

## Water Management (Safety of Dams) Regulations 2011

I, the Lieutenant-Governor in and over the State of Tasmania and its Dependencies in the Commonwealth of Australia, acting with the advice of the Executive Council, make the following regulations under the *Water Management Act 1999*.

8 August 2011

E. C. CRAWFORD

Lieutenant-Governor

By His Excellency's Command,

BRYAN GREEN

Minister for Primary Industries and Water

### PART 1 - Preliminary

#### 1. Short title

These regulations may be cited as the *Water Management (Safety of Dams) Regulations 2011*.

#### 2. Commencement

These regulations take effect on the day on which their making is notified in the *Gazette*.

#### 3. Interpretation

(1) In these regulations –

*Act* means the *Water Management Act 1999*;

*ANCOLD* means the Australian National Committee on Large Dams Inc.;

*ANCOLD guidelines* means guidelines issued by ANCOLD;

*appurtenant works* means all ancillary structures of a dam that may affect a dam's safety including, but not limited to including, spillways, inlet and outlet works, tunnels, pipelines, penstocks, power stations and watercourse diversions;

*authorised safety reviewer* means a person declared under regulation 8 to be an authorised safety reviewer for the purposes of these regulations;

*Class 1 competence* means the level of competence referred to in regulation 4;

*Class 2 competence* means the level of competence referred to in regulation 5;

*Class 3 competence* means the level of competence referred to in regulation 6;

*dam* means a permanent or temporary barrier or structure that stores water or other liquids, silt, debris, mine tailings or other liquid-borne material or holds back or impedes the flow of water or other material and includes –

(a) water or other material stored or held back by the barrier or structure and the area covered by that water or other material; and

(b) an artificial depression or hole excavated in a watercourse that holds water or impedes the flow of water; and

(c) an artificial levee or bank that holds back or diverts water in a watercourse; and

(d) any appurtenant works;

**expert team** means a team of persons which meets the requirements referred to in regulation 7;

**hazard category** means a hazard category referred to in the *Guidelines on Assessment of the Consequences of Dam Failure*, published in May 2000 by ANCOLD, as amended from time to time;

**nominated person**, in relation to a dam, means the person specified to be the nominated person in relation to the dam in a Notice of Intent to Commence Dam Works given to the Minister in accordance with a condition of a dam works permit in relation to the dam;

**owner**, in relation to a dam, means the owner of the dam;

**top of the dam** means the uppermost part of the dam excluding any settlement camber, or structures such as parapets and guard-rails, that are not part of the main water-retaining structure;

**WAE report** means a report containing details of –

(a) actual site conditions and features encountered during construction of the dam and the works associated with the construction of the dam; and

(b) construction procedures used in the construction of the dam and the construction of the works associated with the construction of the dam; and

(c) details, including drawings, of the dam as constructed and the works, associated with the construction of the dam, as constructed.

(2) For the purposes of these regulations, the height of a dam is the greater of the following:

(a) the height from the natural bed of the stream at the downstream edge of the dam wall to the top of the dam;

(b) the height from the lowest elevation of the outside limit of the dam to the top of the dam.

## **PART 2 - Categories of Competence and Authorisation**

### **4. Class 1 competence**

(1) A person has Class 1 competence in respect of an activity, specified in Column 1 of a table to a subregulation in regulation 10, that is carried out in relation to a dam to which that subregulation applies, if he or she –

(a) holds –

(i) a degree in Civil Engineering awarded at the successful completion of a course of study that, if carried out full time, takes 4 years to complete; or

(ii) a qualification in Civil Engineering that is higher than the qualification referred to in subparagraph (i); and

(b) is a member of the Institution of Engineers, Australia; and

(c) is registered on the National Professional Engineers Register in a branch of engineering that relates to the activity.

(2) A person has Class 1 competence in respect of an activity, specified in Column 1 of a table to a subregulation in regulation 10, that is carried out in relation to a dam to which that subregulation applies, if he or she is declared under subregulation (4) to have Class 1 competence in respect of the activity in relation to dams of the same height, type and hazard category as the dam.

