Members

Rep. Ryan Dvorak, Chairperson
Rep. David Wolkins
Rep. Matt Pierce
Rep. Timothy Neese
Sen. Beverly Gard
Sen. Frank Mrvan
Sen. Edward Charbonneau
Sen. Karen Tallian
Doug Meyer
Dave Wyeth
Dwayne Burke
John Hardwick
Art Umble
Calvin Davidson
Jon H. Moll
Thomas Easterly
Heather Hill

ENVIRONMENTAL QUALITY SERVICE COUNCIL

Legislative Services Agency
200 West Washington Street, Suite 301
Indianapolis, Indiana 46204-2789
Tel: (317) 233-0696 Fax: (317) 232-2554

LSA Staff:

Robert Bond, Attorney for the Council
Bernadette Bartlett, Fiscal Analyst for the Council

Authority: IC 13-13-7

MEETING MINUTES[1]

Meeting Date: September 9, 2010
Meeting Time: 1:00 P.M.
Meeting Place: House Chamber, State House, 200 W. Washington St.
Meeting City: Indianapolis, Indiana
Meeting Number: 2

Members Present: Rep. Ryan Dvorak, Chairperson; Rep. David Wolkins; Rep. Matt Pierce; Rep. Timothy Neese; Sen. Beverly Gard; Sen. Frank Mrvan; Sen. Edward Charbonneau; Sen. Karen Tallian; Dwayne Burke; John Hardwick; Thomas Easterly.

Members Absent: Doug Meyer; Dave Wyeth; Art Umble; Calvin Davidson; Jon Moll; Heather Hill.

1. Call to Order Rep. Dvorak called the meeting to order at 1:10 p.m.

2. Antidegradation Rulemaking A presentation entitled Antidegradation Rulemaking (Exhibit 1, slides 2 through 22) was made by Tom Easterly, IDEM Commissioner. In response to questions from Council members, Mr. Easterly:

- ✦ Explained the concept of best available demonstrable control technology.

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[1] These minutes, exhibits, and other materials referenced in the minutes can be viewed electronically at http://www.in.gov/legislative Hard copies can be obtained in the Legislative Information Center in Room 230 of the State House in Indianapolis, Indiana. Requests for hard copies may be mailed to the Legislative Information Center, Legislative Services Agency, West Washington Street, Indianapolis, IN 46204-2789. A fee of $0.15 per page and mailing costs will be charged for hard copies.

✦ Stated his belief that there will probably not be consensus on all elements of the proposed antidegradation rule among all parties interested in the rule.
✦ Stated that three major issues in the proposed rule are determining when antidegradation review is triggered, the amounts of pollutants to be considered de minimis, and which pollutants will be covered in an antidegradation review.
✦ Indicated that water outflow from BP facilities in northwest Indiana is not dangerous to local waters.
✦ Described IDEM's consultation with officials in other states to try to reach consensus on antidegradation standards.
✦ Described the conflict of interest that some members of environmental rulemaking boards have when considering general permit issues.
✦ Addressed issues concerning the expiration of general permits and appropriate rule readoption requirements.

A presentation on antidegradation rulemaking was made by Albert Ettinger, Attorney, Environmental Law and Policy Center. Mr. Ettinger:

✦ Described his involvement on behalf of various environmental interests in antidegradation rulemaking in Indiana and in other states.
✦ Explained the history of consideration of antidegradation issues in Indiana.
✦ Stated that a petition for corrective action has been filed because of the absence of progress on antidegradation rulemaking in Indiana.
✦ Expressed his belief that a statutory amendment is needed in Indiana so that water discharges under a general permit will not be exempt from antidegradation review.
✦ Explained how antidegradation standards protect the assimilative capacity of water for pollutants, which may be encroached only when necessary for social or economic reasons.
✦ Indicated that changes in the proposed rule are needed concerning numeric water quality criteria for certain pollutants, standards for the initiation of antidegradation review, the application of exemptions, and the use of general permits.

In response to questions from Council members, Mr. Ettinger:
✦ Indicated that he and the interests he represents are not interested in shortening the rulemaking process or having the United States Environmental Protection Agency (EPA) take over antidegradation review in Indiana, but only in finding reasonable compromise on the issues.
✦ Explained how water quality standards are determined and that finding good models is difficult with respect to some pollutants.
✦ Stated that there is no single antidegradation rule or model that would work for all states.
✦ Expressed his concern that permits are still being issued during the delayed rulemaking process, some of which have contributed to significant degradation issues.
✦ Explained the difference between individual permits and general permits.

3. Pharmaceuticals in the Water Supply A presentation entitled Pharmaceuticals in the Environment (Exhibit 2) was made by Lenore Tedesco, Ph.D., Director, Center for Earth and Environmental Science, Indiana University Purdue University Indianapolis. In response to questions from members of the Council, Dr. Tedesco:
✦ Addressed the issue of pharmaceutical infiltration in aquifers raised in an e-mail (Exhibit 3) from Marc Nelson of the St. Joseph County Health Department, indicating that aquifers are better protected by buffering than are surface waters.

✦ Described the level of attention and work done on the issue by pharmaceutical companies.
✦ Described disposal methods for collected pharmaceuticals.
✦ Indicated that research has not determined the extent of water contamination by pharmaceuticals that results from improper disposal.
✦ Described programs for collection of pharmaceuticals.
✦ Described the ecological effects of pharmaceuticals in the water supply.
✦ Indicated that EPA is considering rules for disposal of pharmaceuticals at hospitals and nursing homes.

