

**Water Supply Reserve Account – Grant and Loan Program
Water Activity Summary Sheet
Agenda Item 7g**

Applicant: Moffat County

Amount Requested: \$118,835

Water Activity Name: Sand Wash Basin Coalbed Methane Production Depletive Effects on Water Resources Study

Source of Funds: Statewide Account - \$98,835; Yampa/White Basin Account - \$20,000

Matching Funds: \$2,000

Water Activity Purpose: Study or analysis of a consumptive activity

County: Moffat County

Drainage Basin: Yampa

Water Source: Sand Wash Basin

Staff Recommendation
The proposed project furthers the Yampa/White Basin Roundtable's needs assessment and helps addresses one of the major water issues facing the basin (water supply needs for energy development). Staff recommends approval of up to \$98,835 from the Statewide Account and \$20,000 from the Yampa/White Basin Account contingent on resolution of the item in the issues/additional needs section.

Application Tabled at the September 2008 CWCB Meeting

The Board voted to **table** the application until the November CWCB meeting because of the following issues:

- Matching Funds – the Board was concerned about funding 100% of the project from the Statewide Account. They requested I work with you to see if some matching funds would be available and/or if the Roundtable would contribute some money from the Basin Account
- Scope of Work and Schedule – The Water Activity Summary Sheet identified several “Issues/Additional Needs.” Most of these were addressed by CGS prior to the Board meeting, however we can use the time between now and November to put together a detailed scope of work, schedule, and budget.

The applicant has addressed these issues. At the October 15th Yampa/White Roundtable, the roundtable voted to use \$20,000 from the Basin Account to support this water activity, and Moffat County is providing \$1,500 and Routt County is providing \$500 in matching funds. The new funding mix is \$98,835 from the Statewide Account, \$20,000 from the Basin Account, and \$2,000 in local matching funds.

The applicant worked with staff to address some of the items in the issues/additional needs section below and will full address these prior to contracting.

The original Water Activity Summary Sheet is provided below.

Water Activity Summary:

Applicant

Moffat County is the applicant and fiscal agent for this application. On November 5, 1996 Moffat County's electorate approved a ballot question allowing Moffat County to collect, retain and expend all revenues and other funds collected during 1995 and each subsequent year from any source.

Colorado Geological Survey (CGS) will be the contracting entity for this project.

Overview of the Water Activity

Typical production of coalbed methane (CBM) involves the reduction of hydrostatic pressure within deep coal seams by pumping ground water in order to release methane from the coal structure. Since the targeted coal-bearing sediments can be hydraulically connected with surface water, or the coal-bearing sediments may themselves be aquifers tapped by local water users, there is potential for injury to existing surface water rights or ground-water users. The Colorado Geological Survey (CGS), Colorado Oil and Gas Conservation Commission ("OGCC"), and the State Engineer's Office Division of Water Resources ("DWR") have recently completed assessments of potential stream depletions due to CBM production in the Piceance, San Juan, and Raton Basins (see <http://geosurvey.state.co.us/Default.aspx?tabid=488>). These studies have indicated that potential stream depletions can be significant depending on geology and stage of CBM development for a given basin. Estimates for current stream depletion identified in these studies range from less than 1 acre-foot per year (ac-ft/yr) in the Piceance Basin to 2,500 ac-ft/yr for the Raton Basin.

The Sand Wash Basin is another structural basin in northwest Colorado that contains coal-bearing sedimentary sequences similar to those hosting CBM in the Piceance, Raton, and San Juan Basins. Although CBM development in the Sand Wash Basin has not been as extensive as in the three other basins, there is indication of increased interest by industry. According to OGCC records, as of 2006 there were 46 CBM well permits in the basin, representing all CBM production up to that date; there were 12 additional permits recorded for 2007 and seven so far for January 2008. OGCC personnel further indicate that water production from existing CBM wells in the basin has been substantial, suggesting that there could be impacts to surface and ground-water resources. Given the likelihood of increased CBM production in the Sand Wash Basin, the CGS believes it would be in the best interest of the state to assess potential impacts of CBM production on both surface and ground water early on as CBM development evolves. Because CBM development could be at the early stages in the Sand Wash Basin, this scope includes a component to gather baseline data which could be used to evaluate possible impacts from CBM development as it progresses over time.

The Moffat County Land Use Board and Board of County Commissioners have expressed their immediate desire to have this study performed for their region. The boards have also requested that this type of study address potential impacts to local ground-water users, including exempt and non-exempt water wells. This scope of work takes into consideration this request for modification to the original scope of work in the other three CBM producing basins.

The study consists of 12 tasks:

1. Research CBM Production and Water Production
2. Characterize Basin Stratigraphy and Structure
3. Characterize Regional Ground Water Flow Systems
4. Relate Target CBM Intervals to Local Aquifers
5. Relate Target CBM Intervals to Surface Water Systems
6. Characterize Water Quality of CBM Intervals, Local Aquifers, and Surface Water
7. Identify Areas Where Data Are Insufficient

8. Devise Plan to Fill Data Gaps
9. Collect Field Data (Water Levels, Water Samples, Aquifer Tests)
10. Deletion Modeling
11. Report Preparation
12. Public Meetings

The deliverables include a detailed report describing the geohydrologic characteristics of the Sand Wash Basin with respect to CBM development, current and anticipated future CBM activity with associated water production trends, local ground water uses within the basin, and an assessment of potential depletive effects by CBM to both the surface and ground water resources. The report will also describe methods and limitations of the depletive analysis. Estimated time to complete is eighteen months from contract commencement.

