

Guideline	Status	Convenor
Arch Dams	New guideline in preparation	Marius Jonker
Consequence Categories for Dams (2012)	Watching Brief	David Ryan
Dam break modelling and Consequence Assessment	Practice Note under way	David Stephens
Dam Instrumentation & Monitoring Systems (1983)	Under review	Chris Topham
Dam Safety Management (2003)	Updated guideline in preparation.	Alex Gower
Dam Safety Emergency Plans and Emergency Management	New Guideline to be prepared.	Angus Paton
Design Criteria for Concrete Gravity Dams (2013)	Watching Brief	David Ryan
Guidelines on Design of Dams and Appurtenant Structures for Earthquake (1993)	New edition in final stages of preparation.	Steve O'Brien
Design, Construction, O&M of Retarding Basins	New Guideline in final stages of preparation	Richard Rodd
Geotechnical investigations	New Practice Note in final stages of preparation.	Robin Fell
Outlet Works for dams	New guideline in preparation.	Marius Jonker
Risk Assessment (2003)	Updated Guideline under preparation.	Shane McGrath
Selection of Acceptable Flood Capacity (2000)	New edition in final stages of preparation. Old version still available.	Peter Hill
Strengthening and Raising Concrete Gravity Dams (1992)	Still available for sale. Under Review.	Richard Rodd
Tailings Dams (2012)	Watching Brief.	David Brett
Environmental Management of Dams (2001)	Existing. Will remain for sale.	Saint Rooks
Regulation and Practice for the Environmental Management of Dams in Australia (2014)	Newly released. Watching Brief to be established.	Saint Rooks

The production of all these guidelines could not be achieved without the enormous efforts of the convenors, the members of the guideline working and reference groups, and the independent reviewers. ANCOLD extends its sincere thanks to all the contributors. It is encouraging to see the keen interest expressed by the large number of people willing to participate in this key activity of ANCOLD.

Draft guidelines are issued for comment by the membership and by Australian and international expert reviewers before they are published. Purchase of guidelines can be made via the web site or directly from the Secretariat.

Planning is underway to reinstate the Guidelines Steering Group. The aim is to improve communications and coordination between convenors so that the suite of Guidelines is as compatible as possible.

Guideline Working Group Reports

Guidelines on Arch Dams (New guideline)

The Working Group is working on formalising design criteria for concrete arch dams which would be issued as supplementary Practice Notes to the Guidelines on Design Criteria for Concrete Gravity Dams (2013). The Practice Notes would be kept quite short and not repeat the relevant information already covered, such as the concrete and foundation material properties.

Marius Jonker

Convenor

Membership of the Working Group	Company
Marius Jonker (Convenor)	Entura
Francisco Lopez	SMEC
Dr Radin Espandar	Entura
Technical Review Panel	
Brian Cooper	Brian Cooper Consulting
International Expert Review	
Dr Yusof Ghanaat	Quest Structures (USA)

Guidelines on the Consequence Categories for Dams (Watching Brief)

INTRODUCTION

The current version of the Guidelines on the Consequence Categories for Dams was published in September 2012. The purpose of the guidelines is to provide a consistent method of categorising the consequences of dam failure so that resources can be allocated according to the potential effects of failure of the dam on the general community.

Three levels of assessment are outlined in the guidelines. The third and most comprehensive level provides the option of assessment using either Population at Risk (PAR) or Potential Loss of Life (PLL). PLL is synonymous with the term Loss of Life (LOL) as described in the ANCOLD Guidelines on Risk Assessment (2003).

A Watching Brief Working Group was appointed by the ANCOLD Executive in 2014 to maintain surveillance on all matters associated with the guideline, to monitor industry trends both nationally and abroad and assess the currency of the existing guidelines against those trends. The ANCOLD Executive appointed David Ryan as the Convenor for the Group. David is an Associate Member of ANCOLD.

ONGOING INVESTIGATIONS

A minor amendment to the Guidelines was submitted by the Watching Brief Committee to the ANCOLD Executive in 2015 and this was detailed in the 2015 Annual Report. Since that time, there has been no further queries on the Guidelines or identified need for further amendment.

However, the Watching Brief Group maintains an awareness of change in engineering practices associated with dams including the development of the revised ANCOLD Acceptable Flood Capacity Guidelines, the revision of the Risk Guidelines and development (or re-development) of State Government regulations. Where other guidelines are updated such that they may impact on or require a change to the consequence Guidelines, the Convenor will ensure that such notifications of change will be provided to members via the ANCOLD Executive and website.

