“Cracking” the Colorado Group Gas Shales

Kirby Nicholson, P.Eng.
Alberta Research Council (ARC), Calgary, Alberta
kirby.nicholson@arc.ab.ca

Summary

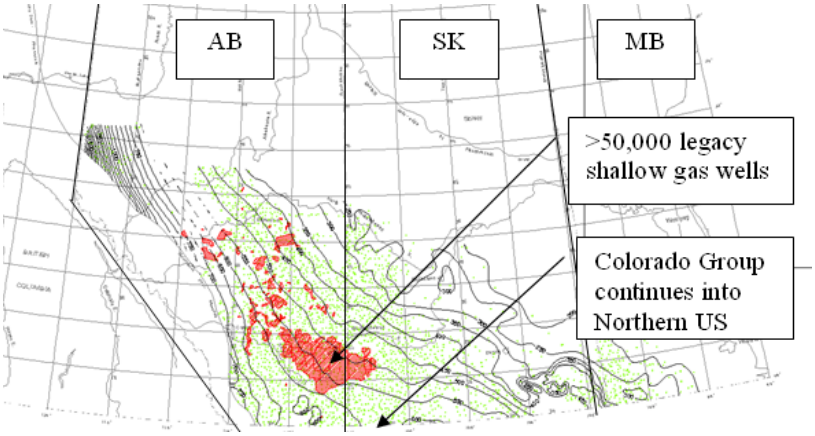
The Colorado Group formations in the Western Canadian provinces of Alberta, Saskatchewan and Manitoba are known to hold very large volumes of natural gas (perhaps 300 Tcf). Although many producing companies have completed many intervals in this resource, it is the more conventional shallow reservoirs of the Second White Speckled shale, Medicine Hat and Milk River formations that have contributed most of the historical production. The undeveloped shaly portions of the Colorado Group holds great potential; being well serviced by existing pipeline infrastructure and 100s of thousands of wells, mostly year-round access and lower-drilling costs due to its shallow depth.

With rapid advances in drilling and completions technology for deeper, thermogenically mature gas shales in the United States and Canada, technology may be evolving in ways that could facilitate more prolific production from the shale-portions of the Colorado Group too.

However unique challenges of this reservoir prevent easy adoption of other shale development technologies. How do we effectively drill and complete tight shales with abundant swelling clays, below-normal initial reservoir pressures, complex “hybrid” geology, water-bearing sands/silts/mudstones, and soft ductile rocks?

This presentation will discuss how ARC plans to address these challenges in a project designed to identify sweet spots in the Colorado Group and develop technology that will dramatically improve initial productivity.

Figure 1: The Colorado Group in Western Canada [1]



1 http://www.ags.gov.ab.ca/publications/ATLAS_WWW/A_CH20/CH_20_F.shtml#iso