

Chemical and Isotopic Characterization of Water and Dissolved Gases in Shallow Aquifers in the Vicinity of Coal Bed Methane Operations in Alberta

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Although production of coalbed methane (CBM) or natural gas from coal (NGC) is a relatively recent industry in Alberta, it is considered a vital new source of natural gas supply in Western Canada (Beaton et al., 2002; Beaton, 2003; Beaton et al., 2006). There are, however, significant environmental concerns, some of which are related to potential negative impacts on shallow groundwater resources. These concerns often stem from issues that have been encountered in CBM-producing regions of the United States (e.g. Powder River Basin, San Juan Basin) including the disposal of saline produced waters (e.g. Clark et al., 2001; McBeth et al., 2003; Patz et al., 2004; Ganjegunte et al., 2005), leakage of produced

gases into shallow aquifers (e.g. Beckstrom and Boyer, 1993) and drawdown of water levels in groundwater wells (e.g. Chafin et al., 1996). To address such environmental concerns in a scientifically sound manner, it is essential that the geochemical and isotopic compositions of shallow groundwater and produced waters and gases in CBM producing regions of Alberta be thoroughly known.

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