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(FORM UPDATED: 08/11/2010)

WISCONSIN STATE LEGISLATURE ...
PUBLIC HEARING - COMMITTEE RECORDS

2009-10
(session year)

Senate
(Assembly, Senate or Joint)

Committee on Environment...

COMMITTEE NOTICES ...

- Committee Reports ... **CR**
- Executive Sessions ... **ES**
- Public Hearings ... **PH**

INFORMATION COLLECTED BY COMMITTEE FOR AND AGAINST PROPOSAL

- Appointments ... **Appt** (w/Record of Comm. Proceedings)
- Clearinghouse Rules ... **CRule** (w/Record of Comm. Proceedings)
- Hearing Records ... bills and resolutions (w/Record of Comm. Proceedings)
  (**ab** = Assembly Bill) (**ar** = Assembly Resolution) (**ajr** = Assembly Joint Resolution)
  (**sb** = Senate Bill) (**sr** = Senate Resolution) (**sjr** = Senate Joint Resolution)
- Miscellaneous ... **Misc**

* Contents organized for archiving by: Stefanie Rose (LRB) (September 2013)

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COUNTY GOVERNMENT CENTER
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PUBLIC HEARING: Senate Committee on Environment
March 23, 2010
Senate Bill 632 - Control of nonpoint source water pollution in certain areas with carbonate bedrock and granting rule-making authority

Good Morning. Thank you Mr. Chairman and Members of the Committee for holding a public hearing on Senate Bill 632. My name is Brian Forest and I am a Conservationist with the Door County Soil and Water Conservation Department. I am here to speak on behalf of the Door County Board of Supervisors, the Door County Land Conservation Committee, the Door County Soil and Water Conservation Department, William Schuster, the County Conservationist and Michael Serpe, the County Administrator. I appreciate the opportunity to discuss SB-632 and our strong support for this important bill.

Clean, safe drinking water is something that everyone has the right to; it should not be acceptable that at certain times of the year some areas, must endure unsafe water that may even flow brown from their tap. The legislation to protect drinking water should not be a "one-size-fits-all" approach; it needs to be acknowledged that rules that apply in one area might not be adequate to provide protection in other areas. SB-632 would implement a locally-driven process to establish areas of concern and determine appropriate regulation to address threats in those areas; it is not prescriptive, but empowers the people that have local knowledge and those that work and live on the land every day to protect the resources that we all share.

Door County, and areas with similar geology, have well-documented records of contamination from nonpoint source pollution; in Door County specifically, historical well test results have shown that at any time one-third of the wells tested will produce an unsafe result due to bacteriological contamination. It is imperative that we look at land use in sensitive areas and establish responsible practices to allow continued use of the land, but also protect the resource and those who use it. I grew up in Door County and my parents live on very shallow soils to bedrock, surrounded by agriculture. Our well was contaminated and we had to buy drinking water, or find a neighbor with good water, just to be able to eat or cook. I know that you have heard these stories before, but it should go without saying that it is not acceptable that someone should have to deal with unsafe water through no fault of their own. SB-632 is a tremendous step forward in the protection of this sensitive resource; it reinforces what I am building my career on, for my family and neighbors.

Thank you for the opportunity to speak to you on this important topic and I appreciate your consideration of SB-632. I would be happy to answer any questions that you might have at this time.

Brian Forest
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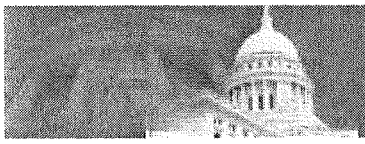

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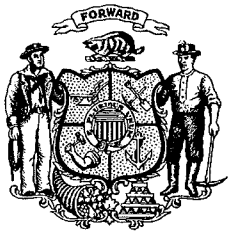

WISCONSIN LEAGUE OF CONSERVATION VOTERS

Support SB 632:
Protecting Wisconsin's Drinking Water

Statement of Jennifer Giegerich
Wisconsin League of Conservation Voters
March 23, 2010

Good morning. I am Jennifer Giegerich, Capitol Liaison for the Wisconsin League of Conservation Voters. Thank you for this opportunity to testify in support of protecting Wisconsin's drinking water.

Senate Bill 632 was selected as one of four Conservation Priorities by Wisconsin's conservation community for this legislative session. As a Conservation Priority, it has the support of more than 85 organizations and tens of thousands of families around Wisconsin.

Clean and safe drinking water is essential to Wisconsin's families, farms, businesses, and communities. The safety of our drinking water is not something we're accustomed to thinking about when we turn on the tap, take a shower, or wash our dishes. However, in recent years, Wisconsinites in some regions of the state are increasingly finding that the water they depend on to live poses a threat to their health instead.

SB 632 is first and foremost about protecting public health by ensuring that our drinking water sources are protected. It is reality that sometimes our statewide regulations do not protect against the threats that are unique to specific areas of our state. It is unfair, and dangerous, to leave citizens vulnerable to drinking water contamination because of the topography they live on.

I've brought you a copy of a letter signed by various public health officials around Wisconsin. These public health officials are asking for your support for local governments who have demonstrated a specific threat to their groundwater due to karst topography to have the ability to address those threats with specific plans to limit pollution in areas known to lead to direct groundwater contamination.

We ask that you support SB 632 and ensure that all Wisconsin citizens' drinking water is protected no matter where they live.

Thank you.

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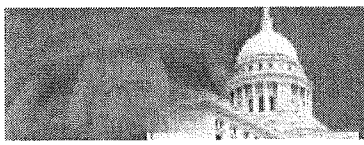
info@conservationvoters.org • www.conservationvoters.org



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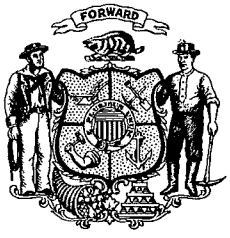

WISCONSIN STATE SENATOR
DAVE HANSEN
SENATOR – 30TH DISTRICT
ASSISTANT MAJORITY LEADER

Senate Bill 632
KARST
Committee on Environment
Tuesday, March 23, 2010
300 Southeast, Capitol

Thank you Mister Chairman and members of the committee. I am here today to testify in favor of Senate Bill 632. In 2007, more than 100 wells in the town of Morrison were contaminated, prompting the county to pass an ordinance restricting the winter spreading of manure on most land in the county. Last year, the county received 57 complaints and issued 30 citations.

Northeastern Wisconsin has a history with groundwater contamination. Calumet County began sampling water in 2002 and found that almost half of their wells in certain townships throughout Calumet, Brown and Kewaunee Counties exceed state drinking waster standards for nitrates. Highly publicized events in Morrison, Cooperstown and other communities in Northeastern Wisconsin have drawn national attention.

In 2007, conservationists in Brown, Calumet, Door, Kewaunee, and Manitowoc Counties convened the Northeast Wisconsin Karst Task Force to consider what was happening with groundwater contamination, to study the scientific data and to make recommendations on how to address the problem. The Task Force included county conservationists, farmers, geologists, and well drillers. The members of the task force unanimously agreed that a uniform approach to regulation and enforcement across the entire carbonate bedrock region of northeastern Wisconsin is critical to developing an effective framework for environmental protection.

Unfortunately, it's been three years since the task force issued its recommendations. Nothing has been done since.

Senate Bill 632 will adopt many of the recommendations that came out of the task force. Those recommendations include: identification of carbonate bedrock areas, regulation of those areas and establishment of local involvement and governance of the Carbonate Bedrock Management Zone.

This bill is about public health. Contaminated water containing bacteria and other harmful pathogens found in manure, septic sludge and other waste can cause infections, gastroenteritis and other serious health problems. Elevated nitrate levels in drinking water can interfere with red blood cells to carry oxygen. This is especially dangerous for infants less than 6 months old.

(over)

Committees
Joint Committee on Finance, Senate Vice Chair
Education
Transportation, Tourism, Forestry and Natural Resources
Special Committee on State-Tribal Relations
Senate Organization
Joint Committee on Legislative Organization

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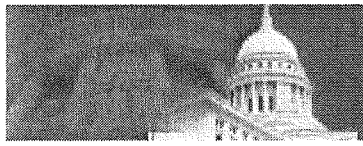
Critics often cite the "one size fits all" method of regulation in Wisconsin law. Senate Bill 362 does not do that. This legislation seeks to address a local problem, one that is unique to Northeastern Wisconsin, through policy that is established by local residents who are familiar with and affected by the regulations that will be established.

Senate Bill 362 doesn't point fingers or seek to blame. We are looking to address this problem by making the rules on land spreading clear to all waste haulers. We support our local farmers and I believe they are some of the best stewards of the land. What we need are clear rules and policies to give them direction to more efficiently manage animal waste and protect our natural resources. Those rules don't currently exist for those farmers that want to do the right thing.

Thank you again Mister Chairman and members of the committee. I believe Senate Bill 362 is a good first step in supporting our local agriculture economy and protecting one of our most valuable resources, our groundwater.



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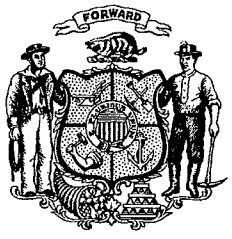

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SIERRA CLUB
FOUNDED 1892

Support SB 632 to restrict Waste Spreading in Karst Areas for Safe Water
Before the Senate Environment Committee, 03/23/10, 10:05 AM, 300SE
Jim Kerler, Vice Chair, Sierra Club- John Muir Chapter

Thank you for providing us with the opportunity to voice our views on AB 372.

The Sierra Club- John Muir Chapter thanks you for the opportunity to speak in support of SB632, important legislation that will protect water quality. I'm Jim Kerler, the Vice Chair of the Sierra Club John Muir Chapter, representing approximately 15,000 members and supporters across the State of Wisconsin. I'm also a member of the Sierra Club's Water Protection Team in Wisconsin and I'm speaking for the Club. We seek to promote responsible use of Earth's ecosystems and resources.

I want to thank Senator Hansen and the other sponsors for this bill. Importantly, this groundwater-oriented bill, like the other one under consideration today, has its basis in scientific investigation and recommendations resulting from the Report of the Karst Task Force. The Sierra Club supports passage of SB 632 for the following reasons:

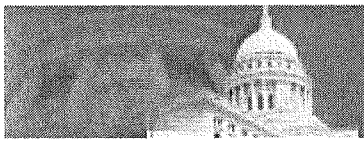
- It creates a karst management zone in the five northeastern Wisconsin counties known to be vulnerable to aquifer contamination due to waste spreading practices. We know that the land in this zone is different from land in the rest of the state and should be treated differently to prevent a public health crisis.

- It allows counties that are not covered by the bill to seek to be included by presenting scientific evidence that the rules for the bill should apply to them. When another area is found that puts groundwater resources and people at risk, action can be taken to protect our citizens.

- It also provides necessary coordination and documentation so that the combined effects of spreading municipal, agricultural, septic and industrial sludge on a parcel of land are regulated in aggregate, instead of independently. The left hand needs to know what the right hand is doing to protect family wells and health.

Because of the dire impacts to those whose groundwater has been polluted, we favor use of this legislation rather than voluntary changes in spreading practices. When considering your actions on this bill, please ask yourselves whether it is morally acceptable in the State of Wisconsin for one citizen or business concern to take actions that are likely to poison a Wisconsin family's drinking water and destroy their health. Will we allow someone's tap water to occasionally turn brown and smell like manure? This has already happened, and the impacts were extensive enough to warrant coverage by the *New York Times*. This is more than an embarrassment to our state.

We urge you to pass SB 632 this session without weakening amendments to protect drinking water and the families that depend on it in vulnerable karst regions of Wisconsin.