The Watching Brief Group continues to maintain surveillance on matters associated with the guideline and are willing to consider any suggestions or comments that may assist with ensuring the guidelines remain current and reflect industry trends.

David Ryan

Convenor

Membership of the Working Group	Company
David Ryan (Convenor)	SunWater, Queensland

Guidelines on Dambreak Modelling and Consequence Assessment (New Practice Note)

Significant progress has been made on first drafts of a number of sections of the dambreak modelling and consequence assessment guidelines this year. The first section of the document (focused on dambreak modelling) is largely complete, and progress is being made on subsequent sections relating to consequence assessment. The working group has been meeting regularly via teleconference and will meet face-to-face at this year's conference. A reference group composed of 16 representatives from dam owners, regulators and consultants has also been assembled and will start to provide input on draft sections over the coming months.

David Stephens

Convenor

Membership of the Working Group	Company
David Stephens	HARC
Michel Raymond	Seqwater
Michael Smith	Watercorp
Andrew Northfield	HARC
Kevin Bartlett	DEWS
Rob Fowden	DEWS
Tim Rhodes	SMEC

Technical Review Panel

There is a reference group of 16 people representing a mix of dam owners, consultants and regulators across all states.

International Expert Review

To be determined

Dam Instrumentation & Monitoring Systems (Watching Brief)

The Watching Brief for the Dam Instrumentation and Monitoring Systems Guidelines (1983) was established following the Dam Instrumentation Workshop in Sydney, and continues to scan for information and topical developments related to the monitoring of dams using a range of instrumentation techniques.

Whilst the 1983 guidelines were comprehensive for their time, they are also the oldest ANCOLD guidelines and celebrated their 35th anniversary this year. They still present a reasonable framework for dam instrumentation and contain useful factual information on the instrumentation of that era, much of which is still generating data at existing dams.

It is felt that the guidelines could be updated to reflect new technologies available, and developments in real time remote monitoring of dams, but no work on this has commenced, pending the outcomes of the update of the 2003 Guidelines on Dam Safety Management, which are closely linked. A Working Group formed in April 2017 to look at reviewing and updating Dam Safety Management Guidelines. This working group will include consideration of the linkages between the two documents, and the future of the Dam Instrumentation and Monitoring Systems Guidelines.

Any members wishing to contribute papers, views, or information to the watching brief should contact Chris Topham at chris.topham@hydro.com.au.

As it is still considered a relevant document, the 1983 version of the guideline has been reprinted and can be purchased via the online shopping cart on the Guidelines page.

Chris Topham

Convenor

Membership of the Working Group	Company
Chris Topham	Hydro Tasmania
Craig Johnson	GHD

Guidelines on Dam Safety Emergency Plans and Emergency Management

A detailed table of contents that includes notes on what will be covered under each section was completed and circulated to the wider Reference Group for comment. Their comments have been incorporated.

Drafting of the guidelines is progressing with the first full draft expected to be completed by mid September 2018. Review by the Working Group of the first full draft is planned for the end of October 2018.

Angus Paton

Convenor

Membership of the Working Group	Company
Angus Paton	SA Water
John Tibaldi	Seqwater
Robert Wilson	MDBA
Emma Birch	Hydro Tasmania
Jonathon Reid	SMEC
Siraj Perera	Department of Environment, Land, Water & Planning
Reference Group	
Ian Landon-Jones	ANCOLD Executive
Belinda Davies	NSW State Emergency Service – Community Safety Directorate
Peter Allen	Queensland DEWS Dam Safety Water Planning and Regulation
Steve Knight	NSW - Dam Safety Committee
Michael Somerford	Water Corporation
Snr. Sgt. Russel Dippy	SA Police
Julian Johnstone	Tasmania DPIPWE
International Expert Review	
To be determined	

Guidelines on Dam Safety Management (Updating Guideline)

There is no report from this working group

Alex Gower

Convenor

Guidelines on the Design Criteria for Concrete Gravity Dams (Watching Brief)

INTRODUCTION

The current Guidelines on the Design Criteria for Concrete Gravity Dams were published in September 2013. The purpose of the Guidelines is to provide the designer with the fundamental criteria for input to design of and acceptance criteria for concrete gravity dams that are founded on rock.

The guidelines concentrate on stability and acceptable stresses within the mass concrete and foundations. The most important change made in these 2013 Guidelines compared with the 1991 version is that they have moved away from the Limit State design approach to a Factor of Safety or working stress approach in line with other international guidelines. This fundamental yet significant change was strongly endorsed by practitioners within the dams' industry. These guidelines propose the same analytical approach and acceptance criteria be adopted for all concrete gravity dams using either conventional vibrated or roller compacted concrete.

