NATO STANDARD

ALP-16

EXPLOSIVES SAFETY AND MUNITIONS RISK MANAGEMENT (ESMRM) IN NATO PLANNING, TRAINING, AND OPERATIONS

Edition A, Version 2
FEBRUARY 2023

NORTH ATLANTIC TREATY ORGANIZATION

ALLIED LOGISTICS PUBLICATION

Published by the
NATO STANDARDIZATION OFFICE (NSO)

INTENTIONALLY BLANK

NORTH ATLANTIC TREATY ORGANIZATION (NATO)

NATO STANDARDIZATION OFFICE (NSO)

NATO LETTER OF PROMULGATION

16 February 2023

1. The enclosed Allied Logistic Publication ALP-16, Edition B, Version 2, EXPLOSIVES SAFETY AND MUNITIONS RISK MANAGEMENT (ESMRM) IN NATO PLANNING, TRAINING, AND OPERATIONS, which has been approved by the nations in the Logistics Committee Executive Group in Standardization format, is promulgated herewith. The agreement of nations to use this publication is recorded in STANAG 2617.

2. ALP-16, Edition B, Version 2 is effective upon receipt and supersedes ALP-16, Edition A, Version 1, which shall be destroyed in accordance with the local procedure for the destruction of documents.

3. This NATO standardization document is issued by NATO. In case of reproduction, NATO is to be acknowledged. NATO does not charge any fee for its standardization documents at any stage, which are not intended to be sold. They can be retrieved from the NATO Standardization Document Database (https://nso.nato.int/nso/) or through your national standardization authorities.

4. This publication shall be handled in accordance with C-M(2002)60.

Dimitrios SIGOULAKIS
Lieutenant General, GRC A
Director, NATO Standardization Office

INTENTIONALLY BLANK

RESERVED FOR NATIONAL LETTER OF PROMULGATION

INTENTIONALLY BLANK

RECORD OF RESERVATIONS

CHAPTER	RECORD OF RESERVATION BY NATIONS

Note: The reservations listed on this page include only those that were recorded at time of promulgation and may not be complete. Refer to the NATO Standardization Document Database for the complete list of existing reservations.

INTENTIONALLY BLANK

RECORD OF SPECIFIC RESERVATIONS

[nation]	[detail of reservation]
NOR	Depending on the type of commitment to a NATO coordinated mission, some of the decisions in the protocol described in the STANAG may rest on Norwegian national authorities.

Note: The reservations listed on this page include only those that were recorded at time of promulgation and may not be complete. Refer to the NATO Standardization Document Database for the complete list of existing reservations.

INTENTIONALLY BLANK

TABLE OF CONTENTS

ANNEXES

FIGURES AND TABLES

Figures

Tables

INTENTIONALLY BLANK

CHAPTER 1 NATO EXPLOSIVES SAFETY AND MUNITIONS RISK MANAGEMENT (ESMRM) POLICY AND OVERSIGHT

1.1. PURPOSE

1.1.1. The purpose of Allied Logistics Publication (ALP)-16 is to establish the application of the NATO ESMRM process and identify roles and responsibilities for commands and nations in order to consolidate explosives safety in NATO operations, exercises, missions and activities[1] where munitions are utilized. The application of ESMRM should be identified from the onset of planning and endure throughout the NATO Operations Planning Process (OPP) or Exercise Planning Process (EPP), the Operational Stages, and the Consumer Logistics Process across the full range of NATO activity.

1.2. ESMRM DEFINITION, REQUIREMENT, POLICY AND PROCESS

1.2.1. ESMRM Definition. ESMRM is a systematic approach that integrates risk assessments into the planning and execution of all NATO activities and operations with the goal of identifying potential intolerable risks associated with munitions operations and presenting risk reduction alternatives and risk decision criteria for authorised decision makers. ESMRM allows NATO commanders to deliver operational effect at tolerable levels of explosives safety risk in order to positively contribute to mission success.

1.2.2. ESMRM Requirement. The requirement for ESMRM and its supporting assessment and risk decision processes are established within NATO policies, doctrine, technical standards, and guidelines. See Figure 1-1.

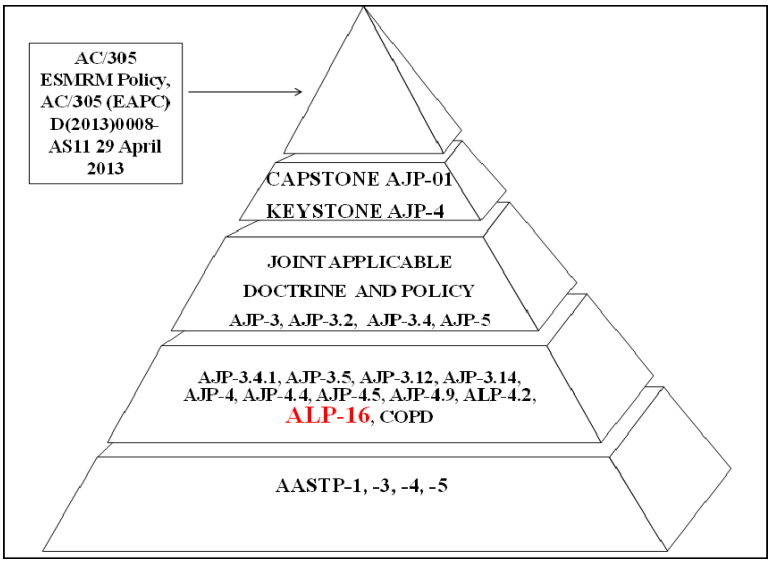


Figure 1-1. NATO ESMRM Authority, Doctrine, Policy, and Technical Requirements

1.2.3. NATO ESMRM Policy is as follows:

[1] The term NATO activity applies to NATO military activity which is not governed by a North Atlantic Council (NAC) endorsed OPLAN (it may or may not be directed by a Strategic directive). It also includes NATO contracted support to operations and exercises.

a. NATO commanders and NATO nations participating in NATO planning, exercises, activities, and operations shall comply with NATO explosives safety requirements[2] unless the operational environment precludes compliance. In these situations a risk assessment and a risk aceptance determination at the appropriate level of responsiblity is required.

b. Nations that provide, transport, store, or otherwise handle munitions for NATO activities have a responsibility to provide safe and serviceable munitions that are well maintained and free from known defects that could lead to unintentional functioning.

c. Explosive safety risk decisions are national responsibilities[3], unless authority is given to appropriate NATO commanders by the host or transit nation. The authority to apply this ALP and subsequently make risk decisions must be confirmed by the Operations or Exercise Commander and endorsed by the appropriate host or transit nation[4].

d. NATO must coordinate, through the planning process, munitions risk assessments in advance of training and operations and communicate ESMRM risk decisions with host and contributing nations when transporting, storing, handling, and training with military munitions.

e. NATO will coordinate, in advance of training and operations ESMRM risk assessments with the appropriate national authority responsible for accepting munitions or munitions-related risks when NATO explosives safety requirements of Allied Ammunition Storage and Transport Publication (AASTP)-1 or AASTP-5, as applicable, cannot be met.

f. When NATO is leading a coalition of partners, the requirements for establishing explosives safety and the application of ALP-16 shall apply to all participants.

1.2.4. ESMRM Process. The ESMRM process identifies munitions and munitions-related risks during NATO planning, training, and across the full range of military activity to the NATO chain of command (Figure 1-2).

a. The ESMRM process, when accomplished as part of the planning process and performed consistently in training and during execution, is an enabler that directly contributes to mission success. The process provides all levels of leadership with greater visibility of risks and potential consequences associated with munitions and munitions-related processes across the full range of NATO military activity.

b. The ESMRM process also provides information necessary to

[2] NATO explosives safety requirements are contained in Allied Ammunition Storage and Transport Publication (AASTP)-1, “Manual of NATO Safety Principles for Storage of Military Ammunition and Explosives,” AASTP-3, “Manual of NATO Safety Principles for the Hazard Classification of Military Ammunition and Explosives,” AASTP-4, “Manual on the NATO Principles for the Application of Risk Analysis to the Storage and Transportation of Military Ammunition and Explosives,” and AASTP-5, “NATO Guidelines for the Storage, Maintenance and Transport of Ammunition on Deployed Missions or Operations.”

[3] This statement refers to a NATO nation or nation within a permissive environment.

[4] Agreements between NATO and nations are brokered at the Strategic level unless delegated to the operational HQ.

make an informed risk decision to address potential consequences when the risk cannot be mitigated to a level equivalent to those in AASTP-1 or AASTP-5 or eliminated.

1.3. ESMRM SCOPE, APPLICABILITY, AND AUTHORITY

1.3.1. ESMRM Scope. ALP-16 applies whenever NATO explosives safety requirements within Allied Ammunition Storage and Transport Publication (AASTP)-1, "Manual of NATO Safety Principles for Storage of Military Ammunition and Explosives," and AASTP-5, "NATO Guidelines for the Storage, Maintenance and Transport of Ammunition on Deployed Missions or Operations, cannot be met. The process is universal to both exercise, operations, and other NATO activity from the onset of planning through to the execution of the activity, exercise, or operation, including recovery from the activity.

1.3.2. Applicability. ALP-16 is applicable to the full range of NATO military operations, both Article 5 crisis response operations and non-Article 5 crisis response operations (NA5CRO), as well as in exercises and other NATO activity. The requirements of ALP-16 also apply to non-NATO nations participating in NATO-led operations and exercises or activity.

a. Full Range of NATO Military Operations. For the purposes of ALP-16, the full range of military operations includes NATO military missions and operations supporting Article 5 crisis response operations, NA5CRO, and other NATO support operations from planning through the disposal of supplies, to include munitions.

b. ESMRM Applicability During Munitions Use. The requirements contained herein are not applicable when munitions are in use by forces (e.g., checkpoints or elements of a maneuvering force, engaged with the enemy or conducting movement to contact or support operations). In such cases, munitions and their related risks shall be addressed and managed by the appropriate NATO operational commander, consistent with mission requirements.

c. Munitions-related Processes and Activities Performed Under Contract. Requirements of ALP-16 apply to other than military personnel (e.g., contract and host nation support) performing or supporting munitions- related functions on behalf of NATO nations in the area of operations (AOO).

1.3.3. Authority. The risk assessment process contained within ESMRM will eventually lead to a risk decision being made by an authorised decision maker. It is imperative that the authority to make risk decisions is established before decisions are taken; see Chapter 2.

1.3.4. ESMRM Relationships and Links. The establishment of explosives safety through ESMRM will impact and influence other functional areas in its requirement for resource, regulation or mitigation. Examples of functional areas that have an ESMRM aspect include:

a. Military Engineering

b. Base support operations

c. Real estate procurements and management

d. Force protection

e. Security

f. Air Defence

1.3.5. NATO doctrine, regulation, and guidance for those functional areas that have a link to ESMRM should include specific text to ensure correct understanding and application of explosives safety requirements.

1.4. ESMRM IN THE NATO OPP, OPERATIONAL STAGES, AND LOGISTICS PROCESS

1.4.1. ESMRM in the NATO OPP. In the same manner that Logistics is fully integrated into the OPP; ESMRM must be a fully integrated factor in the Logistics planning process. From the onset of planning as SHAPE issues Military Response Options (MROs) to the Operational level, Explosives safety must be a consideration of the operational appreciation as the feasibility of MROs are considered. Explosives safety must also be featured during factor analysis, so that potential Courses of Action (COAs) are developed with ESMRM as an enabling process for success. Chapter 3 provides details for integrating ESMRM in the NATO OPP and as part of logistics planning when munitions are involved.

1.4.2. NATO Operational Stages. A NATO operation usually consists of a number of stages as shown in Figure 1-2. These stages, which may overlap depending on the situation and mission, are Planning, Preparation for Deployment, Deployment, Employment, Transition and Redeployment, and Disestablishment. ALP-16 connects the ESMRM process to the NATO Operational Stages (see Table 1-1).

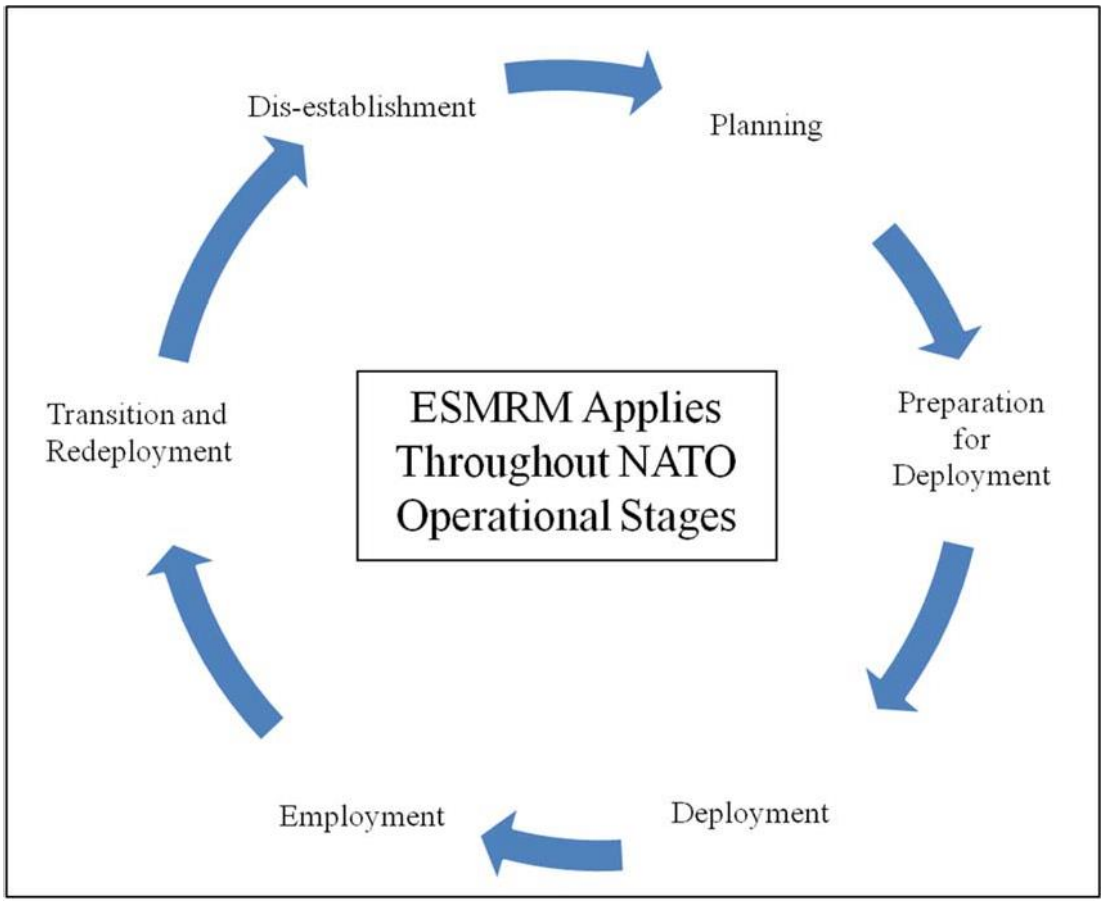


Figure 1-2. NATO Operational Stages

Table 1-1. ESMRM Links to the NATO OPP,* Operational Stages, and Consumer Logistics Process

NATO Operational Planning Process	NATO Operational Stage	NATO Consumer Logistics Process	ESMRM Risk Assessment Type	ALP-16 Reference
Strategic Operations Planning	-	-	**Planning**	Chapter 3 and Chapter 7 Paragraph 7.3
Operational-Level Planning	-	-	**Planning**	Chapter 3 and Chapter 7 Paragraph 7.3
Tactical Operations Planning	-	-	**Planning**	Chapter 3 and Chapter 7 Paragraph 7.3
-	Deployment	Reception	**Reception, Staging, Onward Movement and Integration (RSOI)**	Chapter 4 Paragraph 4.3
-	Employment, Redeployment, and Disestablishment	Storage	**Storage**	Chapter 4 Paragraph 4.4
-	Deployment, Employment, Redeployment, and Disestablishment	Transportation	**Transportation**	Chapter 4 Paragraph 4.5
-	Employment	Distribution	**Distribution**	Chapter 4 Paragraph 4.6
-	Employment	Maintenance	**Maintenance and Handling**	Chapter 4 Paragraph 4.7
-	Redeployment and Disestablishment	Retrograde	**Retrograde and Removal**	Chapter 4 Paragraph 4.8
-	Redeployment and Disestablishment	Disposal	**Disposal and Demilitarization**	Chapter 4 Paragraph 4.9

*AJP-5, Figure 3.6, page 3-63.

1.4.3. NATO Consumer Logistics. Consumer logistics, also known as operational logistics, is concerned with the supply and support functions of forces. ALP-16 connects ESMRM to the NATO Consumer Logistics Process (see Table 1-1). Chapter 4 identifies ESMRM requirements related to the NATO Consumer Logistics Process.

1.4.4. ESMRM Categories. The ESMRM process consists of two categories of ESMRM risk assessments: Planning and Execution. Combined, these ESMRM risk assessments and their risk decision integrate munitions-specific risk requirements throughout the full range of NATO military operations. As illustrated in Figure 1-3, the ESMRM process includes:

a. Explosives Safety Criteria Assessment. The Explosives Safety Criteria Assessment is a determination of the ability to meet requirements of AASTP-1 or AASTP-5, as applicable[5].

b. ESMRM Risk Assessment. The ESMRM risk assessment is conducted when applicable NATO explosives safety requirements of AASTP-1 or AASTP-5, as applicable, cannot be met. The two broad types of ESMRM risk assessments include:

(1) Planning. Chapter 3 provides guidance on the application of ESMRM within NATO planning for operations, exercises, and other NATO activity.

(2) Execution. Chapter 4 provides guidance on the application of ESMRM during the execution of operations, exercises, and other NATO activity. Chapter 6 provides the specific requirements for the seven types of ESMRM risk assessments, which include:

(a) Reception, Staging, Onward Movement, and Integration (RSOI)

(b) Storage

(c) Transportation

(d) Distribution

(e) Maintenance and Handling

(f) Retrograde and Removal

(g) Disposal and Demilitarization

c. Risk Decision. All ESMRM risk assessments require a risk decision by the appropriate and authorized national or NATO commanders. Chapter 2 identifies the authority process and the appropriate risk decision makers based on the risk level associated with the risk decision to be made.

d. Risk Decision Implementation. Approved mitigation and conditions associated with the risk decision shall be implemented and managed.

Chapter 2 identifies roles and responsibilities for ESMRM-related personnel who would implement and monitor required mitigation and conditions associated with the risk decision.

[5] Where nations have their own explosives safety regulations, it is their responsibility to assess the equivalency of those regulations to NATO explosives safety requirements to ensure NATO standards are met as a minimum (see subparagraph 1.2.3.a and footnote 1).

e. Oversight. The risk decision, and any associated mitigation and conditions, must be managed to ensure they continue to be implemented and remain current, correct, and visible at all levels, to include appropriate decision makers. Chapter 2 details chain-of-command and ESMRM personnel risk decision oversight responsibilities, periodic risk assessment reviews, and risk decision awareness of established and incoming NATO commanders.

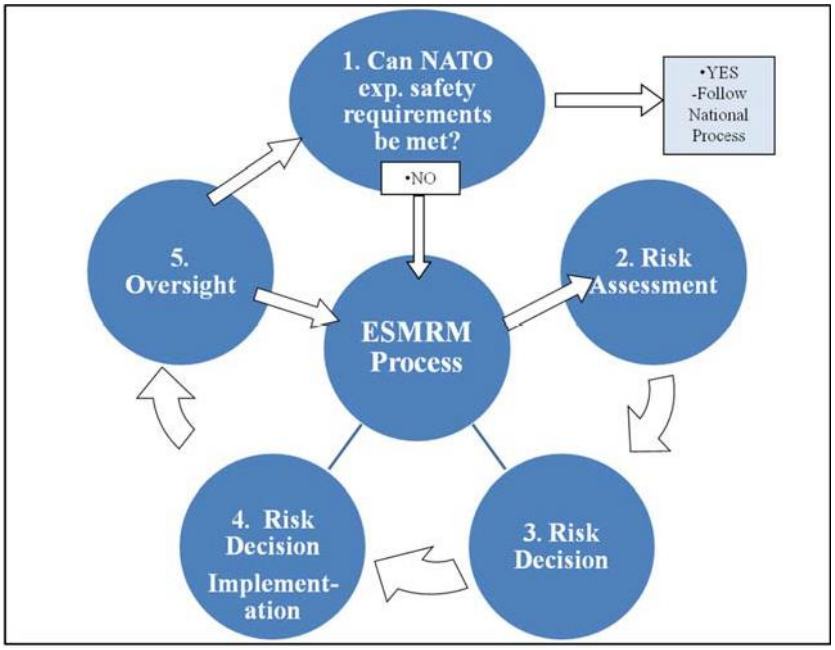


Figure 1-3. NATO ESMRM Process in Relation to OPP, Exercise Planning, and Operations

1.4.5. ESMRM Assessment Development. ESMRM risk assessments shall be conducted by qualified staff as outlined in chapter 5. When not available, the NATO commander may request external assessment support through NATO and national chains of command. Request for NATO support should be made to NATO AC/305 (Logistics Committee (LC)), which in turn can request support from its ESMRM Panel, and NATO AC/326, Conference of NATO Armaments Directors' Ammunition Safety Group.

CHAPTER 2 EXPLOSIVES SAFETY AND MUNITIONS RISK MANAGEMENT (ESMRM) COMMAND AND CONTROL

2.1 PURPOSE

2.1.1. The purpose of this chapter is to specify ESMRM command and control roles and requirements within the NATO operational chain of command and within NATO nations.

2.2. GENERAL

2.2.1. SACEUR commands the Allied Forces through the authority granted from the NAC. The Control of NATO military activity is governed through the requirements SHAPE establishes for all military activity, articulated through NATO doctrine, policy, publications, orders and directives. As with all military chains of command and control, the requirement to conduct military activity according to the higher command's direction and guidance is delegated ensuring that responsibility to conduct operations according to SACEUR's remit is maintained throughout. SACEUR states the requirement to establish and maintain acceptable and appropriate levels of explosives safety through AC/305 ESMRM Policy, ALP-16 and supporting ammunition publications[6].

2.3. ESMRM AUTHORITY

2.3.1. The authority to apply ESMRM principles to any type of military activity must be granted. SACEUR's authority to conduct NATO military activity in NATO host nations is governed through the endorsement of specific plans and directives by the NAC and at times by individual host nations. Authority can also be endorsed through Memorandums of Understanding (MOU) or Technical Arrangements (TA)s and supporting Bi-Lateral agreements.

2.3.2. No standing agreement or authority to apply the ESMRM process and take explosives safety risk decisions exists for NATO military activity within host nations. Each NATO sovereign nation holds the authority and must be consulted in order for it to be granted to NATO commanders. It is therefore imperative that authority is brokered during planning and the plan illustrates what authorities are granted and at what point of the military activity.

