

# Appendix 2

## Further reading

### Legislation and Australian Guidelines

*Water Act 2000* (Qld)

*Water Resources Act 1989* (Qld)

(To be repealed on commencement of relevant sections of *Water Act 2000*)

*Environmental Protection Act 1994* (Qld)

*Integrated Planning Act 1997* (Qld)

Department of Primary Industries (Water Resources), Queensland, “Queensland Dam Safety Management Guidelines - Dam Safety Course Version”, 1994. (Superseded by this document)

Australian National Committee on Large Dams, “Guidelines on the Environmental Management of Dams”, 2001.

Australian National Committee on Large Dams (ANCOLD), “Guidelines on the Assessment of the Consequences of Dam Failure”, 2000.

Australian National Committee on Large Dams, “Guidelines on Selection of Acceptable Flood Capacity for Dams”, 2000.

Australian National Committee on Large Dams, “Guidelines on Tailings Dam Design, Construction and Operation”, 1999.

Australian National Committee on Large Dams (ANCOLD), “Dam Safety Management Guidelines”, 1994.

Australian National Committee on Large Dams (ANCOLD), “Guidelines on Risk Assessment”, 1994.

Australian National Committee on Large Dams, “Guidelines on Strengthening and Raising Concrete Gravity Dams”, 1992.

Australian National Committee on Large Dams, “Guidelines on Design Criteria for Concrete Gravity Dams”, 1991.

Australian National Committee on Large Dams, “Guidelines on Concrete Faced Rockfill Dams”, 1991.

Australian National Committee on Large Dams, “Roller Compacted Concrete for Gravity Dams”, Guidelines Supplement, Bulletin No 75, 1991.

Australian National Committee on Large Dams, “Guidelines on Design of Dams for Earthquakes”, 1988.

Department of Natural Resources & Mines, “The Guidelines for Failure Impact Assessments for Water Dams”, 2002.

The Australian Standard for Quality Systems AS/NZS ISO 9001-3:1994.

Emergency Management Australia, “Emergency Management Planning for Floods Affected by Dams” Guide 7, 2002.

### **Useful Web Sites**

Australian National Committee on Large Dams (ANCOLD)  
<http://www.ancold.org.au>

U.S. Bureau of Reclamation, “Training Aids for Dam Safety”, July 2001.  
<http://www.usbr.gov/dsis/tads.html>

Queensland Government Legislation  
<http://www.legislation.qld.gov.au/legislation.htm>

US Army Corps of Engineers  
<http://www.usace.army.mil/inet/usac-docs/eng-manuals/em.htm>

### **Books, Journal Articles and International Guidelines**

American Society of Civil Engineers “The Evaluation of Dam Safety”, Proceedings of the Engineering Foundation Conference, ASCE, 1976.

American Society of Civil Engineers & U.S. Commission for Large Dams, “Foundations for Dams”, Proceedings of the Engineering Foundation Conference, 1974.

Bowen, R., “Grouting in Engineering Practice”, 1975.

Building Research Establishment, “An Engineering Guide to the Safety of Embankment Dams in the UK”, Report 1990.

Canterford, R. P., “Australian Rainfall and Runoff”, Institution of Engineers Australia, 1987.  
 (This document is presently being updated)

Department of Primary Industries (Water Resources), Queensland, “Queensland Dam Safety Course Notes”, 1994.

Fell, R, MacGregor, P, Stapledon, D. “Geotechnical Engineering of Embankment Dams”, 1992

Houlsby, A.C. (1977,1978). Foundation grouting for dams ANCOLD Bulletins 47,48 and 50

ISMES (Italy), “Activities for Dams (site characterisation to safety monitoring)”, 1985.

ISMES (Italy), “Management of Information for Dam Safety”, 1985.

Jansen, R. B., “Dams and Public Safety”, U.S. Department of the Interior, Bureau of Reclamation, 1983.

Keller, W., “Geodetic Deformation Measurements on Large Dams”, Kern Pamphlet, 1987

“Safety of Dams: Flood and Earthquake Criteria”, National Academy Press, 1985.

“Safety of Small Dams”, Proceedings of the Engineering Foundation Conference, ASCE, 1974.

Sherard, J. L. et al, “Earth and Earth Rock Dams”, Wylie, 1963.

