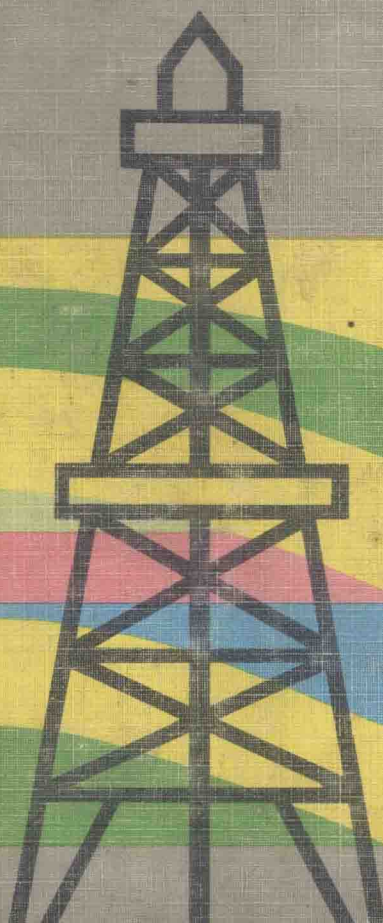


DEVELOPMENTS IN PETROLEUM SCIENCE 11

drilling and drilling fluids

G.V. CHILINGARIAN and
P. VORABUTR



ELSEVIER

Developments in Petroleum Science, 11

drilling and drilling fluids

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ELSEVIER SCIENTIFIC PUBLISHING COMPANY
AMSTERDAM — OXFORD — NEW YORK 1981

ELSEVIER SCIENTIFIC PUBLISHING COMPANY
335 Jan van Galenstraat
P.O. Box 211, 1000 AE Amsterdam, The Netherlands

Distributors for the United States and Canada:

ELSEVIER/NORTH-HOLLAND INC.
52, Vanderbilt Avenue
New York, N.Y. 10017

Library of Congress Cataloging in Publication Data

Chilingarian, George V
Drilling and drilling fluids.

(Developments in petroleum science ; 11)
Includes bibliographies and indexes.

1. Oil well drilling. 2. Drilling muds.

I. Vorabutr, Poawpadet, 1954- joint author.

II. Title. III. Series.

TN871.2.C52 622'.23 80-20058

ISBN 0-444-41867-9

ISBN 0-444-41867-9 (Vol. 11)

ISBN 0-444-41625-0 (Series)

© Elsevier Scientific Publishing Company, 1981

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Printed in The Netherlands

This book is dedicated to His Majesty King Bhumibol Adulyadej and Her Majesty Queen Sirikit of Thailand for their relentless support of all branches of engineering sciences in order to improve the well being of mankind. Their encouragement in writing this book is indeed greatly appreciated.

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PREFACE

In recent years, with increasing depths of boreholes and higher formation temperatures, the attention of the drilling industry has been focussed on improving the technology of drilling and drilling fluids. The basic ingredients of water-base drilling fluids are water, clay, and polymers, but the precise physicochemical reactions occurring during drilling are not very well understood because they involve so many complicated factors. There is therefore, a vast, unknown area where practising engineers find it difficult to interpret adequately all the data obtained during the drilling operation. Emulsion, polymer, and other types of drilling fluids also require better understanding.

Drilling fluids have several significant functions. In actual drilling operation, a sustained effort plus a great deal of practical expertise are necessary to keep track of all the parameters and to drill under what may hopefully be considered as optimum conditions. The engineer attempts to identify the effects of many influencing factors, in the order of priority, and tries to understand and, if necessary, correct them within the predetermined order of their importance to operational process.

The specialized drilling companies have written their own manuals on drilling fluids and these vary from firm to firm. It is important to mention here that the first syllabus on the subject for instructional purposes was written by Professor George V. Chilingarian at the University of Southern California in 1949. The results and insights obtained thus far, however, have not yet been formulated into a book which can be used both as a textbook and a reference book.

The present book tries to present this broad body of material in a coherent, unified manner in order to embody the entire experience gained during the last half century. The perseverance of the authors in writing this book is praiseworthy, and it is hoped that petroleum engineering students and petroleum engineers and technicians, who are involved in the drilling operations, will greatly benefit from the contents of this monograph.

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