2.3.3. ESMRM authority should be included in the planning process as follows:

a. Host, Sending Nation, and Transit Nation Consultation. Consultation and corroboration during planning starts at the strategic level and is echoed at the operational level. The issue of explosives safety should be considered from the onset of all planning and must specifically include ESMRM risk decision authority. Host and transit nations will be exposed to explosives safety risks if large quantities of munitions and explosives are

[6] NATO explosives safety requirements are contained in Allied Ammunition Storage and Transport Publication (AASTP)-1, "Manual of NATO Safety Principles for Storage of Military Ammunition and Explosives," AASTP-3, "Manual of NATO Safety Principles for the Hazard Classification of Military Ammunition and Explosives," AASTP-4, "Manual on the NATO Principles for the Application of Risk Analysis to the Storage and Transportation of Military Ammunition and Explosives," and AASTP-5, "NATO Guidelines for the Storage, Maintenance and Transport of Ammunition on Deployed Missions or Operations."

transited or employed during operations or exercises. The relevant host and transit nations must decide how and who they require to manage the explosives safety risks. It is likely that the appetite to grant risk decision authority to NATO commanders will differ according to the security situation. It is unlikely during peacetime that full authority will be granted to NATO commanders, however during a collective defence operation, it may not be practically possible for nations to physically exercise the control of explosives safety and therefore authority could be best placed with NATO commanders as a crisis develops.

b. NAC endorsed OPLAN. Following the consultation and agreement mentioned above, the OPLAN must stipulate who is authorized to make risk decisions, as NAC approval is granted and an Execution Directive is issued, the authority then exists. In this manner NATO commanders become empowered to make decisions that may otherwise be national decisions. In all cases this must be brokered with the relevant host nations during operations planning before submission of the OPLAN.

c. Exercise Planning. Exercises which involve munitions during live firing will require the application of ESMRM both in planning and during exercise activity. The authority to make risk decisions should be considered by the Officer Conducting the Exercise (OCE), consulted with and agreed by the relevant host nations and transit nations and written in to the EXPLAN.

d. MoU or Bi-lateral Agreement. For NATO activity that isn't detailed and endorsed in an EXPLAN or OPLAN, the authority to take risk decisions must be agreed between the prospective decision maker/s and the host and transit nations that hold the authority. Once brokered and agreed it will require formal endorsement in an appropriate document such as a Memorandum of Understanding or Bi-lateral agreement.

2.3.4. Permissive and Non-Permissive Environments. In a permissive environment, only a host nation can authorize risk decisions to be made by NATO entities. In a non-permissive environment where host nation consultation is not possible, authority and the ability to take risk decisions must be endorsed by the NAC through the OPP. It is therefore essential that the operations plan fully details the ESMRM risk decision authority and its delegation within the mission.

2.3.5. Risk Decisions. The ESMRM process leads to risk identification[7] and subsequently a risk decision being taken by a NATO commander once decision authority is authorised and appropriately delegated to individual commander/s. Risk decisions must be made at the following levels:

a. Medium and high-level explosives safety risk decisions[8] must be taken by a flag officer within the NATO operational chain of command.

b. Low level risks do not require approval delegation and can be approved by subordinate commanders.

c. Where one nation's (member or partner) risk decisions affect other nations' personnel, assets, or missions, to include any unrelated personnel to the munitions operation, they shall always be made by a flag officer within the NATO operational chain

[7] Identified risks are categorized according to the Risk Management Matrix Table 7-1 in Chapter 7.
[8] Risk decision levels are defined following an ESMRM assessment explained in Chapter 7.

of command.

2.4. STRATEGIC LEVEL

2.4.1. SHAPE. SHAPE as the strategic headquarters defines requirements across the full spectrum of Logistics, including explosives safety. This requirement is reflected in extant doctrine, policy and publications such as the AASTPs and ALP-16, directing that all NATO Operations, Exercises and other NATO activities are conducted in accordance with NATO explosives safety standards.

2.4.2. On receipt of an Initiating Directive, SHAPE as the higher headquarters, directs the commands to conduct operations within issued planning guidance and within the specified parameters set out in its requirements and standards. During operations the responsibility for conducting the operation within requirements in delegated typically to a Joint Force Command or exceptionally to a NATO Force Structure Command or Component Command depending on the nature of the operation. Such delegation obliges the commanders to accept responsibility for conducting operations within the requirements and thus adhering to explosives safety standards and processes.

2.4.3. Although the requirements for explosives safety are documented in supporting publications such as the AASTPs and ALP-16, SHAPE will direct the application of these standards within its Strategic Plan for operations and SACEUR's Strategic Directives or other planning guidance for NATO activity not covered by an OPLAN.

2.4.4. SHAPE will stipulate the application of ESMRM within the Strategic Plan ensuring that each host and transit nation has been consulted during the strategic planning phase. (see para 2.3 ESMRM authority)

2.5. OPERATIONAL LEVEL

2.5.1. Joint Force Commands (JFC). NATO Joint Force Commands own the operational level plan and command operations within an Area of Responsibility (AOR). The operations plan will be executed by the Joint Task Force Commander within the AOR. In this manner ultimate responsibility for explosives safety within an AOR is delegated to the JTF Commander by the JFC.

2.5.2. The OPLAN will stipulate the requirement to apply extant standards for explosives safety including the application of ESMRM. Individual commanders within a Battle Space must in turn be empowered within the OPLAN to make risk decisions within their Battle Space by the JTF Commander.

2.5.3. Operations Planning. During operations, the JFC's OPLAN must identify the requirement for explosives safety sites appropriate to conduct munitions activity and stipulate ESMRM assessment and subsequent risk decision requirements within the plan. For operations within SACEUR's AOR or within a permissive environment this will be planned in conjunction the Host Nation or Transit Nation. For non-permissive environments where host nation interface is not possible, the requirement for establishing explosives safety remains, although without the guidance or input from the nation.

2.5.4. Operations Execution. The requirement for maintaining appropriate explosives

safety endures during an operation. The application of ESMRM will be critical to maintain safety without impeding the dynamic nature of the operation. The OPLAN must give adequate direction to ensure that ESMRM is correctly conducted by individual Battle Space Owners, with a referral process for risks that cannot be mitigated by Battle Space Owners[9].

2.5.5. Where component commands or NATO Force Structure commands are independently conducting NATO operations they must assume the role of the JFC for explosives safety.

2.5.6. Joint Support and Enabling Command (JSEC). Planning for Reinforcement by Forces (RbyF) must also consider explosives safety as a factor for mission success. Such planning must ensure full synchronization between a JFC's OPLAN and individual plans within Host and Transit Nations and Troop Contributing Nations to ensure best use of all available explosives safety sites and measures. Additionally, the authority to apply this ALP and make explosives safety risk decisions within SACEUR's AOR is a vital feature of the plan in order to ensure dynamic reinforcement (see para 2.3). JSEC must be able to maintain a clear overview of established explosives safety sites as part of the Recognised Logistics Picture (RLP) for RbyF in order to account for NATO explosives safety within SACEUR's AOR.

2.6. TACTICAL LEVEL

2.6.1. Tactical Level. The tactical level planning for explosives safety must foresee the requirement across the full spectrum of the operation for all domains. The focus of such planning is logistical in nature but should also consider security, force protection, air defence, maritime defence and potentially other factors, which may or may not contribute to the success of the explosives safety planning.

2.6.2. Battle Space Owners. The nature of dynamic operations will lead to new requirements for explosives safety sites additional to those agreed and planned during the planning phase. Battle Space Owners must therefore be empowered to make explosives safety decisions in accordance with this ALP. Typically, this will be delegated to a formation down to Divisional level[10] to ensure that the Battle Space Owner also has the means to conduct the required ESMRM assessment process and the authority to take medium and high risk decisions currently set at flag officer level by this ALP. For operations conducted by formations below Divisional structures, additional force capabilities to meet the requirement for explosives safety must be factored in to the Combined Joint Statement of Requirement (CJSOR).

2.6.3. JLSG HQ. The JLSG HQ play a key role in establishing and maintaining explosives safety within the Theatre Logistics Base (TLB) and Joint Logistics Support Network (JLSN) and overseeing explosives safety within the JTF AOR. Coordination with National Support Elements (NSEs) and the ongoing management and deconfliction within explosives safety sites through Logistics Control (LOGCON) of explosives safety is paramount to ensure overall safety is maintained. The JLSG must be able to maintain a clear overview of established explosives safety sites as part of the RLP in order to account for explosives safety within the JTF AOR. Additionally when acting as a Battle Space Owner, the JLSG

[9] ESMRM risk referral process is contained within para 2.13.

[10] Within the land environment, a NATO division will have the requisite expertise to conduct ESMRM assessments.

HQ must be prepared to conduct ESMRM assessments and make appropriate risk decisions.

2.6.4. Component Commands. Explosives safety is predominantly a Land based activity and therefore a greater proportion of responsibility will be within the Land domain. However, Air, Maritime and SOF domains will influence explosives safety through activities such as munitions storage, processing, disposal and transportation within the theatre logistics nodes and are therefore a potential stakeholder in explosives safety planning. Where a deployed Air, Maritime or Land formation acts as a Battle Space Owner, then it must be prepared to carry out assessments and execute risk decisions, having appropriately staffed the ability to do so in accordance with the JFC OPLAN. Moreover, when a single service command is a tenant within a Battle Space it must be appropriately supported in establishing explosives safety by the Battle Space Owner.

2.7. NATO NATIONS

2.7.1. All NATO nations have a legislated responsibility for explosives safety within their sovereign territory. NATO standards for explosives safety are broadly aligned with national standards and in that way respect the national criteria for establishing and maintaining explosives safety. In peacetime, each nation regulates and controls explosives safety according to their national regulations and laws. Furthermore, the protection of lives and property is paramount and this is achieved through the application of stringent safety standards which often require large investment and extended lead times to establish. During Crisis or Conflict, the requirement to swiftly consider explosives safety and make risk decisions at the speed of relevance, is unlikely to be possible within a peacetime regulatory structure. ESMRM provides a means of considering risk and taking informed risk decisions at a much quicker pace through a military chain of command. Nations must consider whether, or at what point, they are prepared to allow NATO commanders to apply ESMRM principles and issue authority accordingly (see para 2.3); reflected in a NATO OPLAN. NATO must appropriately broker with nations, the authority to take risk decisions in accordance with this ALP during the planning for an operation or exercise involving large quantities of munitions or explosives. It is incumbent upon nations to ensure NATO has the means to operate unimpeded to ensure the collective defence of our nations.

2.7.2. Nations should ensure that appropriate facilities are made available during planning and be prepared to establish licenced sites to fulfil the requirement to handle large quantities of munitions and explosives during crisis or conflict.

2.8. RESPONSIBILITIES

2.8.1. Strategic Level

a. SHAPE has the responsibility to:

(1) Direct the establishment of appropriate levels of explosives safety for all NATO military activity.

(2) Support the establishment of explosives safety within all strategic planning, including risk decision authority with nations.

(3) Delegate the responsibility for explosives safety to the appropriate

Commander for operations and military activity and Exercise OCE for exercises.

b. ACT has the responsibility to:

(1) Support the integration of ESMRM in NATO Training and Exercises

(2) Staff the integration of ESMRM in appropriate publications

2.8.2. Operational Level

a. Joint Force Commands have the responsibility to:

(1) Plan for and execute appropriate levels of explosives safety within operations, exercises and military activity in conjunction with NATO Host and Transit nations.

(2) Once established, ensure delegation of ESMRM risk decision authority to appropriate subordinate levels.

b. JSEC have the responsibility to:

(1) Establish and coordinate explosive safety including ESMRM application across Reinforcement and Enablement activities, OPP, EPP and synchronization between NATO operational-level planning and national planning of Troop Contributing Nations and Host/Transit Nations.

(2) Manage the continued implementation of ESMRM within the NATO command structure.

(3) On operations execution, exercise LOGCON of explosives safety within Reinforcement activity.

(4) Coordinate, in peacetime, ongoing safety evaluations of established NATO explosives safety sites[11].

2.8.3. Tactical Level

a. Component Commands have the responsibility to:

(1) Plan for and execute appropriate levels of explosives safety within operations, exercises and military activity in accordance with direction and guidance from a higher command

(2) Inform the explosives safety requirement within the OPLAN and EXPLAN

b. JSLG HQ have the responsibility to:

(1) On execution, lead the establishment of and coordinate explosives safety within the Theatre Logistics Base with all troop-contributing nations

[11] This refers to peacetime established NATO explosives safety sites within baseline activity and ongoing operations throughout SACEUR's AOR.

and the host nation.

(2) Establish and coordinate ammunition site usage within the Joint Logistic Support Network[12].

(3) Maintain a repository of ESMRM risk assessments and risk decisions made within the AOR[13].

2.8.4. Battle Spacer Owners. Battle Space Owners at Divisional level, where authorised and delegated by a higher command have the responsibility to conduct ESMRM risk assessments and take risk decisions in accordance with para 2.3[14].

2.8.5. NATO Nations have the responsibility to support the establishment of appropriate levels of explosives safety during NATO operations, exercise or military activity[15].

2.8.6. Universal Responsibilities. Where an ESMRM risk assessment has been conducted and subsequently a risk decision has been made, all commanders have the following responsibilities:

a. Comply with the mitigating actions within the risk decision.

b. Maintain the risk assessment (i.e., validating whether conditions or plans require updated risk assessments).

c. Coordinate ESMRM risk assessment with other functional areas that have a stake in the process (e.g., force protection and security, construction engineers, military engineers, base operations).

d. Periodically review all existing risk decisions. Paragraph 7.4, Chapter 7, “Risk Assessment and Update Frequency,” provides requirements for risk assessments.

e. Ensure incoming replacement Commanders are fully informed regarding the extant risk decisions and risk mitigations requirements.

2.9. ESMRM WITHIN THE THEATRE LOGISTICS BASE (TLB)

2.9.1. The TLB as the receptor for TCNs and their munitions will attract the greatest challenges in terms of explosives safety. The provision of explosives safety must be planned in detail with all stakeholders. Detailed joint NATO/national planning is required to determine the extant infrastructure available for explosives storage/handling, so that the delta required for mission success where AASTP-1 and -5 cannot be met is understood and a solution found through the application of ESMRM principles. Upon execution and deployment of the JLSG HQ, Command and Control for explosives safety will be

[12] Coordination in this context refers to synchronization and deconfliction of established sites that may or may not be commanded by other Battle Space Owners but are universally utilized in the JLSN.
[13] The JLSG HQ must ensure that sites used within the JLSN and TLB are managed to ensure enduring safety and deconfliction of use. The JSLG must also ensure that all other sites within the 2nd line are recorded through Log R2 so that an AOR wide comprehensive list of explosives safety sites and ESMRM assessments is monitored and maintained.
[14] All explosives safety sites and ESMRM risk assessments established by BSOs must be reported to the JLSG HQ through Log R2.
[15] Support in this context includes all relevant activity and authority delegations which contribute towards establishing appropriate levels of explosives safety at peacetime, crisis and conflict.

undertaken by the JLSG HQ to avoid potential fratricide and ensure best use of typically scarce but vital explosives storage/handling sites[16].

2.10. ESMRM WITHIN ESTABLISHED NATO BASES

2.10.1. In recent NATO operations, NATO has been required to establish operating bases, both permanent and temporary, of various sizes. The remaining part of this chapter addresses the particular issues relevant to such bases whether they are within a host nation or as part of an expeditionary operation in a non-NATO nation[17].

2.11. NATO BASE COMMANDER AND KEY NATO BASE ESMRM PERSONNEL ROLES AND RESPONSIBILITIES

2.11.1. Paragraph 2.11 applies to all established operating bases and provides the NATO base commander's roles and responsibilities specific to the ESMRM process, and provides roles and responsibilities for key ESMRM personnel on a base.

2.11.2. The NATO base commander and his ESMRM staff play a critical role in the ESMRM process at a NATO base. The NATO base commander has four primary responsibilities (i.e., 1. Oversight 2. Decision-Making 3. Implementing ESMRM Requirements and 4. Coordinate and Communicate ESMRM) that directly contribute to the management of ESMRM risks and required actions to identify, manage, and reduce those risks for all tenants on a NATO base:

a. Oversight. Provide oversight of NATO base-related ESMRM programs to include those of nations having munitions and munitions-related processes on the base. ESMRM program details and critical explosives safety elements are identified in AASTP-1, AASTP-5, and ALP-16 (e.g., Quantity Distance, risk mitigation, munitions-related processes, handling, hazard classification, and surveillance). As part of their oversight responsibility, the NATO base commander shall:

(1) Appoint or direct the appointment of key NATO base ESMRM personnel:

(a) ESMRM qualified personnel. Direct NATO base tenant nations with munitions and munitions-related processes to assign ESMRM qualified personnel as prescribed in Chapter 5.

(b) Lead Explosive Safety Officer (ESO). Appoint a qualified Lead ESO if the NATO base has two or more nations present and where munitions are located and munitions-related processes occur. The Lead ESO:

(i) Must meet the qualifications of an ESO as prescribed in Chapter 5.

(ii) Shall be a primary position and not a collateral duty.

(iii) Shall provide regular updates to the NATO base commander.

[16] Planning should be sufficiently detailed to ensure explosives safety prior to the JLSG HQ deployment, through regional commands or other in place commands.

[17] The issue of authority must be established in accordance with para 2.3 in order to apply the roles and responsibilities listed in para 2.8 onwards.

(c) Explosives Safety Board (ESB) Chair. The ESB chair shall have sufficient experience and rank to support the ESMRM program.

(d) Base Operations Support Integrator (BOSI). The BOSI who performs other critical base operations support functions is a key element of an effective ESMRM program on the NATO base.

(2) Integrate ESMRM requirements. Direct the integration of the following into NATO base master plans, NATO base maps, and other similar documents:

(a) Approved national explosives safety site plans.

(b) Approved Risk decisions (and required mitigation actions).

(c) National ESO issued explosives licenses for their munitions locations on the NATO base.

(3) Record Keeping. Direct the establishment and maintenance of an ESMRM continuity book.

b. Decision Making

(1) Serve as the final ESMRM decision maker, as necessary, to resolve munitions-related issues presented by the ESB chair or Lead ESO.

(2) Make medium-level ESMRM risk decisions when appropriate, and when delegated the authority to make those decisions.

(3) Make low-level ESMRM risk decisions, as necessary.

c. Implementing NATO ESMRM Requirements. Require that all NATO base munitions locations and munitions-related functions meet the requirements of AASTP-1, AASTP-5, or ALP-16, as applicable. Specifically, each munitions location and munitions-related function shall have one of the following:

(1) A nationally approved explosives safety site plan.

(2) A national ESO issued explosives license.

(3) An approved ESMRM risk decision where AASTP-1 and 5 cannot be met.

d. Coordinating and Communicating ESMRM

(1) Establish an ESB. If the NATO base has, two or more nations present and where munitions are located and munitions-related processes occur:

(a) Review for approval the ESB charter and terms of reference.

(b) Require regular updates from the ESB chair.

(2) Coordinate with National Representatives. Coordinate all risk decisions with affected nations and obtain concurrence with the ESMRM assessment thereby informing affected nations of the associated munitions-related risks and encouraging their participation in the risk mitigation process.[18]

(3) Lack of Response from National Authorities. In the event that a nation chooses not to engage in the ESMRM process, NATO ESMRM requirements are still applicable and a general or flag officer shall make the ESMRM risk-decision delegated risk-decision authority within the NATO chain of command. The risk decision package shall document that a particular nation chose not to participate in the ESMRM process and their reason for doing so.

2.11.3. Base Safety Officer. The NATO base safety officer will:

a. Develop and maintain a comprehensive NATO base ESMRM program.

b. Enable access to NATO base leadership to communicate ESMRM information and issues.

c. Request resources in support of ESMRM issues.

d. Support the NATO base ESMRM mission by:

(1) Assigning and maintaining qualified ESMRM personnel on the NATO base.

(2) Supporting the NATO base ESB, Lead ESO, and the BOSI as required.

2.11.4. Explosives Safety Board (ESB) Chair. The ESB provides a framework for collectively resolving ESMRM and munitions-related issues on a NATO base. The ESB does not approve explosives safety site plans, explosives licenses, or ESMRM risk decisions. A detailed list of ESB responsibilities can be found in subparagraph 2.11.5. The ESB chair shall:

a. In conjunction with the ESB, develop a charter and terms of reference for ESB membership and conduct of ESB activities.

b. Update the NATO base commander regularly and present ESMRM issues when a decision is required.

c. Regularly convene and preside over the NATO base ESB meetings.

2.11.5. Explosives Safety Board (ESB). The ESB, which is typically comprised of the ESB chair, Lead ESO, BOSI, tenant ESMRM and munitions representatives, base operations,

[18] A national representative's concurrence on a risk assessment document indicates their awareness of their nation's exposure to munitions risk resulting from deviations from NATO explosives safety requirements and their participation in the risk mitigation process.

master planning, representatives of nations that are encumbered (i.e., exposed to munitions risk), and others as required (see Figure 2-1), shall:

a. Based on the scope and types of operations being performed, determine, based on the Lead ESO recommendation, whether NATO AASTP-1 or AASTP-5 is more applicable for use at the NATO base.

b. Address ESMRM issues presented by the Lead ESO. Typically, ESB business will revolve around critical explosives issues pertaining to encroachment inside or near quantity distance (QD) as defined in AASTP-1 and field distance (FD) as defined in AASTP-5. AASTP-5 provides a list of critical explosives safety elements that must be monitored and managed on a NATO base for a comprehensive, adequate, and safe ESMRM program. Most ESB issues will fall in the area of real estate and facilities usage or placement; construction management; conflicting or competing interests for land, facilities, or functions; issues with national participation; and sharing of information.

c. Resolve, whenever possible, munitions-related issues presented to the Board.

d. Develop potential solutions (for issues identified but not limited to those above) for the NATO base commander's decision when not able to resolve munitions-related issues.

e. Record and distribute meeting minutes, to include NATO base commander endorsement of ESB decisions and approvals of ESB recommendations, to all potentially affected parties of those decisions.

2.11.6. Lead ESO. The Lead ESO manages and provides oversight of the NATO base commander's ESMRM program and acts as the focal point for all ESMRM- related activities on the NATO base, including those of tenant commands on the NATO base. The Lead ESO shall:

a. Advise the NATO base commander on ESMRM issues and provide recommendations, as necessary, on appropriate actions to take.

b. Participate in the ESB.

c. Prepare for the NATO base commander's approval, base ESMRM operating instructions, MOUs/MOAs, host/tenant accords, or other ESMRM-related agreements.

d. Provide ESMRM oversight of all munitions-related functions on the NATO base.

e. Recommend to the ESB whether AASTP-1 or AASTP-5 is more applicable to munitions locations and munitions-related functions on the NATO base. The recommendation could change if the NATO base and its supporting infrastructure expands and develops into a more substantial/permanent NATO base.

f. Develop and maintain a list of all key ESMRM-related personnel on the NATO base to include tenants. The Lead ESO shall also develop and maintain an awareness of the ESMRM personnel within the NATO chain of command.

g. Identify ESMRM and munitions-related issues to the ESB chair, as necessary, for ESB involvement to include potential QD or FD encroachment issues both internal and external to the base boundary.

h. Develop and maintain a working relationship with all ESMRM-related personnel on the NATO base (e.g., BOSI, nations' ESOs, and base operational support organizations/ functions). The primary focus shall be to comply with NATO explosives safety requirements of AASTP-1 or AASTP-5, as applicable, and resolve any ESMRM issues at the lowest possible command structure level.

i. Meet with the leadership of all new NATO base tenants immediately upon their arrival and do the following:

(1) Inform them of NATO base ESMRM requirements and provide them with copies of all NATO base ESMRM-related documents.

