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Tan Nguyen

Artificial Lift Methods

Design, Practices, and Applications

 Springer

Tan Nguyen
Petroleum Department
New Mexico Tech
Socorro, NM, USA

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Preface

This book titled *Artificial Lift Methods—Design, Practices, and Applications* consists of seven chapters: (1) review, (2) gas lift, (3) electrical submersible pump, (4) progressing cavity pump, (5) sucker rod pump, (6) plunger lift, and (7) artificial lift selection methodology for vertical and horizontal wells in conventional and unconventional reservoirs. Each chapter or each artificial lift method is unique and almost independent of other chapters except Chap. 1 and Chap. 7. In Chap. 1, the author reviews some basics of math, physics, fluid properties, flow inside reservoirs, flow inside a tubing, and multiphase flow in a tubing which are directly and/or indirectly related to other chapters in the book. Therefore, readers are strongly encouraged to review Chap. 1 before reading other chapters. In Chap. 7, the author begins with reviewing the advantages and disadvantages of each common lift method. Next, the artificial lift selection methodology for vertical wells in conventional reservoirs is presented. Finally, the author presents the most recent trends of artificial lift selection methodology for horizontal wells in unconventional plays. Readers do not need to have a deep understanding of all the artificial lift methods to read Chap. 7. In other words, it could be reasonable for readers to get started reading Chap. 7 to get an idea of what the artificial lift selection methodology looks like before reading other chapters.

Each artificial lift chapter (from Chap. 2 to Chap. 6) begins with the fundamentals of the lift method where the author reviews the heart of the lift system and how it works. The lift system is explained in the concept of the flow in the reservoir, the flow in the tubing, and how the external energy helps to lift the liquid. Next, the chapter focuses on the uniqueness of each lift method and then the detailed design. The author then closes each chapter with examples so readers know how to apply the presented concepts into practical applications.

All of the equations in this book are labeled with three digits “(X.X.X)”. The first digit represents the number of the chapter. The second digit represents the number of the section. And the last digit is for the order of the equations in the chapter. For example, Eq. (3.2.5) can be interpreted as Chap. 3, section 2, and equation number 5.

The page number is labeled as the following format “X-XX”. The first digit is for the chapter number following with a dash. The digits following the dash are the page number in each chapter. The page number in each chapter always begins with page number 1. For example, page 2.5 represents for Chap. 2 and page number 5; page 4.5 can be found in Chap. 4 page number 5.

Socorro, USA

Tan Nguyen

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