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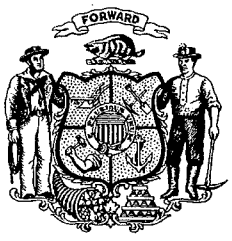

Comments to the Wisconsin Legislature at hearing for SB632 Clean Drinking Water Bill
March 23rd, 2009 10

My name is Jennifer Nelson, Town of Haney, Crawford County and I am here representing the Crawford Stewardship Project.

The science is clear: Careless land application of waste in vulnerable areas pollute Wisconsin's groundwater . I have traveled to Madison today to tell a story about how current law fails to prevent potential groundwater contamination.

For the past three years CSP has hired experts to study the application for a large hog factory farm along and on top of the 400 foot eroded limestone bluffs bordering the lower Wisconsin River. I have brought a map showing the location of this facility-red stars show nearby wells with reported karst features. Nestled in the same bluffs immediately to the West of the village of Wauzeka are the Kickapoo Indian Caverns, the largest natural cave in the midwest. I have also brought a poster of a composite picture of the underlying rock structure done from quarry photos in the area.

So it's "Karst City" there. Given the porous rock underlaying this facility and the fact that it has about 1/10th the usual acreage required for the number of animals concentrated there, citizens raised concerns with the DNR regarding risks to area drinking water.

As part of the factory farm's clean water act permit the DNR reviewed the paperwork and surprisingly found only two fields of 40 to contain karst features. There was no documentation as to how this conclusion was reached. The requirements for dealing with this in the final permit mentioned "***specific procedures for field verification of bedrock depth prior to manure applications to those areas of field that may have karst bedrock within 24 inches of surface"*** Sounds comforting-but these procedures and who would perform them were not spelled out in the permit.

At a hearing last week the operator of the facility stated he had "*looked at the fields and determined there was no area less than two feet to bedrock*" and so would continue to spread manure at the standard rate. Again there was no clue as to how this was determined and unless the gentleman had x-ray vision one is again left to wonder.

The DNR permit further stated:
"***We believe these procedures are adequate and will meet the bedrock requirements listed under NR 243.***"

Unfortunately we believe they are right in this case. This passing reference to the problem is all the protection required under the law. The question remains-" *is this enough to protect our groundwater in areas of the state affected by karst geology.*" Experience in other parts of the state indicates the answer is "NO".

The DNR is currently moving to a general "one size fits all" CAFO permit which would eliminate the current site specific "environmental assessment" under which even this ineffective process was initiated.

I urge the legislature to consider passing this most important law to give DNR the tools and mandate to give special consideration to potential for groundwater contamination in karst regions of the state.

Jennifer M. Nelson
Crawford Stewardship Project
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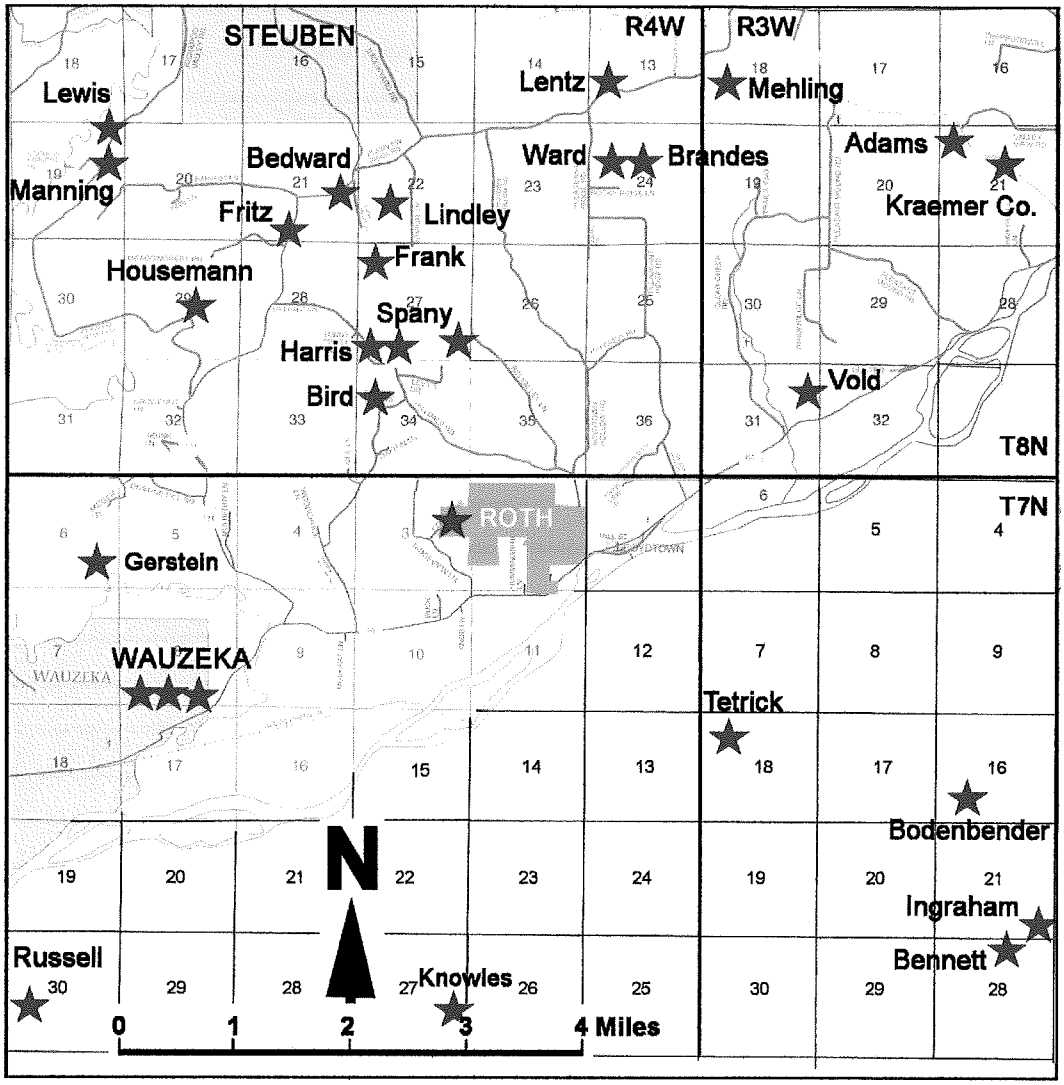

Wells with karstic features (red stars with owner names) within a 5-mile radius of the Roth Pig Feeder operation (green area). Several active springs emerge from the Roth facility at the adjacent Bower property to the southeast. Karstic features include caves, crevices, and zones of broken rock.

Data from Water Well Data, January 2010 Gen. Ver. 1.4, Bureau of Drinking Water & Groundwater, Wisconsin Dept. of Natural Resources, and from Scanned Images of Wisconsin Well Constructors' Reports, Crawford and Grant Counties, 1936-1989, Wisconsin Geologial and Natural History Survey Open-File Reports 2001-02 CR and GR.

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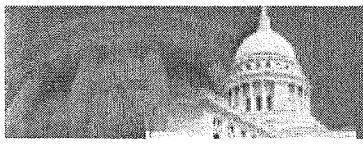

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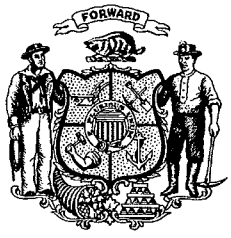

PSR
WISCONSIN
Physicians for Social Responsibility

March 23, 2010

Dear Committee Chair Miller and Members of the Senate Environment Committee,

Clean drinking water is essential for protecting public health, and the undersigned members of the PSR Wisconsin Steering Committee **unanimously support passage of SB 632** to protect drinking water in the "karst" region in northeastern Wisconsin.

It is our understanding that over 50% of the wells in the "karst" region contain unsafe levels of two common – and highly hazardous – pollutants found in land-applied waste: bacteria and nitrates. We have a attached copies of key drinking water fact sheets here for your reference. It is important that we prevent the following two contaminates from entering the water supply:

1. *Bacteria* and other harmful pathogens often found in manure, septic sludge, and other human and animal wastes can cause infections, gastroenteritis, and other serious health problems.

2. *Elevated nitrate levels* in drinking water can interfere with the ability of hemoglobin in red blood cells to carry oxygen, resulting in Blue Baby Syndrome for infants less than six months of age. For this reason, infants under a year and breast feeding and pregnant women should not drink water with elevated nitrate level.

PSR Wisconsin seeks to protect future communities from this kind of contamination, and urge you designate a special "management area" in Northeastern Wisconsin to address the problem of unsafe waste disposal on land that is highly vulnerable to groundwater contamination due to geology. If it is also possible to create an area mapping program to make up for the lack of clear, state-wide knowledge about where the most high-risk lands can be found, that too, would be beneficial to public health in Wisconsin.

As health care professionals, we seek to strengthen and unify waste spreading regulations to give clarity to what are now weak and confusing land disposal regulations for various types of waste. Let's make sure that no family or community must face this level of contamination again!

Sincerely, Robert V Blank

The PSR Wisconsin Steering Committee

Encl: Drinking Water Fact Sheets #4, #9, #12

Physicians for Social Responsibility – Wisconsin www.psrwisconsin.org
2712 Marshall Court, Suite 2 Madison, Wisconsin 53705 608-232-9945

PHYSICIANS FOR SOCIAL RESPONSIBILITY

MATERNAL AND CHILD HEALTH

What Health Care Providers Should Know

DRINKING WATER FACT SHEET #12

Why Are Pregnant Women and Children More Susceptible to Contaminants in Drinking Water?

Industrial chemicals, pesticides, fertilizers, lead from water supply pipes, water disinfection by-products, and pathogens from human and animal waste can all end up in drinking water, with adverse health outcomes ranging from acute diarrheal disease to long-term effects including neurological, developmental, and reproductive effects and even cancer. The interaction of unique physiologic, pharmacokinetic, and exposure factors for pregnant women, fetuses, infants, and children make these populations especially susceptible to certain waterborne contaminants.

Pregnant Women and Fetuses

Pregnant women can transmit some waterborne microbes, such as enteroviruses, to their unborn children. Transplacental spread may occur at different times during gestation, with manifestations present at birth or delayed for months or years. Transmission of infection from mother to infant may take place *in utero*, just before birth, or during delivery.

Other contaminants found in drinking water, including lead, readily cross the placenta. The specific chemical, dose, route of exposure, and genotype of the mother or fetus are all determinants of the effects on fetal health. Timing of exposure is thought to be especially important, with the fetus particularly vulnerable to chemicals that disrupt critical developmental processes at certain times. For instance, exposure to some chemicals during organogenesis can lead to dramatic structural abnormalities depending on the target organ (e.g., thalidomide's effect on developing limbs in the first trimester). During the second and third trimesters, exposure to substances such as lead primarily affects the differentiation of the central nervous system and overall fetal growth (*1,2*).

During the second and third trimesters, exposure to substances such as lead primarily affects the differentiation of the central nervous system and overall fetal growth

Infants and Children

Compared with adults, neonates and infants have a greater surface area-to-body mass ratio, a higher proportion of body water to body fat, different metabolic functioning and capacity, and different dietary consumption patterns (*2,3*). In the first six months after birth, children drink more water per pound of body weight than the average adult. Thus, children can ingest more waterborne contaminants, in proportion to their body weight, than adults (*2,4*). Infants fed formula reconstituted with tap water may be at risk of exposure to a number of drinking water contaminants, including lead, nitrate, and pesticides.

Children's immature enzymatic, metabolic, and immune systems may also provide less natural protection than those of an adult, and their ability to rid their bodies of toxic substances changes as they grow (*2,3*). Many of their organ systems, including the immune, reproductive, digestive, and central nervous systems, continue to develop after birth. Damage to an organ or organ system prior to full maturation could permanently hinder normal functioning (*2,3,5*). Furthermore, exposure to toxics that prevent normal physical development may permanently alter behavioral development (*2*).

Which Drinking Water Contaminants are of Most Concern for Maternal and Child Health?