(2) If they have/will have munitions at the NATO base:

(a) Obtain contact details for national ESMRM personnel.

(b) Assist national ESMRM personnel in integrating their munitions and explosives-related operations and processes into the NATO base ESMRM process and ensure any new infrastructure or equipment does not change previously accepted risk levels.

j. Serve as the primary explosives safety interface between nations and BOSI with respect to NATO base QD or FD maps, real estate needs, construction management, use of facilities, etc. The Lead ESO shall maintain situational awareness of all munitions and munitions-related processes on the base to include activities occurring, planned within, or affected by QD or FD.

k. Coordinate ESMRM requirements with base support functions (e.g., BOSI, security, force protection, military engineers) that have overlapping areas of concerns related to munitions hazards/threats and mitigation and develop mutually acceptable solutions as required.

l. Participate in all NATO base planning meetings to maintain visibility of all ESMRM issues and reduce the likelihood of potential problems.

m. Review and endorse all nationally developed explosives safety site plans prior to their submission for approval through national processes. Figure 2-2 describes the NATO base explosives safety site approval process.

n. Coordinate the integration of QD or FD, from approved national site plans, risk decisions, and explosives licenses into NATO base master planning, NATO base maps, and other NATO Base planning and operational documents, as appropriate.

o. Monitor compliance with the conditions contained in approved explosives safety site plans, risk decisions, and explosives licenses.

p. Support the preparation of risk assessments, as described in Chapter 7, when explosives safety requirements of AASTP-1 or AASTP-5, as applicable, cannot be met, and actively participate in risk mitigation to the maximum extent practicable.

q. Monitor all risk assessments and decisions for currency. Paragraph 7.4, Chapter 7, “Risk Assessment and Update Frequency,” provides requirements for risk assessment maintenance.

r. Conduct a review of each nation’s ESMRM program upon their arrival and, at a minimum, every 6 months thereafter for compliance with base standard operating procedures (SOPs), instructions, MOUs/MOAs, or other ESMRM governing documents.

s. Following a review, provide a written report to the reviewed nation’s commander and ESO and the base commander. Significant findings that pose an immediate risk shall be immediately reported to the base safety officer and NATO base commander and must be resolved without delay.

t. Develop and maintain an ESMRM continuity binder that shall be handed over to the next Lead ESO. Contents shall include:

(1) The most current NATO base map showing munitions-related locations (current and planned) and associated QD or FD

(2) NATO base ESMRM-related SOPs, instructions, and MOUs/MOAs

(3) List of key NATO base national ESMRM personnel and their contact information

(4) Copies of all nationally-issued explosives licenses

(5) Copies of all nationally-issued explosives safety site plans

(6) Copies of Lead ESO review reports and responses to findings

(7) List of ESMRM key personnel in the NATO, NATO base, and national chains of command (see Figure 2-1)

(8) Copies of ESMRM risk assessments documentation for the NATO base and its tenants, to include those provided to the chain of command

(9) Other pertinent information

2.11.7. BOSI. Although the BOSI performs a variety of other NATO base support functions, the BOSI is a key ESMRM individual who helps implement and manage an effective ESMRM program on the NATO base. The BOSI shall:

a. Support the Lead ESO and ESB chair on NATO base ESMRM matters.

b. Participate in the ESB.

c. Participate in all planning meetings relating to munitions locations and munitions-related processes and other projects that fall within the QD or FD.

d. Monitor and communicate to the Lead ESO existing and potential QD or FD encroachment issues both internal and external to the base boundary.

e. Maintain awareness of all proposed and approved site plans as they could potentially impact master planning documents.

f. Coordinate the integration of the QD or FD from approved national site plans, risk decisions, and explosives licenses into the NATO base master planning process (including base maps) and applicable planning documents.

g. Coordinate with the Lead ESO regarding NATO base real estate issues, new or proposed construction, new or proposed functions/operations contracts, etc., within the QD or FD arcs.

h. Support, as necessary, the conduct of ESMRM risk assessments for NATO base munitions locations and munitions-related processes that cannot meet the NATO explosives safety requirements of AASTP-1 or AASTP-5, as applicable.

2.12. NATO OPERATIONAL COMMANDER AND KEY NATIONAL ESMRM PERSONNEL ROLES AND RESPONSIBILITIES (AS A TENANT ON A NATO BASE)

2.12.1. Paragraph 2.12 applies to all established Operating Bases and provides the NATO operational commander's roles and responsibilities specific to their and the NATO base's ESMRM processes. It also provides roles and responsibilities for key national personnel involved in the ESMRM process as a tenant on a NATO base.

2.12.2. NATO Operational Commander. Tenant nations on a NATO base having a munitions-related mission or supporting munitions-related processes play a critical role in the ESMRM process (see Figure 2-1). The operational commander's four primary responsibilities, detailed below, directly support the NATO base commander's ESMRM program and contribute to the overall management of ESMRM risks and required actions to identify, manage, and reduce those risks for all tenants on that base:

a. Oversight. Provide oversight of the ESMRM program for their national munitions and munitions-related processes on the NATO base. ESMRM program details and critical explosives safety elements are identified in AASTP-1, AASTP-5, and ALP-16 (e.g., QD, FD, risk mitigation, munitions- related processes, handling, hazard classification, and surveillance). Operational commanders shall:

(1) Direct their national support personnel, identified in Figure 2-1, to comply with NATO base ESMRM requirements.

(2) Appoint a qualified national ESO for munitions and munitions-related processes. The individual assigned to the national ESO position must meet the qualifications of an ESO, as prescribed in Chapter 5.

(3) Direct their national ESO to:

(a) Monitor their national munitions locations and munitions-related processes on the NATO base.

(b) Coordinate with the Lead ESO and prepare national ESMRM explosives safety site plans for munitions locations and munitions-related processes on the NATO base.

(c) Coordinate with the Lead ESO and affected nations and prepare risk assessments, as prescribed in Chapter 7, in support of national risk decisions (and required mitigation actions), when NATO explosives safety requirements, as established by the ESB at the NATO base, cannot be met.

(d) Provide copies of nationally approved explosives safety site plans, risk assessments, and decisions to the Lead ESO.

(e) Participate in the ESB and support the ESB chair as required.

(f) Issue explosives licenses for all national munitions locations and munitions-related processes. Such licenses shall be based on a nationally approved explosives safety site plan, an approved risk decision, or other national approval document.

(g) Participate in risk assessments and risk mitigation resolution efforts when your nation is potentially impacted by explosives- related risk from another nation at the NATO base.

(h) Periodically validate that conditions contained in explosives licenses and risk decisions continue to be met.

(i) Direct the establishment and maintenance of a national ESMRM continuity book as described below in subparagraph 2.12.3.q.

b. Decision Making.

(1) Serve as the national ESMRM decision-maker, as necessary, to resolve munitions-related issues presented by the national ESO.

(2) Make medium ESMRM risk decisions, when delegated the authority to make those decisions, and low risk decisions.

(3) Review and forward ESMRM risk decision issues requiring higher level arbitration or approval to the base commander.

(4) Review for national endorsement base ESMRM operating instructions, MOUs/MOAs, host/tenant accords, or other ESMRM- related agreements.

(5) Review for endorsement national explosives safety site plans and forward to appropriate national approval authority.

c. Implementing NATO ESMRM Requirements. Require that all national munitions locations and munitions-related functions on the base meet the requirements of AASTP-1, AASTP-5, or ALP-16, as applicable. Specifically, each munition location and munitions-related function shall have:

(1) A national approval (i.e., explosives safety site plan),

(2) A national ESO issued explosives license, or

(3) An ESMRM risk decision.

d. Coordinating and Communicating ESMRM.

(1) Coordinate medium ESMRM risk decisions, when delegated risk decision-making authority, and low risk decisions with affected nations.

(2) Communicate the associated munitions-related risks to affected nations and participate in the risk mitigation process.

(3) Endorse, as recommended by their national ESO, risk assessment conducted by other nations for explosives operations which affect your national personnel and assets.

2.12.3. National ESO. The national ESO shall:

a. Be familiar with all NATO base ESMRM requirements and related documents.

b. Comply with the NATO base ESMRM requirements.

c. Serve as the focal point for all national ESMRM-related activities on the NATO base.

d. Manage their nation's ESMRM program on behalf of their national operational commander.

e. Support the ESB chair, Lead ESO, and BOSI in their NATO base ESMRM oversight responsibilities.

f. Participate in the NATO base ESB process.

g. Prepare explosives safety site plans for approval through their national process for munitions operations that can meet the ESMRM requirements of AASTP-1 or AASTP-5, as applicable.

(1) Coordinate explosives safety site plans with the Lead ESO and the BOSI during development.

(2) Communicate approved QD or FD to the Lead ESO and BOSI and provide them copies of nationally approved explosives site plan documents.

h. Identify national ESMRM and munitions-related issues to the Lead ESO for coordination with the ESB chair, as necessary.

i. Maintain a working relationship with all ESMRM-related personnel on the NATO base (e.g., Lead ESO, other nations' ESOs, BOSI, and base operational support organizations/ functions).

j. Serve as the ESMRM interface between their nation and the Lead ESO with respect to NATO base QD or FD maps, real estate needs, construction management, use of facilities, etc. The national ESO shall maintain awareness of all national activities occurring or planned within the QD or FD from their munitions locations and munitions-related processes on the NATO base.

k. Participate in all NATO base planning meetings involving national ESMRM areas to maintain total visibility of all ESMRM issues and help avoid potential problems.

l. Prepare risk assessments, as described in Chapter 7, when explosives safety requirements of AASTP-1 or AASTP-5, as applicable, cannot be met, and mitigate risk to the maximum extent practicable.

m. Participate in risk assessments being conducted by another nation when their national personnel and assets are affected by the other nation's explosives risks and assist in mitigating those risks to the extent possible.

n. Make recommendations to the national operational commander about endorsing another nation's risk assessment when affected by explosives- related risk from that nation. The affected nation should participate in the risk assessment and risk mitigation effort to the maximum extent possible.

o. Conduct inspections of their nations' munitions locations and munitions-related processes.

p. Document findings from inspections and inform the national commander. Any noncompliance to NATO explosives safety requirements of AASTP-1 or AASTP-5, as applicable, shall be reported to the Lead ESO. Significant findings that pose an immediate risk shall be immediately reported to the national commander and must be resolved without delay.

q. Develop and maintain an ESMRM continuity binder that shall be handed over to the next national ESO. Contents shall include:

(1) Current NATO base map showing munitions-related locations (current and planned) and the associated QD or FD.

(2) NATO base and national ESMRM-related SOPs, instructions, and MOUs/MOAs.

(3) List of key national and NATO base ESMRM personnel and their contact information (See Figure 2-1).

(4) Copies of all national ESO-issued explosives licenses.

(5) Copies of nationally approved explosives safety site plans.

(6) Copies of national ESO inspection/review reports and responses to findings.

(7) Copies of national ESMRM risk assessments documentation provided to the chain of command.

(8) Other pertinent information.

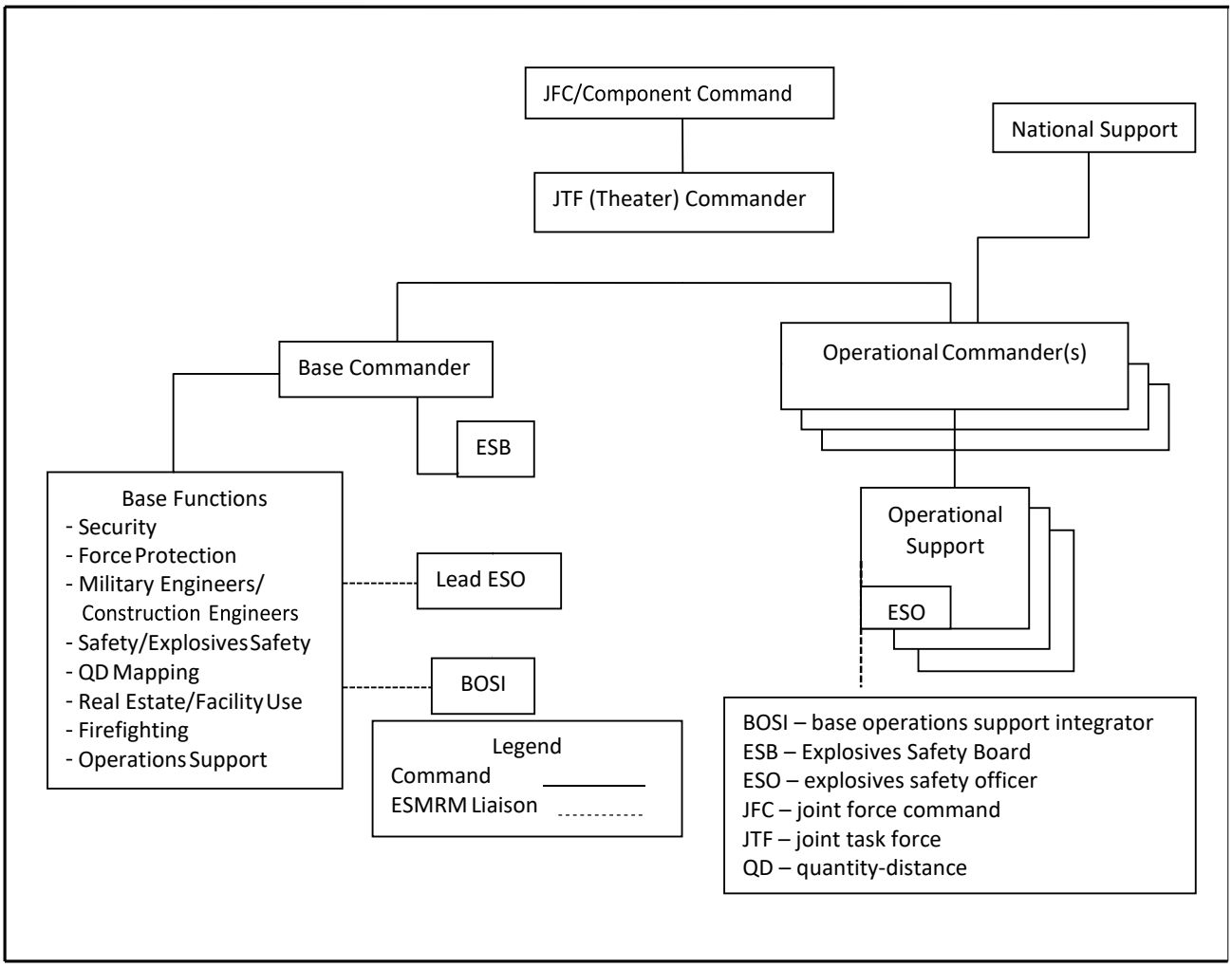


Figure 2-1. ESMRM Chain of Command

2.13. ESMRM RISK REFERRAL

2.13.1. The ESMRM process relies on the application of appropriate mitigation to reduce risk to tolerable levels according to the existing conditions during the operation, exercise or activity. In some cases, the responsible commander will not be able to provide the recommended mitigation and may not be content to accept the residual risk without mitigation. In such circumstance, the risk decision should be elevated to the next level of command, until the appropriate mitigation can be applied or the commander can change the conditions, which contribute to the risk. In extreme cases, a risk decision may have to be elevated from

Divisional level to the JTF through the chain of Command. A risk referral matrix is given in Figure 2-2 below.

2.13.2. Typical issues that may affect a commander's ability to apply appropriate mitigation could be as follows (list is not exhaustive):

a. Resources. Engineer resources or manpower to manage explosives safety. This could be materiel or personnel.

b. Finance. A lack of finance to achieve mitigation because of lacking resource or equipment.

c. Commander's Mission. The individual commander's mission may hamper applying appropriate mitigation.

d. Security. The security situation may affect potential mitigation in terms of appropriate FP levels or the availability of Air Defence.

e. Real Estate. A lack of real estate with a commander's Battle Space may prevent appropriate expansion and therefore mitigation.

f. Geography. The 'lay of the land' may not be appropriate for the intended mitigation.

g. Authority. The ability to influence the risk situation through lack of authority may preclude the application of mitigation (for instance evacuating inhabited buildings or diverting public transport routes).

h. Agreements. Agreements between Host and Contributing Nations.

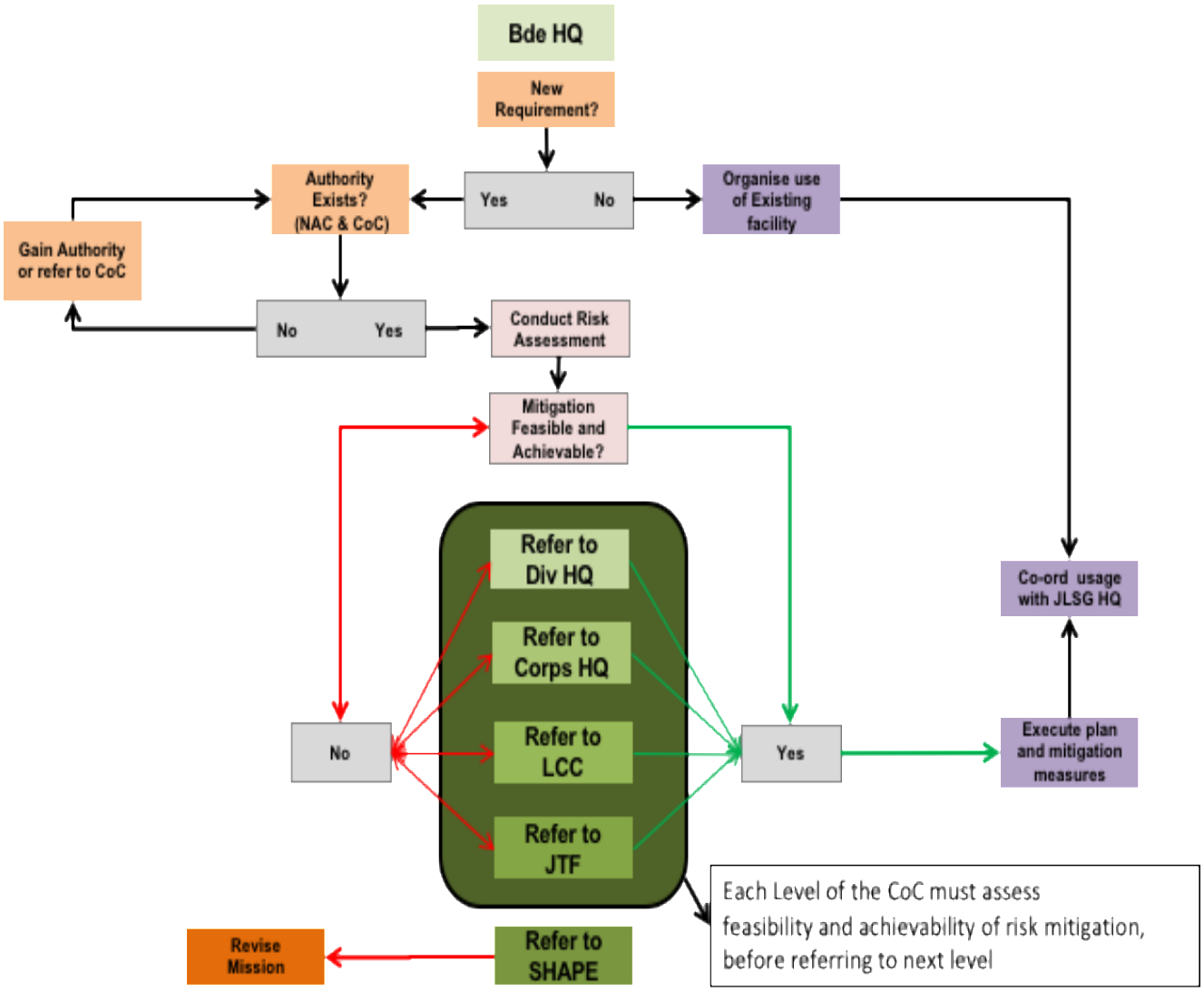


Figure 2-2. ESMRM Risk Referral Process

CHAPTER 3 INTEGRATING EXPLOSIVES SAFETY AND MUNITIONS RISK MANAGEMENT (ESMRM) INTO NATO PLANNING AND PREPARATION

3.1. GENERAL

3.1.1. Adopting a proactive approach to explosives safety, which foresees the requirements of munitions safety within those of the mission, is more likely to prevent unintended explosive events and preserve life and property. The planning of all types of NATO activity from exercises to operations, standing commitments and training, where munitions are involved, must consider explosives safety as a planning factor. ESMRM as a component process contributing to explosives safety should be utilized where the requirements of AASTP-1 or 5 cannot be met[19].

3.2. PURPOSE

3.2.1. The purpose of this chapter is to illustrate how explosives safety and ESMRM should feature in NATO planning for operations, exercises, training and activity involving munitions.

3.3. PLANNING PERSONNEL

3.3.1. Ammunition, as a class of store, demands specialist knowledge to ensure that the potential risks are understood and managed as the plan develops. Allied Command Operations (ACO) from SHAPE to the tactical level commands must ensure that Logistics planning is conducted with input from appropriate munitions SMEs, so that the overall feasibility of the plan is tested against the demands of explosives safety in the same manner as petroleum and other classes of stores. The risk posed to the force and mission through unintended explosive events will be considerably reduced through inclusion of ammunition SMEs in the planning. For guidance on qualifications, see chapter 5.

3.4. PLANNING AND ESMRM

3.4.1. The purpose of planning within NATO is to change an undesirable situation into a desirable one. In terms of explosives safety the 'undesirable' will be extremely diverse, ranging from unintended explosive events, insufficient munitions supply to support the mission, to inadequate license limits to store exercise munitions. In all cases, a desirable outcome would be a safe and managed means of achieving the commander's intent within appropriate risk limits. When considering the risk management of such activity, ESMRM is NATO's endorsed means of doing so and must be considered as the vehicle to transform the undesired into the desired.

3.4.2. For the purpose of clarity, planning for explosives safety will be considered within the following areas:

a. Collective Training and Exercise (CT&E) Planning. Planning for NATO led CT&E according to the Bi SC 75-003

b. Operations Planning. Planning in accordance with the OPP.

