

MEMO

TO: Groundwater Advisory Committee, Technical Advisory Committee, DNR
FROM: M. Carol McCartney, Bob Nauta, Andy Graham, Jodi Habush-Sinykin
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DATE: October 23, 2007

SUBJECT: Recommendations and Rationale for the GAC Draft Report--Section 2.4 Adaptive Management Issues

BACKGROUND and SUMMARY:

Increased demand for water caused by economic growth as well as changing stresses from weather patterns have caused adverse impacts to water resources in areas of Wisconsin such as Brown County, Waukesha County, Dane County, and the central sand plains. Water resources targeted for protection (outstanding resource waters, exceptional resource waters and trout streams) are within designated groundwater protection areas (GPAs). To prevent the problems we see occurring elsewhere from affecting GPA resources, management of the state's water resources must adapt to increased demands. In particular, the approval process for high capacity wells—whose withdrawals mine groundwater that would otherwise feed these protected waters—must have adaptive management as its underpinnings to ensure that both our resources and our economic growth can be protected and, where they are in conflict, informed choices can be made.

Adaptive management is a systematic process for continually improving management policies and practices by learning from the outcomes of operating programs. In the case of the approval process for high capacity wells, this means the applicant must provide data about water levels, stream flows, ecological quality, as well as the currently requested basics of pump capacity and well depth. The data and evaluation provided by the applicants should be used by the Department to approve or revise the application. The information would also be used to update a database that applicants could access to find the best locations for high capacity wells and that the DNR could use for the continued management of the resource. Open access by the regulated community and the regulators to this information will allow the best decisions to be made with the least delays, encouraging our economy and protecting our resources.

We recommend that the Legislature direct the DNR to revise NR 820 as follows:

- To include a transparent and rational process for the regulated community to follow in applying for high-capacity well approvals. That is, applicants should do the analysis and DNR should review it.
- At a minimum, the process must consider the proposed rate and timing of pumping, cumulative annual extraction, fate of extracted water, ecological impacts (including changes to water chemistry and temperature), what surface waters and reaches of surface waters might be affected, and the cumulative effects of other groundwater extractors.
- The revised rule should require quantitative analyses, beginning with screening by rudimentary hydrogeologic methods that are widely used and generally available and, if necessary, proceeding to more rigorous models with increased levels of sophistication.

- If necessary, DNR should advise applicants on how to revise their application to be more complete or to minimize or mitigate the effect of the proposed high capacity well so that the well can be approved without a significant environmental impact.
- DNR should compile a database of input parameters for the quantitative analyses required for the approval process so that default parameters are available for applicants. This database should be readily available to applicants.
- The database should be continuously updated from applications as they are received and reviewed so that the approval process can adapt to the accumulation of more site-specific data and, if necessary, to changing hydrogeologic conditions.
- DNR should prepare the rules and database with the assistance and input of a scientific advisory committee and the draft rules should be prepared within two years.
- Both the application and the rules should clearly state that the approval is for specific pumping conditions and specific hydrogeologic and environmental conditions. Changes in conditions may require adaptive changes in the high capacity well approval.
- High capacity well owners are required to report annually the amount of groundwater extracted. The report should include the amount of groundwater pumped, location of pumping, water use, and water fate. The department may require more detailed reporting as a high capacity well approval condition, particularly if it will provide the data necessary to assess the effectiveness of mitigation measures.