

Air Force and Federal Aviation Administration Common Standards Working Group (CSWG)

The Air Force and Federal Aviation Administration Common Standards Working Group is an interagency partnership established to develop, publish, and maintain Air Force and the Federal Aviation Administration, Associate Administrator for Commercial Space Transportation common launch safety requirements and practices to protect the public during launch and re-entry operations.

The charter for the Common Standards Working Group implemented the *Memorandum of Agreement Between the Department of the Air Force and Federal Administration on Safety for Space Transportation and Range Activities* and related matters at the direction of the Senior Steering Group. The memorandum, dated 16 January 2001, stated that the Air Force and the Federal Aviation Administration would work together to achieve common safety requirements for launches.

The tangible benefits from the creation of common safety standards include a stable framework of safety requirements for the U.S. space launch industry and minimal administrative burdens for the government and commercial sectors. Another welcome by-product is the creation of a system of checks and balances between the two agencies.

Senior Steering Group

The Senior Steering Group provides senior executive leadership and guidance to the Common Standards Working Group to accomplish its objectives. The Senior Steering Group meets semi-annually, or more frequently as needed, and is composed of the following:

- ◆ The Federal Aviation Administration Associate Administrator for Commercial Space Transportation
- ◆ The Director of National Security Space Integration, Headquarters United States Air Force
- ◆ The Director of Space Operations and Integration, Headquarters United States Air Force
- ◆ The Director of Air and Space Operations, Headquarters Air Force Space Command
- ◆ The 14th Air Force Commander

The co-chairs of the Senior Steering Group determine the meetings of the Common Standards Working Group.

Working Group

The Common Standards Working Group is a government-only forum. Commercial launch industry representatives are not permitted to participate due to the Department of Transportation policy regarding rulemaking. Membership in the group consists of representatives of the Air Force and Federal Administration Association organizations that are responsible for the development and implementation of launch and re-entry safety requirements, practices, activities, and policies as well as representatives from other agencies as identified by the Senior Steering Group co-chairs. Representatives from the agencies listed below are current members of the working group.

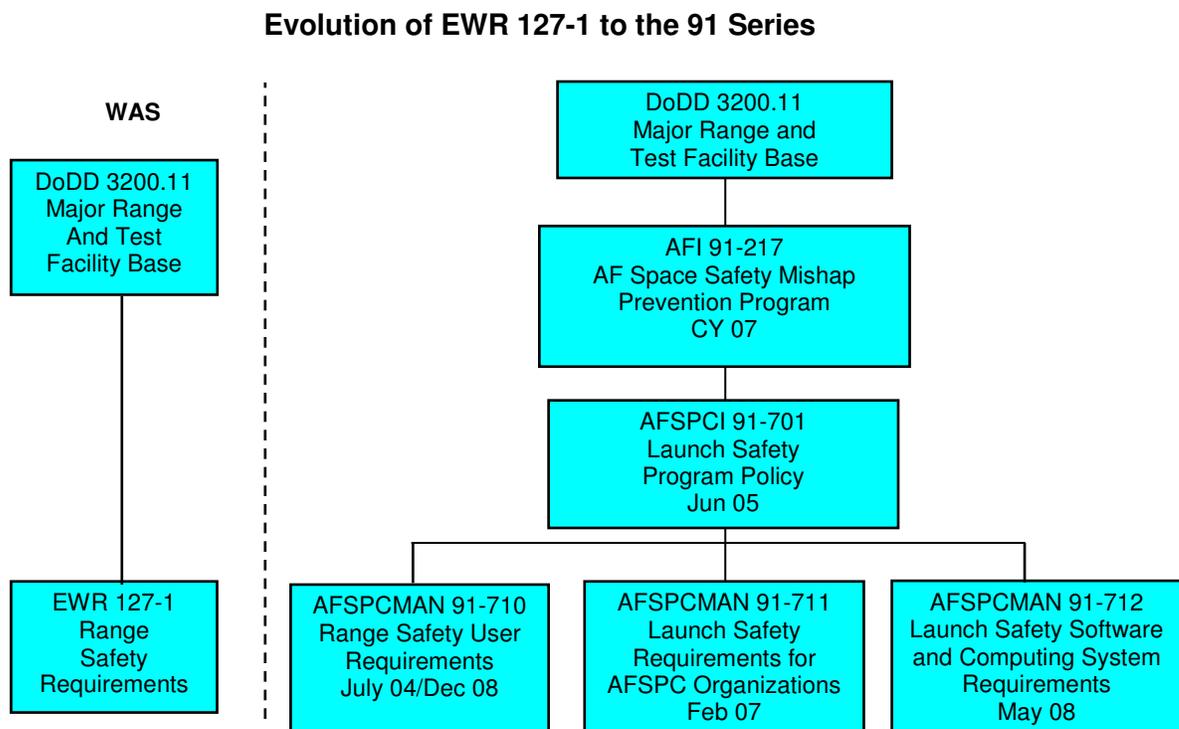
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- ◆ 14th Air Force, Safety, A3
- ◆ 30th Space Wing, Safety
- ◆ 45th Space Wing, Safety
- ◆ Air Force Space Command, Safety (A3, A5)
- ◆ Air Force Safety Center
- ◆ Federal Aviation Administration, Associate Administrator for Commercial Space Transportation
- ◆ Headquarters United States Air Force (A30-S)
- ◆ Secretary of the Air Force
- ◆ Space and Missile Center (Safety and Launch and Range Systems Wing)

NASA, the National Reconnaissance Office, and the Missile Defense Agency are also current members of the group. Although not a formal member, NASA Range Safety has been an integral part of the Common Standards Working Group since 2004, providing range safety insight and professional technical expertise on numerous issues for subgroups that formulate, recommend, and evaluate range safety policies and procedures.

