



Ministry
of Defence

JSP 520
Safety and Environmental Management of
Ordnance, Munitions and Explosives over the
Equipment Acquisition Cycle

Part 2: Guidance
Vol 3: Safety and Environmental Management
System

Intentionally Left Blank

Foreword

The Secretary of State for Defence (SofS) through his Health Safety & Environmental Protection (HS&EP) Policy Statement requires Top Level Budget Holders and Trading Fund Chief Executives to conduct defence activities with high standards of HS&EP. They are expected to achieve this by implementing robust, comprehensive Health Safety & Environmental Management Systems.

As Director of the Defence Safety Authority (DSA), I am responsible for providing MOD regulatory regimes for HS&EP in the Land, Maritime, Nuclear and OME domains. The OME regulations set out in JSP 520 are mandatory and take precedence where Ordnance, Munitions or Explosives are involved. Full compliance is required, except as set out in JSP815 Defence Health and Safety and Environmental Protection. It is the responsibility of commanders and line managers at all levels to ensure that personnel, including contractors, involved in the management, supervision and conduct of defence activities are fully aware of their responsibilities.

DSA regulators are empowered to enforce these regulations.

JCS Baker

Depty Director Defence Safety Authority

Defence Authority for Health Safety and Environmental Protection

Preface

How to Use This JSP

1. This JSP explains the requirements needed to demonstrate that the inherent risks from Ordnance, Munitions and Explosives (OME) are either Broadly Acceptable or Tolerable and As Low as Reasonably Practicable (ALARP) for the MOD, third parties and the environment.
2. It applies to all OME:
 - a. Ordnance e.g., weapons including directed energy, small arms, delivery platforms including barrels, launchers, fire systems.
 - b. Munitions e.g., missile, shell, mine, demolition store, pyrotechnics, mines, bullets, explosive charges, mortars, air launched weapons, free fall weapons.
 - c. Explosives e.g., propellants, energetic material, igniter, primer, initiatory and pyrotechnics irrespective of whether they evolve gases (e.g. illuminants, smoke, delay, decoy, flare and incendiary compositions).
3. It is designed to be used by personnel who are responsible for OME employed by or contracted to the MOD.
4. It contains the policy and direction about the processes involved and the techniques to be applied throughout the acquisition cycle or Manufacture to Target or Disposal Sequence (MTDS).
5. The JSP is structured in two parts:
 - d. Part 1 Directive. Provides the regulations that shall be followed in accordance with Statute, or Policy mandated by Defence or on Defence by Central Government.
 - e. Part 2 Guidance. Provides the guidance that should be followed to assist the user in complying with regulations detailed in Part 1.

Related Documents	Title
JSP375	MOD Health and Safety Handbook.
JSP390	Military Laser Safety
JSP418	MOD Corporate Environmental Protection Manual.
JSP430	Management of Ship Safety and Environmental Protection.
JSP454	Land Systems Safety and Environmental Protection.
JSP482	MOD Explosives Regulations.
JSP762	Weapons and Munitions Through Life Capability
JSP815	Defence Health and Safety and Environmental Protection.
MAA/RA	Military Aviation Authority Regulatory Publications (MRP)

Coherence with Other Defence Authority Policy and Guidance.

6. Where applicable, this document contains links to other relevant JSPs, some of which may be published by different Defence Authorities. Where particular dependencies exist, these other Defence Authorities have been consulted in the formulation of the policy and guidance detailed in this publication.

Training

7. This JSP has been developed for use by Suitably Qualified and Experienced Personnel (SQEP) involved with OME. Simply following this JSP will not fulfil obligations arising from other legislation.