Pesticides

Pesticides are a major health concern in the U.S., both because of their toxicity and because of their widespread use. In 1997 an estimated 4.63 billion pounds of pesticides were used in the U.S. (*6*). A variety of herbicides and pesticides are routinely found in drinking water sources at low concentrations. The herbicide atrazine has been detected in up to 97% of surface water supplied drinking water systems

in midwestern states (*7*). Children living in rural areas where large quantities of pesticides are used in agriculture are likely to be most heavily exposed. However, children everywhere are routinely exposed to pesticides from multiple sources, including home and garden use, pesticide applications in schools, and residues in food, as well as contaminated drinking water.

In epidemiological studies, children's exposure to pesticides in the home (not in drinking water) has been associated with increased risk for a number of childhood cancers, including leukemia, non-Hodgkin's lymphoma, and neuroblastoma (*8*). The endocrine disruption that is associated with many pesticides is a great concern, as effects to this system could result in abnormal behavior, motor and sensory dysfunction, and cognitive deficits (*1*). Maternal exposure to certain herbicides, including atrazine, in drinking water was associated with intrauterine growth retardation in an Iowa population (*9*). Also, pregnant women exposed to pesticides in a farm community had a higher rate of spontaneous abortion (*10*). *See PSR's drinking water fact sheets on pesticides and atrazine for more information.*

Infants fed formula reconstituted with tap water may be at risk of exposure to a number of drinking water contaminants, including lead, nitrate, and pesticides.

Nitrate

The main source of nitrate in drinking water is fertilizers, but contamination may also result from animal waste run-off, the leaching of waste systems, or the erosion of natural deposits. Thus, concentrations in drinking water tend to be highest in rural, agricultural areas and may vary widely from season to season. People who use shallow or poorly constructed wells in agricultural areas are at the greatest risk (*2*). Infants are exposed to nitrate primarily through infant formula prepared with contaminated water from nitrate-contaminated wells (*11*). Though nitrate itself is not toxic to humans, it is converted to nitrites in the intestines. Nitrites react with hemoglobin, forming methemoglobin, which has less oxygen-carrying capacity.

Neonates are especially susceptible to nitrate in water, because the body's system to reduce methemoglobin back into an oxygen-carrying state is only half as active in infants under six months as in adults (*2*). The gut flora in infants is also more likely to convert nitrate to nitrite. A build-up of methemoglobin in an infant's blood results in methemoglobinemia, or "blue baby syndrome." Signs of methemoglobinemia include shortness of breath and bluish skin, with lips and mucous membranes appearing brownish (*2*). Other symptoms include central nervous system depression (headache, dizziness, fatigue and lethargy), comas, convulsions, abnormal heart rhythms, circulation failure, and hemolytic anemia (*12*). Methemoglobinemia can be life threatening if medical attention is not sought immediately. Additional health effects that may be associated with chronic nitrate exposure include cancer, thyroid disease, diabetes, and adverse birth outcomes (*11*). *See PSR's drinking water fact sheet on nitrate for more information.*

Escherichia coli O157:H7

One infection to which small children are susceptible is enterohemorrhagic *Escherichia coli*. While there are many harmless *E. coli* strains, food- and waterborne *E. coli* O157:H7 can cause illness. The bacterium is shed in animal and human fecal matter, and drinking water sources may be contaminated by malfunctioning septic systems, leaking sewer lines, and heavy rain or snowmelts that wash *E. coli* contaminated wastes into surface and groundwater. Three of four bacterial drinking water outbreaks reported to the Centers for Disease Control and Prevention (CDC) in 1997 and 1998 were caused by *E. coli* O157:H7 (*13*).

For children, symptoms of an *E. coli* O157:H7 infection include abdominal cramps, low-grade fever, and watery or bloody diarrhea. Recovery without treatment usually occurs within five to ten days (*14*). However, some infections, particularly those in children under the age of five, result in hemolytic-uremic syndrome (HUS). This potentially fatal condition causes red blood cell destruction and kidney failure, often requiring renal dialysis and blood transfusions. Fifteen percent of infected children will progress to HUS, which is the chief cause of acute renal failure in children (*15,16*). With intensive care, the death rate is between 3% and 5%, and survivors can suffer long-term effects. About one-third of children with HUS will experience abnormal renal function years later, and others may suffer blindness, paralysis, high blood pressure, or seizures (*14*). *See PSR's drinking water fact sheet on E. coli for more information.*

Lead

Lead generally enters drinking water by leaching from pipes and solder joints in household plumbing. The use of lead pipes for new plumbing was discontinued in the early part

of the 20th century, but approximately 20% of all public water distribution systems contain some lead components (*17*). Many older homes also contain lead plumbing, and even new "lead-free" brass fixtures contain and leach some lead. Drinking water may add to children's overall lead exposure, but it is not the major source of exposure for most children. Deteriorating lead paint remains the leading source of children's lead exposure, particularly for children living in older housing.

Lead readily crosses the placenta, exposing the fetus. Fetal exposure can result in premature birth and reduced birth weight. Evidence also suggests that women exposed to lead during pregnancy have an increased frequency of miscarriages and stillbirths (*18,19*). This appears to be true even when maternal blood lead levels are low to moderate, although it is not clear whether levels of lead found in drinking water may lead to such effects (18). Because the blood/brain barrier is not fully developed until the age of three, young children's nervous systems are particularly susceptible to lead penetration. Children also absorb more lead into their bodies than adults, and suffer adverse health effects at lower levels of exposure than adults (*20*). Lead exposure in early childhood has been associated with loss of intelligence as measured by IQ, mental development, and behavioral deficits, which may persist beyond childhood (*2,4,21,22*). Nearly 900,000 American children under the age of six still have blood lead levels high enough to be of concern under guidelines from the CDC (*2*). *See PSR's drinking water fact sheet on lead for more information.*

Disinfection Byproducts

Disinfection byproducts (DBPs) include a variety of chemicals that form when drinking water disinfectants—most commonly chlorine—react with organic material naturally found in water. There is now evidence linking some DBPs to cancer and adverse reproductive effects in humans.

Epidemiological studies show that some DBPs, including trihalomethanes (THMs) and chloroform, pose particular risks for the developing fetus. One such study found that neonates were more likely to have a smaller body length and cranial circumference if their mothers had consumed chlorinated water during pregnancy (*23*). A study in Iowa showed a relationship between chloroform levels in drinking water and intrauterine growth retardation (*24*). Studies have also shown a link between THMs in chlorinated drinking water and an increased frequency of stillbirths (*25*). One of the best-conducted studies of reproductive effects and THMs found a strong association with spontaneous abortions (*26*). DBPs in drinking water have also been related to birth defects such as neural tube defects, oral cleft defects, and urinary tract defects (*27,28*). A recent review of the literature on DBPs and adverse pregnancy outcomes showed the strongest evidence of association with small for gestational age at birth, neural tube defects, and spontaneous abortions (*28*). *See PSR's drinking water fact sheet on DBPs for more information.*

What Can Health Care Providers Do to Reduce the Threat of Waterborne Contaminants to their Susceptible Patients?

- Encourage patients, especially pregnant women and parents of young children, to read the Consumer Confidence Reports distributed by their local water facility and be aware of the contaminants in their water.
- Urge families whose drinking water may contain contaminants harmful to children to install home treatment units. When specifically designed for the contaminant in question, these can be effective at removing lead, pesticides, some pathogens, and other contaminants. Letting tap water sit in an open container for one hour will also reduce DBP concentrations.
- Advise parents who bottle-feed their infants—especially those in agricultural areas at risk of pesticide and nitrate contamination—to test water used for reconstituting formula, or to choose premixed formula.
- Hot water and prolonged contact with lead plumbing can increase the lead content of tap water. Advise families in older housing where this may be an issue to "flush" pipes for 30 to 60 seconds before drinking tap water or using it for cooking, and to use only cold water. Parents living in older homes should also be advised about protecting children from other exposures to lead, such as paint chips and dust.
- Encourage patients with private wells to have their wells tested regularly. The local health department can help determine which tests may be needed. Sloping the area around wells can protect them from surface runoff contaminated with pesticides, *E. coli*, and other pollutants.
- Discourage parents from boiling water for more than one minute to kill pathogens. Concentrations of other contaminants, such as nitrate and lead, can increase if water is boiled longer.
- Health care providers can be a significant force in the prevention of waterborne disease by becoming involved in local efforts to prevent contamination of drinking water sources. See PSR's *From Knowledge to Action: A Safe Drinking Water Advocacy Kit* for strategies on how to become involved in these advocacy efforts.

Sources of Additional Information and Guidance

- Physicians for Social Responsibility: (202) 667-4260 or www.psr.org.
- PSR/ACPM online CME course, "Drinking Water and Disease": www.acpm.org/ehealth/sdw_intro.htm.
- NSF International (regarding water filtration systems): (800) 673-6275 or www.nsf.com.
- Campaign for Safe and Affordable Drinking Water: www.safe-drinking-water.org.
- EPA's Office of Ground Water and Drinking Water: (202) 260-5543 or www.epa/gov/ogwdw.
- EPA's Safe Drinking Water Hotline: (800) 426-4791 or www.epa.gov/safewater/dwinfo.htm.
- Farm*A*Syst/Home*A*Syst Program: (608) 262-0024.

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This document is one in a series of Drinking Water Fact Sheets developed specifically for health care providers by Physicians for Social Responsibility. These fact sheets provide practical and concise information to assist health care providers in recognition and prevention of disease caused by exposure to drinking water contaminants.

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PHYSICIANS FOR SOCIAL RESPONSIBILITY

NITRATE

What Health Care Providers Should Know

DRINKING WATER FACT SHEET #9

What is Nitrate and Why is There Concern about its Presence in Drinking Water?

The term *nitrate* refers to a large family of nitrogen-containing organic and inorganic compounds. Each year, 12 million tons of nitrogen are applied as commercial fertilizers (1), and some 150,000 tons of nitrate compounds are released into the environment by industrial facilities (2). Smaller quantities are used in heat transfer salts, glass and ceramics, fireworks, explosives and blasting agents.

Fertilizers, livestock manure, and atmospheric sources (from industrial and automobile emissions) are among the top contributors to nitrate contamination of underground water supplies (3). Nitrate is more commonly found in the groundwater of rural and agricultural regions, due to heavy fertilizer use in these areas. In general, domestic wells are more likely to be contaminated with nitrate than public water supplies because they typically draw groundwater from relatively shallow aquifers. Shallow groundwater is more susceptible to nitrate contamination than deeper public supply wells, particularly in areas with more porous, well-drained soils (3).

In the body, nitrate is converted to more toxic nitrites, which can cause serious health effects in infants and pregnant women. People can also be exposed to nitrites via certain foods and drugs, including cured meats (4,5).

What are the Health Effects of Nitrates in Drinking Water?

The main health effect of nitrate ingestion is a blood disorder called methemoglobinemia, also known as *blue baby syndrome* because it occurs most commonly in infants and can cause a characteristic blue-gray skin coloration. Ingestion of nitrate (converted to nitrites in the body) results in the conversion of hemoglobin to methemoglobin, a form of hemoglobin that cannot carry oxygen. Lack of oxygen in the blood can lead to clinical manifestations of cyanosis (bluish skin color, particularly of the mucus membranes) characteristic of methemoglobinemia. Other symptoms of methemoglobinemia may arise from poor delivery of oxygen in the blood. Acutely, these include shortness of breath, hypotension, below-average weight gain, and developmental delays, which may be present in the absence of observable cyanosis. Indications of chronically elevated methemoglobin levels include central nervous system depression (headache, dizziness, fatigue and lethargy); coma; convulsions; abnormal heart rhythms; circulation failure; and hemolytic anemia (5,6). Children exposed to high levels of nitrate in drinking water may also be at increased risk for developing goiter and respiratory tract infections (7,8). Severe methemoglobinemia can quickly lead to death if not recognized and treated immediately. Diagnosis can be made either by laboratory measurement of methemoglobin or by observation of blood turning a chocolate brown color when exposed to room air.

