

**BY ORDER OF THE COMMANDER
AIR FORCE NUCLEAR WEAPONS
CENTER (AFNWC)**

**AIR FORCE NUCLEAR WEAPONS CENTER
INSTRUCTION 99-101**

2 MAY 2013



Test and Evaluation

***NUCLEAR ENTERPRISE TEST AND
EVALUATION MANAGEMENT***

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction implements Air Force Instruction (AFI) 99-103, *Capabilities-Based Test and Evaluation* and Air Force Materiel Command Instruction (AFMCI) 99-103, *Test Management*. Development, sustainment, and test activities of nuclear components are governed by joint Department of Defense (DOD)/ Department of Energy (DOE) agreements. This instruction applies to all Air Force Nuclear Weapon Center (AFNWC) organizations. The Test and Evaluation (T&E) management described herein encompasses all T&E activities required for acquisition and sustainment of nuclear weapon systems. This includes but is not limited to aging and surveillance, support equipment, and software. The procedures outlined in this instruction apply to all acquisition and sustainment efforts for which AFNWC has engineering and/or technical management responsibility for the test project. This includes tests conducted for AFNWC involving non-AFNWC organizations. This publication does not apply to Air Force Reserve Command (AFRC) or the Air National Guard (ANG). However, nuclear and non-nuclear components, sub-systems, and associated logistics support elements that require testing and nuclear certification throughout the system lifecycle are covered as described in AFI 63-103, *Joint Air Force (AF) – National Nuclear Security Administration (NNSA) Nuclear Weapons Life Cycle Management*, and AFI 63-125, *Nuclear Certification Program*. In conjunction with AFI 63-103 and AFI 63-125, this instruction provides test management policy guidance and procedures for all T&E conducted by or for the AFNWC. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*; route AF Form 847s from the field through the appropriate functional chain of command. Ensure that all records created as a result of processes prescribed in this publication are maintained IAW Air Force Manual (AFMAN) 33-

363, *Management of Records*, and disposed of IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). This publication may not be supplemented or further implemented/extended. Requests for waivers must be submitted to the OPR listed above for consideration and approval. See **Attachment 1** for a Glossary of References and Supporting Information.

SUMMARY OF CHANGES

This is a complete replacement and expansion of AFNWC I 99-103, *Test and Evaluation Management*, dated Nov 6, 2009, and must be reviewed in its entirety. Significant changes include: clarification of requirements and guidance for test plans, test reports, Technical Review Boards (TRB), Safety Review Boards (SRB), Integrated Test Teams (ITT) and additional implementation guidance from AFI 63-103 and AFI 63-125. A requirement to utilize AFMAN 63-119, *Certification of System Readiness for Dedicated Operational Test and Evaluation* was added.

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1. Introduction and Overview. In conjunction with AFI 99-103, AFI 63-103, AFI 63-125 and AFMCI 99-103, this instruction establishes a consistent T&E management process to be used in the acquisition and sustainment of nuclear weapon systems by the AFNWC. This includes defining the role of a T&E manager within AFNWC Directorates and the role of the AFNWC Center Test Authority (CTA) in performing functions relative to T&E management. **NOTE:** This instruction uses the term “Directorates” to include all AFNWC organizations and their subordinate units.

1.1. Applicability.

1.1.1. AFNWC has management and engineering responsibility when a proposed test involves the evaluation of designs, modifications, upgrades, software changes or qualification, aging and surveillance testing, or changes that fall under the management responsibility of the AFNWC Directors/System Program Managers (SPM). When AFNWC does not have management responsibility, the processes outlined within AFI 63-103, AFI 63-125 or other applicable directives take precedence in support of the responsible organization’s test policy.

1.1.2. AFNWC units geographically separated from Kirtland Air Force Base (KAFB) shall comply with this instruction in addition to local guidance at their host base set forth

in their Memorandum of Agreement (MOA). In the event of a conflict between this instruction and local MOA guidance, a proposed solution shall be negotiated at the unit working level; the proposed solution shall be coordinated with the AFNWC CTA and at an appropriate level with the Host Unit. The agreement, deviation, or waiver for the agreed upon solution shall be approved by the AFNWC Center Commander (AFNWC/CC) and the Host Unit Commander or their delegated authority.

1.2. AFNWC T&E Organizations.

1.2.1. **CTA.** The AFNWC CTA will establish procedures for implementing T&E processes for nuclear and non-nuclear components, sub-systems, and logistics support elements IAW AFI 99-103, AFI 63-125, AFI 63-103, and AFMCI 99-103. The CTA will provide the single face to the Program Manager (PM) for T&E assistance and advise AFNWC leadership on T&E issues, policy, and procedures.

1.2.2. **Directorate T&E Focal Point.** Each Directorate will appoint a focal point for T&E matters. The Directorate T&E Focal Point will be the liaison for the CTA, guide Directorate T&E efforts, and provide Directorate leadership a single face for T&E issues. Refer to paragraph 2.4.2 for responsibilities. **NOTE:** This instruction uses the term "Directorate T&E Focal Point" to apply to all units within AFNWC performing T&E functions.

