



Ministry
of Defence

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

Part 2: Guidance
Vol 2: Process Interface

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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 process 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-4**. 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:

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Authority

9. This issue of JSP 520 volume 2 supersedes all previous volume 2.

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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 JSP 520 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	Language	PRG-4	16/06/15
4.2	1	4	Organisational DSA changes	PRG-4	16/06/15
4.2	1	6	Language	PRG-4	16/06/15
4.2	1	11	OSRP Assurance Statement	PRG-4	16/06/15
4.2	1	14	OSRP Assurance Statement	PRG-4	16/06/15
4.2	1	17	OSRP Assurance Statement	PRG-4	16/06/15
4.2	2	14	Explosive Storage and Transportation Classification	PRG-4	16/06/15
4.2		Annex A	Update	PRG-4	16/06/15
4.2		Annec B	Completely updated	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

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1 Overview

1. The Ministry of Defence (MOD) **is** required to fulfil its statutory obligations and its common-law duty of care whilst maintaining Defence capability. Requirements have been placed on Project Team Leaders (PTL) to:
 - a. Generate Safety and Environmental Cases.
 - b. Establish Safety and Environmental Management Systems (SEMS).
 - c. **Reduce** risk to a level that is either Broadly Acceptable or Tolerable and As Low As Reasonably Practicable (ALARP).
 - d. **Ensure** residual risk is adequately controlled.
 - e. **Ensure** environmental features of the Ordnance, Munitions and Explosives (OME) system are compliant with Joint Service Publication (JSP) 418¹.
2. These requirements are published in domain-specific publications, for example OME (JSP 520²), Land (JSP 454³), Maritime (JSP 430⁴) and Air (Military Aviation Authority Regulatory Policy (MRP)⁵). Although, wherever practicable, there should be common processes selected regardless of the domain in which the equipment will operate.
3. Before discussing specific JSP 520 policy interfaces with other functional policy documents, first there is a need to understand the hierarchy of MOD safety documentation as shown within Figure 1.

¹ JSP418 MOD Corporate Environmental Protection Manual.

² JSP520 Safety and Environmental of Ordnance, Munitions and Explosives over the Equipment Acquisition Cycle.

³ JSP454 Land Systems Safety and Environmental Protection.

⁴ JSP430 Management of Ship Safety and Environmental Protection.

⁵ MAA01 Military Aviation Authority Regulatory Policy.

