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**WEST SENO, INDONESIA'S FIRST DEEPWATER DEVELOPMENT:  
UTILIZING AN INTELLIGENT 3D EARTH MODELING WORKFLOW**

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**ABSTRACT**

The first exploration well drilled on the West Seno structure in 1998, the West Seno-2 well, tested a series of high amplitude seismic reflections that were interpreted to be Upper Miocene sands. The result revealed that a significant hydrocarbon accumulation was trapped within a so-called 'Mini Basin,' geologically located in the deepwater continental slope environment.

The discovery created a challenge of developing the first deepwater oil and gas field located northeast of the Mahakam Delta in Indonesia, in 2,400 – 3,400 feet of water.

3D subsurface earth modeling processes were applied to each stage of the West Seno development project. The stages of planning, execution, and management of this multi-hundred million dollar deepwater project are deeply integrated and require innovative multidisciplinary workflows.

Developing and managing the processes to integrate such multidisciplinary objectives require an intelligent, state of the art workflow for each of the 3D earth modeling stages.

A three-dimensional static geologic model is first built, and loaded into a dynamic fluid flow model. These together form the basis for the 3D earth visualization, well planning and design, volumetric and reserves assessment, and economics for the project. Consequently, both technical and commercial decisions are made based on outputs from the modeling workflow throughout the project.

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