



Submission form for the Dam Safety Review

Submissions can be sent by:

email to: damsafety@dbh.govt.nz (please put 'Consultation feedback – Dam Safety Review' in the subject line)

or

post or courier to: Consultation feedback – Dam Safety Review
Department of Building and Housing
Operational Policy and Regulatory Services
Sector Capability Branch
Level 6, 86 Customhouse Quay
PO Box 10-729
Wellington

The **closing date** for submissions is **14 August 2010**.

Please note that all responses will be public information and may be subject to requests for information under the Official Information Act 1982.

Input on Recommendations Sought

The Review's findings and recommendations are recorded in the document *Dam Safety Review – Report of findings of an independent review of the Dam Safety Scheme*.

The Report is structured so that each recommendation is underscored by the:

- issue
- stakeholder feedback; and
- discussion (analysis).

The Department now invites you to provide feedback on the recommendations within the Report. The following questions have been designed to help you formulate your feedback on the recommendations which are of particular interest to the Department. Your comments about the other recommendations are also welcome.

Recommendation 3

That the definition of large dams under the Scheme be changed to dams with the capacity to hold a reservoir of 50,000m³ or more and to be at least eight metres high.

1. Do dams smaller than proposed threshold (capacity of 50,000m³ or more and eight metres high) pose potential risks to downstream populations?

The risks posed by a dam and its reservoir are a function of the probability of failure and the consequences of failure. Dams smaller than the size quoted above can pose risks to downstream population in certain situations. That risk may also change with time because of aging of some elements of the dam or because of changes in the downstream environment and population at risk. Detention dams in an urbane environment are a prime example of this. There is no correct "threshold", but a "cut-off" at "50,000m³ capacity or more and eight metres high" will reduce compliance cost to those whose dams will not now fall into the "large dam category". NZSOLD notes that the recent UK Flood and Water Management Act, 2010 has changed the volume definition for a large dam down from 25,000m³ (which was quoted in the



recommendation) to 10,000m³.

There will be dams that will not be large dams under the recommended definition that pose significant risk to down stream populations. The proposal to enable the body administering the Scheme to issue a notice requiring classification of such dam will go some way to ensuring that dams that are not large dams do not pose unacceptable risks. The mechanics of how the administering body identifies a small dam posing sufficient risk to be covered by the Scheme should be established before the Regulations come into effect. Whatever method is chosen there will be costs to do the research –either direct cost to dam owner or spread across the rest of dam owners. There is no indication of this cost in the review, even though it will offset the potential savings assumed by the reviewer.

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2. Should the size of dams covered by the Scheme be increased in line with the recommendations?

There is no correct size definition for dams. The one being proposed is not unreasonable, particularly if there is the ability to require the classification of smaller dams. We note that the recent UK Flood and Water Management Act, 2010 has changed the volume definition for a large dam down from 25,000m³ (which was quoted in the recommendation) to 10,000m³.

If the proposed changes come into effect the Dam Safety Scheme will move away from the “large dam” threshold (3m and 20,000m³) used for defining the building consent process. Very clear statements of the different size limits for the two parts of the Building Act will be important. Substantial education will be necessary – will DBH lead this (and pay for it) to avoid extra costs to dam owners

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3. Would an increase in the size of dams covered by the Scheme lower the compliance costs?

Increasing the size of dams covered by the Scheme would reduce the compliance cost for dam owners whose dams are larger than the original criteria and smaller than the proposed criteria, unless they are pulled back into the Scheme by the notice requiring classification of a dam. The cost to dam owners whose dams are larger than the proposed criteria may see an increased cost as the administration of the scheme is covered by a lesser number of dam owners. From a national perspective, the overall cost of the Scheme should be less.

One area that does not appear to have been fully considered in the Review is how the administrators of the Scheme will go about identifying dams which are smaller than the proposed height/volume definition but that should still be covered by the Scheme. If the administrators believe that they will be taking on a liability for identifying small dams that should be covered by the Scheme then they may believe that they have to carry out full



reviews of all dams less than the proposed height/volume definition. If this is the case then the Scheme as proposed in the recommendation will have significant costs that have not yet been identified. It would be a concern if the cost of the administrators review for dams that do not end up being covered within the Scheme is passed on to owners whose dams are within the Scheme.

