

**BY ORDER OF THE COMMANDER
AIR FORCE NUCLEAR WEAPONS
CENTER**

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

22 DECEMBER 2014

Test and Evaluation

**NUCLEAR ENTERPRISE TEST AND
EVALUATION MANAGEMENT**



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This instruction implements Air Force Instruction (AFI) 99-103, *Capabilities-Based Test and Evaluation*; AFI 63-101/20-101, *Integrated Life Cycle Management*; 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, subsystems, 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 guidance and procedures for all T&E conducted by or for the AFNWC. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with (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). 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. 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. Request for waivers must be submitted to the OPR listed above for consideration and approval.

SUMMARY OF CHANGES

This is an update to Air Force Nuclear Weapons Center Instruction (AFNWC1) 99-101, dated 2 May, 2013. Major changes in this revision of AFNWC1 99-101 incorporates language on the Lead Developmental Test & Evaluation Organization (LDTO,) aligns test planning and test reporting processes, and updates references (US Code Title 10 and AFI 99-103). This is a significant revision and should be reviewed in its entirety.

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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/Program Managers (PM). 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 procedures.

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) or Memorandum of Understanding (MOU).

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 Commander (AFNWC/CC) and the Host Unit Commander or their delegated authority.

2. Roles and Responsibilities.

2.1. AFNWC/CC. AFNWC/CC will:

2.1.1. Establish AFNWC's T&E processes consistent with public law, the DOD 5000-series regulations, AFI 63-series publications, AFI 99-series publications, and AFMCI 99-103.

2.1.2. Approve mutual agreements, MOAs, or MOUs with other Government Agencies for Joint T&E and appropriate DOD test centers as required.

2.1.3. Establish the CTA as the authority for AFNWC T&E guidance, and the single face to the PM for test program assistance and to the center leadership for issues concerning T&E rules and procedures as they relate to acquisition and sustainment decision making.

2.2. AFNWC CTA. The AFNWC CTA will:

2.2.1. Establish procedures for implementing T&E processes for nuclear and non-nuclear components, sub-systems, and product support elements. The CTA will provide the single face to the PM for T&E assistance and advise AFNWC leadership on T&E issues and Center Compliance.

2.2.2. 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.

2.2.3. Approve candidates to chair technical review boards (TRB) via memorandum at the start of the calendar year to ensure thorough assessment of test plans for technical soundness and adequacy.

2.2.4. Approve candidates to chair safety review board (SRB), in coordination with AFNWC safety directorate (AFNWC/SE,) via memorandum at the start of the calendar year to ensure thorough assessment of test plans for safe conduct.

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

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

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

2.2.6.2. Test and Evaluation Strategies (TES).

2.2.6.3. Test and Evaluation Master Plans (TEMPs) or applicable document that incorporates TEMP material (i.e., Life Cycle Sustainment Plans (LCSP)).

- 2.2.6.4. Nuclear Certification Requirement Plans (CRP).
 - 2.2.6.5. JTWG and JTSG63. charters.
 - 2.2.6.6. Operational Test and Evaluation (OT&E) Certification of System Readiness recommendations (AFMAN 63-119, *Certification of System Readiness for Dedicated Operational Test and Evaluation*).
 - 2.2.6.7. Additional test related program documentation as required.
 - 2.2.7. Serve as the single point of contact for AFNWC T&E workforce and resource issues with higher Headquarters and advise AFNWC senior staff as required.
 - 2.2.8. Notify Headquarters AFMC Air, Space and Information Operations Directorate (HQ AFMC/A3) of LDTO designations.
 - 2.2.9. Coordinate on all joint AF-NNSA developmental and operational tests.
 - 2.2.10. Support operational Major Commands (MAJCOM) in planning and executing nuclear weapon system tests.
 - 2.2.11. Support JTWGs and JTSGs in planning and conducting joint flight-testing of NNSA-developed Joint Test Assemblies (JTAs), Developmental Joint Test Assemblies (DJTA), Vibration Fly-Around (VFA), Compatibility Test Units (CTU), Instrumented Mock Test Units (IMTU), and other tests as required by the Joint Flight Test (JFT) programs.
 - 2.2.12. Support User Commands and JTWG chairs in developing/updating the NWSSTP for weapon system/warhead testing.
 - 2.2.13. Collaborate with joint AF-NNSA Project Officer Groups (POG) to ensure alternative testing capabilities are explored to provide continuous weapon testing support.
 - 2.2.14. 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.
 - 2.2.15. Assign CTA representatives to specific tests to ensure technical sufficiency, as appropriate. At a minimum, a CTA representative will be a member of all ITTs.
- 2.3. **AFNWC/SE.** AFNWC/SE will:
- 2.3.1. Approve candidates to chair SRBs to ensure thorough assessment of test plans for safe conduct.
 - 2.3.2. Assign other SE representative as SRB chair or members as appropriate.
- 2.4. **Directorates.** Each Director will, as applicable:
- 2.4.1. Identify the Directorate T&E Focal Point within their organization and submit the appointment to the CTA. The Directorate T&E Focal Point will be the liaison for the CTA, will guide Directorate T&E efforts, and provide Directorate leadership a single face for T&E issues. Refer to paragraph 2.5 for responsibilities. **Note:** This instruction uses the term "Directorate T&E Focal Point" to apply to all units within AFNWC performing T&E functions.