2. Organizational Responsibilities.

2.1. **AFNWC/CC.** The AFNWC/CC is responsible for establishment of the CTA and procedures for implementing the AFNWC's T&E process consistent with public law, the DOD 5000-series regulations, AFI 63-series publications, AFI 99-series publications, and AFMCI 99-103. AFNWC/CC will:

2.1.1. Approve mutual agreements or MOAs with other Government Agencies for Joint T&E and appropriate DOD test centers to maintain local Test Representative (TESTREP) support, as required.

2.1.2. Establish the CTA within AFNWC Engineering and Technical Management Directorate (AFNWC/EN). The CTA is the authority for T&E policy and guidance, and is the single face to the PM for test program assistance and to the center leadership for issues concerning T&E policy and procedures as they relate to acquisition and sustainment decision making.

2.1.3. The CTA will:

2.1.3.1. Support the program offices, Joint Test Working Groups (JTWGs), Joint Test Subgroups (JTSGs), and Integrated Test Teams (ITTs) by performing duties as outlined in AFMCI 99-103, paragraph 2.2.2 and AFI 63-103 paragraph 19.2.5.

2.1.3.2. Approve candidates to chair TRBs to ensure thorough assessment of test plans for technical soundness and adequacy.

2.1.3.3. Approve candidates to chair SRBs, in coordination with AFNWC/SU, to ensure thorough assessment of test plans for safe conduct.

2.1.3.4. Approve and sign all test plans and subsequent test reports, unless delegated by the CTA to the Directorate T&E Focal Point.

2.1.3.5. Coordinate on test and applicable program documentation and assist in development, including, but not limited to, documents listed below:

2.1.3.5.1. Nuclear Weapon Subsystem Test Plans (NWSSTPs) to determine test requirements where AFNWC has management and/or engineering responsibility.

2.1.3.5.2. Test and Evaluation Strategies (TES).

2.1.3.5.3. Test and Evaluation Master Plans (TEMPs) or applicable document which incorporates TEMP material (i.e. Life Cycle Management Plan (LCMP)).

2.1.3.5.4. Life Cycle Sustainment Plan (LCSP).

2.1.3.5.5. Certification Requirement Plans.

2.1.3.5.6. JTWG and ITT charters.

2.1.3.5.7. Operational Test and Evaluation (OT&E) Certification of System Readiness recommendations (AFMAN 63-119).

2.1.3.5.8. Additional test related program documentation as required. Templates for test plans, test reports, and Test Readiness Reviews (TRR) will be maintained by the CTA's office and provided to test programs as required.

2.1.3.6. Serve as advocate for AFNWC T&E workforce issues, providing review of T&E workforce requirements and advising AFNWC senior staff as required.

2.1.3.7. Notify Headquarters AFMC Air, Space and Information Operations Directorate (HQ AFMC/A3) annually of Responsible Test Organization (RTO) designations.

2.1.3.8. Coordinate on all joint AF-NNSA developmental and operational tests.

2.1.3.9. Support operational Major Commands (MAJCOM) in planning and executing nuclear weapon system tests.

2.1.3.10. Support the JTWG and Joint Test Sub Group (JTSG) to plan and conduct joint flight-testing of NNSA-developed Joint Test Assemblies (JTA), Developmental Joint Test Assemblies (DJTAs), Vibration Fly-Around (VFA), Compatibility Test Units (CTUs), Instrumented Mock Test Units (IMTUs), and other tests as required by the Joint Flight Test (JFT) programs.

2.1.3.11. Support User Commands and JTWG chairs in developing/updating the NWSSTP for weapon system/warhead testing.

2.1.3.12. Collaborate with joint AF-NNSA Project Officer Groups (POG) to ensure alternative testing capabilities are explored to provide continuous weapon testing support.

2.1.3.13. Ensure nuclear weapon system test and evaluation requirements are considered in Air Force Test Investment Planning and Programming, and DOD Major Range Test Facility Base reviews.

2.2. AFNWC/EN will:

2.2.1. Assign EN representatives to specific tests to ensure technical sufficiency, as appropriate. At a minimum, EN will be a member of all ITTs.

2.3. AFNWC Safety, Security, and Infrastructure Directorate (AFNWC/SU) will:

2.3.1. Approve candidates to chair SRBs to ensure thorough assessment of test plans for safe conduct.

2.3.1.1. Assign SU safety representative as SRB chair or members as appropriate.

2.4. Directorates. Each SPM/Director will, as applicable:

2.4.1. Identify Directorate T&E Focal Point within their organization and submit the appointment to the CTA.

2.4.2. The focal point will:

2.4.2.1. Act as a single point of contact to the Directorate for communication of T&E information. Appointed Directorate T&E Focal Point should be certified as level II in the Acquisition Professional Development Program (APDP) in T&E or will achieve level II APDP T&E certification within two years of appointment.