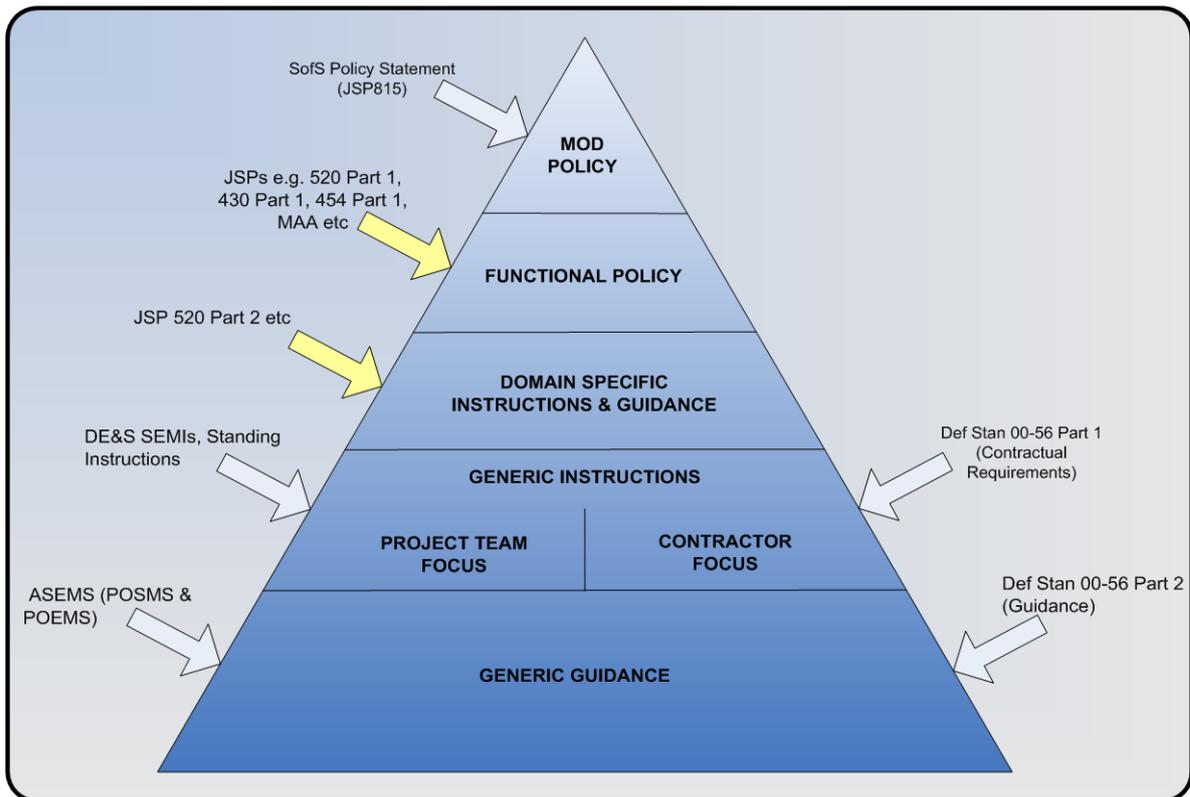


Figure 1: Hierarchy of MOD Safety Documentation

4. JSP815⁶ is a Level 1 Joint Service Publication which contains the Secretary of State (SofS) policy statement and describes in high-level terms the corporate system for the management of environmental protection and safety in the MOD. It also provides strategic direction to **Defence Safety Authority (DSA)** charged with developing environment and safety policy and regulations, and to Top Level Budget (TLB) holders and Trading Fund Agency (TFA) Chief Executives responsible for implementing it.

5. Functional Safety and Environmental Protection Regulatory documents are Level 2 Joint Service Publications and include JSP 520 Part 1⁷, JSP 430 Part 1⁸, JSP 454 Part 1⁹ and Military Aviation Authority Regulatory Policy (MRP) MAA 01¹⁰. These MOD wide, domain specific documents expand upon the requirements of JSP815 to enable the MOD, and those responsible for safety, to demonstrate that sustainable levels of personnel safety and environmental protection are being achieved consistent with best modern practice.

6. Domain specific instructions (JSP520 Part 2) provide guidance about what actions are required to meet the JSP520 Part 1 Regulations. Part 2 also **contains** MOD Code of Practice (COP), where identified.

⁶ JSP815 Defence Health and Safety and Environmental Protection.

⁷ JSP520 Safety and Environmental of Ordnance, Munitions and Explosives over the Equipment Acquisition Cycle.

⁸ JSP430 Management of Ship Safety and Environmental Protection.

⁹ JSP454 Land Systems Safety and Environmental Protection.

¹⁰ MAA 01 Military Aviation Authority Regulatory Policy.

Interfaces With Other Functional Regulatory Documents

7. JSP520 interfaces with the following domain specific publications:
 - a. JSP430 - Management of Ship Safety and Environmental Protection.
 - b. JSP454 - Land Systems Safety and Environmental Protection.
 - c. MAA 01 - Military Aviation Authority Regulatory Policy.

JSP430 Management Of Ship Safety And Environmental Protection

8. JSP430 defines the safety management requirements for all MOD Shipping, systems and all equipment in the maritime operating environment, throughout the acquisition cycle. The Maritime Platform's PTL is ultimately responsible for the integration of the Safety and Environmental Cases of all equipment fitted to the vessels for which they are responsible.
9. Chapter 8 of JSP430 Part 3 describes the process that will be followed to attain the appropriate certification for OME to be embarked, handled, stored and used on platforms governed by JSP430. The demonstration of compliance with JSP520 assures the inherent safety of munitions and is a key component of the Platform Duty Holder in producing a Certificate of Safety – Explosives (CSE) submission. This will be reviewed by the Naval Authority Explosives (NA EXP) to determine whether an environment suitable for the embarkation, handling, stowage and use of the ships outfit of explosive stores has been established.
10. The Defence Maritime Regulator (DMR) is the MOD's safety regulator for OME embarked, stowed and used in MOD Maritime platforms. NA EXP is the certifying authority and provides policy, advice and guidance within the regulatory functions whilst monitoring departmental performance to provide assurance of OME safety to the Secretary of State (SofS) through the DMR.
11. The outputs of JSP520 that feed into the JSP430 system are:
 - a. OSRP Assurance Statement.
 - b. OME's Safety and Environmental Case Report.
 - c. OME Safety Instruction (Annex B contains the OMESI Template) and relevant data, as agreed with Platform Project Team (PT)¹¹.