Further Advice and Feedback- Contacts

8. The owner of this JSP is **DSA-DOSR-PRG-ATL**. For further information about any aspect of this guide, or questions not answered within the subsequent sections, or to provide feedback on the content, contact:

Job Title	DSA-DOSR-PRG-4
Project focus	DOSR
Phone	030 679 85844
E-mail	dsa-dosr-prg-4@mod.uk
Address	Hazel, #H019, Abbey Wood (North), New Road, Stoke Gifford, Bristol, BS34 8QW

Authority

9. This issue of JSP 520 volume 3 supersedes all previous volume 3.

10. This document is crown copyright and the intellectual property rights of this publication belong exclusively to the Ministry of Defence. However, material or information contained in this publication can be reproduced, stored in a retrieval system or transmitted in any form provided it is used for the purposes of furthering safety management.

Status

11. All hard copies of JSP 520 Part 1 or 2 are uncontrolled. The JSP will be updated whenever additional or improved guidance becomes available and will be reviewed at least annually.

12. Readers are encouraged to assist in the continued update of this document by informing the **DSA-DOSR-PRG-4** of any required changes particularly those resulting from their experiences in the development of OME safety regimes.

13. To check the latest amendment status reference should be made to JSPs within the Library section of the Defence Intranet.

Cautionary Note about References

14. The responsibility for the use of correct and relevant standards, procedures and working practices remains with the Project Team Leader (PTL). No assurance is given that the documents referenced within JSP520 Part 1 and 2 are up to date or that the list is comprehensive. It will be necessary to check applicability for the intended use and where relevant confirm documents accuracy and suitability to the intended use.

Amendment Record

Issue 4.2 changes highlighted in YELLOW					
No.	Section	Par	Amendment Summary	Agreed	Date
4.2	Preface	1	Remove practical handbook	PRG-4	16/06/15
4.2	Preface	2a	Added direct energy and examples	PRG-4	16/06/15
4.2	Preface	3	Removed Land, Sea, Air	PRG-4	16/06/15
4.2	Preface	5	Added MTDS	PRG-4	16/06/15
4.2	Preface	6	JSP added	PRG-4	16/06/15
4.2	Preface	8	Sentence Removed	PRG-4	16/06/15
4.2	Preface	9	Organisational DSA changes	PRG-4	16/06/15
4.2	Preface	10	Rewording	PRG-4	16/06/15
4.2	Preface	12	Reworded	PRG-4	16/06/15
4.2	Preface	13	Organisational DSA changes	PRG-4	16/06/15
4.2	1	1	Sentence reworded	PRG-4	16/06/15
4.2	1	2	Removed MOD Acquisition Cycle	PRG-4	16/06/15
4.2	1	4/h/i	Language	PRG-4	16/06/15
4.2	1	4j	OSRP Assurance Statement	PRG-4	16/06/15
4.2	1	6	Language	PRG-4	16/06/15
4.2	2	4	Sentence reworded	PRG-4	16/06/15
4.2	2	12	Sentence reworded	PRG-4	16/06/15
4.2	3	1	Environmental added	PRG-4	16/06/15
4.2	3	4/5	Service added	PRG-4	16/06/15
4.2	4	2	Sentence reworded	PRG-4	16/06/15
4.2	4	3	Environmentla added	PRG-4	16/06/15
4.2	4	5	Sentence reworded	PRG-4	16/06/15
4.2	4	7	Sentence reworded	PRG-4	16/06/15
4.2	4	8a	Sentence reworded	PRG-4	16/06/15
4.2	4	8e	Added	PRG-4	16/06/15

Issue 4.1					
No.	Section	Par	Amendment Summary	Agreed	Date
4.1	Forward	-	New forward from C Baker	Du-Policy	27/11/14
4.1	Preface	2	Small arms	Du-Policy	27/11/14
4.1	Preface	3	Who are	Du-Policy	27/11/14
4.1	Preface	5	About, to be applied	Du-Policy	27/11/14
4.1	Preface	6	Regulations, shall, should	Du-Policy	27/11/14
4.1	Preface	9	New address	Du-Policy	27/11/14
4.1	Preface	11	Update to 4.1	Du-Policy	27/11/14
4.1	Preface	13	Update to 4.1	Du-Policy	27/11/14
4.1	1		Footnotes pages 2, 3	Du-Policy	27/11/14
4.1	2		Footnotes pages 4, 5	Du-Policy	27/11/14
	4		Footnotes page 9	Du-Policy	27/11/14

