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**JOINT WEAPONS AND LASER
SAFETY REVIEW GUIDE**

(Version 0.92)



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Department of Defense

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Preface

The success of the United States military in modern warfare increasingly demands the tight integration of Joint forces in network-centric environments to prevail at all levels of combat from the street to the strategic. Further, these Joint forces must be equipped with the most modern weapons systems based on the latest rapidly emerging and evolving technologies in order to meet the ever-increasing sophistication of our enemies' equipment and tactics.

Much effort continues to be expended within the Department of Defense (DoD) acquisition community to find better ways to provide the warfighter the best possible weapons systems as quickly as possible to retain the technological advantage the United States has long enjoyed. Time and budget constraints inherent in the acquisition process necessitate that the process be efficient, while equally important Force Protection (FP) and Environment, Safety, and Occupational Health (ESOH) concerns require that all systems be capable of safe handling, transportation, storage and employment. These FP and ESOH requirements apply both to new acquisition initiatives and to modifications and upgrades to systems already in the field.

Each of the Military Services has developed its own processes for ensuring and certifying the safety of systems involving a weapon, munition, ordnance or laser system, or related device, that require Military Service safety review/certification. These were designed primarily to meet service-unique requirements, and if another Service or Services had reason to procure, handle, transport, store and/or use the same system, each would conduct its own Service-specific safety reviews. This process is expensive, time consuming and often redundant, and has the potential to result in conflicting safety requirements and recommendations.

The United States Special Operations Command (USSOCOM) frequently encountered situations wherein weapon system reviews for USSOCOM weapon acquisitions had to be conducted independently by each of the Services in order to support the inherently joint nature of USSOCOM activities. This slowed the process of making new systems available to the USSOCOM warfighters. The Defense Safety Oversight Council (DSOC) Acquisition and Technology Programs Task Force (ATP TF) on 21 July 2005 approved a proposal to streamline the weapon safety review process and established a Joint Weapon Safety Working Group to develop and refine a collaborative process for USSOCOM support. USSOCOM worked closely with the Army, Navy, Marine Corps, and Air Force to coordinate development of a collaborative process that addresses Joint safety release and certification to eliminate the inefficiencies inherent in the existing process and accelerate the process fielding of weapon systems to the USSOCOM warfighters without compromising safety.

The purpose of this guide is to build on the progress made to support USSOCOM and to outline a process which the DoD and individual Services' weapon system and laser safety organizations can use to accomplish efficient, effective, and in a routine manner, Joint safety reviews for any weapon or ordnance system likely to be handled, transported, stored or employed by more than one Service, or by USSOCOM, at any stage of its life cycle. Instituting such a collaborative Joint review process will reduce the time required for making such systems available to any Service that needs to employ it or interface with it, increasing the overall flexibility and responsiveness of the Military Services.

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The scope of this Joint weapon safety review process is defined in paragraph 2.1.1. It is not the intent that all weapons or ordnance items or lasers receive a Joint weapon safety review and approval/certification; only those systems that are within the scope of this document will be reviewed using this Joint Service process. There may be some weapons or ordnance items or lasers that are unique to a specific Service, and consequently, it would not be necessary for these kinds of Service-unique systems to be reviewed using this Joint process. It is envisioned, however, that the majority of weapons or ordnance items or lasers will be subjected to this Joint safety review process since they will be used, handled, transported or stored in Joint warfighting environments. When the process outlined in this guide is used, however, it should be applied to all elements of a weapon, weapon systems, or ordnance item or laser acquisition program (system, subsystem, hardware, and software) in all anticipated environments (handling, transportation, storage and employment) regardless of acquisition category (ACAT). This guide should be used in conjunction with related acquisition, safety, and environmental directives, instructions, policy memoranda, or regulations issued to implement mandatory requirements.

The organization and Office of Permanent Record (OPR) responsible for this guide is the Under Secretary of Defense (Acquisition, Technology and Logistics (USD (AT&L)) Systems and Software Engineering, Developmental Test and Evaluation (USD (AT&L) SSE/DT&E). Updates to this guide will be made as required. To provide feedback to the OPR, please email Dr. Elizabeth Rodriguez-Johnson at Elizabeth.Rodriguez-Johnson@osd.mil.

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1. Key Terms, Descriptions, and Principles

1.1 Weapon

Military munitions (as defined in 10 USC 101) and directed energy weapons (DEW), together with firing, launching, and controlling systems (including safety critical software), except for nuclear weapons and their components; small arms and associated ammunition (.50 caliber or 8 gauge or smaller); intercontinental ballistic missiles; space launch vehicles; and the non-weapon related aspects of vehicles or platforms from which military munitions or DEW are fired or launched. Electromagnetic rail guns are included.

1.2 Joint Weapon

All weapons, as defined above, with a Joint Potential Designator (JPD) of JROC Interest, Joint Integration, and Joint Information, to include weapons that are used by two or more Military Services.

1.3 Directed Energy Weapons

This category of weapons includes devices and/or systems that radiate or concentrate electromagnetic radiation or atomic particles with the primary intent of damaging or destroying enemy personnel or material.

1.4 Joint Munitions/Weapons/Ordnance System Safety Review

A combination of processes and activities designed to deliver safe weapons systems to the warfighter through the coordinated, collaborative and concurrent efforts of the individual Services, in compliance with all statutory and regulatory requirements.

1.5 Joint Laser Safety Review

A combination of processes and activities designed to deliver safe laser systems to the warfighter through the coordination of the individual Services by the DoD Laser Systems Safety Working Group (LSSWG), in compliance with all statutory and regulatory requirements.

1.6 System Safety Lead (SSL)

The SSL is the acquisition Program Manager's system safety representative and is normally the leader of the Safety Integrated Product Team. The Navy and Marine Corps define this role as the Principal for Safety (PFS); in this guide SSL will be used for both the SSL and PFS.

1.7 Service Safety Review Coordinator (SSRC)

The SSRC is identified by a Service to serve as the point of contact to represent that Service in the Joint system safety reviews. The Service, or USSOCOM when it is acting as the acquisition authority under the provisions of Title 10 of the United States Code Section 167 (Title 10 USC Sec

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167), will provide the lead SSRC. For the purpose of this document, “Service” or “Services” shall include USSOCOM when it is acting as the acquisition authority. The Service SSRC may designate a technical representative(s) to assist the SSRC and serve as the SSRC’s technical point of contact for particular actions relating to Joint Reviews. In all cases, however, the POC will act on behalf of the officially designated SSRC in the organization and conduct of Joint weapon safety reviews.

