

**Testimony of Todd Ambs, Water Division Administrator, Wisconsin Department of  
Natural Resources  
Before the Joint Informational Hearing on Groundwater Protection  
Assembly Committee on Natural Resources  
Senate Committee on Environment  
July 29, 2009**

Good morning, my name is Todd Ambs. I am the Water Division Administrator for the Wisconsin DNR. In that capacity I also chair the Groundwater Coordinating Council.

I am happy to be here this morning to talk about these important issues. I want to commend both committees for holding this joint hearing. This strikes me as an excellent way to begin the very important discussion of how we continue to address public policy as it applies to groundwater in the state of Wisconsin. You have asked me to speak on behalf of the Groundwater Coordinating Council and to address the role of the DNR in protecting groundwater.

I will start with a brief overview of the Groundwater Coordinating Council and then spend most of my time addressing the larger issue of the DNR's role in protecting groundwater in this state.

But first a little context...

We have a great resource in our groundwater. In fact, we have enough groundwater in Wisconsin to cover the entire state to a depth of 100 feet.

Unfortunately, it isn't all in the right place for every area and in some portions of the state, we are taking it out of the ground faster than it can be replenished naturally.

Three-fourths of Wisconsin citizens use groundwater daily for their domestic needs and 95% of municipalities use groundwater for their public water supplies.

Almost all water for agriculture – livestock, irrigation, and dairy operations – comes from groundwater, as does one-third of industrial water and half of commercial water use.

Our lakes, streams and wetlands are also fed by groundwater, as are fish, fowl and other creatures that live in them.

### **Groundwater Coordinating Council**

Created through 1983 Wisconsin Act 410 (Wisconsin's Comprehensive Groundwater Protection Act), the Groundwater Coordinating Council (or GCC) was the first of its kind to bring together key state agency representatives dedicated to increasing the efficiency and effectiveness of the state's groundwater management. The GCC has since served as a model for other states.

The GCC's creators saw the need to fill the administrative and regulatory gaps that resulted in groundwater concerns being overlooked or neglected. The GCC has helped to bridge those gaps by advising and assisting agencies on non-regulatory programs and facilitating an information exchange for the wide range of groundwater-related issues.

For example, a key GCC function is its joint solicitation for groundwater research and monitoring proposals. The joint solicitation helps to eliminate duplication and appropriately target funding for research and monitoring projects conducted by the UW, DNR, DATCP and the Department of Commerce. The results of the joint solicitation process have fueled much of the progress the state has made, for example, in pesticide and landfill regulation, groundwater remediation, laboratory methods, and in helping people find good quality drinking water in areas where arsenic is common. To date, more than \$15 million for research and monitoring has been provided through the joint solicitation for hundreds of projects. The DNR alone has provided \$7 million for over 200 projects.

The GCC also played a key role during the debates that resulted in 2003 Wisconsin Act 310—Wisconsin's groundwater quantity legislation. Specifically, the GCC formed a Groundwater Quantity Subcommittee to answer the numerous technical and scientific questions raised in debates over the proposed legislation. That Subcommittee's work exposed many of the data gaps and other difficulties inherent in drafting and implementing groundwater quantity legislation, many of which challenge us still.

In the years since the passage of Act 310, the DNR, the UW, and the GCC have used the joint solicitation process to target and facilitate research and monitoring projects designed to answer the challenging questions related to, for example, protecting springs and surface water resources like the Little Plover River from the impacts of high-capacity well pumping. Through these projects, we've begun to increase our understanding of these complex issues and enhance our ability to implement effective management measures.

The GCC continues to straddle the confluence of science and policy, addressing groundwater concerns such as viruses, antibiotics, animal waste and the potential impacts of climate change on groundwater quantity and quality.

Each year the GCC produces a report to the Legislature. I have a copy of the 2008 report here. You should have all received it electronically. A copy of the 2009 report should be done by the end of August.

Now I would like to shift my attention to a broader discussion of the DNR's role in protecting groundwater in Wisconsin. I will not spend a great deal of time discussing groundwater quality – although the link between groundwater quantity and quality cannot and should not be ignored, Jill Jonas will be speaking about the groundwater quality side of the equation at some length on a later panel.

I am enthused about where we are today regarding this issue and proud of the roles that many of us in this room have played collectively over the last decade plus to address these issues.

Indeed, we have come a long way since the end of the last century. When I first became involved in these issues in the late 1990's, few people outside of groundwater resource professional even knew that there was a groundwater quantity concern in Wisconsin.

Periodic blizzards, floods and little puddles of water like Lake Michigan, Lake Superior and the Mississippi River caused many people in our state to openly proclaim that we had an unlimited supply of water for our use.

Then the now infamous proposal by Perrier to drop some high capacity wells near the headwaters of the Mewan River triggered an introspective look into the state of groundwater laws in our state.

