



Defence
Safety Authority

DSA 03.OME Part 4: Defence Code of Practice (DCOP) 405

Environmental Risk Assessment (ERA)



Version Record

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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:

Email Address: dsa-dosr-prg@mod.gov.uk

Postal Address: Juniper #5004, Level 1, Wing 4, Abbey Wood North, Bristol, BS34 8QW

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 405

Environmental Risk Assessment (ERA)

1. Every operator shall prepare and maintain an up-to-date Environmental Risk Assessment (ERA).
2. An Establishment shall demonstrate procedures for identifying the potential of a Major Accident, with consideration given to any subsequent emergency response. The necessary measures for preventing, or mitigating, any associated environmental impacts shall be detailed.

DSA 03.OME DCOP 405a

Preparation of an Environmental Risk Assessment (ERA)

1. Environmental Major Accident Scenarios associated with credible incidents, not otherwise covered in normal or planned routines are required to be assessed. Examples include the consequences of flood, storm, spillage, explosion, malicious damage, or the containment of firefighting runoff water in the event of a fire.
2. Therefore, each establishment requires a Major Accident (MA) 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 MA's. Note that general ERA required by JSP 418 may be used to support a MA ERA required by MACR, but on their own will not contain sufficiently detailed information. The ERA is to be undertaken by an assessed and competent SQEP team. The ERA is a live document and must be reviewed at least annually and updated as required.
3. The ERA is to demonstrate via a detailed document that potential MAs to the environment from the establishment have been identified and adequately considered. Where the consequences of an accident involving a hazard (bulk fuel tank, facility, munitions, etc.) are thought to fall just below those of a MA, the hazard must be included in the ERA to demonstrate that all potential MA scenarios have been assessed.
4. The environmental risk assessment process can be viewed as addressing seven questions:
 - a. **What Can Go Wrong?** i.e., identification of the sources of potential accidents and the ways they could happen (hazard identification).
 - b. **How Often?** i.e., an estimate of the probability of their occurrence (source frequency).
 - c. **What Gets Out and How Much?** i.e., evaluation of the size of the release from knowledge of the material(s) in question and release rate calculations.

- d. **Where Does It Get To?** i.e., dispersion (and deposition) predictions for the release.
 - e. **What Are the Consequences?** i.e., an estimate of the potential consequences of the accidents (consequence assessment).
 - f. **What are The Risks?** i.e., determination of risk levels derived from the above analyses, and assessment of their significance; and
 - g. **Risk Management Action?** i.e., Consequences of an MA.
5. Three components need to be present before a risk can be manifest, namely:
- a. A source,
 - b. A pathway,
 - c. A receptor.
6. This recognition of the need for the presence of a source-pathway-receptor link can be valuable in both identifying that there is a risk and in managing that risk. If any of the above are missing, then there is no risk. However, care must be taken to ensure that a risk is not dismissed on the grounds that one of the components is missing, if there is the chance that this omission is because of the presence of a system/barrier which might fail. For example, a bund might be considered as a method of removing the pathway between the source and the receptor; this would not be a valid reason for concluding that there was no risk since there is a probability that the bund would be ineffectual.
7. One of the building blocks to demonstrating compliance with MACR is the identification of Major Accidents to the Environment (MATTEs). Assistance in this process is provided by the definition of a 'Major Accident':
- a. 'An occurrence (including, a major emission, fire, or explosion) resulting from uncontrolled developments during the operation of any establishment and leading to danger to human health or the environment, immediate or delayed, inside or outside the establishment, and involving one or more dangerous substances.
8. The key parameters influencing this judgement are a combination of:
- a. The recovery time.
 - b. The extent of the damage; and
 - c. The severity of the damage (e.g., numbers affected).
9. Although this guidance does not cover every eventuality it will help to facilitate decisions concerning the criteria used in screening out accidents which are not considered to warrant consideration as MATTEs. The rationale behind the screening out of hazards are to be documented.

10. More guidance can be found using the link below:
 - a. [MACR ERA SUB WORKING GROUP](#)

DSA 03.OME DCOP 405b

Aims of the Major Accident Environmental Risk Assessment

1. The following are the aims of the Environmental Risk Assessment (ERA):
 - a. Identify the processes, activities and materials on the establishment that have the potential to cause environmental harm.
 - b. Identify environmentally sensitive receptors likely to be affected by the establishment and its activities.
 - c. Identify and assess the pathways available for the passage of pollutants from the establishment to these receptors.
 - d. Assess the environmental risk including that of a MATTE arising from establishment activities taking account of mitigating measures and contingency plans (both positive and negative effects).
 - e. Provide establishment personnel with an overview of the environmental risks and guidance on their management.
 - f. Compile an environmental incident response data sheet.
 - g. Provide suitable information to be useful to those responding to an emergency who may or may not be familiar with the establishment.
2. 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 of a Major Accident to the environment must be recorded. Note 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). To further assist establishment’s examples of completed MACR Major Accident ERAs are available on request from the MACR Assurance Team.

Procedures and Responses

3. Each Establishment is to establish and maintain procedures to identify the potential for and respond to accidents and emergency situations, and for preventing or mitigating environmental impacts associated with them. Potential environmental incidents and abnormal operating conditions that could arise because of the establishment’s activities will have been considered in producing the significant environmental consequence register. Plans and documented procedures are to be established to ensure an appropriate response to such eventualities. Including:
 - a. Emergency management procedures that assign responsibilities and lists key personnel.
 - b. Availability of emergency services or contractors for clean ups etc.

- c. Procedures for communicating both internally within the site and externally to such parties as the Regulators, the public and the media.
 - d. Potential environmental aspects that could have consequences beyond site boundaries.
 - e. Hazard information such as safety data sheets and COSHH assessments.
 - f. Training, monitoring and drills.
 - g. Procedures for controlling incidents and undertaking remediation work. Internal and external responsibilities for the follow-up investigation and remediation.
4. The emphasis of an effective ERA is the prevention of avoidable harmful environmental aspects. Planning plays a key role to prepare for contingencies and accidents, as complete assurance of prevention is impossible. Existing Establishment Incident Response Plans must be updated to include relevant environmental data and instructions. As a minimum this will require the review of current control and emergency procedures such as CHIP registers, site spill plans and physical protection arrangements.
5. Examples of environmental operational controls include procedures for dealing with spills and the Major Accident Control Regulations (MACR) Safety Report (SR).

Useful Resources

6. The following are useful Resources:
- a. HSE DCOIF:
<https://webcommunities.hse.gov.uk/connect.ti/COMAHSF/view?objectId=54323&exp=e1>
 - b. HSE CDOIF Resources:
<https://webcommunities.hse.gov.uk/connect.ti/COMAHSF/view?objectId=54259>
 - c. [JSP 418](#)
 - d. SRAM: <https://www.hse.gov.uk/comah/ca-guides.htm>
 - e. ALL MEASURES NECESSARY – Environmental Aspects:
https://www.sepa.org.uk/media/219152/d130416_all-measures-necessary-guidance.pdf
 - f. [MACR ERA SUB WORKING GROUP](#)