2. Developing the Joint Weapon Safety Requirements

2.1 Determining Requirement for Review

2.1.1 Scope

A Joint weapon safety review and approval/certification is required, per the process defined in this guide, for weapon acquisition programs that are identified as Joint use in the appropriate JCIDS, or equivalent document and their related product improvement programs. Weapons that were not initially considered to be Joint use in JCIDS, or JCIDS equivalent documents, but which later became Joint use due to operational needs, shall also require a Joint safety review when modifications or updates are being planned for these existing Joint weapons. Additionally, Joint reviews may be held when the PEO/PM requests a Joint review by two or more of the Services, or the lead Service for the acquisition invites one or more of the other Services to participate in the safety review due to the likelihood that the weapon/ordnance item/laser will be used, handled, transported or stored in Joint operating environments.

2.1.2. Background

Sponsors/Program Executive Offices/Program Managers will determine, based on the JCIDS or JCIDS equivalent documents, if an acquisition involves a weapon, ordnance item or laser system or related devices that may require Military Service safety review. CJCSI 3170.01F requires that all weapons related JCIDS documents be designated as “JROC Interest” or “Joint Integration”, and establishes the Joint Weapon Safety Technical Advisory Panel (JWSTAP) to make recommendations to the Joint Staff, Deputy Director for Force Protection (DDFP/ J-8), based on the findings of the safety reviews, for the safe weapons endorsement and insensitive munitions endorsement as required. This designation is made early in the acquisition process, during the determination of the requirements, and as such sets the requirement for the JWSTAP review of the JCIDS document. An overview of the JCIDS process and its relationship to the acquisition process are presented in Figure 1 below.

2.2 Coordinating the Approach

If the acquisition requires Military Service weapon safety review/certification and meets the Scope criteria of paragraph 2.1.1 above, the PM’s System Safety Lead (SSL), will initiate dialogue with the lead SSRC and with the Laser System Safety Review Board (LSSRB) (Air Force/Navy/Marine Corps/US Army Center for Health Promotion and Preventive Medicine (USACHPPM) (Laser

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Optical Radiation Protection Group (LORP) (Army)) representatives, as appropriate, to coordinate a Joint Service review. For the purposes of this guide, SSRC will be understood to include the LSSRB representatives where laser systems are involved.

The SSL will develop a proposed approach to meet the Service's safety requirements. The SSL will coordinate with the SSRCs, or his/her designated representative, to develop information on the boards/organizations that need to be contacted. In the process of developing safety and test requirements for the product; the SSL will: 1) develop a safety program schedule that facilitates completion of safety tasks to include tests and reviews; and, 2) identifies the resources required to conduct and complete safety program tasks, including Joint weapon safety reviews. The

