Porosity, permeability, and clay content are common concerns when analyzing formations for reservoir quality in gas fields. The Cretaceous Bluesky Formation of Whitecourt Alberta is a typical example of a tight gas formation where permeability for the area is usually on the order of > 0.1 mD. The Bluesky strata has been interpreted in Whitecourt to be deposited during a large scale transgression and consists of three main depositional facies identifiable in well logs. The first is “Bluesky A” a regionally extensive shoreface deposit containing several ichnofacies characteristic of a shore face. The second is “Bluesky B”, a barrier bar system that has the long axis of the bar trending NE-SW with the bars located primarily in the western portion of the study area. The final facies, “Bluesky C” is an estuarine deposit containing several metres of mud draped sand lenses and is also moderately bioturbated. The formation ranges in thickness from 1-4 metres in Facies A to 7-16 metres in facies B.

Samples taken from Bluesky cored wells will allow for thin section analysis to determine clay content and how it will be effected by fracture designs and drilling fluid. Also thin section analysis will help determine why the Bluesky A facies is not homogenously porous an permeable through out the study area. With the same depositional environment it is expected that the cementation and porosity and permeability should be similar throughout Bluesky A. This is not the case however and it may be due to different conditions during burial or grain size difference and the growth of quartz crystals on smaller crystals with more growth surfaces.

Porosity and permeability data will be collected using the Accumap database as well as from the thin sections sampled from logged cores. This should allow comparison of the large database of previously collected data and the data from thin section analysis to see just what causes the change in porosity and permeability and determine if there is a regional trend and if it can be mapped. By mapping the high and low porosity and permeability areas it will be possible to target favourable drilling locations.