



Defence
Safety Authority

DSA 03.OME Part 4: Defence Code of Practice (DCOP) 403

Major Accident Prevention Policy (MAPP)



Version Record

Version 1.1

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Version changes: see amendment table.

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Preface

Requests for Change

1. Proposed changes, recommendations, or amendments to DOSR Regulations and Guidance can be submitted to the DOSR Regulations and Publications Team:

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2. Any post and grammar change proposals can be approved or rejected by the DOSR without involvement of the associated Working Group.

3. Technical change proposals should be submitted to the associated Working Group for review and approval or rejection.

4. When incorporating changes, care is to be taken to maintain coherence across regulations.

5. Changes effecting Risk to Life will be published immediately. Other changes will be incorporated as part of routine reviews.

Review Process

6. The DOSR team will ensure OME Regulations remain fit for purpose by conducting regular reviews through the DOSR Governance Committees, consulting with MOD Stakeholders and other Defence Regulators as necessary on interfaces and where there may be overlaps of responsibility.

Further Advice and Feedback

7. For further information about any aspect of this document, or questions not answered within the subsequent sections, or to provide feedback on the content, contact the DOSR Regulations and Publications Team.

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Amendment Record

No	Section	Para	Amendment Summary	Agreed	Date
1.0	All	all	Document created.	Regs ATL	Jul 2021
1.1	all	all	Reformatted in line with DSA accessibility requirements.	Regs ATL	Aug 2024

DSA 02.OME Regulation 403

Major Accident Prevention Policy (MAPP)

1. Every operator shall produce and maintain an up-to-date Major Accident Prevention Policy (MAPP).
2. The MAPP shall demonstrate that major accident hazards and possible major accident scenarios have been identified and that the necessary measures have been taken to prevent such accidents and to limit the consequences to human health and the environment.
3. The MAPP shall demonstrate that adequate safety and reliability have been taken into account in the design, construction, operation and maintenance of any installation, storage facility, equipment and infrastructure connected to its operation which are linked to major accident hazards inside the establishment.
4. The MAPP shall demonstrate that internal emergency plans have been drawn up and that appropriate information has been supplied to enable external emergency plans to be drawn up (Upper Tier Sites (UTE) only).

DSA 03.OME DCOP 403a

Regulation 403a

1. Every operator shall produce and maintain an up-to-date Major Accident Prevention Policy (MAPP).

Production of an up-to-date Major Accident Prevention Policy (MAPP)

2. The MAPP/Safety Report (SR) is a live document as it acts as a signpost to other policies, procedures and requirements that in their totality comprise the Major Accident Control Regulations Safety Case (MACR). Its purpose is to demonstrate that major accident hazards and possible major accident scenarios have been identified and that the necessary measures have been taken to prevent such accidents and to limit the consequences for human health and the environment. It demonstrates that adequate safety and reliability have been taken into account in the design, construction, operation and maintenance of any installation, storage facility, equipment and infrastructure connected to its operation which are linked to major accident hazards inside the establishment. It demonstrates that internal emergency plans have been drawn up and that appropriate information has been supplied to enable external emergency plans to be drawn up (UTE only).

Statement of Commitment

3. The HOE is required to demonstrate commitment to the prevention of major accidents and the mitigation of any which do occur. This would normally be achieved by the following methods:

4. Including an appropriate statement in the establishment Organisation and Arrangements Statement.
5. Incorporating an appropriate section detailing the arrangements in establishment documentation.

Qualification

6. If an establishment holds, or anticipates holding, quantities of dangerous substances, equal to or greater than the threshold quantities then the establishment will qualify as one of the following:
7. Lower Tier Establishment (LTE) - Equal to or greater than the lower threshold but less than the higher threshold.
8. Upper Tier Establishment (UTE) - Equal to or greater than the higher threshold.
9. If the establishment qualifies as an LTE, a MAPP must be produced as a stand-alone document. This is achieved by populating the MACR MAPP Template.
10. If the establishment qualifies as a UTE a Safety Report (SR) must be prepared which will incorporate a MAPP. This will be achieved by populating the MACR SR UTE Template.