Adults rarely develop methemoglobinemia at nitrate levels typically found in drinking water, but possible associations between long-term consumption of nitrate-contaminated drinking water and increased risk of bladder and ovarian cancer exist (9). Studies have also suggested that nitrate in drinking water may be linked with increased risk for non-Hodgkin's lymphoma, although the evidence is inconclusive (9,10).

Which Populations Are Most Susceptible to the Adverse Effects of Nitrates?

Infants under four months of age are at highest risk of developing methemoglobinemia because their bodies are less able to convert methemoglobin back to normal hemoglobin. Infants fed formula mixed with water from rural domestic wells are at particular risk (5). Parents should investigate the possible presence of nitrates in their drinking water (particularly well water) before using it to prepare infant formula. Miscarriages have also been linked to the consumption of nitrate-contaminated water by expectant mothers (11).

How Are Nitrates Regulated in Drinking Water?

The U.S. Environmental Protection Agency (EPA) has established an enforceable limit (called a maximum contaminant level, or MCL) of 10 milligrams per liter (mg/L) for nitrate and 1 mg/L for nitrites in drinking water. These standards were aimed at preventing methemoglobinemia in infants (5). However, they apply only to community water systems, as EPA does not regulate the quality of water from private wells.

People who obtain drinking water from domestic wells should have it tested for nitrate and other contaminants. This is particularly important in agricultural areas, where nitrate levels can often exceed drinking water standards. Limited sampling of domestic wells by the U.S. Geological Survey (USGS) found that 12% of domestic supply wells in agricultural areas exceeded the MCL (12). Shallow wells in agricultural areas with well-drained soils are at particular risk. In a review of data gathered from across the U.S., the USGS found that more than 25% of wells in such areas exceeded the MCL for nitrate (3).

Consumers of water from domestic wells should also be aware that nitrate levels in groundwater may fluctuate widely throughout the year, depending on precipitation amounts, soil types, and other factors. Consequently, short-term nitrate concentrations can reach levels many times higher than EPA's health-based standard, particularly during the growing season when fertilizers are most heavily applied.

What Can Health Professionals Do to Reduce the Public Health Threat from Nitrates in Drinking Water?

- Advise expectant mothers and parents of newborn infants, particularly those living in agricultural areas, about the health risks of nitrate in drinking water. If nitrate exposure is suspected, talk with your patients to determine likely source(s) of exposure (e.g., drinking water or food).
- Encourage patients with private wells to have their water tested for nitrate contamination. EPA's Safe Drinking Water Hotline at (800) 426-4791 can direct individuals to EPA-certified public health laboratories that can perform such tests. If contamination is found, home water treatment units using ion exchange, reverse osmosis, or electrodialysis can be effective in removing nitrate.
- Tell your patients with nitrate-contaminated water not to use it for mixing infant formula. In addition, advise patients against boiling nitrate-containing drinking water, as boiling can increase nitrate concentrations.
- Educate your peers, your community, and your patients about the health hazards of nitrate and ways to prevent drinking water contamination. PSR's *Safe Drinking Water Advocacy Kit* includes suggestions for becoming involved in advocacy efforts to prevent drinking water contamination.

Sources of Additional Information and Guidance

- Physicians for Social Responsibility: (202) 667-4260 or www.psr.org
- PSR/American College of Preventive Medicine (ACPM) online CME course, "Drinking Water and Disease": www.acpm.org/ehealth/sdw_intro.htm
- NSF International: (800) 673-6275 or www.nsf.com
- U.S. EPA Office of Ground Water and Drinking Water: (202) 260-5543 or www.epa.gov/ogwdw
- Farm*A*Syst/Home*A*Syst Program, University of Wisconsin-Madison, (608) 262-0024 or www.uwex.edu/farmasyst

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PHYSICIANS FOR SOCIAL RESPONSIBILITY

CRYPTOSPORIDIUM

What Health Care Providers Should Know

DRINKING WATER FACT SHEET #1

What Is *Cryptosporidium* and Why Is There Concern about Its Presence in Drinking Water?

Cryptosporidium parvum (C. parvum) is a protozoan parasite known to infect humans and many animal species. The infective oocysts of *Cryptosporidium* are shed in the feces, and infection can occur by consumption of contaminated food or water, ingestion of contaminated recreational water, or through contact with feces of infected persons or animals. *Cryptosporidium* is not new, but is has gained recognition, both because it has become more widespread and because of evidence that there are potential life-threatening consequences of infection in the growing population of immunocompromised persons.[1]

This parasite is most often found in surface water, although ground water can also be contaminated. Studies have shown that up to 97% of U.S. surface waters may be contaminated with *Cryptosporidium* oocysts.[2,3] Surface water becomes contaminated with *Cryptosporidium* when heavy rains cause runoff of animal waste or when contaminated wastewater is discharged by inefficient or improperly operated wastewater treatment plants. Conventional water treatment systems are not completely effective in removing *Cryptosporidium*, because the organism is resistant to chlorine and filtration units can allow infectious oocysts to pass into finished water.[4]

What are the Health Effects of *C. parvum* Infection?

The number of confirmed cases of cryptosporidiosis attributable to drinking water contamination is low, largely because of case underreporting by patients and by physicians. Studies show that many physicians are unaware of cryptosporidiosis and unfamiliar with its symptoms, and consequently, they often do not test for the infection.[5]

The largest outbreak in U.S. history occurred in 1993 when at least 400,000 people in Milwaukee became ill after drinking municipal water contaminated with *C. parvum*.[6] A total of 54 deaths were attributed to the outbreak, primarily involving immunocompromised individuals.[7] Seroprevalence studies indicate that exposure to *Cryptosporidium* is widespread in the U.S., although many cases are asymptomatic.[8]

In healthy individuals, *Cryptosporidium* infection generally results in a self-limiting diarrhea. Infection may result in gastrointestinal illness after 2 to 10 days with watery diarrhea, headache, abdominal cramps, nausea, vomiting, and low-grade fever. In healthy persons, symptoms normally disappear within 1 to 2 weeks. However, persons with compromised immune systems (e.g., persons with HIV/AIDS, cancer patients, and transplant patients) may experience persistent infection that may lead to severe, if not life-threatening, illness.[2] *Cryptosporidium* infection is normally limited to the intestinal tract, though the parasite has been found in the lungs, liver, pancreas, bile ducts and gall bladder of AIDS patients.[9] Elderly patients with chronic illness may also be at increased risk for *Cryptosporidium* infection.[10] There is currently no established therapeutic drug for the treatment of cryptosporidiosis, although paromomycin and azithromycin may be effective.[11]

How is *Cryptosporidium* Regulated in Drinking Water?

In 1999, the U.S. Environmental Protection Agency (EPA) implemented *Cryptosporidium* treatment and monitoring requirements for drinking water systems. More recently, a Federal Advisory Committee recommended that EPA adopt more stringent *Cryptosporidium* monitoring and treatment requirements in upcoming rules, to be promulgated by May 2002.

What Can Health Care Providers Do to Reduce the Public Threat From *Cryptosporidium*?

- If *Cryptosporidium* infection is suspected, patients should be tested. Standard ova and parasite tests do not necessarily include *Cryptosporidium*, so it must be specifically requested.
- Report confirmed cases of *Cryptosporidium* to your local health department.
- Inform your high-risk patients about how *C. parvum* is contracted and the symptoms of infection. Advise them to wash hands with soap after using the toilet and before

handling food. Patients should also be advised to avoid drinking water directly from lakes or rivers.

- If drinking water is suspected to be the source of infection, point of use filters may be appropriate. Patients should look for filters labeled as "Absolute 1 micron" or a reverse osmosis filter. To find out if a particular filter removes *Cryptosporidium*, contact NSF International, an independent testing and certification group (refer to contact information provided below). Filters that are tested and certified by NSF Standard 53 for cyst removal or cyst reduction are also effective in removing *Cryptosporidium*.
- For patients with suppressed immune systems, boiling water is the best measure for inactivating *Cryptosporidium*. According to EPA and CDC, heating water at a rolling boil for one (1) minute will inactivate *Cryptosporidium*. Water should be stored in a clean container with a lid and refrigerated.
- Advise patients that not all bottled water is absolutely free of *Cryptosporidium*. Information on labels has not been standardized and often does not provide the consumer with information needed to choose safe water. Individuals should select a bottled water supplier only after careful research. Bottled water treated by distillation or reverse osmosis assures *Cryptosporidium* removal.
- Health care providers can be a significant force for prevention of waterborne disease, by becoming involved in local efforts to prevent contamination of sources of drinking water. See PSR's *A Safe Drinking Water Advocacy Kit* for strategies on how to become involved in these advocacy efforts.

Sources of Additional Information and Guidance

- Physicians for Social Responsibility: (202) 667-4260 or www.psr.org
- Campaign for Safe and Affordable Drinking Water: www.safe-drinking-water.org
- U.S. EPA Safe Drinking Water Hotline: (800) 426-4791
- U.S. EPA Office of Ground Water and Drinking Water: (202) 564-3750 or www.epa.gov/ogwdw/
- Cryptosporidium and Water: A Public Health Handbook. Available from CDC or on-line at: www.cdc.gov/ncidod/diseases/crypto/crypto.pdf
- CDC guidance for persons with HIV/AIDS concerned about Cryptosporidium: www.cdc.gov/ncidod/diseases/crypto/hivaids.htm
- CDC Fact Sheet: Preventing Cryptosporidiosis: A Guide to Water Filter and Bottled Water. www.cdc.gov/ncidod/dpd/parasites/cryptosporidiosis/factsht_crypto_prevent_water.htm
- For information on water filters and home treatment units effective for Cryptosporidium removal, contact NSF International: (800) 637-8010 or www.nsf.org/consumer/contaminants/cryptosporidum.html.

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PHYSICIANS FOR SOCIAL RESPONSIBILITY

E. coli O157:H7

What Health Care Providers Should Know

DRINKING WATER FACT SHEET #4

What Is *E. coli* O157:H7 and Why Is There Concern about Its Presence in Drinking Water?

Escherichia coli is a normal commensal organism for humans and many animals. While there are many harmless *E. coli* strains, *E. coli* O157:H7 can cause food- and waterborne illness. *E. coli* O157:H7 causes approximately 73,000 infections and about 61 deaths per year in the U.S.[1] Recognizing a water-related *E. coli* O157:H7 outbreak requires special attention from health care providers, both because initial symptoms of an *E. coli* O157:H7 infection may resemble many other diarrheal illnesses, and because it is perceived mainly as a food-related disease.

One route of human exposure to *E. coli* is through the consumption of contaminated drinking water. The bacteria are shed in animal and human fecal matter, and drinking water sources may become contaminated during rain or snowmelts that wash *E. coli*-contaminated wastes into surface and ground water. If the source water is not properly treated, drinking water may remain contaminated with *E. coli*.[2] Additionally, bacteria can contaminate ground water as a result of malfunctioning septic systems, leaking sewer lines, and above-ground pathways that extend below the surface, such as deep cracks in the ground.

E. coli O157:H7 infections can be deadly. Recent water-related outbreaks of *E. coli* O157:H7 in North America include a May 2000 tragedy in Walkerton, Ontario, where at least 6 people died and approximately 2,000 persons became ill from consuming *E. coli* O157:H7-contaminated drinking water. In 1999, at a fair near Albany, New York, approximately 804 cases of *E. coli* O157:H7 infection were linked to consumption of contaminated drinking water. Sixty-five people were hospitalized and two people died.[2] There were also drinking water *E. coli* O157:H7 outbreaks reported in Wyoming, Illinois, and Washington in 1997 and 1998; all were associated with contaminated ground water systems.[3]

What are the Health Effects of *E. coli* O157:H7 Infection?