JSP454 Land Systems Safety And Environmental Protection

12. JSP454 defines the safety management requirements for all land systems through life. For OME used:
 - a. On, or fitted to land platforms.
 - b. By the User, i.e., the Solider.
13. The inherent OME safety will be assessed against JSP520 as part of the System Acceptance. The Land Systems PTL is ultimately responsible for the

¹¹ Section 2: Managing the Interfaces.

integration of the Safety and Environmental Cases of all equipment fitted to its vehicle / land-based system / weapon / soldier, including all OME fitted or carried as cargo.

14. The outputs of JSP520 that feed into the JSP454 system are:

- a. OSRP Assurance Statement
- b. OME's Safety and Environmental Case Report.
- c. Relevant data, as agreed with the User / Platform PT¹².

Military Aviation Authority Regulatory Policy (MRP)

15. MRP defines the safety management requirements for all platforms, systems and equipment used in the Air Operating environment, through life. The Platform's PTL is ultimately responsible for the integration of the Safety and Environmental Cases of all equipment fitted to its Manned / Unmanned Air Vehicles.

16. The Air Launched Weapon Release Certificate (ALWRC) is the formal certification, by the OME PTL, that an Air Launch Weapon (ALW) meets the criteria for safety and airworthiness throughout the weapon life cycle from delivery (from manufacture) to target and / or disposal (including carriage and release). The ALWRC informs the host platform's Release To Service (RTS) of the ALW's limitations and is subordinate to that RTS whilst the weapon is fitted to an aircraft. It is supported by a Safety and Environmental Case and Certificates of Design for ALW¹³. Additional advice on the preparation of an ALWRC and its relationship with a platform RTS is given in MRP RA1350¹⁴.

17. Although the OSRP Assurance Statement is not a prerequisite to obtaining an ALWRC for an OME, the evidence gathered to achieve an OSRP Assurance Statement, will form part of the ALW's body of evidence. The outputs of JSP520 that feed into the MRP system are:

- a. OSRP Assurance Statement.
- b. OME's Safety and Environmental Case Report.
- c. Relevant data as agreed with the User / Platform PT¹⁵.

¹² Section 2: Managing the Interfaces.

¹³ MAA RA5103: Certification of Design.

¹⁴ MAA RA1350: The Air Launched Weapon Release.

¹⁵ Section 2: Managing the Interfaces.

2 Interfaces

1. The following sections present the interfaces with other JSPs, throughout the OME's Manufacture to Target or Disposal Sequence (MTDS), as illustrated Annex A.

Managing The Interfaces

2. The effective management of the interfaces between the PT and its stakeholders (internally and externally to the MOD which includes the User) helps to ensure that all elements of the system work together to achieve the system's safety requirements and continues to operate together as changes are made during the system's lifecycle.

3. The Project's Stakeholder interfaces will be defined, agreed and controlled, as part of the Through-Life Management of the OME. Guidance regarding identifying and recording the PT's stakeholders is presented within Project Orientated Safety Management System¹⁶ (POSMS) manual.

4. For each stakeholder, the following aspects should be defined:
- a. Roles and responsibilities.
 - b. How the agreement with the stakeholder will be formalised and controlled for example:
 - 1) Customer Supplier Agreement (CSA).
 - 2) Joint Business Agreement (JBA).
 - 3) Service Level Agreement (SLA).
 - 4) Internal Business Agreement (IBA).
 - 5) External Business Agreement (EBA).
 - c. Reference to the relevant agreement and where to find it.
 - d. How the relationship or interface with the Stakeholder is managed - with reference to the relevant project meeting, review or reporting processes.
 - e. What are project dependencies, risks or issues associated with this stakeholder, including assumptions, constraints, risk information and configuration management.
5. Further guidance is presented within the Through-Life Management aspects of the POSMS and Project Orientated Environmental Management System¹⁷ (POEMS) manuals.

