

# Coordinated Natural Resource Monitoring and Training Program for Landowners with Land Parcels in Areas of Coal Bed Methane Development

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## How Will This Program Help Me, the Landowner?



Photograph compliments of John Whelan, MT Bureau of Mines and Geology



Overview of CBM Field Photo courtesy of Northern Plains Resource Council

To extract the methane from the coal seam, a network of production wells, pipelines, and roads is placed across the landscape and large volumes of sometimes marginal quality water must be managed. The goal of this program is to empower landowners and tribal members within the CBM affected states with the training and resources to:

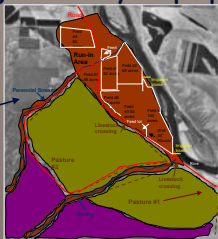
- Understand the relationship between CBM development and farm and ranch operations prior to contracting with a CBM developer;
- Conduct a farm and ranch inventory to document details of farm and ranch operations and to evaluate and document baseline quality and condition of soil, water, and plant resources prior to development;
- Cooperate in CBM development planning to maximize benefits to the farm/ranch operation and to minimize impact from development should it commence on the property;
- Monitor soil, water, and plant resources to measure change in resource condition after CBM is developed.

## Why Should I Conduct a Farm and Ranch Inventory?



Even if you don't anticipate CBM development on your property, CBM development occurs on a landscape scale, having the potential to impact beyond the boundaries of the development area. A significant challenge of coordinated development is a lack of adequate baseline data to evaluate consequences of development. A thorough inventory of the resource conditions on your property and your current farm and ranch operation practices is critical to initial evaluation and to understanding changes once development begins. The inventory can also aid in the decision making process on infrastructure development and product water management on your property.

A farm and ranch inventory includes creating inventory maps of the farm and ranch property - detailing crop acres, pastures, livestock crossings, runoff and drainage patterns, and other important features.



A farm and ranch inventory includes monitoring with photographs key and critical areas on the farm and ranch. For example, riparian areas and stream channels are part of a dynamic system subject to change by alterations in channel configuration, pond siltation, flooding, management, drought, and a host of other factors. Experience illustrates that CBM product water can exhibit the same alterations and change in channel and riparian condition as natural processes such as drought and flooding. Therefore, change in condition caused by CBM development may not be easily identified. Therefore, making recordable observations that are repeatable, non-biased, and detect change is encouraged.



Photo Courtesy of MT DQG  
Monitoring Water in Squirrel Creek

This Project is a multi-state project in cooperation with University of Wyoming, Utah State University, and Colorado State University funded by the US Environmental Protection Agency, USDA-CSREES Regional Extension Water Quality Program & Montana Association of Conservation Districts

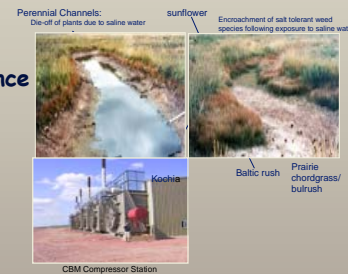
## What are Common Issues Landowners May Face Following CBM Development?

- Change in water distribution patterns and stream channel characteristics;
- Change in soil physical properties such as tilth and ability to drain;
- Change in plant species and communities in range and riparian areas;
- Pasture fragmentation, dust and noise from new roads constructed throughout the landscape;
- Weed infestation
- Noise from CBM compressor stations which can be a nuisance to homeowners, livestock and wildlife.

When these situations arise, a well-documented farm and ranch baseline inventory and plan of action will help minimize the problems associated with these issues.



High shrink-swell clay soils will disperse upon exposure to high sodium, low electrical conductivity water.



## How Will this Program Work?

We have recognized the need for a simple protocol for landowners and managers to conduct a farm and ranch inventory, and to collect and record baseline, and annual data of key indicators of soil, water, and plant resources. The approach of the program will be to:

- Create a landowner handbook to assist landowners in a simple protocol in how to conduct a farm and ranch inventory and to plan an efficient, meaningful monitoring program with guidelines on site selection, monitoring instructions and data interpretation.
- Conduct training and pilot testing of the manual with select interested landowners with the potential to have land affected by CBM development.
- Utilize comments/revision suggestions by the landowner and trainers to revise the manual into a user-friendly, concise tool which landowners can utilize.
- Conduct training workshops and work directly with landowners and professionals on the use of the manual.

If you are interested in being involved in the pilot test phase of this manual, please contact Kristin Keith at (406) 994-6589.