(3) A person may apply to the Secretary for a declaration that the person has, for the purposes of these regulations, Class 1 competence in respect of an activity in relation to dams of a height, type and hazard category specified in the application.

(4) The Secretary may, on the application of a person, declare the person to have, for the purposes of these regulations, Class 1 competence in respect of an activity in relation to dams of a height, type and hazard category specified in the declaration.

(5) The Secretary may only declare a person to have Class 1 competence in respect of an activity in relation to dams of a height, type and hazard category specified in the declaration if the Secretary is satisfied that the person –

(a) has qualifications in engineering; and

(b) has at least 5 years' experience, in general civil engineering (or an equivalent field) undertaking investigation, design, construction, surveillance and safety management of dams, including significant experience in dam technology appropriate to the height, type and hazard category of such dams.

## **5. Class 2 competence**

(1) A person has Class 2 competence in respect of an activity, specified in Column 1 of a table to a subregulation in regulation 10, that is carried out in relation to a dam to which that subregulation applies, if he or she –

(a) holds –

(i) an Advanced Diploma in Civil Engineering or an Advanced Diploma in Agricultural Engineering; or

(ii) a qualification in Civil Engineering, or Agricultural Engineering, that is higher than a qualification referred to in subparagraph (i); and

(b) is an associate or officer member of the Institution of Engineers, Australia; and

(c) has at least 5 years' experience in respect of dam engineering and construction.

(2) A person has Class 2 competence in respect of an activity, specified in Column 1 of a table to a subregulation in regulation 10, that is carried out in relation to a dam to which that subregulation applies, if he or she –

(a) holds –

(i) a degree in Civil Engineering or a Degree in Agricultural Engineering, in either case being a degree awarded at the successful completion of a course of study that, if carried out full time, takes 4 years to complete; or

(ii) a qualification in Civil Engineering, or Agricultural Engineering, that is higher than a qualification referred to in subparagraph (i); and

(b) is a graduate member of the Institution of Engineers, Australia; and

(c) has at least 2 years' experience undertaking investigation, design, construction, and day-to-day safety management of dams, which experience is appropriate to the height, type and hazard category of the dam.

(3) A person has Class 2 competence in respect of an activity, specified in Column 1 of a table to a subregulation in regulation 10, that is carried out in relation to a dam to which that subregulation applies, if he or she is declared under subregulation (5) to have Class 2 competence in respect of the activity in relation to dams of the same height, type and hazard category as the dam.

(4) A person may apply to the Secretary for a declaration that the person has, for the purposes of these regulations, Class 2 competence in respect of an activity in relation to dams of a height, type and hazard category specified in the application.

(5) The Secretary may, on the application of a person, declare the person to have, for the purposes of these regulations, Class 2 competence in respect of an activity in relation to dams of a height, type and hazard category specified in the declaration.

(6) The Secretary may only declare a person to have Class 2 competence in respect of an activity in relation to dams of a height, type and hazard category specified in the declaration if the Secretary is satisfied that the person –

(a) has qualifications in respect of engineering; and

(b) has at least 5 years' experience undertaking investigation, design, construction, surveillance and safety management of dams, which experience is appropriate to the height, type and hazard category of such dams.

## **6. Class 3 competence**

(1) A person has Class 3 competence in respect of an activity, specified in Column 1 of a table to a subregulation in regulation 10, that is carried out in relation to a dam to which that subregulation applies, if he or she –

(a) holds –

(i) a degree in engineering, or science, awarded at the successful completion of a course of study that, if carried out full time, takes 4 years to complete; or

(ii) a qualification in engineering, or science, that is higher than a qualification referred to in subparagraph (i); and

(b) is a member of the Institution of Engineers, Australia; and

(c) is registered on the National Professional Engineers Register or by a professional body that requires similar qualifications for registration as is required for registration on that Register.

(2) A person has Class 3 competence in respect of an activity, specified in Column 1 of a table to a subregulation in regulation 10, that is carried out in relation to a dam to which that subregulation applies, if he or she –

(a) is a Chartered Professional Engineer; and

(b) has obtained qualifications in respect of a course of study that –

(i) may only be undertaken by persons who hold a degree in engineering or science; and

(ii) is a course of study in respect of geotechnical engineering, hydrological engineering, mechanical engineering, electrical engineering or environmental engineering or another field of engineering; and

(iii) is appropriate to the height, type and hazard category of the dam.