E. coli O157:H7 is a member of the subgroup of shiga toxin-producing *E. coli* known as enterohemorrhagic *E. coli*. Shiga toxins damage the lining of the intestine, often leading to bloody diarrhea.[1] Symptoms of *E. coli* O157:H7 infection normally occur within two to four days, though they may not appear until eight days after infection, and include abdominal cramps, low-grade fever, as well as watery or bloody diarrhea.[1] Infected persons usually recover without treatment within five to ten days.[4] However, about 15% of infected children under the age of five develop hemolytic-uremic syndrome (HUS).[2,5] This potentially fatal condition causes red blood cell hemolysis and renal failure, often requiring dialysis and blood transfusions.[2] With intensive care, the death rate for HUS is between three and five percent.[2] For survivors, HUS can have long-term effects. About one-third of persons with HUS will experience abnormal kidney function years later, and others may suffer blindness, paralysis, high blood pressure, or seizures.[1]

Adults with *E. coli* O157:H7 infections can also develop HUS, as well as a similar condition, thrombotic thrombocytopenic purpura (TTP). Elderly adults are particularly susceptible to these conditions.[6,7] TTP is characterized by low platelets, a low red blood cell count (caused by premature breakdown of the cells), and neurological abnormalities. Skin manifestations include purpura, ecchymoses, or a petechial rash.[8] The neurological symptoms associated with this disease include headaches, confusion, speech changes, and alterations in consciousness, which vary from lethargy to coma. People with severe cases may develop kidney failure.[8]

How is *E. coli* Regulated in Drinking Water?

The U.S. Environmental Protection Agency (EPA) does not specifically regulate *E. coli* O157:H7, nor do water utilities test directly for this pathogen. Rather, EPA requires that public water systems monitor treated drinking water for the presence of total coliform bacteria, which is an indicator of the potential presence of pathogenic organisms, including *E. coli* O157:H7. (Note that EPA does not regulate levels of bacterial contamination in domestic wells. It is the responsibility of the homeowner to have well water tested for microbial as well as chemical contaminants.) To find out about the testing process for your drinking water, contact your local water utility.

EPA's new Ground Water Rule, which is scheduled to be finalized by September 2001,[9] will provide further protection from viruses and bacteria such as *E. coli* O157:H7 by requiring identification and monitoring of ground water sources that are at risk for contamination and also used for public water systems.

What Can Health Care Providers Do to Reduce the Public Threat from E. coli O157:H7?

- Educate your colleagues and community about the potential of waterborne *E. coli* O157:H7, so that if an outbreak does occur, it will be identified quickly. If *E. coli* O157:H7 infection is suspected, patients should be tested. Most standard stool tests do *not* type *E. coli*, so it must be specifically requested.
- If you diagnose a patient with *E. coli* O157:H7, determine the exposure source (consumption of recreational or drinking water, undercooked beef, or other foods) and report confirmed cases to state and local health departments.
- Consider carefully whether or not to prescribe antibiotics to patients you suspect have *E. coli* O157:H7 infection. According to a recent *New England Journal of Medicine* study, antibiotics increase the risk of HUS in *E. coli* O157:H7-infected children and have not been shown to ameliorate symptoms.[5,10]
- If your patients are customers of public water systems, encourage them to read their Consumer Confidence Reports. The reports from small water systems will provide the *number* of water samples that tested positive for the presence of total coliform bacteria, while the reports from large systems will provide the *percentage* of positive samples. If your patients consume water from a private well, the water should be tested regularly for coliform bacteria. If water is positive for *E. coli*, it should be boiled for at least one minute before drinking.
- Encourage patients who rely on private wells and whose water is at risk for *E. coli* O157:H7 contamination to consider home water treatment units. Maintaining well integrity and sloping the area around private wells (which helps drain surface runoff away from the well) are also useful protective measures.
- Health care providers can be a significant force for prevention of waterborne disease by becoming involved in local efforts to prevent contamination of drinking water sources. See PSR's *From Knowledge to Action: A Safe Drinking Water Advocacy Kit* for strategies on how to become involved in these advocacy efforts.

Sources of Additional Information and Guidance

- Physicians for Social Responsibility: (202) 667- 4260 or www.psr.org.
- U.S. EPA Safe Drinking Water Hotline: (800) 426-4791 or http://www.epa.gov/safewater/dwinfo.htm.
- U.S. EPA Office of Ground Water and Drinking Water: (202) 260-5543 or www.epa.gov/ogwdw.
- NSF International: (800) 673-6275 or www.nsf.com.
- Technical assistance at the Farm*A*Syst/Home*A*Syst Program (Supported by USDA and EPA): (608) 262-0024 or www.uwex.edu/farmasyst or www.uwex.edu/homeasyst.

Acknowledgements

PSR would like to thank John M. Balbus, MD, MPH, and Jerome A. Paulson, MD, for reviewing this fact sheet's accuracy and clarity. PSR would also like to thank the Richard and Rhoda Goldman Foundation and the Bauman Foundation for providing the financial support for the development of this fact sheet series.

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1 CDC. Division of Bacterial and Mycotic Diseases. *Escherichia coli* O157:H7. General Information (fact sheet). Available: http://www.cdc.gov/ncidod/dbmd/diseaseinfo/escherichiacoli_g.htm.

2 USEPA. Office of Ground Water and Drinking Water. *E. coli* in Drinking Water (fact sheet). Available: http://www.epa.gov/safewater/ecoli.html.

3 Barwick RS, et al. Surveillance for waterborne-disease outbreaks. Morb Mortal Wkly Rep Surveill Summ 49(SS04):1-35 (2000).

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8 National Library of Medicine. Medical Encyclopedia: Thrombotic thrombocytopenic purpura. Available: http://www.nlm.nih.gov/medlineplus/ency/article/000552.htm.

9 USEPA. Office of Ground Water and Drinking Water. Proposed Ground Water Rule: Questions and Answers. Available: http://www.epa.gov/safewater/gwr/gwpropqa.html.

10 Bell BP, et al. Predictors of hemolytic-uremic syndrome in children during a large outbreak of *Escherichia coli* O157:H7 infections. Pediatrics 100(1):e12 (1997).

This document is one in a series of Drinking Water Fact Sheets developed specifically for health care providers by Physicians for Social Responsibility. These fact sheets provide practical and concise information to assist health care providers in recognition and prevention of disease caused by exposure to drinking water contaminants.

1985 NOBEL PEACE PRIZE

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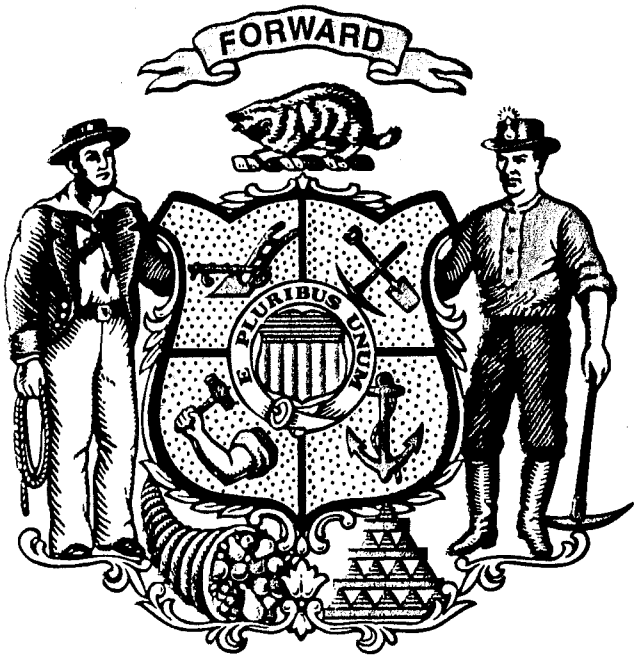
U.S. Affiliate of IPPNW


FORWARD
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SENATE BILL 632

Testimony of Kathy F. Pielsticker
To the Senate Committee on Environment
Tuesday March 23, 2010

Good Morning Chairperson Miller and Committee Members: My name is Kathy Pielsticker. I am the Administrator of the Division of Agricultural Resource Management at the Department of Agriculture, Trade and Consumer Protection. Secretary Nilsestuen has asked that I testify for information purposes regarding Senate Bill 632 related to land spreading of wastes and protection of areas susceptible to groundwater contamination.

Wisconsin has struggled with groundwater quality issues in northeastern counties for many years from a number of sources. Northeast Wisconsin faces some unique challenges in protecting groundwater resources:

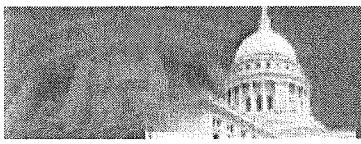
1. It is well documented that fractured bedrock and the thin soils in this area provide limited capacity to filter contaminants from land-applied wastes.
2. The volume of land-applied manure and bio-solids has increased not only from an expanding dairy industry but increased industrial, municipal, and private septic sources.
3. As agricultural cropland has been converted to other uses, the land available to receive, recycle, and filter these bio-solids has decreased putting extra pressure on the land.

Historically, these challenges have been addressed in piece meal fashion which has to this point been ineffective. This challenge needs a broad-based approach to develop and implement reasonable, cost-effective solutions. The Department respects the intent of the proposed legislation but has several concerns:

- The development of rules by the Department of Natural Resources to indentify potentially susceptible land and to prescribe performance standards and prohibitions will need to have very broad stakeholder involvement to avoid conflicts between state, local, and federal agencies, as well as environmental, industrial, and agricultural interests.

- The role of DATCP in assisting DNR in their proposed rule making is vague and should be specified through a joint Memorandum of Understanding.
- The proposed Advisory Committee is an important mechanism for input but should be jointly appointed and led by DNR and DATCP.
- While it is very difficult to estimate the fiscal impact on agriculture given the lack of specificity regarding the extent of areas considered highly vulnerable and the types of performance standards and prohibitions that would apply, it appears the costs to farmers would be significant.
- Proposed performance standards must be cost-effective and practical.
- The proposed performance standards should not disadvantage farms based on size. For example, technologies that might suit large operations should not be prescribed for smaller operations if not affordable or practical.
- There are no additional funding sources identified to mitigate the impact of these rules on small to mid-size operations.
- There is a need to identify new resources to fund permanent practices and technologies to address groundwater quality concerns.
- There will be significant additional work to implement this bill but there are no designated funding sources either for local technical assistance, or for state staff to administer this program.

Again, the Department recognizes the importance of addressing karst-related groundwater concerns. However, we urge that the inclusion of agricultural interests in crafting solutions be commensurate with the level of effort expected from agriculture to implement practical and flexible performance standards.



WISCONSIN STATE LEGISLATURE

Midwest Environmental
ADVOCATES
pro bono publico

March 23, 2010
Before the Senate Committee on the Environment
Written Testimony of Midwest environmental Advocates, Inc. Supporting SB 632

Thank you for the opportunity to submit testimony today, and for holding a public hearing on SB 632, a bill that will do tremendous good for the people of rural Wisconsin who have suffered from "Brown Water" incidents for years, and who are presently deprived of the basic human right of access to clean and safe drinking water.

Midwest Environmental Advocates (MEA) is Wisconsin's only public interest environmental law center. For years we have worked with citizens throughout Wisconsin who have suffered from well contamination caused by excess nitrate or bacteria. Many of these citizens live in rural parts of Northeastern Wisconsin, where many farm fields are used for the disposal of animal or industrial waste, municipal sludge, or septage. To be sure, some of these wastes – when handled and disposed of properly – can be a benefit to the soil. But each year, the spring snowmelt is the harbinger of fear for citizens from Morrison to Cooperstown, from Byron to Luxemburg. They know that they cannot trust their drinking water to be safe for drinking, for cooking, or for bathing.

