



## **Building (Dam Safety) Regulations 2008**

Anand Satyanand, Governor-General

### **Order in Council**

At Wellington this 7th day of July 2008

Present:

His Excellency the Governor-General in Council

Pursuant to sections 149 and 402(1)(k) and (x) of the Building Act 2004, His Excellency the Governor-General, acting on the advice and with the consent of the Executive Council and on the recommendation of the Minister (as defined by section 7 of that Act), makes the following regulations.

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## **Regulations**

- 1 Title**  
These regulations are the Building (Dam Safety) Regulations 2008.
- 2 Commencement**  
These regulations come into force on 1 July 2010.
- 3 Interpretation**
- (1) In these regulations, unless the context otherwise requires,—  
**Act** means the Building Act 2004  
**Competency Assessment Board** means the Competency Assessment Board appointed under Part 5 of the Chartered Professional Engineers of New Zealand Rules (No 2) 2002  
**population at risk** means the number of people likely to be affected by inundation greater than 0.5 metres in depth  
**specified categories** are residential infrastructure, critical or major infrastructure (both damage caused and time to restore to operation), natural environment, and community recovery time.
- (2) Terms or expressions used and not defined in these regulations but defined in the Act have, in these regulations, the same meanings as they have in the Act.
- 4 Dam classification**  
A dam classification is to be determined by undertaking the following steps:

- (a) identify the effect that an uncontrolled release of the reservoir due to a failure of the dam when full would have on each of the specified categories; and
- (b) use table 1 of Schedule 1 to determine the assessed damage level by assessing whether the damage level in each of the specified categories is catastrophic, major, moderate, or minimal then selecting the highest damage level; and
- (c) estimate the population at risk; and
- (d) use table 2 of Schedule 1 to determine the dam classification by correlating the assessed damage level with the estimated population at risk.

## **5 Competencies for category A recognised engineers**

- (1) A category A recognised engineer is an engineer who meets the requirements set out in section 149(1)(a) and (b) of the Act and is assessed by the Competency Assessment Board as demonstrating that he or she is able to practise competently in the area of dam safety engineering to the reasonable standard of a professional engineer practising in that area.
- (2) The extent to which the person has experience and knowledge in any or all of the following things must be taken into account when assessing whether that person meets the standard in sub-clause (1):
  - (a) geotechnical principles:
  - (b) design principles including structural geotechnical seismic hydrologic and hydraulic principles:
  - (c) dam construction techniques:
  - (d) operation and maintenance of dams:
  - (e) surveillance processes:
  - (f) response to dam safety issues:
  - (g) emergency planning:
  - (h) emergency response:
  - (i) resolution of potential dam safety deficiencies:
  - (j) dam safety critical plant systems.

**6 Competencies for category B recognised engineers**

A category B recognised engineer is an engineer who meets the requirements set out in section 149(1)(a) and (b) of the Act and who has general civil engineering ability and experience.

**7 Audit of dam classification and audit and review of dam safety assurance programme by recognised engineers**

- (1) A category A recognised engineer may, in relation to any dam, issue the following certificates:
  - (a) following a dam classification audit, a dam classification certificate in form 1 of Schedule 2:
  - (b) following a dam safety assurance programme audit, a certificate in form 2 of Schedule 2:
  - (c) following a review of a dam safety assurance programme carried out under section 150 of the Act, a certificate in form 3 of Schedule 2.
- (2) A category B recognised engineer may, in relation only to a low potential impact dam, issue a dam classification certificate in form 1 of Schedule 2 following a dam classification audit.

**8 Criteria and standards for dam safety assurance programme**

- (1) This regulation sets out the criteria and standards for dam safety that a dam safety assurance programme must meet.
- (2) A dam safety assurance programme must—
  - (a) be consistent with the dam safety management principles related to operation, maintenance, surveillance, and emergency action planning as provided in the *New Zealand Dam Safety Guidelines* (published by the New Zealand Society on Large Dams, November 2000); and
  - (b) be appropriate to the type and size of the dam and the dam classification given to the dam under regulation 4.
- (3) Every dam safety assurance programme must contain the following:
  - (a) requirements for and frequency of surveillance, routine visual inspections, instrument monitoring, data evaluation, and reporting to the dam owner:
  - (b) requirements for annual dam safety reviews:
  - (c) requirements for comprehensive dam safety reviews:

- (d) details of an emergency action plan:
- (e) requirements for inspection of appurtenant structures, including testing of gates and valves that contribute to reservoir safety:
- (f) procedures for the investigation, assessment, and resolution of dam safety deficiencies.