2.4.2. Ensure programs carry out test management responsibilities IAW public law, the DOD 5000-series regulations, AFI 63-series publications, AFI 99-series publications, AFMCI 99-103, and applicable MOAs or MOUs. *Note:* Nuclear components are governed by joint NNSA/DOD agreements.

2.4.3. 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.

2.4.4. 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 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.

2.4.5. Nominate potential TRB and SRB chairs to the AFNWC CTA and SE (SRB only) on an annual basis each January by letter, or when changes in appointments occur. Candidates must possess the technical qualifications to perform these duties.

2.4.6. Approve test plans, accept risk for test activities, and appoint co-chairs to ITTs. This authority may be delegated to the O-6/GS-15 level within the directorate.

2.5. Directorate T&E Focal Point: Each Directorate T&E Focal Point will:

2.5.1. 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.

2.5.2. Act as a single point of contact to the Directorate for communication of T&E information by facilitating dissemination and coordination of Center test policy and test documentation within their directorate and AFNWC/CTA.

3. Test Management. AFNWC199-101 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 PMs within AFNWC. Test documentation (i.e. Test Plans, Test Reports, etc.) shall be coordinated with the AFNWC/CTA using AFNWC.ENWorkflow@us.af.mil. The E-mail subject should include the title of document, the level of review, and the suspense date.

3.1. **Programs Supported.** The AFNWC supports all programs in the Air Force Life Cycle Management Center Strategic Systems (AFLCMC/SS) portfolio, as well as AFNWC acquisition programs, modification and sustainment programs, and projects. 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 include:

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

3.1.2. Aircraft Monitor and Control (AMAC) POG: The AMAC POG is 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 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.

3.2. **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 (DE-GM04-94AL94738, *NNSA - AF Joint Testing and Assessment of the Nuclear Weapons Stockpile (Revision 1)*.)

3.3. **ITT.** PMs will establish ITTs at the appropriate programmatic level. IAW AFI 99-103, testers must collaborate with each other, acquisition officials, and requirements sponsors through the ITT. The ITT is responsible for creating and managing a TES/TEMP for the life of each program. **Note:** Refer to Section 4 of this instruction for specific ITT guidance.

3.4. **Test Planning.** Test planning is the first step in the test process and needs to consider all aspects of provisioning, execution, analysis, and reporting. All test activities shall have an approved test plan IAW the Test Process Timeline (Figure 1) and paragraph 3.5. of this instruction. The test planning shall consider program, 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 considered. **Note:** The CTA will maintain templates for test plans, test reports, and Test Readiness Reviews (TRR).

3.5. **Test Plan Content.** As a minimum, the test plan shall include the following elements:

3.5.1. **Distribution Statement.** Include a proper distribution statement IAW AFI 61-204, *Disseminating Scientific and Technical Information*.

3.5.2. **Revision History.** Include a method for tracking the revision history of the test plan throughout its development.

3.5.3. **Objective.** State the overall objective of the test (determined by the ITT) and how it applies to the program objective.

3.5.4. **Background.** Describe the system under test and relevant interfaces in sufficient detail that test procedures can be understood. 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.

3.5.5. **Reference Documents.** Provide a table of relevant documents, i.e., AFIs, specifications, computer program identification numbers (CPIN,) operational software change requests (OSCR,) deficiency reports (DR,) test and evaluation master plans (TEMP)/test and evaluation strategies (TES,) ITT Charter, security classification guides (SCG,) and test procedures.