Using the Wisconsin Idea as a framework, the River Alliance of Wisconsin, the Wisconsin Potato and Vegetable Growers Association and academic experts from the University of Wisconsin system, worked through a process facilitated by UW Extension to produce a white paper on the issue of groundwater quantity in Wisconsin and submitted it to legislative leaders for consideration.

Senator Neil Kedzie and then Representative Dwayne Johnsrud took that work seriously and began a process that ultimately led to the passage of Act 310.

Governor Doyle also acted swiftly after his election in 2003 and called on the Legislature to bring a bill to his desk by Earth Day of 2004 – April 22.

Thanks to that leadership from key legislators and Governor Doyle, what followed was an impressive effort that produced a strong basis from which to build today.

### **2003 Wisconsin Act 310 – Wisconsin's Groundwater Quantity Law**

Signed by Governor Doyle on Earth Day in 2004, Act 310 was by everybody's expectations at the time, designed to be a significant first step in an important journey to protect this important resource. The Groundwater Protection Act of 2003:

- Expanded the regulation of high capacity wells,
- Required high capacity well owners to annually report pumpage,
- Directed the Department to establish two groundwater management areas, and,
- Established a Groundwater Advisory Committee so that we could adaptively manage the resource and learn from that effort. Specifically, the GAC was to produce two reports to the Legislature – one designed to recommend how to manage water uses in areas where significant drawdowns of groundwater were already occurring – known as groundwater management areas and a second report which was particularly novel – this report was actually designed to have the Committee report back to the Legislature on how the law was working – and then asked the Legislature to act on those recommendations!

Copies of both of those reports are here and you should have received both of them electronically.

That message was reinforced by the appointment letter, jointly signed by Senator Kedzie and Rep. Johnsrud, that went to every person who was asked to join the Groundwater Advisory Council. As they stated in the letter,

*...the Groundwater Protection Act is a major step, but only a first step. There is still a great deal of work to be done, particularly the work of the Groundwater Advisory Committee. The formation of the committee is paramount, as those members will have the charge of devising recommendations to the Legislature for continued long use planning goals for Wisconsin's groundwater.*

Before I get into the specifics of the law, I want to highlight one inescapable fact. A mere five years after this law was passed, every single goal of the law has been achieved. As you know, five years is a millisecond in state public policy and yet this *FIRST STEP* has been completed.

I actually looked back at a memo that I wrote to Water Division staff on the day the law was passed in 2004. At that time I said we hoped to:

1. track notifications of new wells and fees for these wells,
2. implement rules and a process for issuing individual approvals in these sensitive areas,
3. collect comprehensive groundwater data statewide,
4. complete more well construction inspections, increase compliance in the industry and better protect drinking water supplies
5. help in the establishment of the groundwater advisory committee and staff the effort to complete two reports to the Legislature by no later than December 31, 2007.

Every one of those tasks was accomplished on time or ahead of schedule and today we are ready to take the next important steps in our management of this critical resource.

Before I discuss possible next steps let me take another couple of minutes to remind us where we are today under Act 310 and offer some numbers that show exactly what happened in each area.

In the area of regulation, Act 310:

Expanded Regulation: Act 310 authorized expanded regulation of high capacity wells to help avoid potentially significant adverse environmental impacts associated with:

- Wells located in *groundwater protection areas* (that is, areas within 1200 feet of an outstanding or exceptional resource water or trout stream);
- Wells that may have a *significant environmental impact* on a spring with a flow of at least 1 cubic foot per second for at least 80% of the time; and

- Wells used for purposes that would result in  $\geq 95\%$  of the amount of water withdrawn being “lost” ... that is no longer available in the basin from which it’s withdrawn due to, for example, consumptive use. (this provision was designed to apply to all new bottled water facilities in Wisconsin)

Since the adoption of Act 310, only a small number of wells have been constructed in groundwater protection areas. In fact, the great majority of high capacity wells constructed in the state have been located greater than 2000’ from a trout stream, outstanding resource water or exceptional resource water. Well drillers, who are responsible for preparation of most high capacity well applications, have been encouraging landowners to avoid siting new high capacity wells within groundwater protection areas. For those wells proposed within groundwater protection areas, DNR staff carefully reviewed the proposed well pursuant to Ch. NR 820 of Wisconsin’s Administrative Code to determine if the well would result in significant adverse environmental impacts and, when necessary, placed conditions of the construction or operation of the well to avoid such impacts. Since May 2006, of the 837 high capacity wells that have been constructed, 7 were constructed within 1200 feet of an outstanding or exceptional resource water or trout stream, 24 were constructed between 1200 and 1500 feet and 106 were constructed within 4000 feet of these high quality waters.

Water Withdrawal Reporting: Act 310 also requires high capacity well owners to annually report monthly pumpage amounts.