4. Is the proposed new definition of a dam easy to interpret and comply with?

In the majority of cases, the definition will be easy to interpret. When a dam is very close to the size definition there could be some debate. There are likely to be many dams without sufficient records to accurately determine the stored volume of the lake/reservoir. There will have to be some judgement on this value, and judgement may be queried by the regulatory agency. This could make interpretation of the criteria difficult.

The administrators of the scheme will have to be careful not to use the rule about requiring classification of small dams as a means of broadening the size of dam covered by the scheme.

One area that does not appear to have been fully considered in the Review is how the administrators of the Scheme will go about identifying dams which are smaller than the proposed height/volume definition but that should still be covered by the Scheme. If the administrators believe that they will be taking on a liability for identifying small dams that should be covered by the Scheme then they may believe that they have to carry out full reviews of all dams less than the proposed height/volume definition. If this is the case then the Scheme as proposed in the recommendation will have significant costs that have not yet been identified. It would be a concern if the cost of the administrators review for dams that do not end up being covered within the Scheme is passed on to owners whose dams are within the scheme.

5. If not, how could the definition be improved?

NZSOLD has no comment to make.

Recommendation 4



That a dam requiring to be classified under the Scheme be described as an Inventory Dam, Classifiable Dam or a Referable Dam (and not a Large Dam as at present).

6. Should dams covered by the Scheme be described as ‘large dams?’
The term “Large” Dam will continue to apply to dams requiring Building Consent (>3m and 20,000m³). Therefore, a different name under the Dam Safety Scheme would be very sensible.

NZSOLD believes that the dams could be given any name (i.e. Inventory Dam, or Classifiable Dam or Referable Dam, etc) as long as a clear definition is also given of what these names mean. It would appear that there needs to be three separate names for dams covered by the Scheme as being recommended in the review. They are:

- A name for dams that have the capacity to hold a reservoir of 50,000m³ or more and are at least eight metres high.
- A name for dams that do not meet the criteria in the bullet point above but which have been issued a notice requiring them to be covered by the Scheme.
- A name for dams covered by the Scheme. That is, dam which meet the criteria in the two bullet points above

Clear definitions are required to get away from the potential confusion with the build consent process where the threshold for a “large dam” is 3m and 20,000m³.

“Referable dam” is a term used in some overseas jurisdictions. Its definition should be clearly stated for NZ.

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7. If not, which of the following is more appropriate?

- Inventory Dam
- Classifiable Dam
- Referable Dam
- Other

See 6. Above.

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Recommendation 5

That dam height is defined as the vertical distance from the top (crest) of the dam measured:



- for dams across a stream, from the natural bed of the stream at the lowest downstream outside limit of the dam, or
- for dams not across a stream, from the lowest elevation at the outside limit of the dam.

8. Is the recommended approach to measuring a dam appropriate?

From a simplistic point of view, this approach to measuring the height of a dam is suitable, but it will tend to penalise dams with a high freeboard, large spillway capacity and on a steep river valley profile.

The definition may encourage owners with dams near the threshold not to increase the freeboard during any upgrading or construction task that allows them to provide additional freeboard at little cost.

9. What difficulties would be faced in applying this recommendation?

In most cases, there will be no difficulty at all in applying this recommendation when a dam is clearly under or over the height cut off. However, in a small number of cases when a dam is very close to the cut off point there are large costs to be incurred by the owner if the dam is considered a "large dam". There could then be debate about the top of an ungated spillway being the crest of the dam. Or, if the crest of a dam is stepped then which part of the crest do you measure to.

While a dam over the height/volume threshold would require signoff by an independent expert (e.g. Recognised Engineer), there would not be a similar sign-off to verify a dam is under the threshold. This may also lead owners to choose not to increase the freeboard when upgrading existing dams or constructing new dams.

A Guidance document on how to measure the height of a dam would probably assist owners.

10. Should an alternative approach be developed to define a dam height? If so, what and why?

NZSOLD has no comment to make.