Roles and Responsibilities

11. It is a requirement of the MAPP to describe the roles, responsibilities and relationships of the principal personnel involved in the establishments SMS and Environmental Management System (EMS), in respect to MAs. This includes:
12. Appointments (not names) with phone, e mail and fax details.
13. Contractor staff, if they have involvement at any level.
14. The training required for each of the appointments, confirmation of delivery and formal recording.

Training

15. All personnel who have roles and responsibilities for the control of MA hazards will require appropriate training in order to ensure they are competent to discharge their duties. An assessment is to be made of the roles/responsibilities and appropriate training identified. A record must be made of this assessment. The requirements will vary from simple in-house familiarisation training to professional qualifications. It is a HOE responsibility to ensure that only competent personnel are appointed although guidance is given in specialist JSP's and Regulatory documents for many roles e.g. information on the training requirements for staff involved with fuels and lubricants is provided in JSP 317.

Major Accident Risk Management

16. The MA Risk Assessment process must consider the implications of all MA hazards together with the possible consequences to persons and the environment.

The overall aim is to ensure that all necessary control measures have been put in place.

17. Historically Safety Management Systems (SMS) have preceded Environmental Management Systems (EMS) in implementation within MOD. Under MACR, however, the consequences of an MA to the people and to the environment are given equal weight and the Risk Assessments must reflect this.

Domino Effects

18. As part of the MA Risk Assessment process, the HOE must consider the possibility of another MACR or Control of Major Accident Hazards (COMAH) establishment being sufficiently close as to be a domino establishment. A domino establishment is defined as one where the likelihood or consequences of an MA may be increased on one establishment because of the proximity and dangerous substances held on another. Regulation 408 - Domino Effects and its associated DCOPs refers.

Assessment of Risk and Prevention Methods

19. For each of the MA hazards identified in the Site Hazard Survey, the HOE must assess the degree of risk and the existing control measures (including emergency plans) that are in place to prevent an MA. The process must identify the credible initiating events, addressing causes or events both internal and external to the establishment. An assessment of the extent and severity of the consequences must be made.

Health and Safety Risk Assessment

20. A Site Hazard Survey and associated Risk Assessments will have already been carried out in order to comply with JSP 375 Volume 2. In order to comply, with MACR, the Site Hazard Survey and associated Risk Assessments reviewed to ensure that all MA hazards have been identified and taken into account. The principles explained in JSP 375 are meant to cover all significant hazards. Identification of MA hazards within the survey is vital to the assessment process and will be required in order to obtain MACR Assurance Team endorsement.

21. The number of personnel identified as being at risk must relate to the maximum number of personnel at risk in each Hazardous Installation broken down into Service (Military), Civilian (MOD Employees) and Others (Contractors, members of the public on or off-site, dependants etc.). Short term additions of people for up to 24 hours may be ignored. It must include the possibility of members of the public being in areas, on or near the Hazardous Installation where they could be affected by an MA.

Environmental Risk Assessment

22. Each establishment requires an Environmental Risk Assessment (ERA) to be carried out as part of the evaluation of overall risk. The ERA will be one element within the EMS for the establishment. The full requirements for the EMS are covered by JSP 418 and the elements shown here are only in relation to MAs. Note that general ERA'S required by JSP 418 may be used to support the ERA required by MACR, but on their own will not contain sufficiently detailed information. The ERA is a live document and must be reviewed in the event of significant change or at least

annually and updated as required. It must be subject to a complete re-issue at a maximum period of 5 years.

23. Each facility (bulk fuel tank, explosives storehouse, etc.) must have its own description and assessment of risk. If two facilities are identical then the design description may be generic, however their physical condition, immediate environment, aspect and pathway-receptor routes are unlikely to be the same. For each facility the risk to the environment must be noted along with an evaluation of the risk of a major accident to the environment. This is to highlight that a "low risk to the environment" is different to a "low risk of a major accident" (the equivalent to a high risk to the environment).

DSA 03.OME DCOP 403b

Regulation 403b

1. MAPP shall demonstrate that major accident hazards and possible major accident scenarios have been identified and that the necessary measures have been taken to prevent such accidents and to limit the consequences for human health and the environment.