The DNR continues its work to improve its database of high capacity wells and required pumpage reporting. For calendar year 2008, the Department received pumpage reports representing data from nearly 70% of the state’s high capacity wells. The 2008 data show that over 195 billion gallons of water was pumped from 7321 wells for which pumpage was reported. Public utilities accounted for over 50% of the total reported pumpage, while agricultural irrigation accounted for another 30%. The Department will work to continue to improve the percentage of high capacity wells that report pumpage in the coming years.

In addition, legislation implementing the Great Lakes Compact requires statewide registration and reporting of groundwater and surface water withdrawals averaging 100,000 gallons-per-day or more. As a result of the Compact, the DNR will be developing a water use database to store and analyze data related to how much water we’re using where, and for what purpose—to help us sustainably manage the waters of the state.

Well Inspections: When Act 310 was adopted, the DNR was inspecting 2% of private wells during construction. This is a huge issue with significant public health implications. If a well is not constructed right, people can get sick. Because of this and despite challenging times for state government, we have made this area a priority over the last several years. As a result, in the last quarter of a year alone, the DNR inspected 300 wells, representing 7% of the wells constructed in that period. We have also stepped up our compliance and enforcement work.

Groundwater Management Areas (GMAs): Act 310 directed the DNR to establish two groundwater management areas— one in Southeastern Wisconsin and another in the Lower Fox River Valley. These GMAs encompass areas where the water level of the deep

sandstone aquifer has been drawn down more than 150 feet from pre-development levels. The GMA designation was meant as a first step to address regional groundwater quantity issues, and to encourage a coordinated groundwater management strategy in the areas among state and local governments and private interests.

While Act 310 established the concept of GMAs, it provided no additional detail related to implementing the GMA concept. The Groundwater Advisory Committee, in its 2006 Report to the Legislature unanimously recommended that the Legislature promulgate legislation to establish groundwater management planning requirements within GMAs and recommended that the Legislature direct the DNR to develop administrative rules to fully implement those requirements. Additionally, the GAC made recommendations related to the review of high capacity well applications within GMAs.

So if Act 310 is a now largely completed first step, where should we take our next step in Wisconsin?

Part of that answer is found in completing the implementation of the Great Lakes Compact.

### **The Great Lakes—St. Lawrence River Basin Water Resources Compact**

Wisconsin took another significant step toward sustainable water quantity management when, in the Spring of 2008, the Legislature passed 2007 Wisconsin Act 227—legislation implementing the Great Lakes—St. Lawrence River Basin Water Resources Compact in Wisconsin. By July 2008 all eight Great Lakes basin states had ratified the Compact. In September, Congress consented to the states' ratification and the President signed Congress' consent resolution in October 2008. As a result, the Compact took effect on December 8, 2008—significantly sooner than expected.

The Compact addresses water quantity management throughout the Great Lakes basin, setting out requirements in the areas of water use registration, reporting, management, and water conservation and efficiency. Significantly, it also bans diversions of Great Lakes basin waters with limited exceptions for straddling communities. In fact, as you are likely aware, this past May the Department approved a diversion of Lake Michigan water to the City of New Berlin, a community that straddles the sub-continental divide, allowing the City to alleviate a public health concern stemming from the high levels of radium in the City's well water. The New Berlin diversion is a true win-win for our water resources. Every drop of water used by the city is returned to Lake Michigan every day. The use of this surface water supply will reduce groundwater extraction in an aquifer with excessive drawdown and all of the residents of this city now have water supply without radium, a known carcinogen.

An additional element unique to Wisconsin's effort to implement the Compact is the requirement for Water Supply Service Area plans, through which public water systems serving populations over 10,000 must assess the environmental and economic impacts of water supply alternatives.

Because of Congress' swift consent, resulting in the Compact taking effect on December 8, 2008, Wisconsin, like other Great Lakes states, is still in the fairly early stages of implementation of the provisions of the Compact. We've worked to register existing Great

Lakes basin water withdrawals meeting the Compact's 100,000 gallon-per-day threshold, and we've issued interim approvals for those withdrawals.

However, nearly all parties involved in negotiating the specifics of Act 227 anticipated that Congressional consent to the Compact would take several years; and that the state would take advantage of those years to carefully consider and promulgate the various administrative rule packages necessary to implement Act 227's provisions. These rules include provisions for:

- Water Use Registration and Reporting;
- Water Use Permitting;
- Calculations of Water Loss;
- Water Conservation and Efficiency;
- Public Involvement Procedures; and
- Water Supply Service Area Planning.

Congress' unexpectedly swift consent accelerated and complicated the timelines for rulemaking and water use permitting, so much so that the timelines became unrealistic, particularly given a lack of staff with which to implement the Compact. Thankfully, the 2009-11 biennial state budget [2009 Wisconsin Act 28] provides some relief from the unrealistic timelines and provides much-needed staffing and funding to implement the Compact.