Contents JSP520 Part 2, Vol 3: Safety And Environmental Management System

Foreword	i
Preface	ii
1 Overview	2
Aims And Objectives	2
Generation Of The Safety And Environmental Management System	3
2 Management of the SEMS	4
Introduction	4
Safety And Environmental Panel.....	4
Safety And Environmental Management Committee.....	5
Safety And Environmental Management Plan.....	6
3 Urgent Operational Requirements	7
4 Maintaining a SEMS	8
Safety Information and Retention.....	9
Figures	
Figure 1: Example of a Top Level Organisational Structure within a Cluster Project Team.....	5

1 Overview

1. A Safety and Environmental Management System (SEMS) is the organisational structure, processes, procedures and methodologies that enable the direction and control of the activities necessary to meet safety and environmental requirements and-policy objectives.
2. The SEMS is established at the initiation of a Project, for the management of safety risks and environmental impacts throughout acquisition cycle¹ of the Ordnance, Munitions and Explosives (OME).

Aims And Objectives

3. The aim of the SEMS, throughout the life of the OME system, is to ensure that:
 - a. Safety risks are reduced to either Broadly Acceptable or Tolerable and As Low as Reasonably Practicable (ALARP).
 - b. There is cross-reference with safety and legal reviews for compliance with International Law, including Protocols additional to the Geneva Conventions.
 - c. Environmental features of the OME system are compliant with Joint Service Publication (JSP) 418².
4. To fulfil this aim the SEMS will ensure that the following objectives are met:
 - a. The OME system complies with all legal requirements, e.g. International, EU and UK legislation, and relevant standards.
 - b. The OME system complies with all applicable MOD policies.
 - c. The OME system is maintained through life by continuous assessment of safety and environmental management arrangements and system performance.
 - d. The OME system only poses safety risks that are either Broadly Acceptable or Tolerable and ALARP.
 - e. Environmental aspects are managed through the application of JSP418.
 - f. Roles and responsibilities are defined and clearly understood and individuals are competent to undertake the tasks required of them.
 - g. Individuals have relevant delegated authority to undertake the role.
 - h. Attention is given to any cross-cutting environment and safety issues, i.e. where the activities of the OME system could affect other platforms/systems.
 - i. Arrangements are in place to liaise with safety management support organisations and regulatory authorities.

¹ JSP520 Part 2, Vol 9: Safety and Environmental Case Development.

² JSP418 MOD Corporate Environmental Protection Manual.

- j. OSRP Assurance Statement³ are obtained and maintained and that any conditions continue to be complied with.
- k. Communication and co-operation arrangements are in place with the relevant equipment and facility authorities.
- l. Effective arrangements are in place for the identification, notification, recording, investigation (by a competent person) and reporting of incidents and accidents.
- m. Equipment, processes and systems are operated and facilities are used within identified environments and safety constraints of the OME system.

Generation Of The Safety And Environmental Management System

5. All Project Teams (PT) will satisfy the requirements of the domain-specific safety JSP relevant to the operating environments for that OME, by working within a robust integrated SEMS. For JSP520 applied systems, the SEMS will also provide a description of the PT's system for managing inherent OME safety and complying with the requirements of JSP520. This may be in the form of a standalone PT's OME SEMS, integrated within the Platform's SEMS, or as an annex to the main document.

6. The content of the PT's OME SEMS assumes the existence of an overarching domain-specific PT SEMS which has been produced to the requirements of an alternative functional safety policy, e.g. Sea (JSP430⁴), Land (JSP454⁵), or Air (MRP⁶), with the JSP520 requirements integrated into it. The OME PT should develop its SEMS in accordance JSP520 requirement and guidance within Project Oriented Safety Management System⁷ (POSMS) and Project Oriented Environmental Management System⁸ (POEMS).