3.5.6. **Scope and Methodology.** Provide a statement summarizing the details and extent of testing to be accomplished. Describe how test objectives will 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, test facilities, integration facilities, modeling and simulation (M&S), analysis, or special test.

3.5.7. **Limitations.** Identify test limitations, constraints, assumptions, how simulated inputs and outputs affect the test. Describe how these limitations are mitigated and accounted for, and how they are expected to impact the conclusions that will be drawn from testing. Indicate 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.

3.5.8. **Test provisioning.** This element includes identifying resources such as the system under test, manpower, instrumentation and data analysis required to conduct a test.

3.5.8.1. Specific equipment and instrumentation to be used including part numbers or other identifying information.

3.5.8.2. Required configuration of equipment/instrumentation and the system. *Note:* For software testing, include CPIN for released software or version number for software without an established CPIN.

3.5.8.3. Test environment, to include 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.

3.5.9. **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:

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

3.5.9.2. 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.

3.5.10. **Safety requirements.** This element includes safety requirements to include test unique hazards. Include any risks, mitigations, and a test hazard analysis.

3.5.11. **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.

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

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

3.5.14. **Responsibilities.** This element defines the responsibilities of each member or organization represented in the ITT, as well as any other personnel supporting the test. This includes who is accepting the risk for this test event.

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

3.6.1. **TRB.** The TRB will conduct an independent review of the technical adequacy of the test plan, and assign an overall technical risk level. TRB chairs will copy AFNWC CTA on all determinations. The TRB determination must be completed prior to TRR. See Section 5 for details.

3.6.2. **SRB.** The SRB will conduct an independent safety review of the test approach, and assign an overall safety risk level. SRB chairs will copy AFNWC CTA and AFNWC/SE on all determinations. The SRB determination must be completed prior to TRR. See Section 5 for details.

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

3.6.4. Each PM or designee is the final approval authority for all test plans developed by their respective organizations.

3.7. **TRR.** The test approval authority shall conduct a TRR to ensure all the elements of the test are ready to execute (to include identification of test equipment and instrumentation) and that risks have been identified, mitigated and accepted. See Figure 1 for appropriate TRR timeline.

3.8. **Test Execution.** All testing will be conducted IAW an approved test plan. The test plan shall include limits as to what changes/deviations from the plan the Test Director can approve and what changes/deviations must be approved by the ITT.

3.9. **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 included. In addition, include objective, background, scope and methodology, and limitations from the test plan.

3.9.1. **Test Report Content.** The title of the test report should be the same as that of the corresponding test plan. In addition to test specific requirements, a test report shall include the following:

3.9.2. **Distribution Statement.** Include a proper distribution statement IAW AFI 61-204.

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

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

3.9.5. **Reference Documents.** Provide a table of relevant documents, i.e., AFIs, specifications, CPINs, OSCRs, DRs, TEMP/TES, ITT Charter, SCGs, and test procedures.

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

3.9.7. **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.

3.9.8. **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, and include pictures, photographs, or diagrams as necessary. State any changes that were made during the test or any deviations from the test plan.

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

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

3.10. **Test Report Approval.**

3.10.1. The LDTO or designated organization will initiate watch items and/or DRs IAW TO 00-5-1, AF Technical Order System and TO 00-35D-54-WA-1, USAF *Deficiency Reporting and Investigation System*.