MAPP Demonstration of Major Hazards and Major Accident Scenarios

2. An MA scenario is the set of circumstances in which an event could occur which has the potential to lead to an MA. The identification process of MA scenarios must consider all dangerous substances on the establishment and not only consider those dangerous substances where the maximum anticipated holdings exceed the threshold quantities. The MA scenario is to be developed without consideration of the existing control measures.

3. The involvement of any of the inventory of dangerous substances in each MA scenario is to be considered according to the substance, the quantity held and using the following published information:

- a. Physical and chemical behaviour in the MA environment e.g. fire.
- b. Potential immediate and delayed harm to people and or the environment due to the substance or its products in the MA environment.

4. A number of potential MA scenarios are given in Annex A. Whilst the examples may not be relevant to every establishment they must be considered, discounted or further developed as appropriate. It is likely that each establishment will identify alternative hazards that are unique to their location and therefore are not covered by the examples.

5. The On-Site Emergency Plan and Off-Site Emergency Plan must make provision for the clean-up and restoration of the environment after an MA. The remedial measures are to be proportional to the amount of harm caused by the incident and the likely level of continuing harm to people and or the environment.

DSA 03.OME DCOP 403b - Annex A - Potential Major Accident Scenarios

Introduction

1. Heads of Establishments must consider what set of circumstances could lead to a Major Accident (MA). These may be natural or as a result of the activities of humans and may be accidental or deliberate. The following general scenarios are offered as having the potential to develop into an MA. The list is not comprehensive, and each establishment may be able to identify additional, more relevant scenarios:

- a. Aircraft crash.
- b. Subversive activity.
- c. Vehicle accident.
- d. Fuel pipeline leak.
- e. Catastrophic containment failure.
- f. Factors leading to a breakdown in the Safety Management System.
- g. Natural disasters e.g. earthquake, flood, storm, etc.

2. The information given in Table 1 is intended to provide a method of systematically developing the initial MA scenario. The topics shown cover examples of the main generic aspects to be taken into account if applicable to a particular MA scenario. Each of the headings is explained in more detail subsequently.

Event	Consequence	Response
Vehicle accident. Fuel spill. Fire. Detonation or blast. Chemical decomposition. Other Dangerous Goods.	Contamination of earth, water, flora or fauna. Firewater run off. Blast or fragment damage. Danger area. Casualties on or off-site. Downwind hazard. Domino effect.	Decontaminate area. Inform establishment staff and Public Information Zone (PIZ) (Upper Tier establishments (UTE) only) on cessation. Review On-Site Emergency Plan and Off-Site Emergency Plan (UTE only). Assess effect on wildlife. Assess effect on built and natural environment. Seek expert advice.

Event

3. The events of an MA fall into the following categories:

- a. **Vehicle Accident.** This includes road vehicles, Mechanical Handling Equipment, rail engines or wagons and aircraft incidents within the perimeter of the establishment.
- b. **Fuel Spill.** Any incident that involves a significant leak of fuel causing damage to the environment. This may be caused by a catastrophic failure of a fuel tank, an object impacting with a Bulk Fuel Installation or an aboveground or underground pipe leak etc.
- c. **Fire.** However initiated e.g., electrical fault, lightning strike, electrostatic discharge, terrorist incident or grass/scrub fire etc.
- d. **Detonation or Blast.** Detonation or blast effect caused by either fuel or explosives incidents.
- e. **Chemical Decomposition.** Changes in chemical composition that result in or form an unplanned reaction.
- f. **Other Dangerous Goods.** All Dangerous Goods held by the establishment that could become involved in an MA, regardless of whether they are dangerous substances that qualified the establishment under the Major Accident Control Regulations.