[19] Allied Ammunition Storage and Transport Publication (AASTP)-1, “Manual of NATO Safety Principles for Storage of Military Ammunition and Explosives,” and AASTP-5, “NATO Guidelines for the Storage, Maintenance and Transport of Ammunition on Deployed Missions or Operations.”

c. Planning NATO activity not detailed in an OPLAN or EXPLAN. Such activity may be in support of NATO's overall Deterrence and Defence intent but not considered a NATO operation. An example of such activity could be the Enhanced Forward Presence (eFP) activity.

3.5. EXERCISE PLANNING

3.5 1. NATO exercises are planned in accordance with the guidance given in Bi SC 75-003[20]. The aim of the Bi SC 75 003, Collective Training and Exercise Directive (CT&ED) is to provide Bi-SC direction and guidance to exercise planners and their superiors in the NCS and NFS HQs and supporting organizations and agencies, as well as partner nations when participating, for the preparation and conduct of NATO and national CT&E. The Bi-SC has specific explosives safety language to guide planners and should be read in conjunction with this ALP when planning CT&E involving munitions for live firing or Physical Security (PS).

3.5.2. The use of live munitions and explosives during an exercise creates a real time risk and safety challenge, for which the Officer Conducting the Exercise (OCE) and host nations are responsible. Where the use of live ammunition and explosives is planned, this must be considered throughout the exercise planning cycle. Safety considerations must not be limited to range safety and must include transport, storage, handling and where required processing and disposal.

3.5.3. **Exercise Planning Situation (PS)**. For Live (firing) Exercise (LIVEX) additional considerations must be made for risks to PS posed by the storage, handling, transportation, processing and disposal of Explosives and Munitions.

3.5.4. The host nation is the primary exercise participant to provide adequate support for explosives and munitions safety during LIVEX. Such support requires detailed planning and should be considered early in the planning process.

3.5.5. Explosives Safety. The presence of munitions during a LIVEX presents inherent risk to personnel and property and requires due planning consideration to provide for safety during storage, handling, transportation, processing and disposal. Host nations are to be consulted in all aspects of safety planning to ensure safety for contributing forces and local civilians alike.

3.6. OPERATIONS PLANNING

3.6.1. The Operations Planning Process spans the strategic to tactical levels, with the OPLAN produced by the Operational level Joint Force Commander in concert with the Strategic Plan. J4 staffs at all levels ensure that logistics planning is integrated in to the OPP involving host nations and Troop Contributing Nations (TCNs) to ensure the Logistics Support Concept is effective and efficient. Munitions, as a class of supply within NATO belong within the Logistics area of responsibility and explosives safety as a requirement of munitions is planned and managed by J4

[20] Bi Strategic Command directive 75-003, collective training and exercise directive.

staffs.

3.6.2. The requirement to establish explosives safety during operations must start at the Strategic level, where SHAPE plan in conjunction with host nations for the use of infrastructure, real estate, access and other aspects which govern the ability to conduct military operations. Explosives safety must feature in the considerations of infrastructure and real estate as well as authority for NATO commanders to make ESMRM risk decisions (see Chapter 2 para 2.3).

3.6.3. The operational level conduct their planning within the requirements of the strategic guidance and must develop an OPLAN which can feasibly deliver the strategic objectives. The requirement to establish explosives safety must feature in the feasibility study of any operations plan and should be actively established and assessed throughout the operation. Its consideration in the assessment process whilst conducting operations, will ensure that the commander is made aware when explosives safety is failing thereby allowing appropriate measures to be taken.

3.6.4. At the tactical level, the requirements for explosives safety will be fed by the components, who inform the OPLAN requirement from a Land, Air, Maritime and SOF perspective. This can be achieved through the consideration of generic munitions and Net Explosives Quantity (NEQ) requirements from force compositions and should be prepared well in advance of an operation.

3.6.5. It is vital throughout the OPP that ESMRM is incorporated in the logistics estimate and developed in parallel. Any nation where munitions are planned to be received, transported, stored, handled, maintained, employed, or disposed of must be included and involved throughout the process.

3.7. ESMRM AS PART OF THE LOGISTICS PLANNING PROCESS FOR OPERATIONS

3.7.1. This section is a generic example of how ESMRM integrates into the five Logistics Planning phases: initiation, orientation, concept development, plan development and plans review. ESMRM personnel assigned to the Joint Operational Planning Group (JOPG) shall focus on risks to and from munitions throughout the Logistics Planning process.

3.7.2. **Initiation**. OPP initiation is a NATO response to an event that may influence NATO commanders in an area of operations (AOO) and area of interest (AOI). Initiation is only the commencement of planning for an operation and not the execution of an operation. Before issuing an initiating directive (ID), advice concerning the potential use of munitions should be requested. After a determination of munitions involvement, ESMRM personnel should be requested and support logistics planners. ESMRM personnel must be aware of events and any relevant previously developed contingency operation plans (COP) or OPLAN involving munitions. In the initiation phase, ESMRM personnel will:

a. Consider the list of involved nations and lines of communication (LOC) (e.g., commercial air/seaports, railheads, and military installations) that could be used in support of the mission.

b. Identify to the planning staff coordinator any significant ESMRM concerns that could affect NATO operations in the AOO/AOI in anticipation of the ID.

c. Upon receipt of the ID, support the JOPG and provide required ESMRM information to logistics planners to support plan development.

3.7.3. Orientation. The orientation phase begins with the receipt of the ID and results in the issuing of the NATO Commander's Planning Guidance. ESMRM personnel will provide logistics planners with ESMRM information in support of the mission analysis process and provide assistance in the development of the Mission Analysis Brief and formation of the NATO Commander's Planning Guidance. In the orientation phase, ESMRM personnel as part of the planning staff shall:

a. Participate in the review and analysis of the mission statement from the higher HQ to identify and address potential risks to and from munitions.

b. Maintain awareness of the mission objectives through analysis of the planning factors. Assess the feasibility of supporting the force from an ESMRM perspective.

c. Identify any Logistics Planning assumptions for courses of action (COAs) development that require consideration for continued plan development.

d. Know and understand the centers of gravity and how risks to and from munitions affect them.

3.7.4. Concept Development. ESMRM personnel will analyze proposed COAs to determine the viability and sustainability of each COA from a logistics perspective focusing on risks to and from munitions. The concept development phase will produce the Concept of Operations Decision Briefing and the commander's selection of a COA for further refinement and development. In the concept development phase, ESMRM personnel shall:

a. Assist in the COA development process by identifying and assessing risks associated with munitions and munitions-related support (i.e., Consumer Logistics Process described in Chapter 4) operations.

b. Make recommendations concerning COA selection based on risk from required munitions and munitions-related support operations.

c. Provide ESMRM input for the decision briefing to the NATO commander.

3.7.5. Plan Development. During OPLAN development, ESMRM personnel will prepare an ESMRM risk analysis based on the requirement for explosives safety set against the established or potential explosives safety infrastructure within the AOR

and the ability to apply AASTP regulations[21]. In the event that these requirements cannot be met, a risk decision will be required for each stage/location[22]. Of particular interest is the Theatre Logistics Base (TLB) and Joint Logistics Support Network (JLSN), which will feed the AOR with munitions during sustainment. The ESMRM appendix shall contain the appropriate risk assessments per Chapters 4 and 7, as well as the NATO commander's risk decisions. In the plan development phase, ESMRM personnel shall:

a. Develop force capability requirements for munitions facilities and munitions-related support operations[23].

b. Support OPLAN development and the ESMRM risk assessments for the selected COA

3.7.6. Plans Review. The plans review phase includes the plan review and plan evaluation steps. Plans are continually reviewed and analyzed to minimize potential negative impacts and if required, a new decision brief may be required. The overall product of the plans review phase is the continued applicability of the plan. ESMRM personnel shall actively participate in the periodic review of developed plans and update/revise them and supporting documents as required.

3.8. ESMRM AS PART OF LOGISTICS PLANNING CONFERENCES

3.8.1. **Logistics Planning Conferences**. Logistics Planning Conferences are integral to achieving unity of effort. NATO HQ, staffs, and nations share the responsibility for the planning process and planning can be facilitated through Logistics Planning Conferences.

3.8.2. ESMRM Personnel Participating in Logistics Planning Conferences. ESMRM personnel will participate in Logistics Planning Conferences to determine munitions and munitions-related support operations requirements. Logistics planning conferences allow direct interface with Host and Transit nations where explosives safety requirements to support the OPLAN can be brokered and agreed. Additionally, the question of authority to make risk decisions and at what stage of the operation should be confirmed[24].

3.9. ESMRM AS PART OF THE PREPARATION

3.9.1. Logistics Preparation of the Theatre (LPT). LPT is a key tool available to NATO commanders and their planners in building a flexible operational support plan.

---

[21] Allied Ammunition Storage and Transport Publication (AASTP)-1, "Manual of NATO Safety Principles for Storage of Military Ammunition and Explosives," and AASTP-5, "NATO Guidelines for the Storage, Maintenance and Transport of Ammunition on Deployed Missions or Operations"

[22] At all stages of planning ESMRM personnel must consider any in place assessments and risk decisions that have already been prepared through reinforcement by forces planning, enablement or HN initiatives.

[23] Component Commands must inform the operational level plan development so that an understanding of the overall munitions requirement is available for operational level explosives safety planning.

[24] Authority to make risk decisions should be brokered at the strategic level interface with Host and Transit nations see chapter 2 para 2.3.3.a

LPT consists of actions taken by logisticians at all echelons to optimize means (e.g., force structure, resources, strategic lift) of logistics support of the NATO commander's plan. Any ESMRM decisions made during the planning process shall be included in the LPT. Since ESMRM and munitions management are specific skills within the logistics area, ESMRM personnel shall be consulted to provide critical input to logisticians during the LPT.

3.9.2. ESMRM as Part of Logisticians' Actions in Support of the LPT. The LPT is a living document that will be in a continual state of review, refinement, and use. Logisticians' actions focus on identifying the resources currently available in the theatre for use by friendly forces and planning for access to resources. ESMRM information is key to logisticians and integral to follow-on decisions and actions, which include:

a. Identifying and preparing Forward Operating Bases (FOBs). ESMRM plays a vital role in effectively managing a FOB since munitions areas must be planned for before the NATO base is established. All munitions-logistics functions are likely to take place at a FOB and should be considered during the planning process. Examples include but are not limited to:

(1) Reception.

(2) Storage. In addition to planning for NATO operating forces, logisticians should plan for captured enemy ammunition (CEA) as part of the munitions storage area since CEA has additional requirements.

(3) Munitions transportation routes in and around the NATO base.

(4) Distribution.

(5) Maintenance areas when munitions and/or weapons systems are involved.

(6) Munitions loading and unloading and turn-in areas for personnel and (including aircraft) when returning from training and/or combat operations.

(7) Demilitarization of munitions and/or weapons systems.

b. Selecting and Improving the LOC. ESMRM information is critical in the decision to select the LOC since risks to and from munitions during the RSOI phase that do not meet NATO explosives safety requirements of AASTP-1 or AASTP-5, as applicable. When NATO explosives safety requirements cannot be met at the LOC, the NATO commander shall make the ESMRM risk decision.

c. Projecting and Preparing Forward Logistics Bases (FLBs). FLBs hall adhere to the same requirement as those requirements identified for FOBs when munitions and weapons systems are involved.

d. Forecasting and Building Operational Stock Assets Forward and in

Reserve. When munitions and weapons systems are involved, NATO commanders shall make every attempt to comply with the requirements of NATO explosives safety requirements of AASTP-1 or AASTP-5, as applicable. When these requirements cannot be met, the ESMRM process (i.e., assessment in preparation for the commander's risk decision and the risk decision) shall be followed as prescribed in ALP-16.

3.9.1. ESMRM as part of the Logistics Information Database. Once a contingency country or geographic region is known, logistics planners must begin to build a logistics information database. ESMRM risk decisions shall be included in the Logistics Information Database and include required risk mitigating action and quantity-distance or field distance limitations. When completed, the information on the database can be used to develop a comprehensive plan for LPT.

3.9.2. LPT Elements of Information. The focus of the logistics elements of the information development process is on supply and field services. A detailed LPT plan shall cover all logistics areas to include ESMRM information and shall address the seven phases of the Consumer Logistics Process identified in Chapter 4.

3.10. ESMRM AS PART OF THE PLANNING FOR CONCLUDING A MILITARY OPERATION

3.10.1. Typically, the initial planning will only be conducted to include the execution phase and not the return to normality. Such planning will take place once the execution phase nears completion. It is vital that ESMRM personnel are also included in this phase of the planning, where ESMRM risk assessments for munitions retrograde and disposal are essential. Historically, nations involved in operations have not focused on the ESMRM requirements to successfully conclude a military operation; therefore, long-term, negative consequences have resulted. Failure to plan for and conduct an orderly end to the operation will endanger forces, national civilian populations, and the environment and may result in the loss of resources (e.g., money and equipment), life, morale, public support, and goodwill. Concluding a military operation and redeployment has two significant aspects for munitions: retrograde movement and in- theatre disposal, especially destruction.

3.10.2. Planning for ESMRM, as part of the overall operation conclusion shall be part of both the OPP and Logistics Planning processes.

3.10.3. A Munitions Retrograde Plan shall be developed as part of the OPP and refined throughout the duration of the operation. The plan, at a minimum, shall address:

a. Host nation pertinent information (e.g., port capabilities, other infrastructure information, challenges).

b. Types and quantities of munitions.

c. Locations for redeployment (e.g., FOBs and FLBs, intermediate storage, over-the-road terminals, railheads, air or seaports).

d. Any intermediate temporary holding/storage locations.

e. Means of transport both within and out of theatre.

f. Additional transportation requirements.

g. Shipping and receiving nations.

h. Required packaging.

i. Munitions hazard classification.

j. Packaging configurations involved (e.g., break bulk, containerized).

k. Material handling equipment/weight handling equipment and associated handling gear.

l. Special considerations as necessary, including but not limited to:

(1) Depleted uranium handling.

(2) Damaged weapons systems, vehicles, or equipment suspected to contain munitions.

(3) Captured enemy ammunition identified for destruction or retrograde.

(4) Means to acquire and repackage munitions returned without packaging.

m. Means and potential locations for demilitarization.

n. Personnel requirements for all parts of the retrograde plan (e.g., munitions handlers, munitions inspectors, munitions transporters, required qualifications, ESMRM personnel, explosive ordnance disposal, transport of dangerous/ hazardous materials shipping specialists).

o. Post-operation activities. The plan shall include ESMRM aspects associated with munitions-related processes and activities:

(1) The potential transfer or destruction of any munitions operations infrastructure built by NATO member nations in support of the mission.

(2) Removal of explosive remnants of war.

(3) Closing or transferring training ranges.

(4) Any additional ESMRM issues not identified in subparagraph 3.6.3.

p. Technical munitions and ESMRM personnel advanced party in

preparation for the conclusion phase.

3.10.4. ESMRM personnel shall evaluate the Munitions Retrograde Plan during the operational phase to determine likely areas requiring ESMRM risk assessments and risk decisions when applicable parts of AASTP-1 or AASTP-5 requirements cannot be met.

3.10.5. Chapter 6 provides ESMRM requirements for concluding a military operation.

3.11. NATO ACTIVITY PLANNING

3.11.1. NATO's overall intent can often be delivered by individual nations or groups of nations acting in support of a Strategic Directive. In this manner, such activity may not be subject to a NATO OPLAN and instead organized by one or more nations bi-laterally with the Host nation. The eFP Battle Groups are an example of such activity. Care should be taken when planning to establish the required authority in order to manage explosives safety in conjunction with or independently from the Host nation. In all cases, the Host nation and the nations conducting the activity must consider explosives safety as a planning factor as covered in paragraphs 3.6 to 3.11.

INTENTIONALLY BLANK

CHAPTER 4 INTEGRATING EXPLOSIVES SAFETY AND MUNITIONS RISK MANAGEMENT (ESMRM) INTO THE NATO CONSUMER LOGISTICS PROCESS ACROSS THE FULL RANGE OF NATO MILITARY OPERATIONS

4.1. PURPOSE

The purpose of this chapter is to identify the seven ESMRM risk assessment types and link them to the seven phases of the NATO Consumer Logistics Process across the full range of NATO military operations.

4.2. NATO CONSUMER LOGISTICS PROCESS PHASES AND ASSOCIATED ESMRM RISK ASSESSMENT TYPES

4.2.1. NATO Consumer Logistics Process Phases. Reducing munitions-related risks requires integrating ESMRM tenets and requirements throughout the full range of NATO military operations. Figure 4-1 illustrates the seven phases of the NATO Consumer Logistics Process as detailed in Allied Logistic Publication (ALP)-4.2(A), “Land Forces Logistic Doctrine.” Figure 4-2 illustrates the relationship between the NATO Operational Stages, the NATO Consumer Logistics Process phases, and the ESMRM applicability across the full range of NATO military operations. Logistics process phases described herein, and shown in Figure 4-1, may occur independently of each other therefore flexibility should be used when applying ESMRM to those phases.

4.2.2. NATO Consumer Logistics Process Phases and Associated ESMRM Risk Assessments Types. Figure 4-1 lists the seven types of ESMRM risk assessments and links them to the NATO Operational Stages.

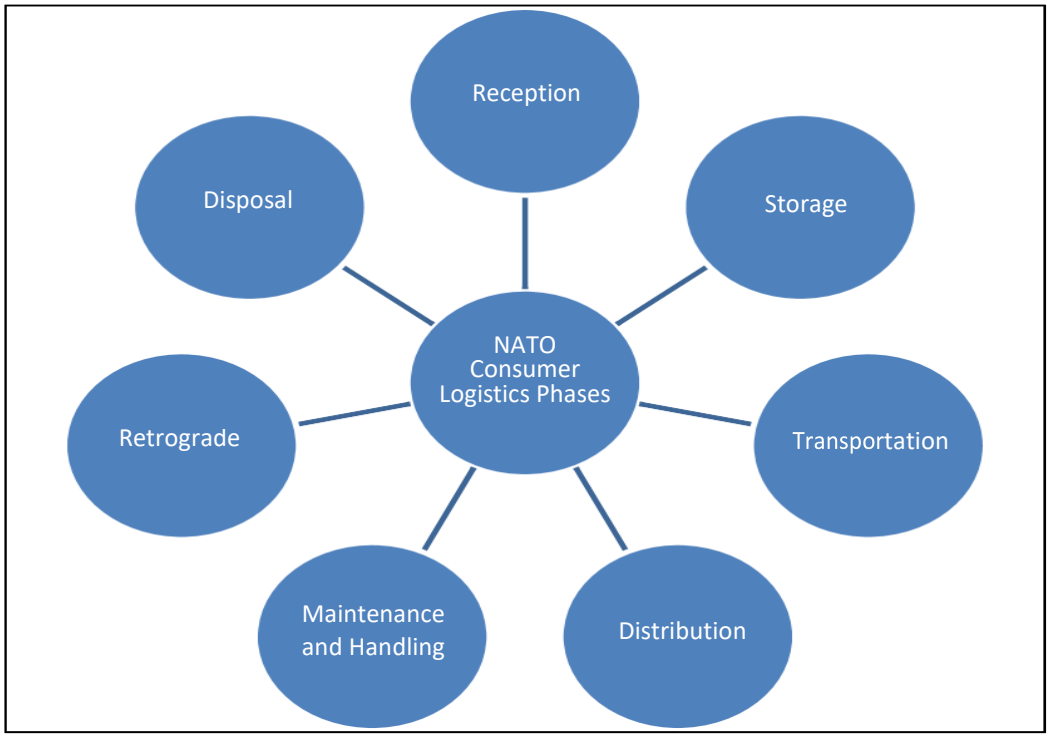
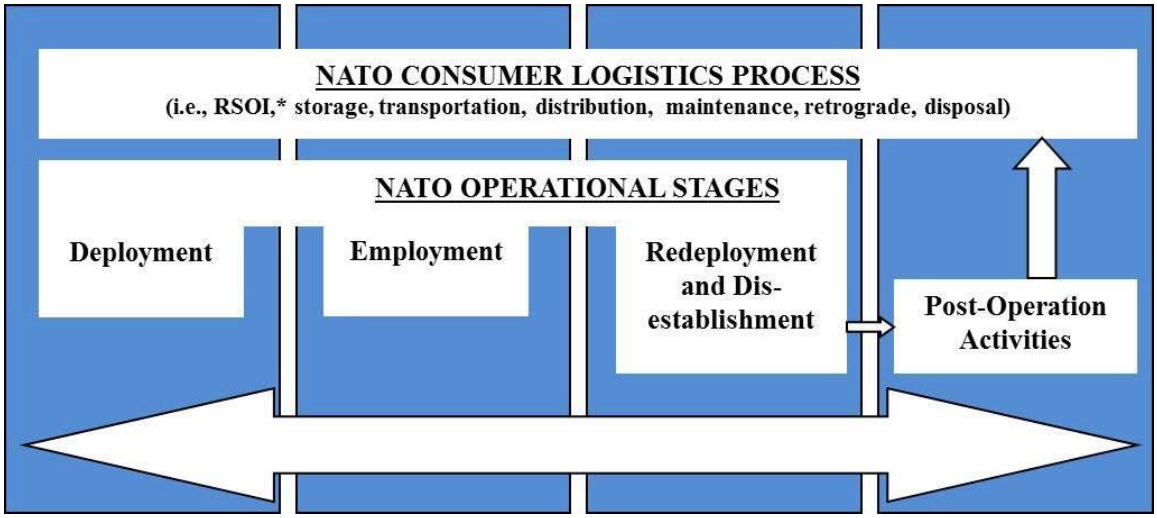


Figure 4-1. Seven Phases of NATO Consumer Logistics



*RSOI (Reception, staging, onward movement and integration)

Figure 4-2. Relationship of ESMRM Process to the NATO Operational Stages and the Consumer Logistics Process

Table 4-1. NATO Crisis Response Planning* and Associated ESMRM Risk Assessment Type

NATO Consumer Logistics Process Phase	ESMRM Risk Assessment Type	ALP-16 Reference	NATO Operational Stages
Reception (includes collection and consolidation during disestablishment)	**RSOI**	Chapter 4 Paragraph 4.3 and Chapter 6 paragraphs 6.4 and 6.11	Deployment and Disestablishment
Storage	**Storage**	Chapter 4 Paragraph 4.4 and Chapter 6 paragraphs 6.5 and 6.11	Employment, Redeployment, and Disestablishment
Transportation	**Transportation**	Chapter 4 Paragraph 4.5 and Chapter 6 paragraphs 6.6 and 6.11	Deployment, Employment, Redeployment, and Disestablishment
Distribution (includes collection and consolidation during disestablishment)	**Distribution**	Chapter 4 Paragraph 4.6 and Chapter 6 paragraphs 6.7 and 6.11	Employment and Disestablishment
Maintenance (includes preparation during disestablishment)	**Maintenance and Handling**	Chapter 4 Paragraph 4.7 and Chapter 6 paragraphs 6.8 and 6.11	Employment and Disestablishment
Retrograde	**Retrograde and Removal**	Chapter 4 Paragraph 4.8 and Chapter 6 paragraphs 6.9 and 6.11	Redeployment and Disestablishment
Disposal	**Disposal and Demilitarization**	Chapter 4 Paragraph 4.9 and Chapter 6 paragraphs 6.10 and 6.11	Redeployment and Disestablishment

*Allied Joint Publication (AJP)-5, “Allied Joint Doctrine for Operational-Level Planning,” Figure 3.6, page 3-63.