Recommendation 6

That the body responsible for administering the Scheme has the power to issue a notice requiring classification of any dam, regardless of whether the dam meets the dam criteria. Any such notice will only be issued if there is reason to believe the dam may put people at risk.

Background

The Act currently requires regional authorities:

- to administer the Scheme, which means that regional authorities must:
 - (i) establish and maintain a register of large dams in their region
 - (ii) consider and approve (or not approve) dam classifications of large dams
 - (iii) consider and approve (or not approve) the Dam Safety Assurance Programmes for each medium and high potential impact category dam in their region
 - (iv) hold copies of annual Dam Compliance Certificates.
- adopt and implement a policy on dangerous dams, earthquake-prone dams and flood-prone dams. This includes setting up processes and procedures that would be triggered for medium or high potential impact category dams should they be determined to be dangerous, flood-prone or earthquake prone.
- take action if necessary, if any dam, large or small, poses an immediate danger to the safety of persons, property or the environment.

11. Should a region authority be able to issue a notice requiring classification of any dam, regardless of whether the dam meets the relevant criteria?

This would seem to be a reasonable approach. For example, a dam less than 8m high situated immediately upstream of a school could be considered to be hazardous.

One area that does not appear to have been fully considered in the Review is how the administrators of the Scheme will go about identifying dams, which are smaller than the proposed height/volume definition, but that should still be covered by the Scheme. If the administrators believe that they will be taking on a liability for identifying small dams that should be covered by the Scheme then they may believe that they have to carry out full reviews of all dams less than the proposed height/volume definition. The mechanics of how the administering body identifies a small dam posing sufficient risk to be captured by the classification system should be established before the Regulations come into effect. If the Scheme is to be administered by regional authorities there is likely to be inconsistencies across the country on how this is applied.

12. What are the benefits and costs of this recommendation?



The benefit of this approach is that the height criteria can be increased and the cost too many small dam owners will reduce. At the same time, if a small dam is considered hazardous it can be brought back into the Scheme.

If the height volume ratio is increased as proposed, it is essential, especially in urban or suburban areas, that dams that could have a Medium or High Potential Impact Classification (PIC) are identified and brought into the Scheme. The change from 3 m reservoir depth to 8 m crest height may not always make much difference, but the volume change is significant for certain areas. No limits on the volume threshold will leave some significant consequence structures out of the loop unless they are brought into the Scheme. How such dams are identified does not appear to have been fully considered in the Review. If the administrators of the Scheme believe that they will be taking on a liability for identifying small dams that should be covered by the Scheme then they may believe that they have to carry out full reviews of all dams less than the proposed height/volume definition. If this is the case then the Scheme as proposed in the recommendation will have significant costs that have not yet been identified. It is of concern if the cost of the administrators review for dams that do not end up being covered within the Scheme is passed on to owners whose dams are within the scheme.

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Recommendation 7

That appurtenant structure for each dam be determined by the Recognised Engineer responsible for certifying the Dam Safety Assurance Programme.

Background

The Act defines an appurtenant structure, as a structure that is integral to the proper functioning of the dam.

There are two categories of Recognised Engineers: Category A and B.

Category A Recognised Engineers have specific dam engineering and safety assurance competencies. They may certify:

- dam classifications certificates
- Dam Safety Assurance Programmes
- annual Dam Compliance certificates for dams.

The Institution of Professional Engineers New Zealand (IPENZ) oversees the assessment process.

Category B Recognised Engineers have general civil engineering ability and may only certify the classification of low potential impact category dams. Unlike Category A Recognised Engineers, Category B Recognised Engineers are not required to be formally assessed to determine whether that person is able to practise competently in the area of dam safety. .

13. What are the benefits and costs of this recommendation?



Dams will have structures associated with them that are appurtenant to them. However not all dams will have the same appurtenant structures and what is appurtenant to one may not be appurtenant to another. The benefit of this recommendation is that the most appropriate person, the Recognised Engineer, who is most familiar with the dam and what components are necessary to keep the dam safe, will be defining what is an appurtenant structure to that particular dam.

