

**BY ORDER OF THE COMMANDER
412 TEST WING (AFMC)**



**AIR FORCE TEST CENTER
INSTRUCTION 91-202**

**412 TEST WING
Supplement
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Safety

**412TH TEST WING
TEST SAFETY REVIEW POLICY**

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This instruction supplements AFTCI 91-202, *Air Force Test Center Test (AFTC) Safety Review Policy*. It provides guidance on 412th Test Wing (TW) Test Safety Review Policy. This guidance applies to the activities specified in AFTCI 91-202, Section 1.6 in which the 412 TW is a participant. In addition, this guidance applies to 412 TW-developed flight test training activities, including USAF Test Pilot School (TPS) curriculum activities. This supplement does not require tiers at or below the Wing level. Waiver authority for this instruction is the 412th Test Wing Commander. 412 TW/SE may approve minor variations to this instruction and may delegate this authority to 412 TW/SET. Waivers and minor variations to AFTCI 91-202 or this supplement must be coordinated through 412 TW/SET. This publication may be supplemented or further implemented/extended. Coordinate unit supplements/implementations with 412 TW/SET. Refer recommended changes and questions about this publication to the OPR listed above using the DAF Form 847, *Recommendation for Change of Publication*; route DAF Forms 847 from the field through the appropriate chain of command. Ensure that all records created as a result of processes described in this publication are maintained in accordance with Air Force Instruction (AFI) 33-322, *Records Managements and Information Governance Program* and disposed of in accordance with Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). This Instruction requires the collection and/or maintenance of information protected by the Privacy Act of 1974 authorized by Title 29 United States Code (USC), Section 668, Program of Federal Agencies; Executive Order 12196, Occupational Safety and Health Programs for Federal Employees; **Part 1960**, Title 29, Code of Federal Regulations (CFR), Basic

Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters; Title 37 U.S.C. 301a (Incentive Pay), Public Law 92-204, Section 715 (Appropriations Act for 1973), Public Laws 93-570 (Appropriations Act for 1974), 93-294 (Aviation Career Incentive Act of 1974; Title 5 USC § 7902, Safety Program, and DoD Directive (DoDD) 5134.01, Under Secretary of Defense for Acquisition, Technology and Logistics (USD(AT&L)); 10 U.S.C., **Chapter 55**, Medical and Dental Care, 10 U.S.C., Sec 8013, Power and Duties of the Secretary of the AF, and Executive Order 9397. All records created, collected and stored under the guidance of this instruction are subject to the provisions of the Freedom of Information Act, as authorized by Title 5 USC § 552, Public Information; Agency Rules, Opinions, Orders, Records, and Proceedings, and IAW DoDM 5400.07_AFMAN 33-302, Freedom of Information Act Program. The System of Records Notice F011 AF XO A, Aviation Resource Management Systems (ARMS); F021 AF IL A Core Automated Maintenance System

(CAMS) ; F036 AF PC Q, Personnel Data System (PDS); F036 AF PC C, Military Personnel Records System; F036 AF PC V, Awards and Decorations; F024 AF IL C Motor Vehicle Operator's Records; F032 AF ILE, Enterprise Environmental, Safety and Occupational Health-Management Information System (EESOH-MIS); and F044 AF SGE Medical Record System are available at: <https://dpcl.d.defense.gov/privacy/SORNS.aspx>. The use of the name or mark of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the Air Force.

SUMMARY OF CHANGES

This revision incorporates process changes resulting from AFTCI 91-202, dated 23 November 2022 and other regulations including those from the latest AFMC supplements to AFI 91-202 and DODI 5000.89_DAFI 99-103. The major changes to this instruction include: clarifying the Unit Test Safety Officer (UTSO) role as a mentor, incorporating guidance and criteria for the development of the Test Laser Safety Officer (TLSO) program(s) to ensure the safe use of lasers and laser systems as defined in the American National Standards Institute (ANSI) Z136.1 while operating under a test operations environment, establishing authority to convene test safety debriefs following an SRB or TAB, adding accommodation for virtual meetings, stating the purpose of the independent reviewer signature on the Form 5001/5002, updating the NRR process to conform to AFTC guidance, streamlining the acceptance of AFTC safety plan procedures, clarifying **Table A12.1** regarding test package changes/amendments, clarifying the Review Amendment process, creating a process to re-open closed packages, establishing requirements for personnel whose training has expired, establishing qualification requirements for SRB Chairpersons, and establishing training requirements for TEAs. The 412 TW Forms 5001 and 5002 were also updated due to these changes.

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

AFI 11-215, *USAF Flight Manuals Program (FMP)*, 25 March 2019

AFI 11-215_AFMCSUP, *USAF Flight Manuals Program (FMP)*, 1 August 2022

AFI 91-202, *The US Air Force Mishap Prevention Program*, 12 March 2020

AFI 91-202_AFMCSUP, *The US Air Force Mishap Prevention Program*, 31 March 2022

AFI 33-322, *Records Management and Information Governance Program* 28 July 2021

AFI 48-139, *Laser and Optical Radiation Protection Program*

AFTCI 62-602, *Developmental Engineering, Airworthiness*, 1 September 2020

AFTCI 99-110, *Test Control Personnel Training and Evaluations*, 2 March 2018

DAFI 90-160, *Publications and Forms Management*, 14 April 2022

DAFI 91-204_AFMCSUP, *Safety Investigations and Reports*, 6 January 2022

DAFMAN 90-161, *Publishing Processes and Procedures*, 15 April 2022

DAFPAM 90-803, *Risk Management (RM) Guidelines and Tools*, 23 March 2022

DODI 5000.89_DAFI99-103, *Capabilities-Based Test and Evaluation*, 15 March 2022

EDWARDSAFBI 21-126, *Temporary (T-2) Modification Program*, 11 October 2022

EDWARDSAFBI 99-101, *412 TW Test Plans*, 15 September 2016

EDWARDSAFBI 99-105, *Test Control and Conduct*, 13 September 2019

MIL-STD-882E, *Standard Practice for System Safety*, 11 May 2012

Prescribed Forms

412 TW Form 5001, *Test Project Safety Review*

412 TW Form 5002, *Negligible Risk Review*

Adopted Forms

AFTC Form 5000, *Test Hazard Analysis*

AFTC Form 5001, *Test Project Safety Review*

Abbreviations and Acronyms

(Added) MPG—Mission Planning Guide

(Added) PSL—Project Safety Lead

(Added) QRB—Qualitative Evaluation Review Board

(Added) RSR—Request for Safety Review

(Added) **RUGR**—Reasonable Use of Government Resources

(Added) **TLSO**—Test Laser Safety Officer

(Added) **TMP**—Test Management Project

(Added) **TRA**—Technical Review Authority

(Added) **TRM**—Technical Review Memorandum

(Added) **ULSO**—Unit Laser Safety Officer

(Added) **UTE**—Unexpected Test Event

(Added) **UTSO**—Unit Test Safety Officer

Terms

(Added) **Action Item**—Items that may be assigned to the test team by the SRB Chairperson for significant test safety planning issues that cannot be resolved during the SRB. These issues warrant further research for resolution and may involve other personnel or agencies not present at the SRB.

(Added) **Coordination Comment**—A written comment from a relevant stakeholder (typically an individual named on the 412 TW Form 5001 or 5002 [or equivalent]) which explains a professional disagreement or expresses confidence or concerns with the test team’s approach or an SRB outcome. When written by the test execution authority (TEA), coordination comments may constitute (but are not limited to) direction to the test team, conditional approval of the test package, or approval/disapproval of a waiver request within that commander/director’s authority.

(Added) **Reasonable Use of Government Resources (RUGR)**—A statement from a technical review authority indicating that testing constitutes a reasonable use of 412 TW resources when the 412 TW has no evaluation or technical responsibilities.

Safety Plan Author—The individual, typically a member of the test team, charged with writing the safety plan and serves as the focal point for its development.

(Added) **Safety Plan Author**—The safety plan is co-authored by the PSL, UTSO assisting the team, and project operator, as typically indicated on Section I of the 412 TW Form 5001 (or equivalent). The PSL is the primary author of the safety plan, and the test safety responsibilities described for the Test Director in AFTCI 91-202 and AFI 91-202 AFMCSUP (i.e., paragraph 2.2.3.9 of the AFTCI and paragraph 16.3.3.1 and section 16.3.4 of the AFMCSUP) are assigned to the PSL, making the PSL the focal point for test safety plan development. Coordination of the development, approval, and implementation of the Safety Plan with the Test Director/Project Engineer is required if the PSL and the Test Director/Project Engineer are not the same person.

(Added) **Scribe**—An appointed SRB attendee responsible for taking attendance and documenting action items and significant discussions, as necessary.

Test—the act of generating empirical data during the research, development or sustainment of systems, and the creation of information through analysis that is useful to technical personnel and decision makers for reducing design and acquisition risks.

