

**Wind/Bighorn River Basin Advisory Group Meeting**  
**March 11, 2010 - 6:00 p.m.**  
**Big Horn Federal, Thermopolis**  
**Meeting Record**

I. Welcome

Jodie Pavlica, Wyoming Water Development Office, called the meeting to order at approximately 6:05 p.m. All attendees introduced themselves, followed by a review of the overall meeting agenda. A sign-in sheet was passed around to record attendance.

II. WRDS Comments

Chris Nicholson with the Water Resources Data System noted three items:

- Free copies of the Wyoming Climate Atlas were available for BAG attendees.
- The Community Collaborative Rain and Hail System (CoCoRAHS) was described and free precipitation gages were made available to the BAG attendees.
- Pamphlets describing the WRDS website and data on the website were made available.

II. Groundwater Plan Update

Scott Quillinan with WSGS provided a progress report on the groundwater plan update. Mr. Quillinan described the following maps that are being created as part of the report.

- Maps, tables, and diagrams have been created to present the following information:
  - Major aquifers/confining layers
  - Thickness and areal extent the of aquifers
  - Recharge areas/outcrop areas
  - Geochemical and hydraulic properties
  - Groundwater flow maps
  - Potentiometric surfaces
  - Summary of well yields, springs, physical characteristics
- Montana geology has been mapped to correlate with Wyoming geology
- Geology has been correlated to hydrogeologic units
- Structural elevation map for the Precambrian basement has been created
- Ranges of aquifer recharges were estimated
- Potential aquifer contaminant maps were created from DEQ identified sites
- Previous groundwater studies were identified and evaluated. For example stratigraphic charts from each of the studies were compared.
- Groundwater development since the 2003 Basin Plan was investigated and mapped. The groundwater development areas were compared to potential development areas identified in the 2003 Basin Plan. The 2003 Basin Plan estimates were found to be fairly accurate.

Mr. Quillinan indicated that both the GIS data and a draft report will be available for public review shortly.

The following questions and comments were discussed:

- Were irrigated and non-irrigated season recharge rates measured? Mr. Quillinan indicated that these rates are difficult to quantify. Recharge was only investigated at the flanks of the aquifers, and various recharge rates were estimated.
- Will the GIS mapping software used to make the maps be publically available? Mr. Nicholson and Mr. Quillinan responded that WRDS will integrate the maps into the WRDS IMS mapping software.
- Why were Animal Feeding Operations (AFO's) and Confined Animal Feeding Operations (CAFO's) shown on the potential contaminants maps if it is not known whether these were actually contaminating groundwater? Mr. Quillinan responded that the map shows potential contaminate locations and not actual sources of contamination.

### III. Final Results Presentation

Mr. Jerry Gibbens, with MWH, was introduced as the project manager for the consulting team performing the surface water portion of the basin plan update. Mr. Gibbens gave a presentation of the final report. The presentation provided a general review of each chapter, a summary of the technical findings, and a comparison to the previous basin plan results.

Summarizing the primary findings of the Basin Plan Update, Sections 4, 6 and 7 were the focus of the presentation. The following was noted:

#### Section 4 - Hydrology

- 2000-2007 were generally dry years in all basins. This drought has approached, but generally is not as severe, as the 1930's drought conditions. The length of the current drought is longer than any other period in the study period.
- Adding 2002-2008 data to the hydrologic study area generally resulted in slightly higher streamflows during dry years and lower streamflows during average and wet years. This is a function of the methods used to summarize hydrologic data into dry, average and wet years.

## Chapter 6 – Water Use Projections

- Sectors with the highest future increase in water use projections include Tribal Future Projects (surface water sources), other irrigated lands expansion (surface water), and increased industrial water use (groundwater).
- The most likely (Medium) scenario shows 340,000 acre-feet of new use by 2060, and includes the Riverton East Tribal Futures Project and new industrial uses.
- In general, total 2060 Projections match 2030 projections from the previous Basin Plan. However, the previous Basin Plan future water use was primarily agricultural water use. In the Update, projected increases include both increased agricultural water use (surface water) and industrial use (groundwater).

## Chapter 7 – Water Availability

- In general, water is available for all scenarios and hydrologic conditions, especially along the mainstems. There is less water availability on the smaller tributaries. Where shortages occur, storage is needed to help capture available water in the spring to meet shortages later in the year.
- The two basins with the most significant shortages are the Little Wind and Owl Creek Basins.
- Implementing the Riverton East Futures Projects will have little impact to other water users because it is fairly small, and downstream of return flows in the basin.
- Futures Projects will increase shortages in the Upper Wind Basin. Dry years are the most susceptible to shortages. Additional storage could potentially mitigate some of the shortages.
- Mr. Gibbens noted the limitations of the spreadsheet models, and his concern that the models do not consider effects of multiple-year droughts because the model does not simulate carryover storage. More detailed models are required. These models will be implemented in those basins where Level II storage studies are being performed, including the Nowood and Shell Creek.

Mr. Gibbens provided handouts containing Project Opportunities and Program Strategies. These tables are compilations of the opportunities and strategies discussed in previous BAG meetings. Mr. Gibbens asked the BAG to review the tables and provide comments for incorporation into the final report.

The Division III Superintendent noted that there may be daily impacts of the Riverton East project that are not reflected in the monthly spreadsheet model results. Superimposing operations on streamflow this year, there would have been a few days when the Midvale headgate would have needed to bypass 100 cfs.

A comment was made that the report should make sure to describe changes in cropping types that may have an effect on water use and water availability.

A written comment was received at the meeting suggesting that the environmental non-consumptive use portion of the analysis should consider the impacts of Russian Olives and Salt Cedar. In the last 20 years, there has been extensive growth along the mainstem of the Bighorn River and major tributaries. There is no data available that quantifies this.

#### V. Public Comment

No additional public comment was received.

#### VI. Next Steps

The public draft review will be available on the WRDS website during the week of March 22. WWDC will notify via e-mail and/or postcard.

Comments should be submitted back to WWDC by April 23.

Final report will be completed by May 28.

A date for the next meeting was not set. The WWDO will post the next meeting date on their website and will mail post cards prior to the meeting.