Safety And Environmental Case Hierarchy

6. The safety requirements for OME, Ship, Land and Air are similar in that each stipulates the need for a single comprehensive, credible and robust Safety and Environmental Case (SEC) for each system or sub-system. However each will vary

¹⁶ See Acquisition System Guidance (ASG)

¹⁷ See Acquisition System Guidance (ASG)

to reflect the different hazards presented within its respective domains. In the majority of instances, there will be a hierarchy of SECs, each authority is required to manage the interface between its own responsibilities and those of other related systems through a proportionate, risk-based approach to safety management.

7. The top level SEC will be for the Land, Maritime or Air platform as described in the domain-specific safety publications. This platform SEC is dependent on inputs from all lower level systems, one example being a weapon system of which OME is a sub-part. Integration of a weapon system and its associated risks onto platforms is a platform responsibility. At the platform level there is a responsibility to define the SEC levels.

8. Figure 2 illustrates an example of the typical relationship between a Naval Gun system (ordnance-level SEC) together with its munitions and explosive components, and in turn its relationship with the Platform. The shaded areas within the example provided demonstrate a typical interface between an OME system and the wider system or platform SEC, irrespective of service domain and Operating Environments.

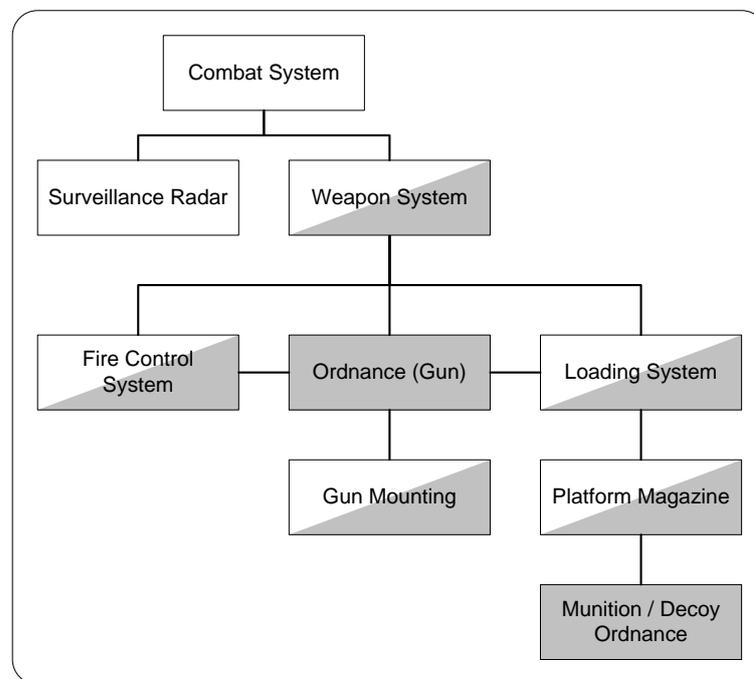


Figure 2: Illustrates an example of the Hierarchical Equipment Structure for Safety and Environmental Case Construction

9. The OME PT prepares a SEC for its system or equipment that complements the higher-level systems or platform SEC. The aim is to have a seamless flow of safety information between SEC at successive levels, be it equipment, system or platform.

10. The SEC(s) will define the system, its boundaries and its operating environment, with all interfaces clearly identified and effectively managed. In order to achieve that, interfaces will be clearly established and the requirements of the different safety policy documents understood.

11. The existing OME SEC will be reviewed when changes occur to the modification state; operating environment; or the role of the subject equipment, and the existing

arguments justifying the safety claims reassessed. Additional factors to consider when reviewing the periodicity of reviews are presented in JSP520 Part 2¹⁸.

12. Where no SEC has yet been produced to satisfy the requirements of a domain specific safety JSP, the scope and primacy of the SEC should be agreed between authorities. It will state any assumptions regarding the boundaries of the SEC. In general, the detail within the SEC should align with and be proportional to:

- a. The scope of the work being carried out.
- b. The levels of management control and influence.
- c. Levels of risk.

Transportation Of OME

13. JSP800¹⁹ is issued under the direction of the Defence Movements and Transport Management Committee (DMTMC). The JSP sets out the policy, guidance and criteria for the movement of Dangerous Goods (DG), in particular:

- a. JSP800 Volume 4a – DGs by Air.
- b. JSP800 Volume 4b – DGs by Road, Rail and Sea.