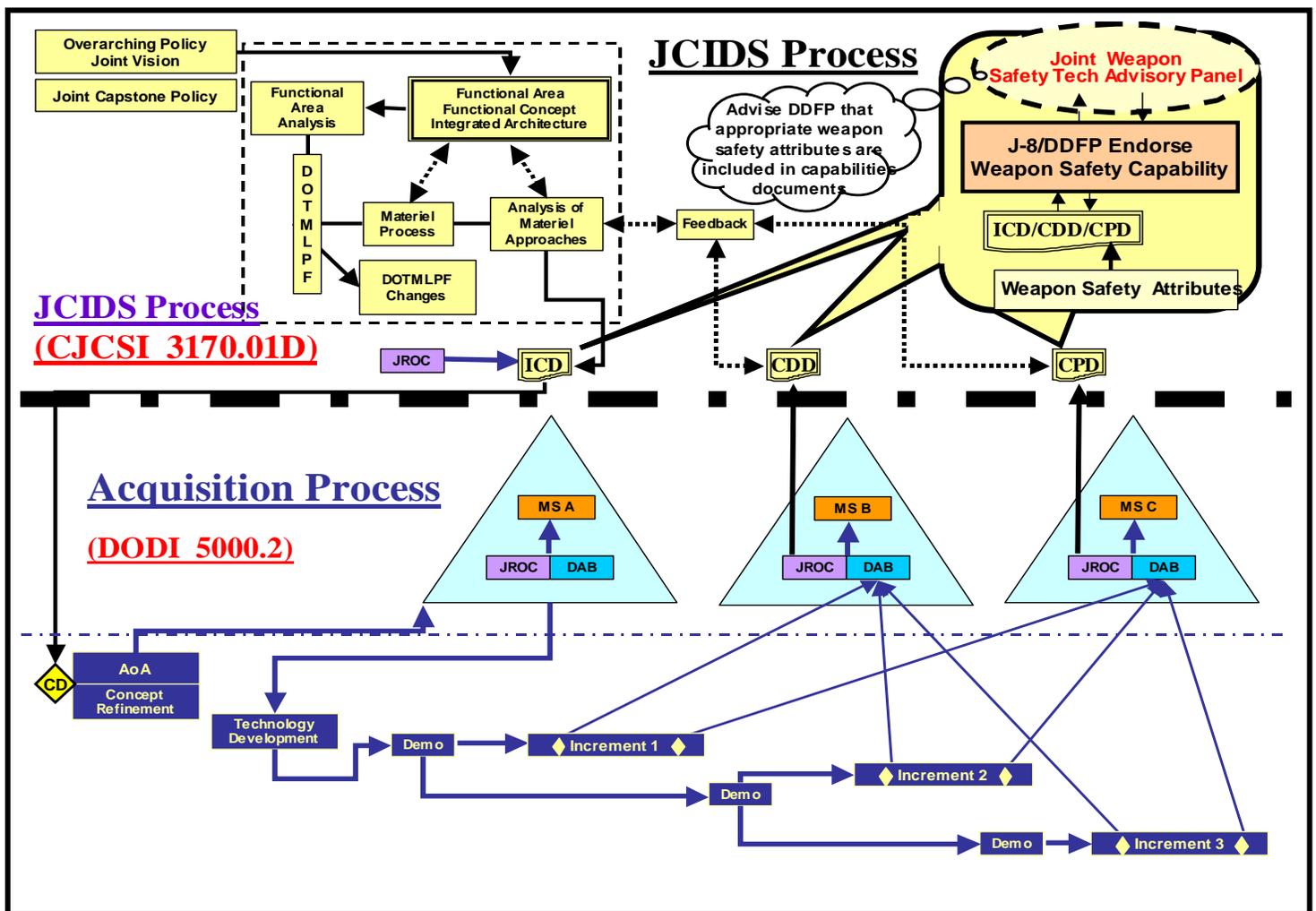


Figure 1. JCIDS and Acquisition Processes

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SSL, working with his/her SSRC, will contact all potential Military Service safety review boards and/or organizations, as illustrated in Figure 2, to identify all respective areas of interest and responsibilities. The organization and phone number for each primary and alternate SSRC is provided in Appendix C. The lead SSRC and the safety organization POCs will also provide advice on safety analyses and test requirements, the scheduling of reviews, and the resources required by the safety organizations and test community. The SSRCs will maintain cognizance of Military Service safety organizations and will advise the PM and SSL of any changes. Service safety review boards and organizations will, after initial review of the planned acquisition, advise the SSL, and the lead SSRC and/or LSSRB coordinator, as to whether formal safety board proceedings will be required, or if reviews and certification may be accomplished via alternative safety board procedures, such as letter data package reviews and/or Board Secretariat recommendations or approvals.



Figure 2. Services' Safety Review Boards and Processes

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2.3 Integrating Services' Joint Weapon Safety Requirements

The SSL, in coordination with the SSRCs, will be responsible for integrating safety requirements from the Military Services' review boards/organizations and for determining if disparities exist among the Services. Any additional design data and test requirements that are identified as a result of an initial safety board or safety organization review of the PM's planned acquisition will be communicated by the representatives of the safety board or safety organization to the SSL, SSRCs and LSSRB representatives, as appropriate. The lead SSRC or SSL, as appropriate, will coordinate the safety requirements (Figure 3) and will forward the requirements to the program's SSL. The safety boards' POCs may convey Service-unique safety requirements. When a single material solution is being designed to meet all the consolidated requirements, it is likely that one safety board or organization will request data and identify safety requirements that another safety board does not. This does not necessarily constitute a significant disparity or conflict. However, disparate or conflicting requirements that would drive excessive, duplicative testing or require acquisition of multiple designs will require resolution or adjudication at the appropriate level. Adjudication may

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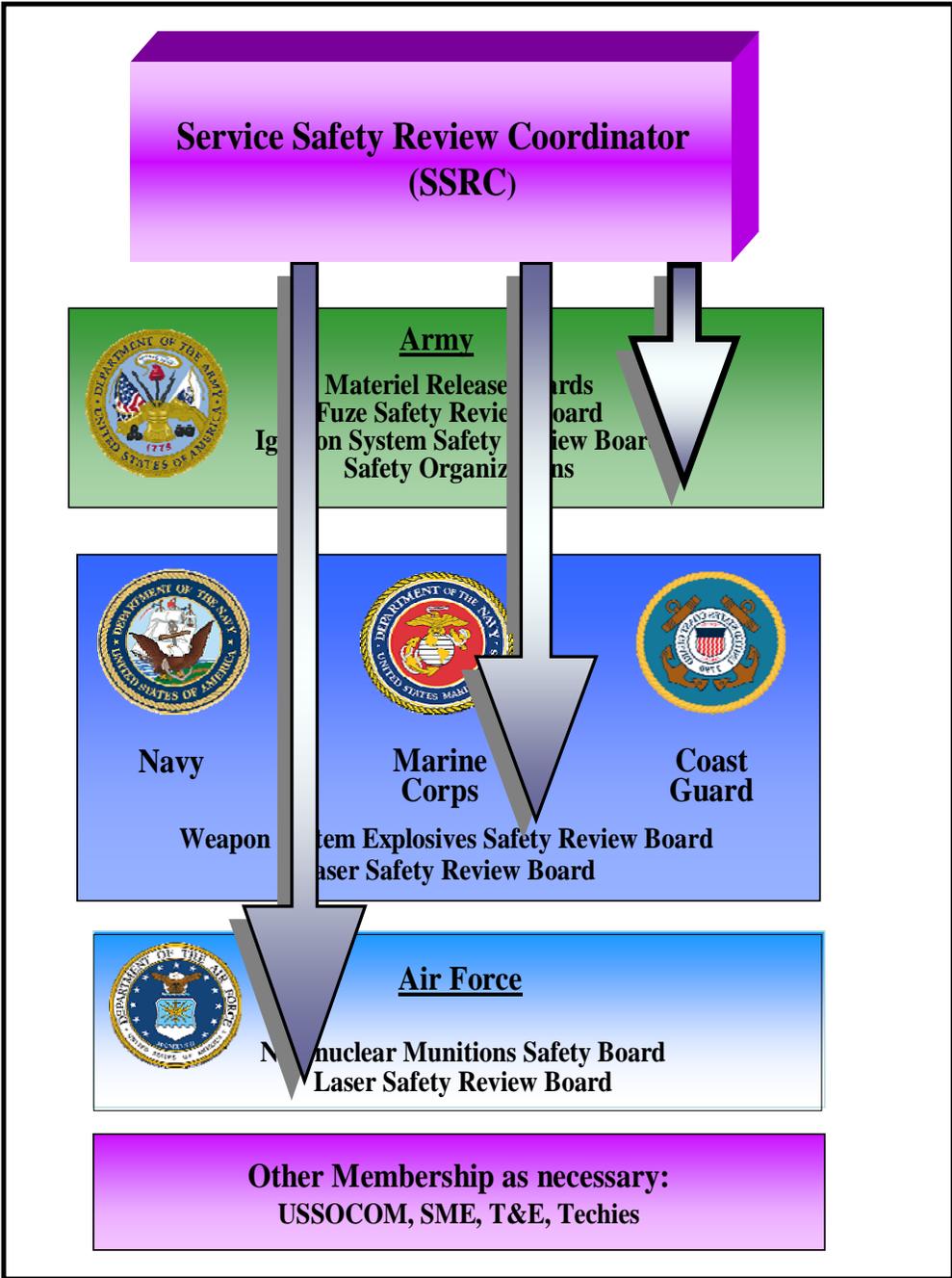


Figure 3. Joint Service Coordination

require the sponsor and the Joint Staff to evaluate requirements trade-offs or service-specific operational limitations to ensure minimum safety requirements are still being met, and that safety in all projected Joint operational environments are adequately addressed.

