Ministry of Defence

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

Part 2: Guidance
Vol 6: OME Review Category

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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-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:

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Authority

9. This issue of JSP 520 volume 6 supersedes all previous volume 6.

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	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	Reason for Review category	PRG-4	16/06/15
4.2	1	5	Split from Par 4	PRG-4	16/06/15
4.2	1	7	Sentence reworded	PRG-4	16/06/15
4.2	1	10 c	Need for rational	PRG-4	16/06/15
4.2	1	13/14/15/16	Definitions defined	PRG-4	16/06/15
4.2	Annex A	1/2/3	Risk removed	PRG-4	16/06/15
4.2	Annex A	4 a	Credible worst case consequence	PRG-4	16/06/15
4.2	Annex A	4 c	Requirement to document assumptions	PRG-4	16/06/15
4.2	Annex A	4 e/f	Risk removed	PRG-4	16/06/15
4.2	Annex A	5	Table	PRG-4	16/06/15
4.2	Annex A	6	Requirement to document assumptions	PRG-4	16/06/15
4.2	Annex A	Table A1	Updated	PRG-4	16/06/15
4.2	Annex A	7	New explaining VLC	PRG-4	16/06/15
4.2	Annex A	Table A2	New	PRG-4	16/06/15
	Annex A	Table A3	Various changes	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	5	Footnote Page 2	Du-Policy	27/11/14
4.1	1	8	Footnote Page 3	Du-Policy	27/11/14

Contents JSP520 Part 2, Vol 6: Ome Review Category

Table

1 Overview

1. The Review Category is used by the OME Safety Review Panel (OSRP) Secretary to determine the number and competence requirements of the panel members. It is NOT a method of determining project risk and safety case requirements.

2. The Review Category will be initially assigned at the earliest possible stage in the acquisition cycle and prior to the OME Safety Review Panel (OSRP) assessment, but may change as the project develops and further information becomes available.

Allocation Of Review Category

3. The allocation of the Review Category is a judgement made by the Project Team (PT) in conjunction with the Stakeholders at the Project's Safety and Environmental Panel (SEP). It will be determined by an assessment of the overall level of risk associated with the system and will include consideration of:

a. Credible Worst Case Consequence.

b. System Maturity and Certification.

c. Energetic Materials.

d. OME Complexity and Integration.

e. Perceived Public Acceptability.

4. The assessment should be carried out as early as possible in the acquisition cycle, but the accuracy with which it can be assessed will depend on the level of information available. For example, in the case of a Commercial-Off-The-Shelf (COTS) programme, it is likely that existing safety information will be sufficiently robust as to enable an accurate assessment of the Review Category at an early stage. On the other hand, for a full development programme, the initial Review Category assessment will need to be based on a preliminary risk assessment, i.e. a general qualitative study of the system design concept in its predicted service environment, although once again the consequence factor will take precedence.

5. The Review Category should be reviewed periodically to ensure that it remains consistent with the complexity of the OME system.

6. This assessment will result in the assignment of a HIGH, MEDIUM, LOW or by meeting specific conditions VERY LOW CONSEQUENCE review category for the project. The Review Category assigned will be reviewed and endorsed by the OSRP at the appropriate submission points[1].

7. For HIGH and MEDIUM review projects, greater scrutiny of evidence will be required by the OSRP than for LOW review projects. In addition, it supports the

[1] JSP520 Part 2, Vol 13: OME Safety Review Panel Process.

decision by the OSRP regarding what review date to set for the OSRP Assurance Statement[2].

8. A tool for determining the Review Category is provided at Annex A. Where this method has not been used, the PT will document the process used to demonstrate how the Review Category has been derived. This would then be scrutinised by the OSRP to ensure the alternative method is acceptable.

9. The PT should also note that if a Review Category of Low is assigned that the full OSRP process may not be required if it can be demonstrated that it has Very Low Consequence.

Responsibilities

10. Project Team Leader (PTL) is responsible for:

a. Assigning a Review Category to all OME systems for which they are responsible.

b. Continually reviewing the Review Category through the life of the system.

c. To ensure a record is made outlining the rational behind the score for future reference.

