

CAB Meeting Minutes
March 24, 2004
Energy & Environmental Research Center (EERC)

CAB Members Present:

David Burkland
Dwayne Johnston
Lonnie Leake
Bob Lebacken
Mary Loyland
Jerry Moran
Gerry Porath
Dale Stenerson
Jack Waters
John Younggren

EERC Members Present:

Beth Bolles
Lisa Botnen
Kim Dickman
Lynette de Silva
Sheila Hanson
Jim Johnson
Marc Kurz
Wes Peck
Ed Steadman
Kirk Williams

Beth Bolles called the meeting to order and provided a general update of activities. Reimbursement forms for mileage were handed out for return to Kim Dickman.

General Update

During 2003, the WaffleK group presented at over 100 meetings, including watershed boards, soil and water conservation districts, and farm service agencies. Recent targets include township boards and service clubs (e.g., Kiwanis). We presented a paper and poster at the Red River Basin Commission Annual Conference and staffed a booth at the Grain Dealers Conference in Fargo.

We plan to develop our models for the watersheds by the end of December 2004. There are 28 watersheds in the Red River Basin; we are modeling 27 of those watersheds. Devils Lake is not included in this effort.

Light detection and ranging (LIDAR) is being collected for the Forest River Watershed. With LIDAR, the vertical accuracy is within 6 in. of resolution. This will allow us to easily identify potential storage areas within the basin.

Field Trial

Marc Kurz provided an update of recent activities at the field trial site:

- Culverts and standpipes were installed.
- Stilling wells were put in the side of the 30-in. culverts to monitor water levels.
- Soil moisture measurements were downloaded and are being taken in four different areas of the parcel, with probes buried up to 40-in. in depth at 4-in. intervals.
- Water quality samples were taken for analysis by a laboratory in Montana. The soil moisture probes are located in the dry and wet side of the parcel. We will take samples in the ditches around the section and in water that has not been exposed to the section, etc.

Upcoming activities at the field site include the following:

- Water buildup will be observed on the site.
- Water flows on adjacent ditches will be monitored and recorded.
- Water quality sampling after water has been stored for 10–14 days will be performed.
- Water will be released after 14 days.
- The effects of water on the soil will be evaluated based on specific soil characteristics.

Jerry Moran asked if we would be able to monitor the field site year-round. Marc commented that the soil and moisture probes will be removed prior to planting. Lonnie Leake asked about the soil type, and Marc informed the group that it is clay. Beth added that the water will be off the land by May 5.

David Burkland asked how long the trials will last, and Marc commented that the contracts are set for 1 year.

David also commented about the small amount of snow this year and the amount of water generated. Marc commented that compared to the average, we have gotten quite a bit of snow; however, the moisture content is extremely low. Beth indicated that if we do not get a significant amount of water, we are going to backflood the site from the judicial ditch.

Lonnie asked if the water will be there until the frost goes out. Marc said the frost will not be a determining factor for when we release the water. We will be looking at what happened to the frost in that area. It might vary between sandy soils also.

Storm Water Management Model

Kirk Williams showed a topographic contour map of the field trial section and explained how more than 6000 raw global positioning system (GPS) data points were used to map and model elevations of stored water.

He explained that at a water elevation of 875 feet above mean sea level, 85 acre-ft could potentially be stored. The storage capacity of each quarter section is approximately 30–40 acre-ft. At 876 feet, it is possible for a storage capacity of about 320 acre-ft. The 876-ft elevation represents the maximum target height of the water at the top of the culvert standpipes. This provides a freeboard of 1.2 ft between the targeted water surface and the lowest point.

The target elevation of 876 ft includes infiltration and evaporation rates for typical water losses. During March and April, we determined that total losses due to infiltration and evaporation were between 0.83 and 2.25 in., equivalent to between 44 and 120 acre-ft of lost water. We have between 2.2 and 3.0 in. of water sitting in the section. Assuming no infiltration/evaporation is occurring, this amount of water is around 120 to 170 acre-ft of stored water. This amount of stored water is roughly equivalent at an elevation of 875.5 ft. Another 85 acre-ft of water, equivalent to a 1.6-in. rain event, would be needed to reach the planned water elevation.

