

## **A Review of CBM Co-Produced Water Disposal Methods for Alaska**

Debasmita Misra<sup>1</sup> and Michael Lilly<sup>2</sup>

Coal-Bed Methane (CBM) gas is a critical energy resource for the rural Alaska. The Alaska Div. of Geological & Geophysical Surveys investigated CBM potential in rural Alaska and reported over 35 rural villages to be situated on or immediately adjacent to coal resources. This vast resource of potentially 1,000 trillion cubic feet of methane statewide could provide low cost and relatively clean energy to rural Alaska for generations to come. While CBM is being considered as a source of energy for rural Alaska, an important issue to resolve for CBM production is the co-produced water disposal or treatment methods. Water is produced at very large volumes in order to release the gas from the coal beds. Little is known about what water chemistry characteristics should be anticipated, and what disposal or treatment methods are cost effective and meet permitting requirements in Alaska. High costs of water disposal or treatment could jeopardize the development of CBM resources in many areas of Alaska. In Arctic and sub-Arctic climate conditions, permafrost conditions, and remote rural areas, disposal costs will be an important factor. The potential resource will require solutions in water management for state and private producers to benefit from CBM resources in Alaska. We have reviewed the existing information on techniques for water disposal and treatment options. We have prepared a database of literature and resources on the existing information from USA, Canada, and some other regions of the world where CBM is being produced in a commercial capacity. We have compared produced water quality with those of the raw water quality from streams, lakes and groundwater of the neighborhood areas where the co-produced water might be opted to be disposed. We have found that the quality of raw water is not very different from the quality of CBM co-produced water. We will present our synthesis of the information gathered so far and present viable options for economic disposal and/or treatment for Alaskan conditions.

<sup>1</sup>College of Engineering and Mines, University of Alaska Fairbanks, P.O. Box 755800, Fairbanks, AK 99775, Tel: (907) 474-5339, Fax: (907) 474-6635, E-mail: [ffdm1@uaf.edu](mailto:ffdm1@uaf.edu)

<sup>2</sup>President, GW Scientific, LLC, Fairbanks, AK 99709