

2 What is a Dam Safety Management Program?

A dam safety management program is a system that incorporates dam safety values as part of the culture of the organisation and the day-to-day operation of a referable dam. A dam safety management program comprises policies, procedures and investigations which minimises the risk of dam failure.

A dam safety management program includes:

- site investigation
- design
- construction
- operation and maintenance
- surveillance
- remedial action and modification
- abandonment and removal of dams.

Its benefits are that the:

- owner is aware that the dam complies with current engineering standards for safety
- owner is assured that the dam is operated in a safe manner
- owner has the condition of the dam assessed on a regular basis
- owner is prepared for an emergency situation at the dam
- risk of dam failure is minimised.

2.1 Documentation for a safety management program

A dam safety management program should ultimately result in six levels of documentation being available for each dam. These are:

1. Investigation, Design, and Construction Documentation including Data Book, Design Report and As-Constructed Details (or Construction Report)¹
2. Standing Operating Procedures (SOPs)
3. Detailed Operating and Maintenance Manuals (DOMMs)
4. Inspection and Evaluation Reports
5. Dam Safety Review Report ²
6. Emergency Action Plan (EAP).

Dam owners should securely store these documents.

Dam owners should ensure that each of the levels of documentation is identified for inspection and auditing purposes. The documentation could either be combined into a single document or left as groups of documents.

Details on the preparation of these documents and issues to be addressed are outlined in the following sections of this guideline.

- 1 ¹ Where appropriate. For example, the As-Constructed Details (or Construction Report) and Design Report for an older dam may not have been prepared or retained.
- 2 ² Where appropriate. For example, a new dam is unlikely to have had a safety review as these are generally undertaken every 20 years.

2.2 Training of personnel engaged in dam safety

Dam owners should ensure personnel engaged in dam safety related investigations and studies have adequate experience and training relevant to the type of dam and the facilities being managed.

Dam owners should ensure that the operating personnel involved in the day-to-day dam safety activities (as outlined in SOPs and EAPs) are experienced and/ or trained in aspects of operation of the owners dam.

Dam Owners should develop a program for keeping the skills of their dam operation staff up to date through training programs, courses and 'on the job' training.

2.3 Quality management of dam safety management programs

The Australian Standard for Quality Systems AS/NZS ISO 9001-3:1994 (Lam) [Quality Systems - Model for quality assurance in design, development, production, installation and servicing] can be used as a model for the quality assurance required for dam safety.

Developing and maintaining comprehensive documentation for a dam safety management program as described in these guidelines and quality management audits provide elements of a quality management system. Audit points should be identified within the dam safety management program to allow measurement of the effectiveness of the program and its components.

The dam owner, an internal auditor or a third party should conduct quality management audits on a systematic basis. When an internal auditor is used, it may be necessary to establish a management structure in which the dam safety functions are independent of the dam operator.

A quality management audit of documentation should establish:

- adequacy of the policies and the dam safety management program as a whole (systems audit)
- adequacy of the process and the necessary studies used to establish the documentation (process audit)
- adequacy of specific procedures, documentation or a specific investigation (validation audit).

Some of the specific issues, which should be examined in a quality management audit, include:

- the authority for performing activities
- allocation of responsibilities for particular activities
- actions to be undertaken and circumstances for such action.