

Facilitating Public Education on Ethanol Production and Water Resources



Minnesota Ground Water
Association Annual Conference
May 8, 2008

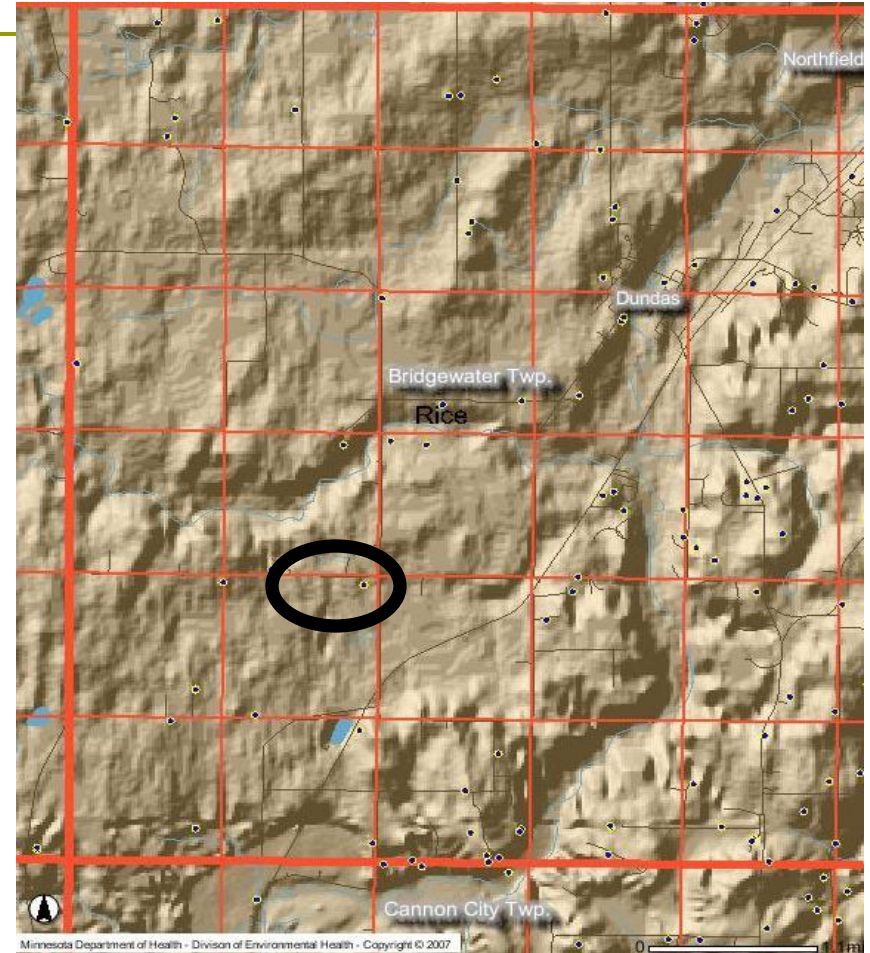
Michael Griffin and Mary Savina, Carleton College, Northfield, MN

Outline

- Our goals for these projects
- Working out the projects
 - Partners and helpers
- Project results
- Feedback from outside and from students
- After the projects are over . . .

Background

- ❑ Advanced BioEnergy proposal – 110 million gallon/year plant
- ❑ 3 miles SW of Dundas; 5 miles SW of Northfield



[Google Earth map of proposed plant](#)

Mary's goals for the hydrology class

- Have students work on a real problem
- Work with a community partner (the Cannon River Watershed Partnership)
- Work with professional hydrogeologists (Minnesota Geological Survey, DNR/MPCA training)
- Produce something that helps local citizens understand the water system of the Northfield area
- [Ethanol and Water website](#)

Michael's goals

- ❑ Michael's class, Environmental Issues and Media Representation, examines the ways media may distort both science and policy.
- ❑ It is important for students to create media representations, as well as to critique existing ones.
- ❑ Involving students with the local community was another important goal.
- ❑ How might information concerning environmental issues be presented more accessibly and effectively to the public?
- ❑ The ethanol plant debate allowed students to consider the question of whether or not the proposal should go forward.
- ❑ [Our Ethanol Debate web site](#)