4.3. RECEPTION

4.3.1. Reception. Reception generally occurs during reception, staging, onward movement and integration (RSOI)[1]. Reception generally takes place at a line of

[1] (RSOI) as defined in Allied Joint Publication (AJP) 3.13, “Allied Joint Doctrine for the Deployment of Forces,” and AJP-4.4, “Allied Joint Movement and Transportation Doctrine.”

communication (LOC) node where munitions are unloaded from a means of transport in support of an operation, exercise, or other NATO mission. Ammunition Movement Publication (AMovP)-6, "Allied Multimodal Transportation of Dangerous Goods Directive," provides specific requirements for the movement of dangerous goods, to include munitions.

4.3.2. ESMRM RSOI Risk Assessment. Typically, RSOI of munitions occurs at commercial locations (e.g., ports, airfields, railheads) that are extremely congested and frequently cannot meet required NATO explosives safety requirements given in Allied Ammunition Storage and Transport Publication (AASTP)-1, "Manual of Safety Principles for the Storage of Military Ammunition and Explosives." When AASTP-1 requirements cannot be met, an ESMRM RSOI Risk Assessment shall be conducted and a risk decision made by the appropriate NATO commander. Chapter 7 provides the requirements for the ESMRM RSOI Risk Assessment. For the purposes of ALP- 16:

a. Munitions reception locations identified during the NATO operational-level planning part of the operational planning process should require that an ESMRM RSOI Risk Assessment be accomplished prior to operation start. Both the risk assessment (to include any risk mitigating actions) and the NATO commander's risk decision can be accomplished before munitions arrive at the LOC node.

b. Munitions risks identified during RSOI at any LOC node shall be assessed as part of the ESMRM RSOI Risk Assessment.

c. After munitions have departed the reception or staging area at the LOC point of debarkation, any delays occurring during transportation shall be assessed as part of the ESMRM Transportation Risk Assessment, described later in this chapter.

4.3.3. Risk Acceptance Communication. The ESMRM RSOI Risk Assessment and NATO commander's risk decision shall be provided to the receiving nation's representative responsible for reception (e.g., port authority, officer-in-charge, etc.).

4.4. STORAGE

4.4.1. Munitions Storage. Munitions storage involves the temporary or long-term holding at a designated area in the open or in a structure.

4.4.2. ESMRM Storage Risk Assessment. When NATO explosives safety requirements of AASTP-1 or AASTP-52, as applicable, cannot be met in storage, an ESMRM Storage Risk Assessment shall be conducted and a risk decision made by the appropriate NATO commander. Whenever changes occur that increase the risk (e.g., increased net explosive quantity (NEQ), additional personnel or assets placed within AASTP-1 quantity distance (QD) arcs or AASTP-5 field distance (FD) arcs), the assessment shall be updated and reapproved by the appropriate NATO commander. Chapter 7 provides the requirements for the ESMRM Storage Risk Assessment.

4.4.3. Munitions Hazard Classification. All munitions stored as part of a NATO operation shall be hazard classified in accordance with Standardization Agreement (STANAG) 4123, “Determination of the Classification of Military Ammunition and Explosives,” and its associated AASTP-3 “Manual of Safety Principles of the Hazard Classification of Military Ammunition and Explosives.”

4.4.4. Noncompliance with NATO Hazard Classification Requirements. When NATO operations involve nations that do not use or comply with the UN hazard classification system, STANAG 4123, and AASTP-3, or that do not have adequate surveillance programs (see paragraph 4.11). It shall be necessary in the ESMRM process to consider the application of more stringent requirements from such nations due to unknown characteristics of their munitions (e.g., HD, storage compatibility group, design, safety).

4.4.5. AASTP-5 Applicability. AASTP-5 provides the requirements and associated reduced FD for munitions storage in a deployed storage operation, where NEQ does not exceed 4,000 kilograms per storage cell (barricaded), or in an aboveground location. A storage location can contain any number of such cells and locations and still take advantage of the reduced FD allowed by AASTP-5. If the cell / location NEQ is exceeded, then AASTP-1 QD will apply.

---

[2] AASTP-5, “NATO Guidelines for the Storage, Maintenance and Transport of Ammunition on Deployed Missions or Operations.” NATO explosives safety criteria found in AASTP-1 and AASTP-5 are based on munitions hazard classified in accordance with the UN hazard classification system and the specific NATO requirements given in AASTP-3.

4.4.6. Safety of Stored Munitions. Participating nations with munitions at a NATO base must certify to the NATO base commander that their munitions are safe to store and of known condition (e.g., included in national propellant stability testing and in- service surveillance programs), as covered by STANAG 4675, “Principles and Methodology for Ammunition Surveillance in NATO,” and its technical documents (Allied Ordnance Publications (AOP)-62, “In-Service Surveillance of Munitions General Guidance,” AOP-63, “In-Service Surveillance of Munitions Sampling and Test Procedures,” and AOP-64, “In-Service Surveillance of Munitions Condition Monitoring of Energetic Materials.” If the owning nation does not (or cannot) provide the aforementioned certification, the unknown condition munitions typically shall not be stored in the same storage location (e.g., cell, magazine) as known condition munitions from nations that have surveillance and propellant stability test programs. A decision to store unknown condition munitions in the same location with known condition munitions shall only be permitted after an ESMRM Storage Risk Assessment has been performed and the NATO base commander has accepted the risk. AASTP-5 provides specific explosives safety requirements related to unknown condition munitions storage at a NATO base.

4.4.7. Protection from the Elements. Since environmental conditions can have a serious impact on munitions’ reliability as well as safety (see subparagraph 4.4.6), munitions shall not be exposed unnecessarily to inclement weather or direct sunlight and should be protected from sand, mud, water, and other potential contaminants. Munitions should, whenever possible, to be returned to storage in their original packaging and containers, which are designed to protect munitions from improper handling and exposure to environmental conditions.

4.4.8. Depleted Uranium (DU) Ammunition. Refer to AASTP-1 for detailed storage information for DU ammunition.

4.4.9. Captured Enemy Ammunition (CEA). Storing CEA requires two separate approval requirements for movement as well as the NATO base commander’s risk decision for storage. Due to CEA’s unknown safety condition, CEA presents an increased risk of unintended functioning, fire, and accidents. If the NATO base commander accepts the risk for storing CEA, these munitions should be separated from NATO nations’ munitions by inhabited building distance, but never less than intermagazine distance from NATO nations’ munitions. AASTP-5 provides requirements related to storage of CEA on a NATO base. AASTP-5 requirements include:

a. Certification of the CEA by appropriate, qualified personnel as safe for movement and storage.

b. Risk acceptance for storage by the NATO base commander. The NATO base commander’s risk acceptance shall be based on an ESMRM Storage Risk Assessment.

4.4.10. Munitions Loaded Combat Vehicles. Uploaded combat vehicle storage shall comply with NATO explosives safety requirements of AASTP-1 or AASTP-5, as applicable. Refer to subparagraph 4.6.6 for requirements

applicable to readiness ammunition in uploaded combat vehicles at the unit level. The decision to store uploaded vehicles at other than the unit **level as described in** subparagraph 4.6.6 shall not be taken lightly as their close proximity almost guarantees complete loss of most, if not all, equipment if an unintended event occurs. If the storage of uploaded vehicles at other than a unit level will be performed, an ESMRM Storage Risk Assessment shall be conducted and risk accepted by the NATO base commander.

4.4.11. Removing Munitions from Military Support Vehicles. Vehicles (military or commercial) in support of NATO military operations, aircraft, or equipment being stored for repatriation from the area of operations (AOO) or disposed of (e.g., sold or transferred in the AOO) shall be searched for munitions to verify their removal[3]. While waiting for the unloading, the locations where such vehicles are placed (and being unloaded) shall comply with NATO explosives safety requirements of AASTP-1 or AASTP-5, as applicable. If those requirements cannot be met, an ESMRM Storage Risk Assessment shall be conducted and risk accepted by the NATO base commander.

4.4.12. Removing Munitions from Battle Damaged Equipment

a. Battle damaged equipment shall be inspected before storage to verify the removal of all munitions and any other explosives hazards. In addition to explosives concerns, personnel must also recognize that battle damaged equipment may contain additional hazards such as:

(1) Human remains

(2) Loaded weapons

(3) Radioactive material

(4) Toxic chemicals and particulate matter

(5) Corrosives

(6) Fuels, oils, and lubricants

[3] AMovP-6 provides requirements, as well as inspection checklists, for preparing these vehicles for airlift out of the AOO.

b. Properly trained personnel shall conduct the munitions and explosives hazard inspection/removal effort as a deliberate task in-situ, at the event location as soon as the equipment and site are secured and the crew evacuated. When munitions and explosives hazard removal cannot be completed on-scene, a cursory inspection shall be conducted at the event location to confirm equipment transport can be accomplished safely before moving to a secure site. The detailed inspection for munitions and explosives hazards shall be conducted in an area that provides appropriate QD and/or explosion effects mitigation.

c. Munitions recovered from vehicles must be segregated, further inspected, and final disposition shall be made. Further, immediate actions shall be taken for the disposal of unsafe recovered munitions.

4.5. TRANSPORTATION[4]

4.5.1. Transportation. Transportation is the means of conveyance to move personnel, equipment, and/or stocks (to include munitions), and the requisite materiel handling equipment (from ALP-4.2, paragraph 0605).

4.5.2. ESMRM Transportation Risk Assessment. When the NATO explosives safety requirements of AASTP-1 or AASTP-5, as applicable, cannot be met in transportation, an ESMRM Transportation Risk Assessment shall be conducted and a risk decision made by the appropriate NATO commander. Chapter 7 provides the requirements for the ESMRM Transportation Risk Assessment.[4]

4.5.3. Exception and Applicability. While in movement, munitions transportation conveyances (e.g., ships and barges, aircraft, trains) require no QD, but shall comply with the transportation of dangerous goods regulations as contained in AMovP-6.

[4] Tactical Exception. ESMRM requirements are not applicable to munitions in the tactical transportation phase (e.g., forward arming and refueling point (FARP) or basic load ammunition holding area (BLAHA) moving to a different location). NATO commanders should take actions to minimize munitions risks during tactical situations.

4.5.4. Delays in Munitions Transportation. In the event of unplanned delays during munitions movements (e.g., safe haven, equipment breakdown, accident, emergency), which are expected to exceed 18 hours, an ESMRM Transportation Risk Assessment must be immediately conducted by the responsible authority. Chapter 7 provides required content for an ESMRM Transportation Risk Assessment.

4.5.5. CEA in Transport. CEA transported out of the AOO (e.g., analysis, exploitation) shall comply with movement requirements of AMovP-6[5], and national regulations, as applicable, shall be followed with regard to minimum markings and symbols, to include the UN hazard classification label, that are required to be applied to shipping packages. Such markings and symbols provide information on the hazards presented by the packaged contents, as well as the storage compatibility group of the munitions concerned when co-located with other dangerous goods. Assignment of the appropriate transportation HD and storage compatibility group is a national responsibility. AASTP-5 provides requirements related to transporting CEA.

4.5.6. Removing Munitions from Military and Military Support Vehicles. Military or commercial vehicles in support of NATO military operations, aircraft, or equipment being repatriated from the AOO or disposed of (e.g., sold or transferred in the AOO) shall be searched for munitions to verify their removal. AMovP-6 provides requirements, as well as inspection checklists, for preparing these vehicles for airlift out of the AOO.

4.5.7. Removing Munitions from Battle Damaged Equipment. Prior to transport of battle damaged equipment, it shall be inspected to verify the removal of all munitions and any other explosives hazards from the equipment. While waiting for the unloading, the locations where such vehicles are placed (and being unloaded) shall comply with NATO explosives safety requirements of AASTP-1 or AASTP-5, as applicable. If those requirements cannot be met, an ESMRM Storage Risk Assessment shall be conducted and risk accepted by the NATO base commander. Refer to subparagraph 4.4.12 for additional requirements related to battle damaged equipment.

4.6. DISTRIBUTION

4.6.1 Munitions Distribution. Distribution is the process whereby munitions are obtained from supporting supply points by a unit and broken down for further distribution to subordinate units. Distribution points usually carry no stocks; items drawn are issued completely as soon as possible[6].

[5] STANAG 2953, “The Identification of Ammunition,” and its AOP-2, “The Identification of Ammunition.”

[6] (Allied Administrative Publication (AAP)-6, “NATO Glossary of Terms and Definitions (English & French),” page 2-D-8

4.6.2. Unplanned delays during munitions distribution (e.g., equipment breakdown, accident, emergency) expected to exceed 18 hours require an ESMRM Distribution Risk Assessment. Chapter 7 provides required content for an ESMRM Distribution Risk Assessment.

4.6.3. ESMRM Distribution Risk Assessment. When NATO explosives safety requirements of AASTP-1 or AASTP-5, as applicable, cannot be met during the distribution phase, an ESMRM Distribution Risk Assessment shall be conducted and a risk decision made by the appropriate NATO commander. Chapter 7 provides the requirements for the ESMRM Distribution Risk Assessment.

4.6.4. Exception. An ESMRM risk assessment is not required for the distribution of munitions in a tactical environment where no munitions are stored.

4.6.5. Readiness Munitions

a. Combat units typically hold their readiness basic load ammunition in shipping containers, armored vehicles, trucks, trailers, and structures, or on combat aircraft or re-arming pads. AASTP-1 and AASTP-5 provides storage arrangements and specific QD / FD directly applicable to readiness ammunition locations and Basic Load Ammunition Holding Area (BLAHA).

b. NATO explosives safety requirements will not generally apply to combat positions (e.g., artillery or mortar firing positions). However, when such locations are on a NATO base, including forward operating bases, NATO explosives safety requirements of AASTP-1 or AASTP-5, as applicable, apply. If those requirements cannot be met, an ESMRM Distribution Risk Assessment shall be conducted and a risk decision made by the appropriate NATO commander. Chapter 7 provides the requirements for the ESMRM Distribution Risk Assessment.

c. Readiness munitions can be stored in a BLAHA or in uploaded / combat vehicles, combat aircraft, etc. Any combination of BLAHA with combat loaded vehicle/ combat aircraft or multiple BLAHA are called basic load storage areas. An area with only multiple combat loaded aircraft is called a combat aircraft loading / parking area. However, if these locations are on a NATO base, then explosives safety requirements of AASTP-1 or AASTP-5, as applicable, shall be met. If those requirements cannot be met, an ESMRM Distribution Risk Assessment shall be conducted and a risk decision made by the appropriate NATO commander. Chapter 7 provides the requirements for the ESMRM Distribution Risk Assessment.

d. Combat and munitions cargo aircraft shall be loaded/unloaded and parked only in designated areas that meet explosives safety requirements. AMovP-6 provides requirements applicable to cargo aircraft. Aircraft containing only installed explosives and safety devices

such as authorized signals in survival kits, engine starter cartridges, fire extinguisher cartridges, and other such items necessary to flight operations are exempt from explosives safety requirements.

e. Munitions should be positioned in designated storage areas near the flight line to meet aircraft loading requirements. Such areas shall meet NATO explosives safety requirements of AASTP-1 or AASTP-5, as applicable, or must have an approved risk assessment and risk decision. Barricading can be used to further reduce separation distances.

f. A Forward Arming and Refueling Point (FARP) is the temporary arming and refueling point organized, equipped, and deployed by an aviation unit to support tactical operations. A FARP is typically located closer to the AOO than the combat service support area of an aviation unit and provides fuel and munitions for aviation units in combat. A FARP is excluded from the requirements of ALP-16 per subparagraph 1.3.3.b and Footnote 5 of subparagraph 4.5. However, the term FARP has also been used to describe permanent operations on a NATO base and in such cases, the tactical exemption previously described is not applicable. Such locations shall be required to comply with NATO explosives safety requirements of AASTP-1 or AASTP-5, as applicable. If those requirements cannot be met, then the appropriate ESMRM risk assessment (e.g., reception, storage, transportation, distribution, maintenance) shall be conducted and a risk decision obtained in accordance with Chapter 2. Chapter 7 provides the requirements for these types of ESMRM risk assessments.

4.7. MUNITIONS MAINTENANCE AND HANDLING

4.7.1 Munitions Maintenance. Maintenance involves all actions taken to retain munitions or restore these assets to specified conditions until the end of their use, including inspection, testing, servicing, modification(s), classification as to serviceability, repair, recovery, rebuilding, reclamation, salvage, packaging, and repackaging and cannibalization[7].

4.7.2 Munitions Handling. Maintenance typically involves handling and movement that includes any form of localized movement of munitions (as distinct from transportation) either by purely manual means or with the assistance of mechanical aids to and from:

a. Production and maintenance facilities

b. Warehouses and storage

c. Receiving and shipping areas

d. Combat and other units

[7] AAP-06, “NATO Glossary of Terms and Definitions (English & French),” page 2-M-1.

4.7.3. ESMRM Maintenance and Handling Risk Assessment. When NATO explosives safety requirements of AASTP-1 or AASTP-5, as applicable, cannot be met during the maintenance and handling phase, an ESMRM Maintenance and Handling Risk Assessment shall be conducted and a risk decision made by the appropriate NATO commander. Chapter 7 provides the requirements for the ESMRM Maintenance and Handling Risk Assessment.

4.7.4 Removing Munitions from Military Support Vehicles in Maintenance. Qualified munitions personnel shall inspect and search military or commercial vehicles used in support of NATO military operations and that require maintenance. Any munitions that are found will be removed before maintenance begins. Munitions inspections and temporary holding locations shall meet the NATO explosives safety requirements of AASTP-1 or AASTP-5, as applicable, or have an ESMRM Maintenance and Handling or Storage Risk Assessment. The type of risk assessment will depend on the type of munitions likely to be encountered, location, expected duration, and proximity of the location to other munitions-related processes and exposures.

4.7.5 Battle Damaged Equipment. Qualified munitions personnel shall inspect and search battle damaged equipment before beginning maintenance to verify the removal of all munitions and any other explosives hazards. Refer to subparagraph 4.4.12 for additional requirements associated with battle damaged equipment.

4.8. RETROGRADE AND REMOVAL

4.8.1 Munitions Retrograde and Removal. Retrograde involves returning munitions from the AOO. Munitions may also be removed from the AOO by disposal (e.g., transfer, sale, destruction), in which case NATO explosives safety requirements of AASTP-1 or AASTP-5 and national requirements will apply.

4.8.2 ESMRM Retrograde and Removal Risk Assessment. When NATO explosives safety requirements of AASTP-1 or AASTP-5, as applicable, cannot be met during the retrograde and removal phase, an ESMRM Retrograde and Removal Risk Assessment shall be conducted and a risk decision made by the appropriate NATO commander. Chapter 7 provides the requirements for the ESMRM Retrograde and Removal Risk Assessment.

4.8.3 Applicability. Explosives safety requirements are applicable to each phase of the NATO Consumer Logistics Process, as defined previously in this chapter.

4.8.4 Retrograde Specific Issues. Retrograde specific issues for shipment include:

4.8.4.1 When the munitions original packaging is no longer available, additional packaging may be required. Since a munition's hazard classification is based on its tested packaging configuration, using a different packaging

configuration may change the original hazard classification and compatibility group. Munitions packaging other than the original packaging shall be evaluated by national hazard classification representatives to determine whether a new hazard classification is required.

4.8.4.2 Before shipping retrograde from the AOO, trained and qualified personnel shall inspect and assess the condition and safety of each munition lot to determine that munitions are safe for shipment. Munitions deemed questionable or unsafe (e.g., suspended lots, missing components, visible damage, leaking) shall not be retrograded and shall be disposed of in the proper manner.

4.8.5 Removing Munitions from Military Support Vehicles. Military or commercial vehicles used in support of NATO military operations planned for retrograde out of the AOO shall be searched for munitions. Munitions inspections and temporary holding locations shall meet the requirements of AASTP-1 or AASTP- 5, as applicable, or have an ESMRM Retrograde Risk Assessment. The type of risk assessment will depend on the type of munitions likely to be encountered, location, expected duration, and proximity of the location to other munitions-related processes and exposures.

4.9. DISPOSAL AND DEMILITARIZATION

4.9.1. Disposal. Disposal encompasses the process of redistributing, transferring, donating, selling, or destroying munitions[8]. Disposal may include end-of-life tasks and actions for munitions resulting from demilitarization operations. STANAG 4518, "Safe Disposal of Munitions, Design Principles and Requirements, and Safety Assessment" provides additional information regarding acceptable NATO disposal methods. If destruction is to be used, Part IV of AASTP-1 provides NATO explosives safety requirements for destruction locations.

4.9.2. Demilitarization. Demilitarization is part of the disposal phase of the NATO Consumer Logistics Process. Demilitarization of munitions is the act of removing or otherwise nullifying the military potential of munitions. Demilitarization is a necessary step for military items prior to their release into a non-military setting[9].

4.9.3. Demilitarization and destruction of munitions must be carried out according to host nation, national, and NATO requirements. Any dangerous and/or unserviceable munitions shall be destroyed as soon as possible since accumulation presents an unnecessary and additional danger.

4.9.4. A demilitarization facility or destruction area will likely be required for disposing of munitions (e.g., intentional detonation and burning) that is in a dangerous and/or unserviceable condition.

8 AOP-38, "Glossary of Terms and Definitions Concerning the Safety and Suitability for Service of Munitions, Explosives and Related Products" page A-26.

9 AOP-38, page A-21.

4.9.5. When demilitarization requires intentional detonation, mitigation measures (e.g., burial, orientation, sandbags) shall be used to the maximum extent to manage explosion effects and reduce associated QD. NATO explosives safety requirements for destruction locations and mitigation methods are given in Part IV of AASTP-1.

4.9.6. Battle Damaged Equipment. Battle damaged equipment shall be inspected to verify the removal of all munitions and any other explosives hazards from the equipment before disposal or demilitarization. Refer to subparagraph 4.4.12 for additional requirements associated with battle damaged equipment.

4.9.7. Disposal and Demilitarization Locations. Locations used for disposal and demilitarization operations shall meet NATO explosives safety requirements of Part IV of AASTP-1 as well as national requirements. Destruction operations shall be carried out only at approved locations (sited locations or those approved by risk decision), by qualified, and trained personnel. NATO explosives safety requirements for destruction locations are given in Part IV of AASTP-1.