A presentation entitled Pharmaceuticals in Drinking Water (Exhibit 1, slides 23 through 37) was made by Mr. Easterly, who also distributed a flyer on what to do with unwanted medications (Exhibit 4).

4. Phosphorus Pollution A presentation entitled Phosphorus in Indiana's Lakes and Streams: Impacts, Sources, Approaches to Reduction (Exhibit 5) was made by Dr. Tedesco.

A presentation entitled Phosphorus (Exhibit 1, slides 38 through 44) was made by Mr. Easterly, who also distributed a flyer on lawn fertilizer (Exhibit 6).

A presentation entitled Grand Lake St. Marys, Ohio: A Threat to Indiana Waters (Exhibit 7) was made by Angela Hamm, Water Policy Director, Hoosier Environmental Council.

Rep. Dvorak distributed a flyer on phosphorus-free lawn fertilizers (Exhibit 8) prepared by the Indiana Wildlife Federation and an e-mail from John Winters concerning phosphorus in Geist Reservoir (Exhibit 9).

5. Documentary Film The documentary film "Drop by Drop" was shown. The film, which addresses water pollution issues in Indiana, was produced by WFYI in association with the Indiana Regional Sewer District Association and the Alliance of Indiana Rural Water.

Jim Soper, Executive Director, Alliance of Indiana Rural Water, commented on the need for public education on water protection and the need for water infrastructure reconstruction.

6. Future Meetings Council meetings will be held on September 21 and October 14, both at 1:00 p.m. in the House Chamber, State House.

7. Adjournment Rep. Dvorak adjourned the meeting at 3:25 p.m.

EXHIBIT 1
EQSC
SEPTEMBER 9, 2010

IDEM We Protect Hoosiers and Our Environment

Environmental Quality Service Council—September 9, 2010

Thomas W. Easterly, P.E., DEE, QEP
Commissioner, Indiana Department of Environmental Management

1

IDEM We Protect Hoosiers and Our Environment

ANTIDEGRADATION RULEMAKING

2

IDEM We Protect Hoosiers and Our Environment

What is Antidegradation?

- A regulatory policy designed to prevent deterioration of existing levels of good water quality unless the action responsible for the deterioration provides a social or economic benefit.
- A part of federal water quality requirements.
  - Federal antidegradation policy is found at 40 CFR §131.12.
  - The Clean Water Act's (CWA) antidegradation policy is found in section 303(d) (and further detailed in federal regulations).
- Not a "no growth" rule.
- A policy that allows public input on decisions to be made on important environmental actions.

3

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General History of Past IN Antidegradation Rulemaking

- 1970s – Indiana's Stream Pollution Control Board adopted rules that established an antidegradation policy for all waters as part of the Water Quality Standards.
- 1997 – Indiana's Water Pollution Control Board adopted, as part of the Great Lakes Initiative, rules that established antidegradation implementation procedures for the Great Lakes Basin ONLY.
- 1997 - 2002 – IDEM made various attempts to establish a workgroup to work on antidegradation issues – these attempts failed to resolve issues.

4

IDEM We Protect Hoosiers and Our Environment

General History of Past IN Antidegradation Rulemaking

- November 6, 2002 – first meeting of Antidegradation-OSRW workgroup set up by the Triennial Review Steering Committee
- March 1, 2003 – first notice of rulemaking – extensive comments were received and responses developed, however, some felt the Agency's responses to the first notice comments were insufficient.
- March 2003 - April 2005 – workgroup meetings were held through December 2004.
- April 1, 2005 – second notice of rulemaking. The comment period was open from April 1, 2005 through May 30, 2005. Responses to the comments were never prepared.

5

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General History of Present IN Antidegradation Rulemaking

- Considering:
  - The extensive amount of comments received;
  - An internal review by staff who would be responsible for implementing antidegradation procedures;

  IDEM determined the April 1, 2005 second noticed draft would be difficult to implement.
- April 2005 - July 2007 – internal IDEM, OWQ workgroup met to take a fresh look at antidegradation implementation procedures and develop revised concept.

6

IDEM We Protect Hoosiers and Our Environment

General History of Present IN Antidegradation Rulemaking

- August 2, 2007 – **presentation** of revised antidegradation concept to interested parties **in NW IN** at Northwest IN Regional Planning Commission (NIRPC).
- Key attendees included:
  - Kay Nelson, NW IN Forum
  - Lee Botts, the Alliance for the Great Lakes
  - Kathy Luther; Dan Gardner; Kyle Nelson; Jackie Anders, NIRPC
  - Brad Klein, Environmental Law and Policy Center
  - John Ross, NiSource
  - Kevin Doyle, Mittal Steel
  - Tom Anderson and Charlotte Read, Save the Dunes
  - Dave Behrens, U.S. Steel
  - Linda Wilson, BP
  - Jennifer Gadzala, Town of Chesterton
  - Glenn Pratt via telephone
  - Various IDEM staff

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General History of Present IN Antidegradation Rulemaking