Sometimes these citizens call MEA, looking for answers that DNR or DATCP cannot provide. They ask us: "What can we do?" And all too often our answer has been: "Under existing law, nothing." That citizens face such an acute public health threat in this day and age points to a failure in public policy that the Legislature can now address with SB 632.

Dozens of studies by Wisconsin's leading hydrogeologists have shown that pollutants on the surface of the land can easily travel downward to vulnerable groundwater aquifers, carried by rainwater or pulled by gravity itself. Scientists have explained that this risk is the greatest in areas of so-called "high karst potential;" in other words, areas where shallow soils overlay soft, fractured bedrock, as is the case throughout much of Northeastern Wisconsin. These landscapes lack the natural ability to filter out dangerous pollutants before they reach our underground drinking water supplies. Studies performed right here in Wisconsin have demonstrated that harmful pollutants can travel at alarming speeds through fractured bedrock, moving hundreds of feet a day. Imagine this scenario: unsafe manure application on Day 1; brown water flowing from the next door neighbor's tap on Day 3. Sometimes, it's that simple, that quick, and that dangerous.

The time has come to take action, and MEA strongly urges you to pass SB 632 to protect clean and safe drinking water for Wisconsin families.

A. Current Law is Not Effective at Preventing Well Contamination

Despite the known science, Wisconsin's environmental laws currently fail to recognize the inherent connection between surface activities and groundwater quality. Wisconsin has progressive runoff standards (Wis. Admin. Code NR 151), currently under revision by the DNR to better reduce nonpoint source pollution. But these standards are designed to address *surface* water quality, and the statute that authorizes them (Wis. Stat. ch. 281) is intended to bring our rivers and streams into compliance with surface water quality standards. Groundwater quality is simply not addressed.

Wisconsin also has a groundwater quality law (Wis. Stat. ch. 160, implemented by DNR at Wis. Admin. Code NR 140), but again, this program does not adequately recognize the link between surface activities and groundwater quality. NR 140 establishes groundwater enforcement standards for pollutants of concern, including nitrate and bacteria that are such a problem in rural Northeastern Wisconsin, but does not prescribe the surface land-use practices that may be necessary to reduce groundwater pollution. Again, the current law fails to recognize the link between surface activities and groundwater quality.

B. SB 632 Takes a Carefully Targeted, Scientifically Justified Approach

SB 632 provides a tailored and refined approach to a complex problem. Its drafters have avoided creating an overly broad, sweeping new regulatory program, and instead have focused in on the root of the matter. There are two steps to identify the most vulnerable landscapes before new restrictions on land spreading would kick in. First, the bill requires DNR to identify those areas of the State that are potentially susceptible to groundwater contamination, based in part on the depth of soils and the existence of carbonate bedrock. Second, the bill requires those with the best local experience – county land conservation committees – to categorize the areas identified by DNR on a scale of increasing risk, based upon a scientific framework developed by DNR. The well-established working relationship between DNR and county conservation staff will be used effectively under SB 632.

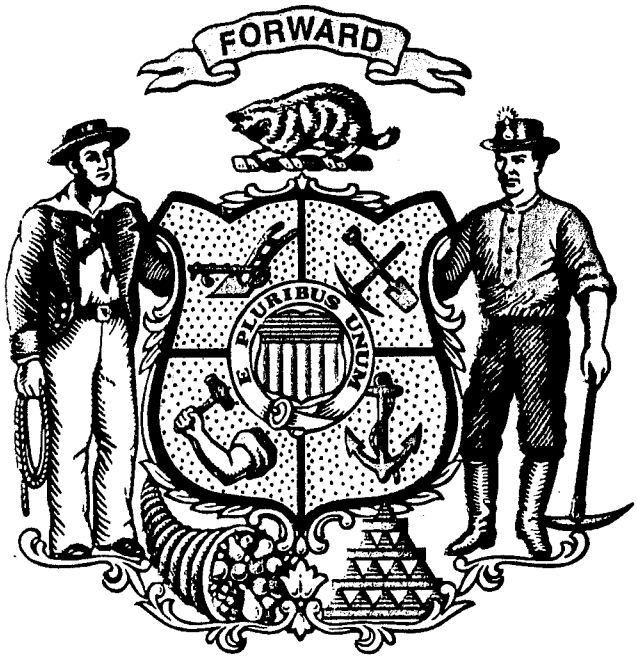
This approach is drawn, in part, from the recommendations of the 2007 Final Report of the Northeast Wisconsin Karst Task Force, a document compiled by a diverse group of leading geologists, soil scientists, conservation professionals and agricultural producers. It is sound, and ensures that any more stringent standards on the land application of waste are carefully deployed where they are most needed. After all, Wisconsin's landscape is not uniform, and neither should be our approach to groundwater protection.

What's more, this approach does not "discriminate" based on the type of waste. While animal manure is a big part of the problem, it is not the only cause of groundwater contamination, so SB 632 would address industrial waste and municipal and septic sludge as well. The intent, reflected in the bill, is to focus on groundwater and drinking water protection, not to target any particular source of waste. Let groundwater quality be the guide for managing all sources of waste – Wisconsin families and businesses depend on it.

Thank you again for taking up such an important bill. We urge the Committee to recommend passage of SB 632, and look forward to providing any additional information or testimony that the Committee may request.

Submitted by:

Jamie Saul
Staff Attorney
Midwest Environmental Advocates
(608) 251-5047
jsaul@midwestadvocates.org


FORWARD
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MEMORANDUM

TO: Members of the Senate Committee on Environment

FROM: Jayme Sellen, Legislative Assistant

DATE: March 23, 2010

SUBJECT: Support for Senate Bill 632

Brown County supports Senate Bill 632 relating to the control of nonpoint source water pollution in certain areas with carbonate bedrock. This legislation will help industries that land apply various waste streams to avoid areas of carbonate bedrock also known as a karst feature.

Brown County has areas that contain karst features including sinkholes, fractures, exposed bedrock and shallow soils that provide conduits for pathogens and nutrients to seep into the groundwater. Over the past several years, the Town of Morrison had over 100 wells contaminated with bacteria, e-coli and nitrates. These contaminants in drinking water can cause severe illness and even death to small children.

Finding the solution to the fix the well contamination problems in karst areas will take a two pronged approach:

First, we need to stop land applying waste in sensitive areas and provide maps that are field verified, that direct where waste can be safely applied

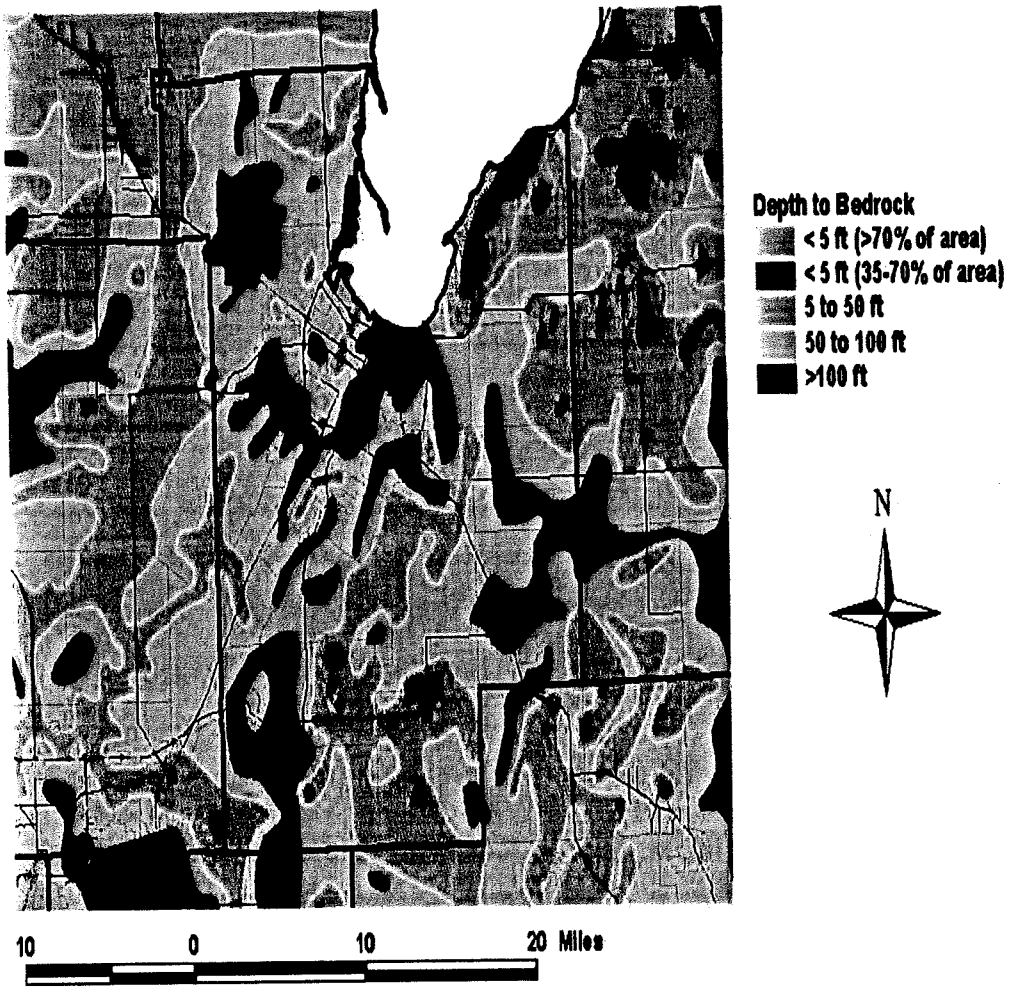
Secondly, the State of Wisconsin needs make a commitment to rural residents and farmers alike. Funding for the cost-sharing of new technologies is a necessity.

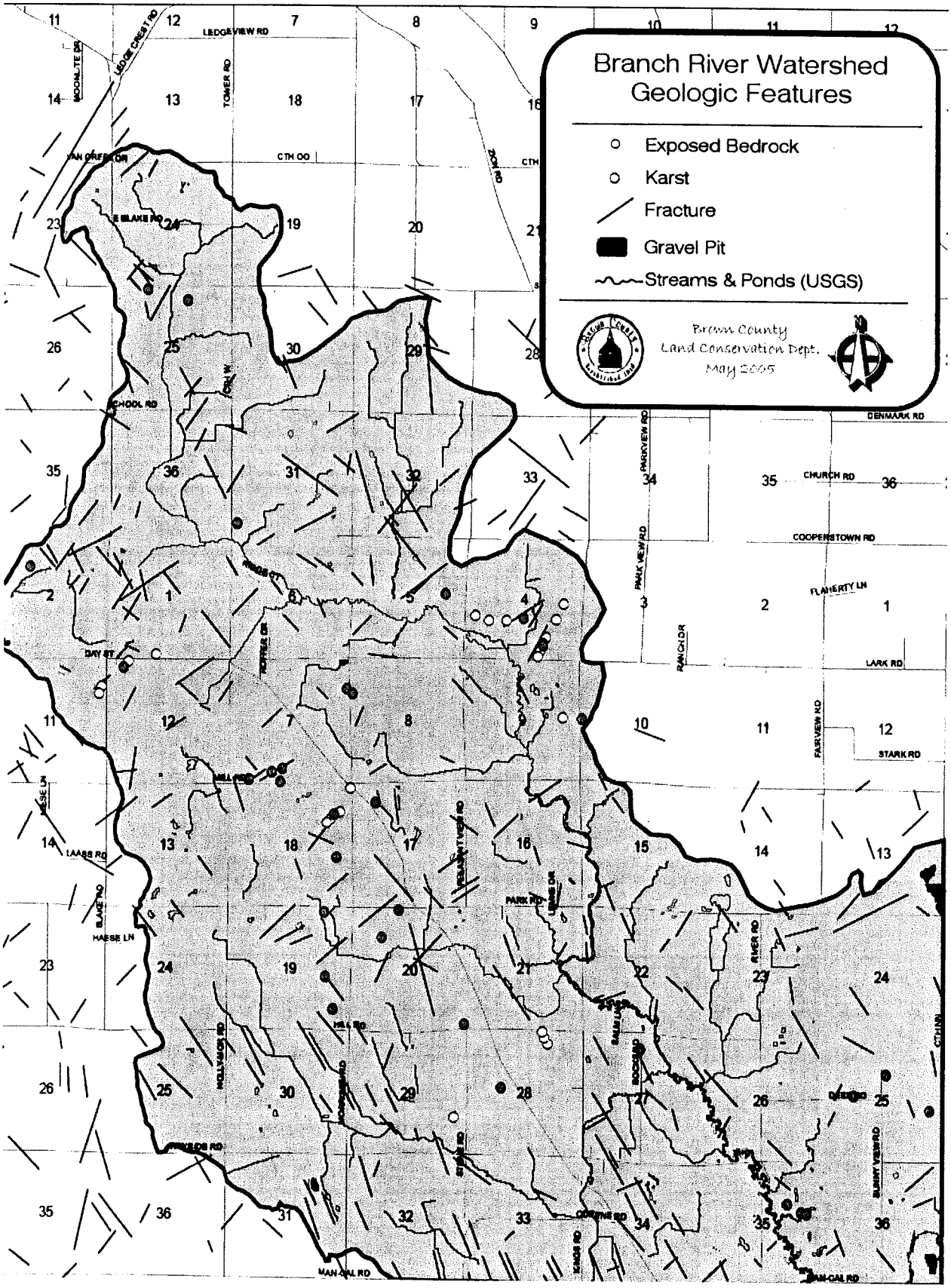
Brown County has been working with several Brown County businesses to provide a solution to the problem we face in southern Brown County. The Brown County Waste Transformation Initiative would take all types of waste streams, remove the pathogens and pelletize the nutrients to make it safe to apply to areas of shallow bedrock.