14. All military ammunition and explosives belonging to, or in support of a contract with the MOD will be classified by the Explosives Storage and Transport Classification (ESTC). ESTC classifies military explosives in accordance with JSP482²⁰ Classification of Military Explosives for Storage and Transport.

15. The ESTC classification alone may not infer that the OME item is cleared for carriage, for additional requirements refer to the domain specific JSPs, i.e. Land²¹, Maritime²², and Air²³.

Range Safety

16. There is no UK government legislation dealing specifically with the safe operation and use of live firing ranges. In the absence of statutory regulation, JSP403²⁴ has been developed to provide the MOD general policy, regulations and best practice guidance for the safety of land ranges. For additional requirements refer to the domain specific JSPs, i.e. Land JSP454, Maritime JSP430, and Air MAA01.

Disposal, Handling, Storage And Processing Of The OME System

17. To support the introduction of an OME system into the custody of Defence Munitions (DM), PTs are required to supply DM with relevant information. This information enables the development of safe systems of work to support the

¹⁸ JSP520 Part 2, Vol 3: Safety and Environmental Management System.

¹⁹ JSP800 Defence Movements and Transport Regulations.

²⁰ JSP482 MOD Explosive Regulations.

²¹ JSP454 Land Systems Safety and Environmental Protection.

²² JSP430 Management of Ship Safety and Environmental Protection.

²³ MAA01 Military Aviation Authority Regulatory Policy.

²⁴ JSP403 Handbook of Defence Land Ranges Safety.

handling, storage and processing of the OME system. PTs are required to ensure that any information passed onto DM remains valid throughout the life of the system, i.e., up to the point of the disposal of the OME system. Examples of information required, as described in JSP762²⁵, include:

- a. Casualty Weapon procedure (JSP862²⁶).
- b. Safe Life definition.
- c. Configuration management of the weapon system, (e.g. Software, hardware, publications – build standard of the weapon).

18. Further detail on DM requirements are presented within JSP482²⁷, JSP762 and JSP862. A summary of each of these JSPs is presented below:

- a. JSP482 is produced for the guidance and instruction of all personnel, both Service personnel and MOD employed civilians (including supporting contracted staff), who are concerned with the management, storage, maintenance, inspection, processing, handling and disposal of explosives and explosives storage facilities within the MOD.
- b. JSP762 is designed to provide technical information that can be used to provide Through–Life support for Weapons and Munitions and maximise its contribution to Joint Capability. It will assist in optimising Through–Life management behaviour and ensure the best guidance is available to Weapons and Munitions technical support staff working in Land, Maritime and Air domains.
- c. JSP862 is mandatory for regulating the safe embarkation, stowage, handling and use of OME in ships, owned by, operated by and operated on behalf of the MOD (JSP430²⁸ Ships), i.e. HM Surface Ships, HM Submarines, Royal Fleet Auxiliary (RFA), Government Owned Contractor Operated (GOCO) vessels, Contractor Owned Contractor Operated (COCO) vessels and ships on MOD / DSCOM charter.