4.9.8. ESMRM Disposal and Demilitarization Risk Assessment. When explosives safety requirements of AASTP-1 or AASTP-5, as applicable, cannot be met during the disposal phase of the NATO Consumer Logistics Process, an ESMRM Disposal and Demilitarization Risk Assessment shall be conducted and a risk decision made by the appropriate NATO commander. Chapter 7 provides the requirements for the ESMRM Disposal and Demilitarization Risk Assessment.

4.9.9. Record Keeping. Documentation shall be kept of all disposal actions to include, at a minimum:

a. A log containing the following:

(1) Event conducted

(2) Date

(3) Owning organization and responsible Nation

(4) Purpose of disposal action

(5) Nomenclature and number of items to be destroyed

(6) Munition lots involved

(7) Method of disposal used (e.g., burning, detonation, rocket motor firing)

b. Copies of disposal certification and other associated paperwork.

c. Disposal reports.

4.10. ESMRM DURING CONCLUSION

4.10.1. Historically, nations involved in operations have not adequately addressed ESMRM requirements during the conclusion of a military operation. Failure to conduct an orderly end to the operation will endanger forces, national civilian populations, and the environment and result in loss of money, equipment, morale, public support, and goodwill.

4.10.2. Paragraph 3.6 of Chapter 3 addresses planning aspects for concluding a military operation.

4.10.3. Chapter 6 provides ESMRM requirements for concluding a military operation.

4.11. APPLICABILITY TO MUNITIONS-RELATED CONTRACT SUPPORT

The NATO explosives safety and ESMRM requirements of this chapter and ALP-16 (subparagraph 1.3.2.c) also apply to munitions-related contract support across all phases of NATO operations and the consumer logistics process in the AOO to include conclusion and post-operation activities. Contractor operations are not exempt from those requirements. Nations and NATO organizations that employ contract support for munitions operations in support of NATO military operations are responsible for contractor compliance with NATO explosives safety, ESMRM, and national requirements.

INTENTIONALLY BLANK

CHAPTER 5 EXPLOSIVES SAFETY AND MUNITIONS RISK MANAGEMENT (ESMRM) PERSONNEL

5.1. PURPOSE

The purpose of this chapter is to describe the role that ESMRM personnel play in the NATO Operational Planning Process and across the full range of NATO military operations.

5.2. GENERAL

5.2.1. NATO operational missions often involve the use of munitions. Munitions and munition-related processes present a significant, inherent risk and potential consequences include loss of personnel and assets, mission degradation, and political implications. NATO ESMRM policy (Chapter 1) requires that munitions used during NATO operations comply with NATO explosives safety requirements[1]. When those requirements cannot be met, the conduct of a Risk Assessment is required to identify munitions-related risks in support of the NATO commander's risk decision.

5.2.2 Qualified ESMRM personnel can:

a. Identify NATO explosives safety requirements that are applicable to the munitions-related process involved.

b. Assess if those requirements are being met.

c. Assist in the conduct of Risk Assessments.

5.2.3 ESMRM reaches across many disciplines and functional areas. Effectively integrating ESMRM throughout NATO requires qualified ESMRM personnel to interface with other communities (e.g., security, intelligence, force protection, logistics, facilities management, military engineers, explosive ordnance disposal (EOD)) to coordinate efforts and communicate munitions-related risks and understand other functional areas requirements and equities.

[1] NATO explosives safety requirements are contained in Allied Ammunition Storage and Transport Publication (AASTP)-1, "Manual of NATO Safety Principles for Storage of Military Ammunition and Explosives," AASTP-3, "Manual of NATO Safety Principles for the Hazard Classification of Military Ammunition and Explosives," AASTP-4, "Manual on the NATO Principles for the Application of Risk Analysis to the Storage and Transportation of Military Ammunition and Explosives," and AASTP-5, "NATO Guidelines for the Storage, Maintenance and Transport of Ammunition on Deployed Missions or Operations."

5.3. MATCHING ESMRM PERSONNEL TO THE TASK

5.3.1. Careful consideration should be given to match ESMRM personnel to the task being conducted. The phase of an operation (e.g., planning, assessment, execution), as well as the type of mission being considered or conducted (e.g., air, sea, ground, transportation), will determine the ESMRM personnel skill sets needed to address explosives safety aspects associated with that task.

5.3.2. Paragraph 5.5 provides examples of some explosives safety / munition-related personnel skill sets that exist within NATO nations to support ESMRM functions. Each personnel skill type provides unique capabilities; consequently, it should never be assumed that an individual assigned to one role has the required qualifications to perform another. The qualifications of individuals to perform assigned tasks must be assessed on a role-by-role basis.

5.3.3. When considering the ESMRM personnel skills needed, relevant aspects of the phase / mission shall be considered (e.g., disposal, airbase operations, port operations, transportation).

5.4. QUALIFIED PERSONNEL

5.4.1. Nations that transport, maintain, handle, store, use, demilitarize and dispose of munitions understand the need to train their own workforce to accomplish specific munitions and explosives safety-related tasks effectively, efficiently and safely. Nations assure professional competence by developing and providing a training curriculum specific to the individual task or by sending their munitions-related personnel to attend another nation's munitions training courses.

5.4.2. Nations have a responsibility (subparagraph 2.8.5.) in NATO to provide qualified personnel to perform ESMRM tasks. In the absence of qualified personnel, formal arrangements (e.g., memorandums of understanding / agreement) shall be established with other munitions-contributing nations to provide qualified personnel to manage and assure compliance with NATO explosives safety requirements.

5.5. ESMRM-RELATED PERSONNEL

The following are descriptions of some of the personnel skill sets may be available to assist with ESMRM functions. For munitions-related personnel descriptions or skills not listed below, personnel training and qualifications must be reviewed by national appointing authorities to assess an individual's ability to perform specific ESMRM functions.

a. Explosives Safety Officer (ESO). An ESO is a highly trained civilian or military individual designated in writing to advise a commander on explosives safety matters. The ESO provides explosives safety management and oversight of the commander's ESMRM program. Minimum competencies required by an ESO are detailed at Annex B of AASTP-5[2]. An individual qualified to be an ESO

would have the skills necessary to support ESMRM throughout all phases. At a NATO base with two or more nations present and where munitions are located and munitions-related processes occur (subparagraph 2.11.2.a.(1).(b)), the NATO base Commander will appoint or direct the appointment of a Lead ESO to execute the NATO base's ESMRM program.

b. Ammunition Technical Officer (ATO). An ATO is generally a military officer who has received formal munitions training. The level of training may vary by nation but generally, a fully trained ATO is well-qualified to serve as an ESO and brings many other qualification and skills that can enhance the ESMRM process. Minimum competencies for an ESO as described above in subparagraph 5.5.a must be met.

c. Service-trained Ammunition-related Military Personnel. Many nations provide Service-specific munitions training for their officers/noncommissioned officers relating to the functions they serve (e.g., ground, air, sea). Qualifying service-trained individuals as an ESO requires comparing an individual's training against the ESO competencies described above in subparagraph 5.5.a.

d. Ammunition Technician (AT). An AT generally describes a military or civilian an individual within the munitions supply chain who works at a fixed location such as an ammunition supply point or ammunition storage depot. ATs are capable of providing technical expertise at the installation (e.g., logistics disposal, inventory control, receipts and issues, maintenance). The level and scope of training will vary by nation. An assessment of an individual's training, skills, and experiences must be made against ESO minimum competencies however, a fully trained and experienced AT should qualify to serve as an ESO as described above in subparagraph 5.5.a.

e. Safety Engineer/Technicians/Quality Assurance Specialist. Highly trained individuals who provide explosives safety support to deployed forces from home locations. They may have also deployed to provide in-theater explosives safety support to their national forces. Safety Engineer/Technicians/Quality Assurance Specialist could be identified as ESOs, provided their training and experience meet minimum competencies for an ESO as described above in subparagraph 5.5.a.

[2] Allied Ammunition Storage and Transport Publication AASTP-5, "NATO Guidelines for the Storage, Maintenance and Transport of Ammunition on Deployed Missions or Operations."

f. Ammunition Handler. Ammunition handlers handle munitions and typically receive basic explosives safety hazards training, warehousing and firefighting skills, and learn how to operate material handling equipment. An ammunition handler would not have the necessary skills to be an ESO as described above in subparagraph 5.5.a.

g. EOD. EOD personnel, although highly trained for the destruction and disposal of ammunition, would not generally qualify as ESOs as described above in subparagraph 5.5.a, unless they had previously received ATO and/or AT training. EOD personnel in-depth understanding of munitions, the hazardous effects produced, and mitigation/protection of those effects can make them invaluable members of any ESMRM team. EOD personnel shall be consulted when the destruction of munitions (e.g. intentional munitions burn or detonation) is part of an ESMRM assessment.

h. Contractors. Contractors can play a significant role in ESMRM efforts and may provide a service that is not readily otherwise available to a nation. Typically, contracted individuals would not be assigned as ESOs. However, if a contracted individual has the necessary experience and qualifications to meet the competencies for an ESO as described above in subparagraph 5.5.a, then that individual can be assigned to fill an ESO position.

CHAPTER 6 INTEGRATING EXPLOSIVES SAFETY AND MUNITIONS RISK MANAGEMENT (ESMRM) REQUIREMENTS INTO THE CONCLUSION OF A NATO MILITARY OPERATION

6.1. PURPOSE

This chapter provides NATO ESMRM requirements for munitions and munitions-related processes and activities during the conclusion of a NATO military operation at forward operating bases (FOBs) and forward logistics bases (FLBs) as part of the redeployment and disestablishment stage of a NATO military operation. Chapter 6 also clarifies that munitions processes and activities performed by other than military personnel under contract must also comply with the requirements contained herein.

6.2. ESMRM REQUIREMENTS DURING CONCLUSION

6.2.1. As stated in Chapter 3, preparing for the conclusion of munitions-related activities at operational locations must be planned for during the initial analysis of the desired end state, together with the means to achieve it. Consideration of the effort required cannot be overstated. Concluding a military operation can be as complicated as deployment and is often not adequately planned for in advance.

6.2.2. ESMRM requirements included in this chapter also apply to the closure or changes associated with any NATO base regardless of whether or not an operation is ongoing.

6.2.3. Figure 6-1 illustrates the relationship between the NATO Operational Stages, the NATO Consumer Logistics Process phases, and ESMRM applicability across the full range of NATO military operations. The circle further emphasizes additional requirements for the redeployment and disestablishment operational stages contained in Chapter 6.

* Reception, staging, onward movement and integration (RSOI)

Figure 6-1. Relationship of ESMRM Process to the NATO Operational Stages and the Consumer Logistics Process

6.2.4. At the conclusion of operations, NATO commanders of FOBs and FLBs shall implement the Munitions Retrograde Plan developed during the operational planning process (OPP) and terminate ongoing munitions-related consumer logistics processes identified in Chapter 4 and Figure 6-1.

6.3. Planning for Conclusion

6.3.1. Munitions retrograde shall be planned during the OPP and a Munitions Retrograde Plan shall be developed. Munitions Retrograde shall be addressed in the ESMRM section or annex for all NATO plans where NATO munitions use is anticipated.

6.3.2. Chapter 3 provides detailed requirements for the Munitions Retrograde Plan.

6.3.3. At the conclusion of NATO military operations (i.e., redeployment and disestablishment portion of the NATO Operational Stages), the reverse of the NATO Consumer Logistics Process that delivered supplies (to include Class V munitions) to the operational theatre occurs.

6.3.4. The following munitions and munitions-related processes and activities associated with the redeployment and disestablishment stages of concluding a military operation are linked to the Consumer Logistics Process:

a. Consolidation and Collection (Reception) involving the relocation of munitions to central locations for further action.

b. Storage of munitions in preparation for retrograde or disposal (e.g., transfer, sale, demilitarization, destruction). Storage is likely to be temporary in nature and care must be exercised since munitions turned in will be done by a large number of units.

c. Transportation associated with redeployment and disestablishment stages.

d. Distribution of munitions back to consolidation, collection, and storage locations as part of unit turn-ins.

e. Maintenance of munitions to include packaging and preparation by units prior to turn-in.

f. Retrograde of munitions by units through lines of communication (LOC) to the country of origin or final destination.

g. Disposal of munitions (e.g., transfer, sale, demilitarization, and destruction).

6.4. CONSOLIDATION AND COLLECTION (RECEPTION)

6.4.1. For the purposes of ALP-16, consolidation and collection is the equivalent of reception during the redeployment and disestablishment stages at the conclusion of a NATO military operation.

6.4.2. Consolidation and collection locations must meet NATO explosives safety requirements of Allied Ammunition Storage and Transport Publication AASTP-1[1] or AASTP-5[2], as applicable, or have an ESMRM RSOI Risk Assessment and risk decision by the NATO commander. Chapter 7 provides the requirements for the ESMRM RSOI Risk Assessment.

6.4.3. ESMRM risk assessments are an integral part of managing the potential risks during the consolidation and collection phase and may need to be performed for these locations. Actions typically associated with consolidation and collection include:

a. Reception of all munitions at munitions storage areas. Munitions not returned in their original sealed packaging shall be assumed to be in an "unknown" condition.

b. Inspection of munitions to determine condition. During inspection of returned munitions, a qualified technical expert shall assess the condition of returned munitions with special regard to it being safe to move on the imminent retrograde movement.

c. Repacking of serviceable munitions. Munitions requiring repackaging must be packaged into containers that meet United Nations and International Organization for Standardization requirements for storage and transport.

d. Arrangements for any required disposal. (e.g., transfer, sale, demilitarization, destruction).

6.5. STORAGE

6.5.1. Storage locations must meet NATO explosives safety requirements of AASTP- 1 or AASTP-5, as applicable, or have an ESMRM Storage Risk Assessment and risk decision by the NATO commander. Chapter 7 provides the requirements for the ESMRM Storage Risk Assessment.

[1] AASTP-1 "Manual of NATO Safety Principles for Storage of Military Ammunition and Explosives."

[2] AASTP-5, "NATO Guidelines for the Storage, Maintenance and Transport of Ammunition on Deployed Missions or Operations."

6.5.2. Storage of munitions is the same throughout the deployment, redeployment, and disestablishment stages of a NATO military operation. Storage during the redeployment and disestablishment stage is likely to be temporary and dynamic due to unforeseen munitions turn-ins. Areas not previously planned for munitions storage may need to be used to accommodate higher volumes of munitions storage. Assessments of munitions storage locations shall also focus on the following prior to redeployment:

a. Condition of munitions

b. Condition of packaging

c. Surveillance information

d. Hazard classification

e Expected munitions throughput. During retrograde, significant quantities of munitions may be delivered to a storage location at a rate far beyond the capabilities of that location. Increased throughput will likely cause licensed explosives limits to be exceeded, resulting in violations of established quantity-distance and may exacerbate or worsen safety cases. Increasing throughput will likely require a new ESMRM Storage Risk Assessment.

6.5.3. Previously approved ESMRM risk assessments and risk decisions will likely need to be updated during the redeployment and disestablishment stage due to the dynamically changing operational environment.

6.5.4. Refer to AASTP-1 for detailed storage information for depleted uranium munitions stored during the redeployment and disestablishment stage.

6.6. TRANSPORTATION

6.6.1. Although transportation requirements of munitions are the same throughout the deployment, redeployment, and disestablishment stages of a NATO military operation, there may be additional ESMRM considerations during the redeployment and disestablishment stages that could require modifications of existing ESMRM assessments or performance of new assessments. Examples of modifications include but are not limited to:

a. Hazard classification if repackaged in other than original packaging. A munition's assigned hazard classification is only valid in its tested, packaged configuration. If not in that configuration, the hazard classification is no longer valid and the munitions may actually present a very different threat (e.g., hazard division (HD) 1.3 or storage sub-division (SsD) 1.2.1 may now be HD 1.1). See AASTP-3[3], for additional details.

b. Foreign munitions and weapons systems requiring intelligence exploitation.

6.6.2. When required munitions locations associated with transportation (e.g., safe haven, unforeseen delays, temporary holding) during the redeployment and disestablishment stage must meet NATO explosives safety requirements of AASTP-1 or AASTP-5, as applicable, or have an ESMRM Transportation Risk Assessment and risk decision by the NATO commander. Chapter 7 provides the requirements for the ESMRM Transportation Risk Assessment.

6.6.3. Movement of munitions during the redeployment and disestablishment stage shall comply with transportation of dangerous goods regulations as contained in Allied Movement Publication (AMovP)-6[4].

6.7. DISTRIBUTION / COLLECTION

6.7.1. During the redeployment and disestablishment stage, distribution is not a key phase of the Consumer Logistics Process, rather, collecting munitions becomes the primary function. During the Distribution / Collection stage, the focus is on units returning munitions (e.g., excess, unaccounted for, or other types of munitions) to consolidation and storage locations in preparation for transportation.

6.7.2. Distribution / Collection locations must meet NATO explosives safety requirements of AASTP-1 or AASTP-5, as appropriate, or have an ESMRM Distribution/Collection Risk Assessment and risk decision by the NATO commander. Chapter 7 provides the requirements for the ESMRM Distribution / Collection Risk Assessment.

6.7.3. A major challenge during the redeployment and disestablishment stage at the unit level is munitions returned in unknown condition, and in varying configurations (e.g., unpackaged, improper packaging, flares without safety caps, taped grenades). To preclude hazardous conditions during the redeployment and disestablishment stage, munitions personnel must make every effort throughout the operational stage to maintain original munitions packaging materials.

6.7.4. The Munitions Retrograde Plan shall address collection of munitions during the redeployment and disestablishment stage.

[3] AASTP-3, “Manual of NATO Safety Principles for the Hazard Classification of Military Ammunition and Explosives.”

[4] AMOV P-6, Allied Movement Publication 6, “Allied Multimodal Transportation of Dangerous Goods Directive.”

6.8. MAINTENANCE

6.8.1. Maintenance locations must meet NATO explosives safety requirements of AASTP-1 or AASTP-5, as applicable, or have an ESMRM Maintenance Risk Assessment and risk decision by the NATO commander.

6.8.2. During the redeployment and disestablishment stage, maintenance of munitions will shift from preparing munitions for employment to inspecting, repackaging, and unit return in preparation for demilitarization, sale, transfer, or retrograde. Munitions maintenance during the redeployment and disestablishment stage may be done at a separate munitions operating location or as part of a storage operation.

6.8.3. A separate ESMRM assessment may need to be developed or the existing ESMRM Maintenance Risk Assessment may need to be modified during the maintenance stage.

6.9. RETROGRADE

6.9.1. ESMRM personnel will determine whether existing risk assessments (e.g., transportation, storage, distribution, and maintenance) and risk decisions need updating. If existing ESMRM risk assessments require updating, ESMRM personnel shall take actions to do so. ESMRM personnel shall also conduct new ESMRM assessments and obtain NATO commander risk decisions, as necessary.

6.9.2. Munitions may also be removed from the area of operations (AOO) in which case NATO explosives safety requirements of AASTP-1, AASTP-3, AASTP-5, ESMRM, and national requirements also apply.

6.9.3. Retrograde during the redeployment and disestablishment stage involves returning munitions from the AOO. During the redeployment and disestablishment stage, retrograde involves transporting munitions from LOC nodes (e.g., airport of debarkation, seaport of debarkation, railhead) to their final destination.

6.10. DISPOSAL

6.10.1. Complying with NATO or National Requirements. During the redeployment and disestablishment stage, disposal of munitions (e.g., transfer, sale, demilitarization, and destruction) within the AOO becomes a major function. See AOP-38[5].

[5] Allied Ordnance Publication-38, “Glossary of Terms and Definitions Concerning the Safety and Suitability for Service of Munitions, Explosives and Related Products.”

Standardization Agreement 4518, “Safe Disposal of Munitions, Design Principles and Requirements, and Safety Assessment” provides information related to demilitarization that does not involve destruction. Part IV of AASTP-1 provides specific NATO explosives safety requirements for destruction areas (i.e., open burning (OB) and open detonation (OD)).

a. When arranging for disposal (e.g., transfer, sale, demilitarization, destruction), nations shall comply with NATO explosives safety requirements of AASTP-1 or AASTP-5, as appropriate, and other existing requirements (e.g., environmental).

b. Some nations’ regulations do not allow destruction of surplus munitions by OB or OD. In this case, munitions must meet transportation requirements and risk assessments/decisions, as applicable. Safety must always be paramount so that dangerous munitions are not transported, with the possibility of creating potentially damaging situations.

6.10.2. ESMRM Disposal and Demilitarization Risk Assessment. When NATO explosives safety requirements of AASTP-1 or AASTP-5, as applicable, cannot be met during the retrograde and removal phase, an ESMRM Disposal and Demilitarization Risk Assessment shall be conducted and a risk decision shall be made by the appropriate NATO commander. Chapter 7 provides the regulations and requirements for the ESMRM Disposal and Demilitarization Risk Assessment.

6.10.3. Physical Destruction. In the event munitions require physical destruction through OB or OD, the location chosen for destruction must meet the requirements of AASTP-1 Part IV, or have an ESMRM Disposal and Demilitarization Risk Assessment and risk decision by the NATO commander.

6.11. POST-OPERATION ACTIVITIES

6.11.1. Executing the Munitions Retrograde Plan during Post-Operation Activities. In the event of post-operation activities, the Munitions Retrograde Plan shall be used to address ESMRM aspects associated with any remaining munitions- related processes and activities. Examples include:

a. Infrastructure. The potential transfer or destruction of any munitions operations infrastructure built by NATO member nations in support of the mission. Any residual munitions-related risks should be removed or communicated and accepted by the receiving nation.

b. Removal of explosive remnants of war. Any residual munitions-related risks from explosive remnants of war should be removed or communicated and accepted by the receiving nation.

c. Closing or transferring training ranges. Any residual munitions-related risks from ranges where munitions were used should be removed or communicated and accepted by the receiving nation.

d. Any additional ESMRM issues not previously identified/addressed.

6.11.2. Continuing Munitions-Related Processes and Activities During Post- Operation Activities. For the purposes of ALP-16, post-operation activities involving munitions, munitions-related processes or activities fall into one of the Consumer Logistics Process phases described in Chapter 6 and Chapter 4.

a. In the event that munitions-related activities are present during post- operation activities involving munitions, these processes must meet the NATO explosives safety requirements of AASTP-1 or AASTP-5, as applicable, or have the appropriate ESMRM risk assessment and risk decision by the NATO commander.

b. Post-operation activities may include:

(1) Belligerent occupation

(2) Humanitarian relief

(3) Civil administration

(4) Demobilization operations

(5) Battle area clearance

CHAPTER 7 THE NATO EXPLOSIVES SAFETY AND MUNITIONS RISK MANAGEMENT (ESMRM) RISK ASSESSMENT PROCESS

7.1. PURPOSE

The purpose of this chapter is to describe and define the process for conducting NATO planning and operational ESMRM risk assessments when NATO explosives safety requirements of Allied Ammunition Storage and Transport Publication (AASTP)- 1[1] and AASTP-5[2] cannot be met in preparation for the NATO commander's risk decision. The process consists of discrete steps that incorporate the risk analysis methodology described in AASTP-5.