- August 15, 2007 – **presentation** of revised antidegradation concept **to industry reps**.
- August 22, 2007 – follow-up on presentation of revised antidegradation concept with industry reps.
- September 28, 2007 – additional follow-up on presentation of revised antidegradation concept with industry reps.
- Key attendees included:
  - Patrick Bennett, Indiana Manufacturers Association
  - Neil Parke, Eli Lilly
  - John Humes, Hoosier Energy
  - Tim Lohner, American Electric Power
  - Nat Noland, Indiana Coal Council
  - Vince Griffin, Indiana Chamber of Commerce

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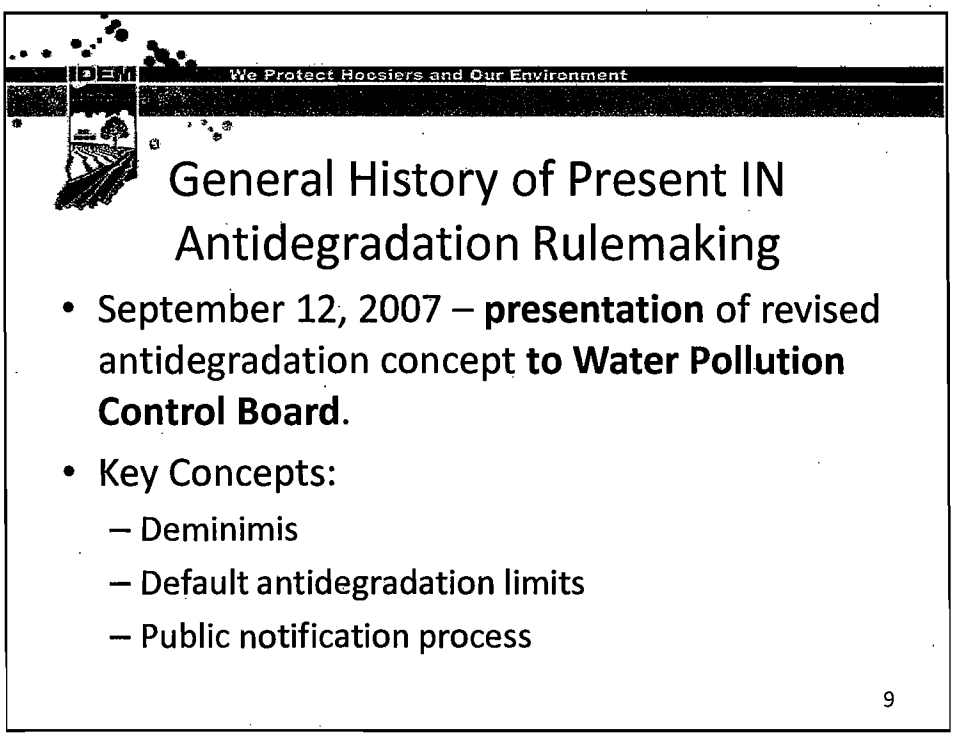
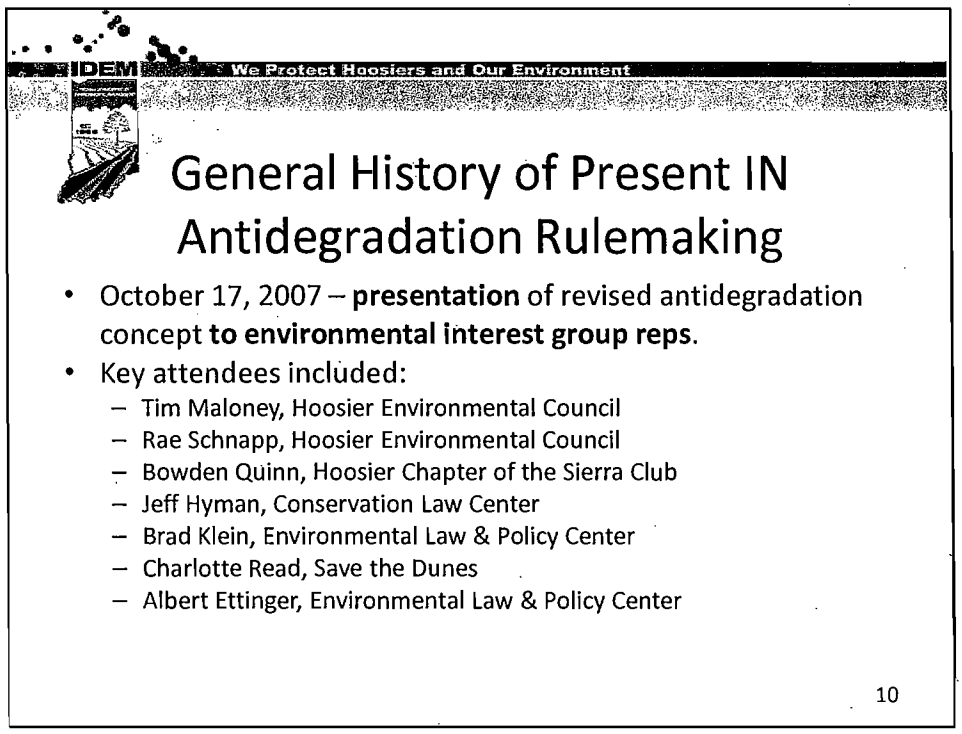

