

**Snake/Salt River Basin Advisory Group
Meeting Record
Afton, Wyoming
January 29, 2003**

Welcome

Facilitator Sherri Gregory-Schreiner opened the meeting at 6:00 p.m. at the Lincoln County School District No. 2 Board Room in Afton. Each person in attendance was given the chance to introduce himself or herself. Following the introductions, the agenda for the meeting was reviewed. There were approximately 35 people in attendance.

Basin Planning Update – Barry Lawrence, WWDC

Barry Lawrence distributed handouts from the last BAG meeting held in Jackson. Barry discussed the basin planning process, and emphasized that the plan is not a document to put on the shelf but a tool to address water issues in the basin. In order to keep current with these issues and to further the planning process, the BAG will continue to meet. Barry also stated that the river basin planning process would begin this year for the Platte River basin.

After some discussion regarding times and locations, the following schedule was agreed upon for the next two Snake/Salt BAG meetings:

Wednesday, March 26, 2003 – Alpine
Wednesday, July 9, 2003 - Jackson

Snake/Salt River Basin Plan Final Presentation – Sunrise Engineering

Ryan Erickson gave a short introduction of the basin planning process, and discussed the products produced for the plan. The Technical Memoranda produced for the Snake/Salt plan were then passed around for the BAG members to look through.

Jeff Fassett of Fassett Consulting discussed Wyoming water law, which was written over 110 years ago. He stated that in Wyoming the water is owned by the state, and use of water is governed by prior appropriation doctrine and allocated for beneficial use. Water is administered through the State Engineer's Office and the Board of Control. Initially, the water laws in Wyoming covered direct flows. Through time, these laws have been changed to address reservoirs, wells, and instream flows.

Next, Jeff discussed interstate compacts and court decrees that effect the Snake/Salt River basin. In the 1940's, downstream states were growing at a faster rate than Wyoming, so an agreement was made to determine how water should be shared. As a result, the Snake River Compact was created in 1950. The compact stated that 4% of the water flowing into Idaho could be used in Wyoming, while the remaining 96% was

for use in Idaho. This percentage exempted any water rights prior to the date of the compact. The reasoning behind the apparent disparity in percentages was the high percentage of federally owned land in the Wyoming portion of the Snake/Salt River basin. It was projected at that time that 4% would be the maximum amount of water needed by the basin, as a majority of the land would likely not be developed due to the mountainous terrain and federal management of forests and national parks.

Jeff explained that in addition to the Snake River Compact, there were disagreements regarding water usage on the west side of the Teton Range. Water use on the Teton and South Leigh Creeks is controlled by a court decision from 1941 called the Roxanna Decree. Jeff went on to discuss the Palisades Reservoir Contract. As part of the Snake River Compact, Wyoming was free to use the first half of their 4% allotment. However, use of the second half required replacement storage to be in place. In the 1980's, the State of Wyoming purchased 33,000 acre-feet of storage that was available in Palisades Reservoir. It was determined at the time that this amount would provide adequate replacement storage for Wyoming to use their full 4% compact allotment. Jeff indicated that the Wyoming Game and Fish Department helps pay for the operation and maintenance costs on this storage. At this time, Wyoming has no compact requirement to utilize this storage, so the state has the option of using this water for other uses. For example, water stored in Palisades Reservoir can be exchanged for water stored in Jackson Lake, which can then be released from the dam to augment flows in the Snake River for fish habitat purposes.

Ryan Erickson of Sunrise Engineering discussed the water use profile for the Snake/Salt River basin. He began with agricultural use, which similar to other basins in the state, is the largest water user. Crops grown in the basin include alfalfa, pasture and native hay, and small grains. The Upper Salt, Lower Salt, and Teton sub-basins generally utilize sprinkler irrigation, while the Upper Snake and Lower Snake generally use flood irrigation. An inventory of the larger irrigation diversions was created as part of the basin plan. Bob King of Sunrise Engineering presented locations of irrigated lands and points of diversions using a geographic information system. Municipal and domestic water use in the basin was also discussed. The majority of users obtain their water from municipal or community systems, while others obtain water from individual wells or small water systems. Municipal and domestic well locations were shown using GIS.

Ryan stated that there is little industrial water use in the basin, with various food processing plants representing the majority of water use. There is a phosphate mine located upstream of the Salt River, however the mine is located in Idaho. Recreational water use was discussed, which is considered a non-consumptive use. He indicated that recreation is a major component of the economy of the basin, and the national parks and forests in the area are a major draw for tourism and recreation. The major water features are Jackson Lake and the Snake River. Rafting on the Snake River is a significant business, with over 150,000 rafters annually in Snake River Canyon and 85,000 rafters annually in Grand Teton National Park. Skiing is also water-based recreation, and the three major ski areas in the basin have over 500,000 skier days

annually. In addition, fishing is very popular throughout the basin, with over 115,000 fishing days per year. Other recreational activities discussed were waterfowl hunting, ice fishing, and snowmobiling.

Ryan next discussed environmental water uses. These uses are also considered non-consumptive, however they generally require large quantities of water. Maintenance flows, instream flows, wetlands, big game, and cutthroat trout were discussed. Major water storage facilities in the basin were covered, which included Jackson Lake, Palisades Reservoir, and Grassy Lake. These reservoirs are managed by the U.S. Bureau of Reclamation as part of the Minidoka project, which provides irrigation water for over 1 million acres of farmland in Idaho. A short question and answer period followed. Jeff Fassett stated that the 4% compact allotment included municipal use, and there was further discussion on how the 4% allotment was chosen.