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2.4 Resolving Disparate or Conflicting Weapon Safety Requirements

If the SSL or lead SSRC confirms there are disparate or conflicting safety requirements such that conformance with all the consolidated safety requirements is not practicable, the SSL or the lead SSRC, in coordination with the SSL, as appropriate, will request collaboration between the Service review board authorities to pursue an agreement. In cases where the disparities cannot be resolved at that level, the PM may request a meeting of the Chairpersons of the Service Safety Boards and the appropriate Chief of System Safety, Army Armament Research, Development, and Engineering Center (ARDEC), the Chief of Safety, Army Aviation and Missile Command (AMCOM), or the Chief of Safety, Army Tank and Automotive Command (TACOM) hereafter referred to collectively as the Executive Council, to resolve the matter. If such meetings are needed to resolve the conflicts, the SSL or the lead SSRC, as appropriate, will coordinate the schedule, location and facilities for a meeting of the Executive Council. Every effort will be made to achieve agreement among the Services' safety representatives with regard to safety requirements for, and tests and analyses to be conducted on, the weapon, ordnance item, or laser system. In the event resolution can not be reached by the Executive Council, the SSL or lead SSRC, as appropriate, will request each Executive Council member to articulate the risk and operational limitations, if any, associated with not meeting its unique safety requirements. The SSL will then present the issue for a decision at the appropriate level. When safety requirement disparities result in a disagreement on the level of risk associated with a particular safety requirement, the issue will be presented to the risk acceptance authority(ies) appropriate to the highest level of risk articulated by any member of the Executive Council. When more than one Service or USSOCOM is potentially at risk or subjected to operational limitations as a result of not including a specific safety requirement into the program, then the potential risk/operational limitations must be accepted at the appropriate level within each affected Service, or USSOCOM. That is, no Service can accept risk or operational limitations on behalf of another Service; each Service, and USSOCOM, must acknowledge and accept risk or limitations at their respective appropriate levels. The statement of risk should list any operational limitations associated with not meeting the unique safety requirements, and explain the Service and Executive Council concerns. If potential risks or operational limitations are accepted by the appropriate authority(ies), the SSL will document, in writing, any restrictions or limitations on the use, handling, transporting, or storing of the weapon aboard platforms (e.g., aircraft, vehicles, ships, submarines) or at shore facilities/bases/commands within each respective Service.

3. Development and Resolution of Joint Weapons Safety Review Findings

3.1 Joint Boards Meetings

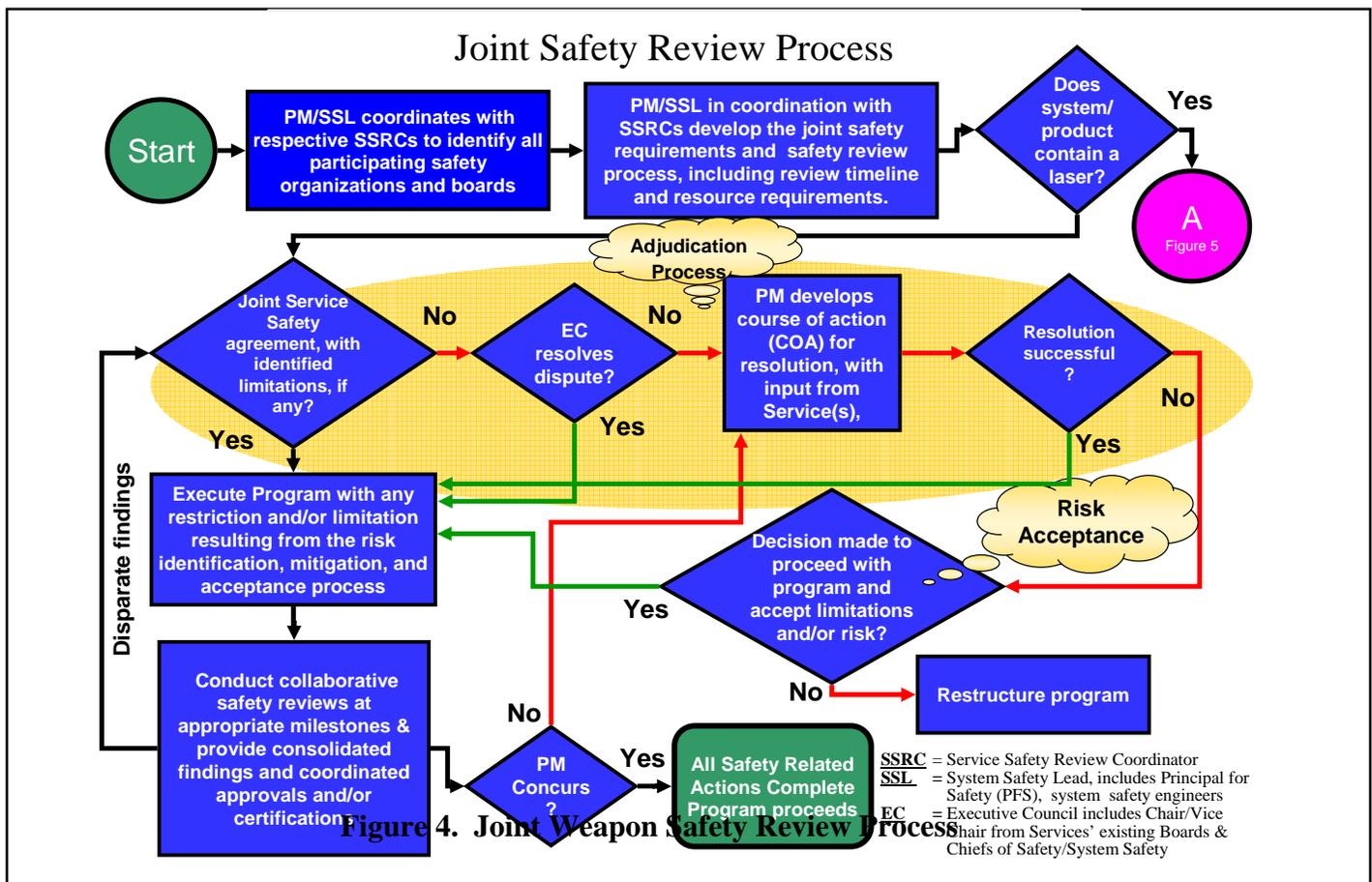
When any formal board meeting is required as part of this proposed safety review process, or is requested to resolve significant disparate or conflicting requirements among the safety boards, the SSL or the lead SSRC or LSSRB representative, in coordination with the SSL, will arrange the schedule and location. This will normally be a joint meeting of the Services' safety boards or safety organizations involved, hereafter referred to as the "Joint Boards". The SSL, or SSRCs, or LSSRB representative, as appropriate, will coordinate with the Service Safety Boards and organizations, or the LSSRB, to determine the content of the safety data package that is required to be delivered 30 days prior to any Joint Board's meeting.

