

Chapter 1

Oil Drilling Schedule

ABSTRACT

The Initial Oil Drilling Schedule Model With Uncertainty estimates a schedule of capital expenditures and production and shows how this schedule depends on the anticipated volumes of oil recovery. The Initial model here does this for a 5-year planning period. The uncertainties, treated here as normal, are the inputs to the amount of recovery (area, net pay, and recovery rate). These are multiplied to get the recoverable amount. The Oil Drilling Schedule Basic @RISK Model expands on the Initial Model With Uncertainty. Each of the inputs to the reserve size (area, net pay, and recovery rate) is modeled with triangular distributions. (The parameters of these distributions would come from experts' knowledge about the current site and similar historical sites.) These lead to the histogram of Recoverable shown. This looks like a lognormal shape. In general, when random quantities are multiplied, the resulting product typically has a lognormal shape.

INTRODUCTION

Oil Drilling Schedule

Directional drilling is a technique used by oil extraction companies to access oil in underground reserves. Directional drilling is also called directional boring. Most oil wells are positioned above the targeted res-

DOI: 10.4018/979-8-3373-0959-0.ch001

ervoir, so accessing them involves drilling vertically from the surface through to the well below.

However, directional drilling is different because it involves drilling at a non-vertical angle. (Directional drilling is used to describe any drilling that doesn't go straight down.)

The main benefit of directional drilling is that it enables companies to exploit multiple oil reservoirs with a single well, thereby reducing the total cost of drilling while also limiting the environmental impact of drilling.

Key Features

- Directional drilling is the practice of accessing an underground oil or gas reserve by drilling in a non-vertical direction.
- Directional drilling is also called directional boring.
- Directional drilling increases the efficiency of oil and gas extraction and can also lessen the environmental impact of drilling.
- Although directional drilling has been used since the 1920s, modern technological improvements to the technique have increased its accuracy and safety.
- The main benefit of directional drilling is that it enables companies to exploit multiple oil reservoirs with a single well.

The practice of directional drilling has been used since the 1920s throughout the oil and gas industry. In its early years, directional drilling involved using the same basic equipment as vertical wells, except the drilling itself was done at a non-vertical angle.

Modern directional drilling techniques have refined this process by using drill bits that can bend to better accommodate non-vertical angles. Additional technologies, such as the use of hydraulic jets that adjust and guide the drill direction, have further improved the efficiency and reliability of this process.

Today, drill operators can use computers to adjust the angle of the drill bit in real-time and can even use GPS signals to pinpoint the exact location of an oil and gas field. Using advanced software programs, engineers can

38 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/oil-drilling-schedule/377781

Related Content

Preparation of Deep Hydrodesulfurization Catalysts for Diesel Fuel using Organic Matrix Decomposition Method

Hamid Audah AlMegren, Sergio Gonzalez-Cortes, Yu Huang, Haoyi Chen, Yangdong Qian, Mohammed Alkinany, Saud Aldrees and Tiancun Xiao (2016). *Petrochemical Catalyst Materials, Processes, and Emerging Technologies* (pp. 216-253).

www.irma-international.org/chapter/preparation-of-deep-hydrodesulfurization-catalysts-for-diesel-fuel-using-organic-matrix-decomposition-method/146329

Workover Impact on Accidental Risk

Bojan Moslavac (2014). *Risk Analysis for Prevention of Hazardous Situations in Petroleum and Natural Gas Engineering* (pp. 199-217).

www.irma-international.org/chapter/workover-impact-on-accidental-risk/95680

Advances in Catalytic Conversion of Syngas to Ethanol and Higher Alcohols

Jie Sun, Shaolong Wan, Jingdong Lin and Yong Wang (2016). *Petrochemical Catalyst Materials, Processes, and Emerging Technologies* (pp. 177-215).

www.irma-international.org/chapter/advances-in-catalytic-conversion-of-syngas-to-ethanol-and-higher-alcohols/146328

New Catalytic Approaches for Producing Alternative to MTBE Additives for Reformulation of Gasoline

Saud Aldrees (2020). *Advanced Catalysis Processes in Petrochemicals and Petroleum Refining: Emerging Research and Opportunities* (pp. 172-189).

www.irma-international.org/chapter/new-catalytic-approaches-for-producing-alternative-to-mtbe-additives-for-reformulation-of-gasoline/238687

Lost Circulation

Nediljka Gaurina-Medjimurec and Borivoje Pasic (2014). *Risk Analysis for Prevention of Hazardous Situations in Petroleum and Natural Gas Engineering* (pp. 73-95).

www.irma-international.org/chapter/lost-circulation/95674