**9 Dam classification certificate**

A dam classification certificate must—

- (a) be in form 1 of Schedule 2; and
- (b) contain the information requested in the form.

**10 Dam safety assurance programme**

A dam safety assurance programme must—

- (a) be in form 2 of Schedule 2; and
- (b) contain the information requested in the form and include any documentation required to be attached.

**11 Annual dam compliance certificate**

An annual dam compliance certificate must—

- (a) be in form 3 of Schedule 2; and
  - (b) contain the information requested in the form.
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## Schedule 1 Dam classification

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Table 1—Determination of assessed damage level

Damage level	Specified categories			
	Residential houses <sup>1</sup>	Critical or major infrastructure <sup>2</sup>	Natural environment	Community recovery time
Catastrophic	More than 50 houses destroyed	<i>Damage</i> Extensive and widespread destruction of and damage to several major infrastructure components	<i>Time to restore to operation<sup>3</sup></i> More than 1 year	Extensive and widespread damage Many years
Major	4 to 49 houses destroyed and a number of houses damaged	Extensive destruction of and damage to more than 1 major infrastructure component	Up to 12 months	Heavy damage and costly restoration Years
Moderate	1 to 3 houses destroyed and some damaged	Significant damage to at least 1 major infrastructure component	Up to 3 months	Significant but recoverable damage Months
Minimal	Minor damage	Minor damage to major infrastructure components	Up to 1 week	Short-term damage Days to weeks

Schedule 1

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Table 1—Determination of assessed damage level—*continued*

**Notes**

- 1 In relation to residential houses, destroyed means rendered uninhabitable.
- 2 Includes—
  - (a) lifelines (power supply, water supply, gas supply, transportation systems, wastewater treatment, telecommunications (network mains and nodes rather than local connections)); and
  - (b) emergency facilities (hospitals, police, fire services); and
  - (c) large industrial, commercial, or community facilities, the loss of which would have a significant impact on the community; and
  - (d) the dam, if the service the dam provides is critical to the community and that service cannot be provided by alternative means.
- 3 The estimated time required to repair the damage sufficiently to return the critical or major infrastructure to normal operation.

Table 2—Determination of dam classification

Assessed damage level	Population at risk (PAR)			
	0	1 to 10	11 to 100	More than 100
Catastrophic	High potential impact	High	High	High
Major	Medium potential impact	Medium/High ( <i>see</i> note 4)	High	High
Moderate	Low potential impact	Low/Medium/High ( <i>see</i> notes 3 and 4)	Medium/High ( <i>see</i> note 4)	Medium/High ( <i>see</i> notes 2 and 4)
Minimal	Low potential impact	Low/Medium/High ( <i>see</i> notes 1, 3, and 4)	Low/Medium/High ( <i>see</i> notes 1, 3, and 4)	Low/Medium/High ( <i>see</i> notes 1, 3, and 4)

**Notes**

- 1 With a PAR of 5 or more people, it is unlikely that the potential impact will be low.
- 2 With a PAR of more than 100 people, it is unlikely that the potential impact will be medium.
- 3 Use a medium classification if it is highly likely that a life will be lost.
- 4 Use a high classification if it is highly likely that 2 or more lives will be lost.

**Schedule 2**

rr 7, 9, 10, 11

**Forms**

## Form 1

## Dam classification certificate

*Sections 135 and 139, Building Act 2004***Dam**

Dam name:

Date of construction:

Resource consent number or identification (if applicable):

Location of dam:

Purpose of dam:

Type of dam:

Height of dam (in metres):

Reservoir maximum capacity (in cubic metres):

Description of spillway or flood control facility:

Flood capacity (in cubic metres per second):

Changes in design or operation since construction:

Potential impact classification:

Relevant regional authority:

**Owner**

Name of owner:

Name of operator (if different from owner):

Contact person:

Postal address:

Residential address:

**Certificate of recognised engineer**

I certify that the classification of the above dam as a [*specify low, medium, or high*] potential impact dam accords with the methodology for classifying a dam set out in regulation 4 of the Building (Dam Safety) Regulations 2008.

I am a [*specify whether category A or category B*] recognised engineer in accordance with section 149 of the Building Act 2004.

Form 1 —*continued*

I have attached evidence that I am a [*specify whether category A or category B*] recognised engineer.

Date:

Signature of recognised engineer:

Full name of recognised engineer:

CPEng registration number:

Form 2  
Dam safety assurance programme  
*Sections 141 and 142, Building Act 2004*

**Dam safety assurance programme**

The dam safety assurance programme consists of this form, the attached documents, and any other referenced documents.