We cannot afford to ignore the public health problems caused by contamination of groundwater in karst areas. We also cannot afford to restrict farmers without providing the funds necessary for them to meet those restrictions.

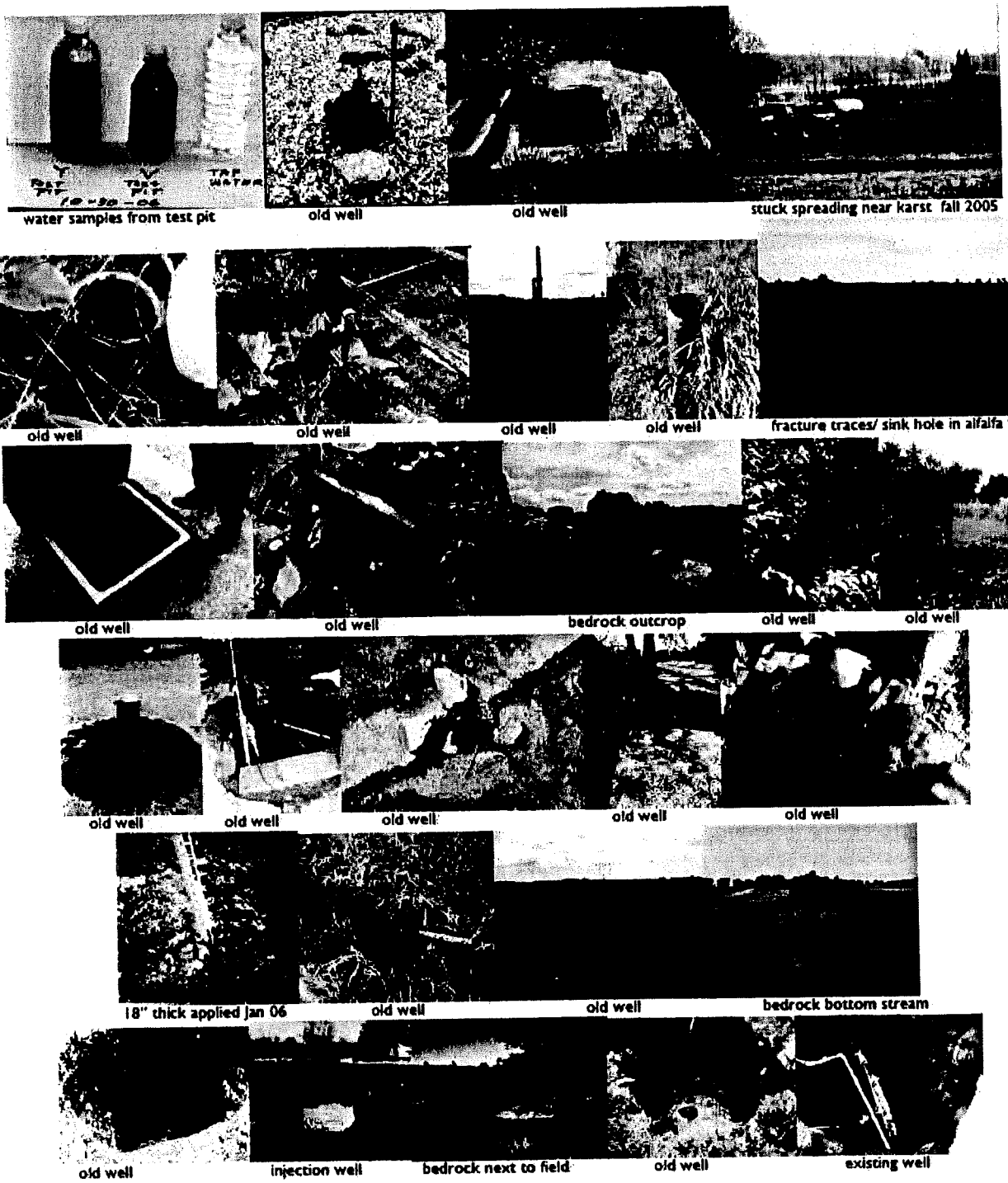
Early Karst Information available in Brown County

Brown Co. Depth to Bedrock

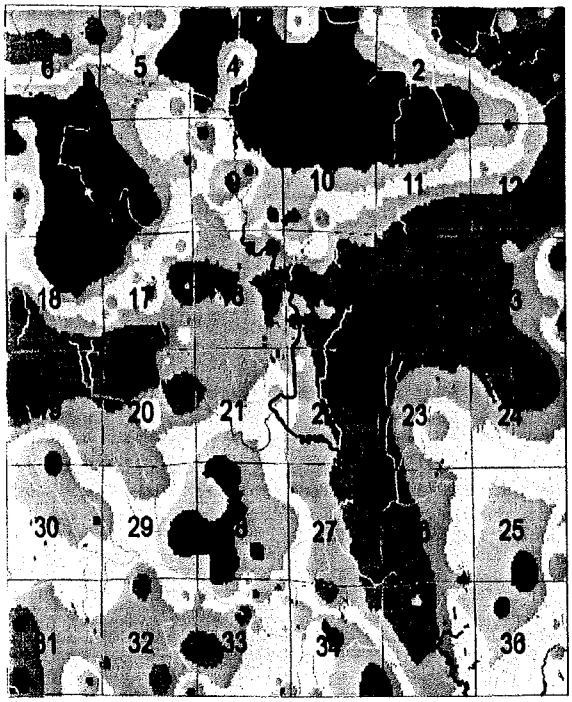



Branch River Watershed
Geologic Features
Exposed Bedrock
Karst
Fracture
Gravel Pit
Streams & Ponds (USGS)
Brown County
Land Conservation Dept.
May 2005
LEDGEVIEW RD
CTH OO
SCHOOL RD
DENMARK RD
CHURCH RD
COOPERSTOWN RD
FLAHERTY LN
LARK RD
STARK RD
PARK RD
HAESE LN
MAN-CAL RD

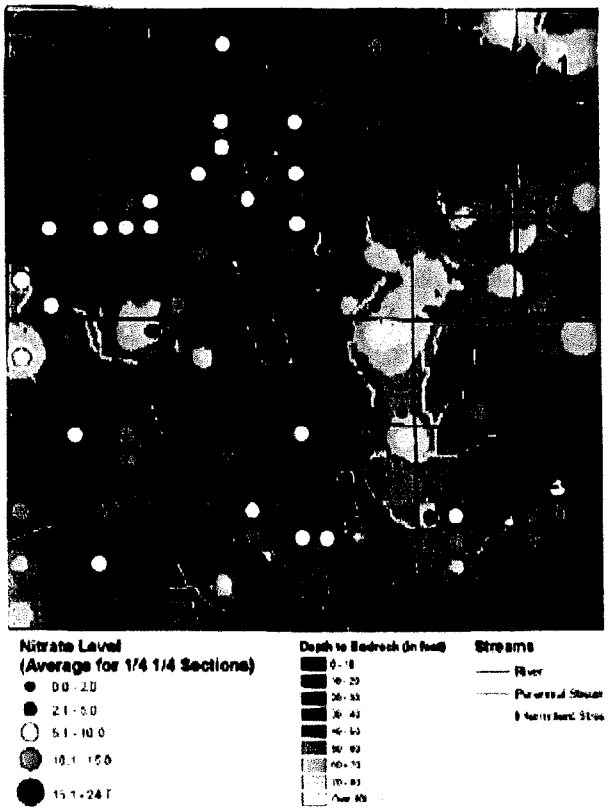
Meetings with town residents
Old wells , sink holes, unsafe land application