(3) A person has Class 3 competence in respect of an activity, specified in Column 1 of a table to a subregulation in regulation 10, that is carried out in relation to a dam to which that subregulation applies, if he or she is declared under subregulation (5) to have Class 3 competence in respect of the activity in relation to dams of the same height, type and hazard category as the dam.

(4) A person may apply to the Secretary for a declaration that the person has, for the purposes of these regulations, Class 3 competence in respect of an activity in relation to dams of a height, type and hazard category specified in the application.

(5) The Secretary may, on the application of a person, declare the person to have, for the purposes of these regulations, Class 3 competence in respect of an activity in relation to dams of a height, type and hazard category specified in the declaration.

(6) The Secretary may only declare a person to have Class 3 competence in respect of an activity in relation to dams of a height, type and hazard category specified in the declaration if the Secretary is satisfied that the person –

(a) has qualifications in respect of engineering; and

(b) has at least 5 years' experience in a specialist aspect of dam technology appropriate to the height, type and hazard category of such dams.

## **7. Expert team**

A team of persons is an expert team in respect of an activity, specified in Column 1 of a table to a subregulation in regulation 10, that is carried out in relation to a dam to which that subregulation applies, if –

(a) the team consists of at least 3 persons, one of whom, at least, has Class 1 competence in respect of the activity in relation to dams of the same height, type and hazard category as the dam; and

(b) at least 2 of the members of the team have Class 3 competence in respect of the activity in relation to dams of the same height, type and hazard category as the dam; and

(c) at least 2 of the members of the team to whom paragraph (b) applies have obtained qualifications in respect of a course of study that –

(i) may only be undertaken by persons who hold a degree in engineering or science; and

(ii) is a course of study in respect of structural engineering, geotechnical engineering, engineering geology, or another field of engineering, that is appropriate to the height, type and hazard category of the dam; and

(d) the persons in the team collectively have knowledge and understanding of the causes and modes of dam failure; and

(e) the team contains persons with professional expertise such that, for each of the following areas, in so far as they relate to the dam and activity, there is at least one person in the team with professional expertise in the area:

(i) engineering surveying;

(ii) hydrology;

(iii) hydraulics;

(iv) engineering geology;

(v) soil and rock mechanics;

(vi) evaluation of properties of materials;

(vii) dam design;

(viii) structural design;

(ix) mechanical design;

(x) construction practices;

(xi) instrumentation;

(xii) any other area the Minister or Assessment Committee considers relevant.

## **8. Authorised safety reviewers**

The Minister may, by instrument in writing, declare an authorised officer to be an authorised safety reviewer for the purposes of these regulations.

## **PART 3 - Design, Construction, Maintenance, &c., of Dams**

### **9. Guidelines and information to be followed by persons constructing, &c., dams**

A person must not carry out any activity for the purpose of, or in connection with, the design, construction, surveillance or decommissioning of a dam unless the person –

(a) carries out the activity, where appropriate, in accordance with the relevant provisions of the ANCOLD guidelines; and

(b) carries out the activity generally in accordance with Information Sheet DSC 2C issued by the Dams Safety Committee constituted by the *Dams Safety Act 1978* of New South Wales.

Penalty:

In the case of –

(a) a body corporate, a fine not exceeding 50 penalty units; and

(b) a natural person, a fine not exceeding 20 penalty units.

### 10. Required competence for certain activities

(1) For the purposes of this regulation, a person is a member of Class 1, 2 or 3 in respect of an activity in relation to a dam if the person has Class 1 competence, Class 2 competence or Class 3 competence, respectively, in respect of the activity in relation to dams of the same height, type and hazard category as the dam.

(2) A person must not carry out, in relation to a dam that –

(a) is less than 10 metres high; and

(b) is of a hazard category specified in Column 2 of the table to this subregulation –

an activity specified in Column 1 of the table unless the person is a member of the class of persons (if any) specified in Column 2 of the table opposite the activity and below the hazard category.