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3.2 Joint Boards Procedures

It is expected that the Joint Boards will resolve any open disparities or conflicts with the safety design, analyses, or test results. Figures 4 and 5 illustrate the weapon safety and laser safety review processes. Joint deliberations will be documented in formal minutes, to include actions and/or recommendations, and will be jointly signed by the designated Service's safety board Chairperson and the appropriate Service's safety organization representative. The integrity of each safety board, however, will be maintained, and unique Service safety board positions can be recorded in the Joint minutes. The intent is to provide the PM with a set of Joint Service safety findings that are coordinated and consistent among the Services, and contain any necessary supporting rationale for the safety requirements/findings/actions. It is important to note that it is possible that one Service's weapon safety requirements may be satisfied while there may remain an open action to satisfy another Service's unique requirement. This is not necessarily a conflict, and it is expected each safety board will honor requirements of the others.

If the subject product has been slated for a formal review by the Joint Boards, the Services' safety organizations and safety boards will, upon receipt of data and documentation, initiate Service safety assessments pursuant to developing board decisions. The safety board or safety organization of the Service selected to lead the acquisition program will coordinate the assembling



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Figure 5. Joint Weapon Safety Review Process

of the Boards' representatives to perform the Joint reviews. However, if a Service has not yet been selected to lead the acquisition program, the PM may select a safety board from a Service to act as the lead board or may choose to convene a Joint meeting of the Service weapon safety boards and organizations. The collaborative Joint Boards, co-chaired by the Chairpersons/Vice-Chairpersons from the Service Boards in attendance and the Chiefs of ARDEC, AMCOM, and TACOM, will deliberate, as required, on the data and documentation presented. This collaborative body will assemble a Joint document signed by the designated Service's safety representatives indicating the findings of the safety community.

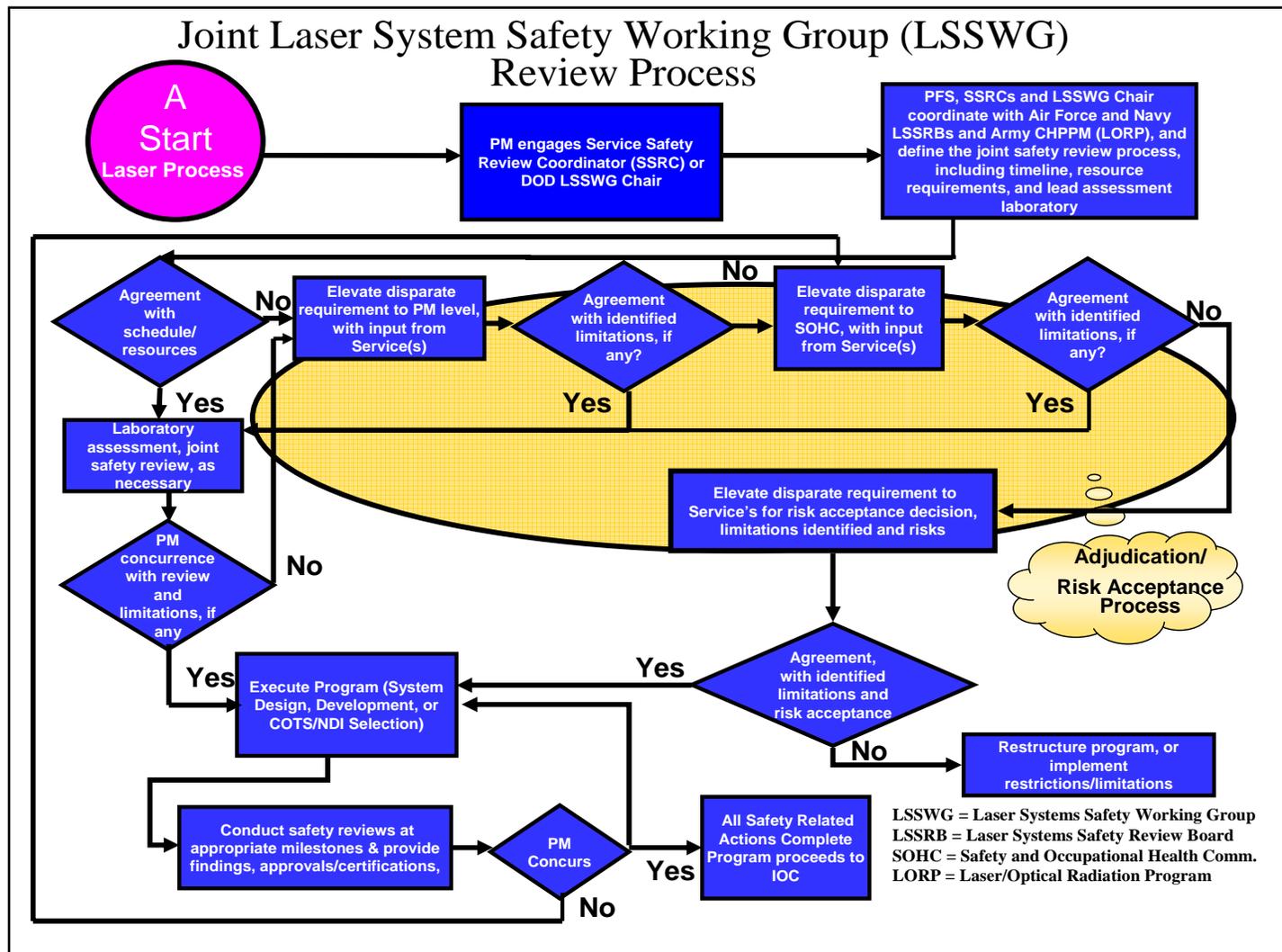


Figure 5. Joint Laser Safety Review Process

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3.3 Resolution of Joint Boards Findings