2.4.2.2. Ensure test plans are developed for all test projects per applicable test planning guidance. The test plan will include test procedures, hazard analyses, and a safety annex/appendix, see paragraph 3.4 for guidance of test plans. The T&E Focal Point will ensure associated reviews and reports comply with applicable guidance to include AFI 63-125 and AFI 63-103, and the plan is complete and ready for technical, safety, and readiness reviews.

2.4.2.3. Obtain approval and signature for all test plans and test reports by the CTA unless otherwise delegated.

2.4.2.4. Make initial recommendations on technical and safety risk, ensure tests are conducted IAW an approved test plan and coordinate all RTO recommendations, TES, TEMPs, NWSSTPs, ITT, JTWG charters with the CTA prior to submittal for approval.

2.4.2.5. Ensure test planning adheres to the Test Planning Timeline (Figure 1).

2.4.3. Ensure programs carry out test management responsibilities IAW public law, AFI 99-103, AFMCI 99-103, AFI 63-103, AFI 63-125, and applicable MOA or Memorandum of Understanding (MOU). Nuclear components are governed by joint NNSA/DOD agreements.

2.4.4. Ensure programs follow and adhere to AFMAN 63-119 and provide formal certification of readiness for operational testing to the Operational Test Organization (OTO) or Operational Test Agency (OTA). Coordinate certification recommendation with CTA prior to approval.

2.4.5. Ensure new acquisitions (i.e. pre-milestone C), Sustainment Modifications (i.e. programs that retain/restore capabilities or modernize after milestone C) and Capability Modifications (i.e. programs that enhance operational suitability or technical performance) for nuclear weapons systems, support equipment and facilities are defined and managed IAW AFI 63-131, *Modification Program Management*, AFI 10-601, *Operational Capability Requirements Development*, and tested IAW AFI 99-103 and AFI 63-103. Programs identified as form, fit, function, interface (F3I) replacements

especially need to investigate the applicability of test and evaluation to ensure all requirements are met.

2.4.6. Nominate potential TRB and SRB chairs to the AFNWC CTA and SU (SRB) on an annual basis each January by letter. Candidates must possess the technical qualifications to perform these duties.

2.4.7. Approve test plans, accept risk for test activities and appoint chairpersons to TRRs and ITTs.

3. Test Management. AFNWC I 99-101 guidelines will apply to all test management processes for AFNWC managed test programs, as well as AFNWC managed portions of test programs in which AFNWC participates via MOA/MOU. AFNWC has engineering and/or technical management responsibility when a proposed test involves the evaluation of designs, modifications, upgrades, or changes that fall under the management responsibility of the SPMs within AFNWC.

3.1. Programs Supported. The AFNWC supports all programs in the Air Force Life Cycle Management Center Strategic Systems (AFLCMC/SS) portfolio. Additionally, AFNWC test requirements originate from program or process management activities supporting nuclear certification management, independent safety analyses, and special studies programs. AFNWC test requirements may also arise as a result of AFNWC participation in interagency test efforts outlined under MOAs/MOUs. Specific examples from AFI 63-103, AFI 63-125, and MOAs/MOUs are:

3.1.1. Nuclear weapon/warhead POGs (B61, B83, W80, W87, W78, etc) follow the guidelines established in AFI 63-103. Testing associated with acquisition and modification of nuclear weapons are driven by joint test AF-NNSA MOA.

3.1.2. Aircraft Monitor and Control (AMAC) POG: The AMAC POG as established by DOD letter from the Director of Defense Research and Engineering to the Chairman of the Atomic Energy Commission via the Military Liaison Committee to standardize, coordinate, publish and maintain interface and test criteria for assuring compatibility between NNSA developed nuclear weapons (bombs and warheads) and DOD developed aircraft/air launched delivery systems. The AMAC POG assists appropriate Aircraft/Nuclear Weapons POGs on matters pertaining to AMAC-related interface criteria and requirements.

3.1.3. Nuclear Certification: The AFNWC has nuclear certification responsibility for all combat and non-combat delivery vehicles, facilities and support equipment as described in AFI 63-125. The System Program Office (SPO) (Aircraft, Cruise Missiles, or Intercontinental Ballistic Missiles (ICBMs)) is the focal point for detailed DOD acquisition and modification activities relating to systems that have a nuclear weapon delivery role. The SPO has responsibility to fund and conduct activities required to obtain Nuclear Certification of the system IAW AFI 63-125. The AFNWC performs AMAC testing as part of the aircraft certification process to verify the electrical signals and characteristics between aircraft and the weapon. AMAC testing is governed by local operating instruction. AFNWC has Nuclear Certification responsibility (review of testing and analysis) for all platforms and support equipment that interfaces (holds/stores, lifts, carries, uploads/downloads, tests, etc) with a nuclear weapon or weapon system. The

AFNWC supports safety design evaluation IAW AFMAN 91-118, *Safety Design and Evaluation Criteria for Nuclear Weapon Systems*, and AFMAN 91-119, *Safety Design and Evaluation Criteria for Nuclear Weapon Systems Software* and other applicable safety instructions.