Meg Frantz of Boyle Engineering discussed the spreadsheet model and surface water availability analysis for the basin plan. To create the model, hydrology data for the basin was used as well as data collected with the basin water use profiles. As part of the data collection effort, gage records were reviewed and a study period was selected that would indicate typical normal, wet, and dry years. Meg indicated that there are very few gages in the basin that have long term data available. They focused on gage records for the Greys River and Buffalo Fork for use as index gages, as they had sufficient data available and were not significantly affected by upstream diversions. These gages helped determine the study period, which was 1971 to 2001. This period had average flows near the average flows for the entire data record, and also included high and low flow years. Meg stated that wet and dry years were considered to be the high and low 20% and normal the middle 60%, similar to what was done in other basin plans. She also indicated that very few of the tributaries had significant gage records so flows of these ungaged tributaries had to be estimated.

A spreadsheet model was created to simulate the flows in the basin. Meg indicated that spreadsheet models give a big picture view of the surface water system. Schematic node diagrams for the Snake River sub-basin and Salt River sub-basin were presented, with each stream reach in the node diagram having a sheet in the spreadsheet model. The model functions as a mass balance, with upstream flows, return flows, and ungaged gains as inflows and diversions and ungaged losses as outflows. Meg said that due to the lack of diversion records, depletion estimates were based on consumptive use as determined during the basin water use profile.

Meg explained that in addition to inflows and outflows, there are other conditions that affect surface water availability. Downstream appropriations, instream uses, and project deliveries from dams can affect the availability of water. In general, water is available in the Snake/Salt River basin, however this availability is very time and place dependent. For example, while water may be available on an annual basis, it may not be available at a particular time or on a specific tributary. Also, Meg stated that compact requirements can also effect how much water is available for use, and this was included in the analysis. The final result indicated that water is available for use in the

Snake/Salt River basin. Approximate values of available water presented were 90,000 acre-feet for dry years, 155,000 acre-feet in normal years, and 221,000 acre-feet in wet years.

Bern Hinckley of Hinckley Consulting discussed groundwater resources in the basin. He stated that while considerable data was collected as part of the basin planning process, the success of a well is very site specific and individual locations would need to be researched to determine if groundwater is available. The proliferation of permitted wells was also discussed. A 1964 report indicated there were 7 permitted wells at that time, while there are currently over 4,300 wells. Groundwater circulates very well in some areas of the basin, and recharge can occur very quickly. For example, it is estimated that the Snake River aquifer has locations that have 2,400 foot depth of productive gravels. Other areas, such as the Salt River basin, have a relatively thin layer of alluvium that is over a formation that is sometimes inconsistent in producing water.

Bern reviewed the various types of wells being constructed, and how their numbers have increased over time. The majority of wells are classified as domestic or miscellaneous, which often serve domestic uses. There has been a significant increase in the number of wells since the 1970's, and there are over 120 new wells currently being constructed each year. Regarding ground water quality, Bern stated that wells generally produce good water. However, there have been some tests that indicate localized areas with increased nitrates. As far as availability of water, there is plenty of ground water available in spite of the increased development, basically due to the quick recharge of the ground water system. Various maps of wells were shown using GIS. There was a short question and answer period followed by a break.

Ed Harvey of Harvey Research discussed the economics and demographics of the Snake/Salt River basin, as well as water demand projections. Ed stated that they analyzed the economics in the basin and modeled various economic and demographic aspects in order to project what water demands in the future would be. High, mid, and low scenarios were created for various aspects of water use in order to make projections based on various possibilities. Scenarios for agriculture, including animal units and irrigated acres, were reviewed, with a decrease expected in all but the high scenario. Tourism was projected to increase in each of the three scenarios, as was the population of the basin. Ed explained that water use factors were assigned to each unit, whether it was irrigated acres, animal units, or population, and the change in a particular item would affect the water used for that item in the future.

Ed stated that environmental water use is difficult to quantify, as there are many unknowns. Many environmental uses have yet to be implemented, such as instream flows. Projections based on the high scenario attribute a significant amount of water to environmental uses, even though the use is non-consumptive and the water can sometimes be used for other purposes downstream. Due to these reasons, there is a wide range between low and high scenarios. In summary, Ed explained that the Snake/Salt River basin is dominated by tourism and recreation, and that the bright

outlook in these sectors offsets the relatively dim outlook for agriculture. While a decline is projected in agricultural water use, there are circumstances that would cause water use to increase in the future. For example, a particular year could follow the maximum use trends, or the economic and demographic reality could be higher than the mid scenario. Environmental water use is also an unknown that could drastically affect future water use. A short question and answer period followed.

Jeff Fassett discussed legal and institutional constraints that can affect water related activities in the basin. Many of these constraints are in the form of federal environmental laws, which include the Clean Water Act and Endangered Species Act. Water projects must go through the evaluation process that utilizes these laws. Jeff stated that there are also permits required by state laws through agencies such as the State Engineer's Office and Department of Environmental Quality. Generally, the federal laws result in constraining projects more than state laws.

Ryan Erickson discussed the Long List and Short List of future water use opportunities, including how each of these lists was created through the BAG process. The potential projects on these lists were discussed, along with the evaluation criteria.

The meeting adjourned at 9:00 p.m.