siltstone to be "tight" (i.e. low porosity and permeability) where it overlies the main zone of Picadilly potash mineralization.

Hydrogeological and geological inferences from core, well-logs, drill-stem tests, and 3D seismic data in the Sussex region of the Moncton sub-basin, New Brunswick, Canada

Arnfinn Prugger[1], Janelle Appleyard[1], Terry Danyluk[1], Balazs Nemeth[1] and Brian Roulston[2]

1. PotashCorp, Technical Services, Earth Science and Mining, 500 – 122 First Av. S., Saskatoon, SK, S7N-0T1 Canada <arnfinn.prugger@potashcorp.com> ¶ *2. PotashCorp, New Brunswick Division, P. O. Box 5039, Sussex, NB, E4E-5L2 Canada*

The Lower Carboniferous Mabou Group represents a packet of continental red beds comprised of siltstone, sandstone, sandy shale, polymictic conglomerate, and coal in some places. These rocks overlie the salts of the Windsor Group evaporate, within which potash is mined at Penobsquis, New Brunswick. Aquifers within the Mabou Group present an inflow hazard to any potash mine in the Moncton sub-basin, and, in fact, the PotashCorp mine at Penobsquis has been dealing with a brine inflow into mine workings since 1998. Currently the inflow, while chronic, is manageable and has not had an impact on either potash or salt mining. However, recognising the potential consequences of such inflows, a program of investigating the hydrogeology of the Mabou siltstones was undertaken as part of a recent exploration program, when potash was discovered in the Picadilly region just south of the Penobsquis mine. A preliminary hydrogeological model for the siltstone in this region was created using well-log data (to gain basic rock-type and porosity information) and drill-stem formation testing (to confirm porosity inferences and establish formation permeability). The most useful borehole measurement was the "FMI" (Schlumberger Formation Micro-Imager) well-log, which was used to map fracture orientations (i.e. strike & dip), and to infer whether fractures were open (fluid-filled) or sealed (gypsum-filled). Core was used to confirm there results. Borehole data were extrapolated using high resolution 3D seismic. The end result is a 3D model of the Mabou Group siltstone aquifer in the Penobsquis / Picadilly area. This study shows the Mabou

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