AAPG Annual Convention
Salt Lake City, Utah
May 11-14, 2003

Arthur H. Johnson[1], William P. Dillon[2], Michael D. Max[3] (1) Hydrate Energy International, Kenner, LA
(2) Hydrate Energy International, West Falmouth, MA (3) Hydrate Energy International, Washington, DC

Strategies for Gas Hydrate Exploration in the Gulf of Mexico

Drilling results from Japan and the Canadian Arctic have demonstrated the potential for commercial production of natural gas from gas hydrate. Commercial gas hydrate methane production is expected within less than 10 years, which is within the term of a deepwater lease. A number of factors make the Gulf of Mexico an area of interest. First, high concentrations of hydrate have been observed on the seabed and in the immediate sub-surface. Gas hydrate reaches its maximum concentrations in coarse clastics, and deposition in the Gulf provides for substantial amounts of sand within the zone of hydrate stability. Second, the gas flux rate of the Gulf of Mexico is among the highest in the world and the Gulf's extensive system of migration paths have the potential to fill many reservoirs with gas hydrate in the hydrate stability zone. Third, the existing infrastructure of platforms and pipelines improves the economics of hydrate development through the leveraging of existing facilities. Fourth, there is little political opposition to developing hydrate resources in the Gulf of Mexico. Fifth, technology and extraction techniques required for exploitation of gas hydrate is emerging now. Exploring for gas hydrates in the Gulf of Mexico requires the use of valid models for hydrate emplacement. Ideally such models would integrate seismic, well log, and core data from throughout the subsurface hydrate stability zone. Unfortunately, few wells have been adequately logged in this interval in the Gulf. Moreover, standard processing approaches for seismic data are not optimal for assessing hydrate occurrences. As a result, published models are presently derived mainly from piston core data and observations from submersibles. These models tend to omit the potential for more deeply buried hydrate concentrations. Integrating a more stratigraphic approach of the Gulf into subsurface models yields a wealth of new exploration opportunities for offshore operators.

Copyright © 2003 by AAPG