Thomas, H. H., “The Engineering of Large Dams”, Vols. 1 & 2, 1976.

U.S. Federal Coordinating Council for Science Engineering and Technology, “Federal Guidelines for Dam Safety”, FEMA No 93, June, 1979.

U.S. Bureau of Reclamation, “Downstream Hazard Classification Guidelines”, Bureau of Reclamation, December 1988.

U.S. Bureau of Reclamation, “Design of Small Dams”, U.S. Department of the Interior, Bureau of Reclamation, 1987.

U.S. Bureau of Reclamation, “Guide for preparation of Standing Operating Procedure’s for Dams and Reservoirs”, Bureau of Reclamation, 1986.

U.S. Bureau of Reclamation, ‘Safety Evaluation of Existing Dams’, U.S. Department of the Interior, Bureau of Reclamation, 1983.

U.S. Bureau of Reclamation, ‘Concrete Manual’, U.S. Department of the Interior, Bureau of Reclamation, 1981.

U.S. Bureau of Reclamation, ‘Earth Manual’, U.S. Department of the Interior, Bureau of Reclamation 1980.

U.S. Bureau of Reclamation, ‘Design of Arch Dams’, U.S. Department of the Interior, Bureau of Reclamation, 1977.

U.S. Bureau of Reclamation, ‘Design of Gravity Dams’, U.S. Department of the Interior, Bureau of Reclamation, 1976.

U.S. Committee on Large Dams, “Dam Safety Practices and Concerns in the U.S.A.”,

U. S. Federal Emergency Management Agency, “National Dam Safety Program - A Progress Report”, FEMA, No 103, 1986.

U. S. Federal Emergency Management Agency, “Dam Safety: An Owners Guidance Manual”, FEMA, No 145, 1987.

U.S. National Research Council, “Safety of Existing Dams - Evaluation and Improvement”, National Academy Press, 1983.

U.S. National Research Council, “Safety of Dams - Flood and Earthquake Criteria”, National Academy Press, 1985.

The Australian National Committee on Large Dams produces a “Bulletin” as a periodical with 2 or 3 editions being published each year. These bulletins present papers on all aspects of Australian dam design, construction and ongoing operation and management of dam safety. Further details are available from the ANCOLD website (<http://www.ancold.org.au>)

United States Bureau of Reclamation - Training Aids for Dam Safety (July 2001).

Dam safety inspection training modules<sup>8</sup>:

- Preparing to Conduct a Dam Safety Inspection.
- Documenting and Reporting Findings from a Dam Safety Inspection.
- Inspection of Embankment Dams.
- Inspection of Concrete and Masonry Dams.
- Inspection of the Foundation, Abutments, and Reservoir Rim.
- Inspection of Spillways and Outlet Works.
- Inspection and Testing of Gates, Valves, and Other Mechanical Systems.
- Instrumentation for Embankment and Concrete Dams.
- Identification of Material Deficiencies.
- Evaluation of Facility Emergency Preparedness.

Dam safety awareness, organization, and implementation modules: <sup>9</sup>

- Dam Safety Awareness
- How to Organize a Dam Safety Program.
- How to Organize an Operation and Maintenance Program.
- How to Develop and Implement an Emergency Action Plan.
- Identification of Visual Dam Safety Deficiencies.

Data review, investigation and analysis, and remedial action for dam safety modules: <sup>10</sup>

- The Dam Safety Process.
- Evaluation of Hydrologic Adequacy.
- Evaluation of Hydraulic Adequacy.
- Evaluation of Concrete Dam Stability.
- Evaluation of Embankment Dam Stability and Deformation.
- Evaluation of Seepage Conditions<sup>11</sup>.

International Commission on Large Dams (ICOLD), Publish Bulletins and Transactions on a range of aspects of dam design, construction and ongoing operation and management of dam safety.

In Australia these are available through :-

- the ANCOLD Publications Officer. (In January 2002 the position was held by Mr Len McDonald [len@damsafety.nsw.gov.au].)
- or through the ANCOLD web site <http://www.ancold.org.au>

A list of the ICOLD publications available at 1 January 2002 follows:-

- No. 15 Frost Resistance of Concrete (1960)
- No. 18 Guide and Recommendations on Aggregates for Concrete for Large Dams (1965)
- No. 20 Surface-active Admixtures for Concrete for Large Dams (1968)
- No. 22 Guide and Recommendations on Pozzolans and Slags for use in Concrete for Large Dams (1972)

<sup>8</sup> These modules are for engineers with little or no inspection experience and technicians with some familiarity with dams.

