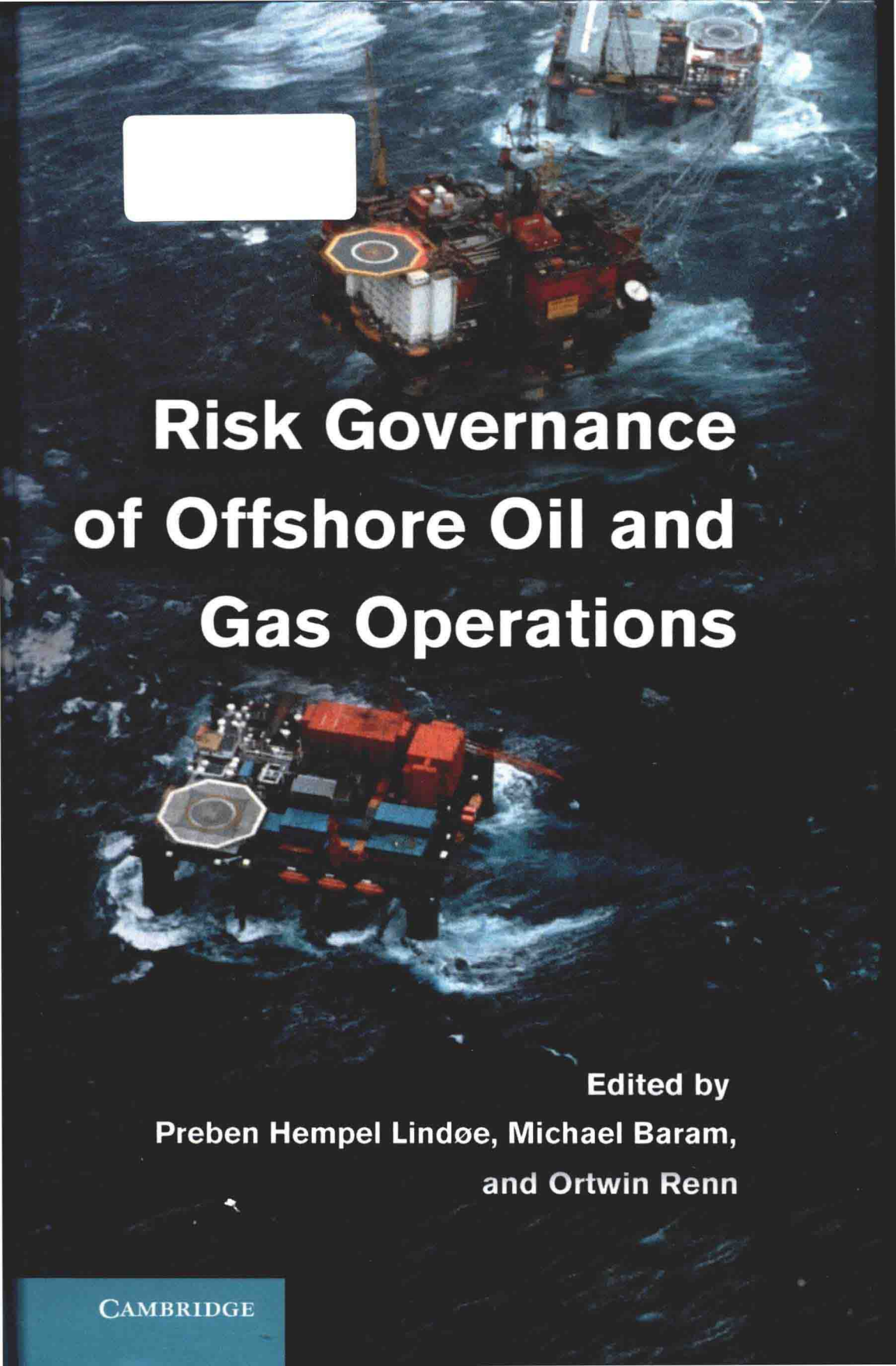

Risk Governance of Offshore Oil and Gas Operations

Edited by
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and Ortwin Renn

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CAMBRIDGE
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32 Avenue of the Americas, New York NY 10013-2473, USA

Cambridge University Press is part of the University of Cambridge.

It furthers the University's mission by disseminating knowledge in the pursuit of education, learning and research at the highest international levels of excellence.

www.cambridge.org
Information on this title: www.cambridge.org/9781107025547

First published 2011, 2014
Second Edition 2012
Reprinted 2013

A catalogue record for this publication is available from the British Library

Library of Congress Cataloguing in Publication data
Risk governance of offshore oil and gas operations / [edited by] Preben Hempel Lindøe, Michael Baram, Ortwin Renn.
pages cm
Includes bibliographical references and index.
ISBN 978-1-107-02554-7 (hardback)
1. Offshore oil industry – Risk management. 2. Offshore gas industry – Risk management. 3. Offshore oil industry – Safety measures. 4. Offshore gas industry – Safety measures. 5. Offshore oil industry – Government policy. 6. Offshore gas industry – Government policy. I. Lindøe, Preben. II. Baram, Michael S. III. Renn, Ortwin.
HD9560.5.R48 2014
622′.338190681–dc23 2013015854