IDEM
We Protect Hoosiers and Our Environment
General History of Present IN Antidegradation Rulemaking
• September 12, 2007 – presentation of revised antidegradation concept to Water Pollution Control Board.
• Key Concepts:
– Deminimis
– Default antidegradation limits
– Public notification process
9


IDEM
We Protect Hoosiers and Our Environment
General History of Present IN Antidegradation Rulemaking
• October 17, 2007 – presentation of revised antidegradation concept to environmental interest group reps.
• Key attendees included:
– Tim Maloney, Hoosier Environmental Council
– Rae Schnapp, Hoosier Environmental Council
– Bowden Quinn, Hoosier Chapter of the Sierra Club
– Jeff Hyman, Conservation Law Center
– Brad Klein, Environmental Law & Policy Center
– Charlotte Read, Save the Dunes
– Albert Ettinger, Environmental Law & Policy Center
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General History of Present IN Antidegradation Rulemaking

- October 29, 2007 – **presentation** of revised antidegradation concept **to municipality reps.**
- Key attendees included:
  - Jodi Perras, representing Indiana Water Environment Association and the City of Indianapolis
  - Fred Andes, Barnes and Thornburg
  - Brett Barber, Greeley and Hansen
- November 21, 2007 – follow-up on presentation of revised antidegradation concept with **environmental interest group reps.**

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Antidegradation Recommendations December 2007 Barnes Report

Barnes Report on review of BP Permit (focused on Lake Michigan) indicated IDEM should provide:

- Clarity on how and when an antidegradation demonstration must be submitted for an increase in an entity's discharge.
- Direction on the content of the demonstration.

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Antidegradation Recommendations December 2007 Barnes Report

- A legal standard by which the adequacy of the demonstration will be evaluated and any increase allowed.
- The process by which the public can comment on the demonstration (ideally before an agency decision).

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Cooperative Rulemaking Process Starts

- Based upon the Barnes Report and the work completed by staff in 2007, in early 2008 IDEM initiated a stakeholder based rulemaking process with a goal of developing a consensus antidegradation rule.
- This process extended from April 2008 to August 2009.

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Cooperative Rule Process

- IDEM worked with a balanced subgroup:
  - 4 Environmental Representatives
    - Jeff Hyman, Conservation Law Center
    - Albert Ettinger, Environmental Law and Policy Center
    - Rae Schnapp, Hoosier Environmental Council
    - Bowden Quinn, Hoosier Chapter of the Sierra Club

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Cooperative Rule Process

  - 4 Business Representatives
    - Tim Lohner/Denny Wene, American Electric Power
    - Doug Bley, ArcelorMittal Steel
    - Kari Evans, Barnes and Thornburg
    - Neil Parke, Eli Lilly
  - 4 Municipal Representatives
    - Brett Barber, Greeley and Hanson
    - Dan Olsen, Michigan City Sanitary District

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Cooperative Rule Process

- 4 Municipal Representatives, cont.
  - David Bates, City of Goshen
  - Lori Gates, Christopher Burke Engineering
- Seven Workgroup Meetings
- Four Larger Stakeholder Meetings

No significant progress towards a consensus

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Antidegradation Status

- The 45-day Second Notice Comment Period closed January 30, 2010 – 31 different commenters provided 214 pages of comments.
- IDEM is still evaluating the comments and preparing a revised draft rule for possible preliminary adoption.

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Antidegradation Status

- There will be a third notice and comment period on the rule as preliminarily adopted.
- Major Issues Raised in the cooperative process:
  - Trigger for Antidegradation Review
  - What pollutants should be covered (Pollutant of Concern)
  - BADCT
  - Level of deminimis
  - Exemptions

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Antidegradation Status

- Despite active participation in the cooperative process; on December 17, 2009, three environmental groups petitioned U.S. EPA "for corrective action or withdrawal of the NPDES program delegation from the State of Indiana"
  - Environmental Law and Policy Center
  - Sierra Club Hoosier Chapter
  - Hoosier Environmental Council

