



**East Dakota Water Development District**  
132B Airport Drive  
Brookings, SD 57006  
605-688-6741      605-688-6744 Fax

**MINUTES**  
**October 20, 2016**

The Board of Directors of the East Dakota Water Development District (EDWDD) held a regular meeting on October 20, 2016, at the Redlin Environmental Center, Bramble Park Zoo, 800 Tenth Street NW, Watertown, SD. Chairman Jarrett called the meeting to order at 9:35 a.m. The following persons attended:

**Directors Present**

Mark Anderson  
Lois Brown  
Mary Ellen Connelly  
Martin Jarrett  
John Moes  
Jerry Soholt  
Janelle Weatherly

**Directors Absent**

Gary Duffy  
Kay Kassube

**Others Present**

Adrienne Brant James, Turtle Island Learning Center  
Ryan Fods, City of Baltic  
Brad Johnson, SD Board of Water & Natural Resources  
Andy Kopp, SD Dept. Environment & Natural Resources  
Sean Kruger, SD Dept. Environment & Natural Resources  
Rachel McDaniel, South Dakota State University

**Staff Present**

Jay Gilbertson

DRAFT

**Administrative Items**

**Approval of Agenda**

**Motion** by Brown, seconded by Weatherly to approve the agenda as presented. Motion carried unanimously.

**Minutes** - The Board reviewed the Minutes of the September 15<sup>th</sup>, 2016 meeting. Director Connelly noted that she had attended a meeting of the Friends of the Big Sioux River on the August 31<sup>st</sup>.

**Motion** by Brown, seconded by Connelly to approve the Minutes as so amended. Motion carried unanimously.

**Financial Reports** - The Board reviewed the September 2016 Financial Reports.

**Motion** by Moes, seconded by Soholt to accept the September 2016 Financial Reports. Motion carried unanimously. Chairman Jarrett then asked that the reports be placed in the District files.

**DRAFT**  
Meetings and Conferences - Director Anderson attended the October 5<sup>th</sup> meeting of the Sioux Falls Infrastructure Review Committee in Sioux Falls.

Directors brown and Weatherly attended the September 21<sup>st</sup> meeting of the Big Sioux River Watershed Project Steering Committee in Sioux Falls.

Director Connelly attended the October 4<sup>th</sup> meeting of the Friends of the Big Sioux River in Sioux Falls.

The Manager briefly commented on the following meetings he attended in the past month:

1. **September 20** - Pierre. River Basin Natural Resource District Oversight Advisory Task Force.
2. **September 22 & 23** - Spearfish. SD Board of Water and Natural Resources.
3. **September 27** - Ortonville, MN. Minnesota River Headwaters Watershed Restoration and Protection Strategies (WRAPS).
4. **September 29** - Baltic. Discussion of breached low-head dam on Big Sioux River.
5. **October 4** - Chamberlain. Water development district managers meeting.
6. **October 4** - Sioux Falls. Friends of the Big Sioux River.
7. **October 13** - Pierre. SD Water Management Board.
8. **October 14** - Madison. Quality On Tap Editorial Board.
9. **October 17** - Pierre. Agricultural Land Assessment Implementation & Oversight Advisory Task Force.
10. **October 19** - teleconference. SD Board of Water & Natural Resources.

Upcoming Meetings -

1. **October 21 - 12 noon** - SDSU Extension Regional Office, Mitchell (and various DDN sites). RCAP Outreach & Well Assessment Workshop.
2. **October 26 & 27** - Deadwood. South Dakota Association of Rural Water System Managers Group meeting.
3. **October 27 - 8:00 a.m.** - South Dakota State University (SDSU) Student Center, Brookings. 2016 Eastern South Dakota Water Conference.
4. **November 2 - 9:30 a.m.** - Sioux Valley Energy, Brandon. United States Department of Agriculture PL 566 Watershed Conference.
5. **November 2 - 1:00 p.m.** - Main Public Library, Sioux Falls. Big Sioux River Basin hydrologic/hydraulic modeling and flood inundation mapping tool project stakeholder meeting.
6. **November 9 - 1:00 p.m.** - various DDN sites. South Dakota Board of Water & Natural Resources.
7. **November 10 - 9:00 a.m.** - Huron. James River WDD Board of Directors.
8. **November 12 - 9:30 a.m.** - Community Center, Wabasso, MN. AREA II/RCRCA Annual Legislative Gathering.
9. **November 17 - 9:30 a.m.** - Water Purification Plant, 2100 North Minnesota Avenue, Sioux Falls. EDWDD November Board of Directors Meeting.
10. **November 22 - 10:00 a.m.** - State Capitol, Pierre. River Basin Natural Resources District Oversight Advisory Task Force.