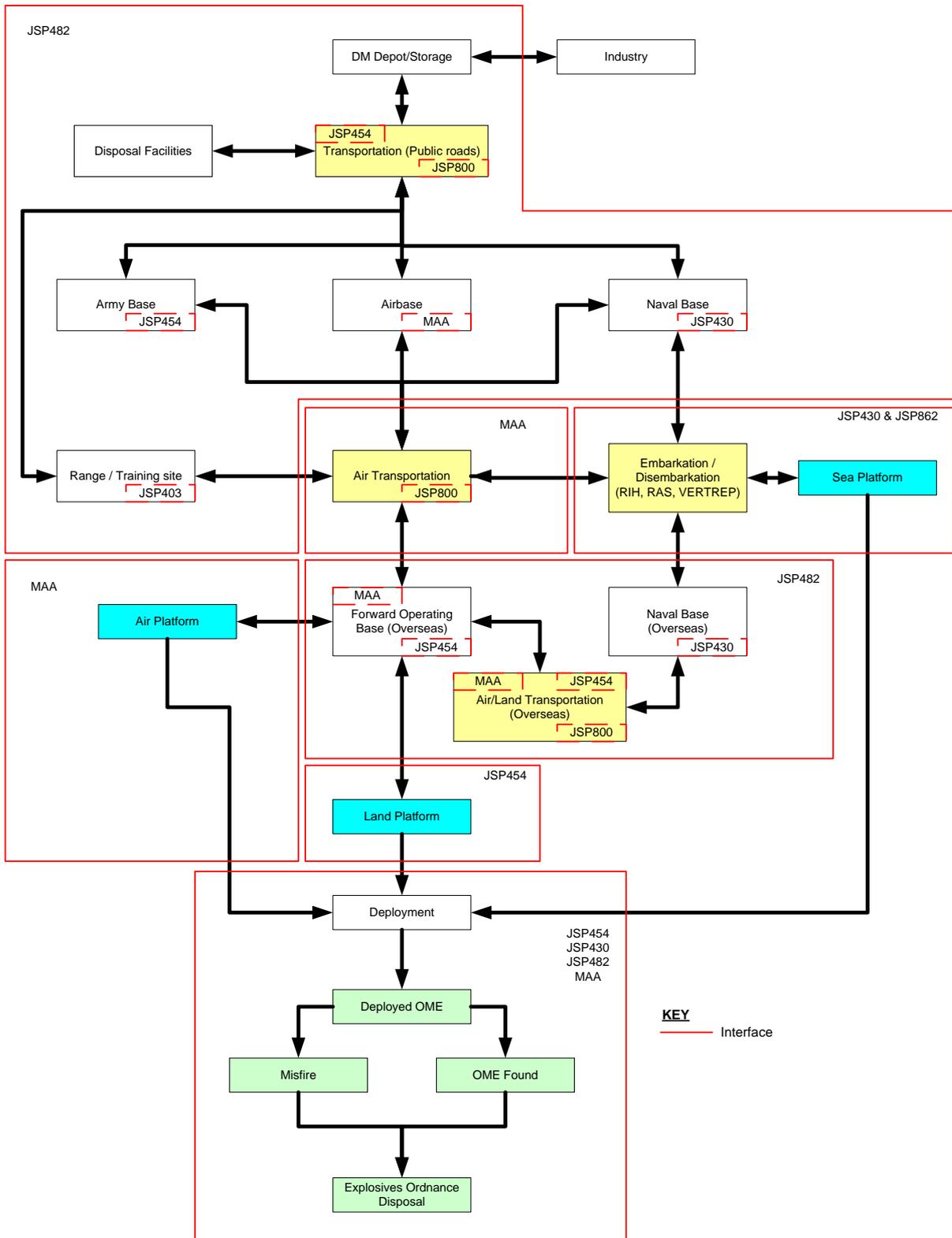
²⁵ JSP762 Weapons and Munitions Through Life Capability.

²⁶ JSP862 MOD Maritime Explosives Regulations.

²⁷ JSP482 MOD Explosive Regulations.

²⁸ JSP430 Management of Ship Safety and Environmental Protection.

Annex A: Illustration of the Primary JSP520 Interfaces



Annex B: OMESI Template

1. OME SAFETY INSTRUCTION

NOTES:

This Safety Instruction is intended to act as a guide to aid the production of a (tri-service) user safety instruction. It should describe all those aspects of use, for OME systems, which inform its inherent safety. It is the responsibility of the OME PT to provide the information where applicable. Where headings are 'Not Applicable' to the OME system, insert 'N/A'.

FULL TITLE To identify the OME system, munition or family of munitions. Not each variant.

VARIANTS Where applicable, to list the full title of each variant, including specification e.g. HE/Inert/Drill - by Full NSN and/or ADAC etc.

0101 **TECHNICAL DESCRIPTION**

1. To provide a brief description of the OME System, including:
 - a. an overview of its purpose (design intention),
 - b. the main components and assemblies, and
 - c. operation / means of initiation.

If relevant, a brief summary of the background/ history of the system is to be described. Ideally the system technical description should be no more than 2 paragraphs; full detail is not required.

0102 **APPLICATION**

1. To describe the application for which the OME System is intended as well as the environment(s) within and/or the platform types on which it will be used. Include:
 - a. **Purpose:** Brief statement on modus operandi of OME.
 - b. **Preparation for Firing:** As applicable or 'None'.