Similar to the process for resolving disparities among safety requirements (Section 2.4 above), the PM may also request a meeting of the Executive Council to resolve Joint Board findings/actions. If such meetings are needed to resolve the conflicts, the SSL or the lead SSRC, as appropriate, will coordinate schedules, meeting location and facilities for a meeting of the Executive Council. Every effort will be made to achieve agreement among the Services with regard to safety findings/actions for the weapon, ordnance item, or laser system. In the event resolution can not be found by the Executive Council, the SSL, lead SSRC, or LSSRB representative, as appropriate, will request each Executive Council member to articulate the risk and operational limitations, if any, associated with the proposed findings/actions in question. The SSL will then present the issue for a decision at the appropriate level. When disparities occur among Joint Board members regarding findings/actions that result in a disagreement on the level of risk associated with a particular safety finding/action, the issue will be presented to the risk acceptance authorities appropriate to the highest level of risk articulated by any member of the Executive Council. When more than one Service or USSOCOM is at risk as a result of non-compliance with a safety finding/action, then the risk must be accepted at the appropriate level within each affected Service, or USSOCOM. That is, no Service can accept risk on behalf of another Service; each Service, and USSOCOM, must acknowledge and accept risk at their respective appropriate levels. The statement of risk should list any operational limitations associated with not fully addressing the proposed findings/actions in question, and explain the Service and Executive Council concerns. If potential risks or operational limitations are then accepted by the appropriate authority(ies), the SSL will document, in writing, any restrictions or limitations on the use, handling, transporting, or storing of the weapon aboard platforms (e.g., aircraft, vehicles, ships, submarines) or at shore facilities/bases/commands within each respective Service. Copies of the risk acceptance document(s), including any limitations, will be provided to the Joint Boards.

4. Funding Responsibilities

It shall be the responsibility of the acquisition program manager to agree to and fund the labor, travel and other related costs for:

- Joint reviews
- Safety engineering support
- Administrative support (facilities, equipment, etc.)
- Technical support from outside DoD

Each Service's funding requirements will be submitted to the lead SSRC, who, in turn, will submit the consolidated funding requirements as one package to the program manager. The package will identify the funding required by each Service. Any funding requests submitted by the Services must be in the format required by the program manager. Upon receipt of the consolidated funding request, the program manager shall provide funding directly to each Service's designated organization(s).

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Appendix A. Applicable References

The following list of documents is provided as a guide, but is not all inclusive. The Program SSL in conjunction with the Service SSRC should conduct a thorough research of all pertinent DoD, Federal, and Local Government safety-related directives that may be germane to the safe manufacturing, handling, storing, or transporting of the weapon or combat system.

General:

AT&L Knowledge Sharing System (AKSS)

(<http://deskbook.dau.mil/jsp/default.jsp>)

CJCI 3170.01 series, Joint Capabilities Integration and Development System

(www.dtic.mil/cjcs_directives/cdata/unlimit/317001.pdf)

CJCM 3170.01 series, Operation of the Joint Capabilities Integration and Development System

(www.dtic.mil/cjcs_directives/cdata/unlimit/m317001.pdf)

Support of the Headquarters of Combatant and Subordinate Joint Commands

(www.dtic.mil/whs/directives/corres/pdf2/d51003p.pdf)

Defense Acquisition Guidebook

(<http://akss.dau.mil/dag/>)

Defense Acquisition University Continuous Learning Modules

(<https://learn.dau.mil/html/clc/Clc.jsp>)

Standards:

IEEE/EIA 12207

Information Technology – Software Lifecycle Processes

MIL-STD- I00

Engineering Drawing Practices

MIL-STD-331

Fuze and Fuze Components: Environmental and Performance Tests

MIL-STD-464

Department of Defense Interface Standard; Electromagnetic Environmental Effects; Requirements for Systems Systems, Equipment, and Facilities

MIL-STD-461

The Control of Electromagnetic Interference Emissions and Susceptibility, Requirements For

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MIL-STD-498	Software Development and Documentation
MIL-STD-709	Ammunition Color Coding
MIL-STD-721	Definitions of Effectiveness Terms for Reliability, Maintainability, Human Factors, and Safety Materiel (1990)
MIL-STD-810	Environmental Test Methods and Engineering Guidelines
MIL-STD-882	Standard Practice for System Safety
MIL-STD-1316	Fuze Design, Safety Criteria
MIL-STD-1385	Preclusion of Ordnance Hazards in Electromagnetic Fields; General Requirements for
MIL-STD-1399	Interface Standard for Shipboard Systems, Section 300, Electric Power, Alternating Current
MIL-STD-1399	Interface Standard for Shipboard Systems, Section 070, DC Magnetic Field Environment Design Requirements and Test Methods
MIL-STD-1472	Human Engineering Design Criteria for Military MIL-STD-1629 Procedures for Performing a Failure Mode, Effects and Criticality Analysis
MIL-STD-1751	Safety and Performance Tests for Qualification of Explosives
MIL-STD-1911	Hand Emplaced Ordnance Design Safety Criteria
MIL-STD 1901	Munition Rocket and Missile Motor Ignition System Design, Safety Criteria For
MIL-STD-2036	General Requirements for Electronic Equipment Specifications
MIL-STD-2105	Hazard Assessment Tests for Non-Nuclear Munitions
MIL-STD-2167	Software Development
DOD-STD-2167	Defense System Software Development
DOD-STD-2168	Software Quality Evaluation
DOD STD-6055.9	Ammunition and Explosives Safety Standards
NFPA Std 115 Protection	Recommended Practice on Laser Fire
FDA Laser Notice No. 52	12 July 2002, Guidance on the Department of Defense Exemption from the FDA Performance Standard for Laser Products (clarifies and updates FDA Exemption No. 76EL-01DOD).