Some guidance notes will be helpful to owners to understand appurtenant structures.

14. Should a Category A Recognised Engineer determine the appurtenant structures for each dam requiring a Dam Safety Assurance programme?

Yes. See 13. above

15. If not, who should identify the appurtenant structures?

NZSOLD considers that a Category A Recognised Engineer is the most appropriate person to identify the appurtenant structures of a dam.

Recommendation 9

That a period of 12 months be allowed after the Scheme’s start date for dam owners to have the dam classifications certified by a Recognised Engineer.

Background

The Act currently requires a dam owner to provide the regional authority with a dam classification certificate no later than 3 months after the Regulations come into force or 3 months after the date the dam was commissioned.

16. Should the timeframe be extended to 12 months?



NZSOLD considers that twelve months is a more realistic time frame. There are only a small number of practitioners in NZ who can do this work so the more time they have to perform their expert task, the better. However, there needs to be an education campaign carried out during this period to ensure that dam owners are aware of the responsibilities.

17. If not, what is an ideal time period?

There is no "ideal time period", but 12 months seems reasonable.

Recommendation 13

That the authority responsible for administering and monitoring the Dam Safety Scheme monitors the availability of Recognised Engineers during the Scheme's implementation.

Background

Owners of large dams have obligations under the Act that require to use Recognised Engineers. The Act requires classifications, annual Dam Compliance Certificates and Dam Safety Assurance Programmes to be signed off and certified by a Recognised Engineer before they are submitted to the regional authority.

Currently there are 28 Category A Recognised Engineers (See www.ipenz.org.nz/ipenz/finding/recognised-engineer/search.cfm)

18. Should the regional authority responsible for administering and monitoring the Dam Safety Scheme monitor the availability of Recognised Engineers during the Scheme's implementation?

NZSOLD believes that this is a function of IPENZ, not regional authorities.

19. Are there sufficient Category A Recognised Engineers to service the Scheme?

There should be sufficient Category A Recognised Engineers, particularly if recommendations 3 and 9 are carried out.



Recommendation 14

That a new body responsible for administering and monitoring the Scheme on a nation-wide basis be established within central government.

Background

Currently the Scheme is regulated by regional authorities who:

- must be accredited and registered as building consent authorities to carry out building control functions for large dams. A building consent authority:
 - (i) issues building consents for large dams (except consents subject to a waiver or modification)
 - (ii) inspects building work for which it has granted a building consent
 - (iii) issues notices to fix
 - (iv) issues code compliance certificates
 - (v) issues compliance schedules.
- carry out other building control functions such as issuing project information memoranda and issuing certificates of acceptance (for unconsented building work on dams)
- administer and monitor the Scheme, which means regional authorities must:
 - (vi) establish and maintain a register of large dams in their region
 - (vii) consider and approve (or not approve) dam classifications of large dams
 - (viii) consider and approve (or not approve) the Dam Safety Assurance Programmes for each medium and high potential impact category dam in their region
 - (ix) consider and approve (or not approve) annual Dam Compliance Certificates
 - (x) adopt and implement a policy of dangerous dams, flood-prone dams and earthquake-prone dams. This includes setting up processes and procedures that would be triggered for medium or high potential impact category dams should they be determined to be dangerous, flood-prone or earthquake-prone
 - (xi) take action if necessary, if any dam, large or small, poses an immediate danger to the safety of persons, property or the environment.

20. Should a new body be created to administer the Scheme?

NZSOLD believes that a new body responsible for administering and monitoring the Scheme on a nation-wide basis within central government would provide a more efficient, cost effective scheme. This would also provide a consistent approach to all dams throughout the country and should enable that body to recruit staff of the appropriate calibre.

The danger is that that body oversteps the original administrative role that the regional authorities were going to perform with regard the Scheme. There are several examples of central regulators for dams in other countries who have assumed liabilities for dams that the owner should be responsible for because they have become active participants in the dam's management. Owners may then develop a "compliance mentality" (only acting if the regulator instructs them) which does not represent responsible



dam ownership.