7. The management of the interfaces between JSP520 and other functional policy JSPs is detailed within the JSP520 Part 2⁹.

³ Formally known as CSOME

⁴ JSP430 Management of Ship Safety and Environmental Protection.

⁵ JSP454 Land Systems, Safety and Environmental Protection.

⁶ MAA 01 Military Aviation Authority Regulatory Policy.

⁷ See Acquisition System Guidance (ASG).

⁸ See Acquisition System Guidance (ASG).

⁹ JSP520 Part 2, Vol 2: Process Interface.

2 Management of the SEMS

Introduction

1. The management of the SEMS is important to the effectiveness of the system. This section presents guidance on the management of the SEMS through a Safety and Environmental Panel (SEP) or Safety and Environmental Management Committee (SEMC) (Where a project team has a number of similar systems under its management). It also describes the Safety and Environmental Management Plan (SEMP), a plan used to set out and record the safety and environmental management arrangements for the system.

Safety And Environmental Panel

2. The purpose of the SEP is to manage the safety risks and the environmental aspects through the operation of the SEMS. It provides a forum for relevant stakeholders to effectively monitor and co-ordinate all related activities. This can be presented as a standalone OME SEP or integrated into the Platform's SEP.

3. The SEP should be established during the outset of a project and comprise those authorities with responsibilities for acquiring, supporting and operating OME. The chairmanship of the SEP should normally sit with the Project Team Leader (PTL) (Platform or OME system as appropriate), or delegated person, who has the authority to implement any proposed changes that may be needed to sustain or improve safety risks and / or environmental impacts. If the PTL, or equivalent, elects to delegate the chairmanship of the safety panel and / or nominate staff to undertake safety management responsibilities, they are to ensure that those staff are Suitably Qualified and Experienced Personnel (SQEP)¹⁰.

4. The required frequency of SEP meetings should be documented and depends on various factors including the stage of the project and the complexity of the system. Meetings will be required at greater frequency during periods of significant review and decision making, typically when Project milestones are approaching.

5. SEP meetings may occur less frequently during periods of stability, such as during the in-service phase, when fewer safety decisions are necessary. However, the SEP still has an important duty to provide oversight of the Safety and Environmental management activities; and ensure that it remains valid and monitoring safety performance. This will include considering whether the system or its usage is changing, and seeking counter-evidence that shows that the predicted level of Safety performance is not being achieved in practice.

6. The SEP may meet as a body, or its work may be included as a permanent item in another forum (in this instance care should be taken that all relevant stakeholders are included), or simply through written communications. The key principles are to ensure that all relevant authorities are consulted, actions are agreed and properly allocated and a record is kept of proceedings. The panel can either be established for a single system, or a family of system variants.

¹⁰ JSP520 Part 2, Vol 5: Competence.

7. It is important that the SEP is represented at the appropriate level and that members are included in all stages of preparation and review of the Safety and Environmental Case. The SEP is also responsible for carrying out regular safety / environmental reviews and audits of the SEMS.

8. Procedures for establishing the SEP and guidance on its Terms of Reference (ToR) can be found in the POSMS¹¹ and POEMS¹². Guidance on Roles and responsibilities in the context of JSP520 are presented within the JSP520 Part 2¹³.

Safety And Environmental Management Committee

9. Where a project team has a number of systems under its management, e.g. a Cluster Project Team, consideration should be given to establishing a top level SEMC to set out and agree the safety and environmental management policy and strategy for those systems. The agreed policy and strategy should be recorded in the SEMS.

10. The SEMC is responsible for monitoring and controlling the activities of all individual projects as shown in Figure 1. The chairmanship of a Project Team SEMC should sit with the PTL.