3.2. **ITT.** The AFNWC will follow the T&E principles in AFI 99-103. Testers must collaborate with each other, acquisition officials, and requirements sponsors using the ITT as the T&E focal point for each program. The ITT is responsible for creating and managing a TES/TEMP for the life of each program. SPMs will establish ITTs at the appropriate programmatic level. Refer to Section 4 of this instruction for specific ITT guidance.

3.3. **JTWG.** For Joint AF-NNSA testing and assessment AFNWC will follow the guidance in AFI 63-103 and the current MOA or MOU between the NNSA and the AF.

3.4. **Test Planning.** All test activities shall have an approved test plan IAW the Test Planning Timeline (Figure 1) and paragraph 3.6. of this instruction. The test plan shall provide sufficient detail to identify data and resource requirements to support the assessment/evaluation. Test limitations, safety and security issues, specific test events, scenarios, schedule, measures, data collection (who, what, when, where, why, and how), data reduction and analysis shall be described. As a minimum, the test plan shall include the following elements:

3.4.1. **Distribution Statement.** Proper distribution statement IAW AFI 61-204, *Disseminating Scientific and Technical Information*.

3.4.2. **Objective.** Overall test objective (as determined by the ITT).

3.4.3. **Background.** Give reasons for conducting the test and summarize what the results are expected to demonstrate. Provide a short summary on how the testing relates to the overall program objectives.

3.4.4. **Scope and Methodology.** Provide a statement summarizing the details and extent of testing to be accomplished. Describe test objectives that are to be met by the test. Indicate whether the test is a single test or a series of tests. Methodology describes how specific requirements will be verified and key activities will be emulated in the test environment such as, field test, field exercises, hybrid test facilities, integration facilities, modeling and simulation (M&S), analysis, or special test.

3.4.5. **Limitations.** Identify test limitations or constraints, how they are being mitigated and how they are expected to impact the conclusions that will be drawn from testing. It will also show differences between test scenarios versus operational scenarios and the tested system versus the planned operational system and describe how these differences (limitations) will be addressed. Typical limitations may include simulation of conditions, lack of control of the test conditions, limited sample of environmental conditions, etc.

3.4.6. **Test provisioning.** This element includes identifying proper resources such as manpower, funding, instrumentation and data analysis required to conduct a test.

3.4.6.1. Specific equipment and instrumentation to be used including part numbers, serial numbers or other identifying information.

3.4.6.2. All calibration traceability documentation (e.g. cal. sheets), ranges, dates, part numbers, serial numbers, etc. for all equipment/instrumentation.

3.4.6.3. Required configuration of equipment/instrumentation. For software testing, include Computer Program Identification Number (CPIN) for released software or version number for software without an established CPIN.

3.4.6.4. Test environment includes the test facilities, environmental conditions (humidity, temperature, pressure, altitude, explosives, background radiation levels, shielding requirements, etc.) and restrictions on when/where the test may be conducted.

3.4.7. **Requirements.** This includes but is not limited to Measures of Effectiveness (MOE), Measures of Performance (MOP), Measures of Suitability (MOS), evaluation criteria, success criteria, data requirements and data products. Requirements must trace to a specification or higher level requirements documents. Test requirements shall adhere to the following guidelines:

3.4.7.1. Requirements shall be expressed in a Requirements Correlation Matrix (RCM).

3.4.7.2. Requirements shall be measurable and testable, and include evaluation method, evaluation criteria and uncertainties. Evaluation methods include inspection, demonstration, test and analysis. Evaluation criteria include threshold/objective, high/low limit, pass/fail, etc.

3.4.8. **Safety requirements.** This element includes safety requirements to include test unique hazards. Include any risks and mitigations.

3.4.9. **Security Requirements.** This element includes security requirements involving any security classifications, data collection safeguards, and sensitive security requirements among contractors, foreign nationals, etc. Reference all applicable security classification guides.

3.4.10. **Environmental Impact Analysis.** This element determines the effect of the testing on the environment. Reference AFI 32-7061, *The Environmental Impact Analysis Process*.

3.4.11. **Test Reporting.** This element identifies the reports required during and upon the completion of testing. Include a distribution list for test reports.

3.4.12. **Responsibilities.** This element defines the responsibilities of each member or organization represented in the ITT. This includes who is accepting the risk for this test event.

3.5. **Test Plan Approval.** The following steps will be conducted for all test plans:

3.5.1. **RTO Coordination.** The RTO will review the test plan and ensure the test is conducted IAW an approved test plan and test safety documentation, regardless of whether the RTO conducts the test or assigns conduct to a participating test organization.

3.5.2. AFNWC CTA will review for approval and signature.

3.5.3. **TRB.** The TRB will conduct an independent review of the technical adequacy of the test plan, and assign an overall technical risk level. See Section 5 for details.

3.5.4. **SRB.** The SRB will conduct an independent safety review of the test approach, and assign an overall safety risk level. See Section 5 for details.

3.5.5. **Approval.** Each SPM or designee is the approval authority for all test plans developed by their respective organizations.

