

**Hydrology, Hydrogeology and Methane Seep
Baseline Environmental Program Summary
BP Canada Energy Company Mist Mountain Coalbed Gas Project**

Matrix Solutions Inc. (Matrix) and Summit Environmental (Summit) have developed a baseline environmental program designed to collect information on surface flows, surface and groundwater quality in the Elk River, Michel Creek and upper Flathead River watersheds. The objective of the program is to provide a regional level characterization of the hydrology and hydrogeology of the study area, including isotope characterization of groundwater and surface water, and provide information to aid in facility site planning and impact mitigation. For the purpose of this project, baseline condition is considered to be current conditions and may be augmented by historical data.

Some of the key aspects of the completed 2007, 2008 and upcoming 2009 programs are outlined below.

HYDROLOGY

2007 Program

- Reviewed available historic data and reports on previous studies in the study area.
- Established and monitored 11 new hydrometric stations to measure flow on selected streams and rivers (there are existing Environment Canada stations on Hosmer Creek and Elk River).
- Estimated the regional water balance from published information.
- Initiated a sediment source survey.

2008 Program

- Continued hydrometric monitoring at 12 sites in the study area and began continuous turbidity monitoring at several sites.
- Continued to develop rating curves for annual flows at the study site gauging stations.
- Refined the regional water balance estimates developed in 2007.
- Added to the sediment source database developed in 2007.
- Established two meteorological stations measuring meteorological and snow fall data.

2009 Program

- Continue to monitor the 12 established sites in the study area for surface water flow, turbidity and sediment source.

HYDROGEOLOGY

2007 Program

- Obtained water quality samples from selected springs and residential wells and analyzed them for a range of chemical and physical parameters and isotopes.
- Completed pump tests on wells in the Elk Valley to characterize aquifers.
- Initiated the framework for conceptual groundwater modelling.

2008 Program

- Further characterized aquifers between Fernie and Sparwood by re-sampling domestic water wells.
- Sampled seeps and springs and analyzed the samples for isotopes to characterize groundwater.

2009 Program

- Continue monitoring groundwater quality through sampling of domestic wells, seeps and springs.

METHANE SEEPS

2007 and 2008 Program

- Conducted field investigations of potential methane seep sites identified from geological data and by infrared images and field observations.