Penalty:

In the case of –

(a) a body corporate, a fine not exceeding 50 penalty units; and

(b) a natural person, a fine not exceeding 20 penalty units.

Column 1 Activity	Column 2 Hazard Category						
	Very Low	Low	Significant	High C	High B	High A	Extreme
1. Design plans and specifications	Owner	Class 2	Class 1	Class 1	Expert team	Expert team	Expert team
2. Pre-construction investigation, design (other than spillway design) and report	Owner	Class 2	Class 1 or Class 3	Class 1 or Class 3	Expert team	Expert team	Expert team
3. Spillway design	Class 2	Class 2	Class 1 or Class 3	Class 1 or Class 3	Expert team	Expert team	Expert team
4. Dam safety emergency management	No requirement	No requirement	Class 2	Class 1	Expert team	Expert team	Expert team

plans								
5. Supervision of construction	Owner nominated person	or	Class 2	Class 1	Class 1	Expert team	Expert team	Expert team
6. WAE report	Owner nominated person	or	Class 2	Class 1	Class 1	Expert team	Expert team	Expert team
7. Intermediate surveillance inspections and reports	Owner		Class 2	Class 2	Class 2	Class 2	Class 2	Class 2
8. Comprehensive surveillance inspections and reports	No requirement		Class 2	Class 2	Class 1	Expert team	Expert team	Expert team
9. Safety reviews (hazard category assessment)	Class 2 authorised safety reviewer	or	Class 2 authorised safety reviewer	or	Class 2	Class 1	Expert team	Expert team
10. Design and supervision of decommissioning	Owner		Class 2	Class 2	Class 1	Expert team	Expert team	Expert team

(3) A person must not carry out, in relation to a dam that –

(a) is more than 10 metres high but not more than 25 metres high; and

(b) is of a hazard category specified in Column 2 of the table to this subregulation –

an activity specified in Column 1 of the table unless the person is a member of the class of persons (if any) specified in Column 2 of the table opposite the activity and below the hazard category.

Penalty:

In the case of –

(a) a body corporate, a fine not exceeding 50 penalty units; and

(b) a natural person, a fine not exceeding 20 penalty units.

Column 1 Activity	Column 2 Hazard Category						
	Very Low	Low	Significant	High C	High B	High A	Extreme
1. Design plans and specifications	Class 2	Class 1	Class 1	Class 1	Expert team	Expert team	Expert team
2. Pre-construction investigation, design and report	Class 2	Class 1 or Class 3	Class 1 or Class 3	Class 1 or Class 3	Expert team	Expert team	Expert team



3. Dam safety emergency management plans	No requirement	No requirement	Class 2	Class 1	Expert team	Expert team	Expert team
4. Supervision of construction	Class 2	Class 1	Class 1	Class 1	Expert team	Expert team	Expert team
5. WAE report	Class 2	Class 1	Class 1	Class 1	Expert team	Expert team	Expert team
6. Intermediate surveillance inspections and reports	Class 2	Class 2	Class 2	Class 2	Class 2	Class 2	Class 2
7. Comprehensive surveillance inspections and reports	Class 2	Class 2	Class 1	Class 1	Expert team	Expert team	Expert team
8. Safety reviews (hazard category assessment)	Class 2 or authorised safety reviewer	Class 2	Class 1	Class 1	Expert team	Expert team	Expert team
9. Design and supervision of decommissioning	Class 2	Class 2	Class 2	Class 1	Expert team	Expert team	Expert team

(4) A person must not carry out, in relation to a dam that –

(a) is more than 25 metres high; and

(b) is of a hazard category specified in Column 2 of the table to this subregulation –

an activity specified in Column 1 of the table unless the person is a member of the class of persons (if any) specified in Column 2 of the table opposite the activity and below the hazard category.

Penalty:

In the case of –

(a) a body corporate, a fine not exceeding 50 penalty units; and

(b) a natural person, a fine not exceeding 20 penalty units.