(Added) **Test**—A test can be a ground, flight, or space activity to gather specific information, answer a customer’s question, or provide information not wholly covered by an approved instruction/training manual.

Test Director—An individual responsible for coordinating, leading and executing a test, and reporting the results according to a specific test plan. This individual may have a different title such as Test Manager, Test Planner or Test Engineer.

(Added) Test Director—At 412 TW, the Test Director in AFTCI 91-202 and AFI 91-202 AFMCSUP is more typically referred to as the “Project Engineer” (or similar). While specific tasks delineated by those regulations may be assigned to other individuals, the Test Director/Project Engineer is ultimately responsible for the safety plan development, for approval by the TEA, and for ensuring the test is executed per the restrictions and mitigations in the approved safety plan. See Safety Plan Author for test safety task assignments and see AFTCI 99-110 and EDWARDSAFBI 99-105 for control and supervision of test execution task assignments.

(Added) Test Laser Safety Officer (TLSO)—The TLSO acts as a Unit Laser Safety Officer (ULSO) but with responsibilities specific to the test environment as opposed to the conventional, sustained laser operational environment. Once appointed by 412 TW/CC, the TLSO may represent and act on behalf of the installation laser safety officer (ILSO) at 412 TW SRBs and is responsible for reporting hazardous, military-specific laser test operations and military-specific laser certification status to the ILSO. The ILSO ensures all outdoor laser usage reported by TLSOs adheres to federal, military, state, and local regulations. ULSO and ILSO duties are further defined by AFI 48-139.

(Added) Unit Test Safety Officer (UTSO)—An appointed TSO within a test unit that is responsible for mentoring PSLs and facilitating the test safety process from the initiation of safety planning to test package closure. The UTSO may assist the PSL in authoring the safety plan unless the UTSO is serving in a capacity that requires them to be independent for that test package.

Attachment 2 (Added)**TEST SAFETY PROCESS**

A2.1. Test safety process. The 412 TW implementation of the Test Safety Process is governed by AFI 91-202 AFMC Supplement, AFTCI 91-202, and this document.

A2.2. Test safety handbook. The 412 TW Test Safety Handbook may be used as a guide to facilitate execution of the requirements outlined in AFI 91-202 AFMC Supplement, AFTCI 91-202, and this instruction.

Attachment 3 (Added)**ROLES AND RESPONSIBILITIES**

A3.1. Project Safety Lead (PSL). The PSL is the primary safety plan author and the focal point for all safety plan development for that test.

A3.1.1. PSLs should initially consult with their unit test safety officers (UTSOs) when in need of assistance during the test safety process.

A3.1.2. The PSL will coordinate the development of the safety plan with the Project Engineer (if they are not the same person).

A3.2. Unit Test Safety Officer (UTSO). The UTSO is primarily responsible for mentoring PSLs, especially those with less experience, and facilitating the test safety process from the initiation of safety planning to test package closure, regardless of the test package risk level. The UTSO is a key liaison between the test organization and 412 TW/SET.

A3.2.1. UTSOs must have a solid working knowledge of AFI 91-202 AFMC Supplement, AFTCI 91-202, and AFTCI 91-202 412 TW Supplement to ensure process adherence, and effectively influence / guide decision-making during the test safety process.

A3.2.2. UTSOs must be experienced in test planning and test conduct to assist in test hazard identification and mitigation development.

A3.3. Primary UTSOs. Each squadron-level commander/director who acts as TEA will designate one UTSO as the test unit Primary UTSO. The Primary UTSO is primarily responsible for mentoring other UTSOs in their unit, especially those with less experience, maintaining the unit's library of active test packages, developing unit-level test safety processes, and facilitating test safety inspections.

A3.3.1. Test unit Primary UTSOs will:

A3.3.1.1. Ensure PSLs and UTSOs have met the training and observation requirements to perform in their roles.

A3.3.1.2. Inform the unit commander/director when there is a need to update the UTSO appointment letter and ensure the latest UTSO appointment letter is provided to 412 TW/SET.

A3.3.1.3. Ensure the appropriate personnel are given access rights to unit-specific portions of the 412 TW/SET SharePoint.

A3.3.1.4. Ensure the PSL and UTSO unit associations listed on the 412 TW/SET training currency tracker are updated.

A3.3.2. Test unit Primary UTSOs should:

A3.3.2.1. Be cognizant of the active test packages at their unit, including upcoming package expirations.

A3.3.2.2. Lead internal coordination meetings as required to ensure unit personnel follow unit-level test safety processes.

A3.4. SRB Chairperson. 412 TW/SET will select an SRB Chairperson to lead Formal SRBs, ESRs, and the SRB portion of Combined TRB/SRBs. The PSL may propose an SRB Chairperson in the Request for Safety Review (RSR). 412 TW/SET will make a list of approved SRB Chairpersons available.

A3.5. 412 TW/SET discretion. 412 TW/SET may modify test package documentation processes (e.g. test package layout, read-ahead pre-requisites, info cycle responsibility, etc) on a case-by-case basis so long as those process modifications do not negatively impact the effectiveness of the safety review and approval process.

A3.6. Training modules. 412 TW/SET will develop and maintain the following training modules: Initial PSL Training, PSL continuation training, Initial UTSO Training, UTSO continuation training, ISR training, TEA training, and SRB Chairperson training. These training modules may share content, but each will be designed to meet the unique needs of the audience.

A3.6.1. 412 TW/SET will make the training modules available for review.

A3.7. Test Laser Safety Officer (TLSO) program.

A3.7.1. At Edwards AFB, where the tempo of testing military-specific lasers exceeds a rate of two military-specific laser tests per year, the Test Laser Safety Officer (TLSO) position should be implemented.

A3.7.1.1. The TLSO shall be independent of the test team and should be independent of the test unit.

A3.7.1.2. TLSOs will be nominated by squadron commanders (or equivalent) and appointed in writing by the Range Operating Authority (412 TW/CC) IAW AFMAN 13-212V1. The appointment letter will be coordinated with the ILSO.

A3.7.1.3. TLSO programs will be coordinated through the ILSO. Organizations (such as 775 TS/ENVDE) whose personnel provide independent safety review of programs with laser activities should establish TLSO programs.

A3.7.1.4. The number of TLSOs at each unit will be determined by organizational need.

A3.7.2. The TLSO will be certified in Laser Safety Officer Training provided by the Laser Institute of America, or an equivalent alternative laser safety course agreed upon by the ILSO and TLSO on a case-by-case basis. TLSOs appointed by the TW/CC to perform range and test safety responsibilities where an ILSO is required (e.g. by AFMAN 13-212V1) must also adhere to the LSO responsibilities and training requirements of AFI 48-139 and the respective ANSI Z136 Series for training specific to the laser(s) and laser system(s) used by the unit.

A3.7.2.1. Training certifications will be provided to the ILSO.

A3.7.3. For each test laser, the TLSO will report the following certifications to the ILSO in such a manner as to preserve security for classified capabilities:

A3.7.3.1. the FDA approval certification number,

A3.7.3.2. the Directed Energy Safety Board (DESB, formerly LSSRB) approval number,

A3.7.3.3. the manufacturer's DoD exemption notification issued by the DESB or a 711 HPW/ORS approval number.

A3.7.3.4. appropriate Laser Clearinghouse (LCH) documentation.

A3.7.4. The TLSO should report projected hazardous laser operations on a quarterly basis at the Laser Safety Committee meeting hosted by the ILSO.

A3.7.5. The ILSO may delegate their position on 412 TW SRBs to the TLSO.

A3.7.6. The ILSO will ensure TLSOs provide laser safety signage, controls, PPE, and training to CTFs and any other units involved in ground testing operations as applicable.

A3.7.7. In the event of any suspected exposure to a hazardous laser, affected personnel will follow guidance provided in Chapter 2 of AFI 48-139, but the TLSO will be notified in place of the unit laser safety officer (ULSO).

Attachment 4 (Added)**SAFETY PLANNING AND PRELIMINARY RISK ACCEPTANCE PHASE**

A4.1. Safety plan. In all cases, the proposed activity and safety considerations must be clear to all reviewers. The safety plan should add unique value to the test package; safety plan authors should focus on hazard identification, mitigation, and mishap responsibility rather than repeating technical details contained in the test plan.

A4.1.1. Safety plans will include a review of relevant lessons learned from similar and/or applicable tests; if none can be found, the safety plan will note as such. The team should document the source from which the lessons were derived and how any applicable lessons were incorporated into the current plan.

A4.2. NRRs. Safety planning for activities that qualify for Negligible Risk Reviews (NRRs), described later, may be included wholly within the 412 TW Form 5002 (or equivalent).

A4.3. Coordination comments section. If the 412 TW Form 5001/5002 (or equivalent) is not used, units will provide a section for coordination comments to be recorded along with responses to those comments.