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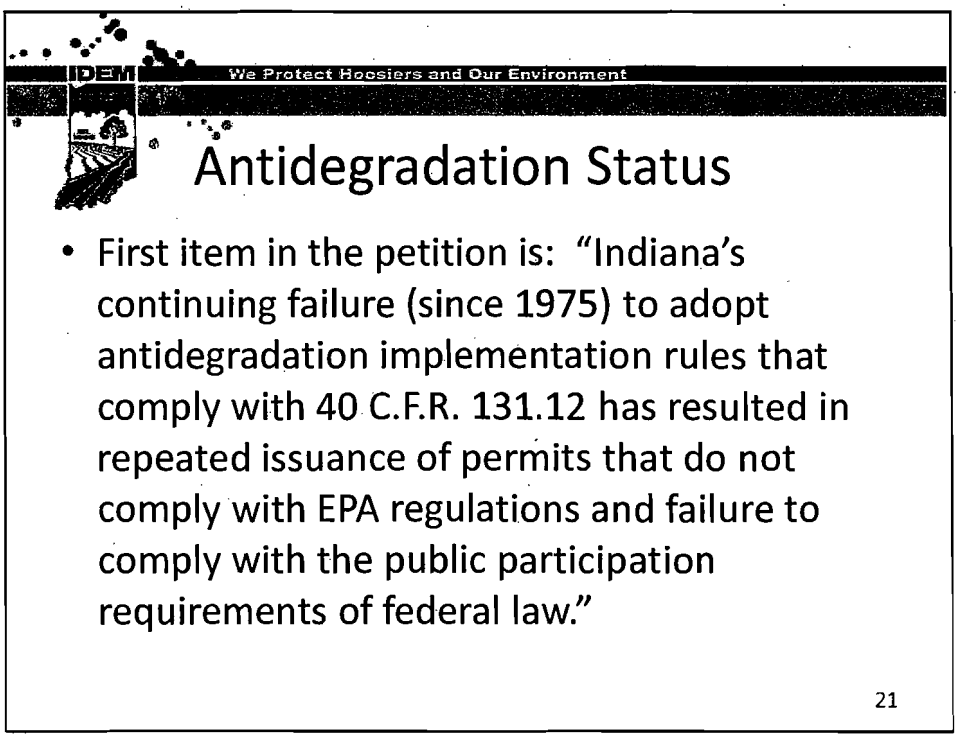
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Antidegradation Status
• First item in the petition is: "Indiana's continuing failure (since 1975) to adopt antidegradation implementation rules that comply with 40 C.F.R. 131.12 has resulted in repeated issuance of permits that do not comply with EPA regulations and failure to comply with the public participation requirements of federal law."
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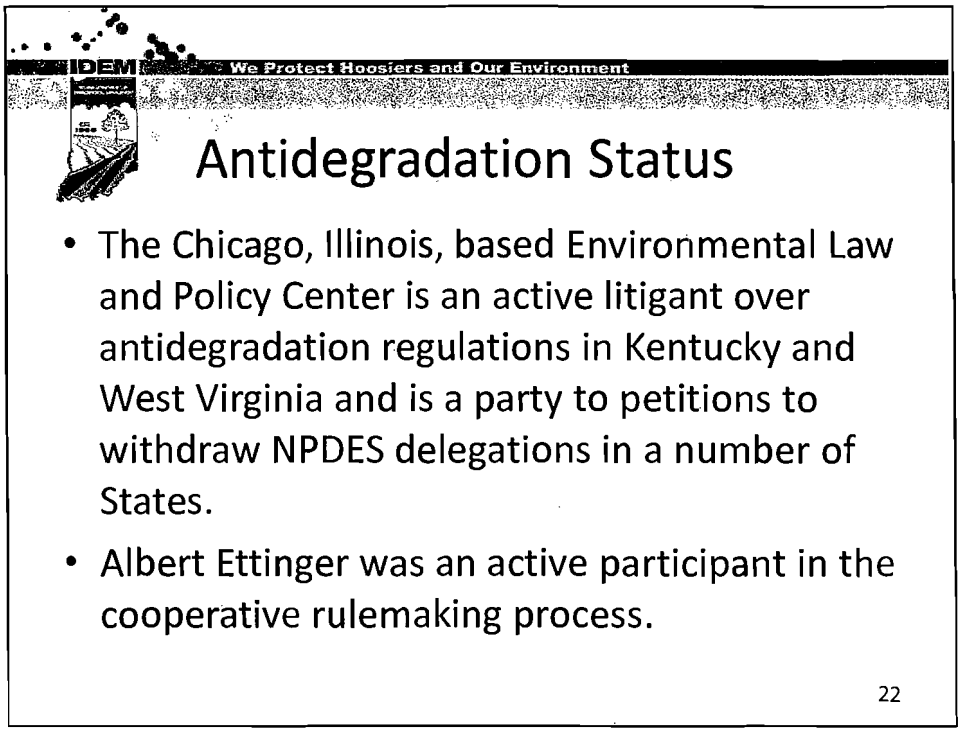
IDEM
We Protect Hoosiers and Our Environment
Antidegradation Status
• The Chicago, Illinois, based Environmental Law and Policy Center is an active litigant over antidegradation regulations in Kentucky and West Virginia and is a party to petitions to withdraw NPDES delegations in a number of States.
• Albert Ettinger was an active participant in the cooperative rulemaking process.
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PHARMACEUTICALS IN DRINKING WATER

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Pharmaceuticals in Water Supply

"This glass of water that you've given me—I'm sure has superb Bloomington water, has no measurable benzene in it right now. Ten years from now it will. Now that's not because your water's going to get bad. Its because we, as scientists, cannot measure the level of benzene that's in there now. We will ten years from now because our analytical techniques will get better." Dr. Bernard Goldstein 4/19/2006

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Pharmaceuticals in Water Supply

- *USA Today* published an article in March 2008 identifying "pharmaceuticals" in 24 drinking water supplies.
- In Indiana, Indianapolis was identified as having "caffeine" in finished drinking water—no level was given.

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Pharmaceuticals in Water Supply

- Illinois followed up on the *USA Today* article by testing drinking water supplies for 56 different contaminants in:
  - Chicago
  - Aurora
  - East St. Louis
  - Elgin
  - Rock Island

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Pharmaceuticals in Water Supply

- Illinois found detectable levels of 16 substances in untreated water and 12 substances in finished drinking water.
- Illinois EPA used a safety factor of 10,000 and other adjustments to calculate a "safe level" for these compounds.