**Dam**

Dam name:

Date of construction:

Resource consent number or identification (if applicable):

Location of dam:

Purpose of dam:

Type of dam:

Height of dam (in metres):

Reservoir maximum capacity (in cubic metres):

Description of spillway or flood control facility:

Flood capacity (in cubic metres per second):

Changes in design or operation since construction:

Potential impact classification:

Relevant regional authority:

**Owner**

Name of owner:

Name of operator (if different from owner):

Contact person:

Postal address:

Residential address:

**Summary of compliance with criteria and standards**

Please attach a brief summary of how each of the criteria and standards set out in regulation 8 of the Building (Dam Safety) Regu-

Form 2 —*continued*

lations 2008 have been addressed and indicate where these are addressed in the dam safety assurance programme.

- 1 Describe briefly and/or reference how each of the following have been adequately addressed for the dam:
  - (a) surveillance requirements, including accurate records detailing the safety performance of the dam and that appropriate actions are taken when potential deficiencies or adverse data trends are identified:
  - (b) the frequency for routine visual inspections:
  - (c) instrument monitoring and data evaluation:
  - (d) reporting to the dam owner.
- 2 Describe and/or reference the requirements for annual dam safety reviews of the dam.
- 3 Describe and/or reference the requirements and frequency for comprehensive dam safety reviews of the dam.
- 4 Summarise and/or reference your emergency action plan including—
  - (a) responsibilities:
  - (b) emergency identification procedures:
  - (c) notification procedures and contact lists:
  - (d) dam breach inundation maps.
- 5 Describe and/or reference the requirements to inspect appurtenant structures, including testing of gates and valves that contribute to reservoir safety.
- 6 Describe and/or reference the procedures for the investigation, assessment, and resolution of dam safety deficiencies.

**Documentation of dam safety assurance programme**

- 1 List the location of all documentation, manuals, and publications referred to in the dam safety assurance programme if applicable: [*list*]
- 2 State the location(s) of the dam safety assurance programme: [*location(s)*]

Form 2 —*continued*

- 3 State the appropriate contact person with respect to the dam safety assurance programme and supporting referenced material—

Name:

Contact details:

The documents that form the dam safety assurance programme are attached as follows: [*list documents*]

**Certificate of recognised engineer**

I certify that the dam safety assurance programme prepared for the above dam meets the methodology for classifying a dam set out in regulation 4 of the Building (Dam Safety) Regulations 2008.

I am a category A recognised engineer in accordance with section 149 of the Building Act 2004.

I have attached evidence that I am a category A recognised engineer.

Date:

Signature of recognised engineer:

Full name of recognised engineer:

CPEng registration number:

Form 3  
Annual dam compliance certificate  
*Section 150, Building Act 2004*

**Dam**

Dam name:

Date of construction:

Resource consent number or identification (if applicable):

Location of dam:

Purpose of dam:

Type of dam:

Height of dam (in metres):

Reservoir maximum capacity (in cubic metres):

Description of spillway or flood control facility:

Flood capacity (in cubic metres per second):

Changes in design or operation since construction:

Potential impact classification:

Date of approval of the dam safety assurance programme:

Date that approval of the dam safety assurance programme expires:

Relevant regional authority:

**Owner**

Name of owner:

Name of operator (if different from owner):

Contact person:

Postal address:

Residential address:

**Compliance**

All the procedures in the dam safety assurance programme have been complied with during the previous 12 months.

Date:

Signature of dam owner:

Form 3 —*continued*

Full name of dam owner:

**Certificate of recognised engineer**

I have reviewed the owner's reports and other documents relating to the procedures in the dam safety assurance programme that the owner has followed in the previous 12 months.

All procedures of the dam safety assurance programme have been fully complied with during the previous 12 months.

I am a category A recognised engineer in accordance with section 149 of the Building Act 2004.

I have attached evidence that I am a category A recognised engineer.

Date:

Signature of recognised engineer:

Full name of recognised engineer:

CPEng registration number:

Rebecca Kitteridge,  
Clerk of the Executive Council.

**Explanatory note**

*This note is not part of the regulations, but is intended to indicate their general effect.*

These regulations, which come into force on 1 July 2010, provide for a number of matters relating to dam safety. They set out the methodology for classifying dams and prescribe competencies for category A and category B recognised engineers. A category A engineer may issue certificates in relation to any dam whereas a category B recognised engineer may only issue a dam classification certificate following a dam classification audit in relation to a low potential impact dam. The regulations also provide forms for a dam classification

certificate, a dam safety assurance programme, and an annual dam compliance certificate.

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These regulations are administered by the Department of Building and Housing.

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