<sup>9</sup> These training modules are primarily for dam owners and operators.

<sup>10</sup> These modules are for dam safety program managers, dam owners and operators, and experienced engineers.

<sup>11</sup> Available from United States Bureau of Reclamation, Engineering and Research, D-3000, P.O. Box 25007, DFC, Denver, Colorado 80225-0007.

- No. 24 Accelerating and Retarding Admixtures (1973)
- No. 25 Extensibility of Concrete for Large Dams (1976)
- No. 29 Report from the Committee on Risks to Third Parties from Large Dams (1977)
- No.30a Finite Element Methods in Analysis and Design of Dams (2nd Edition, 1978)
- No.32a Bituminous Concrete Facings for Earth and Rockfill Dams (1977-82)
- No. 33 Compendium of Dam Symbols (1979)
- No. 34 ICOLD Guide for the International System of Units (IS)
- No.36a Cements for Concrete for Large Dams
- No. 37 Dam Projects and Environmental Success (1981)
- No. 38 Use of Thin Membranes on Fill Dams (1981)
- No. 39 Upstream Facing Interface with Foundations and Abutments (1st Supplement to Bulletin 32a)
- No.40a Fibre Reinforced Concrete (1988)
- No. 42 Bituminous Cores for Earth and Rockfill Dams (1982)
- No. 44a Bibliography - Mine and Industrial Tailings Dams and Dumps (1982, 1989)
- No. 46 Seismicity and Dam Design (1983)
- No. 47 Quality Control of Concrete (1983)
- No. 48a River Control During Dam Construction (Reprinted 1986)
- No. 49a Operation of Hydraulic Structures of Dams (Reprinted 1986)
- No. 50 Dams and the Environment. Notes on Regional Influences (1985)
- No. 51 Filling Materials for Watertight Cut-Off Walls (1985)
- No. 52 Earthquake Analysis Procedure for Dams- State of the Art (1986)
- No. 53 Static Analysis of Embankment Dams (1986)
- No. 54 Soil-Cement for Embankment Dams (1986)
- No. 55 Geotextiles as Filters and Transitions in Fill Dams (1986)
- No. 56 Quality Control for Fill Dams (1986)
- No. 57 Materials for Joints in Concrete Dams
- No. 58 Spillways for Dams (1987)
- No. 59 Dams Safety Guidelines (1987)
- No. 60 Dam Monitoring - General Considerations (1988)
- No. 61 Dam Design Criteria-Philosophy of Choice (1988)
- No. 62 Inspection of Dams after Earthquakes - Guidelines (1988)
- No. 63 New Construction Methods (1988)
- No. 64 Registration of Dam Heightening (1988)
- No. 65 Dams and Environment - Case Histories (1988)
- No. 66 Dams and Environment - The Zuiderzee Damming (1989)