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Pharmaceuticals in Water Supply

- The highest pollutant level in finished drinking water (for cotinine, a breakdown product of nicotine) was 1/333rd of the calculated safe level. A person would need to drink 1,470 pounds (175 gallons) of water a day to reach the calculated safe intake level of cotinine.
- All other pollutants detected were much lower in relation to the "safe intake level."

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Pharmaceuticals in Water Supply

- The Ohio River Valley Water Sanitation Commission (ORSANCO) looked for 158 potential contaminants at 25 locations on and near the Ohio River, including at the discharges from sewage treatment plants.
- At least one of the 25 samples had detectable results for 71 of the 158 compounds. No unsafe levels have yet been identified.

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Sampling Challenges

- What do you sample for?
  - As of April 2007, U.S. EPA had identified 31,000,000 organic and inorganic compounds.
  - About 14,000,000 of these compounds were commercially available at that time.
  - U.S. EPA has calculated that there are potentially 1,000,000,000,000,000,000,000,000,000,000,000, 000,000,000,000,000,000,000,000,000 (10^{60}) compounds in the environment.

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Sampling Challenges

- What do you sample for?
  - About 245,000 (0.8%) of the commercially available compounds were being tracked or regulated by some entity.
  - One ounce of water contains about 520,000,000,000,000,000,000,000 molecules.
  - We currently can detect compounds at the 1 ppt level so need 520,000,000,000 molecules of a compound in an ounce of water to detect that compound.

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Sampling Challenges

- What can we afford to sample for?
  - The ORSANCO analytical cost for 158 compounds was $3,120 per sample (average of $20 per compound per sample).
  - If it was possible to analyze for all of the 245,000 compounds being tracked or regulated at $20 per compound, the cost would be about $5,000,000 ($5 million) per sample.

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Science Challenges

- What is a safe level?
  - New drugs go through rigorous testing to determine both the therapeutic dose and the level below which there is no effect—both for humans and other living organisms such as fish and amphibians.
  - Most other compounds in commerce have not been through enough testing to determine a level that is safe for all organisms.

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U.S. EPA's Plan

- U.S. EPA recently recognized that it would take them 70 years to develop safe levels for the compounds currently in their backlog if they continued with their normal scientific process.
- U.S. EPA has developed a new four step process to significantly accelerate their process to ensure that drinking water is safe.

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U.S. EPA's Four Step Process

1. Rather than working on each compound one at a time, U.S. EPA plans to address water contaminants in groups.

2. U.S. EPA will engage private innovators, entrepreneurs and small business to improve drinking water treatment technology.

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U.S. EPA's Four Step Process

3. U.S. EPA will leverage all appropriate authorities—such as pesticide and chemical laws—to confront and preempt drinking water contaminants.
4. U.S. EPA will work closely with State and Local Partners on up-to-date information sharing, monitoring, analysis and other assistance.

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IDEM's Recommendations

- Continue with common sense programs to keep contaminants, such as unwanted medications, out of our waters (brochure).
- Follow the work of U.S. EPA and others in their efforts to determine which, if any, products have the potential to reach unsafe levels.
- Continue to participate with ORSANCO and other States to develop the science.

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PHOSPHORUS

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Phosphorus

- Excessive levels of phosphorus in surface waters (especially lakes and ponds) can contribute to undesirable algae growth and the release of toxics like microcystin and cyanobacteria.
- IDEM is currently developing water quality standards for phosphorus concentrations in lakes.

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Blue-Green Algae Initiative

- 2009 EQSC report recommended expanded sampling of lakes.
- State Blue-Green Algae Initiative:
  - IDEM to build in-house capacity to analyze the algae.
  - IDEM to expand sampling in first year to five DNR managed lakes.

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Blue-Green Algae Initiative

- ISDH/IDEM developed a communication protocol featuring:
  - Updated website
  - ISDH hotline
  - ISDH press releases when necessary
- Long term goals:
  - Evaluate the costs and resources necessary for dramatically expanded sampling.
  - Use the information as an indicator to help provide information to the public and protect Hoosiers and the environment.

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Blue-Green Algae Initiative

- Collect information that will help assess water quality.
- Incorporation of cyanobacteria and microcystin into IDEM's Water Quality Monitoring Strategy.
- Develop in-house technical capacity.
- Strengthen state agency partnerships.

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Phosphorus Reductions

- IDEM encourages the use of low phosphorus fertilizer in yards through our "Know Your Numbers" education campaign.
- IDEM currently regulates the application of phosphorous in manures at CAFOs and is revising its CFO regulatory program to regulate phosphorous application at all regulated animal feeding operations.

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Phosphorus Science

- Most phosphorus binds to soil particles, so control of soil erosion and keeping grass clippings out of waters reduces phosphorus loadings.
- Phosphorus is an essential nutrient, so the goal is to achieve proper levels, not to eliminate all phosphorus.

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Brad Baughn
Business & Legislative Liaison
(317) 234-3386, bbaughn@idem.IN.gov

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EXHIBIT 2
EQSC
SEPTEMBER 9, 2010

Pharmaceuticals in the Environment

Lenore P. Tedesco, Ph.D.