Dale Stenerson asked how many acre-ft of water will be stored at a water elevation of 874 or 875 ft. Kirk indicated that 874 ft represents a storage capacity of about 25 acre-ft; at 875 ft, there

would be about 85 acre-ft stored. The potential storage capacity difference between an 875-ft elevation and an 875.5-ft elevation would be approximately 85-acre-ft.

John Younggren asked what the elevation of the section is from east to west. Kirk answered that it is roughly 878 ft in the northeast quarter to about 874 ft approaching the southwest quarter. The standpipes are in the southwest and northwest corners.

Beth added that one of the reasons for doing this modeling was to look at rain events. We are interested to know what happens if we get a 6-in. rain event during this trial period. It helps us look at downstream impacts when we release the water.

John asked if there is 2.2 to 3 in. of moisture in the section now, whether another 1.5 in. can be handled without going over the road. Kirk indicated that another 3 in. of water could be safely handled.

David asked what this area looked like in 1997 and whether it was prone to flooding. Marc indicated that he did not have that information with him; however, he believed that it was somewhere between 875 and 876 ft and that it is not prone to flooding.

LIDAR Update

Wes Peck presented information on LIDAR efforts. Determining statistically defensible volumes of water for basinwide storage is the main effort. We are using the existing U.S. Geological Survey National Elevation Dataset. For each of the 27 watersheds that we are modeling, we determine the sections with water storage potential around certain confidence levels. We will also have a storage volume total for the basin.

Beth mentioned that we sent our requests for bids for 875 sq mi of LIDAR collection in the Forest River area with a completion date of late summer or early fall after information processing. There has been much interest from various organizations about the collection, which may lead to more extensive investigation within the basin.

Lonnie asked how data are processed. Wes explained the postprocessing that occurs with a vendor. To run the entire LIDAR dataset would not be practical, so we selectively use the data. We can narrow it down to make it more manageable. If we need to go back to the higher level of detail, it will be there, but we try to average it out in areas to speed up the process. Beth added that it only takes a week to collect the data, but approximately 6 months to process it. The LIDAR results will be applicable basinwide.

Wetland Working Group Update

Lynette de Silva gave an overview of the Wetland Working Group Meeting. We are looking at using wetlands as an option of storing water. The Wetland Working Group is investigating how flood mitigation might affect the ecosystem in wetlands. Ideas and concerns are being discussed within this forum, including the time frame for storage, which could be from 1 to 2 weeks in the early spring. We also know that it is a very critical time for nesting. A result of the meeting was that the duration of storage time may not be as critical as we thought. A great concern is sedimentation. There are mixed opinions if it is a positive or negative to have a gated wetland.

One suggestion was made to use grasslands for storage. Grasslands would reduce runoff much more than croplands and even more so than lands that are part of Conservation Reserve Program (CRP). There was quite a drastic contrast to see the amount of water that could be stored by the grasslands. One member of the group suggested we focus on grasslands and then the upland regions first.

We are accounting for land productivity in this study. There could be benefits for planting grassland, but it is out of the scope of our study. Lonnie asked if the grass slowing down the water allows more infiltration, and Beth answered yes.

Outreach Activities Updates

Sheila Hanson gave an overview of the Web site, which is located at www.undeerc.org/waffle. In addition to the Web site, other recent materials include a fall/winter newsletter and CDs to send out information or models. Also, we have received recent press on the field trial.

The landowner survey focusing on the Wild Rice Watershed (4500 surveys) had a 10% return rate to date, and surveys are still arriving.

Someone asked what we are trying to gather from the landowner survey. Beth answered that essentially what we are trying to do is get an idea of what concerns are in regard to flooding. We are trying to evaluate public opinion on a Waffle-type approach and to gain feedback for incorporation into a document for decision makers outlining landowner concerns and issues.

Someone asked how this survey differs from the basinwide survey that we are going to conduct. Beth responded that the reason for the small area is to evaluate whether our questions were effective in achieving useful feedback.

Upstream Storage

Mary Loyland spoke of the definite benefits of upstream water storage. She indicated that upstream water storage can help alleviate the flooding impacts to those people by the river that receive water from 10–15 miles upstream during severe rainfalls. Beth added that we hope to be able to do that once our model is developed. Storage upstream will be considered along with the impacts downstream. We will be able to actually view the extent based on the current storage scenario.

