

The Umiak Discovery, Northwest Territories, Canada

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Abstract

The Umiak oil and gas field is a recent discovery located on Richards Island in the Mackenzie River delta, Northwest Territories. The field was discovered utilizing a combination of high quality seismic, both reprocessed 2D and newly acquired 3D, coupled with good fundamental geology.

A post-drilling appraisal of the Umiak J-37 well drilled 30 years earlier led to recognition that a stratigraphic trap might exist between two existing dry holes. The Kilagmiotak M-16 well, drilled in 1975, had 290 m sand with porosity greater than 10%, whereas the Umiak J-37 well had virtually no sand in the Eocene Taglu interval updip and 11 km to the west. This led to a recommendation that existing 2D seismic be examined for evidence of an updip sand pinchout. Mapping revealed indications of a tilted fault block beneath a gently-folded unconformity that coincided with suggestions of strong amplitudes and flat spots. A 3D survey acquired during 2002 supported the initial interpretation.

A partnership of EnCana, Anadarko, and ConocoPhillips drilled the Umiak N-16 well in 2004 which led to discovery of oil and gas in Eocene Taglu shoreface and delta front sands in gently-folded forset beds of the Eocene Richards above the mid-Eocene unconformity. The extent of the Umiak field was confirmed by the Umiak N-05 appraisal well in 2005. Together these two wells have delineated the fourth largest onshore gas field on the Mackenzie delta. Development planning is being carried out by the current partners, MGM Energy Corp (operator) and ConocoPhillips. The purpose of this talk is to illustrate the importance of post-well appraisals in the discovery process.

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