Director, Center for Earth and Environmental Science
Indiana University Purdue University Indianapolis

National Geographic

IUPUI

www.cees.iupui.edu

Definition of a Pharmaceutical

- For the purposes of this presentation, pharmaceuticals are defined as: **Active pharmaceutical ingredients (API)** in FDA-approved products for use in the diagnosis, cure, mitigation, treatment, or prevention of disease, or intended **to affect the structure or any function of the body of humans or animals.**

Ecological Exposure Research Division

Status

- Over 2000 prescription products currently in use
- Many excreted as parent or active metabolites
- Many found at parts per trillion - parts per billion levels in the environment
- Designed to be potent to minimize side effects
- Some have lab effects at environmentally relevant concentrations
- Similar to troubling ecological phenomena seen in field
- Concern about human exposure (swim, fish, drink)

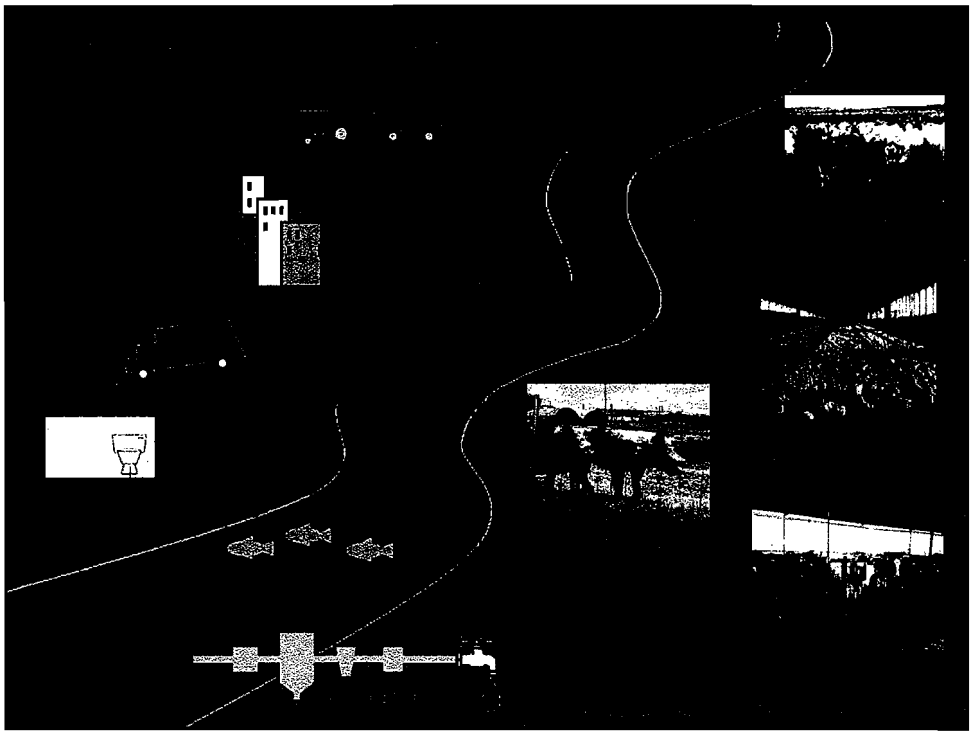
Source - Kostich MS, Lazorchak JM., 2008. Risks to aquatic organisms posed by human pharmaceutical use. Sci Total Environ. 389(2-3):329-39

Ecological Exposure Research Division

Overview of Current Research Efforts

- Screenings of waterways for occurrence, composition, and concentrations of pharmaceuticals and personal care products
- Assessments of sources, transport pathways, break down products, and persistence in the environment
- Ecological effects, both laboratory and field-based using a number of sentinel species
- Development of removal technologies for both wastewater and drinking water facilities

Center for Earth and Environmental Science

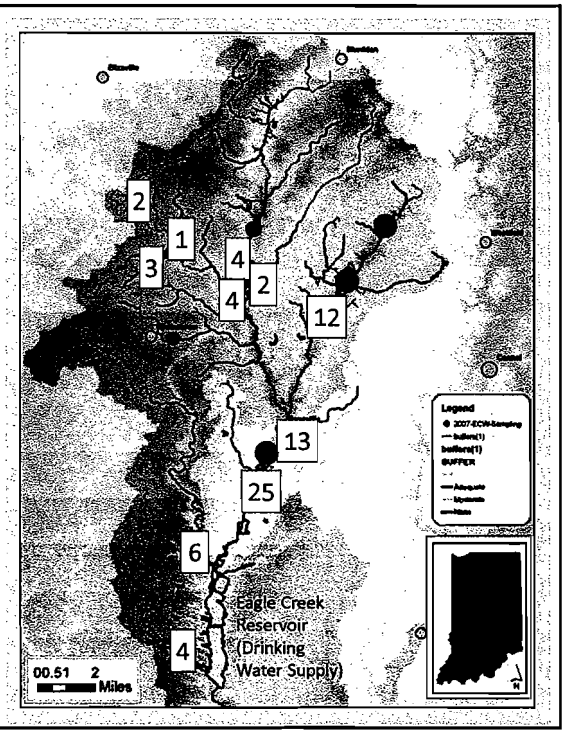


Eagle Creek Watershed
Pharmaceuticals in the Environment

- USEPA Collaboration
- Looked for human pharmaceutical compounds in streams during low flow
- Detected 30 of 54 compounds analyzed
  - 12 Antidepressants, antibiotics
  - 12 Cardiovascular drugs, pain meds
  - 6 Other (Diuretics, Antiepileptics, Ibuprofen, Acetaminophen)
- Strong Association with Proximity to Waste Water Treatment Plants