3.6. **TRR.** All test events shall conduct a TRR to ensure all the elements of the test are ready to execute, risks have been identified, mitigated and accepted. See Figure 1 for appropriate TRR timeline.

3.7. **Test Execution.** All testing will be conducted IAW an approved test plan.

3.8. **Test Reporting.** All test activities will generate a test report. The test report is the primary work deliverable produced from testing and shall provide sufficient detail to capture the results of the test and inform decision makers. An overview of the test results and detailed test results shall be described in the test report in addition to sections that will mirror information detailed in the test plan including objective, background, scope and methodology, limitations. In addition to test specific requirements, a test report shall include the following:

3.8.1. **Distribution Statement.** Proper distribution statement IAW AFI 61-204.

3.8.2. **Objective.** Restate the overall test objectives from the test plan.

3.8.3. **Background.** Restate background from test plan.

3.8.4. **Scope and Methodology.** Restate scope and methodology from test plan.

3.8.5. **Test Equipment and Instrumentation.** Include a list of equipment and instrumentation that was used during the test to include calibration traceability documents, serial numbers and any other identifying attributes.

3.8.6. **Equipment under Test Description.** Provide a detailed description of the item under test, including support equipment and data acquisition equipment. Clearly describe the configuration of the test setup, include pictures or diagrams as necessary. State any changes that were made during the test or any deviations from the test plan.

3.8.7. **Test Results Overview.** This shall include an overall assessment of the test and specify whether test objectives were met. Compare test results with requirements of the system. Identify any effects the test environment had on results including uncertainties (error propagation, confidence and error bounding, etc.) and method used to analyze data.

3.8.8. **Appendices.** This section shall include any additional information necessary to make the report stand on its own including, but not limited to, system programatics, detailed test results, test equipment list (included name, model, serial number, calibration traceability information, etc.), deficiency reports, test plan, test procedures, completed RCM, and distribution list.

3.9. Test Report Approval.

3.9.1. All final test reports shall be archived in the Defense Technical Information Center (DTIC) or another national archive system.

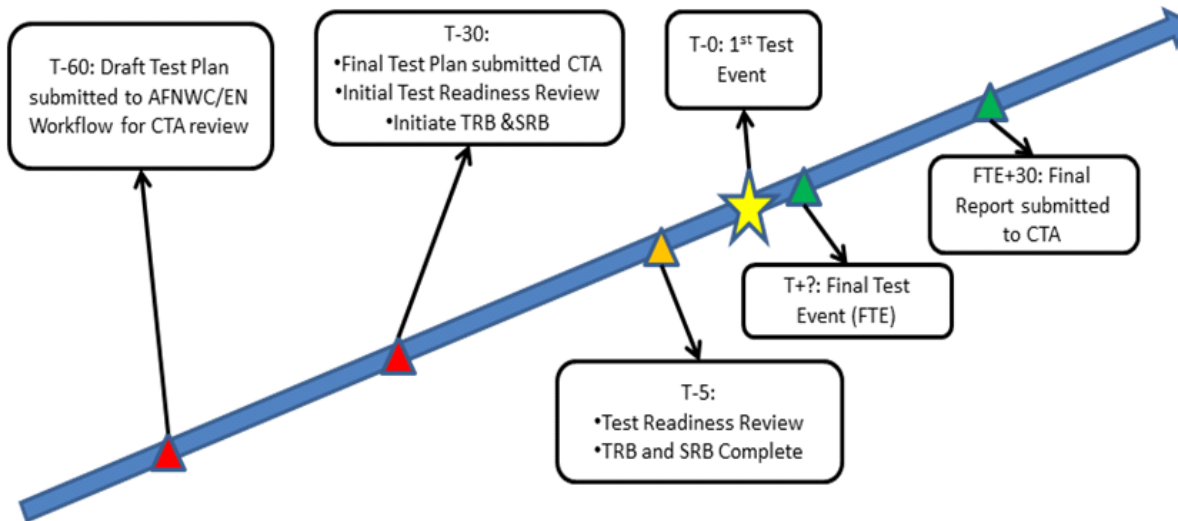
3.9.2. The RTO will initiate watch items and/or deficiency reports (DRs) IAW TO 00-5-1, AF Technical Order System and TO 00-35D-54-WA-1, USAF *Deficiency Reporting and Investigation System*.

3.9.3. The PM shall coordinate the test report with all stakeholders according to processes defined by the AFNWC organization managing the test. All personnel and organizations that signed the final test plan should be considered for coordination of the test report. All test reports will be coordinated with AFNWC CTA for review and approval signature.

3.10. Milestones.

3.10.1. Directorates will manage test planning/reporting processes to meet the timeline outlined in Figure 1 below.

Figure 1. Test Planning Timeline



3.10.2. The TRB and SRB may be held electronically with the results to be presented at the T-5 TRR. Results should be sent to AFNWC CTA for review prior to the T-5 TRR.

3.10.3. An Initial TRR may be held at T-30 to address risk areas prior to final test preparations to include resource deployment and support unit commitments.