A4.4. Form 5001/5002. The test team is responsible for the completion of the 412 TW Form 5001/5002 (or equivalent) and safety plan. The UTSO shall ensure that the most current 412 TW Form 5001/5002 (or equivalent) is used prior to submission.

A4.5. Thorough internal review. To ensure mature and stable test and safety plans are released for safety review, a thorough test team internal review shall be completed.

A4.5.1. A test system operator (or an operator of a similar vehicle/system) will sign Section I as the Project Operator or Project Test Engineer. For flight tests, this individual should be rated aircrew (or equivalently qualified for their aircraft and crew position).

A4.5.2. The final internal review signature on the 412 TW Form 5001 is completed by the unit commander/director (or equivalent) who may delegate this to the deputy director, director of operations, director of projects, or chief engineer. The unit commander/director (or equivalent) may authorize other test unit senior level leaders to sign this line via a memorandum to 412 TW/SET.

A4.6. Weapons and loading deviations. Test teams will ensure deviations from weapons configurations or loading technical data in test plans and modified flight clearances are reviewed by the Wing Weapons Manager (412 MXG/MXL), as applicable. When the 412 TW unit is a PTO or when the test is executed outside 412 TW area of responsibility, teams should coordinate with applicable equivalent personnel.

A4.7. Local technical data. Teams shall consult with the Wing Weapons Manager (412 MXG/MXL), Weapons Standardization (412 MXG/MXW) and Weapons Safety (412 TW/SEW), as applicable, to determine exact requirements for development or use of local technical data. When the 412 TW unit is a PTO or when the test is executed outside 412 TW area of responsibility, teams should coordinate with applicable equivalent personnel.

Attachment 5 (Added)**SAFETY REVIEW PHASE**

A5.1. Review prerequisites. To ensure the test package is ready for their review, all review prerequisites will be completed before the final draft of the read-ahead documentation can be released to the independent safety reviewers.

A5.2. The review prerequisites are:

A5.2.1. Test package internal review with 412 TW Form 5001 Section I (or equivalent) signatures completed. Section I signatures certify that each individual agrees the test package is ready for independent safety review.

A5.2.2. Signed Technical Review Memorandum (TRM) or Reasonable Use of Government Resources (RUGR) statement. Teams should consult EDWARDSAFBI 99-101 and the office of 412 TW/CT for the guidance concerning technical reviews.

A5.2.3. Exception: In the case of a combined TRB/SRB, TRM is not required at the time of document release and may be obtained after the TRB; the TRA must affirm the test plan is sufficiently mature to commence the SRB.

A5.2.4. A “Request for Safety Review” in writing to the 412 TW/SET Workflow (412.TW.SET@us.af.mil) or via appropriate channels containing information sufficient to approve the documentation format, type of safety review, and venue (if required); determine the appropriate reviewers, verify the participants eligibility/training status; and facilitate test package metric tracking.

A5.3. Request for safety review. Teams will notify 412 TW/SET in writing of their desire to begin the safety review process for all initial and major amendment safety reviews.

A5.3.1. The team will send the RSR to 412 TW/SET sufficiently far in advance of the planned test start date to accommodate the timeline for a thorough review and approval. Normally, the RSR should be sent 3-5 working days prior to the read-ahead documentation release.

A5.3.2. 412 TW/SET will review the RSR, approve or assign the SRB Chairperson, verify the participants eligibility and training status, approve the venue, and provide a control number for the test package.

A5.4. Coordination of additional safety reviews. For projects where a 412 TW unit is ETO and non-412 TW PTO(s) are involved which the test team expects will conduct their own safety review(s), representatives from the PTO Test Safety Office(s) (or equivalent) will be invited to attend the 412 TW SRB. For efficiency, teams may wish to coordinate with both Test Safety Offices for a joint safety review attended by reviewers from both the 412 TW (including 412 TW/SET) and those identified by the PTO Test Safety Office(s) (or equivalent).

A5.5. Independent Safety Reviewer changes. In the event that the independent safety reviewers need to be changed after the RSR has been sent (e.g. due to unavailability of the originally proposed reviewer), the PSL will coordinate this change with the SRB Chairperson sufficiently in advance of the start of the safety review meeting, such that the read-ahead requirements of A6.2 are met and the new ISR’s eligibility/training status can be verified.

A5.6. Test package location. Document location will be shared with the 412 TW/SET Workflow when distributed to reviewers. The PSL will coordinate with reviewers as required to facilitate classified document reviews.

A5.7. Test safety debriefs. The test unit (e.g. final Section I signatory) or the SRB Chairperson may require a debrief be convened following an independent safety review or TAB. The purpose of this debrief is to address training, process, or policy topics in a timely fashion and provide an open, non-punitive discussion environment.

A5.7.1. The individual who convened the debrief and the SRB chairperson will determine the required attendees; typically, debrief participants are personnel whose names appear on the 412 TW Form 5001 (or equivalent) but may include additional personnel (e.g. unit Primary UTSO). Non-required personnel may be asked to leave to preserve the debrief environment.

Attachment 6 (Added)**FORMAL SAFETY REVIEW BOARD**

A6.1. SRB Chairperson discretion. The formal SRB will occur after the SRB Chairperson ensures the Safety Review prerequisites have been completed. The SRB Chairperson will exercise his or her discretion throughout this process to ensure independent government review and approval of safety planning documentation is upheld.

A6.2. Minimum read-ahead time. Test teams will provide the read-ahead copies at least 3 working days prior to the meeting unless otherwise approved by the SRB Chairperson; 5 working days are recommended. In all cases, all reviewers must have had adequate time to review the relevant documents before the start of the safety review. The test team will coordinate with the SRB Chairperson and the safety reviewers to ensure their planned timeline is realistic and attainable. The SRB Chairperson, in consultation with the other independent reviewers, will determine if the amount of review time is sufficient.

A6.3. SRB venue. The PSL will propose the venue for a formal SRB and the SRB Chairperson will approve it. The default venue for a formal SRB is a conference room for in-person meetings, but formal SRBs may be accomplished virtually. For in-person SRBs, the SRB Chairperson will permit specific required attendees to join virtually. Virtual attendance is most appropriate for lower risk test packages that have little expectation of complex or contentious discussions. The virtual option will include the capability for voice communication and should include the capability for screen-sharing during the project briefing and document review.

A6.4. Review pauses. The SRB Chairperson may elect to pause an SRB and reconvene at a different date/time if required to ensure an adequate review.

A6.5. The test team will:

A6.5.1. Coordinate with the approved safety reviewers and the SRB Chairperson to ensure all participants are available and informed of the time, date, location, and estimated duration of the formal SRB.

A6.5.2. Arrange availability of a suitable meeting location. Whether the SRB is virtual or in-person, the PSL is responsible for facilitating the venue at the appropriate information protection level and security accreditation.

A6.5.3. Prepare a project briefing that adequately describes pertinent aspects of the test project to the safety reviewers and SRB Chairperson.

A6.5.4. Ensure that slides, if used, are available for all SRB participants to review.

A6.6. Availability. Personnel tasked to attend a formal SRB will ensure they are available for the planned duration of the meeting unless approved by the SRB Chairperson. If required personnel are absent without prior coordination, the SRB Chairperson may postpone or pause the SRB.

A6.7. Minimum attendance. Test project personnel must be present to answer test package questions that may be asked by the independent safety reviewers. At a minimum, a knowledgeable system operator, the PSL, test/project engineer(s), and a scribe must be in attendance. If required to conduct a thorough review, contractor system design specialists and/or cognizant engineers must be present or available to answer questions.

A6.7.1. For projects with substantial involvement of multiple aircraft types (e.g. aerial refueling pairings, complex chase requirements, etc), knowledgeable system operators from each aircraft type will attend.

A6.8. SRB structure. The following items characterize the flow of the SRB review and risk assessment proceedings. The SRB Chairperson is responsible for conduct of the formal SRB and has the discretion to alter the components, order and flow of the review.

A6.8.1. Opening Remarks, Introductions and Expectations. The meeting will be opened by the SRB Chairperson.

A6.8.2. Project Briefing. It is expected that safety reviewers will ask questions in an attempt to clearly understand the intent of the test team and to uncover any potential hazards or safety issues that were not previously identified.

A6.8.3. Test Plan Review. The review will focus on understanding the test methodology from a safety perspective and refrain from questioning the technical adequacy of the test plan.

A6.8.4. Safety Plan Review. The safety documentation released to the safety reviewers will be thoroughly reviewed. The safety plan must be clear and understandable. The safety reviewers will review the GMPs and THAs with the test team, make recommendations to change, add, or remove GMPs and THAs as appropriate, make comments to the GMPs and THAs, and determine the appropriate mishap severity and probability for each THA. Action items may be assigned to the test team by the SRB Chairperson. Some changes agreed upon by the test team at the formal SRB do not necessarily warrant the assignment of an action item. These may be colloquially referred to as “go-do’s”. The SRB Chairperson may reconvene the SRB to resolve any outstanding issues.