Jerry Moran stated that in '97, if the Red Lake had had not crested when it had, the flooding downstream would not have been as severe. He added that the timing of the release is just as important as the storage. Information about this has to be distributed to the public in a simplified form that everyone can understand.

Summer Flooding Events

Jerry feels that it is difficult to sell the Waffle concept unless it can address summer and springtime flooding events. Beth indicated that the model could be developed to look at summertime rain events; however, it is a lot more challenging economically when you are talking about land that has already been planted.

General Comments

Mary asked if the Waffle is voluntary. She did not realize that it was voluntary and said that people do not realize that it is. Beth stated in our minds it has always been voluntary.

Dale indicated that we should state the volume of water that needs to be accommodated to significantly reduce flooding when giving materials/information to the public. They may not realize that we are talking about a few inches of water per section of land. Also, we need to involve young people.

John suggested that we provide more written materials to stakeholders in the watershed to relay the details of the Waffle study. Even when people attend meetings, they may not retain all of the information.

Mary asked who the decision makers are. Beth answered the various agencies/entities, water districts, water boards, water commissions, etc. It depends on where the funding comes from.

Economics

David commented that the concern he hears is cost. We cannot afford anymore taxes; we are taxed out in our school district for levees. He feels that there are no dollars out there for this and that there is no money in federal programs either. He has been waiting for 2 years to get money from a farm bill.

Beth added that if we get another flood like '97 where we had multiple cities impacted, the economic impacts are very significant.

Lonnie asked if the U.S. Department of Agriculture program would reinvest in this program. Beth answered that just recently the Conservation Reserve and Enhancement Program allocated \$40 million to the Minnesota side of the Red River Basin.

Bob commented it is we landowners against the city. He feels we should have rebuilt after the '97 flood another ½ mile farther back from the river. Beth agreed that we never should have built on a river. However, the reality is we did, and we are here. It is not going to be economically feasible to move the town. Bob added that he is not suggesting moving the town but questions why we did not go back another ½ mile and widen the river.

John commented that Grand Forks got millions of dollars. We should have taken that money and built reservoirs. We could have bought approximately 1000 sections of land in the Red River Valley to hold the water. Ed added that it is not Grand Forks against everyone else.

Dale commented that we need to provide economic information to the public.

Planting Issues

Bob Lebacken indicated concern over loss of property rights. He feels that a "waffle" plan is already in place with existing roads. Bob added that it is holding water back more now than it did 100 years ago. Ed indicated that existing roads were not presently holding back the water in a controlled and systematic manner. Bob said that planting later will yield less of a crop. If you

hold water for 2–3 weeks, you get behind. Also, he raised concern about additional precipitation that may occur. Beth commented that we need to do the economics to see if planting delays result in reduced crop yields. We are looking at different policies and different programs.

Bob added that not seeding land would also impact the agricultural suppliers. Beth added that we are not sure how long water storage would take. It may be only a week. We are talking about utilizing this project toward a spring time event such as in '97. It is not something that will be utilized every spring.

Beth asked Bob about soybean subsidies, whether there are subsidies if you get them in or not. Bob answered that you still get a direct payment but a small percentage of your proven yield. If you have a preventive plan on your insurance, you get partial payment.

Beth asked what it would take for Bob to participate. He said he would not do it. He has worked his whole life to get water off the land. When the ground is ready, he likes to get in the fields right away. Water stored on his land would cause a delay. Beth asked Bob if he were fully compensated would he do it. Bob said he has no interest.

Give the Study a Chance

Mike Polovitz added that everything he has heard tonight he has heard since 1979. He suggested that we give this plan a chance and added that maybe the Waffle plan is not going to be for all farmers. Any square mile that you can hold water on to alleviate a flood like we had in 1997 will have the effect of lowering the crest. Let's give it a chance. See what we come up with but let's not condemn it before we see what it can do. We could apply this concept in other areas. Gerry Porath added education is the key; get the whole story out there.

Beth stated that we had some really good discussions, and we appreciate all the input. The meeting was adjourned.