



Defence
Safety Authority

DSA 03.OME Part 4 (JSP 498)- Defence Code of Practice (DCOP) and Guidance Notes – Defence Major Accident Control Regulations (MACR)

Defence OME Safety Regulator

DOSR



DSA VISION

Protecting Defence personnel and operational capability through effective and independent HS&EP regulation, assurance, enforcement and investigation.

PREFACE

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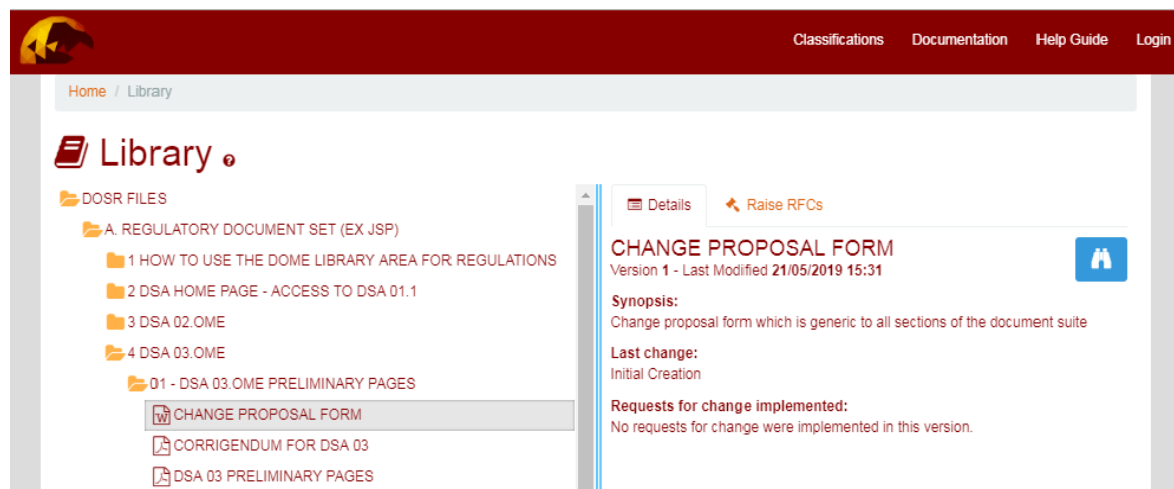


Figure 1. Change Proposal Form (Word version) Location

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CHAPTER 6

MAJOR ACCIDENT CONTROL REGULATIONS

ENVIRONMENTAL RISK ASSESSMENT

Paragraph

- 1 Introduction
- 9 Aims of the Environmental Risk Assessment

INTRODUCTION

1 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 will be covered by JSP 418 and the elements shown here are only in relation to MA's. Note that general ERA'S 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 should be undertaken by a competent team, using either MOD personnel or a consultant authorized by DIO.* The ERA is a live document and must be reviewed at least annually and updated as required.

2 The ERA is to demonstrate via a detailed document that potential MA's 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.

3 The environmental risk assessment process can be viewed as addressing seven basic questions:

- 3.1 **What Can Go Wrong?** i.e. identification of the sources of potential accidents and the ways they could happen (hazard identification);
- 3.2 **How Often?** i.e. an estimate of the probability of their occurrence (source frequency);
- 3.3 **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;

- 3.4 **Where Does It Get To?** i.e. dispersion (and deposition) predictions for the release;
- 3.5 **What Are The Consequences?** i.e. an estimate of the potential consequences of the accidents (consequence assessment);
- 3.6 **What are The Risks?** i.e. determination of risk levels derived from the above analyses, and assessment of their significance; and
- 3.7 **So What?** i.e. risk management action.

4 Three components need to be present before a risk can be manifest, namely:

a source → a pathway → a receptor

5 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.

6 One of the building blocks to demonstrating compliance with MACR (as per COMAH regulations) is the identification of Major Accidents to the Environment (MATTEs). Assistance in this process is provided by the definition of a 'Major Accident' in the regulations, viz,

'an occurrence (including in particular, a major emission, fire, or explosion) resulting from uncontrolled developments in the course of the operation of any establishment and leading to serious danger to human health or the environment, immediate or delayed, inside or outside the establishment, and involving one or more dangerous substances'

7 The key parameters influencing this judgement are a combination of:

- 7.1 The recovery time;
- 7.2 The spatial extent of the damage; and
- 7.3 The severity of the damage (e.g. numbers affected).

8 Although the guidance does not cover every eventuality it should 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 should be documented.

AIMS OF THE MAJOR ACCIDENT ENVIRONMENTAL RISK ASSESSMENT

9 The following are the aims of the Environmental Risk Assessment (ERA):

- 9.1 Identify the processes, activities and materials on the establishment that have the potential to cause environmental harm.
- 9.2 Identify environmentally sensitive receptors likely to be affected by the establishment and its activities.
- 9.3 Identify and assess the pathways available for the passage of pollutants from the establishment to these receptors.
- 9.4 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).
- 9.5 Provide establishment personnel with an overview of the environmental risks and guidance on their management.
- 9.6 Compile an environmental incident response data sheet.
- 9.7 Provide suitable information to be useful to those responding to an emergency who may or may not be familiar with the establishment.

10 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). Guidance on conducting a suitable and sufficient ERA to meet the requirements of MACR has been developed by DIO Environmental Science Group in conjunction with MACR CASG. A copy of the DIO MACR ERA Method Guidance Notes is hosted on the MOD intranet and can be accessed via the DSA/DOSR website. To further assist establishment’s examples of completed MACR Establishment’s Major Accident ERA’s are also hosted on the DSA/DOSR website.

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