A Watching Brief Working Group was appointed by the ANCOLD Executive in 2014 to maintain surveillance on all matters associated with the guideline, to monitor industry trends both nationally and abroad and assess the currency of the existing guidelines against those trends. The ANCOLD Executive appointed David Ryan as the Convenor for the Group. David is an Associate Member of ANCOLD.

ONGOING INVESTIGATIONS

Since the publication of the guidelines and the presentation workshop conducted at the 2014 ANCOLD Annual Conference, there have been very few queries on the Guidelines other than those related to the identification of a minor error in the example included in the appendix. It is proposed that the content of the appendix be amended in the coming year.

The Watching Brief Group is also in the process of reviewing international Guidelines and publications including those from FERC (March 2016) and more recent work prepared by Energiforsk (September 2016) who have prepared a publication on the Probabilistic Model Code for Concrete Dams. The Watching Brief Group also maintains an awareness of proposed changes to ANCOLD Guidelines including the development of the revised ANCOLD Earthquake Guidelines.

The Watching Brief Group will continue to maintain surveillance on matters associated with the guideline and invite any suggestions or comments that may assist with ensuring the guidelines reflect current industry trends.

David Ryan

Convenor

Membership of the Watching Brief Working Group	Company
David Ryan (Convenor)	SunWater, Queensland
Michael Somerford	Water Corporation, West Australia

Guidelines on Design of Dams and Appurtenant Structures for Earthquake (Revising Guideline)

A meeting was held in Sydney on the 5th September 2016 where the Working Group went through the remaining issues and comments on the Draft Guideline and Commentary. The key changes to the Draft Guideline were then presented at the Technical Workshop at the 2016 ANCOLD Conference. Following the Conference, the Draft Guideline was completed and issued to the ANCOLD Members and to the International Reviewers for comment. The International Reviewers included Dr. Lelio Mejia, Dr. Martin Wieland and Trevor Matuschka. Comments were received from ANCOLD Members by 30th June 2017, the final of the International Reviewer comments were received in mid August 2017. All comments were subsequently collated and responses developed in conjunction with the development of the Final Guideline. In all, approximately 400 comments were received from the ANCOLD Members and International Reviewers with all comments being responded to by February 2018. After developing the final draft there was one outstanding item regarding the post closure criteria for Tailings Dams and ensuring consistency with the Tailings Dam Guidelines. In order to resolve this issue it was agreed with the ANCOLD Executive that independent expert advice was considered necessary. This independent advice was received in August 2018. An editor's review of the Guideline has recently been completed. The Final Guideline should be ready by the end of September to go to print.

Steve O'Brien

Convenor

Membership of the Working Group	Company
Steve O'Brien (Convenor)	AECOM
Ian Landon Jones	Independent Consultant
Robin Fell	Independent Consultant/UNSW
Brian Cooper	Independent Consultant
Jon Williams	GHD
Peter Allan	Dam Safety Regulator QLD, DEWS
Graeme Bell	Independent Consultant
David Ryan	Independent Consultant
Gary Gibson	ES&S
Gavan Hunter	AECOM
Andrew Reynolds	MDBA
David Brett	GHD
Paul Somerville	Risk Frontiers/AECOM
Bandula Kendaragama	SMEC
Dan Forster	Dam Safety Intelligence
Nihal Vitharana	ARUP
International Expert Review	
Dr Lelio Mejia	Geosyntec Consultants
Trevor Matuschka	Engineering Geology Ltd
Dr Martin Wieland	Independent Consultant

Guidelines on the Design Construction, Operations & Maintenance of Retarding Basins (New Guideline)

The Working Group has completed drafting of the Guideline and schematic drawing should be completed and incorporated by the ANCOLD Conference in 2018. Phil Cummins (appointed as Reviewer by the Executive) completed his review of the Draft by the end of July 2017. The Working Group met in December 2017 to incorporate Phil's suggestions. Drafting was completed early in 2018 with decisions on how to incorporate (i) the Melbourne Water Corporation RB Risk Assessment Guidelines into the ANCOLD RB Guideline as well as (ii) the schematic drawings.

It was agreed by the Executive that International Review was not required and that it would be sufficient review if the Guideline was reviewed by Phil Cummins and distributed to the ANCOLD Membership for comment when completed.

The Working Group is planning to have the Draft Guideline out for ANCOLD Membership comment at the ANCOLD Conference in Melbourne.