0103 **REFERENCE BOOKS**

1. A list of any relevant system reference handbooks.

0104 **STATUS OF CERTIFICATION**

1. **OSRP Assurance Statement:** To reference/state the latest issue of **OSRP Assurance Statement**, which is applicable to the system, including where appropriate any case where an **OSRP Assurance Statement** has either time expired or is no longer valid. The issue and review dates, and any other relevant remarks are to be stated.

0105 CLASSIFICATION

1. As applicable/not applicable to include:
 - a. Hazard Classification Code.
 - b. UN Serial No.
 - c. ESTC Reference / IMAP Reference (where available).

0106 NET EXPLOSIVE QUANTITY (NEQ)

1. As applicable/not applicable to include:
 - a. **Total:** As an all-up store.
 - b. **Sub-Assemblies:** Where the system is handled as a sub-assembly.
 - c. **Effective NEQ:** Based on munition characteristics.

0107 CONTROL OF SUBSTANCES HAZARDOUS TO HEALTH (COSHH)

1. Where applicable, give an overview of each hazardous material or substance contained within, or used in the maintenance of, the system.

Any precautions, procedures or practices to take/apply are also to be summarised. In the instance of there being no such hazardous substances the statement 'There are no hazards beyond those normally associated with explosive stores' should be made.

0108 TRANSPORT / HANDLING / MOVEMENT / REPLENISHMENT

1. Provide a short description/overview of the general way in which the system is transported, handled, moved and/or replenished, including any specific precautions that must be taken or procedures that must be followed. Also, state whether the system is cleared for transportation in the air, land and/or maritime environments. Where applicable, address the following:
 - a. **Embarkation/Disembarkation:** State any general precautions that are to be observed during the embarkation/disembarkation of the system and include any specific references which detail when and how these are to be applied.
 - b. **Replenishment in Harbour (RIH):** State whether the system is approved or not approved for RIH and summarise any other relevant remarks (information extracted from ASHE – JSP482, Chapter 13 Annex A refers).
 - c. **Replenishment at Sea (RAS):** State whether the system is approved or not approved for RAS and summarise any other provisos or limitations e.g. maximum sea state.
 - d. **Air Transportation and Portability** – Dangerous Goods by Air Committee (DGAC) clearance: State whether DGAC clearance has been awarded and include any associated relevant provisos or limitations.
 - e. **Logistic Parachute Delivery:** State if an Air Drop Code has been allocated, promulgated and include any relevant constraints.
 - f. **JATE:** To state Underslung Load Clearance reference. AP 101A-1105-1B.

0109 PACKAGING

1. **Packaging:** Give a complete description of how the system is packaged for transportation, handling and/or stowage

Where appropriate this should include the full range of packaging that may be used in each relevant environment. Weight and dimensions should also be provided.

2. **Unit Load:** This description is to include the number of items (where applicable) within each standard Unit Load Specification Details of weights and dimensions should also be detailed.

3. **Receipt Checks:** Detail or reference as appropriate for each service environment.

0110 STORAGE AND OPERATION LIFE

1. The authorised lives for stores used in the Maritime environment are detailed in the Joint Service Munitions Control Register (JSMCR).

0111 ENVIRONMENTAL

1. This is a description of the limiting conditions for the munition/ordnance to remain safe under which there is no detrimental effect on life or property. Where relevant, the following information should be included:

- a. **Temperature Limitations:** Detail or reference as appropriate.
- b. **Humidity Limitations:** Detail or reference as appropriate.
- c. **Moisture Limitations:** Detail or reference as appropriate.
- d. **Decontamination:** Detail or reference as appropriate.

Decontamination procedure from any hazardous substances affecting OME system and/or decontamination of leaks of substances from within the system. State whether there are any standard responses that apply and where they are referenced.