Column 1 Activity	Column 2 Hazard Category						
	Very Low	Low	Significant	High C	High B	High A	Extreme
1. Design plans and specifications	Expert team	Expert team	Expert team	Expert team	Expert team	Expert team	Expert team
2. Pre-construction investigation, design and report	Expert team	Expert team	Expert team	Expert team	Expert team	Expert team	Expert team
3. Dam safety	No requirement	No	Class 2	Class 1	Expert	Expert	Expert

emergency management plans		requirement		team	team	team	team
4. Supervision of construction	Expert team	Expert team	Expert team	Expert team	Expert team	Expert team	Expert team
5. WAE report	Expert team	Expert team	Expert team	Expert team	Expert team	Expert team	Expert team
6. Intermediate surveillance inspections and reports	Class 2	Class 2	Class 2	Class 2	Class 1	Class 1	Class 1
7. Comprehensive surveillance inspections and reports	Expert team	Expert team	Expert team	Expert team	Expert team	Expert team	Expert team
8. Safety reviews (hazard category assessment)	Class 2 or authorised safety reviewer	Expert team	Expert team	Expert team	Expert team	Expert team	Expert team
9. Design and supervision of decommissioning	Class 2	Expert team	Expert team	Expert team	Expert team	Expert team	Expert team

## 11. Persons who may perform certain activities

(1) In this regulation –

*class of persons* means a class of persons specified in a table to [regulation 10](#);

*requirement* means a requirement or condition specified in a permit, notice, direction or authorisation given under or in accordance with [section 157](#), [165F](#), [165H](#), [165J](#), [165L](#), [165M](#), [165N](#) or [165P](#) of the Act.

(2) Subject to [subregulation \(3\)](#), if an activity in relation to a dam is –

(a) required to be undertaken –

(i) as a condition of a permit under [section 157](#) of the Act; or

(ii) as a term or condition imposed under [section 165F\(2\)](#) of the Act; or

(iii) by a notice under [section 165H](#), [165N](#) or [165P](#) of the Act; or

(iv) by a direction under [section 165L](#) of the Act; or

(b) authorised under [section 165J](#) or [165M](#) of the Act –

the activity may be undertaken by a person in relation to the dam only if the person is a member of a class of persons who may carry out the activity in relation to the dam under [regulation 10](#).

(3) A requirement may specify that an activity in relation to a dam is to be carried out by a person, or persons, who are members of a class of persons with higher levels of competence than the class of persons who are authorised under [regulation 10](#) to carry out the activity.

(4) A person who –

(a) is a member of a class of persons that is specified under subregulation (3) in a requirement in relation to a dam; and

(b) who carries out an activity to which the requirement relates –

is taken to comply with regulation 10 in respect of the carrying out of the activity in relation to the dam.

(5) For the purposes of section 165H(1A) of the Act, Class 1 competence, Class 2 competence, Class 3 competence, expert team and authorised safety reviewer are prescribed competencies.

## **12. Compliance with guidelines**

(1) For the purposes of sections 157, 165F, 165H, 165L and 165N of the Act, a permit, notice or direction given under or in accordance with one of those sections may require that any activity authorised by the permit, notice or direction be carried out in accordance with the following documents (as amended from time to time) to the extent that they are relevant:

(a) *ANCOLD Guidelines on Assessment of the Consequences of Dam Failure (May 2000)*;

(b) *ANCOLD Guidelines on Selection of Acceptable Flood Capacity for Dams (March 2000)*;

(c) *ANCOLD Guidelines on Tailings Dam Design, Construction and Operation (1999)*;

(d) *ANCOLD Guidelines on Design of Dams for Earthquake (1998)*;

(e) *ANCOLD Guidelines on Dam Safety Management (2003)*;

(f) any other ANCOLD guidelines the Minister or Assessment Committee considers relevant and specifies in the permit, notice or direction;

(g) *Assessment Committee for Dam Construction Guidelines for Pre-construction Reports (2009)*;

(h) *DPIW Guidelines for Construction of Earthfill Dams (2008)*;

(i) *DPIPWE Guidelines for Works-as-Executed Reports for Completed Dam Works (2009)*;

(j) *DPIW Guidelines for 5 year Dam Safety Surveillance Reports (2009)*;

(k) *DPIW Guidelines for Dam Safety Emergency Management Plans (2008)*;

(l) *DPIW Dam Works Code (2007)*;

(m) Information Sheet DSC 2C issued by the Dams Safety Committee constituted by the *Dams Safety Act 1978* of New South Wales.