The roles of the central authority and Regional Councils administering the building consent section of the Act need to be clearly set out. Responsibility for administering dangerous dams policy and upgrades would be an example area requiring clear guidance.

21. Should this body also regulate building control laws (eg, building work for the construction of dams) for dams?

This would expand the central authority's workload and therefore staffing requirements, but a central agency would give cost consistency and may reduce costs. Regional Authorities have regional knowledge not necessarily possessed in a central agency. However most Regional Authorities outsource the technical regulatory review of building consent applications to consultants. A central agency could also operate this way.

22. What elements of the Scheme and building control require local input?

Construction monitoring by local organisations would be lower cost method. However, NZSOLD believes that if building control came under a central agency then construction monitoring could be carried out by consultants engaged by the central agency.

Recommendation 15

That consideration is given to (at least partially) funding the body with a simple low fee charge regime to all dam owners included in the Scheme.

Background

Under section 242 of the Act regional authorities may impose a fee or charge and recover costs for performing their functions regarding the Scheme.

23. If a single governing body was created, how should it be funded (eg, user pays)?



No cost estimates for running the central agency are given and it is not clear whether Regional Authorities intended their administrators of the Dam Safety Scheme to be self sufficient using user pays funding. If so, the model could be applied to the Central Agency.

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Recommendation 16
That the Dam Safety Assurance Programme for a medium potential impact category dam be required to be in place 12 months after the date on which the Scheme authority approves the classification for the dam.

Background

The Act currently requires an owner of a medium potential impact category large dam to provide the regional authority with a Dam Safety Assurance Programme within two years after the date on which it approved that classification for the dam.

24. Should a dam owner provide the regional authority with a Dam Safety Assurance Programme within 12 months of the approval of the classification by the regional authority.

NZSOLD believes that this recommendation may adversely impact on the availability of Category A Recognised Engineers to carry out work on high potential impact category dams during the hectic first year of the Scheme. Two years would seem more appropriate for medium potential impact category dam as they will be less of a concern than the high potential impact category dam

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25. If not, what is an ideal time period?

Two years would appear reasonable period, as many of the Medium PIC dams will not already be fully documented. The amount of work required on Medium PIC dams should not be underestimated. NZSOLD believes that a two-year period is more appropriate than one year.

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Recommendation 17
That Dam Safety Assurance Programme review periods be increased from 5 to every 7 years for medium potential impact category dams to align with NZSOLD Guidelines.



Background

Section 146 of the Act states that the owner of a high potential impact category dam must review their Dam Safety Assurance Programme:

- within 5 years of it being approved by the regional authority
- after the first review, at intervals of no more than 5 years.

The owner of a medium potential impact category dam must review their Dam Safety Assurance Programme.

- within 10 years of it being approved by the regional authority
- after the first review, at intervals of no more than 5 years.

26. Should Dam Safety Assurance Programme review periods be increased from 5 to every 7 years for medium PIC dams to align with NZSOLD Guidelines?

NZSOLD consider that this is reasonable and inline with international practice.

27. If not, what is the ideal review period and why?

NZSOLD believe that the period of 7 years as recommended is appropriate.

Recommendation 18

That the wording of the annual Dam Compliance Certificate be changed so there is no requirement for the Dam Safety Assurance Programme to be 'fully complied with'. Instead the Category A Engineer and dam owner (or Chief Executive) will certify that the dam owner has complied with the criteria and standards of the Dam Safety Assurance Programme as set out in regulation 8 of the Regulations and where necessary include a list of any non-compliances that warrant corrective action.

Background

Form 3 of Schedule 2 (annual Dam Compliance Certificate) of the Regulations requires a Recognised Engineer to verify that the dam owner has complied with the procedures in the Dam Safety Assurance Programme that the owner has followed in the previous 12 months. That is:

- requirements for and frequency of, routine visual inspections, instrument monitoring, data evaluation, and reporting to the large dam owner



- requirements for annual dam safety reviews
- requirements for comprehensive dam safety reviews
- details of an emergency identification plan
- requirements for inspection of appurtenant structures, including testing of gates and valves that contribute to reservoir safety, and
- procedures for the investigation, assessment and resolution of dam safety deficiencies.