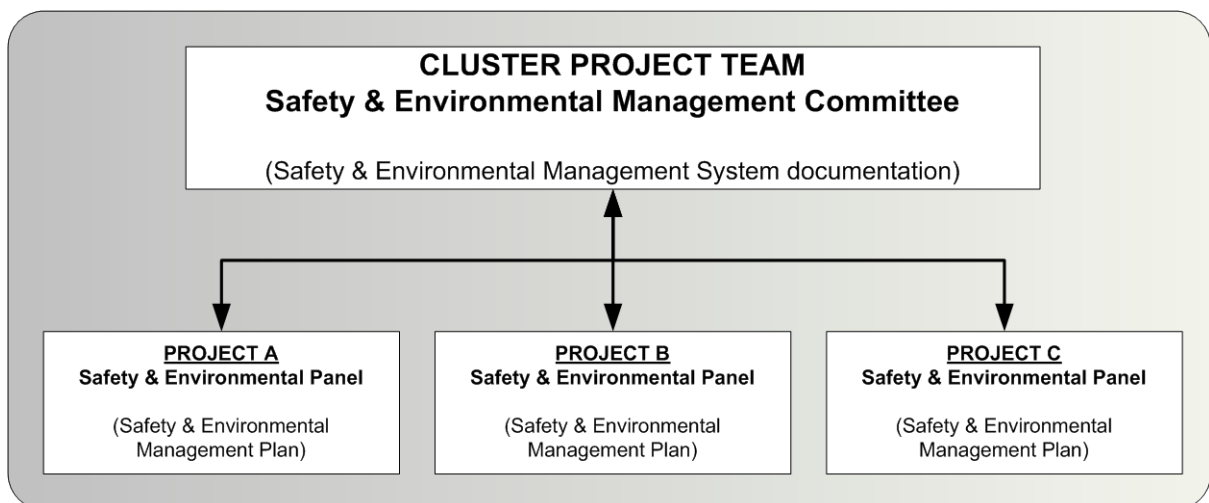


Figure 1: Example of a Top Level Organisational Structure within a Cluster Project Team

¹¹ ASG POSMS:-SMP01 and SMP02.

¹² ASG POEMS: EMP01 to EMP03.

¹³ JSP520 Part 2, Vol 4: Roles and Responsibilities.

Safety And Environmental Management Plan

11. The SEMP is used to set out and record the safety and environmental management arrangements for the system, and the actions and processes to be followed to ensure safe application throughout its lifecycle. It should clearly be a definable part of the Through Life Management Plan (TLMP) and should state the responsibilities of both MOD and its contractors for the management of safety and environmental aspects.

12. The SEMP is the formal record of the way in which the MOD intends to manage the safety risks and the environmental impacts of a system throughout its life. It should be reviewed at least annually to determine if it is still meets business needs and those reviews recorded. Procedures for drafting the SEMP and guidance in its contents can be found in the POSMS¹⁴ and POEMS¹⁵ for the environmental aspects.

¹⁴ ASG POSMS: SMP03.

¹⁵ ASG POEMS: EMP06.

3 Urgent Operational Requirements

1. Safety and Environmental Management applies to Urgent Operational Requirements (UORs) as for any other project. However, it is recognised that, because of the short timescales and pressures under which UORs are procured, it may not be practical to apply the full requirements of the SEMS prior to a UOR coming into service. Nevertheless, MOD will ensure that it discharges its duty of care.
2. The basic principle to apply is that MOD will understand, and be able to demonstrate, that it can manage the main safety risks the system is likely to present. Any possible shortfalls in the design will be clearly identified and will be addressed if there is any planning for the future development, or extended use, of the system.
3. In the case of UORs the following basic elements of a SEMS should be established:
 - a. SEP – key issues are to:
 - 1) Agree the extent of the Safety and Environmental Case (boundaries / interfaces).
 - 2) Define principal safety requirements and acceptance criteria.
 - 3) Provide input to safety assessment (particularly from the user and maintainer).
 - 4) Review and recommend acceptance of the Safety and Environmental Case and agree on the future strategy for its development should the use of the system be extended.
 - b. SEMP can be brief but needs to define:
 - 1) Those with the key responsibility for safety (post and responsibility).
 - 2) Agreed requirements and acceptance criteria.
 - 3) The safety assessment process.
 - 4) What safeguards will be adopted to give early identification of potential problems in-service e.g. through full accident and failure reporting, additional briefings etc. recognising that there may be limitations in the safety assessment process.
4. The PT will continue to gather evidence to demonstrate risks are either Broadly Acceptable or Tolerable and ALARP. This evidence will be used if the OME is brought into core service.
5. Bringing a UOR OME into core service requires full compliance with a JSP520 SEMS to be completed.