- No. 67 Sedimentation Control of Reservoirs
- No. 68 Monitoring of Dams and Their Foundations - State of the Art (1989)
- No. 69 Moraine as Embankment and Foundation Material - State of the Art (1989)
- No. 70 Rockfill Dams with Concrete Facing (1989)
- No. 71 Exposure of Dam Faces to Aggressive Water (1989)
- No. 72 Selecting Seismic Parameters (1989)
- No. 73 Savings in Dam Construction (1989)
- No. 74 Tailings Dam Safety (1989)
- No. 75 Roller Compacted Concrete for Gravity Dams (1989)
- No. 76 Conventional Methods in Dam Construction (1990)
- No. 77 Dispersive Soils in Embankment Dams (1990)
- No. 78 Watertight Geomembranes for Dams (Supersedes No. 38) (1991)
- No. 79 Alkali - Aggregate Reaction in Concrete Dams (1991)
- No. 80 Dam Construction Sites Accident Prevention - Review and Recommendations (1992)
- No. 81 Spillways; Shockwaves and Air Entrainment (1992)
- No. 82 Selection of Design Flood (1992)
- No. 83 Cost Impact on Future Dam Design - Analysis and Proposals (1992)
- No. 84 Bituminous Cores for Fill Dams - State of the Art (1992)
- No. 85 Owners, Consultants and Contractors - How to improve relationships (1992)
- No. 86 Dams and the Environment - Socio economic impacts (1992)
- No. 87 Improvement of Existing Dam Monitoring - Recommendations and Case Histories
- No. 88 Rock Foundations for Dams (1993)
- No. 89 Reinforced Rockfill and Reinforced Fill for Dams - State of the Art (1993)
- No. 90 Dams and Environment - Geophysical Impacts (1993)
- No. 91 Embankment Dams - Upstream Slope Protection - Review and Recommendations (1993)
- No. 92 Rock Materials for Rockfill Dams Review and Recommendations (1993)
- No. 93 Aging of Dams and Appurtenant Works - Review and Recommendations (1994)
- No. 94 Computer Software for Dams - Comments and Proposals (1994)
- No. 95 Embankment Dams - Granular Filters and Drains - Review and Recommendations (1994)
- No. 96 Dams and Environment - Water Quality and Climate (1994)
- No. 97 Tailings Dams - Design of Drainage - Review and Recommendations (1994)
- No. 98 Tailings Dams and Seismicity - Review and Recommendations (1995)
- No. 99 Dam Failures - Statistical Analysis (1995)
- No.100 Dams and Environment Ridracoli - A Model Achievement (1995)
- No.101 Tailings Dams - Transport, Placement and Decantation (1995)

- No.102 Vibrations of Hydraulic Equipment for Dams (1996)
- No.103 Tailings Dams and Environment - Review and Recommendations (1996)
- No.104 Monitoring of Tailings Dams - Review and Recommendations (1996)
- No.105 Dams and Related Structures in Cold Climates - Design Guidelines and Case Studies (1996)
- No.106 A Guide to Tailings Dams and Impoundments - Design, Construction, Use and Rehabilitation (1996)
- No.107 Concrete Dams - Control and Treatment of Cracks (1997)
- No.108 Cost of Flood Control in Dams - Review and Recommendations (1997)
- No.109 Dams Less than 30m High - Cost Savings and Safety Improvements (1998)
- No.110 Cost Impact of Rules, Criteria and Specifications - Review and Recommendations (1998)
- No. 111 Dam-break Analysis - Review and Recommendations (1998)
- No. 112 Neotectonics and Dams - Guidelines and Case Histories (1998)
- No. 113 Seismic Observations of Dams - Guidelines and Case Studies (1999)
- No. 114 Embankment Dams with Bituminous Concrete Facing - Review and Recommendations (1999)
- No. 115 Dealing with Reservoir Sedimentation - Guidelines and Case Studies (1999)
- No. 116 Dams and Fishes - Review and Recommendations (1999)
- No. 117 The Gravity Dam: A Dam for the future - Review and Recommendations (2000)
- No. 118 Automated Dam Monitoring Systems - Guidelines and Case Histories (2000)
- No. 119 Rehabilitation of Dams and Appurtenant Works - State of the Art and Case Histories (2000)
- No. 120 Design Features of Dams to Resist Seismic Ground Motion - Guidelines and Case Histories (2000)
- No. 121 Tailings Dams: Risk of Dangerous Occurrences - Lessons Learnt from Practical Experience (2001)
- No. 122 Computational Procedures for Dam Engineering - Reliability and Applicability (2001)

Proceedings of the X Congress, Montreal 1970, 6 Vols

Proceedings of the XII Congress, Mexico 1976, 5 Vols

Proceedings of the XIII Congress, New Delhi 1979, 5 Vols

Proceedings of the XIV Congress, Rio de Janeiro 1982, 5 Vols

Proceedings of XV Congress, Lausanne 1985, 5 Vols

Proceedings of the XVI Congress, San Francisco 1988, 5 Vols.

Proceedings of the XVII Congress, Vienna 1991, 5 Vols

Proceedings of the XVIII Congress, Durban 1994, 5 Vols

Proceedings of the XIX Congress, Florence 1997, 5 Vols

Proceedings of the XX Congress, Beijing 2000, 5 Vols