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FAA Order 7400.2E	Procedures for Handling Aerospace Matters.
FAA Advisory Circular 70-1	Outdoor Laser Operations.
FAA Advisory Circular 70-2	Reporting of Laser Illumination of Aircraft.
ANSI Std Z136.1	American National Standard for Safe Use of Lasers.
ANSI Std Z136.4	American National Standard Recommended Practice for Laser Safety Measurements for Hazard Evaluation.
ANSI Std Z136.6	American National Standard for Safe Use of Lasers Outdoors

Handbooks:

MIL-HDBK-310	Global Climatic Data for Developing Military Products
MIL-HDBK-347	Mission-Critical Computer Resources Software Support
MIL-HDBK-454	General Guidelines for Electronic Equipment
MIL-HDBK-504	Guidance on Safety Criteria for Initiation Systems
MIL-HDBK-764	System Safety Engineering Design Guide For Army MIL-HDBK-881 Work Breakdown Structure, 1998
MIL-HDBK-1512	Electro-explosive Subsystems, Electrically Initiated, MIL-I-23659 Appendix A, General Design Specification for Electrical Initiators
MIL-HDBK-2036	Electronic Equipment Specifications

Specifications:

MIL-E-6051	Electromagnetic Compatibility Requirements System
MIL-I-23659	General Design Specification for Electrical Initiators
MIL-H-46855	Human Engineering Requirements for Military Systems, Equipment, and Facilities
MIL-M-15071	Manuals, Technical: Equipment and Systems, Content Requirements
MIL-M-38784	Manuals, Technical; General Style and Format Requirements

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MIL-S-901

Shock Tests, H.I. (High-Impact) Shipboard Machinery, Equipment, and Systems, Requirements For

DID DI-SAFT-80102A

Safety Assessment Report.

Instructions:

DOD

DoDI 5000.1

Operation of the Defense Acquisition System (Supplemented by USD(AT&L) Safety Memo (21 Nov 06), Reducing Preventable Accidents).

DOD 5000.2

Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information System (MAIS) Acquisition Programs

DoDD 5000.3

Accident Prevention, Safety and Occupational Health Policy for the Dept. of Defense

DoDI 6055.1

DoD Safety and Occupational Health Program

DODD 6055.11

Protection of DOD Personnel from Exposure to Radio Frequency Radiation

DoDD 5000.36

System Safety Engineering and Management

DoDD 4145.26-M

Contractors Safety Manual for Ammunition and Explosives

DoDD 6055.9

DoD Explosives Safety Board (DDESB) and DoD Component Explosives Safety Responsibilities

DoDD 1000.3

Safety and Occupational Health Policy for the Department of Defense

DoDI 6055.1

DoD Safety and Occupational Health (ESOH) Program

DoDI 6055.5

DoD Industrial Hygiene and Occupational Health, January 10, 1989.

DoDI 6055.15

DoD Laser Protection Program

DoD

OSD Risk Management Guide

DoD

Environmental, Safety, and Occupational Health (ESOH) Guide

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OPNAVINST 8020.11/ MCO P8020.14	U.S. Navy and Marine Corps Explosive Safety Policy
DoD JWSSS HDBK	Joint Software System Safety Handbook, December 1999.
OSD (AT&L)	Unmanned Systems (UMS) Safety Guide for DOD Acquisition
NAVSEAINST 8020.8/USAF TB 700-2	Hazard Classification

Navy

SWO20-AH-SAF-010	Weapons System Safety Guidelines Handbook
NAVSEA OP 4	Ammunition Afloat
NAVSEA OP 5	Ammunition and Explosives Ashore
NAVSEA OP 3347	US Navy Ordnance Safety Precautions
NAVSEA OP 3565	Electromagnetic Radiation Hazards; Hazards to Personnel, Fuel, and Other Flammable Material and Ordnance
OD 44942	Weapon System Safety Guidelines Handbook
OD 30393	Design Principles and Practices for Controlling Hazards of Electromagnetic Radiation to Ordnance
NAVSEAINST 5100.12	Requirements for Naval Sea Systems Command System Safety Program for Ships, Shipborne Systems, and Equipment
NAVSEAINST 8020.5	Qualification and Final (Type) Qualification Procedures for Navy Explosives (High Explosives, Propellants, Pyrotechnics and Blasting Agents)
NAVSEAINST 8020.6	Navy Weapon System Safety Program
NAVSEAINST 8020.7	Hazards of Electromagnetic Radiation to Ordnance Safety
NAVENVIRHLTHCENINST 6270.8	Health Hazard Assessments
OPNAVINST 5100.9	Navy Safety Precautions for Forces Afloat
OPNAV 5100.23	Navy Occupational Safety and Health Programs Manual
OPNAV 5100.24	Navy System Safety Program
OPNAVINST 5100.27	Navy Laser Hazard Control Program
OPNAVINST 5101.1	Resolution of Electromagnetic Radiation (EMR) Hazard Reports

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OPNAV 5102.1	Accident Investigation and Reporting
OPNAV 4110.2	Hazardous Material Control and Management
OPNAV 5100.24	Navy Systems Safety Program
OPNAV 5100.27	Navy Laser Hazards Control Program
OPNAVINST 5102.1/MCO P5102.1	Navy & Marine Corps Mishap and Safety Investigation, Reporting, And Record Keeping Manual
OPNAVINST 8010.13	Department of the Navy's Policy on Insensitive Munitions (IM).
OPNAVINST 8020.14/ MCO P8020.11	Department Of The Navy, Explosives Safety Policy Manual
SECNAVINST 5100.10	Dept. of the Navy Policy for Safety, Mishap Prevention, Occupational Health and Fire Protection Programs

Army

Army TR92-2	Software System Safety Guide (May 1992)
AR 385-10	The Army Safety Program (1979)
AR 385-16	System Safety Engineering and Management (1985)
DA PAM 385-16	System Safety Management Guide (1987)
AR 385-63/MCO 3570.1	Range Safety
DA PAM 385-63	Range Safety

Air Force

AFI 13-112V1	Joint Terminal Attack Controller Training Program.
AFI 13-112V2	Joint Terminal Attack Controller Standardization/Evaluation Program