3.10.4. The final report is due at the Final Test Event (FTE) plus 30 days. FTE is defined as the final day analysis is completed to support conclusions.

4. ITT Processes.

4.1. Authority/Charter. The ITT will develop a formal charter IAW AFI 99-103, *Capabilities Based Test and Evaluation*.

4.1.1. The SPM will designate a representative from his or her Directorate to co-chair the ITT.

4.1.2. The charter will describe team membership, responsibilities, resources, and products for which the ITT is responsible.

4.1.3. The ITT co-chair will submit the charter to the AFNWC CTA for review and coordination prior to approval.

4.1.4. The PM level or above and OTO representative will approve and sign the ITT charter. All other stakeholders are coordinating signatories.

4.1.5. The ITT will review and update the ITT charter as determined by the co-chairs.

4.2. OT&E Co-chair Designation.

4.2.1. For each project or program the ITT co-chair is responsible for determining the OTO. Refer to AFI 99-103 Figure 4.3 to determine what organization should function as OTO. Testers must be proactive in supporting ITT initial formation.

4.3. RTO Designation.

4.3.1. An RTO is designated for every test project or program. The ITT will initiate the RTO designation process.

4.3.2. Once the ITT identifies a test requirement, the ITT and CTA will work together to identify an appropriate RTO or develop justification to waive the RTO requirement. Once an appropriate RTO is determined, the ITT will draft a letter to the RTO designation approval authority and coordinate through the CTA. An organization may be designated as the RTO for multiple closely related projects.

4.3.3. The RTO designation approval authority is the Program Executive Officer (PEO). If the project does not fall under a PEO, the approval authority is the AFNWC/CC or their designee. The RTO designation request will be endorsed by AFNWC CTA before going to the approval authority.

4.3.4. The CTA will inform HQ AFMC/A3 of RTO designation/waiver approvals.

4.4. Data Archiving Strategy.

4.4.1. The ITT will develop a strategy for archiving key T&E information and data that have significant record value for permanent retention. The retention of test plans, TEMPs, analyses, annexes, and related studies, in addition to final reports, shall be archived in the DTIC or another national archive system.

5. TRB & SRB Process.

5.1. TRB/SRB Chairperson Nomination.

5.1.1. Directorate SPM nominates TRB and SRB Chairpersons, and alternates if desired, by letter to AFNWC CTA and SU (SRB) on an annual basis each January.

5.1.2. TRB and SRB Chairpersons must be independent, government employees that are technically qualified to fill the role of TRB and SRB Chairperson.

5.1.3. AFNWC CTA and SU (SRB) will review nominations, and if nominees are qualified, approve TRB and SRB chairpersons by letter.

5.2. TRB Process.

5.2.1. The PM shall notify the TRB chair no later than 30 days prior to the test event (see Test Planning Timeline, Figure 1). The PM can initiate the TRB process earlier for test events that potentially have a higher technical risk level.

5.2.2. The TRB shall review a test plan to assess its technical adequacy and overall technical risk. At a minimum this will be based on an assessment of test requirements, techniques, approaches and objectives.

5.2.3. The TRB will identify risks, and may assist the PM to eliminate or mitigate risks.

5.2.4. The TRB will produce a memo (e-mail, letter, or report) detailing the technical risks associated with the test event. At a minimum the memo will include risk, details on potential mitigation measures, the original risk level, and risk level after potential mitigation. The TRB memo will be used to inform the TRR chairperson and AFNWC CTA of technical risks associated with the test event. Refer to AFI 63-101, *Acquisition and Sustainment Life Cycle Management* paragraph 3.48 for guidance on completing a risk matrix.

5.3. SRB Process.

5.3.1. The PM shall notify the SRB chair no later than 30 days prior to the test event (see Test Planning Timeline, Figure 1). The PM can initiate the SRB process earlier for test events that potentially have a higher safety risk level.

5.3.2. The SRB will assess whether the PM/ITT has identified and mitigated all health and safety hazards.

5.3.3. The SRB will produce a memo (e-mail, letter, or report) detailing the safety risks associated with the test event. At a minimum the memo will include a risk matrix, details on potential mitigation measures, the original risk level, and risk level after potential mitigation. The SRB memo will be used to inform the TRR chairperson and AFNWC CTA of safety risks associated with the test event. Refer to AFI 91-202 for guidance on completing a risk matrix.

