

Snake/Salt Basin Advisory Group
Meeting Record
Jackson, WY
July 9th, 2003

Welcome

Facilitator Sherri Gregory welcomed the group and the meeting was called to order at 6:04p.m. All attendees introduced themselves, followed by a review of the overall meeting agenda. A sign-in sheet was passed around to record attendance. The next meeting is scheduled for November 5th in Afton.

Water Development Commission Report

Barry Lawrence updated the BAG on the status of the plans for the other basins. The BAGs for the Wind/Bighorn, Powder/Tongue and Northeast Wyoming Basins will be meeting on July 15th in Thermopolis, July 16th in Kaycee, and July 17th in Lusk. The Platte Open house meetings were held on June 2nd in Saratoga, June 3rd in Douglas, and June 4th in Pine Bluffs. The Platte BAG formation is scheduled for September 4th in Wheatland. Barry then discussed the status of all basin studies and agendas for future meetings. He concluded his remarks by introducing Debra Cook with the Water Resources Data System. Debra was recently hired to fill a vacancy with the water planning team.

Water Resources Data System Report

Debra Cook announced that irrigation surveys had been mailed the prior week. If an entity has received one in the past, and has not yet received the current one, please contact her.

Canal Modernization/North Canal Project

Stephen Smith of Aqua Engineering, Inc. discussed canal modernization techniques. It was noted that the automation of flow measurements with supervisory control and data acquisition (SCADA) facilities has several advantages. Collected data is posted to a website, with readings every few seconds instead of being manually read twice per day, thus increasing the accuracy of the data and decreasing the manual effort involved. The cost of SCADA has decreased dramatically, from approximately \$10,000.00 per flume to about \$5,000.00 per flume.

Stephen also discussed the Dolores Project, a Bureau of Reclamation project equipped with SCADA facilities. Every agricultural user on the system has pressurized water on demand; with open valve center pivot starts. The SCADA system recognizes flow increases and 8 checks are operated 24 hours per day. An operator can see the condition of every gate in the system from one vantage point.

Dual Systems were also discussed, in which the ditch company would be the raw water purveyor. Residential users would be provided with pressured raw water for the purpose of watering or non-potable use. Examples of such projects in both Utah and Colorado were discussed. In such systems users would need two water valves, one for potable and

one for non-potable water. Costs for this kind of project would be regional and ditch company specific. Additional infrastructure costs would probably be in the range of \$2000.00 to \$3000.00 per residential lot, but this cost could be done on a 30-35 year payback. Advantages of dual systems are a decrease of water processing facility use and lower cost to end users for non-potable water, typically ½ the cost of potable water.

Amy Johnson of Aqua Engineering, Inc. discussed the North Canal – Grover Level I rehabilitation study being undertaken in the basin. Aqua is currently working on seepage loss analyses, developing an inventory on all structures, and putting together recommendations for improvements with conceptual designs and cost estimates. This study will be finished in October. A brief question and answer session followed Amy's presentation.

“Water 2025”

Lesa Stark of the Bureau of Reclamation discussed the “Water 2025” initiative, which provides a basis for a public discussion in advance of water crises and sets forth a framework to focus on meeting water supply challenges in the future. This framework includes six principles to guide the Interior in addressing water problems; five realities that drive water crises; and four key tools to help proactively manage scarce water resources. The six principles are: operate under current laws, enhance water use, enhance water conservation, improve water treatment technology, use collaborative approaches to minimize conflicts, and utilize existing infrastructure. The five realities are: water shortage, population increase, over-allocated water systems, aging infrastructures, and crisis management. The four key tools are: conservation efficiencies, collaboration, improvement of technology, and removal of institutional barriers.

The kick off meeting for “Water 2025” was held in Colorado in May of 2003. This initiative has \$11 million in funding for actual projects in 2004. The money will be focused on hotspots, places with high growth and drought. The Bureau is currently working with Ron Vore, WWDC Conservationist on any Wyoming projects.

