and energy state, intervening if necessary.

Risk Management—The systematic process of identifying hazards, assessing risk, making control decisions, implementing control decisions, and supervising/reviewing the activity for effectiveness for both on- and off-duty missions/activities.

Situational Awareness (SA)—In flying and aircraft operations, refers to an aircrew member's continuous *accurate* perception of self and aircraft in relation to the dynamic environment of flight, threats, and mission, as well as the ability to forecast, then execute, tasks based upon that perception.

Skills Criteria—Defined skills used as the basis for operational training and evaluation. The characteristics of the skills are that they are easily identifiable and offer consistency in grading evaluation.

Task Management—The ability to alter a course of action based on new information, maintain constructive behavior under pressure, and adapt to internal and external environment changes.

Threat—An event or error that occurs outside the influence of the aircrew (i.e., it was not caused by the crew), that increases operational complexity and must be managed to maintain safety margins, and requires crew attention. All threats have the potential to negatively affect flight operations.

Threat and Error Management (TEM)—An aviation industry-recognized best practice, TEM is a structured, proactive, systems approach that builds on multiple layers of defenses; and, applies to all single and multi-seat aircraft operators, flight, and crewmembers. TEM is intuitively,

logically, and flexibly designed to identify, avoid, trap (allay) and mitigate threats and/or inevitable human errors to avoid US, mission failure, and potential mishaps.

Undesired State (US)—Operational conditions where an unintended situation results in a reduction in margins of safety. US' are a result of ineffective CRM/TEM and may lead to an incident, accident, mishap, or mission failure.

Verbalize, Verify, and Monitor (VVM)—An aviation industry-proven monitoring and cross-checking TEM technique. Using VVM, aircrew members: (1) Verbalize their intentions prior to acting on them, (2) Verify that the intended actions have been made, and (3) Monitor those actions to ensure the intended outcome(s) have occurred, thereby mitigating threats and trapping errors.