Geotechnical Engineering of Dams

2nd edition

Robin Fell
Patrick MacGregor
David Stapledon
Graeme Bell
Mark Foster

CRC Press
Taylor & Francis Group
A BALKEMA BOOK

Geotechnical Engineering of Dams, 2nd edition

Robin Fell
Emeritus Professor, School of Civil and Environmental Engineering, University of New South Wales, Sydney, Australia

Patrick MacGregor
Consulting Engineering Geologist, Australia

David Stapledon
Consulting Engineering Geologist, Australia

Graeme Bell
Consulting Dams Engineer, Australia

Mark Foster
Senior Principal Dams Engineer, URS Australia, Sydney, Australia

CRC Press
Taylor & Francis Group
Boca Raton London New York Leiden

CRC Press is an imprint of the
Taylor & Francis Group, an **informa** business
A BALKEMA BOOK

Cover illustration: Hinze Dam at completion of Stage 3 construction. Courtesy of The Hinze Dam Alliance (comprising Seqwater, SKM, Thiess and URS).

CRC Press/Balkema is an imprint of the Taylor & Francis Group, an informa business

Typeset by MPS Limited, Chennai, India
Printed and Bound by CPI Group (UK) Ltd, Croydon, CR0 4YY.

Library of Congress Cataloging-in-Publication Data

Fell, Robin.
Geotechnical engineering of dams / Robin Fell, Emeritus, Professor, School of Civil and Environmental Engineering, University of NewSouth Wales, Sydney, Australia, Patrick MacGregor, Consulting Engineering Geologist, Australia, David Stapledon, Consulting Engineering Geologist, Australia, Graeme Bell, Consulting Dams Engineer, Australia, Mark Foster, Senior Principal Dams Engineer, URS Australia, Sydney, Australia. – 2nd edition.
pages cm
Includes bibliographical references and index.
ISBN 978-1-138-00008-7 (hardback) – ISBN 978-0-203-38731-3 (ebook)
1. Dams–Design and construction. I. Title.

TC540.F45 2014
627'.8–dc23

2014040176

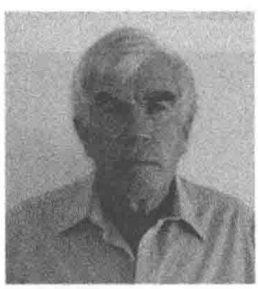
Published by: CRC Press/Balkema
P.O. Box 11320, 2301 EH Leiden, The Netherlands
e-mail: Pub.NL@taylorandfrancis.com
www.crcpress.com – www.taylorandfrancis.com

ISBN: 978-1-138-00008-7 (Hbk)
ISBN: 978-0-203-38731-3 (eBook PDF)

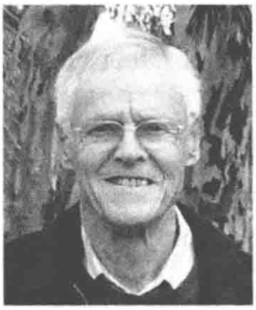
Geotechnical Engineering of Dams, 2nd edition

Author Biographies

Robin Fell is Emeritus Professor of Civil Engineering at the University of New South Wales and also works as a peer review consultant. He has 48 years of experience in geotechnical engineering of dams, landslides and civil and mining projects in Australia, New Zealand, the Pacific, North and Central America, and Asia. He has worked on over 100 dams worldwide and has been involved in all aspects of planning, site investigation, design and construction of embankment and concrete gravity dams.



Patrick MacGregor is a Consulting Engineering Geologist with more than 50 years experience in the assessment of geological constraints for major civil engineering projects in a number of countries. He has been involved in dam investigation, design and construction and particularly worked on hydroelectric developments at all stages from inception to operation.



David Stapledon spent many years on the investigation of large dam construction sites in various countries. He was a Professor of Engineering Geology at the University of South Australia (1964–1993) and worked as a Consultant in Engineering Geology, contributing to major dam projects in Australia, New Zealand and South East Asia. He has more than 50 years of experience and was awarded the John Jaeger Memorial Medal for Contributions to Geomechanics in 1995.

Graeme Bell has worked in dam engineering since 1962. His role has varied from providing the full technical input, design management and construction advice for new dams to the preparation of complex structural analyses of existing dams. From 1979, he has acted as an independent reviewer on many dam projects, mainly in Australia, but also in several overseas locations.

Mark Foster has 20 years of experience in dam engineering and geotechnical engineering. This has involved a wide variety of projects including dam safety reviews, design of dam upgrade projects and dam safety risk assessments for embankment and concrete dams. He has a particular interest in the assessment of piping and internal erosion of embankment dams which was the topic of his doctoral research studies at the University of New South Wales.

Table of contents