Consequence

- 4. The consequences of an MA fall into the following categories:
 - a. **Contamination of Earth, Water, Flora, or Fauna.** Take account of waterways, lakes, coastal waters or ground water. The likely effect on local flora and fauna, wildlife and designated conservation areas such as Sites of Special Scientific Interest (SSSI).
 - b. **Firewater Run Off.** Consider potential contamination to the local environment by firewater run-off. Mitigation measures would normally be identified in the Environmental Risk Assessment (ERA) and include measures such as fuel interceptors, kerbs, drain interceptors and sandbags etc. The ability to deal with heavy metal contaminated sludge is to be considered.
 - c. **Blast and Fragment Damage.** Incident involving a dangerous substance that causes blast or fragmentation damage to the built or natural environment including, property, flora and fauna or wildlife whether surface or sub-surface (including marine life) or injury or death to people.
 - d. **Danger Area.** The extent of the danger area imposed must be assessed in the light of the immediate situation and may be increased as the incident progresses. This is to take account of potential danger's e.g. of a toxic smoke plume.
 - e. **Casualties On or Off-Site.** Implement the On-Site Emergency Plan to deal with immediate medical emergencies and ensure it dovetails with the Off-Site Emergency Plan (UTE only) as appropriate.

- f. **Downwind Hazard.** A system for determining wind speed and direction is essential when identifying the effect of an incident on the local community. This becomes more important if the hazardous substance indicates a high probability of airborne contamination e.g. Depleted Uranium stocks, lachrymatory munitions etc.
- g. **Domino Effect.** Assess the potential domino effect to other hazardous installations in relation to the current incident.

Post Incident Response

5. The responses to an MA fall into the following categories:

- a. **Decontaminate Area.** The On-Site Emergency Plan is to include the immediate actions to begin environmental clean-up and provide a list (or diagram) showing the precise location of all decontamination equipment. This could include small scale spill kits as shown in Tier 1 Oil Response Plans or drain interceptors for firewater run-off. The initial effort is to concentrate on stabilising and containing the situation. Activation of dormant enabling contracts to address fuel contamination would then be initiated.
- b. **Inform PIZ (UTE only) and Establishment Staff on Cessation.** Once the incident has been contained and it no longer poses a risk to the establishment or the local community the message must be conveyed by the Police or the method described in the Emergency Instruction Leaflet (UTE only). This could be a message on the local radio station, Police vehicle alarm systems or the sounding of an alarm etc.
- c. **Review On-Site Emergency Plan and Off-Site (UTE only) Emergency Plan.** To confirm that communication facilities were adequate (telephone, portable radio etc), pre-planned access routes were identified and usable, evacuation and mustering of personnel was satisfactory, first aid facilities were available and sufficient and the interface arrangements between the On-Site and Off-Site (UTE only) Emergency Plans were effective, etc. Evidence of the review is to be retained for audit purposes.
- d. **Assess Effect on Wildlife.** To be assessed during the clean-up phase. Advice of Defence Infrastructure Organisation (DIO), English Nature, Scottish Natural Heritage, Local Authority (LA) and local conservation charities and groups as applicable, will be necessary to address conservation issues.
- e. **Assess Effect on Built and Natural Environment.** Consult with the Environment Agency, DIO, English Heritage, Scottish Environment Protection Agency, LA and local environment groups as applicable, to determine the extent of damage and actions to be taken to recover the situation.
- f. **Seek Expert Advice.** To determine the long-term effects of fuel or heavy metal contamination on the surrounding area and to obtain remediation advice. Taking due cognisance of the views of the statutory bodies.

DSA 03.OME DCOP 403c

Regulation 403c

1. MAPP shall demonstrate that adequate safety and reliability have been taken into account in the design, construction, operation and maintenance of any installation, storage facility, equipment and infrastructure connected to its operation which are linked to major accident hazards inside the establishment.

Mapp Demonstration of Safety and Reliability

2. Having identified the MA hazards inherent in the operations carried out at the establishment and evaluated the risks posed by them; controls necessary for safe operation must be developed.

3. The controls form the basis of safe operations. They will include documented systems of working procedures and instructions compiled by the equipment manufacturer or supplier etc. and incorporate the experiences of line management operators.

4. Review and revision of the controls must be documented within the SMS.

Management of Change

5. The HOE is to instigate procedures for identifying changes that might alter the identification of hazard or assessment of risk associated with the potential for MAs in the following:

a. Installation:

- (1) Plant.
- (2) Materials.
- (3) Equipment.
- (4) Design.
- (5) Maintenance.
- (6) External Circumstance.

b. Process:

- (1) Staffing Levels and Training.
- (2) Staff Turnover.
- (3) Processes and Process Variables.
- (4) Procedures.
- (5) Software.

