

Queensland Dam Safety Management Guidelines

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1 Introduction

Currently, there are an estimated 300 referable dams in Queensland. These dams fulfil an important role in our society including water supply, hydroelectric power generation, process water management, flood control, sediment and water control and recreation.

The failure of these dams can have significant consequences ranging from loss of life or injury to economic loss and damage to property and the environment. Queensland has had a good dam safety record. However, continuing incidences of dam failures around the world highlight the need and importance of dam safety management programs.

In Queensland, under the *Water Act 2000* and common law, responsibility for the safety of a dam rests with the dam owner. Dam owners may be liable for loss and damage caused by the failure of a dam or the escape of water from a dam. Consequently, dam owners need to be committed to dam safety and have an effective dam safety management program. A dam safety management program is intended to minimise the risk of a dam failing and to protect life and property from the effects of such a failure should one occur.

1.1 Purpose

The aim of this guideline is to describe practices dealing with the construction and management of referable dams and assist dam owners to safely manage their dams and protect the community from dam failure.

It is to be used by:

- owners of referable dams
- operators of referable dams
- employees of referable dam owners and operators
- consultants for referable dam owners and operators.

This guideline outlines best practice in dam safety and is primarily advisory in nature. However, development permit conditions imposed on individual dams under the provisions of the *Water Act 2000* and the *Integrated Planning Act 1997*, may “call up” or reference relevant sections of these guidelines as a way of undertaking particular activities (eg preparing an emergency action plan). To assist users of these guidelines a brief overview of Queensland’s regulatory arrangements for referable water dams is given in section 3.

1.2 Scope

This guideline has been developed specifically for referable dams. However, it may be used by owners of dams which are not referable to develop a dam safety management program.

1.2.1 What is a referable dam?

A dam is referable if:

- a failure impact assessment is required to be carried out under the *Water Act 2000*, and
- that assessment states that the dam has or will have a Category 1 or Category 2 failure impact rating. And
- the chief executive has, under the *Water Act 2000*, accepted the assessment.

In addition, some dams may be made referable by:

- a regulation made under the *Water Act 2000*, or
- the transitional provisions in the *Water Act 2000*.

A failure impact assessment is required when a dam is or will be:

- more than 8 metres in height and have a storage capacity of more than 500 megalitres or
- more than 8 metres in height and have a storage capacity of more than 250 megalitres, and a catchment area that is more than 3 times the surface area of the dam at full supply level.

Additionally, the chief executive may give a dam owner a notice to have a dam failure impact assessed (regardless of its size), if the chief executive reasonably believes the dam will have, a Category 1 or Category 2 failure impact rating.

Referable dams are classified according to categories which are based on the population at risk if the dam fails.

Dams with a Category 1 failure impact rating have between 2 and 100 people at risk.

Dams with a Category 2 failure impact rating have over 100 people at risk.

If less than 2 people are at risk by the dam failing then the dam is not referable under the *Water Act 2000*.

The following are also not referable dams under the *Water Act 2000*:

- a dam containing, or a proposed dam that after its construction will contain, hazardous waste
- a weir, unless the weir has a variable flow control structure on its crest.

The following are not dams under the *Water Act 2000* and therefore cannot be referable dams:

- a rainwater tank
- a water tank constructed of steel or concrete or a combination of steel and concrete
- a water tank constructed of fibreglass plastic or similar material.

The Guidelines for Failure Impact Assessments of Water Dams published by the Department of Natural Resources and Mines (NR&M) provide additional information on undertaking a failure impact assessment to determine the population at risk for a dam.

1.2.2 Replacing old guidelines

This guideline comes into force with the commencement of the dam safety provisions of the *Water Act 2000*. This guideline replaces the 1994 guidelines known as the Queensland Dam Safety Management Guidelines 1994.