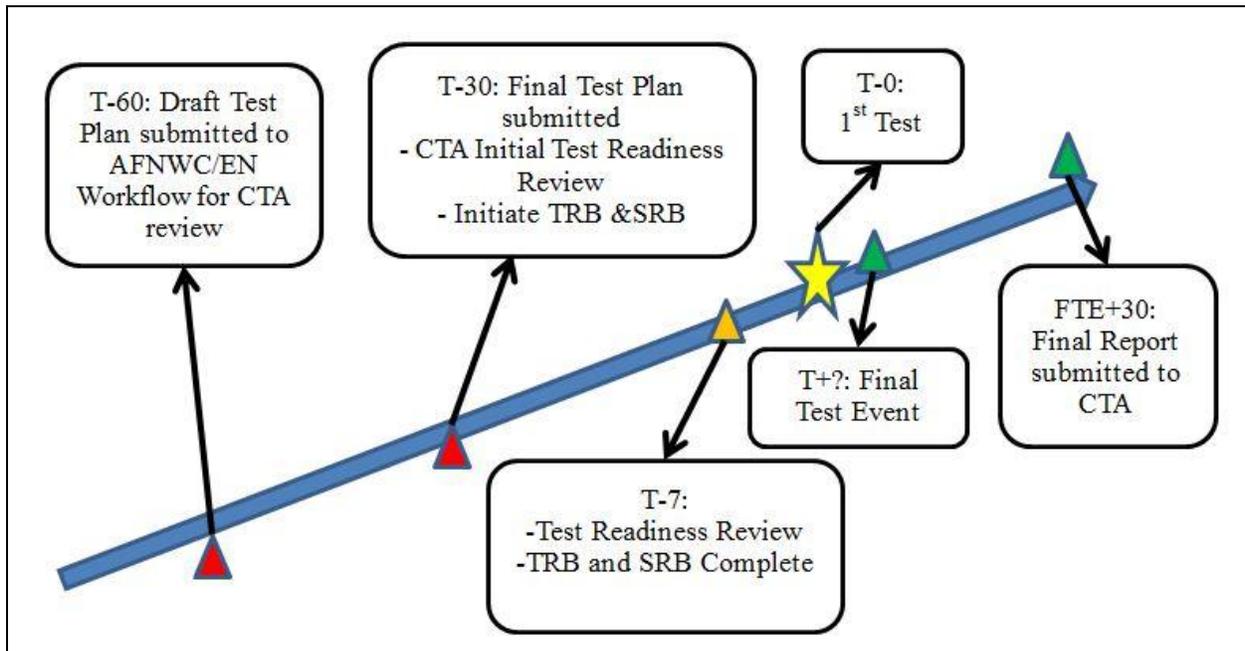
3.10.2. The PM shall coordinate the test report with all stakeholders according to processes defined by the AFNWC organization managing the test. All personnel and organizations that signed the final test plan should review and sign the test report. All test reports will be coordinated with AFNWC CTA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

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

3.11. Milestones.

3.11.1. Directorates will manage test planning/reporting processes to meet the timeline outlined in Figure 1 or coordinate deltas to the timeline with the CTA.

Figure 1. Test Process Timeline



3.11.2. The TRB and SRB may be held electronically with the results to be presented at the T-7 TRR. Results should be sent to AFNWC CTA for review prior to the T-7 TRR.

3.11.3. 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.

3.11.4. 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. Each program shall be governed by an ITT. Multiple test programs may be covered by a single ITT charter if the systems are similar (i.e., flight test unique equipment or trainers). Each ITT will have a representative of an OTO as co-chair unless the OTO declines by letter. The ITT will develop a formal charter IAW AFI 99-103.

4.1.1. The PM 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. An 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, including the AFNWC CTA 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.** Each project or program the PM is responsible for determining the OTO. Refer to AFI 99-103 Figure 4.2 to determine what organization should function as OTO or seek guidance from the CTA. Testers must be proactive in supporting ITT initial formation.

4.3. **LDTO Designation.**

4.3.1. An LDTO or alternate organization is designated for every project or program that will require testing. The ITT will initiate the LDTO designation process.

4.3.2. Once the ITT identifies a test requirement, the ITT and CTA will work together to identify an appropriate LDTO or alternate organization IAW AFI 99-103, paragraph 4.5.

4.4. **Data Archiving Strategy.** 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 PMs nominate TRB and SRB Chairpersons, and alternates if desired, by letter to AFNWC CTA and SE (SRBs only) on an annual basis within 30 days of the beginning of each calendar year.

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

5.1.3. AFNWC CTA and SE (SRBs only) 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 as early as possible in the test planning process (see Test Process Timeline, Figure 1).

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

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

5.2.4. The TRB will produce a memo (E-mail, letter, or report) identifying the board members and detailing the technical risks associated with the test event. 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 63-101/20-101, *Integrated Life Cycle Management*, paragraph 4.13 for guidance on completing a risk matrix.

5.3. SRB Process.

5.3.1. The PM shall notify the SRB chair of projected test start no later than 30 days prior to the test event (see Test Process 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. 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.