(2) A copy of each document specified in subregulation (1) may be inspected at the offices of the Water Management Branch at –

(a) 1 Franklin Wharf, Hobart; and

(b) the Government Offices, Prospect, Launceston; and

(c) the Government Offices, Stony Rise, Devonport.

## **PART 4 - Miscellaneous**

### **13. Mine tailings storage facilities**

(1) In this regulation –

*requirement* means a requirement or condition specified in a permit, notice, direction or authorisation given under section 165E, 165H, 165J, 165L, 165M, 165N or 165P of the Act.

(2) If the construction of a mine tailings storage facility –

(a) is by means of an ongoing operation (known as "continual lift"); and

(b) uses tailings as the primary embankment material –

the owner of the facility must ensure that appropriate supervision of the construction is provided –

(c) by a person with Class 1 competence; or

(d) if a requirement in relation to the construction of the facility requires that the construction is to be carried out by a person, or persons, who are members of a class of persons with higher levels of competence than the class of persons with Class 1 competence, by a person with that higher level of competence.

Penalty:

In the case of –

(a) a body corporate, a fine not exceeding 50 penalty units; and

(b) a natural person, a fine not exceeding 20 penalty units.

(3) A requirement may specify that the supervision of the construction of a mine tailings storage facility is to be carried out by a person, or persons, who are members of a class of persons with higher levels of competence than the class of persons with Class 1 competence.

(4) A person who –

(a) is a member of a class of persons that is specified under subregulation (3) in a requirement in relation to a dam; and

(b) who carries out an activity to which the requirement relates –

is taken to comply with regulation 10 in respect of the carrying out of the activity in relation to the dam.

(5) Regulation 11 does not apply in relation to the supervision of the construction of a facility to which subregulation (2) relates.

### **14. Operation and maintenance manuals**

For the purposes of [section 165K\(2\)\(b\)](#) of the Act, an operation and maintenance manual is to comply substantially with section 4.3 of the *Guidelines on Dam Safety Management* published in 2003 by ANCOLD, as amended from time to time.

## 15. Fees, allowances and compensation

(1) The fee payable to the Crown, by the owner of a dam or proposed dam, for the assessment of –

(a) a design, construction, maintenance, surveillance, or decommissioning, report; or

(b) a dam safety emergency management plan –

is 60 fee units for each half hour spent assessing the report or plan.

(2) The following amounts are payable to persons attending or giving evidence at an inquiry or examination referred to in [Part 8A](#) of the Act:

1.	for meals, travelling and accommodation	the same rate and on the same terms as prescribed from time to time for the equivalent allowance in the General Conditions of Service Award made under the <i>Industrial Relations Act 1984</i> in respect of persons who are State Service officers or State Service employees
2.	for loss of salary, wages or income resulting from a person's attendance at the inquiry or examination, if the person is not an expert witness (for each hour, or part of an hour)	the actual loss incurred, up to a maximum of 2.5% of the seasonally adjusted average weekly earnings of a full-time adult employee in Tasmania as published by the Australian Bureau of Statistics for the December quarter for the previous year
3.	for loss of salary, wages or income resulting from a person's attendance at the inquiry or examination, if the person is an expert witness	the amount that the inquirer considers just and reasonable in the circumstances

(3) Compensation is not payable to a person who does not incur an actual loss of salary, wages or income as a result of attending court.

## 16. Legislation rescinded

The legislation specified in [Schedule 1](#) is rescinded.

### SCHEDULE 1 - Legislation rescinded

[Regulation 16](#)

[Water Management \(Safety of Dams\) Regulations 2003](#) (No. 141 of 2003)

Displayed and numbered in accordance with the [Rules Publication Act 1953](#).

Notified in the *Gazette* on 17 August 2011.

These regulations are administered in the Department of Primary Industries, Parks, Water and Environment.

**Table Of Amendments**

<b>Citation</b>	<b>Serial Number</b>	<b>Date of commencement</b>
Water Management (Safety of Dams) Regulations 2011	S.R. 2011, No. 84	17.8.2011