Payment Requests - The Manager presented several payment requests from District-sponsored activities that will require Board action. He noted that the requests were in order and consistent with provisions

DRAFT

set by the Board at the time of award. He requested Board authorization to make the following payments:

<u>Grant Recipient/Activity</u>	<u>Requested Amount</u>
SDSU/Stormwater treatment (Hua)	\$ 1,839.10
SDSU/Bioreactor assessment/demonstration (Kringen)	\$ 4,943.60
SDSU/Algal bloom controls (Min)	\$ 1,770.69
City of Canova (DW facility plan)	<u>\$ 1,000.00</u>
<b>Total</b>	<b>\$ 9,553.39</b>

**Motion** by Weatherly, seconded by Moes to authorize payments totaling \$ 9,553.39 as requested. Motion carried unanimously.

### **SDSU Contaminant Fate and Transport Studies**

Dr. Rachel McDaniel, South Dakota State University (SDSU) Department of Ag & Biosystems Engineering provided an update report on several projects looking at the fate and transport of contaminants in South Dakota waters.

Conservation Drainage Practices is an assessment of the impact of drainage water management (DWM) and saturated buffers (SBs) on the concentrations of nutrients in agricultural drainage water. DWM involves the manipulation of in-field water levels. Drain tiles are fully opened only to allow access during planting time, with discharge managed thereafter to maximize water availability to plants, and to limit export of nutrients. SBs are created by distributing tile drain water through lateral lines parallel to streams. As the water works through the soil, nutrients are taken up by plants and bacteria, reducing the load ending up in the water body. Several field demonstration plots have been established and are under assessment.

Escherichia coli (E. coli) Variability in Stream Sediments looks at the survivability of bacteria in streams sediments and the conditions under which they might re-enter the water column. Excess bacteria is a pervasive impairment in South Dakota water resources, with most remedial actions directed toward reductions of primary loading (reducing inputs from warm-blooded sources). The study is examining the extent to which bacteria may be surviving and reproducing in stream sediments. As such, sediments could be a heretofore unaccounted for source of impairment. Field studies have been initiated at several sites along Skunk Creek (co-located with current NWQI study sites) monitoring the amount and distribution of bacteria.

Antibiotic-resistant and Metal-tolerant Bacteria in Wetlands is examining bacteria species in wetlands. Wetlands are accumulation points for metals and antibiotics, and as such they may be sites where there is selective pressure to develop tolerances among bacteria such as *E. coli*. Field studies are collecting information of the presence and characteristics of bacteria in and around the fringes of area wetlands.

# DRAFT

## Project Assistance Request(s)

City of Baltic - Ryan Fods, Public Works Director for the City of Baltic, presented the Board with a request for financial assistance for engineering services. He noted that there is a low-head dam spanning the Big Sioux River on the southwest side of town. Approximately two years ago, the river bank on the east side of the dam failed and water has been flowing around the structure, eroding the bank. The City's waste water lagoon is about 300 feet from the edge of the dam, and erosion to date has advanced to within 150 feet of the lagoon.

At a meeting on September 29<sup>th</sup>, it was the consensus of local, regional and state representatives that the bank must be stabilized and restored. Removal of the dam would likely be part of the effort, as re-connecting the bank and dam would add to the costs. A further complication is that the actual ownership of the dam is unknown. Banner Engineering of Brookings has been retained by the City to assess the situation and to develop remedial options and plans. Banner submitted a proposal that would include investigation and design efforts, along with on-site engineering services during construction. Total costs estimates are \$31,500. The City has requested District cost-share assistance in the amount of eighty percent (80%) of the engineering costs, or \$25,200.

