Shale Gas in the Quebec Lowlands, the high potential of a new Frontiers Area

Marianne Molgat
Talisman Energy Inc., Calgary, Alberta, Canada
mmolgat@talisman-energy.com

Jean-Yves Chatellier
Talisman Energy Inc., Calgary, Alberta, Canada

Lynne Davies
Talisman Energy Inc., Calgary, Alberta, Canada

And

Pawel Flek
Talisman Energy Inc., Calgary, Alberta, Canada

Abstract

The Quebec Lowlands Area is North America newest basin with outstanding potential for shale gas. The sedimentary sequence is essentially composed of the thick Ordovician shales of the Utica and Lorraine groups.

The clastic shale of the Lorraine, 1000 to 2500 meter thick overlies the carbonate shale of the Utica, 100-200 meter thick. Both sequences have acceptable to high TOC content, 0.5 to 2.5 % and 0.5 to 5.7% respectively. The basin is highly prospective as most of the Ordovician shales are in the gas window (Ro>1.3) even at shallow depth and pressures are high.

The area has been divided into three main domains on the basis of structural style and complexity. Present day focus of most companies is the Utica which exhibits better Youngs modulus and Poisson's ratio for potential hydraulic fracs. Vertical wells in the Utica have given IPs up to 1.2 million scf/d and companies have now embarked on horizontal completions.

Present day stress its at 90 degrees to the compressive stress that created the thrust belt responsible for most of the deformation in the Quebec Lowlands. Pre-existing fracture networks are thought to enhance fracability and thus productivity.

Success for this new shale gas play will come from understanding the sedimentology, geochemistry and structural geology of the area, a summary of which will be given. The Lorraine shale is the next big play to be assessed as the shear volume of gas bearing rock is staggering.