7.2 GENERAL

7.2.1. NATO Explosives Safety Requirements. In the planning and execution of NATO military operations, situations are likely to exist when NATO explosives safety requirements cannot be met. In such cases, risks to and from munitions-related operations must be assessed in support of the NATO commander's risk decisions.

7.2.2. Munitions Storage. When NATO nations with co-located munitions storage and storage-related processes determine that explosives safety requirements of AASTP-1[3] or AASTP-5 cannot be met, the ESMRM process defined and described in this chapter shall be used to assess and document the risk, potential consequences, decision-making, and any associated mitigation and related controls.

7.2.3. Lines of Communication (LOC). Assessing the munitions and munitions- related process of transportation at strategic LOC provides the NATO commander with an overview of LOC as a single system. The ESMRM risk assessment process includes important information such as vulnerabilities, hazards to operations, exposures to unrelated personnel, and infrastructure in relation to the NATO mission. Typically, LOC include but are not limited to:

a. Seaports of embarkation/debarkation

b. Airports of embarkation/debarkation

[1] Allied Ammunition Storage and Transport Publication AASTP-1, "Manual of NATO Safety Principles for Storage of Military Ammunition and Explosives"

[2] AASTP-5, "NATO Guidelines for the Storage, Maintenance and Transport of Ammunition on Deployed Missions or Operations"

c. Railheads

d. Roads

e. Temporary holding, staging, and transfer areas

7.2.4. Other Munitions-Related LOC Activities. Although munitions storage and movement through LOC are the most likely activities that require application of the ESMRM risk assessment process, there are other life-cycle activities associated with LOC that may require the risk assessment process be applied to them including maintenance and handling, retrograde and removal, and disposal (e.g., transfer, sale, demilitarization, destruction).

7.2.5. Risk-Decision Making. The ESMRM risk assessment process detailed and described in this chapter has been developed to provide NATO commanders and national leaders with a consistent and documented methodology in support of their risk decisions. The process uses a variety of quantitative and qualitative tools, to include AASTP-1 quantity-distance (QD) and AASTP-5 field distance (FD), and risk- based tools, observations, interviews, and information gathering before and during the assessment, as well as analysis and application of NATO explosives safety requirements in AASTP-1 and AASTP-5.

7.2.6. ESMRM Roles, Responsibilities, and Requirements. Chapter 2 provides the NATO operational chain-of-command ESMRM roles, responsibilities, and requirements.

7.3. ESMRM RISK ASSESSMENT CATEGORIES AND TYPES

7.3.1. Planning Risk Assessment. The Planning Risk Assessment is the first of two categories of possible ESMRM risk assessments and is part of the operational or contingency planning process. The purpose of the Planning Risk Assessment is to identify potential risks from planned munitions-related activities (e.g., munitions transport through an LOC, establishment of a munitions storage area at a planned NATO base). There are three types of ESMRM Planning Risk Assessments:

a. Strategic Operations Planning

b. Operational-Level Planning

c. Tactical Operations Planning

7.3.2. Operational Risk Assessment. The Operational Risk Assessment is the second category of possible ESMRM risk assessments. The Operational Risk Assessment is conducted after the start of the mission in the area of operation (AOO) to assess existing or planned munitions-related operations that are known not to meet NATO explosives safety standards. The purpose of the

Operational Risk Assessment is to identify potential risks from existing or planned munitions-related activities after the start of an operation. There are seven types of ESMRM Operational Risk Assessments:

a. Reception, staging, onward movement and integration (RSOI)

b. Storage

c. Transportation

d. Distribution (Note: During the redeployment and disestablishment stage, distribution is not a key phase of the Consumer Logistics Process, rather, collecting munitions becomes the primary function. For that reason, a risk assessment conducted for this stage is called Distribution / Collection Risk Assessment)

e. Maintenance and Handling

f. Retrograde and Removal

g. Disposal and Demilitarization

7.4. RISK ASSESSMENT MAINTENANCE AND UPDATE FREQUENCY

7.4.1 Strategic, operational, and tactical environments are dynamic and fluid; therefore, ESMRM risk assessments shall be continuously maintained and updated since the supporting information is likely to change over time resulting in outdated recommendations. A reevaluation of an approved ESMRM risk assessment and its decision shall be performed to determine if an update or new risk assessment / risk decision is required when one of the following occurs:

a. Twelve months have passed since the last risk assessment. ESMRM risk assessments shall be routinely reevaluated every 12 months.

b. Change of NATO commander or delegated risk decision authority.

c. Change in operational and / or contingency plans.

d. Changes at a specific location occur that affect personnel, equipment, or infrastructure and potentially increase the risk and consequences from an unintended explosives event. Change could be mission driven (e.g., change in LOC location, increased net explosive quantity (NEQ), presence of more hazardous munitions, increased personnel and equipment exposed) or externally driven (e.g., increased public exposure).

7.5. RISK ASSESSMENT PROCESS

A successful ESMRM risk assessment requires performing 12 discrete steps as shown in Figure 7-1 and described in this chapter.

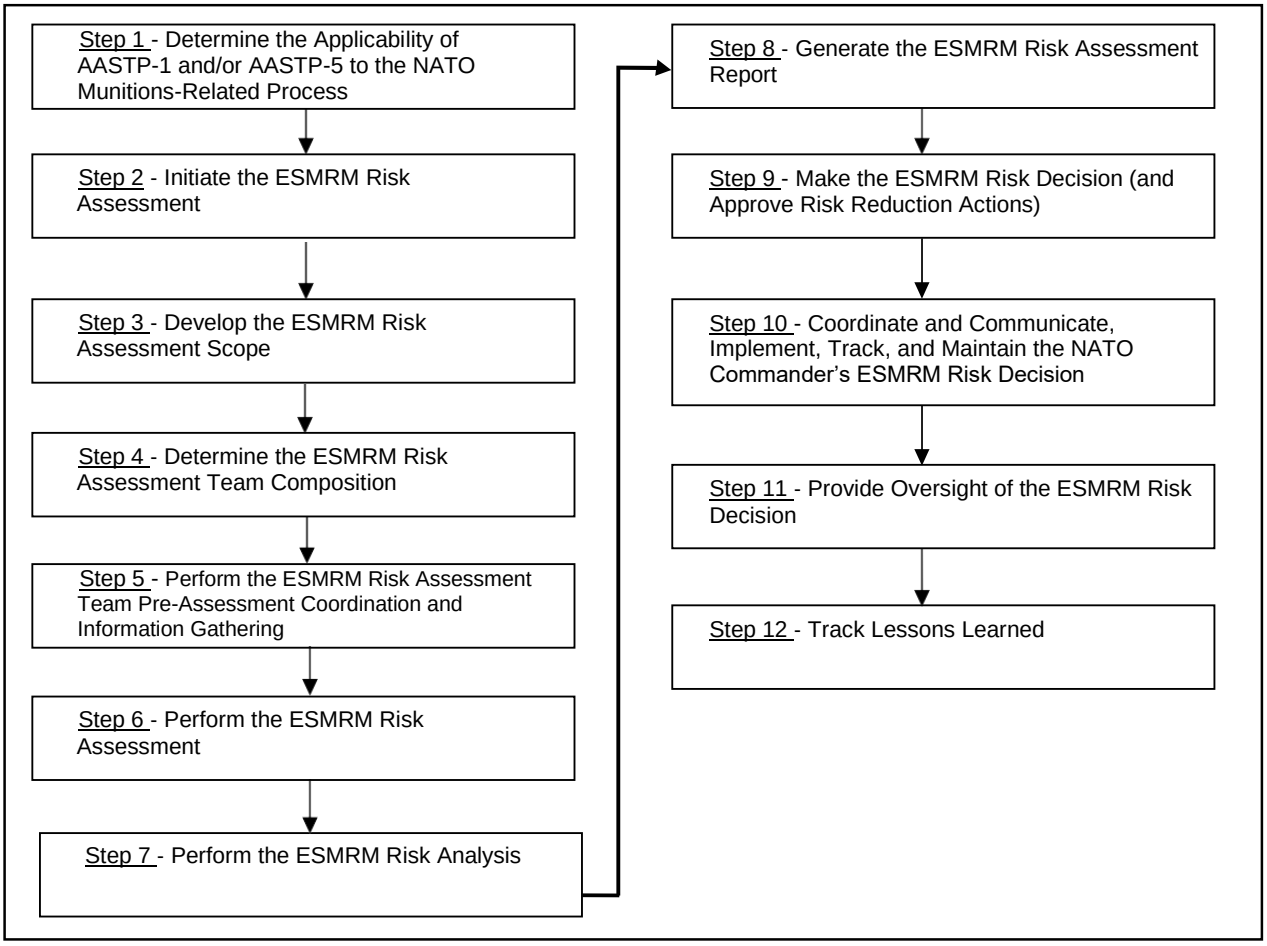


FIGURE 7-1. ESMRM RISK ASSESSMENT PROCESS FLOW

7.6. STEP 1. DETERMINE THE APPLICABILITY OF AASTP-1 OR AASTP-5 TO THE NATO MUNITIONS-RELATED PROCESS

The NATO commander in coordination with his staff shall:

a. Determine whether NATO explosives safety requirements of AASTP-1 or AASTP-5 apply to munitions-related processes.

b. Determine if the applicable requirements of AASTP-1 or AASTP-5 can be met for munitions-related processes.

(1) If NATO explosives safety requirements can be met, the owning nation shall follow national requirements to license munitions storage and operations per AASTP-1 or AASTP-5, as applicable.

(2) If NATO explosives safety requirements of AASTP-1 or AASTP-5, as applicable, cannot be met, the ESMRM risk

assessment process described herein must be performed.

7.7. STEP 2. INITIATE THE ESMRM RISK ASSESSMENT

7.7.1. As stated in Chapter 2, when NATO explosives safety requirements cannot be met the NATO commander shall direct his staff to assess munitions-related risks and generate a risk assessment in preparation for a risk decision.

7.7.2. The ESMRM risk assessment will usually be conducted with available organic staff however, in the event organic staff is not available, the NATO commander may request additional resources through NATO and national chains of command.

7.7.3. In the absence of such support, or in the event specialized expertise of a multinational nature is required, the NATO commander may request assistance from the NATO AC/305 (Logistics Committee (LC)), which can request support from its ESMRM Panel, as well as from NATO AC/326, Conference of NATO Armaments Director Ammunition Safety Group, which produces NATO explosives safety requirements.

7.8. STEP 3. DEVELOP THE ESMRM RISK ASSESSMENT SCOPE

7.8.1. ESMRM Scope. The lead will coordinate the development of the risk assessment scope of work and obtain the requesting NATO commander's approval. The scope shall include:

a. Scope content

b. Signature page for the NATO commander and the designated lead for the agreed output

c. Munitions-related processes and locations requiring assessment

d. Methodology

e. Assessment team composition

f. Timelines (e.g., assessment and deliverables)

g. Deliverables (e.g., report and briefs)

h. Any required follow-on actions

7.8.2. Modifications to the ESMRM Scope. Recognizing the reality and dynamic nature of assessments as well as the conditions at locations identified in the scope, the scope may require modification:

a. All modifications to the scope shall be documented for complete understanding and become part of the risk assessment report.

b. Both the requestor and the lead shall agree to all modifications.

7.9. STEP 4. DETERMINE THE ESMRM RISK ASSESSMENT TEAM COMPOSITION

7.9.1 Team composition is likely to vary depending on the category and type of risk assessment conducted. Table 1-1 illustrates the types of ESMRM risk assessments that may be required. The lead will assemble and determine the team composition for the type of ESMRM risk assessment to be conducted. The team shall consist of personnel capable of assessing munitions-related processes and their associated risks. Chapter 5 provides details about ESMRM personnel skill sets available to support ESMRM risk assessments.

a. Planning Risk Assessment Team. Planning Risk Assessment team members may include, but are not limited to, NATO and national representatives and experts from:

(1) Involved commands

(2) Explosives Safety, ESMRM qualified personnel

(3) Logistics

(4) Transportation

(5) Military Engineers

(6) Security/Force Protection

(7) Intelligence

(8) Geospatial (for mapping)

(9) Legal

(10) Protocol

(11) Host Nation

(12) Contributing Nations

b. Operational Risk Assessment Team. Since the Operational Risk Assessment involves assessing munitions-related processes at a NATO base (e.g., forward operating base, activity, installation), personnel familiar with the processes shall participate. Team members may include, but are not limited to, NATO and national representatives and experts from:

(1) Involved commands

(2) Explosives Safety, to include the Lead explosives safety officer (ESO) (see Chapter 2)

(3) Logistics

(4) Transportation

(5) Military Engineers

(6) Security/Force Protection

(7) Intelligence

(8) Geospatial (for mapping)

(9) Legal

(10) Protocol

(11) Base operations support, to include the base operations support integrator (BOSI) (see Chapter 2)

7.10. STEP 5. PERFORM THE ESMRM RISK ASSESSMENT TEAM PRE-ASSESSMENT COORDINATION AND INFORMATION GATHERING

Advance arrangements and coordination are needed in preparation for travel to the location and to collect site-related information required to perform the risk assessment. Required information is likely to include, but is not limited to:

a. Coordination with External Organizations

(1) NATO and national operational elements involved with or supporting the operation

(2) National explosives safety specialists (coordinated through nations involved with or supporting the operation)

(3) Military engineer elements

(4) NATO and national protocol

(5) NATO and national intelligence elements

(6) National Geospatial-Intelligence and mapping elements

(7) Host nation supporting elements

b. Logistics Requirements. Logistics requirements may include, but are not limited to:

(1) Medical (e.g., vaccinations, certificates)

(2) Country clearance

(3) Personal protective equipment

(4) Transportation and hotel/housing

(5) Advance notifications

(6) Applicable restrictions and limiting factors

(7) Host nation and local requirements

(8) Political conditions (country brief)

(9) Training (e.g., intelligence, security, force protection, NATO-specific)

(10) Equipment critical to mission success (e.g., global positioning system, camera, laptop computer, range finder, communications equipment)

(11) Personal security clearance information

c. Pre-Assessment Information Gathering. Pre-assessment information gathering requirements may include, but are not limited to:

(1) Munitions and munitions-related processes

(2) Existing deviations, ESMRM risk assessments, and consequence acceptance documents

(3) Operations plan details and supporting information

(4) Relevant concept of operations for exercise or other military operation

(5) Maps and overhead imagery

(6) Supporting infrastructure relating to munitions and munitions processes

(7) Status-of-forces and other international agreements

(8) Host nation munitions and munitions processes information

(9) Local host nation logistic node laws and regulations

(10) Host nation explosives safety laws, limitations, and regulations

(11) Exposures (e.g., population density, vehicles, infrastructure).

(12) Coordination with external organizations.

7.10. STEP 6. PERFORM THE ESMRM RISK ASSESSMENT

7.11.1. Annex A and Annex B provide ESMRM Risk Assessment Form Examples that can be used when performing risk assessments for munitions and munitions-related functions.

7.11.2. Table 1-1 identifies the types of ESMRM risk assessments associated with the NATO Operational Planning Process (OPP), Consumer Logistics Process, and Operational Stages.

7.11.3. Information gathered about the locations during the pre-assessment step shall be reviewed in preparation for the on-site assessment.

7.11.4. Once on-site, the team or its representatives shall collect site-specific technical information that may include, but is not limited to:

a. RSOI and required equipment (e.g., heavy equipment transports)

b. Supporting equipment necessary to enable the offload of containerized munitions (e.g., cranes, material handling equipment)

c. Tactical assembly areas and large gun siting/checkout areas as part of RSOI

d. Supporting munitions-enabling infrastructure

e. Roads for munitions transport to include width assessment based on the type of vehicles used

f. Storage pads/area

g. Surface transportation routes of ingress/egress (e.g., rail or road)

h. Availability of emergency response equipment

i. Location of and information on potential exposed sites such as facilities, hospitals, schools, and houses (see subparagraphs 7.11.5. and 7.11.6. for appropriate assessment distances)

j. Location of hazardous materials

k. Commercial operations

l. Placement of utilities (e.g., gas pipes, power stations, electrical lines)

m. Clear zones around unloading and loading points

n. Location of critical communications equipment

o. Impact of munitions and munitions-related processes on the rest of the mission

p. Ability to access the unloading and loading points

q. Lightning protection systems

r. Risks to munitions and munitions-related processes. (e.g., power lines, liquefied natural gas, refineries, grain elevators, bulk fuels facilities, factories)

7.11.5. Exposures within a predetermined distance of munitions-related processes shall be assessed. Predetermined distances shall not be less than the inhabited building distances (IBDs) provided in AASTP-1 or AASTP-5, as appropriate, for the hazard divisions (HDs) and maximum NEQ expected.

7.11.6. When HD 1.1 is involved, the assessment area shall examine distances of two times the IBD (2 x IBD) to determine vulnerable construction as defined in Allied Ordnance Publication 38, "Glossary of Terms and Definitions Concerning the Safety and Suitability for Service of Munitions, Explosives and Related Products," and as further described in AASTP-1.

7.12. STEP 7. PERFORM THE ESMRM RISK ANALYSIS

7.12.1 Determining Risk Level through Analysis. An explosives safety risk analysis is a systematic process that determines the actual level of the hazard for a given situation. It takes into account possible adverse effects (consequences) produced by an unintended explosion or fire as well as how often such effects may occur (frequency/probability). The explosives safety risk analysis process is generally a combination of quantitative calculation where the data and tools are available and qualitative assessment of other relevant information, taking into account factors such as operational requirements.

a. Paragraph 2.7.2 of AASTP-5 provides information about the qualitative risk analysis approach. Paragraph 2.7.3 of AASTP-5 provides a description of a quantitative risk analysis method for the storage of ammunition on deployed missions[4].

(1) ESMRM Risk assessments will analyze the potential consequences of a munitions-related incident at operating/storage locations, to include an estimate of:

(a) Number of personnel exposed, potential fatalities, and potential injuries.

(b) Combat assets and infrastructure exposed.

(c) Operational impact and cost of lost combat assets and potential infrastructure damage.

(2) ESMRM risk assessments will analyze risks to and from munitions-related operations. Site-specific risk reduction recommendations to mitigate identified risks will be included in the analysis.

b. To determine the appropriate risk level (i.e., high, medium, or low) for the risk assessment, the assessment team shall determine the probability that an unintended event will occur as well as fit the determined risk into the proper consequence category shown in Table 7-1. The intersection of probability and consequence in Table 7-1 provides the risk level. Probability definitions are provided in Table 7-2; consequence definitions are given in Table 7-3.

c. The probability of an event can be determined in two ways (or a combination of both): by historical record of events or by an analytical examination by an ESO based on experience and knowledge. Quantitative values, as well as the relation between quantitative values and qualitative levels are provided in Table 2-7 of AASTP-5[4].

d. There are a number of possible causes for an undesired explosive event. Some of the potential causes that should be considered include:

(1) Threat of fire, the most common cause of munitions-related events

(2) Human error (e.g., manning, workload, proper equipment, fatigue)

(3) Intruder potential (e.g., sabotage, theft, other subversive activity)

(4) Enemy action (e.g., improvised explosive device, indirect or direct fire threats)

(5) Environmental (e.g., lightning risk, high temperatures or humidity)

(6) Condition of the ammunition (e.g., deteriorated material, condition code, fatigue or chemical breakdown, damaged, lower standard of manufacture (i.e., captured))

The risk level obtained will define the required risk approval level for deviating from the NATO explosives safety requirements of AASTP-1 or AASTP-5, as applicable (see Chapter 2).

[4]AASTP-5 also describes/provides two qualitative tools that can be used to determine the consequence portion of assessments to help determine the severity of an incident. However, that method is limited to a maximum NEQ of 4,000 kilograms HD 1.1 per storage cell. If the cell/location NEQ is exceeded, then AASTP-1 QD will apply. When those QDs cannot be met, the only options are qualitative risk assessments as detailed in AASTP-5, or quantitative risk assessments using AASTP-4, “Manual on the NATO Principles for the Application of Risk Analysis to the Storage and Transportation of Military Ammunition and Explosives,” models and data, as implemented in nationally approved software tools. Each tool has its limitations and conditions for use, so these must be considered when using them to conduct a risk analysis.

Table 7-1. Risk Management Matrix

Consequence / Probability	Catastrophic	Major	Minor	Negligible
Likely	High	High	Medium	Low
Occasional	High	Medium	Medium	Low
Seldom	Medium	Medium	Low	Low
Unlikely	Medium	Low	Low	Low
Very Unlikely	Low	Low	Low	Low

Source: AASTP-5, Table 2-6: Risk Index Table, page 2-44

Table 7-2. Event Probability Definitions

Level*	Qualitative Definition
Likely	Will occur frequently
Occasional	Will occur several times
Seldom	easonably be expected to occur
Unlikely	Unlikely to occur, but possible
Very Unlikely	So unlikely it may be assumed it will never occur

Source: AASTP-5, Table 2-4: Event Probability (qualitative values), page 2-42

*The terms used here and their alternatives reflect the variety that are used by nations (semantics) in their risk management processes. Some nations' processes may vary from three to five levels.

Table 7-3. Consequence Definitions (Qualitative Values)

Category	Definition
Catastrophic	-Severe consequences unacceptable in all but the most urgent of operational requirements -Multiple deaths and/or serious injury -Significant loss or damage to mission critical materiel and infrastructure
Major	-Critical consequences and acceptance implies operational imperatives -Some deaths and/or injury -Loss or damage to mission critical materiel and infrastructure
Minor	-Consequences are not expected to significantly disrupt operations -Minor injuries -Minimal impact on materiel and infrastructure
Negligible	-Negligible or insignificant effects

Source: AASTP-5, Table 2-5, Consequence Table (qualitative values), page 2-44

7.13. STEP 8. GENERATE THE ESMRM RISK ASSESSMENT REPORT

7.13.1. After completing a risk assessment using either NATO or national risk assessment tools (quantitative or qualitative), methodology and format, the assessment team lead, in coordination with assessment team members, will prepare an ESMRM risk assessment report. The ESMRM risk assessment report is a NATO standard cover sheet to the risk assessment used to highlight the Inherent Risk Index, the selected/preferred course(s) of action to mitigate the Inherent Risk, the estimated Implementation Dates (risk control implementation timelines) and the Mitigated Risk Index.