0112 EXPLOSIVES HAZARDS

1. The following hazard responses are mandated by IMAP:

- a. **Fast Heating (Fuel Fire):** To include the date and detail of the trial/assessment and consequence
 - i. Time to reaction
Hazard Time: (Reaction types – I (detonation), II (partial detonation) or III (explosion)).
Risk Time: (Reaction types – IV (deflagration) or V (burning)).
- b. **Slow Heating:** To include details of the trial/assessment and any consequence and/or reaction times.
- c. **Fragment Impact:** Details of the trial/assessment and any consequence and/or reaction times.
- d. **Bullet Impact:** Details of the trial/assessment and any consequence and/or reaction times.

e. **Sympathetic Reaction:** Details of any trial/assessment and any consequence and/or reaction times.

f. **Shaped Charge Jet Impact:** Details of any trial/assessment and any consequence and/or reaction times.

2. The following hazards should be included as appropriate/directed:

a. **Wetted Store:** To include any reference to the trial/assessment and any consequence as appropriate. Also, state whether any specified boxed store that has been wetted should be opened and examined.

b. **Drop:** Details of the trial/assessment and any consequence and/or reaction times.

c. **Non-contact Underwater Shock:** Details of the trial/assessment and any consequence and/or reaction times.

d. **Adjacent Weapon Effects:** Details of the trial/assessment and any consequence and/or reaction times.

e. **RATTAM Susceptibility:** Details of the A2 threat i.e. 0.5 inch bullet attack trial/assessment and any consequence and/or reaction times.

f. **Radiation, Electrical and Magnetic Susceptibility:**

i. Radiation Hazard (RADHAZ): 'EED fitted' or 'No EED'. Details of any trial/assessment and any consequence and/or reaction times.

ii. Electro-Magnetic Compatibility (EMC): 'EED fitted' or 'No EED'. Details of any trial/assessment and any consequence and/or reaction times.

iii. Nuclear Electro-Magnetic Pulse (NEMP): 'EED fitted' or 'No EED'. Details of any trial/assessment and any consequence and/or reaction times.

iv. De-Gaussing/De-Perming: To include a statement on the need for removal during specified operations.

v. Electrostatic Discharge (ESD): To include a statements on normal handling discharge and any potential threat from a direct/indirect lightning strike.

0113 MAINTENANCE / SERVICING / TESTING

1. With respect to munitions, a description should be given for any routine servicing, maintenance or testing that is required and at which point in the supply chain this is conducted e.g. depot, on board staff, qualified personnel in the field etc.

<i>Reference to the appropriate system handbook may be sufficient.</i>
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0114 WEAPON DANGER AREA / SAFETY TRACE

1. A statement or template, which describes the danger area/safety trace to be applied when the munition is used on a range during training.

0115 PREPARATIONS FOR FIRING

1. Where applicable.

Reference to the appropriate reference or system handbook may be sufficient.

0116 HAZARD PROCEDURES

1. Response should include any action(s) to be taken in the normal operating environment as well as any actions to be taken when the munition is being transported or stored. To include the following details as appropriate:

- a. **Defect Procedure:** Detail or reference.
- b. **Incident Procedure:** Detail or reference.
- c. **Misfire:** Detail, reference or 'Not Applicable'.
- d. **Hangfire:** Detail, reference or 'Not Applicable'.
- e. **Hot Gun:** Detail, reference or 'Not Applicable'.
- f. **Stoppage:** Detail, reference or 'Not Applicable'.
- g. **Breech Explosion:** Detail, reference or 'Not Applicable'.

0117 DISPOSAL

1. Detailed plans are not required however contingency plans should be in place:
 - a. **Routine Disposal:** Detail or reference as appropriate.
 - b. **Emergency Disposal:** Detail or reference as appropriate.
 - c. **Explosive Ordnance Disposal:** Response should include action to be taken in the normal operating environment and action to be taken when the munition is being stored and/or transported etc.
 - d. **Jettison:** Detail, reference or 'Not Applicable' as appropriate.

0118 OTHER SAFETY CONSIDERATIONS

1. Include any other relevant safety related issues or concerns that have not been previously addressed or highlighted.

e.g. any peacetime/wartime variations in procedure, any differences in training/operational usage scenarios, the effect of weather conditions (high winds), noise levels during firing, known system shortcomings or restrictions, any specific platform clearances, list of limitations/warnings etc. Where there are none, state 'None'.

0119 ILLUSTRATIVE DRAWINGS / DIAGRAMS

This should include, where appropriate, a 'cross section' of the OME showing the location of specific hazards, such as: energetic materials, fuel, pressure vessels etc.