11. The OSRP are responsible for endorsing the Review Category assigned by the PT.

Definitions

12. Persons Directly involved: Personnel having a fair and reasonable understanding of the risks associated with the OME or activity i.e., users, maintainers, cadets, emergency services.

13. Persons Indirectly involved: Personnel not associated with the OME or activity being undertake i.e., general public, MOD employees, contractors or visitors not in vicinity.

14. Facilities: Storage or processing buildings

15. Damage to Platform: Dependent on OME ie loss of a Small Arm compaired to vehicle.

16. Environmental Impact: At firing point and impact area.

[2] Formally known as CSOME

Annex A: Tool for the Determination of OME Review Category

1. The tool is intended to assist the PT and Project's SEP in assigning a Review Category. It uses a scoring system against 5 factors (Table A1) to produce a total score which is converted into a Review Category using Figure A1 and A2.

2. The tool considers the following 5 Factors:

   a. Credible Worst Case Consequence (40% weighting).

   b. System Maturity and Certification (10% weighting).

   c. Energetic materials (20% weighting).

   d. Munition Complexity and Integration (10% weighting).

   e. Perceived Public acceptability (20% weighting).

3. Level indicators have been provided in the form of qualitative statements to aid the scoring process. These indicators have been split into 4 ranges (level indicators) from Very Significant through Significant and Marginal to Insignificant.

4. To use the tool:

   a. Start with factor 1 "Credible Worst Case Consequence.

   b. Allocate a score of between 0 and 16 for EACH of the following "period of exposure", "persons involved", "damage to facilities", "damage to platform" and "environmental impact" separately.

   c. The logic and assumptions behind the assessment should be recorded to provide understanding in future reviews.

   d. Select the HIGHEST of these scores (only) and multiply by the weighting (in this case 0.4) to give a weighted score for risk factor 1.

   e. Repeat this process for EACH of the remaining 4 factors.

   f. Add the weighted scores for all 5 factors together to get a total score.

   g. Use Tables A1 and A2 to translate the total score into a Review Category.

5. As shown in Table A1, a total score of less than or equal to 5 would be indicative that an OME is LOW Review Category. A total score of "greater than 5 and less than 10" suggests that an OME is MEDIUM Review Category. A total score of greater than or equal to 10 would generally indicate that an OME is HIGH Review Category. The provisional assessment can then be reviewed by the Project Safety Panel.

6. The logic and assumptions behind the assessment should be recorded.

Review Category	Total Score
Low	< or = 5
Medium	> 5 and < 10
High	= or > 10

Table A1: Low to High Review Categories

7. Providing the review category is LOW and the corresponding score in Factor 1 (Credible Worst Case Consequence) is less than or equal to 2.4 then a Very Low consequence catergory is achieved as illustrated in Table A2.

Very Low Consequence (VLC)	Total Score
Low	< or = 5
&	&
Risk Factor 1 (Credible Worst Case Consequence)	< or = 2.4

Table A2: Very Low Consequence Review Category

Table A3: Assessment Matrix for the Determination of the OME Review Category

Factor	Review Level Indicators 16 14 12 10 9 8 7 6 5 4 3 2 1 0 Very Significant (Score 16 to 9)	Significant (Score 8 to 5)	Marginal (Score 4 to 2)	Insignificant (Score 1 to 0)	Score	Weighting	Weighted Score
1. Credible Worst Case Consequence	Continuous period of personnel exposure to risk.	Daily period of personnel exposure to risk.	Short period (hours) of personnel exposure to risk.	Very Short (less than an hour) period of personnel exposure to risk.		0.4	
	Persons directly involved. Multiple deaths.	Persons directly involved A single death and / or multiple severe injuries or equivalent occupational illness.	Persons directly involved A single severe injury or occupational illness and / or multiple minor injuries or minor occupational illness.	Persons directly involved. At most a single minor injury or minor occupational illness.			
	Persons indirectly involved. A single death and / or multiple severe injuries or equivalent occupational illness.	Persons indirectly involved. A single severe injury or occupational illness and / or multiple minor injuries or minor occupational illness.	Persons indirectly involved. At most a single minor injury or minor occupational illness.	Persons indirectly involved. Any injury or occupational illness, however minor.			