SANDRA E. FINAN, Brigadier General, USAF
Commander

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

- AFPD 99-1, *Test and Evaluation Process*, 22 July 1993
- AFI 61-204, *Disseminating Scientific and Technical Information*, 30 Aug 2002
- AFI 63-101, *Acquisition and Sustainment Life Cycle Management*, 3 Aug 2011
- AFI 99-103, *Capabilities-Based Test and Evaluation*, 26 Feb 2008
- AFMCPD 99-1, *Test Management*, 4 Nov 2004
- AFPD 63-17, *Technology and Acquisition Systems Security Program Protection*, 26 Nov 2001
- AFMCI 99-103, *Test Management*, 22 Nov 2004
- TO 00-35D-54-WA-1, *USAF Deficiency Reporting and Investigation System*, 1 Nov 2004
- AFMAN 63-119, *Certification of System Readiness for Dedicated Operational Test and Evaluation*, 20 Jun 2008
- AFI 63-103, *Joint Air Force – National Nuclear Security Administration (AF-NNSA) Nuclear Weapons Life Cycle Management*, 24 Sep 2008
- AFI 10-601, *Operational Capability Requirements Development*, 12 Jul 2010
- AFI 63-131, *Modification Program Management*, 6 Nov 2009
- AFI 63-125, *Nuclear Certification Program*, 15 Mar 2004
- AFI 32-7061, *The Environmental Impact Analysis Process*, 12 Mar 2003
- AFMAN 33-363, *Management of Records*, 01 Mar 2008, Guidance Memorandum, 13 Oct 2011
- AFMAN 91-118, *Safety Design and Evaluation Criteria for Nuclear Weapon Systems*, 04 Aug 2010
- AFMAN 91-119, *Safety Design and Evaluation Criteria for Nuclear Weapon Systems Software*, 1 Feb 1999
- NNSA - *AF Joint Testing and Assessment of the Nuclear Weapons Stockpile*, DE-GM04-94AL94738 (Revision 1) 13 Aug 2012

Adopted Forms

- AF Form 847 *Recommendation for Change of Publication*, 22 Sep 2009

Abbreviations And Acronyms

- ACC**—Air Combat Command
- AF**—Air Force
- AFB**—Air Force Base
- AFGSC**—Air Force Global Strike Command

AFI—Air Force Instruction
AFMAN—Air Force Manual
AFMC—Air Force Materiel Command
AFMC/A3—Air Force Materiel Command Air, Space and Information Operations
AFMCI—Air Force Materiel Command Instruction
AFMCPD—Air Force Materiel Command Policy Directive
AFNWC—Air Force Nuclear Weapons Center
AFNWC1—Air Force Nuclear Weapons Center Instruction
AFNWC/CC—Air Force Nuclear Weapons Center Commander
AFNWC/EN—Air Force Nuclear Weapons Center Engineering and Technical Management
AFNWC/SU—Air Force Nuclear Weapons Center Safety, Security, and Infrastructure
AFOTEC—Air Force Operational Test and Evaluation Center
AFRC—Air Force Reserve Command
AFPD—Air Force Policy Directive
AFLCMC/SS—Air Force Life Cycle Management Center Strategic Systems
AFRIMS—Air Force Records Information Management System
AMAC—Aircraft Monitor and Control
ANG—Air National Guard
APDP—Acquisition Professional Development Program
CPIN—Computer Program Identification Number
CTA—Center Test Authority
CTU—Compatibility Test Unit
DJTA—Developmental Joint Test Assembly
DOD—Department of Defense
DOE—Department Of Energy
DR—Deficiency Report
DT&E—Developmental Test and Evaluation
DTIC—Defense Technical Information Center
EN—Engineering Directorate
F3I—Form, Fit, Function, Interface
FTE—Final Test Event
FRP—Full-Rate Production

HQ—Headquarters
IAW—In Accordance With
ICBM—Intercontinental Ballistic Missile
IMTU—Instrumented Mock Test Unit
ITT—Integrated Test Team
JFT—Joint Flight Test
JTA—Joint Test Assembly
JTSG—Joint Test Sub-Group
JTWG—Joint Test Working Group
KAFB—Kirtland Air Force Base
LCMP—Life Cycle Management Plan
LCSP—Life Cycle Sustainment Plan
LPO—Lead Project Officer
M&S—Modeling and Simulation
MAJCOM—Major Command
MFR—Memorandum for Record
MOA—Memorandum of Agreement
MOE—Measures of Effectiveness
MOP—Measures of Performance
MOS—Measures of Suitability
MOU—Memorandum of Understanding
NWC— Nuclear Weapons Council
NNSA—National Nuclear Security Administration
NWSSTP—Nuclear Weapon Subsystem Test Plan
OI—Operating Instruction
OT&E—Operational Test and Evaluation
OPR—Office of Primary Responsibility
OTA—Operational Test Agency
OTO—Operational Test Organization
PEO—Program Executive Officer
PM—Program Manager
POG—Project Officers Group

PTO—Participating Test Organization
RDS—Records Disposition Schedule
RTO—Responsible Test Organization
SE—Test Safety Office
SPM—System Program Manager
SPO—System Program Office
SRB—Safety Review Board
T&E—Test and Evaluation
TEMP—Test and Evaluation Master Plan
TES—Test and Evaluation Strategy
TESTREP—Test Representative
TO—Technical Order
TRB—Technical Review Board
TRR—Test Readiness Review
USAF—United States Air Force
VFA—Vibration Fly-Around

Terms

Air Force Nuclear Weapons Center (AFNWC)— An AFMC Center, with Headquarters on KAFB, responsible for the safety, security, and reliability of the nuclear weapons / nuclear weapon systems that support the National Command Structure and the Air Force war-fighter.