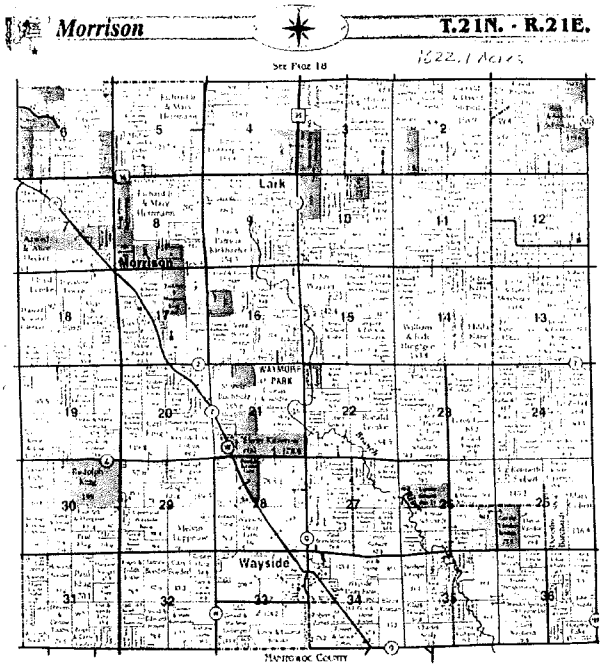
Morrison: Depth to Bedrock



Nitrate Levels in Morrison

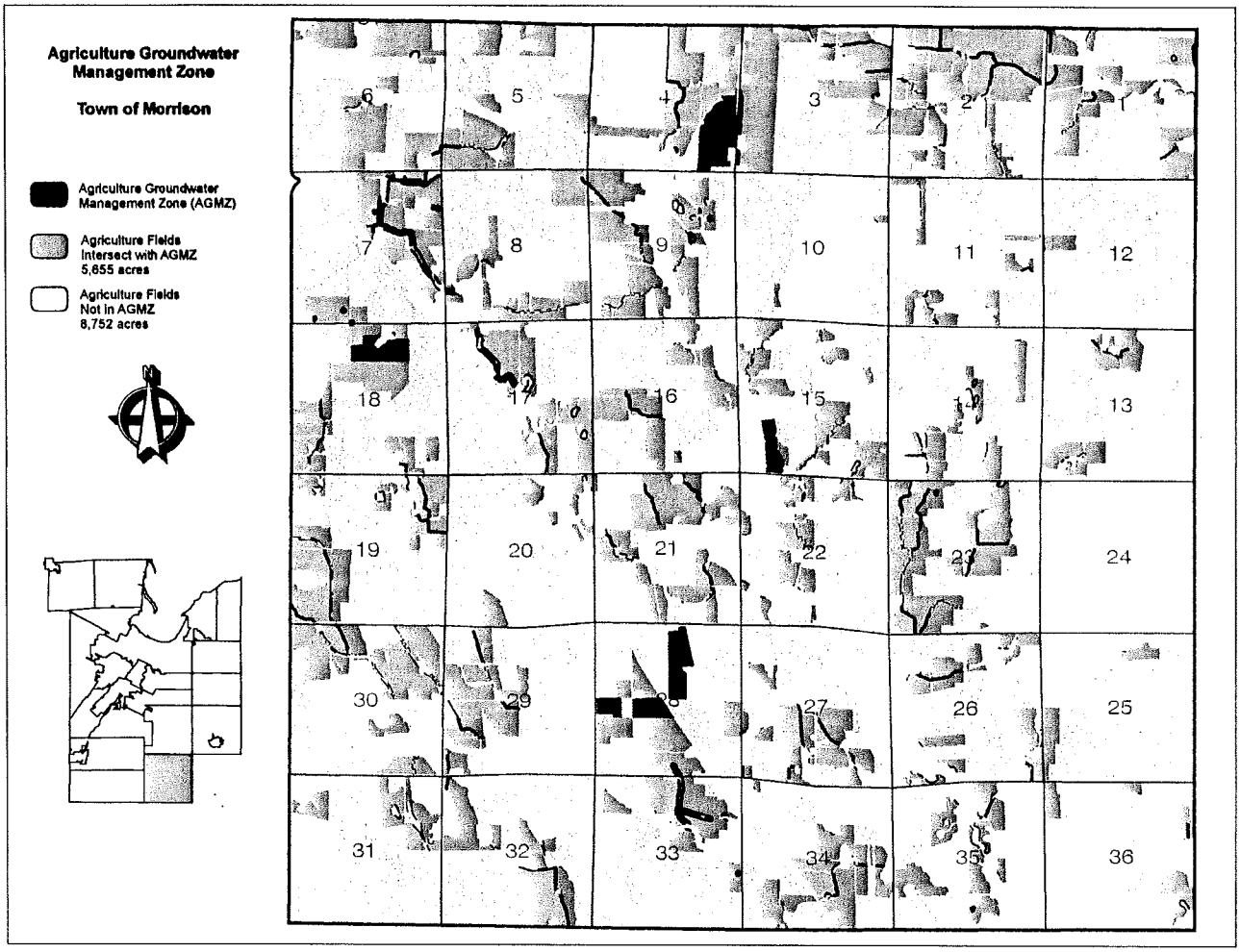


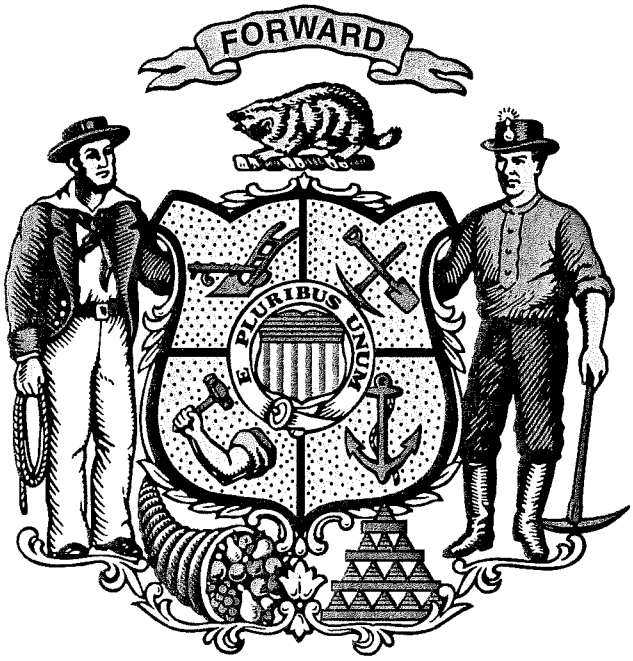
Over 30 % of wells tested in Morrison are over Nitrate Drinking Water Standard 10 ppm



DNR approved industrial waste spreading sites 2007

Field Verified Karst Maps are needed to help guide Land Application




FORWARD
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WISCONSIN LIQUID WASTE CARRIERS ASSOCIATION, INC.

16 N. Carroll Street, Suite 900, Madison, WI 53703
Telephone: (608) 255-2770
Fax: (608) 251-8192

RESPONSIBLE RECYCLING
BY
RESPONSIBLE CARRIERS

March 31, 2010

Senate Environment Committee
c/o Sen. Mark Miller
Room 317 East, State Capitol
P.O. Box 7882
Madison, WI 53707-7882

Committee members,

The Wisconsin Liquid Waste Carriers Association, a nonprofit trade association comprised of approximately 200 septage servicing companies throughout the state, has concerns about Senate Bill 632. In particular:

- In referring to septic or human waste, the Northeast Wisconsin Karst Task Force report says, "We recommend that a committee of people with expertise and knowledge of these other types of waste be formed to develop practices and restrictions for these waste products. We also recognize that septic systems may contribute to groundwater contamination in areas with shallow carbonate bedrock and that wells may provide direct conduits for polluted runoff and wastes to enter groundwater. We recommend that separate committees with knowledgeable people be formed to develop practices and restrictions for such systems." The report authors acknowledged that they do not have expertise in non-manure wastes and suggest that a committee be formed to further examine the issue.

- The septage servicing industry will be directly impacted by Senate Bill 632, yet our industry was not consulted prior to the drafting of this legislation, or at any time thereafter. We have been informed that this legislation was in response to the findings of the Northeast Wisconsin Karst Task Force. No one from the septage industry – or the DNR septage program – were represented on this task force, as the previous paragraph indicates.

- The landspreading of septage is an approved activity and is already strictly regulated by the Environmental Protection Agency and the Wisconsin Department of Natural Resources. State code NR 113 dictates the criteria that must be met before the DNR will approve a site for landspreading – including a minimum depth of 3 feet from surface to bedrock and groundwater, among many other criteria.

- In 2009, an estimated 800 million gallons of septage were removed from an estimated 732,000 private onsite wastewater treatment systems such as holding tanks and septic tanks in the state of Wisconsin. This waste can be disposed of at a municipal wastewater treatment plant or via land application. However, it is not uncommon to see some treatment plants in the state refuse to accept waste from private septage carriers - they either do not have the capacity to accept

outside waste, or they simply do not want to "deal with it." And with phosphorus rules on the horizon that would require treatment plants to reduce their phosphorus output, we anticipate that more and more treatments plants will simply refuse to accept septage from private carriers. If septage haulers are not welcome at treatment plants AND landspreading is further restricted, what solution do legislators have for the disposal of this waste?

- If done in accordance with EPA and DNR rules, land application of septage is considered to be beneficial to the soil and also helps recharge the local aquifers—putting liquids back into the watershed from which they came, rather than sending them downstream of a treatment plant.

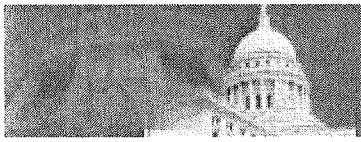
We ask the committee to delay voting on this important legislation, so that more information-gathering can be done – or to amend the proposal so that it reflects the desires of the Karst Task Force. The Karst report said that while septage (septic waste) may also contribute to the problem if it is in an area of shallow bedrock, "we recommend a committee of people with expertise and knowledge of these 'other' types of waste be formed to develop practices and restrictions for such systems."

Senate Bill 632 could greatly impact not only our industry, but the hundreds of thousands of homeowners who have private onsite wastewater systems in their yards.

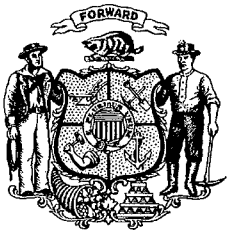
Sincerely,

Patrick Essie

Patrick Essie
Executive Director
Wisconsin Liquid Waste Carriers Association



WISCONSIN STATE LEGISLATURE



My name is Judy Treml,

I live in Luxemburg Wisconsin in Kewaunee County. A family illness has prevented me from attending and giving my support of the clean drinking water legislation SB632 as well as well the ground water protection bill SB 620 in person.

I am a mother of 3 daughters who had the unfortunate experience of living in Wisconsin without protections for rural drinking water wells. In Feb 2004, we as a routine part of country well ownership had our drinking water well testing as a part of the public health new infant program in place in Wisconsin. On February 4th we tested our water, and sent it into the Wisconsin Department of Hygiene for analysis. Two days later we received our well test results of 'bacteriologically safe', with instruction to re-test in one year or 'if a change in color and order' are present.

On February 26, a CAFO operator, with permission from the Wisconsin Department of Natural Resource began spreading 10's of thousands of gallons of liquid manure on the field across the road from our home 2 days later our neighbor Karla Kahr, turned on her tap in the kitchen to find black, manure smelling thick water rushing from her tap. At the time she was 8 month pregnant with her first child. She brought her water over to our house asking for help. Calls to the DNR went unheeded and since there was no legislation in place to prevent that type of waste disposal, the Kahr family's water supply was polluted with what would later be determined as Ecoli and Coliform bacteria. As well as grossly elevated nitrates. All of which could have harmed her and her husband's health as well as the life of their unborn child.

At the time of the Kahr contamination, our well water...which had tested SAFE on February 4th 2004, turned a sick, ugly color and reeked of cow manure. Two days later we would find out the results of our previously safe well. It too was polluted with Ecoli and Coliform bacteria as well as grossly high nitrate levels. We were astounded! The only 'event' that happened near our only water supply was the spreading of manure on a field that had been mapped and shown to have very large areas of 'Karst features'. The manure was not applied to those mapped areas, yet with the unpredictability of land applications manure ran over the Karst areas and ultimately found its way to the sinkhole located in the ditchline of the Kahr property.

If you think this story is an aborition in NE Wisconsin, think again! This very same scenario plays out EACH AND EVERY YEAR in NE Wisconsin. Hundreds of wells in the town of Morrison alone. Preceded by 11 wells in the town of Lark, 6 wells in the town of Franklin, 6 wells in Juneau county and 50+ wells in the town of Cooperstown two years in a row. The DNR and this legislature took the step to pass legislation prevent CAFO operators from spreading liquid manure in the winter months on frozen and snowcovered ground. Did it help? Not in NE Wisconsin. You see as these incidents occur over and over in NE Wisconsin, further investigation by DNR, UWO researcher, County employees who work in the affected counties that it wasn't just the liquid animal waste that was the problem. It extended much further. It was ANY type of waste, municipal, animal and septic. Based on these well contaminations we in this are realized, it wasn't just the waste alone that was the problem, but the rock that lay right below the surface of the soil, sometimes as little as 5-10 inches. In Kewaunee, Door, Brown and Manitowoc counties there are well mapped out areas of Karst features as well as numberous sinkholes. Sink holes which are a direct pathway to our groundwater.

I ask you to support this legislation not just for me, my 3 daughter and the new family that resides in the Kahr property, but EVERY family in NE Wisconsin that should not have to learn the hard way what Ecoli and bacteria can do to a family. My 3 daughters, myself and my husband all suffered the effects of the exposure to our contaminated water, my then 6 month old daughter was hospitalized as a result. It's time, we can't afford to wait until someone has to endure the loss of a loved one due to exposure to contaminated water. My family was fortunate, the next round of families may not be so luck

Thank You

Judy Treml
E758 Church Rd
Luxemburg, Wi 54217
Homeowner and mother