Factor	Review Level Indicators 16 14 12 10 9 8 7 6 5 4 3 2 1 0 Very Significant (Score 16 to 9)	Significant (Score 8 to 5)	Marginal (Score 4 to 2)	Insignificant (Score 1 to 0)	Score	Weighting	Weighted Score
1. Credible Worst Case Consequence Continued	Severe damage to facilities.	Moderate damage to facilities.	Minor damage to facilities.	No damage to facilities.			
	Damage to platform, which leads to total loss of capability (ship, aircraft, vehicle).	Damage to platform, which leads to significant loss of capability.	Damage to platform, which leads to reduced capability.	No damage to platform or loss in capability.			
	Significant, long term environmental impact.	Moderate long term or significant short term environmental impact.	Moderate short term environmental impact.	Trivial environmental impact.			
2. System Maturity and Certification	Developmental Item.	Modifications essential to meet UK requirements.	Minimal modifications to meet UK requirements.	Mature system with sound in-service history.		0.1	
	Non-accredited manufacturer with no experience of the OME natures.	Non-accredited manufacturer with experience of similar OME natures.	Accredited manufacturer with experience of similar OME natures.	Accredited manufacturer with experience of the specific OME nature.			

Factor	Review Level Indicators 16 14 12 10 9 8 7 6 5 4 3 2 1 0 Very Significant (Score 16 to 9)	Significant (Score 8 to 5)	Marginal (Score 4 to 2)	Insignificant (Score 1 to 0)	Score	Weighting	Weighted Score
2. System Maturity and Certification Continued	Different manufacturing process to previous supplier. Limited or no supporting objective, quality evidence.	Different manufacturing process to previous supplier. Some supporting objective, quality evidence.	Existing supplier but using different manufacturing process. Supported by objective, quality evidence.	Fully understood manufacturing process. Supported by complete disclosure of required data.			
	Unknown Compliance with Design Safety Standards.	Known non-compliance with Design Safety Standards – no mitigation.	Known non-compliance with Design Safety Standards – mitigation(s) in place.	Known compliance with Design Safety Standards.			
3. Energetic Materials	Multiple novel energetic. Energetic with no in-service history.	Single novel energetic. Energetic may have service history with other users.	Non-novel energetics. Energetic have limited in-service history.	Non-novel energetics. Energetics have significant in-service history.		0.2	
	Wholly Non-IM Compliant munition.	Munition IM Compliant against 1 or 2 Threats.	Munition IM Compliant against 3 or 4 Threats.	IM Compliant Munition.			

Factor	Review Level Indicators 16 14 12 10 9 8 7 6 5 4 3 2 1 0 Very Significant (Score 16 to 9)	Significant (Score 8 to 5)	Marginal (Score 4 to 2)	Insignificant (Score 1 to 0)	Score	Weighting	Weighted Score
4. OME Complexity and Integration	Complex OME (e.g. autonomous guided).	Complex OME (e.g. man-in-loop guided).	Non-complex but interacts with platform (e.g. decoy flare).	Non-complex (e.g. small arms ammunition).		0.1	
	Critical component new to military service.	Critical component new to UK MOD.	Similar to in-service items.	Identical to in-service items.			
	Safety Critical Software.	Complex Safety Related Software.	Simple Safety Related Software.	No Safety Related Software.			
	Significant OME / Platform integration issues – results in constraints in operation.	Significant OME / Platform integration issues – no operational constraints.	Simple OME / Platform integration.	No OME / Platform integration required.			
5. Perceived Public Acceptability	OME likely to provoke International TV Headline news. International implications.	OME likely to provoke headline national news and continuing local attention.	OME likely to provoke considerable local news with inside page national note.	OME likely to provoke no outside interest.		0.2	
TOTAL SCORE							
REVIEW CATEGORY (HIGH/MEDIUM/LOW)							