A6.8.4.1. When a hazard has multiple credible outcomes of different severity/probability combinations, the SRB will assess the risk for each outcome; the risk level assessed for the THA will be the highest risk assessed among those outcomes. If the resultant risk level is the same across all the credible outcomes, the THA should be marked with the probability associated with the highest severity. In either of these cases, the additional credible outcomes should be documented in the THA comments/remarks.

A6.8.5. Additional Test Related Documentation Review. Any additional test related documentation will be reviewed by the SRB as necessary (including modeling data, airworthiness documents, waivers, etc.).

A6.8.6. Risk Assessment. After the safety plan review is complete, the independent safety reviewers and SRB Chairperson will deliberate and assess the residual test risk. The independent safety reviewers may ask the test team additional questions. If appropriate, the risk may be assessed separately for: assets that require AFTC TEA risk acceptance and assets that do not require AFTC TEA risk acceptance, different phases of the test program, individual test events, or overall residual risk.

A6.8.7. Independent Safety Reviewer Poll. The SRB Chairperson will poll the reviewers for their risk assessment and tally the results for consensus determination.

A6.8.8. Review of SRB Proceedings and Assignment of Action Items. The scribe will recount all action items assigned during the formal SRB. The SRB Chairperson should consult the board members to verify the action items documented by the scribe were captured correctly. A responsible individual other than the PSL may be tasked to answer each action item.

A6.9. Minutes and action items. The scribe will provide the formal SRB minutes and identified action items to the SRB Chairperson within two working days of the formal SRB or as negotiated with the SRB Chairperson.

A6.10. Post-review responsibilities. The PSL (with assistance from the UTSO), Reviewers, and SRB Chairperson will ensure the following are performed after the Review:

A6.10.1. Coordinate the wording of Action Items with PSL and SRB members, as appropriate

A6.10.2. Change or update the safety plan as identified and agreed upon at the formal SRB

A6.10.3. Resolve and Close Action Items. Test team personnel will coordinate all action item responses and requests for closure with the safety reviewers and the SRB Chairperson. The SRB Chairperson, in coordination with the respective safety reviewer, is the final authority for determination of action item closure and will respond to the test team indicating whether each action item response is acceptable and that the action item can be closed. Action items left open may alter a risk assessment and may prevent test points from being approved for execution.

A6.11. Final actions. Once all actions items are closed, the SRB Chairperson will:

A6.11.1. Ensure the final test package documentation is distributed electronically (if applicable) to all safety reviewers. The distribution task may be performed by the SRB Chairperson unless otherwise agreed-to by the test team.

A6.11.2. Write the safety review board summary (SRBS) memorandum. If the SRB recommends to the TEA that an elevated risk test, or portion of it, should not be performed, the SRBS will provide justification as to why.

A6.11.3. Solicit coordination comments and responses, as appropriate.

A6.11.4. Assemble the Test Package for approval unless otherwise agreed-to by the test team.

A6.11.5. Request safety reviewer concurrence with proceeding to the Approval phase. For Low Risk packages, the SRB Chairperson is the only required signature on the 412 TW Form 5001 (or equivalent) Section II. For Medium and High Risk test packages, unless they delegate their signature authority to the SRB chairperson, reviewers will sign Section II indicating their concurrence that the package is ready for the Approval phase. Reviewer agreement with the final outcome is indicated by a resolved coordination comment or no coordination comments. Disagreement with the final outcome is denoted by the unresolved coordination comment.

A6.11.6. Be final person to sign Section II of the 412 TW Form 5001 (or equivalent) indicating that the independent review has been completed IAW governing regulations (e.g. AFTCI 91-202 and AFTCI 91-202 412 TW Supplement) and the reviewers have concurred the test package is ready for the Approval phase. After the SRB Chairperson has signed the test package, it will enter the Approval phase.

A6.12. Coordination comments.

A6.12.1. Coordination comments will be documented in a coordination comments section of the test package, such as on the 412 TW Form 5001/5002 (or equivalent).

A6.12.2. The test team and safety reviewers should attempt to resolve issues before resorting to the use of a coordination comment.

A6.12.3. Coordination comments are typically initiated by individuals whose names appear as reviewers or approvers on the 412 TW Form 5001/5002 (or equivalent). However, the SRB Chairperson (or in the case of NRR, the independent TSO) may permit anyone with a pertinent technical or safety concern to initiate a coordination comment; in this case, the SRB Chairperson will alert the TEA to the coordination comment.

A6.12.4. The test team will provide written responses for all coordination comments unless the commenting official indicates no response is necessary.

A6.12.5. The SRB Chairperson will make a final determination of the actions necessary, if any, to substantiate points of disagreement for TEA decision. The SRB Chairperson should confirm the original commenter has reviewed the response; lack of additional responses will be taken to indicate a resolved coordination comment. If the original commenter disagrees with the response, the commenter will add to their original comment, documenting the continued disagreement.

A6.13. Section I signatory notification. When the test package proceeds into the Approval phase, the PSL should notify the final Section I signatory of any significant changes to safety planning generated by the safety review, or of any significant coordination comments to the test package.

A6.14. Test package approval routing. The PSL will route the test package for approval.

Attachment 7 (Added)**ELECTRONIC SAFETY REVIEW (ESR)**

A7.1. ESR discussion venue. All ESR discussions must be visible to all ESR participants. 412 TW/SET recommends use of a collaborative discussion forum (e.g. channel or chat room) for this purpose, provided all participants can access the system in use. The PSL is responsible for facilitating the venue at the appropriate information protection level and security accreditation. A scribe is not required.

A7.2. ESR timeline. Within 5 working days after release of the test package documentation, each safety reviewer will complete the review of the test package in parallel and provide comments or recommended changes. Additional safety reviewer time may be necessary. In such situations, the test team will coordinate with the SRB Chairperson and the safety reviewers to ensure their planned timeline is realistic and attainable.

A7.3. Safety review. The safety reviewers will thoroughly review the test package. Safety reviewers will refrain from questioning the technical adequacy of the test plan. Close and persistent communication between the PSL (with assistance from the UTSO), safety reviewers, and SRB Chairperson is necessary to complete the following:

A7.3.1. Test Package Comments and Changes. The safety reviewers will provide comments and recommended changes to the PSL, other safety reviewers and SRB Chairperson. The PSL will ensure test team personnel provide requested information to the safety reviewers and address any safety plan changes recommended by the safety reviewers. In addition, the PSL is responsible for ensuring each safety reviewer is aware of comments and changes recommended by any other reviewer along with the test team responses.

A7.3.2. Issue Resolution. Unlike a Formal SRB, action items normally are not appropriate for an ESR since issues are generally resolved during the review and coordination process before concluding the review. Unresolved issues may alter a risk assessment and may prevent test points from being approved for execution.

A7.3.3. Risk Assessment. The risk assessment will be performed as described in the Formal SRB, only done so electronically.

A7.3.4. Coordination Meeting. If a disagreement arises concerning recommended changes to the test package, or if the safety reviewers have differing risk assessments, the SRB Chairperson may require a coordination meeting between the test team and the safety reviewers to resolve the issue(s). Any remaining disputes will be handled utilizing the same process as detailed above for Formal SRBs.

A7.4. Post-review responsibilities and final actions. The post-safety review PSL actions, coordination comment process, and SRB Chairperson actions are the same process as detailed under Formal SRB.

Attachment 8 (Added)**COMBINED TRB/SRB**

A8.1. Prerequisite. Prior to the combined TRB/SRB, the Technical Review Authority (TRA) must concur that a combined TRB/SRB is appropriate. This should be obtained prior to planning a combined TRB/SRB.

A8.2. SRB conduct. The SRB portion occurs per the discretion of the SRB Chairperson and is held in a manner consistent with a Formal SRB.

A8.3. Review planning. Test teams will ensure enough time is scheduled for both a thorough technical and safety review. Teams will work with both the TRA and the SRB Chairperson to schedule the meeting.

Attachment 9 (Added)**NEGLIGIBLE RISK REVIEWS**

A9.1. Differences for NRRs. Major differences between the NRR and other types of reviews include the following:

A9.1.1. The 412 TW NRR process is generally electronic and follows a unique template for safety planning and review.

A9.1.2. The test team will propose the test project's qualifications for NRR and the names of the independent TSO and at least one other independent reviewer to 412 TW/SET.

A9.1.3. The independent safety review is led by an independent Test Safety Officer, in lieu of a full independent review board.

A9.1.4. The control number will have similar format as test packages under other types of safety review, with the exception of the letters NRR appended to the end. Should a package be amended such that it no longer qualifies for NRR, these letters will be removed, but the control number will remain.