Seismicity and Associated Hazards in Teton and Northern Lincoln Counties

James Case of the Wyoming State Geological Survey discussed earthquakes and associated geologic hazards. Earthquakes in Wyoming occur because of movements on faults, movements of the magma chamber beneath Yellowstone, or from man-made events such as a mine collapse. Wyoming has been classified by the Federal Emergency Management Agency as having a very high seismic hazard. Historically, there have been earthquakes in every county in Wyoming, with most earthquake activity being centered in Teton County, Northern Lincoln County, and Yellowstone National Park.

Historically, fault-related earthquakes in Wyoming have been tied to deeply buried faults that are not exposed at the surface. Buried faults with no surface exposure generally create earthquakes with magnitudes of 6.5 and less. There are a number of active faults that are exposed at the surface in Wyoming. Those faults are capable of generating earthquakes up to magnitude 7.5. Many of the exposed active faults in Wyoming are

considered to be overdue for activation. They activate every few thousand years on average.

There are a few exposed active faults that are capable of generating magnitude 7.0-7.5 earthquakes in Teton and northern Lincoln counties. The Teton Range exists because of recurrent movement along the Teton fault, which lies at the base of the Tetons. The Star Valley in Lincoln County is present because of recurrent movement along the Star Valley fault. The maximum earthquake expected from the Teton or Star Valley faults would have a magnitude of 7.5, releasing as much energy produced by a one megaton h-bomb. In other areas of Teton and Lincoln Counties, earthquakes as large as magnitude 6.5 could occur. Magnitude 6.5 earthquake release as much energy as a Hiroshima-type atomic bomb.

The Teton fault is expected to generate a magnitude 7.5 earthquake every 800-3,600 years. It last activated between 4,800-7,000 years ago, and as such is considered by many to be overdue for activation. The worst case scenario for Jackson would be a magnitude 7.5, intensity X earthquake during a wet period (magnitudes are a measure of the energy released and intensities are a measure of ground shaking). Landslides could result from such an earthquake, and there would be the possibility that landslide dams would form in some streams and rivers. In addition, ground shaking would be severe across most of the county. Recent studies indicate that some soils near Jackson Lake would amplify the effects of ground shaking, and the shaking would actually be similar to that experienced in a magnitude 8.0 to 9.0 earthquake. The intensity of shaking in Jackson would be VIII, with the possibility of intensity IX in Teton Village and intensity X at Jackson Lake. Intensity VIII earthquakes can result in considerable damage in ordinary buildings and great damage in poorly built structures. Intensity IX earthquakes can cause considerable damage in specially designed structures and great damage and partial collapse in substantial buildings. Well-designed frame structures could be thrown out of plumb.

Along the Star Valley fault magnitude 7.5 earthquakes generally occur every 2500 to 6000 years, and it's been 5600 years since such an event has occurred. Intensity IX shaking could occur along the east side of the Star Valley, and Intensity VIII shaking could occur along the west side of the valley. The Star Valley fault crosses through the town of Afton.

Building codes are important in areas with such significant earthquake potential. Jackson and Teton County have adopted current building codes, including the seismic provisions. No building codes have been adopted in northern Lincoln County. When building in an area like northern Lincoln County, it is advisable to design and build structures using the building code for guidance, even if it has not been adopted. If a structure is to be built near an exposed active fault, it is advisable to over-build the structure. It is also important to determine the locations of landslides before building in the area. A geologic assessment is always a good idea. Building retaining walls and establishing good subsurface and surface drainage can stabilize landslide areas. Areas near irrigation or irrigation canals are sometimes prone to landslides.

Jim discussed the fact that no seismic network currently exists in the area to accurately monitor earthquake activity. At the current time, earthquakes can only be pinpointed to a region within 3-5 miles of the epicenter. The USGS, in coordination with the University of Wyoming, the Jackson Hole Geologists, the WSGS, and the University of Utah will set-up a new network over the next year, pending federal funding. The USGS had already established one new seismic station in the Red Top Meadows area, but another 10-12 is needed. Discussion followed.

Other Items

Kirk Heaton, Western Wyoming Resource Conservation and Development Area Council, announced that a grant writing workshop would be held November 17-20, 2003 in Jackson.

The meeting adjourned at 8:30 p.m.