

Methodology and Workflows for Calculating a Statistically Enhanced OGIP Value for Coals

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Original gas in place (OGIP) estimates for Horseshoe Canyon coals vary greatly between operators, regulatory and other industry bodies. Due to the high variances in OGIP numbers, a more uniform or standardized approach is required. Whether the end user is a regulatory body, oil and gas producer or an investor, accurate measurements of OGIP are incredibly important in all decision-making processes. In conventional reservoirs, porosity, pressures and the volume of the reservoir are generally all this is required when determining OGIP. In a CBM reservoir however, more variables need to be considered to come up with an accurate OGIP estimate, including coal seam thickness, adsorbed/free gas content, ash and moisture contents.

Based on analysis of public and private data (“as received” core desorption data and digital well logs) a model was generated in Petrel where by regional gas content, total coal thickness and OGIP maps were created. The relationship between depth and ash percent on gas content can be derived from the gas content map. The estimation of gas content on a regional basis is acceptable in our model due to coal thickness being the more dominant variable in estimating OGIP. As well, thickness weighted average gas content per coal zone was used instead of average gas content per coal zone for the OGIP map. As coal zones shallow up to the east they can be truncated to include only the coal zones that are producible in that area. The advanced workflows allow us to model all the properties of the Horseshoe Canyon Coals as a continuous reservoir and in later stages we can add cutoffs and guidelines to make the OGIP estimate more accurate. These process enable a more focused and accurate OGIP to be generated for study areas within the Horseshoe Canyon trend.

OGIP is the primary starting point when assessing reserves for coalbed methane and is the key element in calculating the total resource. A more accurate OGIP calculation based on an industry/regulatory accepted practices with a documented workflow and methodology will go a long ways to increasing exploration/exploitation success.