The Manager noted that given the critical nature of the situation, the need for rapid action, and the potential threat to both local and downstream populations (City of Sioux Falls), he supported a fairly aggressive level of District involvement in the engineering part of this effort. District assistance typically is limited to fifty percent (50%) of engineering costs. He noted that actual construction costs are likely to be substantial, and a higher than normal level of support would allow the City to invest the bulk of their resources in that phase of the effort.

The Board discussed the issue at length. Removal of this low-head dam would eliminate a popular recreational resource, as the site is often used for fishing. It was noted that the various efforts directed at water quality restoration in the river are addressing impairments to recreational uses, so removal of the dam is counter to current efforts. Further, this structure is just one of numerous in-stream structures up and down the river, the ownership and status of which is equally questionable.

**Motion** by Brown, seconded by Soholt, to provide District cost-share assistance to the City of Baltic as requested. Specifically, the District will cover eighty percent (80%) of the engineering costs related to the planning, design and implementation of bank restoration efforts on the Big Sioux River, not to exceed a total of \$25,200. The Board noted that the relatively high percentage of District assistance is a result of the unique circumstances of this particular situation. Motion carried unanimously.

SDSU Ag & Biosystems Engineering - Dr. Rachel McDaniel, SDSU Department of Ag & Biosystems Engineering, presented a request for District project assistance for a research project entitled, "Impact of woodchip bioreactors on *Escherichia coli* (*E. coli*) concentrations and antibiotic resistance in tile drainage water." Dr. McDaniel is proposing to examine whether woodchip bioreactors, installed to reduce nutrient concentrations (mostly nitrate) in agricultural tile drainage water, might provide a favorable environment for bacterial survival and growth. Further, if such an environment exists, might it also foster transfer of genetic material that could lead to antibiotic resistance within such bacteria.

**DRAFT**

The objectives of this laboratory study are to 1) quantify change in *E. coli* bacteria concentrations under steady flow and pulse flow conditions, 2) examine changes in the antibiotic resistance of such bacteria, and 3) determine the presence and makeup of biofilms on reactor wood chips. The work is expected to provide information on changes in *E. coli* concentrations in bioreactors, the speed and temporal variability of such changes, 3) loading rates of *E. coli* bacteria from bioreactors, and 4) changes in antibacterial resistance among the bacteria.

Dr. McDaniel requested \$27,179 in funding support, which will be applied to materials and supplies, contractual services and SDSU indirect costs. SDSU will provide matching funds covering project labor (principle investigators and graduate students), along with a portion of the indirect costs.

**Motion** by Connelly, seconded by Weatherly to award \$27,179 in District project assistance funds to Dr. McDaniel and SDSU for a research project entitled, “Impact of woodchip bioreactors on *Escherichia coli* (*E. coli*) concentrations and antibiotic resistance in tile drainage water” as requested. Motion carried unanimously.

### District Updates

2016 Water Quality Monitoring - The Manager reviewed District water quality sampling efforts. Weekly field work will continue thru mid-November, with basin-wide sampling ending on November 17<sup>th</sup>. After that, monthly sampling will be conducted for the Skunk Creek NWQI and SDSM&T studies. He also noted that sampling on the Big Sioux River below Sioux Falls suggests that the Pipestone Creek/Split Rock Creek/Beaver Creek watershed appears to be influencing nitrate concentrations in the river. Staff will collect a few targeted samples this fall on Split Rock and Beaver Creeks.

Public Outreach Efforts - The Manager noted that sample columns have been submitted for consideration by the South Dakota Newspaper Association. The intent is to provide a monthly(?) ‘Water Column’ that could be used by daily or weekly newspapers, focusing on water resource issues. He also reviewed efforts toward developing a series of nitrate testing clinics in conjunction with SDSU Cooperative Extension, the USDA Natural Resources Conservation Service, the James River and Vermillion Basin Water Development Districts and SD Corn. Lastly, he will be working to promote full (4 times per year) utilization of the Quality On Tap magazine by rural/regional water systems within the District.

### Adjournment

There being no further District business, Chairman Jarrett declared the meeting adjourned at 12:35 p.m.

---

John Moes, Secretary