ISBN 978-1-107-02554-7 Hardback

RISK GOVERNANCE OF OFFSHORE OIL AND GAS OPERATIONS

This book evaluates and compares risk regulation and safety management for offshore oil and gas operations in the United States, United Kingdom, Norway, and Australia. It provides an interdisciplinary approach with legal, technological, regulatory, behavioral, and sociological perspectives on these efforts to prevent major accidents and improve safety performance offshore. Presented in three parts, the book begins with discussion of the concept of risk governance, the role and modes of safety regulation, and the behavioral and other factors involved in developing an effective regulatory regime for industrial safety. It then discusses the four regimes for offshore safety, the industry's role, cultural and other contextual influences, and use of safety performance indicators. The final section focuses on the Norwegian regime, which features self-regulation and worker rights, and its capacity to respond to new offshore technologies, emerging risks, near-miss incidents, and other challenges. Discussion throughout the book provides insights about differing types of rules, inspection methods, enforcement, and other issues relevant to the quest for robust regulation and the development of a safety culture for preventing major accidents offshore. This book will be informative for those in government, industry, academia, and elsewhere in society who are interested in industrial safety in general and offshore safety in particular.

Preben Hempel Lindøe is Professor of Societal Safety at the University of Stavanger, Norway. He has an MS and a PhD on the implementation of "enforced self-regulation." He has worked within applied research for twenty-five years, including action-research methodology, occupational health and safety, risk regulation, and safety management. His publications include various books (in Norwegian) as well as articles, papers, and chapters in professional and academic journals, books, and other media.

Michael Baram is Professor Emeritus at Boston University Law School where he directed the Center for Law and Technology. He was also a partner in the law firm Bracken and Baram for twenty-five years, and previously was Associate Professor of Engineering and Assistant Dean at MIT. His research, publications, legal work, and advisory activities have dealt with risk regulation, environmental law, product liability law, occupational safety, and risk management in several technological sectors, including the chemicals, biotech, nuclear, and oil and gas industries. He is the author or editor of eight books including *Safety Management* (with Andrew Hale) and has published numerous articles.

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Preface

Modern society is increasingly dependent on technological strength and its careful application by complex enterprises to ensure public well-being and the achievement of other important goals. A prime example is the use of new technologies to meet global energy needs that are essential for the fulfillment of these goals.

The exploration and production of offshore oil and gas resources have become important means of meeting global energy needs. More than 90 percent of the oil and gas produced by EU member states and Norway is now derived from offshore production, mainly in the North Sea and the Norwegian Sea. Offshore operations also account for a substantial part of the oil and gas produced by the United States and Australia and are of growing importance to Canada, Brazil, and many other countries.

These offshore activities involve sophisticated analytic methods, heavy engineering, large-scale investment, and complex projects, and they must be managed appropriately to ensure that benefits are gained without incurring major accidents and other unacceptable harms to the public, the workers involved, and the human and natural environments. This requires partnership between public regulators and industry, the involvement of labor and other stakeholders, a supporting role for researchers, mutual trust that best practices will be used and continuously improved, and much more.

However, major accidents such as the Macondo blowout and oil spill in the Gulf of Mexico in 2010 demonstrate that simultaneously ensuring productivity and safety is a major challenge, particularly in deepwater regions and other difficult locales. To meet this challenge, leading countries have developed regulatory regimes that differ in several respects, particularly with regard to supervising and fostering self-regulation by industry, and all are engaged in a continuing quest for increasingly robust regulation.

From economic, environmental, and safety perspectives, the robustness of the regulatory regimes that govern the safety of offshore activities is of critical importance

to all. In this regard, the research community plays a key role by contributing knowledge from many disciplines, which can improve the performance of the regimes and the offshore industry.

This book is the result of a common effort by a select group of researchers over several years. Their research and its integration has been enabled by a major research project, "Robust Regulation in the Petroleum Sector," which has been funded by the Research Council of Norway. The aim of the project has been to provide knowledge that can be used to develop and support robust regulation and inclusive risk governance for the complex and dynamic field of offshore oil and gas operations by addressing four objectives:

- conceptualization and better understanding of the resilience of the Norwegian risk regulation regime, which many other countries look to as a model;
- comparison of the Norwegian regime with other leading regimes to further improvements in an international context;
- examination of the interface between a regulatory regime and industrial safety management systems; and
- dissemination of research-based knowledge to promote learning about robust risk regulation and the challenges involved in its implementation.

The Macondo disaster in 2010 increased the significance of the project because it put the quest for robust regulation on the public agenda in all countries with offshore oil and gas resources. This led the core group of Norwegian researchers to extend their project by inviting researchers from the United Kingdom, United States, Germany, and Australia to join them and produce results of international relevance.

Finally, we believe this book demonstrates the value of learning from various disciplines and from safety research done in other technological and industrial domains, and we believe it provides knowledge in return and hope it contributes to risk reduction and improved safety performance in offshore operations and these other domains.

Preparing this book has been an inspiring and learning process. We are thankful for the cooperation of the contributing authors and of Cambridge University Press, as well as for the financial support of the Research Council of Norway.

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