Decommissioning of Oil & Gas Fields

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HSE International, LLC

Sustainable decommissioning of Oil Fields and Mines
World Bank, Washington D.C. April 22nd 2009

Pathways to O&G Decommissioning
Typical E&P Life Cycle

Decommission of Onshore Oil & Gas

**Significant Issues**
- Land use management
- Ground subsidence
- Soil and groundwater contamination
- Pipe cleanliness
- Utility and pipeline crossings
- Erosion
- Associated equipment
- Cost of abandonment
- Social / communities
Existing Offshore Facilities

Offshore Facilities Decommissioned
O&G Decommissioning Challenge

Finding the right balance

- Commercial
  Productive life and liability, O&G prices, improved recovery

- Technical
  Diversity of facility types and environments: jungle vs. marine, structures size/weight; water depths; safety and health

Diagram of dismantling and abandonment options for offshore installations and component parts.

From: "Environmental Impact of the Offshore Oil and Gas Industry" by Stanislav Patin.
Technical - Safety

Risk Assessment

<table>
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<tr>
<th>Failure Modes</th>
<th>Consequences</th>
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<tbody>
<tr>
<td>Flange_Leak</td>
<td>Flange_Leak_Consequences</td>
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<tr>
<td>Rupture_Leak</td>
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<td>Equipment_Leak</td>
<td>Equipment_Leak_Consequences</td>
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<td>Hole_Leak</td>
<td>Hole_Leak_Consequences</td>
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O&G Decommissioning Challenges

- **Environmental**
  How clean is clean?
- **Legal**
  Regulatory requirements, trans boundary issues
- **Financial**
  Tax, assurance, accounting
- **Social / Public Acceptance**
  Stakeholder engagement
- **Cross Issue**
  Changing conditions
O&G Decommissioning Process

Basic steps

1. Preliminary discussions with regulators
2. Submission of a draft plan
3. Stakeholder engagement and consultation
4. Formal submission of plan and approval
5. Initiate works and site surveys
6. Continued monitoring of the site

O&G Abandonment Plan

Abandonment Plan

- Planning
- Operational
- Legal
- Environmental
- Technical
- Financial
- Public
- Regulatory
O&G Decommissioning Program

Example Outline

- Executive summary
- Background information
- Description of items to be decommissioned
- Inventory of materials
- Alternative Analysis
- Selected option
- Wells
- Drill cuttings
- Environmental Impact Assessment (EIA)
- Stakeholder engagement and consultation
- Costs
- Schedule
- Project management and verification
- Pre- and post-decommissioning monitoring
- Supporting studies

O&G Decommissioning Initiatives

Decommissioning Overview

The oil and gas industry has brought enormous benefits to society, not only in the areas of transportation and energy for our homes but also as the basis of many other essential...
O&G Decommissioning Initiatives

1. Occupational Health and Safety

2. Environmental and Social Responsibility

3. Financial Considerations

Figure 7.1 Interactive map of the Norwegian oil & gas “World-Class” Clusters
(Source: www.Tekno.com)
“IPIECA Guide to Social Impact Assessment in the Oil and Gas Industry, 2004.” It incorporates the need to address social investment and decommissioning as part of the life cycle of O&G projects.
O&G Decommissioning Initiatives

ARPEL 2009 Conference
Sustainable Development
The Role of the Oil and Gas Industry in Latin America and the Caribbean
Punta del Este, URUGUAY
April 22-24, 2009

O&G Decommissioning Initiatives

Oil & Gas UK Conference
Southern North Sea Decommissioning Conference
Date: 24 and 27 May 2009
Venue: Newcastle Marriott Hotel & Country Club, North Shields, NE31 2SF

Bringing the Gulf of Mexico and Southern North Sea Together
O&G Decommissioning Initiatives

SPE 108657

Decommissioning Challenges in Thailand
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Abstract

Thailand's oil and gas industry has been successful in finding and recovering hydrocarbon reserves in the Gulf of Thailand since the end of the 1970s and the oil and gas fields have been continuously operated and produced over the last 30 years.  As the fields mature, decommissioning of the installations in the Gulf of Thailand is becoming an increasingly important issue in terms of environmental and safety considerations.  At the end of their economic production lives, these installations are required to be decommissioned to ensure safety of navigation and to protect the rights of other users of the sea.  Offshore facilities are designed to last a certain number of years in terms of environment, safety, technology and economics.  The industry needs to develop and implement decommissioning strategies that are economically, environmentally, and technologically sound.  This paper discusses the current status of decommissioning in Thailand and provides an overview of the decommissioning solutions developed over the last few years.

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SPE 74025

Financial Assurance Bonds: An Incentive Mechanism for Environmental Compliance
D. F. Ferrigno, SPE, Department of Geology and Natural Resources, State University of New York (SUNY); C. R. Sharp, SPE, Department of Geology and Natural Resources, State University of New York (SUNY)

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Abstract

This paper describes different financial assurance systems (funding systems) used to provide economic incentives for environmental compliance within oil sector projects.  These systems are a funding mechanism for the decommissioning of production and transportation facilities.  These systems are related to the decision making and regulatory environment of the company.  The goal is to provide financial assurance for the decommissioning of facilities and to provide a clear understanding of the procedures.  The goal is to provide a clear understanding of the procedures and to provide a clear understanding of the procedures.  The goal is to provide a clear understanding of the procedures.
O&G Decommissioning Initiatives

SPE 64444

Learning from Offshore Decommissioning Practices in Europe and the USA
M.J. Dempsey, W.E. McKinnon and T.A. Winton, Ecos Consulting (Aus) Pty Ltd

Abstract

Decommissioning in Australian waters is a relatively new activity as only two installations have been fully decommissioned to date. The lessons learned from decommissioning projects and regulations elsewhere in the world should be taken into consideration by Australian operators and regulators in developing effective decommissioning practice that manages safety, environmental, and public interest issues. This paper considers the lessons learned from decommissioning practice in other regions and discusses the current situation in Australia.

International Regulatory Regime


"You had to mention decommissioning."

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