AMAC Testing—Demonstrates compliance of the nuclear weapon / nuclear weapon system interface with the specifications of the Aircraft Monitor and Control (AMAC) *Specification Standard No. SYS 1001-02: System 1 Basic Interface Specification and No. SYS 2001-04: System 2 Basic Interface Specification*.

Center Test Authority (CTA)— A product or logistics center resident T&E expert(s) providing advice to center leadership on issues of T&E and assistance to center program managers.

Computer Program Identification Number (CPIN)— A standardized identifier for an embedded computer system software configuration item or computer software configuration item version, and its related engineering documentation.

Developmental Testing (DT)— Testing that focuses on activities to demonstrate the feasibility of conceptual approaches, evaluate design risk, identify design alternatives, compare and analyze trade-offs, and estimate satisfaction of operational requirements. Any testing used to assist in the development and maturation of products, product elements, or manufacturing or support processes.

Integrated Test Team (ITT)— A team within each organization responsible for the overarching T&E strategies and policies for a program or group of related programs co-chaired by

operational testers and the program manager. The ITT maintains test oversight into all modifications, acquisitions, sustainment efforts and other projects for the organization. The CTA will be a member of each ITT. The ITT is the focal point for all T&E activities within its organization.

Joint Test Subgroup (JTSG)— Group chartered by the LPO through the POG with membership from POG organizations, as needed that provides independent coordination and evaluation of weapon system developmental testing activities.

Joint Test Working Group (JTWG)— Group chartered under the auspices of current AF/NNSA Joint Test MOA co-chaired by the MAJCOM and NNSA with membership from Air Force, NNSA, and other organizations as needed that provides independent coordination and evaluation of weapon system operational testing activities. The JTWG develops, implements and maintains the NWSSTP.

Lead Project Officer (LPO)— Selected by the lead service and charged with chairing the POG and coordinating the efforts of the other project officers. Represents the POG at the Nuclear Weapon Council (NWC), NWC Standing and Safety Committee and other decision making bodies.

Operational Testing (OT)— Testing that evaluates the effectiveness and suitability of systems operating under realistic conditions to determine whether the system meets the minimum acceptable operational performance requirements.

Program Executive Officer (PEO)— A military or civilian official who has responsibility for directing several Major Defense Acquisition Programs (MDAPs) and for assigned major system and non-major system acquisition programs. A PEO has no other command or staff responsibilities within the MDAP, and only reports to and receives guidance and direction from the DOD Component Acquisition Executive.

Program Manager (PM)— The designated individual with responsibility for and authority to accomplish program objectives for development, production, and sustainment to meet the user's operational needs. The PM shall be accountable for credible cost, schedule, and performance reporting. Operating as the single manager, the PM has total life cycle system management authority.

Project Officers Group (POG)— A POG is a group of DOD/DOE personnel assigned to coordinate the development and compatibility assurance of a designated nuclear weapon system and its associated interfaces.

Responsible Test Organization (RTO)— The lead government developmental test organization that is qualified to conduct and/or responsible for overseeing Developmental Test and Evaluation (DT&E).

Safety Review Board (SRB)— An independent review of the safety risks of the test plan resulting in the assignment of an overall safety risk.

Sustainment— Any post-production, routine or non-routine, change to a nuclear weapon and/or its MCs or STS. Studies of sustainment concepts or activities to implement such concepts are collectively defined to be sustainment programs. Sustainment includes activities or testing involved in aging and surveillance activities.

Technical Review Board (TRB)— An independent review of the technical adequacy and technical risks of the test plan, resulting in an assignment of an overall technical risk level.

Test Environment— A description of the location(s), time(s) of day, weather, and other conditions required for the tests. For software testing include the development environment and the operating system that will be used for development, qualification or operational testing.

Test Execution— The phase of a test program during which testing (ground, flight, etc.) is accomplished.

Test Limitations— Areas and issues identified during test planning, which the testing effort will not address. These allow testers and readers of the test report to understand why certain aspects may not have been addressed by the testing. This element includes identifying test limitations or constraints and how they are expected to effect the conclusions that will be drawn from testing. Typical limitations are simulation of conditions, lack of control of the test conditions, limited sample of environmental conditions, etc.

Test Plan— Governing, overarching document for conducting a specific test.

Test Planning— The phase of a test program during which objectives, criteria, and requirements are determined and coordinated/acquired.

Test Provisioning— The identification of proper resources such as manpower, funding, instrumentation, and data analysis required to conduct a test.

Test Reporting— The phase of a test program during which the results, findings, and recommendations from Test Execution are formally presented to the test requester.

Test Safety Office— The 377 ABW Safety Offices is the AFNWC Safety Office (AFNWC/SE).

Test Unique Hazards— A hazard that is not associated with the basic operation of the aircraft, test article, vehicle, system under test, or facility. Typically, the hazard is introduced as a result of the test environment or test method that is outside the normal operation of the system under test.