A9.1.5. For packages that were previously approved without a control number, documentation will continue to be managed at the test unit level. See the NRR library guidance in A13.

A9.2. NRR proposals.

A9.2.1. NRR proposals will be made in writing. Teams will send an "NRR Proposal" to the 412 TW/SET Workflow (412.TW.SET@us.af.mil) or via appropriate channels.

A9.2.2. The NRR proposal will contain information sufficient to approve the documentation format, preliminarily assess overall risk level, determine the appropriate independent reviewers, verify the participants eligibility/training status, and facilitate test package metric tracking.

A9.2.2.1. The team will provide justification as to how the overall risk of the proposed test activities are or are equivalent to normal or routine operations from the following perspectives:

A9.2.2.1.1. Maturity of the test procedure and risk control measures.

A9.2.2.1.2. Operator training, qualification, and proficiency requirements.

A9.2.2.1.3. Whether test procedures involve the use of abnormal or emergency procedures, checklists, or configurations.

A9.2.2.1.4. Potential for a failure or malfunction of the SUT to cause the use of abnormal or emergency procedures to safely recover the aircraft.

A9.2.3. Based on the NRR proposal, 412 TW/SET will make a preliminary determination whether the NRR qualification criteria are likely to be met and approve the proposed independent reviewers.

A9.2.4. 412 TW/SET may request additional information from the test team.

A9.3. NRR independent review. If the NRR criteria are preliminarily met, one independent TSO and at least one other independent reviewer must review the test package documentation. The independent reviewers will have completed ISR training or SRB Chairperson training IAW A14.9.

A9.3.1. The other independent reviewer(s) will have relevant experience in the area(s) being assessed. If the independent TSO determines additional reviewers not identified in the NRR proposal are required, they will notify 412 TW/SET.

A9.3.2. If the test team desires, a member of 412 TW/SET may serve as the independent TSO.

A9.3.3. If the test team cannot locate independent reviewer(s) with relevant experience in the area(s) being assessed, the test team will consult with 412 TW/SET to determine a path forward.

A9.3.4. The names of the PSL, independent TSO, and other reviewers will be documented on the 412 TW Form 5002 (or equivalent).

A9.4. NRR test package requirements. The following must be completed before the NRR test package is approved:

A9.4.1. The activity will be adequately defined and documented (e.g. test plan, test procedures, test information sheets, etc.).

A9.4.2. Technical reviews will be complete and a TRM/RUGR will be obtained from 412 TW/CT or designee. Teams should consult EDWARDSAFBI 99-101 and 412 TW/CT for the latest guidance concerning technical adequacy.

A9.5. Document preparation.

A9.5.1. The NRR will be prepared using the 412 TW Form 5002, or equivalent. The current 412 TW Form 5002 (“Negligible Risk Review”) is available on the 412 TW/SET SharePoint. An UTSO from the appropriate unit should assist the test team by ensuring that the most current version is used prior to submission. If units develop their own documentation that captures required approvals, the documentation will be coordinated with 412 TW/SET.

A9.5.1.1. Project personnel will complete all sections of the 412 TW Form 5002 (or equivalent) except as specified on the form.

A9.5.1.2. The NRR will provide enough information to support an approval decision. Test teams will affirm that TRM/RUGR has been obtained on the 412 TW Form 5002 (or equivalent).

A9.5.2. Test teams will provide the constituent documents listed below for TEA approval. In the assembled test package, these documents should appear in the order shown. 412 TW/SET may assist with test package compilation upon request.

A9.5.2.1. 412 TW Form 5002 (or equivalent).

A9.5.2.2. Previously approved 412 TW Forms 5002 (or equivalent)

A9.5.2.3. TRM/RUGR

A9.5.2.4. Test plan, test procedures, test information sheets, and other supporting documentation

A9.6. Review, concurrence, approval, and info cycle.

A9.6.1. Unless otherwise agreed-to by the independent TSO, test teams will provide the read-ahead copies at least 3 working days prior to the need-date. In all cases, all reviewers must have had adequate time to review the relevant documents. The test team will coordinate with the independent TSO and the other reviewers to ensure their planned timeline is realistic and attainable. The independent TSO, in consultation with the other independent reviewer(s), will determine if the amount of review time is sufficient.

A9.6.2. Review: The test team should work with the independent reviewers to resolve questions/concerns.

A9.6.3. Concurrence: The independent TSO leading the safety review will

A9.6.3.1. Solicit coordination comments and responses, as appropriate.

A9.6.3.2. Assemble the Test Package for approval unless otherwise agreed-to by the test team.

A9.6.3.3. Request other independent reviewer concurrence with proceeding to the Approval phase.

A9.6.3.4. Sign the 412 TW Form 5002 (or equivalent) indicating that the independent review has been completed IAW governing regulations (e.g. AFTCI 91-202 and AFTCI 91-202 412 TW Supplement) and the reviewers have concurred the test package is ready for the Approval phase. The independent TSO leading the safety review is the only required review signature. After the TSO leading the safety review has signed the test package, it will enter the Approval phase.

A9.6.4. **Approval and info cycle.** The TEA will return approved NRRs to the team. The PSL or an UTISO assisting the team will notify 412 TW/SET when the NRR is approved.

A9.7. NRR disqualification/disapproval. At any point during the NRR proposal, independent safety review, or approval, if the PSL, a reviewer, or the TEA determines the NRR qualification criteria are no longer met or the NRR is disapproved, the individual making that determination will notify the other stakeholders in the planning and review process (e.g. test team, independent reviewers (if identified), and 412 TW/SET). In that case, a non-NRR safety review must be conducted before the test activity may execute.

Attachment 10 (Added)**ACCEPTANCE OF OTHER ORGANIZATION'S SAFETY PLAN****A10.1. AFTC safety plan.**

A10.1.1. The originating test wing/complex or local supporting/participating agency will provide the test package in the originating wing/complex's format.

A10.1.2. A member of 412 TW/SET will act as the responsible independent TSO or assign one. The responsible independent TSO may request the originating wing/complex provide a cover letter memorandum to supplement the original package explaining the degree of 412 TW involvement in the effort and risk. Variations of this memorandum format requirement can be authorized by 412 TW/SET.

A10.1.2.1. If the responsible independent TSO determines the originating wing/complex's documentation is sufficient to describe 412 TW involvement and risk, the independent TSO will document their review in a memorandum which will be Info Cycled to the appropriate equivalent 412 TW TEA. No additional independent safety reviewers are required.

A10.1.2.2. If the responsible independent TSO determines the originating wing/complex's documentation is not sufficient to describe 412 TW involvement and risk, a 412 TW PSL will be assigned to accomplish the 412 TW safety process, which may require a 412 TW independent safety review.

A10.1.3. Upon acceptance of an approved test package, participating 412 TW units may execute any assigned portion of a test project.

A10.1.4. The originating wing/complex will notify the local supporting/participating agency of any amendments or changes to the original test package.

A10.1.5. 412 TW/SET will maintain a record of the accepted test package, which will expire after 3 years from originating wing/complex approval unless closed.

A10.1.6. The local supporting/participating agency will notify the originating wing/complex that a responsible independent TSO has accepted the test package.

A10.2. Non-AFTC safety plan.

A10.2.1. Content. Sufficient detail must be included in the package for the 412 TW to make a risk assessment. The 412 TW test unit involved will identify a PSL to assist the customer as required to meet the requirements specified in AFTCI 91-202 and this instruction. The PSL may supplement the non-AFTC safety plan with a cover letter memorandum explaining the degree of 412 TW involvement in the effort, the scope of the risk assessment, and pertinent details from the non-AFTC safety planning that should be considered in the government review.

A10.2.2. Scope. When a 412 TW unit is not ETO or otherwise responsible for the safe conduct of the test, but either 412 TW assets are being utilized or the 412 TW is responsible for safety of the general public, the 412 TW test safety process must still be accomplished. The scope of the safety planning will be restricted to assessing the risk to 412 TW assets, the general public, and, if applicable, the risk-increment of utilizing 412 TW assets (such as personnel) to affect the safe outcome of the test. The 412 TW may conduct a broader scope of review if requested by the customer.

A10.2.3. Required documentation. The test package will include the non-AFTC safety plan and other supporting documentation, and will use a 412 TW Form 5001 or 5002 (or equivalent) to obtain approval from the appropriate 412 TW TEA for 412 TW participation.

A10.2.4. Technical Reviews. Activities will be reviewed IAW EDWARDSAFBI 99-101 to determine if they are technically adequate or are a reasonable use of 412 TW resources.

A10.3. USAF Test Pilot School.

A10.3.1. TPS will conduct an internal safety review of all staff projects, curriculum and curriculum-related events. These events will be clearly defined by TPS developed publications such as Mission Planning Guides (MPG) and Qualitative Evaluation Review Board (QRB) packages. These types of events will not exceed manufacturer flight envelopes or normal procedures. Events that exceed these criteria must use the regular 412 TW Test Safety Process for approval.