- (6) Contractorization / Partnering of tasks or facilities.
- c. Storage:
 - (1) Design.
 - (2) Procedures.

Monitoring Performance

- 6. The SMS aims to describe how the establishment maintains procedures to ensure that safety performance can be monitored and compared with the safety objectives defined in the MAPP.
- 7. The HOE is to implement the following:
 - a. Procedures for assessing compliance with objectives set.
- 8. The procedures for reporting accidents and near misses are contained JSP 375 Volume 2 Leaflet 14 and specialist JSP's such as JSP 317 for Fuels incidents and DSA03.OME Part 2 for explosives incidents.
- 9. Procedures for follow up and review.

Audit And Review

- 10. The establishment is to have, as an integral part of the SMS, a suitable method in place for assessing all the elements of the MAPP. This must ensure that the systems and practices adopted are appropriate and that they are maintained and implemented properly.
- 11. The MAPP is to be regularly reviewed and, if necessary, revised by the establishment every five years. The MAPP is to be updated to reflect significant change(s). Normally significant change will occur as a result of detailed pre-planning. However, it is acknowledged that significant change could occur with very little notice or no notice at all.
- 12. A significant change will be one where the alteration to the safety management system might have significant repercussions on the ability of the establishment to prevent or limit the consequences of a major accident. Examples of the types of changes, which are likely to be significant, include:
 - a. Proposals to introduce of a new dangerous substance, particularly if that substance requires different emergency procedures to those currently in place;
 - b. Proposals to introduce new activities associated with dangerous substances;
 - c. Proposals to significantly increase the number of people within the establishment boundary;
 - d. Proposals for significant re-organisation of the management structure, or changes to the MAPP or safety management system;

- e. Proposal involving delayering or reducing staff to a significant extent;
- f. A decision to adopt multi-skilling in relation to the operation or maintenance of the establishment;
- g. Proposals to significantly increase the amount of contracting and;
- h. A take-over or other significant change to the overall management of the organisation.

DSA 03.OME DCOP 403d

Regulation 403d

1. MAPP shall demonstrate that internal emergency plans have been drawn up and that appropriate information has been supplied to enable external emergency plans to be drawn up (UTE only).

Production of Emergency Plans

2. Using the information obtained relating to potential MAs, plans are to be made for responding to identified emergencies. These plans must meet the principles of emergency planning.

Safety Management System

3. A Safety Management System (SMS) is generally in place to comply with JSP 375 Volume 1. In order to comply with MACR the SMS must show that the MA hazards posed by activities on the establishment have been formally identified, documented and controlled. The system generally follows the guide given in the Health and Safety Executive (HSE) publication Managing for Health and Safety-[HSG 65](#)

Prevention of Major Accidents and Mitigation of Consequences

4. The MAPP, when completed, will clearly show, across all levels of management, that there is total commitment to the prevention of MAs and the mitigation of consequences of any that might occur. This is achieved by applying the following principles:

- a. Prevention.
- b. Identifying Hazards.
- c. Evaluating Risks.
- d. Implementing Controls.
- e. Identifying Residual Risks.
- f. Assessing Potential Harm (to people and or the environment).
- g. Monitoring and Review.
- h. Mitigation of consequences:
- i. Foreseeing MAs.
- j. Evaluating Consequences.
- k. Implementing Emergency Plans.

Information To Be Included

5. The MAPP is to include the following:
- a. **Establishment Activities.** A description, in generic terms, of the major activities on the establishment that could give rise to MAs.
 - b. **Holdings.** Details of the type and maximum anticipated holdings of dangerous substances held. Typically, this considers anticipated holdings for a forward planning 5 year period, where known changes are due to take place.
 - c. **MACR Specific Substances.** Details of the presence of a number of specific dangerous substances that, in the view of the MACR Assurance Team, have a particular sensitivity as far as public relations are concerned. The information is for MACR Assurance Team use only.
 - d. **Personnel at Risk.** The maximum number of personnel at the establishment. Show the proportions of service and civilian staff and the likelihood of contractors and visitors being on the establishment. It must also include the possibility of members of the public being in areas, on or near the establishment where they could be affected by an MA.
 - e. **Environment Information.** A general description of the environment at the establishment and its immediate vicinity.