

Report for 2003MI25B: Evaluation and Decision Support System for the Regulation of High Capacity Groundwater Withdrawal in Michigans Lower Peninsula

- Articles in Refereed Scientific Journals:
 - Kettren, Leroy P., Miller, Steve, Hunt, Pamela B.K., Simard, Andreanne, and Bartholic, Jon. 2004. Investigating the groundwater quantity effects on ecosystems and human activities for informed groundwater policy, Universities Council on Water Research Conference, Portland, OR, (In Preparation)
- Other Publications:
 - Beckwith, J. and Kettren, L. (Presenter). 2003. Evaluation and decision support system for the regulation of high capacity groundwater withdrawals in Michigan's Lower Peninsula, 2003 Midwest Ground Water Conference, Western Michigan University, 2003

Report Follows

Basic Information

Title: Decision Support System for High Capacity Groundwater Withdrawal

Project Number: 2003MI25B

Start Date: 3/1/2003

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Funding Source: 104B

Congressional District: Eighth

Research Category: None

Focus Category: Management and Planning, Water Quality, Models

Descriptors: None

Principal Investigators: JoAnn Beckwith and Lee Kettren

I. Introduction

This phase of the project was designed to develop decision support systems for evaluating proposals for regulating high capacity groundwater withdrawals in Michigan. The decision support systems will also be suitable for evaluating proposed high capacity wells.

II. Research Program

The first objective of the work was to review the laws and administrative rules of other Great Lakes states and Provinces to better understand the various approaches to regulating high capacity groundwater withdrawals. Once the review began it was decided to expand the review to other Midwestern and Eastern states that follow the Riparian-Beneficial Use doctrine towards groundwater access rights.

The review considered the laws and administrative rules of 30 Midwestern and Eastern states, the Canadian Provinces of Ontario and Quebec, the Delaware River Basin Commission, the Susquehanna River Basin Commission, and five Water Management Districts in the State of Florida. The results of the review were compared to recent and newly proposed legislation in Michigan.

This task is essentially complete, however ongoing work develops new information, which is continually added the results of the review.

A second related task was to contact appropriate officials in the various state agencies. These contacts were designed to clarify ambiguities in the published laws and regulations and to obtain first hand information regarding the effectiveness of each agency's program. This task is still in progress.

The results of the review and agency contacts were tabulated and compiled on several spreadsheets. The spreadsheets are being updated and refined as additional information

becomes available. These documents are designed to be posted on the Institute's upon completion.

A third task was to obtain information regarding decision support and management systems that could be used to evaluate proposals for regulating high capacity groundwater wells or to evaluate the proposed well itself under legislation adopted by the State of Michigan. Management science literature and case histories of Alternate Dispute Resolution and Adaptive Management techniques was reviewed with respect to application in environmental disputes. In addition policies and procedures used in Pennsylvania and Virginia to mediate environmental conflicts were also reviewed as were procedures of the U.S. Institute for Environmental Conflict Resolution at the Morris K. Udall Foundation in Tucson, AZ. This task is still in progress.

III. Information Transfer Program.

The results of the current research have been disseminated in several forms. Early results of the work were presented in a paper at the Midwest Groundwater Conference at Western Michigan University in October 2003:

Beckwith, J. and Kettren, L. (Presenter), Evaluation and decision support system for the regulation of high capacity groundwater withdrawals in Michigan's Lower Peninsula, 2003 Midwest Ground Water Conference, Western Michigan University, 2003

A second, more extensive publication is in preparation and will be presented at the Universities Council on Water Research Conference in July 2004 in Portland, Oregon:

Kettren, Leroy P., Miller, Steve, Hunt, Pamela B.K., Simard, Andreanne, and Bartholic, Jon, Investigating the groundwater quantity effects on ecosystems and human activities for informed groundwater policy, 2004, Universities Council on Water Research Conference, Portland, OR, (In Preparation)

Preliminary results of the review of state groundwater withdrawal laws and administrative rules were provided to officials of the Illinois State Water Survey and Illinois Department of Natural Resources.