Richard Rodd

Convenor

Membership of the Working Group	Affiliation
Richard Rodd (Convenor)	Richard Rodd & Associates Pty.Ltd.
Norm Himsley	NSW DSC
Mark Arnold	Melbourne Water
Technical Review	
Phil Cummins	
International Expert Review	
Not Required	

Practice Note on Geotechnical Investigations of Dams, their Foundations, and Appurtenant Structures

Work has progressed well in 2018. A draft of the Practice Note was sent to the Technical Review Panel on 15th August. It was also sent to a further 30 persons representing experienced dam engineers, experienced geotechnical engineers and engineering geologists, dam safety managers, local government engineers responsible for dams, and regulators, asking for their comments on the draft. Others who wish to comment on the Draft can seek a copy from the Chairman of the Working Group.

We have requested the reviews and comments be received by 1st October so they can be taken account of in the Workshop on the Practice Note to be held on 10th October as part of ANCOLD 2018 in Melbourne.

It is expected the Practice Note will be completed early in 2019. The timing will depend on how much revision is required following the reviews.

Robin Fell

Convenor

Membership of the Working Group	Company
Emeritus Professor Robin Fell, Chairman	School of Civil and Environmental Engineering, University New South Wales, Sydney
Dr Gavan Hunter	Technical Director Dam Engineering, AECOM, Melbourne
Mr Paul Southcott	Specialist Civil Engineer, Entura, Hobart
Mr Geoff Eades	Consulting Engineering Geologist (retired), Brisbane
Mr Alan Moon	Consulting Engineering Geologist, Adelaide
Mr Andrew Barclay	Principal Engineering Geologist, GHD, Canberra
Mr Deryk Forster	Principal Engineering Geologist, SMEC Australia, Brisbane
Mr Barton Maher	Principal Engineer Storage Planning, SEQWater, Brisbane
Mr Neil Smith	Dam Safety Manager, Hydro Tasmania, Hobart
Mr Richard Rodd	Richard Rodd and Associates, Albury/Wodonga
Technical Review Panel	
Mr Philip Cummins	Consultant
Mr Alan White	Senior Engineer Dam Safety, TasWater
Mr Norm Himsley	NSW Dams Safety Committee and Consultant
International Expert Review	
Not Required	

Guidelines on Outlet Works for Dams (New Practice Notes)

A new guideline is being prepared and will be in the form of in 10 separate Practice Notes issued as a series of documents. The Working Group is progressing the Notes in the following order of priority:

- Practice Notes 1. General Functions of Outlet Works (Lead: Marius Jonker)
- Practice Notes 2. Configuration and Purpose of Outlet Works Components (Lead: Marius Jonker)
- Practice Notes 9. Rehabilitation, Modernization and Upgrade (Lead: Frank Nitzsche)
- Practice Notes 8. Operation and Maintenance (Lead: Brian Simmons)
- Practice Notes 10. Risks and Outlet Works (Lead: David Law)
- Practice Notes 3. Design Considerations
- Practice Notes 4. Considerations for Civil Structures
- Practice Notes 5. Considerations for Mechanical Elements
- Practice Notes 6. Considerations for Electrical Elements and Control Systems
- Practice Notes 7. Procurement, Construction, Installation and Commissioning

Marius Jonker

Convenor

Membership of the Working Group	Company
Marius Jonker	Entura (VIC)
Glen Hobbs	Glen Hobbs & Associates (NSW)
Frank Nitzsche	GHD Pty Ltd (NSW)
Brian Simmons	WaterNSW
Charlie Curro	Department of Public Works (NSW)
David Ryan	SunWater (QLD)
Rod Mauger	Australian Asset Engineering (VIC)
David Law	Entura (TAS)
Trevor Lange	Goulburn-Murray Water (VIC)
Alex Gower	Water Corporation (WA)
Additional Members	
Pieter van Breda	Project Manager
Steven Fox	Executive Committee Liaison
Technical Review Panel	
Marty Gross (Electrical)	Retired from Hydro Tas (TAS)
Brian Cooper (Civil)	Brian Cooper Consulting (NSW)
International Expert Review	
Vacant	

Guidelines on Risk Assessment (Updated/New Guideline)

Immediately prior to the 2015 Annual Conference a workshop was held to seek feedback from Members on the proposed content for the updated Guidelines on Risk Assessment.

Several submissions were subsequently received and the Working Group met to consider them in February 2016. Progress by the working group since that time has been hampered by the work commitments of some working group members. Hence the completion of responses to feedback and development of the draft update has been considerably delayed.