5.4. TRR Processes. The AFNWC CTA (or representative) will attend all TRRs as practical as a non-voting member.

SANDRA E. FINAN
Major General, USAF
Commander

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

AFI 61-204, *Disseminating Scientific and Technical Information*, 30 Aug 2002

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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

MOU DE-GM04-94AL94738, *NNSA - AF Joint Testing and Assessment of the Nuclear Weapons Stockpile (Revision 1)*, 13 Aug 2012

AFPAM 63-128, *Integrated Life Cycle Management*, 10 Jul 2014

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

AFNWC—Air Force Nuclear Weapons Center

AFNWC—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
AFRC—Air Force Reserve Command
AFPD—Air Force Policy Directive
AFLCMC/SS—Air Force Life Cycle Management Center Strategic Systems
AFNWC/SE—Safety Directorate
AFRIMS—Air Force Records Information Management System
AMAC—Aircraft Monitor and Control
ANG—Air National Guard
APDP—Acquisition Professional Development Program
CDT—Chief Developmental Tester
CPIN—Computer Program Identification Number
CRP—Certification Requirements Plan
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
HQ—Headquarters
IAW—In Accordance With
IMTU—Instrumented Mock Test Unit
ITT—Integrated Test Team
JFT—Joint Flight Test
JTA—Joint Test Assembly
JTSG—Joint Test Subgroup
JTWG—Joint Test Working Group

KAFB—Kirtland Air Force Base
LCSP—Life Cycle Sustainment Plan
LDTO—Lead Developmental Test and Evaluation Organization
LPO—Lead Project Officer
M&S—Modeling and Simulation
MAJCOM—Major Command
MDAP—Major Defense Acquisition Program
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
OSCR—Operational Software Change Request
OTA—Operational Test Agency
OTO—Operational Test Organization
PEO—Program Executive Officer
PM—Program Manager
POG—Project Officers Group
RCM—Requirements Correlation Matrix
RDS—Records Disposition Schedule
SCG—Security Classification Guide
SRB—Safety Review Board
T&E—Test and Evaluation
TEMP—Test and Evaluation Master Plan
TES—Test and Evaluation Strategy
THA—Test Hazard Analysis

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— 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— An AFMC center resident T&E expert(s) providing advice to center leadership on issues of T&E and assistance to center program managers.

Chief Developmental Tester—A designated government T&E professional in an MDAP or MAIS program office selected to coordinate, plan, and manage all developmental test and evaluation (DT&E) activities, to include contractor testing, and who makes technically informed, objective judgments about DT&E results. For non-MDAP and non-MAIS programs, this person is known as the Test Manager. (10 U.S.C. § 139b)

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

Developmental Testing— 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— A cross-functional team of empowered representatives from multiple disciplines and organizations and co-chaired by operational testers and the program manager. The ITT is responsible for developing the strategy for T&E, the TES and TEMP, assisting the acquisition community with T&E matters, and guiding the development of test plans that are integrated. The CTA will be a member of each ITT. The ITT is the focal point for all T&E activities within its charter.

Joint Test Subgroup— 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— 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 Developmental Test and Evaluation Organization—The lead government developmental test organization on the ITT that is most qualified to conduct and/or be responsible for overseeing a confederation of DT&E organizations, each with different but necessary skills, in support of an acquisition program. The developer cannot be the LDTO. There needs to be separation between the program office and LDTO. If the program is a candidate for a no-LDTO option, another organization within the two-letter (usually engineering) can be designated to fulfill LDTO responsibilities. This requires a signed letter by the PEO.

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

Operational Testing— 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.

Product Support Elements— The PSE is a composite of all support considerations necessary to ensure the effective and economical support of a system for its life cycle. It is an integral part of all other aspects of system acquisition and operation. **Note:** The twelve product support elements are: sustaining/systems engineering; design interface; supply support; maintenance planning and management; support equipment/automatic test systems; facilities; packaging, handling, storage, and transportation; technical data management/technical orders; manpower and personnel; training; computer resources; and protection of critical program information and anti-tamper provisions. (AFPAM 63-128, *Integrated Life Cycle Management*)

Program Executive Officer— 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— 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— 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.

Safety Review Board— 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— 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 Manager— A designated government T&E professional in a non-MDAP/non-MAIS program office selected to coordinate, plan, and manage all DT&E activities, to include contractor testing, and who makes technically informed, objective judgments about DT&E results. For MDAP or MAIS programs, this responsibility is fulfilled by the Chief Developmental Tester (CDT).

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 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.