Questions about water

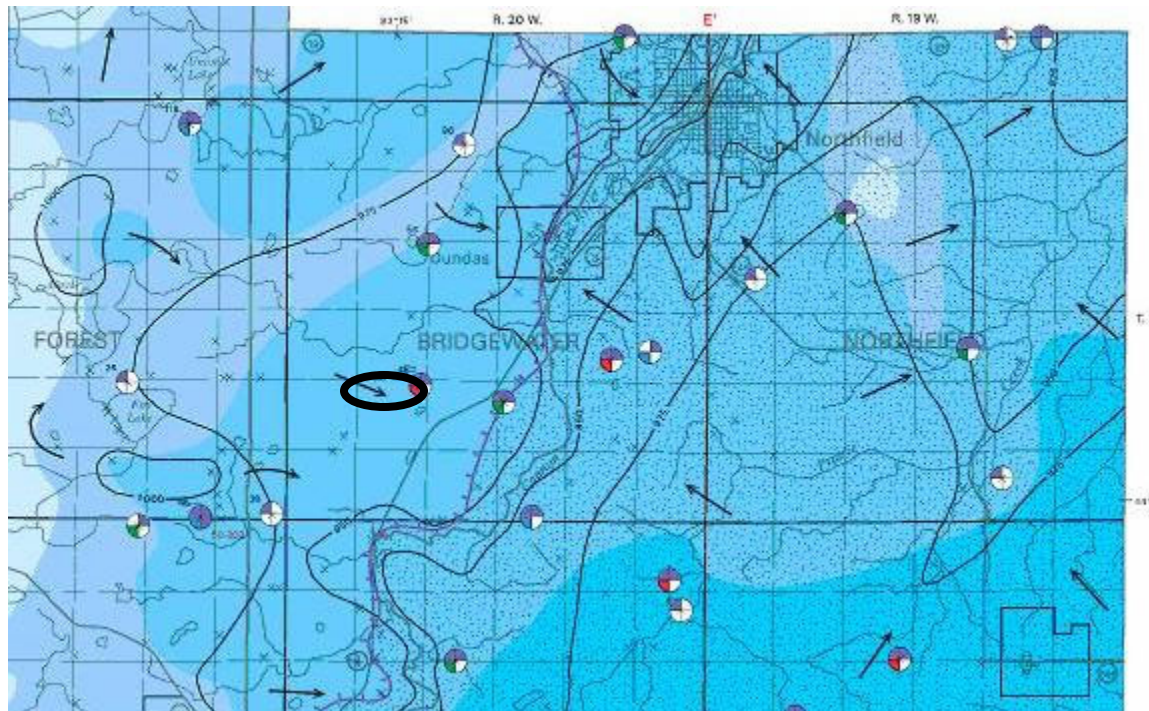
- How much water will the plant use?
- Where will the water come from?
- Will the plant operations affect the drinking water supply in nearby communities, including municipal and private wells?
- Will the plant operation affect the water level in the Cannon River?
- Will the plant operation affect Spring Brook (Rice) Creek, a trout stream?

What the Hydrology class did

- Consulted with Hilary Ziols, CRWP
- Decided on two small objectives:
 - What kind of information about water in the area already exists in digital form that might be useful background?
 - How can we make that information understandable and accessible?

Why is explanation necessary?

- Thematic maps: great ways to summarize a lot of information; hard for non-professionals to understand



Bedrock Hydrogeology, 1997 Rice County Atlas, Moira Campion

Why is explanation necessary?

□ Misconceptions:

- “Are there any other aquifers in the area besides the Cannon River?”
- “The plant will use only x% of the rainfall in the area, so what’s the problem?”
- Connections between ground and surface water

Hydrology class – helped by others

- ❑ We attended a joint MPCA/DNR training session.
- ❑ We consulted with Bob Tipping and Tony Runkel from the Minnesota Geological Survey.
- ❑ We visited the Northfield Water Department and talked with Doug Lien and Dean Huschle about water use in Northfield.

Frequently Asked Questions

- ❑ What is ethanol?
- ❑ What does ethanol have to do with water?
- ❑ How much water does an ethanol plant use? (and is this a small number? A big number?)
- ❑ Where would the water come from?
- ❑ Could groundwater pumping for the ethanol plant affect surface water?
- ❑ Will the plant produce wastewater and if so, what will happen to it?

Other sections

- ❑ Basics of groundwater (aquifer, effects of pumping)
- ❑ Northfield's water use (It's about 800 million gallons/year, so the ethanol plant might consume about half as much as the yearly usage, at 4 gallons water/1 gallon ethanol).
- ❑ Our aquifer
- ❑ Proposed Plant and Location
- ❑ References and Resources (with links)

Information compiled

- ❑ U.S. Ground Water atlas
- ❑ City of Northfield water use records
- ❑ Comparative consumption data for U.S.
- ❑ County Geological Atlas – hydrogeology
- ❑ County Well Index
- ❑ Written reports from MGS, USGS, others
- ❑ General information on groundwater from DNR, others
- ❑ Comparable plans and data from other Minnesota locations

Building “Our Ethanol Debate”

- ❑ Michael described the way students in his Environmental Issues and Media Representation class chose the debate over the ethanol plant proposal as a focus for their work.
- ❑ Students brainstormed ideas with faculty and produced a plan for the research, counterpoints and video interviews on the site.
- ❑ Students produced a web site containing numerous articles, graphics and videos covering a wide range of information relevant to decisions about ethanol production and the siting of an ethanol plant, including arguments over energy policy, land use, water use, agricultural impacts, environmental implications and climate issues.
- ❑ Michael showed a video clip of Dave Legvold, a local farmer and Executive Director of the Cannon River Watershed Partnership, discussing the particulars of the site and its potential issues.
- ❑ [Our Ethanol Debate website](#)
- ❑ [Interview with Dave Legvold](#)

Reaction from the Hydrology students

- ❑ Water is inherently interesting in an academic sense; this project showed that hydrology has far-reaching implications for the environment and society.
- ❑ The two students who applied to grad school referenced this project in their essays; the third student is doing environmental consulting in Chicagoland

Reaction from the community partner

“The Carleton students created a very useful public outreach tool which CRWP would have found very difficult to do, having only the barest minimum of background in hydrogeology. Both the McKnight Foundation and several news media outfits have contacted CRWP as a result of the website collaboration, and when the local ethanol issue returns, we will all have somewhere to turn to refresh our knowledge base.” - Hilary Ziols, Cannon River Watershed Partnership, May 5, 2008

Follow-up plans

- As it appears, new print material from newspapers, etc. is added to the “Our Ethanol Debate” website.
- Hydrology students in Jan.-March 2009 will add more material to the Ethanol and Water website and better annotate the material that is already present.