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AFI 13-212V1

AFPD 91-2

AFPD 91-4

AFI 91-202

AFI 91-205

AFI 21-201

AFMAN 91-201

AFI 91-404

AFOSH Std 48-139

Range Planning and Operations

Safety Program

Directed Energy Weapons Safety

The USAF Mishap Prevention Program

NonNuclear Munitions Safety Board

Conventional Munitions Maintenance Management

Explosive Safety Standards

Directed Energy Weapons Safety

Laser Radiation Protection Program

Marine Corps

MCO 5100.29

MCO 5100.8

MCSCO 5100.29

Marine Corps Safety Program

Marine Corps Occupational Safety and Health
Program Manual

Safe and Ready Certification and Safety Releases

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Appendix B. Acronyms

A&E	Ammunition and Explosives
ACAT	Acquisition Category
ADM	Acquisition Decision Memorandum
AE	Acquisition Executive
AKSS	AT&L Knowledge Sharing System
AMCOM	Army Aviation and Missile Command
ARDEC	Army Armament Research, Development, and Engineering Center
ATP TF	Acquisition and Technology Programs Task Force
BUMED	Navy Bureau of Medicine
CAE	Component Acquisition Executive
CDRL	Contract Data Requirements List
CFR	Code of Federal Regulations
COCOM	Combatant Commander
CONOPS	Concept of Operation
COTS	Commercial Off The Shelf
DAG	Defense Acquisition Guidebook
DAU	Defense Acquisition University
DDFP	Deputy Director for Force Protection
DoD	Department of Defense
DSOC	Defense Safety Oversight Council
EED	Electro-Explosive Device
EOD	Explosive Ordnance Disposal
ESOTT	Environmental Safety and Occupational Health
ESQD	Explosive Safety Quantity Distance
FMECA	Failure Modes, Effects, & Criticality Analysis
FTA	Fault Tree Analysis
GOTS	Government Off The Shelf
HAR	Hazard Assessment Report or Hazard Action Record
HERO	Hazards of Electromagnetic Radiation to Ordnance
HHA	Health Hazard Assessments

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HMM	Hazardous Materials Management
HMMP	Hazardous Material Management Plan
HSI	Human System Integration
HTDB	Hazard Tracking Database
IM	Insensitive Munitions
IPT	Integrated Product Team
IRS	Interface Requirements Specifications
ISEA	In Service Engineering Agent
JCIDS	Joint Capabilities Integration and Development System
JROC	Joint Requirements Oversight Council
JWSTAP	Joint Weapon Safety Technical Advisory Panel
LSRB	Laser Safety Review Board
LSSRB	Laser System Safety Review Board
LSSWG	Laser System Safety Working Group
MA	Managing Activity
MDA	Milestone Decision Authority
MOA	Memoranda of Agreement
MRI	Mishap Risk Index
MSDS	Material Safety Data Sheet
MTBF	Mean Time Between Failure
NDE	Non-Developmental Equipment
NDI	Non-Developmental Items
NEPA	National Environmental Policy Act
NSPO	National Space Organization
O&SHA	Operating & Support Hazard Analysis
OPR	Office of Permanent Record
OPR	Office of Primary Responsibility
OSD (AT&L)	Office of the Secretary of Defense Acquisition, Training and Logistics
OSD	Office of the Secretary of Defense
OSHA	Occupational Safety and Health Administration
OUSD(AT&L)	Office of the Undersecretary of Defense for Acquisition, Technology and Logistics

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P2	Pollution Prevention
PDR	Preliminary Design Review
PEO	Program Executive Office or Program Executive Officer
PESHE	Programmatic Environmental, Safety, and Health Evaluation
PFS	Principal for Safety
PHA	Preliminary Hazard Analysis
PHL	Preliminary Hazard List
PM	Program Manager or Project Manager
POC	Point of Contact
PoR	Program of Record
R3	Resource, Recovery and Recycling
RAC	Risk Acceptance Code
SAR	Safety Assessment Report
SC	Safety Critical
SCCSC	Safety Critical Computer Software Components
SCM	Software Criticality Matrix
SDR	System Design Review
SDZ	Surface Danger Zone
SHA	System Hazard Analysis
SIL	Safety Integrity Level
SOCOM	Special Operations Command
SOF	Special operations Forces
SR/CA	Safety Requirements/Criteria Analysis
SRS	Software Requirements Specifications
SSA	System Safety Assessment
SSAR	System Safety Assessment Report
SSE	System Safety Engineer
SSE/DT&E	Systems and Software Engineering, Development Test and Evaluation
SSHA	Subsystem Hazard Analysis
SSL	System Safety Lead
SSP	System Safety Program
SSPP	System Safety Program Plan

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SSRA	System Safety Risk Assessment
SSRC	Service Safety Review Coordinator
SSSTRP	Software System Safety Technical Review Panel
SSWG	System Safety Working Group
T&E	Test and Evaluation
TLH	Top Level Hazard
TLM	Top Level Mishap
TOC	Table of Contents
TT&P	Tactics, Training and Procedures
UK	United Kingdom
UMS	Unmanned Systems
USC	U.S. Code
USD(AT&L)	Under Secretary of Defense (Acquisition, Technology and Logistics)
USMC	United States Marine Corp
USSOCOM	United States Special Operations Command
WSESRB	Weapon System Explosive Safety Review Board

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Appendix C.

Service Safety Review Coordinators (SSRC) and Laser Safety Contact Information

I. SSRC POC For Weapons Safety

Army: Army Materiel Command, Safety Engineering Office

Primary: AMC (AMCPE-SF), phone: (703) 806-8706

Alternate: AMC (AMCPE-SF), phone: (703) 806-8705

Marine Corps: Marine Corps Systems Command

Primary: MARCORSYSCOM, Code 00T1, phone: (703) 432-3145

Alternate: MARCORSYSCOM, Code 00T, phone: (703) 432-4978

Navy: Naval Ordnance Safety and Security Activity

Primary: NOSSA, Code N3, phone: (301) 744-6039

Alternate: NOSSA, Code N31, phone (301) 744-6018,

Air Force: USAF Air Armament Center

Primary: USAF Air Armament Center (AAC/SES), phone: (850) 882-7306

Alternate: USAF Air Armament Center, (AAC/SES), phone: (850) 882-7340

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II. Laser System Safety Review POC

DoD LSSWG Chair :

Office of the Director of Army Safety, phone: (703) 601-2408 (DSN 329-2408)
[Services rotate chair every 2 years, USA rotation through Jun 09]

Army:

Primary: Laser Optical Radiation Program, USA CHPPM, phone: (410) 436-3932;
(DSN 584-3932)

Alternate: USA CHPPM, phone (410) 436-3002; (DSN 584- 3002)

Navy/Marine Corps:

Primary: NSWCDL, phone: (540) 653-1060; (DSN 249-1060)

Alternate: NSWCDL, phone: (540) 653-1149; (DSN 249-1149)

Air Force:

Primary: Laser Safety Hotline, AFRL/HEDO, phone (800) 473-3549
(DSN 240- 4784)

Alternate: AFRL/HEDO, phone: (210) 536-4784; (DSN 240-4784)