28. Should the wording of the annual Dam Compliance Certificate be changed to: ‘the dam owner has complied with the criteria and standards of the Dam Safety Assurance Programme as set out in regulation 8 of the Regulations’?

NZSOLD believes that the wording should be changed. There could be many valid reasons why a Dam Safety Assurance Programme might not be complied with and non-compliance may have no implications to the safety of a dam. The proposed wording is more appropriate as it allows for immaterial non-compliance. The strict compliance wording will result in less rigorous Dam Safety Assurance Programmes because they will be written in such a way that they can always be met in full and there will never be minor immaterial breaches of the Dam Safety Assurance Programme.

29. Should the form be amended to include a list of any area of non-compliance that warrant corrective action?

NZSOLD does not believe that the Dam Compliance Certificate should list any areas of non-compliance that warrant corrective action. This is outside the scope of the existing Act and Regulations and was not originally included because the role of the Regional Authority’s was seen as “administrative”. If it was included in the Dam Compliance Certificate the administrator of the Scheme, will start to take on liability and will then have to take action beyond the “administration role”. However, NZSOLD believes that the Dam Compliance Certificate should be used to record situations of immediate danger and so the wording should be amended to include “notification of any existing situation that is of immediate danger to people or property”.

30. If so, how should the corrective actions be addressed or enforced?

Corrective action on non-compliance is a matter for the dam owner. If the dam owner is not taking appropriate action then the Category A Engineer will be unable to certify that the dam owner has complied with the criteria and standards of the Dam Safety Assurance Programme as set out in regulation 8 of the Regulations. However, NZSOLD believes that the Dam Compliance Certificate should be used to record situations of immediate danger and so the wording should be amended to include “notification of any existing situation that is of



immediate danger to people or property”.

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Recommendation 19
That consideration be given to allowing a dam owner to supply bi-annual Dam Compliance Certificates provided a Category A Recognised Engineer certifies the implementation of the Dam Safety Assurance Programme warrants it.

Background

Section 150 of the Act states that an owner of a dam for which a Dam Safety Assurance Programme has been approved must provide the regional authority with a Dam Compliance Certificate on each anniversary of their Dam Safety Assurance Programme having been approved. The certificate must include a certificate from a Category A Recognised Engineer confirming that all procedures in the Dam Safety Assurance Programme have been complied with during the previous 12 months.

Discussion

During the Review public and corporate dam owners expressed storing views that submitting the annual Dam Safety Compliance Certificate is too frequent.

- 31. Should legislation allow dam owners to provide a bi-annual Dam Compliance Certificate if a Category A Recognised Engineer certifies the implementation of the Dam Safety Assurance Programme?

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Having a compliance certificate produced by a Recognised Engineer is a cost to the dam owner. Therefore, bi-annual compliance certificates will reduce cost. NZSOLD believes that having bi-annual compliance certificates rather than annual certificates will not make a difference to the safety of a dam. Nor will bi-annual compliance certificates change the normal practice on high potential impact dams of having annual inspections. NZSOLD agrees with the recommendation of having bi-annual compliance certificates.
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Recommendation 20
That, if in the process of certifying a dam, it becomes apparent to the Recognised Engineer that a dam is dangerous then it will be notified as such to the Scheme authority.

Background

The Act requires regional authorities to develop a dangerous dams, earthquake-prone dams and flood-prone dams policy within their region.



The purpose of this policy is to help prevent the catastrophic failure of a potentially dangerous dam, and to ensure deficiencies in an earthquake-prone or flood-prone dam are addressed.

Each policy must state the regional authority's approach for fulfilling and prioritising its functions around these types of dams. The policy must also state how it will be applied to heritage dams.

Section 153 of the Act states that a large dam is 'dangerous' for the purposes of the Act if it:

- (a) is a medium or high potential impact category dam; and
- (b) is likely to fail
 - (i) in the ordinary course of events; or
 - (ii) in a moderate earthquake (as defined in the Regulations); or
 - (iii) in a moderate flood (as defined in the Regulations).

Sections 154 to 156 of the Act outline the functions of a regional authority in relation to dangerous dams.