4 Maintaining a SEMS

1. The control and maintenance of the SEMS is important to the effectiveness of the system. The SEMS should include only what is necessary to cover the application of the system, and should be organised in a clear and effective way. In order for the SEMS to remain effective, the PTL will ensure it is maintained, reviewed and updated throughout the life of the OME system.

2. The review and update of the SEMS will depend upon the following:

- a. A change in legislative and regulatory requirements.
- b. A change in MOD Policy and Certification requirements.
- c. A change in civil or MOD Standards to be complied with.
- d. A change in design / modification of the equipment.
- e. A change in design of any other equipment with which the OME system has an interface or which can have an impact on the OME system's operation or maintenance.
- f. A change in use / operating role (including disposal).
- g. A change in training / procedures.
- h. A change on Emergency / Contingency Arrangements.
- i. An accident or incident or reported near miss.
- j. A system/equipment defect or failure.
- k. An organisational change, e.g. roles and responsibilities, change of personnel.
- l. The results of an audit requiring an update to documentation.
- m. A periodic review, as set by the PT.

3. Top Level Budget holders (TLBs) / PTLs (depending on the level at which the change takes place) should assess the impact on safety and environmental related roles when organisational changes are undertaken; and review risk assessments associated with recent organisational changes once such changes are made.

4. The PTL should develop processes to control all documents and data relating to the SEMS. Revisions to existing documents should be readily identifiable and relevant; personnel should be notified of all changes. All valid documents need to be available in appropriate, designated locations. Personnel affected by each change should be involved in defining and implementing new policies, processes and procedures.

5. Changes to the documents should be reviewed and approved by authorised personnel, i.e. SEP or SEMC, at which time, outdated uncontrolled versions should be destroyed. Only the person responsible for the documentation control should retain copies of obsolete documents.

Safety Information and Retention

6. A key aim of the safety regime should be to reduce and / or harmonise information, improving previous methods of safety assurance by collecting all relevant documentation together.

7. Hard copies of endorsed originals of safety case reports, certificates of safety and contractual documents should be maintained and available. Legacy projects in particular, may rely on paper files of past records.

8. The update, configuration control and review of safety documents and information will be managed via the safety management system, ensuring that:

a. Safety documents, records and data are coherent, complete and up to date.

b. Safety evidence is consistent, compatible and to an equivalent standard and quality across the acquisition cycle.

c. The configuration control, document retention, procedure update and training procedures could be modified from existing quality procedures.

d. Urgent safety-related information will be made visible to all relevant Duty Holders without delay.

e. Obsolete documentation is retained for future reference.

9. Further guidance on configuration control and management is detailed within JSP520 Part 2¹⁶.

10. MOD policy for retaining safety related information is to comply fully with the requirements of civil statute. Specific legal requirements for keeping records are defined in JSP815¹⁷, with further guidance in POSMS¹⁸. Attention is drawn to the requirement that where there is no statute stipulating information retention times for specific hazards, the MOD Legal Adviser advises that safety related documentation (e.g. Safety Cases and safety certification) should be kept for ten years after equipment disposal. When equipment is sold, all such pertinent documentation should be handed to the new Delegated Authority.

¹⁶ JSP520 Part 2, Vol 9: Safety and Environmental Case Development.

¹⁷ JSP815 Defence Health and Safety and Environmental Protection.

¹⁸ ASG POSMS: SMP12