Act 28 moves the date on which in basin water use permits are required from December 8, 2008 to December 8, 2011. It's important to note that the December 8, 2011 date is still well within the five-year period that the Compact allows states to implement their regulatory programs. In the interim, the Department will be working to promulgate the above-mentioned rules and implement the programs required by the Compact.

These Compact-related programs include statewide registration and reporting of water withdrawals—both surface water and groundwater—at or above an average of 100,000 gallons per day. Additionally, the DNR will develop a water use database with which we'll be able to track and analyze how much water we're using ... where ... and for what purpose. We expect to compile data and analyses that will help us sustain and protect our state's abundant water.

Additionally, the DNR will implement a statewide water conservation and efficiency program. As directed by Act 227, this program will be voluntary in the areas of Wisconsin lying in the Upper Mississippi River basin, and voluntary and mandatory in the areas of Wisconsin lying in the Lake Superior and Lake Michigan basins. We fully expect that the elements of the water conservation and efficiency program that we develop for Wisconsin with your assistance will help secure our abundant water supply for current and future generations. Reasonable water conservation and efficiency measures can not only ensure our supply of water, they can help us:

- save energy ... and money (it is conservatively estimated that 13% of the electricity produced in this country is used to move water around;

- reduce the possibility of shortages;
- reduce emissions of greenhouse gases linked to climate change;
- forgo or delay expensive infrastructure expansions;
- reduce adverse impacts on rivers and wetlands; and
- reduce the drawdown in groundwater levels.

Finally, as you begin your important consideration of the reports from the Groundwater Advisory Committee, I would offer a few initial thoughts as food for thought.

### **Act 310 – Step II**

As I mentioned, Act 310 has been a successful first step toward the sustainable management of Wisconsin's groundwater ... but it's just a first step. Additional legislation is needed to create regulatory tools necessary to ensure a more complete and effective approach to sustainable groundwater management.

Some categories to consider:

- Better tools to assess cumulative impacts
- Look at how to assess impacts beyond 1200 feet from certain high quality waters
- Connect groundwater and surface water in statute
- Expand the definition of spring to those flowing at .25 cfs or more
- Make clear that all bottled water facilities must undergo a complete environmental review

### **Better tools to assess cumulative impacts**

A process for evaluating and designating future groundwater quantity problem areas and other areas of concern should be adopted. Under current law, the DNR has limited authority to consider the cumulative impacts of pumping multiple high capacity wells in the vicinity of a groundwater protection area. Additionally, we must recognize that certain areas of the state have a limited capacity to provide plentiful groundwater and adjust withdrawals to sustainable levels.

### **Look at how to assess impacts beyond 1200 feet from certain high quality waters**

Act 310 did exactly what it was intended to do. Very few wells have been constructed within 1200 feet of a high quality water in the last five years and those that have had a much higher environmental review applied to that construction. Keeping the need for cumulative impacts in mind, we need to broaden the reach of the law to apply to more areas of the state. There are several suggested options in the GAC report and we would be happy to discuss other possibilities as you continue your deliberations.

I believe that it would be the wrong approach to just be able to say yes or no to a single applicant for a high capacity well. Regulating the last straw in the glass only addresses the symptom. The problem is too many straws in the glass. As a state, we need the ability to

sustainably manage the water budget for each watershed – and all of the straws in that watershed.

### **Connect groundwater and surface water in statute**

Additionally, we need to improve our knowledge of existing resources. We still have not clearly connected groundwater to surface water in statute in Wisconsin. We at the DNR believe, as does Governor Doyle, that they are connected and protected by the Public Trust Doctrine but that is not a universally held opinion and the Legislature should provide some clarity on this point.

### **Expand the definition of spring to those flowing at .25 cubic feet per second (cfs) or more**

Additionally, to more effectively protect springs throughout the state, the DNR must proceed with a springs identification project to obtain statewide, current information on the location and characteristics of springs throughout the state that flow at more than .25 cfs. In tandem with that effort, we support expanding the definition of springs subject to a higher level of review to those flowing at more than .25 cfs provided that we have a mechanism for assuring that it is a perennial spring.

### **Make clear that all bottled water facilities must undergo a complete environmental review**

Finally so that there is absolutely no question, language may be needed to clarify that we expect all proposed bottled water facilities in the state to have to demonstrate that they will have no significant adverse environmental impact on the surrounding water resources.

Thanks again for your patience as I have attempted to set the stage for what I hope will be a very productive discussion today and in the months to come.

The DNR looks forward to working with the Legislature and all interested parties to take the next necessary steps to protect the quantity and quality of the waters of the state.

Thank you again for the opportunity to speak with you today.