These functions and powers include:

- putting up a hoarding or fence to prevent people from getting too close to the dam
- attaching a notice on or near the dam that warns people not to approach the dam
- requiring work to be carried out on the dam by the owner within a specified period (which must not be less than 10 days from the date notice was given), to reduce or remove the danger.

32. If a Recognised Engineer suspects a dam is dangerous, should he or she be required to notify the regional authority?

NZSOLD believes that requiring the Recognised Engineer to notify the local authority if he suspects that a dam is dangerous is an inappropriate action. There are likely to be professional ethics issues in this approach. There is also difference between suspecting a dam is dangerous and knowing that a dam is dangerous. Requiring an engineer to report to the administrator of the Scheme what he "suspects" could make that person liable should their suspicion be unfounded. NZSOLD believes that dangerous dams will be identified as a result of Dam Safety Programmes. It is the Recognised Engineer responsibility to notify the dam owner of if a dam is dangerous.

NZSOLD believes that the Dam Compliance Certificate should be used to provide "notification of any existing situation that is of immediate danger to people or property".



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Recommendation 21
That all reference to earthquake-prone and flood-prone dams is removed from the Act.

Background

Section 153A of the Act states that a large dam is an earthquake-prone dam if the dam:

- (a) is a medium or high potential impact category dam; and
- (b) is likely to fail in an earthquake threshold event (as defined in the regulations).

Section 153A of the Act states that a large dam is a flood-prone dam if the dam:

- (a) is a high PIC dam or medium PIC dam; and
- (b) is likely to fail in a flood threshold event.



Under section 146 (20(b) of the Act the regional authority may request a large dam owner to review their Dam Safety Assurance Programme if the dam is an earthquake-prone or a flood-prone dam.

Discussion

During the review NZSOLD and various dams owners expressed the opinion that deficiencies in 'prone' dams may addressed through the Dam Safety Assurance Programme. An engineer also stated that analysing dams to see if they are prone to earthquakes is complex and costly, and subsequently that the earthquake-prone and flood-prone dams policy is of little use.

33. Should the earthquake-prone and flood-prone dams policy be removed from the Act? If so, why?

NZSOLD believes that the earthquake-prone and flood-prone dams policy should be removed from the Act because the Dam Safety Assurance Programme and Comprehensive Safety Reviews that make up part of the Dam Safety Assurance Programme will pick up such deficiencies.

Recommendation 23

That a Recognised Engineer be able to review the existing dam safety approach in place for dam owners with a portfolio of dams and certify that it meets the criteria and standards as set out in regulation 8 of the Regulations.

34. Should the Act and Regulations be amended to allow a portfolio of dams to be assessed together (i.e., a Dam Safety Assurance Programme that refers to more than one dam)?

Many large dam owners own more than one dam and allowing a portfolio approach may help reduce the cost and time involved to those owners in complying with the Scheme.

35. Should the Act and Regulations be amended to allow a portfolio of dams to be verified by a Recognised Engineer to meet the requirements of regulation 8 of the regulations?

Many large dam owners own more than one dam and allowing a portfolio approach may help reduce the cost and time involved to those owners in complying with the Scheme.



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36. Should this approach also be used regarding the other requirements of the Scheme?

NZSOLD believes that this approach should be allowed for other requirements of the Scheme.

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Recommendation 24

That legislation as it applies to dams (including the Resource Management Act 1991 the Act) be reviewed to provide effective, clear legislation that reduces compliance costs and provides consistent implementation across the sector.

Large dams are regulated by dam safety and building control provisions of the Building Act. However, often the construction of a dam will also require a resource consent under the Resource Management Act 1991

37. Should all legislation regarding dams be reviewed to provide effective, clear legislation that reduces compliance costs and provides consistent implementation across the sector?

NZSOLD believe that the Resource Management Act has a part to play in determining if a dam can be built to harness a resource and deciding operating parameters such as operating levels, minimum discharges, etc. All other legislative aspects, such as design and construction and dam safety should be combined under the one act and dealt with by one central government agency, provided this can be done in a cost effective manner.

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Thank you for making a submission.