Threshold and Evaluation Criteria

The application articulates how the project meets all four Threshold Criteria.

The application describes how the project meets three of the Evaluation Criteria:

Promoting Collaboration and Cooperation:

- This study will address multiple needs and issues including, but not limited to, development of CBM resources, use of ground water resources through exempt and non-exempt water wells, and potential impacts by CBM development on ground water and surface water resources.
- Aspects of this study will encompass multiple entities including local government, ground water and surface water stakeholders, and the CBM industry. The study also addresses potential interstate compact issues in identifying potential depletions to surface waters.

Facilitating Water Activity Implementation:

- Time is of the essence in evaluating potential impacts by CBM development in the Sand Wash Basin before CBM production expands. Characterization of the geohydrologic framework early in the CBM extraction cycle can assist in regulation of resource development and assist in regional planning efforts. It is also very important to gather baseline data to compare against when possible impacts are evaluated in the future.
- The CGS has completed CBM Depletion Studies in three other basins to date (see <http://geosurvey.state.co.us/Default.aspx?tabid=488>) and recognized the need for a similar study in the Sand Wash Basin.
- Time is of the essence for this study and a Water Supply Reserve Account will be available much sooner than other options. Funding has been sought through a CGS Severance Tax Decision Item and a CWCB Construction Grant.

The Water Activity Addresses Issues of Statewide Value:

- The study will addresses depletive effects by CBM development on interstate compact-entitled waters.

Funding Overview

Grant funding in the amount of \$120,835 is being requested from the Statewide Account. Funding from the WSRA constitutes 100% of the project cost.

Discussion:

The Yampa/White Basin Roundtable has recognized the impact of energy development on water supply as one of the major issues facing their basin. This study will identify and estimate ground water resources within the Sand Wash Basin. It will evaluate the potential impacts of CBM development to both ground water and surface water resources. It will also assist the basin make use of their ground water resources.

The most compelling Evaluation Criteria met by this application is “Facilitating Water Activity Implementation.” As the applicant state, time is of the essence in evaluating potential impacts by CBM development in the Sand Wash Basin. Under current regulations and rules, water produced by CBM development is classified as an oil and gas production waste product and is not regulated by the Division of Water Resources unless it is put to a beneficial use (COGCC Rule 907). A pending case (Vance v. Simpson case) before the Colorado Supreme Court could induce regulation of these produced waters regardless of beneficial use. Therefore, it is prudent to embark on a study that will, (1) identify the geologic factors affecting water production and (2) address the potential effects of CBM development on water resources in the Sand Wash Basin. Characterization of the geohydrologic framework early in the CBM extraction cycle can assist in regulation of energy resource development and assist in regional planning efforts.

Staff’s only concern with this application is its potential to impact water rights and/or lead to a regulatory process for CBM extraction. However, CBM Depletion Studies have been completed in three other basins (Piceance, San Juan, and Raton Basins) and the Colorado Geological Survey, the Colorado Oil and Gas Conservation Commission, and the State Engineer’s Office believe that it is in the best interest of the state to assess potential impacts of CBM production early on as CBM development evolves. This application is also consistent with Section 37-75-102 as it is a research project and information gathering effort that does not “supersede, abrogate, or cause injury to vested water rights or decreed conditional water rights.”

Staff recognizes the importance of integrating water supply planning with CBM development. CBM depletions potentially have significant hydrologic and administrative impacts. Developing additional information in this area has statewide value. However, staff would have liked to see some level of matching funds or in-kind contributions to demonstrate local support for the project.

Issues/Additional Needs:

The application indicates that funding for this study has also been sought through a CGS Severance Tax Decision Item and a CWCB Construction Fund Grant. Please provide the status of these efforts. Include a description of how approval of this application would impact funding from these other sources and how funding from these other sources (if successful) would impact this application.

The application is for \$120,835 but the budget included with the application indicates a project cost of \$108,370. Please explain this discrepancy and provide a revised Scope of Work and Budget as appropriate.

The application does not include a schedule. Please provide a schedule allowing time for the State and Moffat County to execute a contract.

The application included sufficient detail in the Scope of Work for staff evaluation, but a more detailed Scope of Work will be needed for contracting purposes. Please provide a more detailed Scope of Work further describing each task and the methodology that will be used.

Staff Recommendation:

The proposed project furthers the Yampa/White Basin Roundtable’s needs assessment and helps addresses one of the major water issues facing the basin (water supply needs for energy development). Staff

recommends approval of up to \$120,835 from the Statewide Account contingent on resolution of the item in the issues/additional needs section.

All products, data and information developed as a result of this grant must be provided to CWCB in hard copy and electronic format as part of the project documentation. This information will in turn be made widely available to Basin Roundtables and the general public and will help promote the development of a common technical platform.