7.13.2. While a risk assessment may be completed using national methodology and format, as a minimum, it must discuss the following:

a. Executive summary – to include, as a minimum, the inherent and residual risks, a recommended risk decision, implementation plan of mitigation and oversight and monitoring requirements.

b. Purpose – the reason for and location of the munitions and munitions-related processes as well as identifying the NATO explosives safety requirement that cannot met.

c. Scope – developed IAW paragraph 7.8.1 with signatures and modifications included as an enclosure.

d. Methodology – a description of the approach/tools used to assess munitions and munitions-related risks (e.g., QD, risk assessment tools, protective construction methodologies).

e. Explosives safety supporting information – site plans, deviations, exposures.

f. Identification of munitions and munitions-related processes.

g. Infrastructure – an analysis based on risk to and from munitions and munitions-related processes.

h. Overall risks to and from munitions and munitions-related processes.

i. A description of distinct courses of action (COA) that were considered to reduce/mitigate the inherent risk to as low as reasonably practicable (ALARP). Each COA shall clearly list/describe its associated pros and cons. This section will conclude with the identification of the preferred/selected COA while clearly highlighting the reasons for rejecting all other COAs.

j. A control plan recommending the preferred/selected mitigating measures to reduce the inherent risk to as low as reasonably practicable (ALARP) in order to protect people, property, and the environment, while sustaining and maximizing operational capabilities and readiness.

k. Organizations/agencies/units responsible for implementing and managing risk-reduction actions. Elements of managing a risk decision include, but are not limited to:

(1) Tracking the implementation of the risk-reducing actions.

(2) Need for reassessment of the risk decision based on conditions specified in paragraph 7.3.

l. Organizations/agencies/units responsible for overseeing approved risk reduction actions.

m. Estimated duration of the risk decision.

7.13.3. The Risk Assessment Team lead submits the final ESMRM risk assessment report to the requesting NATO commander under cover of an ESMRM Risk Assessment – Record of Risk Decision using Annex C.

7.14. STEP 9. MAKE THE ESMRM RISK DECISION (AND APPROVE RISK REDUCTION ACTIONS)

7.14.1. After the ESMRM Risk Assessment Report is completed and provided

to the requesting NATO commander, the risk decision can be made. Key elements of the NATO commander's risk decision include:

a. Determining if the residual risk identified in the Control Plan is acceptable and deciding if risk-reducing actions are sufficient and acceptable. If the NATO commander determines that the risk level is too high, he/she can direct further analysis and development of additional risk-reducing actions or change or reject the course of action.

b. Approving risk-reducing actions identified in the Control Plan.

c. Identifying/designating organizations/agencies/units responsible for implementing, tracking, maintaining, and overseeing the risk-reducing actions contained in the ESMRM report.

7.15. STEP 10. COORDINATE AND COMMUNICATE, IMPLEMENT, TRACK, AND MAINTAIN THE NATO COMMANDER'S ESMRM RISK DECISION

7.15.1. Coordination and Communication. The NATO commander's risk decision shall be coordinated and communicated with all impacted parties throughout the appropriate chain of command to communicate the hazards and controls to be implemented. Chapter 2 provides additional chain of command details**.**

7.15.2. Implementing the NATO Commander's Risk Decision. The NATO commander shall identify/designate organizations/agencies/units responsible for implementing the risk decision.

7.15.3. Tracking the NATO Commander's Risk Decision. The NATO commander shall identify/designate organizations/agencies/units responsible for tracking risk-reducing actions.

7.15.4. Maintenance. The organizations/agencies/units responsible for implementing and managing risk reduction actions shall determine when conditions require reevaluation as stated in paragraph 7.3, or when the risk decision is no longer required (e.g., a risk decision at a commercial seaport of debarkation when the operation is complete).

7.16. STEP 11. PROVIDE OVERSIGHT OF THE ESMRM RISK DECISION

The organizations/agencies/units responsible for overseeing the risk reduction actions shall report periodically through the chain of command to the NATO commander regarding the status and continued need for the risk decision and mitigation. The overseeing organization shall notify the decision maker, through the chain of command, when the risk decision is no longer needed.

7.17. STEP 12. TRACK LESSONS LEARNED

7.17.1 Lessons Learned and Information Management. Improvement of the risk assessment process can be achieved by capturing and leveraging lessons learned, as well as effectively managing and maintaining the data from the assessments process. Risk assessment information and the risk decisions should be provided to NATO planners for integration into plans, training exercises, and operational documents.

7.17.2. Repository. The AC/305 ESMRM Panel shall maintain a repository of ESMRM risk decisions and supporting assessments/reports.

ANNEX A ESMRM RISK ASSESSMENT FORM – Example 1

INTENTIONALLY BLANK

INTENTIONALLY BLANK

<table>
<tr><th colspan="5">Assessment Type and Operation</th></tr>
<tr><td colspan="5">1. Type of ESMRM Risk Assessment (i.e., 1. Planning; 2. RSOI; 3. Storage; 4. Transportation; 5. Distribution/Collection; 6. Maintenance and Handling; 7. Retrograde and Removal; or 8.Disposal and Demilitarization):</td></tr>
<tr><td colspan="5">2. Military Munitions Operations (i.e., planning, training exercise, or operation):</td></tr>
<tr><td colspan="5">3. Location (e.g., country, port, railhead, NATO operating base, training area):</td></tr>
<tr><th colspan="5">Potential Explosion Site (PES)</th></tr>
<tr><td colspan="2">4. GPS Coordinates:</td><td colspan="2">5. Length: Width: Area:</td><td rowspan="9">6. Any Additional PES Related Information:</td></tr>
<tr><td rowspan="2">7. Hazard Division (HD) and Class</td><td colspan="2">8. Explosives Quantity</td><td colspan="2">9. Inhabited Building Distance (IBD)</td></tr>
<tr><td>Assessed</td><td>Actual</td><td>Assessed</td><td>Actual</td></tr>
<tr><td>1.1</td><td></td><td></td><td></td><td></td></tr>
<tr><td>1.2.1</td><td></td><td></td><td></td><td></td></tr>
<tr><td>1.2.2</td><td></td><td></td><td></td><td></td></tr>
<tr><td>1.2.3</td><td></td><td></td><td></td><td></td></tr>
<tr><td>1.3.1</td><td></td><td></td><td></td><td></td></tr>
<tr><td>1.3.2</td><td></td><td></td><td></td><td></td></tr>
<tr><td>1.4</td><td></td><td></td><td></td><td></td></tr>
</table>

Summary of Exposed Sites (ESs) and Population			
ES Facilities and Assets Data			
Types of Facilities & Assets within IBD*	Number of Facilities and Assets within IBD	Approximate Cost	Comments:
Military			
Civilian			
Total			
ES Population Data			
Types of Facilities and Assets within IBD*	Unrelated Personnel within IBD	Related Personnel within IBD	Comments:
Military			
Civilian			
Total			

*For example, commercial buildings, exposed personal and commercial vehicles, petroleum storage tanks, power stations.

ANNEX B ESMRM Risk Assessment Form – Example 2

INTENTIONALLY BLANK

INTENTIONALLY BLANK

Assessment Type and Operation					
1. Type of ESMRM Risk Assessment **(** i.e. **1**. Planning **2**. RSOI **3**. Storage **4**. Transportation **5**. Distribution/Collection **6**. Maintenance and Handling **7**. Retrograde and Removal or **8**. Disposal and Demilitarization**)**: Transportation					
2. Military Munitions Operations **(**i.e. planning, training exercise, or operation**)**: Exercise Capable Logistician 2025					
3. Location **(**e.g. country, port, railhead, NATO operating base, training area**)**: United States, Port of Valdez Alaska **(**Commercial**)**					
Potential Explosion Site (PES)					
4. GPS Coordinates: 123456			5. Length: 400m Width: 20m Area: 8,000m		6. Any Additional PES Related Information: Commercial port has an existing Hazard Division 1.1 operating license.
7. Hazard Division (HD) and Class	8. Explosives Quantity		9. Inhabited Building Distance (IBD)		
	Assessed	Actual	Assessed	Actual	
1.1	20,000kg	10,000kg	400m	400m	
1.2.1	-	-			
1.2.2	-	-			
1.2.3	-	-			
1.3.3	-	-			
1.3.4	-	-			
1.4	-	-			

Summary of Exposed Sites (ES) and Population			
ES Facilities and Assets Data			
Types of Facilities & Assets within IBD (e.g. commercial buildings exposed personal and commercial vehicles, petroleum storage tanks, power stations)	Number of Facilities and Assets within IBD	Approximate Cost	Comments: Port of Valdez is a commercial port therefore there is no NATO base involved. 15 assets consist of 10 commercial buildings -(**7** Town of Valdez, **3** commercial fishing processing buildings) **1** pier **1** grain storage silo **1** private residence **1** port refueling facility **1** Public Traffic Route (State Road)
Military	N/A	N/A	
Civilian	15	2,000,000,000 €	
Total	15	2,000,000,000 €	
ES Population Data			
	Unrelated Personnel within IBD	Related Personnel within IBD	Comments: Recommend that as part of the risk mitigating solutions that unrelated personnel vacate commercial and private locations within IBD during munitions operations at the port. Discussions with City and Port Authority personnel indicate that they are willing to accommodate the recommended risk mitigating recommendation.
Military	N/A	N/A	
Civilian	200	50	
Total	200	50	

ANNEX C ESMRM Record of Risk Decision

ANNEX C TO
ALP-16

EXPLOSIVES SAFETY MUNITIONS RISK MANAGEMENT (ESMRM) RISK ASSESSMENT – RECORD OF RISK DECISION (form may be reproduced locally)

Tombstone Data

NATO Tracking Number	Date First Opened	Risk Assessment Team Lead	Version Number

Aim

Type of ESMRM Risk Assessment (ALP-16 Table 4.1)	
Type of Military Munitions Operation (planning, training exercise or operation) / Exercise or Operation Name	
Location (Country and municipality/place name)	
Type of facility (e.g. port, railhead, NATO operating base, training area)	

Risk Assessment Team

Name and Rank/Office/Organization	Role or Input Provided

Stakeholders

Name and Rank/Office/Organization	Role or Input Provided

Executive Summary

Risk Control Plan

Inherent Risk Index (H, M, L)			
Risk Control Activity	Estimated Implementation Date	Action by	Mitigated Risk Index
Residual Risk Index (H, M, L)			

Risk Decision	
Explosives Safety Board Recommendation 1. Concurs with the technical explosives safety content of the Explosives Safety and Munitions Risk Management risk assessment and confirms that the risk management procedures followed were compliant with ALP-16. 2. Acknowledges the technical explosives safety measures of the risk control plan, concurs that the plan will reduce and mitigate the risk as detailed in the risk assessment and summarized above in the Risk Control Activities. 3. Will monitor the implementation of the risk control plan and the conduct of the explosives safety activities. 4. Will continue to monitor the explosives safety risk during the execution of munitions-related activities and will initiate revisions to the ESMRM risk assessment, as required.	_____ _____ Signature Date Name: Rank: Position: Phone: Accepts responsibility to monitor the Risk Control Plan Implementation
Operational Authority Recommendation 1. Confirms the operational requirement for the explosives safety risk and that ALP-16 risk management principles have been followed. 2. Recommends the risk control plan, concurs that the plan will reduce and mitigate the risk as detailed in the ESMRM risk assessment. 3. Will continue to assess the operational requirement for the risk during the execution of munitions and munitions-related processes and will ensure that the explosives safety officer initiates revisions to the assessment if potential changes in risk level are identified. 4. Has informed the appropriate chain of command.	_____ _____ Signature Date Name: Rank: Position: Phone: Accepts responsibility for Risk Control Plan Implementation
Risk Decision Authority 1. Accepts the risks described herein. 2. Accepts the assessment of hazard identification, including initial assessment of probability and consequence. 3. Accepts the risk control plan. 4. When necessary, will ensure appropriate NATO chain of command is informed of approved activities. Note: changes to the situation, risk level or to the risk control plan necessitate review, and possibly, resubmission/approval.	_____ _____ Signature Date Name: Rank: Position: Phone: Approves Risk Control Plan Implementation Expiry Date:

List of Enclosures:	Title of Enclosure	Number of pages

APPENDIX 1-C

COMPLETION INSTRUCTIONS FOR THE ESMRM RECORD OF RISK DECISION

NATO Tracking Number. JSEC will allocate a NATO tracking number for each NATO ESMRM assessment in peacetime. During operations the responsibility to track and manage ESMRM assessments should be delegated to the JTF within an AOR.

Date First Opened. Used to indicate the length of the risk assessment process, this should be the date that the scope of the assessment (para 7.8) was finalized or that the pre-assessment coordination and data gathering commenced (para 7.10)

Risk Assessment Team Lead. The name, rank and country of the Risk Assessment team lead tasked to have a coordination role for the risk assessment and prepare the ESMRM report.

Version Number. To ensure that all contributors are reviewing the most current report, enter a number which should normally commence at 1. The Risk Assessment Team Lead will control updates to the version number.

Aim. Provide a summary of the situation and the intent of the risk assessment (eg. to license an explosives storage facility or workshop where AASTP-1 or AASTP-5 safety standards cannot be achieved).

Type of ESMRM Risk Assessment. Using Table 4.1 column 2, determine the ESMRM Risk Assessment Type.

Type of Military Munitions Operation / Exercise or Operation Name. Select the appropriate military munitions operation (i.e. planning, training exercise, or operation). Where applicable, record the NATO training exercise or operation name.

Location. Specify the geographic region where the ESMRM risk assessment was conducted using the name of country and closest municipality (e.g. Canada, Toronto) or place name (e.g. England, Salisbury Plain).

Type of Facility. Indicate the type of facility where the munitions-related activities cannot meet NATO guidance found in AASTP-1 or AASTP-5.

Risk Assessment Team. Identify by name, rank, position and contact information each member of the risk assessment team. The principal role of each team member is to be identified. See paragraph 7.9 for the suggested composition of risk assessment teams for planning and operations.

Stakeholders. Identify by name, rank, position and organization any individual from whom the risk assessment team obtained advice/information.

Executive Summary. At minimum, the executive summary will identify the location of the hazard, the inherent and residual risks of the munitions-related activity, the estimated number of fatalities, damage estimates, risk control plan and mitigations to reduce risk to ALARP, the recommended risk decision and expected duration of the activity. A national risk assessment form may be used as the basis of the ESMRM report and is to cover in greater depth the information as is required in paragraph 7.13.1. If the national riskassessment form includes an Executive Summary, the

same Executive Summary should be repeated on the ESMRM Record of Risk Decision. National risk assessments should consider those elements described within Chapter 7 of ALP-16

Inherent Risk Index. The risk index of the munitions-related activity prior to any mitigations being implemented. Select the appropriate risk index from Table 7-1 (i.e., High, Medium, or Low).

Risk Control Activity. Insert a short descriptor of each discrete mitigation planned or implemented, the estimated completion date, the organization responsible to implement the activity, and the expected residual risk index following completion of that activity. If the mitigation has already been completed, insert the date the action was implemented. Additional rows may be added to the Risk Control Plan portion of the ESMRM Record of Risk Decision form.

Residual Risk Index. The risk index of the munitions-related activity once all proposed mitigations have been implemented. Select the appropriate risk index from Table 7-1 (i.e., High, Medium, or Low).

Risk Decision. In a multi-national setting, it is recommended that the ESB Chair sign the Explosives Safety Board Recommendation. Where an ESB has not been established, either the Risk Assessment Team Lead or the Lead ESO should sign this recommendation. There is not an “Approved/Not Approved” field on the Record of Risk Decision form. The signature of the Risk Decision Authority constitutes approval of the activity with the expiry date authorizing the duration of the activity.

List of Enclosures: The list of enclosures is to include, at minimum, the approved scope of the risk assessment, and the ESMRM Risk Assessment Report, which may use a national risk assessment form. There may be other supporting documentation required for the risk assessment such as but not limited to the explosives limits, licenses or waivers, photographs, quantitative reports from NATO or nationally approved risk tools, and site plans. The list of enclosures is to include a title of the supporting documentation and the number of pages of each individual supporting document. Additional rows may be added as required.

ANNEX D REFERENCES

Allied Administrative Publications (AAPs)

AAP-06, Edition 2013, Version 2, “NATO Glossary of Terms and Definitions (English & French)”
AAP-15, Edition 2013, Version 1, “NATO Glossary of Abbreviations Used in NATO Documents and Publications”

Allied Ammunition Storage and Transport Publications (AASTPs)

AASTP-1, Edition 1, Change 3, “Manual of Safety Principles for the Storage of Military Ammunition and Explosives”
AASTP-3, Edition 1, Change 3, “Manual of NATO Safety Principles for the Hazard Classification of Military Ammunition and Explosives”
AASTP-4, Edition 1, Version 3, “Manual on the NATO Principles for the Application of Risk Analysis to the Storage and Transportation of Military Ammunition and Explosives”
AASTP-5, Edition 1, Version 2, “NATO Guidelines for the Storage, Maintenance and Transport of Ammunition on Deployed Missions or Operations”

Allied Command Operations (ACO) “Comprehensive Operations Planning Directive” (COPD)

Allied Committee (AC)/305 (EAPC) D(2013)0008-AS11 29 April 2013, “NATO Explosives Safety and Munitions Risk Management (ESMRM)

Allied Joint Publications (AJPs)

AJP-01, “Allied Joint Doctrine”
AJP-3, “Allied Joint Doctrine for the Conduct of Operations”
AJP-3.2, “Allied Joint Doctrine for Land Operations”
AJP-3.4, “Allied Joint Doctrine for Non-Article 5 Crisis Response Operations”
AJP-3.4.1, “Peace Support Operations”
AJP-3.5, Edition A, Version 1, “Allied Joint Doctrine for Special Operations” AJP-3.12, “Allied Doctrine for Military Engineer Support to Joint Operations” AJP-3.13, “Allied Joint Doctrine for the Deployment of Forces”
AJP-3.14, “Allied Joint Doctrine for Force Protection”
AJP-4, “Allied Joint Logistic Doctrine”
AJP-4.4, “Allied Joint Movement and Transportation Doctrine”
AJP-4.5, “Allied Joint Doctrine for Host Nation Support”
AJP-4.9, “Allied Joint Doctrine for Modes of Multinational Logistic Support” AJP-4.10, “Allied Joint Medical Support Doctrine”
AJP-5, “Allied Joint Doctrine for Operational-Level Planning”

Allied Logistic Publication (ALP)-4.2, “Land Forces Logistic Doctrine”

Allied Movement Publication (AMovP)-6, “Allied Multimodal Transportation of Dangerous Goods Directive”

Allied Ordnance Publications (AOPs)

AOP-2, “The Identification of Ammunition”
AOP-38, “Glossary of Terms and Definitions Concerning the Safety and Suitability for Service of Munitions, Explosives and Related Products”
AOP-62, “In-Service Surveillance of Munitions General Guidance”
AOP-63, “In-Service Surveillance of Munitions Sampling and Test Procedures”
AOP-64, “In-Service Surveillance of Munitions Condition Monitoring of Energetic Materials”

Council Memorandum (C-M)(2002)60, “The Management of Non-Classified NATO Information”

Standardization Agreements (STANAGs)

STANAG 2389, “Minimum Standards of Proficiency for Trained Explosive Ordnance Disposal Personnel”
STANAG 2617, “Explosives Safety and Munitions Risk Management (ESMRM) in NATO Planning, Training, and Operations”
STANAG 2953, “The Identification of Ammunition”
STANAG 4441, “Allied Multi-Modal Transportation of Dangerous Goods Directive” STANAG 4518, “Safe Disposal of Munitions, Design Principles and Requirements, and Safety Assessment.”
STANAG 4675, “In-Service Surveillance (ISS) of Non-Nuclear Munitions”

U.N. Recommendations on the Transport of Dangerous Goods, Model Regulations, Volumes I and II, 18th Revised Edition, 2013

ANNEX E ABBREVIATIONS AND ACRONYMS

This annex lists abbreviations and acronyms used in this document as well as others commonly used in joint and combined operations. A comprehensive list is provided in AAP-15, "NATO Glossary of Abbreviations Used in NATO Documents and Publications."

AAP	Allied Administrative Publication
AASTP	Allied Ammunition Storage & Transport publication
ACO	Allied Command Operations
AJP	Allied Joint Publication
ALARA	As Low As Reasonably Achievable
ALARP	As Low As Reasonably Practicable
ALP	Allied Logistic Publication
AMovP	Allied Movement Publication
AOI	Area of Interest
AOO	Area Of Operations
AOP	Allied Ordnance Publication
AOR	Area of Responsibility
APOD	Airport Of Debarkation
APOE	Airport Of Embarkation
AT	Ammunition Technician
ATO	Ammunition Technical Officer
ATP	Allied Tactical Publication
BLAHA	Basic Load Ammunition Holding Area
BLSA	Basic Load Storage Area
BOSI	Base Operations Support Integrator
CALA	Combat Aircraft Loading Area

CAPA	Combat Aircraft Parking Area
CEA	Captured Enemy Ammunition
CJSOR	Combined Joint Statement Requirement
COA	Course of Action
CONOPLAN	Contingency Operation Plan
COPD	Comprehensive Operations Planning Directive
CSS	Combat Service Support
CT&ED	Collective Training and Exercise Directive
DU	Depleted Uranium
EAPC	Euro-Atlantic Partnership Council
EFP	Enhanced Forward Presence
EOD	Explosive Ordnance Disposal
ERW	Explosive Remnants of War
ESB	Explosives Safety Board
ESMRM	Explosives Safety and Munitions Risk Management
ESO	Explosives Safety Officer
EXPLAN	Exercise Plan
FARP	Forward Arming and Refueling Point
FD	Field Distance
FLPC	Final Logistics Planning Conference
FLB	Forward Logistic Base
FOB	Forward Operating Base
HD	Hazard Division
HN	Host Nation

HNS	Host-Nation Support
HQ	Headquarters
IBD	Inhabited Building Distance
ID	Initiating Directive
ILPC	Initial Logistics Planning Conference
IMD	Intermagazine Distance
ISO	International Organization for Standardization
JALLC	Joint Analysis Lessons Learned Centre
JFC	Joint Force Command
JOPG	Joint Operational Planning Group
JTF	Joint Task Force
LC	Logistics Committee
LIVEX	Live (Firing) Exercise
LOC	Lines of Communications
LOGCON	Logistics Control
LPT	Logistics Preparation of the Theatre
M&T	Movement & Transport
MLPC	Main Logistics Planning Conference
MN	Multinational
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MRO	Military Response Options
NA5CRO	Non-Article 5 Crisis Response Operation
NAC	North Atlantic Council
NATO	North Atlantic Treaty Organization
NEQ	Net Explosive Quantity

NSO	NATO Standardization Office
OB	Open Burning
OCE	Officer Conducting the Exercise
OD	Open Detonation
OLRC	Operations and Logistics Review Conference
OPLAN	Operations Plan
OPP	Operational Planning Process
OTAN	Organisation Du Traité De l'Atlantique Nord
PS	Physical Security
QD	Quantity-Distance
RLP	Recognized Logistics Picture
RSOI	Reception, Staging, Onward Movement, and Integration
SC	Strategic Command
SHAPE	Supreme Headquarters Allied Powers Europe
SME	Subject Matter Expert
SOP	Standard Operating Procedures
SPOD	Seaport of Debarkation
SsD	Storage Sub-Division
STANAG	Standardization Agreement
TA	Technical Agreement/Arrangement
TCN	Troop Contributing Nation
TN	Transit Nation
TOR	Terms of Reference
UN	United Nations

INTENTIONALLY BLANK

ALP-16(A)(2)