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### The Jerneh Story – Technology and Teamwork

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### Abstract

This paper summarizes ExxonMobil's redevelopment of a severely drawn down and challenging gas field in Malaysia. The drilling campaign tackled the prolific Jerneh field, marked by significant depletion and fracture gradients as low as ~8.0 ppge. Previous campaigns experienced severe lost returns, stuck pipe, and escalating costs. ExxonMobil's global drilling organization was leveraged, which resulted in the development of new lost returns technology utilizing ExxonMobil's fracture closure stress (FCS) technology to help achieve the campaign's objectives. This technical and organizational effectiveness resulted in optimum well designs, proper risk management, and ultimately the successful field execution of the complex campaign.

The paper will describe the key planning and execution details of the redevelopment campaign including:

- ExxonMobil's global drilling organizational and technical capabilities drawn on to leverage success including use of various company technologies
- Multi-function collaboration and risk management to achieve sound drill well designs and disciplined execution at the field level
- Fundamental rock mechanics that support building near wellbore integrity while drilling with high filtration rate, stress building fluid to enhance integrity (as opposed to a low fluid loss system)
- Engineering and operational practices to mitigate inherent risks associated with the high fluid loss drill and stress fluid system
- Crew training, operational execution, and actual field results

The application of these principles and procedures resulted in campaign success and controlled costs through the elimination of contingency casing strings, effective minimization, and mitigation of lost returns, and prevention of differentially stuck pipe in this very challenging, mature gas field drilling campaign. This success also proved up additional gas resources, including the installation of the second Jerneh field platform and its development drilling campaign (currently in progress).

### Introduction

The Jerneh gas field is located ~265 km offshore of Peninsular Malaysia and was first discovered in 1969. Five exploration wells were drilled in the 1970's and one appraisal well in 2006. The field consists of a gentle anticline with four to five stacked high quality productive sands. Development has taken place in eight major reservoirs with good sand qualities. **Figures 1 through 3** further summarize the field overview.