Whilst the initial draft is nearing completion, we are not able to forecast a date for the draft to be circulated to the reference committee for final comment. Once this process has been completed, the draft will be submitted for independent review.

Shane McGrath

Convenor

Membership of the Working Group	Company
Shane McGrath	SGM Consulting
Malcolm Barker	GHD
Emeritus Professor Robin Fell	UNSW Global Consulting
Mark Foster	AECOM
Peter Hill	HARC
Len McDonald	Retired
Reference Group	
Phillip Cummins	Siraj Perera
Graeme Bell	Michael Somerford
Peter Allen	Angus Paton
Gamini Adikari	Paul Southcott
Mark Arnold	Barton Maher
Andrew Reynolds	David Ryan
Ian Landon-Jones	Andrew Richardson
Chris Topham	Bruce Duncan
Kelly Maslin	
International Expert Review	
To be determined	

Selection of Acceptable Flood Capacity (Revised Guideline)

The ANCOLD Guidelines on Selection of Acceptable Flood Capacity (AFC) were published in 2000 and provide guidance on the selection of design flood capacities for dams. A Working Group was established in early 2014 with the responsibility to prepare a new guideline. The Working Group is supported by a Reference Group representing owners, consultants and regulators from different jurisdictions around Australia.

To date the revision has involved:

- Working Group prepared a discussion paper on the proposed scope of the revision
- Workshop held with Reference Group in October 2014 to review the discussion paper
- Workshop held at the November 2015 ANCOLD Conference to outline the principles of the revision and test the proposed changes.
- Working Group then incorporated the feedback from the workshop and prepared a full draft of the new guideline
- full draft guidelines was reviewed by the Reference Group in mid-2016 and feedback incorporated
- an overview of the guideline was presented at the 2016 ANCOLD Conference Workshop
- the draft guideline was reviewed by the 2 Australian peer reviewers in early-2017 and feedback incorporated
- the updated draft was then reviewed by Reference Group
- Addressed final comments by Reference Group

Although work on the guideline slowed in 2017/18, the revision of the guideline is nearing completion and the final stages are:

- International Peer Review
- Seek comment from broader ANCOLD community
- ANCOLD Executive endorsement of document and process
- Finalise and publish

It is anticipated that the final draft will be made available for comment in early 2019.

Peter Hill

Convenor

Working Group	Company
Peter Hill	HARC
Fiona Ling	WMA Water
Michel Raymond	Seqwater
Andrew Reynolds	MDBA
Michael Somerford	Water Corporation WA
Reference Group	
Peter Allen	Qld DNRME
Mark Arnold	Melbourne Water
Malcolm Barker	GHD
Peter Cloke	NSW Urban Water Services
Janice Green	Bureau of Meteorology
Norm Himsley	NSW Dams Safety Committee
Barton Maher	Seqwater
Joe Matthews	Southern Rural Water
Shane McGrath	SGM Consulting
Nanda Nandakumar	WaterNSW
Angus Paton	SA Water
Siraj Perera	DELWP (Vic)
Michael Thornton	Snowy Hydro Limited
Independent Reviewers	
Rory Nathan	Melbourne University
Phil Cummins	ADWC

Guidelines on Tailings Dams (Watching Brief)

The tailings committee is continuing discussion on the earthquake guidelines and intend to revise the tailings guideline once inconsistencies are resolved. A meeting will be held at the ANCOLD Conference in Melbourne to take this forward. Members of the committee and other interested tailings practitioners have reviewed the latest draft ICOLD Guideline – Tailings Technology Update. The ANCOLD WA special tailings interest group is operational and a second group has been established in Queensland.

David Brett

Convenor

Membership of the Working Group	Company
David Brett, (Convenor)	Principal Engineer, Water and Waste Management - GHD Pty Ltd
Imran Gillani	Principal Adviser, Tailings, Technology and Innovation - Rio Tinto
Keith Seddon	Principal Engineer - ATC Williams Pty Ltd
Norm Himsley	Consultant and Member - NSW Dam Safety Committee
Dr Gary Bentel	Consultant
Dr Bruce Brown	Consultant
Professor Andy Fourie	Professor of Civil Engineering - The University of Western Australia
Professor David Williams	Professor of Geomechanics - The University of Queensland
Faye Akbar	Rio Tinto
Jiri Herza	Consultant
Technical Review Panel	
John Phillips	Principal Engineer - GHD Pty Ltd, Australia

Regulation & Practice for the Environmental Management of Dams in Australia

There was no update on this guideline in 2017/18.

Saint Rooks

Convenor