A10.3.2. Student Test Management Projects (TMPs) may proceed into the Safety Review with the following signatures: PSL, UTSO, and a staff advisor. Appropriate staff advisors include the TPS/DO, the TPS chief pilot for the applicable aircraft or the staff technical advisor assigned to the TMP. Upon completion of the review, the students will incorporate any agreed-to changes, finish coordinating the test package with the safety reviewers, and then submit it to the TPS Technical Director and Commandant for their review and approval.

Attachment 11 (Added)**APPROVAL PHASE**

A11.1. TEA Elevation. A TEA may elect to elevate the approval authority to a higher TEA.

A11.1.1. In the rare case where a member of the test team whose attendance at the SRB is mandatory is also qualified to act as TEA for that test package (e.g. if the PSL, UTSO, or project operator on a low risk package is also the Sq/DO), that individual will not approve the test package as TEA; another qualified individual must be used.

A11.2. Subordinate commander review. For elevated risk packages, test teams will provide subordinate commanders/directors the test package in its ready-for-approval state no later than when it is delivered to the TEA.

A11.3. TEA handling of coordination comments.

A11.3.1. The TEA will review all coordination comments prior to approval and will adjudicate unresolved coordination comments.

A11.3.2. Coordination comments made during approval will be written and the wording verified by the commenting TEA so the test team has clear understanding of tasking. Coordination comments not requiring a team response should be annotated as such.

A11.4. LOW and MEDIUM risk approval.

A11.4.1. As a group-level commander, the USAF TPS/CC may approve all low and medium risk flight and ground tests conducted for the USAF TPS curriculum such as the Test Management Program (TMP) and Staff Projects, as well as all operations required for curriculum execution and development of new curriculum material. This includes approval authority for training and/or aerial events such as the TPS Qualitative Evaluation Program when the TPS/CC or TPS/CD has been given Flight Operations Authority (FOA).

A11.5. HIGH risk notification.

A11.5.1. Units are responsible for providing high-risk notification to non-AFMC asset owners (AFTCI 91-202, 2.1.6.10) via appropriate means. Units will inform 412 TW/SET (412.TW.SET@us.af.mil) when all notifications have occurred.

A11.6. Test Approval Brief (TAB).

A11.6.1. The PSL is responsible for scheduling and coordinating a TAB with the TEA. The TEA may opt to approve a test package without a TAB, but PSLs should assume one is required until informed otherwise.

A11.6.2. Composition of the TAB members is at the discretion of the TEA. The PSL will ensure subordinate commanders are invited to attend the TAB. PSLs should provide read-ahead copies of the test package to all TAB invitees. The individuals named in Section I and II of the 412 TW Form 5001 (or equivalent) should be invited to the TAB, if held.

A11.6.3. Scheduling.

A11.6.3.1. The test team is responsible for scheduling the TAB time and location with the TEA.

A11.6.3.2. Required attendees will be contacted to verify they are aware of the briefing time, date, location and their ability to attend.

A11.6.3.3. The test team should ensure appropriate computer, projection, and communication support is available to conduct the meeting.

A11.6.4. Format.

A11.6.4.1. The test team will provide the briefing in a suitable format. The most current Test Approval Briefing Template as hosted on the 412 TW/SET SharePoint site is recommended.

A11.6.5. Conclusion.

A11.6.5.1. The test team will make any required changes to the safety documentation that result from the approval briefing. The approval authority may approve the test package at the approval briefing with or without conditions.

A11.7. Accelerated tests, test surges, and AFMC Plan 70 materiel surges.

A11.7.1. Accelerated tests or test surges will be designated by the 412 TW/CC. Programs designated as AFMC Plan 70 materiel surges will be communicated to the stakeholders, including the 412 TW/SET and the independent reviewers.

A11.7.2. Accelerated tests, test surges, and AFMC Plan 70 materiel surges are prioritized over other programs but are required to comply with all documentation and review requirements specified by AFTCI 91-202 and this supplement.

A11.7.3. The steps of the process may be compressed in order to minimize the time required for final test approval. This is typically accomplished by combining the TRB and SRB, then conducting a TAB to obtain the TEA's signature on the test package.

A11.7.4. In some instances, the TW/CC may request a TAB although TEA rests with a subordinate commander. It is recommended that subordinate unit commanders be involved and informed throughout the acceleration / surge process.

A11.8. Final package assembly and info cycle.

A11.8.1. Following approval of an original package or a major amendment, the test team will provide signed copies of the constituent test package documents to 412 TW/SET.

A11.8.2. 412 TW/SET will assemble the final test package and perform the Info Cycle specified by AFTCI 91-202 Table 6.1; these tasks may be performed by the unit, at the unit's request or when required by releasability/classification restrictions.

A11.8.3. NRR test packages will additionally be Info Cycled to 412 TW/CT and the group CC (or equivalent). NRR and Low risk test packages approved by TPS/CC (or equivalent) will be Info Cycled to 412 OG/CC.

Attachment 12 (Added)**TEST PACKAGE CHANGES/AMENDMENTS AND TIME LIMITS**

A12.1. Control numbers. With the exception of administrative changes, test plan and/or safety plan changes are all documented via formal change through 412 TW/SET control number.

A12.2. Summary of Changes. The test package will include a Summary of Changes section documenting all changes since the original safety package was approved. Every change/amendment will be accounted for in this summary.

A12.2.1. UTSOs will ensure traceability of all changes to a specific individual. 412 TW/SET recommends the use of names in the Summary of Changes section.

A12.3. Determining required change documentation. The appropriateness of a major or minor amendment will be at the discretion of the SRB Chairperson or a member of 412 TW/SET, or in the case of a pre-approved minor change, an independent TSO. This individual will consult with and rely on the TRA to determine whether test plan changes are major or minor, IAW EDWARDSAFBI 99-101.

A12.3.1. The individual who made each minor or administrative change determination will be named. 412 TW/SET recommends noting this in the Summary of Changes. In the case of an amendment via memorandum, this can be specified in the coordination section.

A12.3.2. The method of documentation required can be determined by referencing [Table A12.1](#).

Table A12.1. Test Package Changes/Amendments.

Change Type ^{1,2}	Documentation Method	Possible Reasons	Approval Authority
Major Amendment	412 TW 5001 or equivalent	1. Change in risk level 2. Major changes to safety plan 3. Unexpected Test Event ⁴	TEA appropriate to the highest affected risk level
Major Amendment	Memorandum	1. Major ³ test plan changes or added ⁶ test plan with no or minor changes to safety plan 2. Unexpected Test Event ⁴	TEA appropriate to the highest affected risk level
Minor Amendment	Memorandum	1. Minor ³ test plan changes with no or minor changes to safety plan 2. No test plan changes with minor ⁷ changes to safety plan	Squadron Commander (or equivalent)
Review Amendment	412 TW 5001 or equivalent	Required a minimum of every 3 years at discretion of test organization leadership ⁵	Overall test package TEA or higher
Closure Amendment	Email	Closure	412 TW/SET
Administrative Change	On existing documentation	Administrative changes	TSO
NOTES:			
1. 412 TW/SET may advocate the use of a different documentation method or approval authority on a case-by-case basis. As such, test team will verify that their documentation method and approval authority is appropriate.			
2. All changes require that the test package control number be incremented except for administrative changes; administrative changes must be tracked by the unit, such that test package documentation configuration control is maintained.			
3. Major and minor test plan changes and procedures are defined in EDWARDSAFBI 99-101.			
4. 412 TW/SET will determine the appropriate documentation to resolve an Unexpected Test Event.			
5. Test Pilot School standard curriculum event safety plans will be reviewed at least every four years.			
6. Additional test plans may be incorporated into an existing test package via an amendment, so long as they are accompanied by an appropriate amount of additional safety planning. In some cases, no change to safety planning may be required.			
7. The TEA may pre-approve minor safety plan changes. See A12.6.			

A12.4. Annotation of changes. Changes will be made directly to the existing documentation and will be clearly identified within the test package. The summary of changes section will be updated to reflect any changes.

A12.5. Clarity of changes. At a minimum, changes associated with the most recent amendment will be clearly annotated to reviewers and the TEA (if applicable). In all cases it should be clear to readers what changes have been made within the test package. The method of incorporating changes is left to the discretion of the test team.

A12.6. Pre-approved minor safety plan changes. If the TEA has pre-approved minor safety plan changes, the SRB Chairperson or an independent TSO must concur that the safety plan change is minor and there is no risk level change. Concurrence from other ISRs may also be required at the discretion of the SRB Chair or the TSO. If the change is determined to be minor, the TSO may make the minor safety plan change to the test package and update the summary of changes. The TSO should clearly annotate that the change is a “minor safety plan change” in the summary of changes. 412 TW/SET will be info cycled on these changes. Use of this mechanism constitutes a minor amendment. The test package control number will be updated for this type of change.