Evolution of Range Safety Policy and Procedures

The figure below shows the evolution of the major safety documents from EWR 127-1 to the 91 document series generated by the Common Standards Working Group. The status of the documents is discussed in the topics following the figure.



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Past Accomplishments

The Common Standards Working Group has made significant progress since its inception, drafting and publishing the following Air Force documents:

- ◆ **Launch Safety Program Policy** (AFSPCI-91-701), May 2004
- ◆ **Range Safety User Requirements** (AFSPCMAN 91-710), July 2004
- ◆ **Launch Safety Requirements for AFSPC Organizations** (AFSPCMAN 91-711), February 2007

Additionally, the Federal Aviation Administration, in conjunction with the Common Standards Working Group, issued its first *Notice of Proposed Rulemaking* in October 2000. The agency then issued a supplemental notice in July 2002 and published and posted its second supplemental notice in 2003. Along with the new rule, the Common Standards Working Group also developed a Launch Safety Site Assessment and a Memorandum of Understanding between the Federal Aviation Administration and the Air Force for resolving requests for relief from common launch safety requirements.

Also, in 2003, the working group agreed on a framework for determining probabilities of failure for new expendable launch vehicles. The group established a list of factors that are requirements and practices used by the Federal Aviation Administration and the Air Force to protect public safety during launch and re-entry. The Federal Aviation Administration requirements have been codified in **14 Code of Federal Regulations, Chapter III**.

Since the vehicles in question were new with little existing empirical data, it was determined that initial evaluations would be conducted based in part on data from vehicles developed and launched under similar circumstances. An independent assessment of the proposed requirements and methods was conducted, and the Common Standards Working Group published the final guidelines in 2004.

Current Projects

The Common Standards Working Group and its subgroups are currently working on the following projects.

AFSPCMAN 91-710

AFSPCMAN 91-710, *Range Safety User Requirements*, is being updated. The document was distributed to industry, NASA, and Air Force Space Command organizations for review and comment in order to update the July 2004 version. Consolidated comments have been received with the review and update process scheduled for a 2008/2009 timeframe.

AFSPCMAN 91-712

Headquarters Air Force Space Command Safety will revise and combine the computer and software requirements for Range Users (currently in AFSPCMAN 91-710) and the computer and software requirements for Range Operators and Acquirers into a single document.

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These requirements will be published as AFSPCMAN 91-712, *Range Software and Computing System Requirements*. Space Command convened the Software Subgroup to develop and coordinate these requirements.

The draft computer and software requirements have been sent to industry, Range Users (including NASA), and Range Operators and Acquirers for review and comment. After Headquarters Air Force Space Command Safety review, the comments will be provided to the Federal Aviation Administration for review. Both the Air Force and the Federal Aviation Administration want to ensure that the software requirements remain common between the two agencies. This document is scheduled for publication in 2008.

Reusable Launch Vehicles

The Reusable Launch Vehicle Subgroup was formed in April 2006 to develop public safety requirements for the launch, reentry, and recovery of reusable launch vehicles. Membership in this group includes the Air Force and Federal Aviation Administration, with participation from NASA. The subgroup was formed for the following reasons:

- ◆ When AFSPCMAN 91-710, *Range Safety User Requirements*, was released in July 2004, reusable launch vehicle requirements had not been adequately addressed.
- ◆ The potential for near-term reusable launch vehicle users (SpaceX and the Air Force's Orbital Test Vehicle) on Space Command ranges has resulted in requests for guidance from the Safety Offices of the 30th and 45th Space Wings in their efforts to aid potential users in their vehicle designs.
- ◆ The flight of Spaceship One showed that entrepreneurs developing reusable launch vehicles are becoming a reality.
- ◆ The Space Shuttle Columbia accident revealed that safety concerns for the public during launch vehicle reentry needed to be addressed in more detail.

The Reusable Launch Vehicle Subgroup meets weekly via teleconferences and is nearing the completion of development of public safety requirements for unmanned reusable launch vehicles. Estimated completion is November 2007.

The development of manned reusable launch vehicle requirements will be initiated after the completion of the unmanned requirements. The estimated completion of the manned reusable launch vehicle requirements is November 2008. The reusable launch vehicles requirements will be incorporated into AFSPCMAN 91-710.

As new and emerging space launch technologies surface, the Common Standards Working Group will continue to provide a forum through which the Air Force, the Federal Aviation Administration, NASA, and other government agencies can communicate on further development and implementation of common range safety standards. The goal of this group has been, and will always be, to maintain public safety in all phases of launch activities.