

**AAPG Annual Meeting
March 10-13, 2002
Houston, Texas**

Charles E. Barker¹, James G. Clough², Stephen B. Roberts³, Bob Fisk⁴ (1) U.S. Geological Survey, Denver, CO (2) Department of Natural Resources, State of Alaska, Fairbanks, AK (3) USGS, Denver, CO (4) Bureau of Land Management, Anchorage, AK

Coalbed Methane in Northern Alaska: Potential Resources for Rural Use and Added Supply for the Proposed Trans-Alaska Gas Pipeline

Coalbed methane (CBM) in northern Alaska is important because of the need for affordable, local energy sources in remote communities and because of the potential addition of gas supplies for the proposed trans-Alaska gas pipeline. In the western Colville sub-basin of the North Slope Basin, the Cretaceous Nanushuk Formation contains up to 150 coal seams ranging in thickness from five to 28 ft over a 40,000 mi² area. Near Wainwright, Nanushuk coals have a 0.4 to 0.5% mean random vitrinite reflectance (Rv-r) at the surface and this increases to about 0.6% Rv-r at 2000 ft depth. At this depth, adsorption isotherm analysis indicates a gas storage capacity of 80 scf/ton (as received basis) if the coal is gas-saturated. The North Slope Basin also contains Late Cretaceous to Tertiary Sagavanirktok Formation coals, with beds up to 30 ft thick and net coal thickness locally exceeding 150 ft. Geophysical logs indicate Sagavanirktok coals underlie about 2000 mi² between the Prudhoe Bay area and outcrops 70 miles to the south. Sagavanirktok coals are about 0.3%Rv-r at the surface and increase to near 0.6% Rv-r at 6000 ft depth in the Prudhoe Bay area. Preliminary resource calculations indicate a geologic potential of about 800 TCF of CBM in the North Slope Basin. By comparison, proven conventional natural gas reserves in the North Slope basin are only 31 TCF. Thus, the capacity of the proposed gas pipeline needs to be designed to handle potential CBM supplies as well as conventional gas.