A12.6.1. This pre-approval can be obtained upon initial signature by the TEA. If the TEA elects to approve this after initial approval, the approval must be included in the test package. An email is acceptable.

A12.7. Major amendments.

A12.7.1. Major amendments will be approved in accordance with [Table A12.1](#).

A12.7.2. The major amendment will normally contain all requirements of an initial package with the following exceptions/additions:

A12.7.2.1. The control number will be assigned by 412 TW/SET in their response to the RSR.

A12.7.2.2. Any previous coordination comments will be retained with the previously approved 412 TW Form 5001/5002 (or equivalent) with which they were made.

A12.7.2.3. Any additional THAs will be added to the safety plan as required. Changes to existing THAs will be made to the most current version.

A12.7.2.4. The results of the technical review following a major test plan change will be documented in a TRM IAW EDWARDSAFBI 99-101. Test teams will include this TRM in the test package amendment.

A12.7.3. If a memorandum format is used, the amendment does not need to contain all requirements of an initial package. The control number will be assigned by 412 TW/SET in their response to the RSR. The memorandum will detail the requirement for the changes, a summary of the changes and any coordination officials involved. A major amendment memorandum template is available on the 412 TW/SET SharePoint.

A12.8. Minor amendments.

A12.8.1. Minor amendments will be approved in accordance with [Table A12.1](#).

A12.8.2. The memorandum will detail the requirement for the changes, a summary of the changes and any coordination officials involved in determining the minor nature of the changes. A minor amendment memorandum template is available on the 412 TW/SET SharePoint.

A12.8.2.1. If coordination with the TRA was required during amendment coordination, that review will be annotated in the coordination section of the memorandum.

A12.8.2.2. The impacts of any test plan changes on the safety plan must be made clear in the amendment.

A12.8.3. Minor amendments will be coordinated by the PSL. The SRB Chairperson will be info-copied upon approval of the amendment.

A12.8.4. After the amendment has been approved, the test package will be updated to reflect the amendment. The signed memorandum will be included in the test package for reference and the summary of changes page will be updated accordingly.

A12.9. Review amendments.

A12.9.1. To prevent test program delays, test packages should be renewed prior to the time limit shown in AFTCI 91- 202 8.4. A test package that has exceeded the time limit IAW AFTCI 91-202 8.4 may be renewed via Review Amendment only if the time limit has not been exceeded by more than 12 calendar months. Until the Review Amendment is approved, the test project does not have approval to continue execution.

A12.9.2. Test team rationale for changes (or lack thereof) should be clear in the amendment documentation. Teams will additionally highlight pertinent lessons learned since the last approval or review. The amendment number will be assigned by 412 TW/SET.

A12.9.3. Once the team determines what changes are required, if any, the SRB Chairperson or a member of 412 TW/SET will determine whether the Review Amendment should be categorized as a major, minor, or administrative safety plan change. In the case where the team-identified changes constitute a minor safety plan change and the TEA has pre-approved minor changes, any independent TSO may make this determination.

A12.9.3.1. Review amendment with major safety plan changes. IAW AFTCI 91-202 8.2, an independent safety review is required, and Section II of the 412 TW Form 5001 (or equivalent) will be completed, as described in section A12.7. The type of review will depend on the scope of changes. In some circumstances, the ESR path may be appropriate.

A12.9.3.2. Review amendment with minor safety plan changes. IAW AFTCI 91-202 8.3, an independent safety review board is not required, but concurrence from selected ISRs may be required at the discretion of the independent TSO. Section II of the 412 TW Form 5001 (or equivalent) will include the names of the ISRs and the signature of the independent TSO who determined the magnitude of the change.

A12.9.3.3. Review amendment with administrative or no proposed safety plan changes. IAW AFTCI 91-202 8.3, an independent safety review board is not required; Section II of the 412 TW Form 5001 (or equivalent) will be left blank except for the signature of the independent TSO who determined the magnitude of the change. In the case of no proposed safety plan changes, the independent TSO's role is to validate that no changes are needed.

A12.9.4. The Summary of Changes section will be explicitly annotated as a Review Amendment. If a Review Amendments is accomplished in conjunction with other amendments, the Summary of Changes must note that the requirements of AFTCI 91-202 8.4 were met.

A12.9.5. The TEA will approve the Review Amendment by signing Section III of the 412 TW Form 5001 (or equivalent).

A12.10. Closure amendments.

A12.10.1. Once testing is complete, a closure amendment will be filed. Unless a Review Amendment is completed, test teams will close test packages that have exceeded the time limit in AFTCI 91-202 8.4 by more than 12 calendar months, regardless of test program status. Once closed, no further test execution may be conducted.

A12.10.2. The closure amendment allows test teams to initiate closure of a test package in writing. The test team will focus on documenting lessons learned from the test effort. A well-written closure amendment will close the loop on a test package and help future researchers benefit from lessons learned during testing and pertinent information that the test team would have found beneficial at the beginning of the test program.

A12.10.3. Prior to submitting the closure amendment, the UTSO will prepare the test package for final archiving with all revisions incorporated.

A12.10.4. The closure amendment will include the items below. A sample closure amendment email template is available on the 412 TW/SET SharePoint.

A12.10.4.1. Control Number (include in Subject line)

A12.10.4.2. Title of Original Test Package

A12.10.4.3. Lessons Learned

A12.10.4.4. Review of Safety Plan and THAs

A12.10.4.5. SRB technical reviewer disciplines

A12.10.5. 412 TW/SET will review the closure amendment and contact the UTSO if questions or comments arise.

A12.10.6. 412 TW/SET will approve closure amendments in writing to the UTSO.

A12.11. Re-opening closed test packages.

A12.11.1. A closed test package may be re-opened under its original control number, provided the package has not exceeded its time limit IAW AFTCI 91-202 8.4 by more than 12 calendar months. Re-opening a closed test package will be considered, at a minimum, a minor amendment for the purposes of incrementing the control number.

A12.11.2. If the package has exceeded its time limit IAW AFTCI 91-202 8.4, the team will additionally accomplish the requirements of a Review Amendment IAW A12.9. The package re-opening and the Review Amendment actions should be combined into a single package amendment.

A12.11.3. The following process will be used.

A12.11.3.1. The PSL will add the original closure amendment to the test package as supporting documentation.

A12.11.3.2. An UTSO will document the package re-opening change in the Summary of Changes. The Summary of Changes should reflect the date the package was originally closed and the date the package was re-opened.

A12.11.3.3. The team will inform 412 TW/SET. The test team is then cleared to resume execution under that package.

A12.11.3.4. 412 TW/SET will Info Cycle the TEA (unless the TEA signature was already required as part of a Review Amendment).

A12.12. Administrative changes.

A12.12.1. Any change may be an indication of inadequate safety planning, no matter how small it originally appears. The test team and TSOs must thoroughly question the background and implications of all administrative changes to ensure they would not benefit from additional review.

A12.12.2. Changes to test plan. The TSO must obtain TRA concurrence that the change is administrative in nature. If the TRA concurs, the TSO may make red line changes directly to the test package. The change will be documented in the Summary of Changes section and must indicate that the TRA concurred.

A12.12.3. Changes to safety plan. The TSO may make red line changes directly to the test package. The change must be documented in the Summary of Changes section.

A12.12.4. 412 TW/SET will be notified of all administrative changes.

A12.13. Unexpected Test Events (UTEs).

A12.13.1. If a UTE is confirmed, the PSL or UTSO will provide notification of the event to the members of the safety review board, 412 TW/SET and to the TEA through the appropriate chain of command.

A12.13.2. Once a recovery plan of action is determined, unexpected test events will be documented with a safety plan amendment. Testing of the suspended test points may be resumed upon approval of the appropriate change documentation. 412 TW/SET will determine the documentation method required for a UTE.

A12.13.3. Confirmed Unexpected Test Events will be reported via the 412 TW/SET Unexpected Test Event Tracker located on the 412 TW/SET SharePoint within one working day of the determination. For classified or sensitive programs, teams should fill-in raw data, such as the package control number, risk level, and date(s), but limit the narrative fields as required. Do not include classified or proprietary information on the 412 TW/SET UTE Tracker.

A12.13.4. Upon resolution of the UTE with appropriate documentation, the team will update the 412 TW/SET Unexpected Test Event Tracker within 5 working days of the resolution.

A12.13.5. An Unexpected Test Event amendment does not constitute a mishap investigation, if one is required by DAFI 91-204. Test teams will suspend testing immediately and notify 412 TW Safety if a mishap occurs.

A12.13.6. If a hazard occurs which is not a UTE (IAW AFTCI 91-202 7.5), at a minimum, UTSOs will document the event as a lesson learned IAW A13.1.2 and include a description of the event in the test package closure amendment.

