

AGENCY ADVISORY BOARD (AAB) MEETING MINUTES

October 30, 2003

Energy & Environmental Research Center (EERC)

1:00 p.m. – 4:00 p.m.

AAB Members Present

Donald Elston
Randy Gjestvang
Scott Jutila
Scott Kreber
Nick Ludowese
Brad Podoll
Mike Sauer
Bill Schuh
Gary Thompson
Genevieve Thompson
Jeffrey Volk
Dean Wieland

EERC Participants/Attendees

Beth Bolles
Barry Botnen
Lynette de Silva
Kim Dickman
Sheila Hanson
Jim Johnson
Mark Kurz
Erin O=Leary
Wes Peck
Xixi Wang

Opening Remarks and Progress Updates

Beth Bolles welcomed the group and called the meeting to order. This was followed by Beth giving a Powerpoint presentation along with handouts of the project's developments. Topics included:

- Identification of storage areas.
- Economic assessment-related items.
- Outreach activities.
- Web site, newsletter, and survey.
- Database development – presented by Lynette de Silva and Wes Peck.

Following the presentation, two breakout groups were formed, one addressing field trial issues and the other demonstrated modeling details.

Field Trial Breakout Discussions

Marc Kurz and Barry Botnen updated the group on aspects of the field trial, displaying maps and photographs of the field locations as well as illustrations of culvert structural designs and passing around hands-on field measuring instrumentation. Among the topics discussed were the following:

Culvert Designs

It was indicated that the culvert options for this project are presently being designed by Kadrmas, Lee and Jackson (KLJ). Discussions on culvert designs ensued. As an example of some of the issues and concerns, the EERC staff showed a photograph of a culvert already in place in the field that could be a problem. Nick Ludowese felt that there was the possibility that the pipe might work for that one section. Bill Schuh indicated that it could be modified to work — the elevation could be set lower. Nick added that safety specifications should be considered.

Data Collection and Parameters

Among the many parameters to be measured and also discussed were:

- Soil moisture – to be monitored at four different soil depths.
- Soil temperature – to be tracked with data loggers that can be buried at different depths.
- Crop yield impacts – corn and wheat will be considered. Correction factors will be applied where needed.
- Soil nutrients concentrations – taking a series of samples across the field to look at the effect of storing water on the field. This would be collected under both flooding and no – flood conditions.
- Water quality – will include looking at water flowing in and out of the field trial area.

Also to be evaluated are infiltration rates, sedimentation and compaction, road stability, weed dispersal, and flow volume reduction within the (HRU).

Comments included the following:

- Mike Sauer requested that we send a more detailed water sampling plan. We plan to send a draft providing more explanation about the parameters to the AAB members.
- Bill Schuh offered the following concerns and comments:
 - Although he raised some questions regarding the soil moisture probes, he felt that the soil moisture probes were a good way to go.
 - Measurements of nitrate should be included in the data since denitrification will be important to look at.
 - The modeling should be done after soil temperature and moisture readings have been collected.
 - It is difficult to determine crop yields.

- There is a threshold temperature where things will germinate, and the timing is critical. The key to germination is soil temperature, and this is very important.
- Measuring too many factors may not help? Consider geotechnical work to measure plastic and liquid limits?
- In addition to temperature, measure heat conduction.
- Infiltration is simple to do and provides valuable data; he suggested using a double ring-double infiltrameter.
- Weed dispersal is an area of interest, and the grower will know about this already. Have one area where the landowner does not apply herbicide for the field trial.
- The timing of the field trial depends on crest time and what the landowners want. It was suggested that the landowner continue as he normally does.
- When the question was raised as to whether to plant a portion or the whole field, Bill suggested that we utilize the farmer's judgment and ask him to farm it as if he thinks it will not flood.
- We need to see the effects of planting different types of crops.

Roads and Road Stability

Nick Ludowese made the following comments:

- They (DOT) have not had trouble with roads in general. Gravel roads could be a problem, but usually roads are frozen. Frozen roads are fine. Wave action is not a problem in small areas. Roads were not built to be dikes, but, when frozen, could probably act as such for a short period of time. Even up around Drayton, it has not really been a problem, even with 10 to 18 days of water storage. There are some load restrictions on roads, which is another consideration.
- When asked about monitoring roads as water is being held, Nick responded that there are ways to accomplish this but indicated they are expensive. The equipment utilized by DOT is in use all of the time, especially during the most crucial time of field trial. Some of the data already collected by DOT might be of use. Nick plans on forwarding this information to us.

Modeling Breakout Discussions

Xixi Wang explained how the SWAT model and the hydrologic response units were interconnected. The group was impressed with the wide variety and number of data elements that the SWAT model could incorporate. There was a focused discussion on whether, or how, SWAT would handle frost depth, ground-thawing rate, and potential water infiltration into the soil. The main premise was that a very minimal amount of water would infiltrate during the water storage period because of the frozen ground.

Closing Remarks

Beth provided an overall summary:

- Soil moisture, temperature, and nutrients are key measurements to be taken during the field trial.
- Road stability may not be an issue. Nick Ludowese will supply DOT data on road stability.
- Landowners should be asked to follow their normal farming practices during field trials.
- Show a draft of the sampling plan and demonstration plan to the AAB for input to ensure nothing is missing that should be measured now, while a baseline is being established.
- Do geotechnical analysis from a core sample with liquid and/or plastic limits.
- There is the possibility that very minimal amounts of water would infiltrate during the water storage period because of the frozen ground.

Beth discussed upcoming activities, which include establishing theme meetings on various topic areas such as wetland issues as they relate to the Waffle project and a meeting to discuss structural components.

The next meeting will be January 14, 2004.