A12.14. Changes/Amendments for NRR packages.

A12.14.1. Test teams should evaluate the impact of any changes on the technical adequacy of the effort and safety planning for the effort. If NRR qualification criteria are no longer met, a formal safety review must be conducted.

A12.14.2. Amendments will be documented via an updated test package and control number.

A12.14.2.1. Teams will notify 412 TW/SET if an amendment is required. 412 TW/SET will assign an updated control number.

A12.14.2.2. Any changes to test planning documentation must be coordinated with the TRA. Documentation of TRA concurrence, digitally or via new TRM/RUGR, must be obtained and included in the amended test package.

A12.14.2.3. All amendment information (changes to test or safety plan) will be documented on the 412 TW Form 5002 (or equivalent) under “Summary of Changes”.

A12.14.2.4. Teams will follow the NRR Review, Concurrence, and Approval guidance to process NRR amendments.

A12.14.2.5. Review amendments for NRR packages will follow the guidance specified in A12.9 except that the 412 TW Form 5002 (or equivalent) will be used.

A12.14.3. If changes to the NRR test package are required, teams will follow the guidance specified in A12.13 except that the 412 TW Form 5002 (or equivalent) will be used.

Attachment 13 (Added)**ADDITIONAL UTSO REQUIREMENTS****A13.1. Documentation requirements.**

A13.1.1. UTSOs will ensure all changes to the test package are documented in the test package summary of changes.

A13.1.2. UTSOs will collect and document lessons learned throughout the test program for inclusion in the closure amendment; these may be technical, safety, or programmatic. Additionally, UTSOs will document hazard occurrences which are not a UTE.

A13.2. Active test package library.

A13.2.1. Each test unit Primary UTSO will develop and maintain a storage area or library for all active (i.e. approved but not-yet closed) test packages for tests conducted within their organization. This library may be electronic and/or physical and must include all test package documentation, updated through the most recent change/amendment, including Administrative changes. The 412 TW/SET-maintained SharePoint site is an acceptable storage location for active unclassified test packages as long as any Administrative changes are captured by subsequent major/minor changes.

A13.2.2. Each test unit utilizing the NRR process will ensure the unit's test package library includes active NRRs approved prior to the introduction of NRR control numbers in early 2020.

A13.3. Approved test package archive.

A13.3.1. Original test packages, major/minor amendments, and closures will be archived upon their approval. The default archive will be the 412 TW/SET SharePoint site and 96 TW LiveLink site, releasability and classification restrictions permitting; 412 TW/SET will accomplish the archiving to these sites. If the closed test package cannot be kept in the 412 TW/SET archive, it should be maintained by the test unit for as long as reasonably able. Administrative changes will not be archived by 412 TW/SET unless incorporated in an amendment which drives test package re-assembly.

A13.4. Unit test safety program inspection.

A13.4.1. 412 TW/SET will conduct reviews of each 412 TW test unit's test safety program in accordance with AFI 91-202. These reviews are meant to provide feedback to both the test unit leadership and 412 TW/SET on areas for improvement and sharing of best practices. The test unit Primary UTSO should support the inspection.

A13.4.2. Areas for review will be IAW the Unit Test Safety Program Inspection Checklist. 412 TW/SET will make this checklist available to units. UTSOs are highly encouraged to perform self-assessments regularly using this checklist.

Attachment 14 (Added)**QUALIFICATIONS, DESIGNATIONS, AND TRAINING OF TEST SAFETY PERSONNEL****A14.1. General PSL qualification requirements. :**

A14.1.1. Complete the 412 TW/SET Initial Project Safety Lead training (AFTCI 91-202 2.2.3.1). USAF TPS students will obtain this training in the course of the curriculum.

A14.1.2. Observe at least 1 formal SRB. This requirement will be tracked and documented by the unit. Exception: USAF TPS student PSLs are not subject to this observation requirement; the TPS Primary UTSO will ensure TPS student PSLs are sufficiently mentored to mitigate this lack of experience.

A14.2. PSL assignment. The PSL for any given project will be assigned through internal squadron processes.

A14.3. PSL background. The PSL must be an individual with test experience, must be familiar with the system under test (SUT), and should be involved in the test plan development when feasible.

A14.4. PSL familiarization. In cases where an external customer accomplishes test planning without 412 TW involvement, the PSL will additionally become familiar with the 412 TW assets involved.

A14.5. PSL currency. PSLs will maintain currency by completing PSL continuation training annually, expiring on the last day of the 12th calendar month from the date the training occurred.

A14.5.1. If PSLs are unable to renew their currency upon expiration, they may continue to serve as a PSL for up to one month beyond expiration per the discretion of 412 TW/SET. PSLs will work to regain currency at the soonest possible training opportunity.

A14.5.2. PSLs more than 72 calendar months beyond their most recent PSL training date will renew their currency by re-accomplishing Initial PSL training.

A14.6. UTSO qualification requirements. :

A14.6.1. Complete the 412 TW/SET Initial Project Safety Lead Training (AFTCI 91-202, 2.1.7.3)

A14.6.2. Complete the 412 TW/SET Initial Unit Test Safety Officer Training and associated coursework.

A14.6.3. Participate in or observe at least one formal SRB prior to being designated an UTSO. This requirement will be tracked and documented by the unit.

A14.6.4. Sign as PSL on at least two 412 TW original test packages or amendments prior to being designated an UTSO. For at least one of these original test packages or amendments, the UTSO candidate must have signed as the PSL in Section I on the 412 TW Form 5001 (or equivalent) as part of a Formal SRB, ESR, or Combined TRB/SRB.

A14.7. UTSO appointment letters. The latest list of squadron commander-designated UTSOs will be made available to 412 TW/SET. 412 TW/SET will make these appointments available to units.

A14.8. UTSO currency. UTSOs will maintain currency by completing UTSO continuation training annually, expiring on the last day of the 12th calendar month from the date the training occurred.

A14.8.1. If UTSOs are unable to renew their currency upon expiration, they may continue to serve as an UTSO for up to one month beyond expiration per the discretion of 412 TW/SET. UTSOs will work to regain currency at the soonest possible training opportunity.

A14.8.2. UTSOs more than 36 calendar months beyond their most recent UTSO training date will renew their UTSO currency by re-accomplishing Initial UTSO training. **A14.8.3** UTSOs more than 72 calendar months beyond their most recent UTSO training date will renew their UTSO currency by re-accomplishing Initial UTSO training and participating in or observing at least one 412 TW formal SRB within the previous 12 calendar months.

A14.9. Independent Safety Reviewers.

A14.9.1. In all cases, ISRs must be independent of the test project.

A14.9.2. SRB Chairpersons

A14.9.2.1. Individuals selected as SRB Chairpersons will be approved in writing by 412 TW/SE.

A14.9.2.2. SRB Chairperson qualification requirements include

A14.9.2.2.1. Accomplish Initial Project Safety Lead Training and SRB Chairperson Training.

A14.9.2.2.2. Prepare (as PSL, UTSO, or Project Operator) or review (as ISR) at least two 412 TW original test packages or amendments prior to being designated an SRB Chairperson. For at least one of these original test packages or amendments, the SRB Chairperson candidate must have had an active and substantial role in the preparation or review of a non-NRR test package, as indicated by their name appearing on a 412 TW Form 5001 (or equivalent) in Section I or Section II.

A14.9.2.2.3. Have three years test experience or have graduated from a recognized Test Pilot School.

A14.9.2.2.4. Exceptions to these requirements or credit for equivalent experience may be approved by 412 TW/SE.

A14.9.2.3. SRB Chairpersons will perform a minimum of one SRB under 412 TW/SET supervision prior to being permitted to perform SRBs independently.

A14.9.2.4. SRB Chairpersons that have not chaired an SRB within the last 6 calendar months will undergo refresher training prior to chairing an SRB.

A14.9.3. Technical Reviewers, Operations Reviewers, Other Reviewers. These ISRs:

A14.9.3.1. Should be proposed by the test team.

A14.9.3.2. Will accomplish the Independent Safety Reviewer Training (AFTCI 91-202, 2.3.1).

A14.9.3.3. Will maintain currency by completing ISR continuation training annually, expiring on the last day of the 12th calendar month from the date the training occurred.

A14.9.4. Test Package Approvers

A14.9.4.1. Unit commanders (or equivalent) or authorized delegates will accomplish TEA training before they approve test packages.

A14.9.4.2. Unit commanders (or equivalent) or authorized delegates should maintain currency by re-accomplishing TEA training whenever updates are published to AFTCI 91-202 or this supplement.

A14.10. Training currency tracking. 412 TW/SET will track training currency for the following: PSL, UTSO, ISR, SRB Chairperson, and TEA Training. 412 TW/SET will make the training currency tracker viewable by units. Qualifications more than 72 calendar months old will be purged from the training currency tracker.