6 Number of Detections

● Location of WWTP



Pharmaceutical Detections in Perspective
Human Health Effects

Pharmaceuticals in Effluent and Stream Samples Chicago River

Compound	Finished Water Maximum Concentration (ng/ L)	Defined Daily Dose (mg)	Volume to Consume Single Dose (L)	Time to Consume Single Dose (years)
Atenolol (blood pressure)	18	75	4,166,667	5,708
Carbamazepine (antiepileptic)	18	1000	55,555,556	76,104
Diazepam (anxiety disorders)	0.33	10	30,303,030	41,511
Fluoxetine (antidepressant)	0.82	20	24,390,244	33,411
Gemfibrozil (cholesterol)	2.1	1200	571,428,571	782,779
Sulfamethoxazole (antibacterial)	3	2000	666,666,667	913,242

Benotti et al *Env Sci &Technology* 2009

Ecological Exposure Research Division

Ecological Effects

- Ecological effects are now widely documented
  - Fish
  - Birds
  - Amphibians
  - Invertebrates
- Human effects are largely unknown

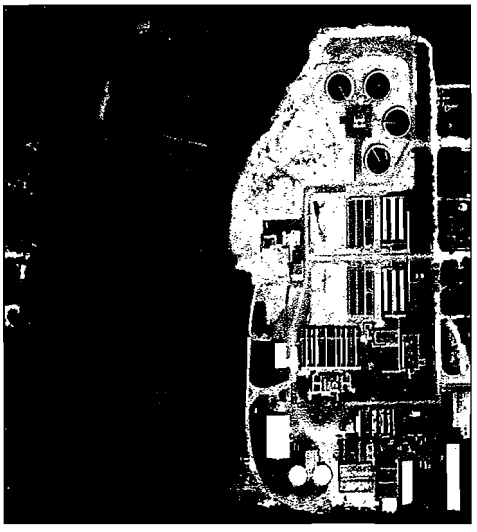
Ecological Exposure Research Division

Summary

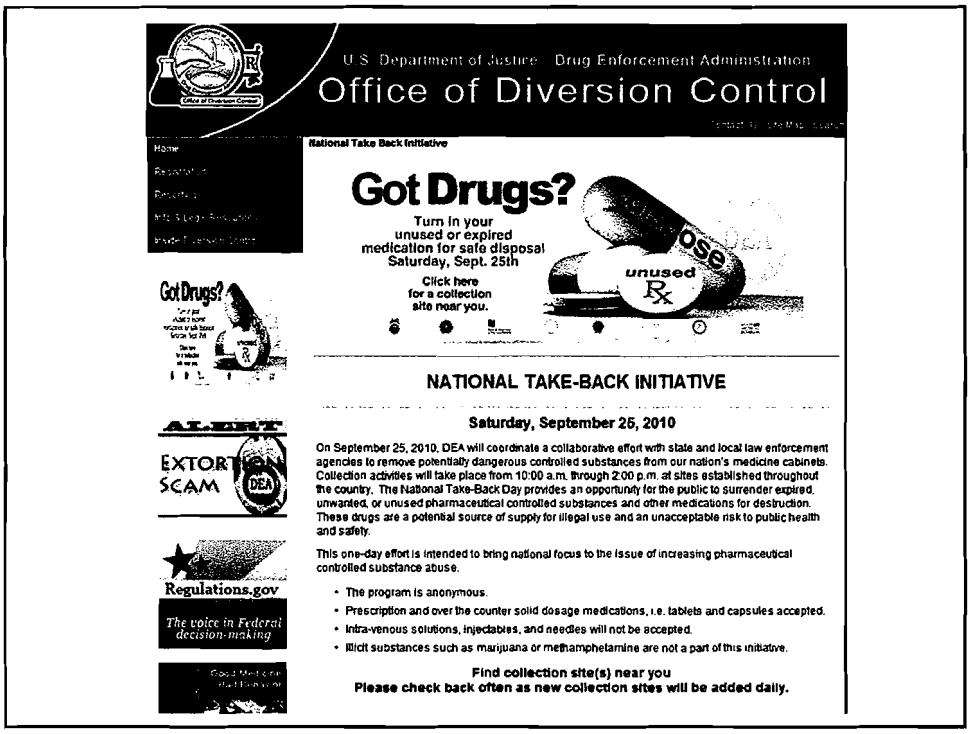
- Pharmaceuticals and Personal Care Products are being found in our source waters in the U.S. and all over the world.
- Improved chemical methods and greater # of people using them accounts for increased awareness and detection – contaminants of emerging concern vs emerging contaminants
- The sources of pharmaceuticals are primarily from WWTP, Animal Feedlots, Combined Sewer Overflows and Non-sewered communities.

Ecological Exposure Research Division

Safe Medicine Disposal Programs



- Wastewater treatment plants are not designed to remove synthetic pollutants like pharmaceuticals.
- A way to reduce them is to provide a way for people to dispose of unwanted or unused pharmaceuticals.


U.S. Department of Justice Drug Enforcement Administration
Office of Diversion Control
Home
National Take Back Initiative
Got Drugs?
Turn in your unused or expired medication for safe disposal Saturday, Sept. 25th
Click here for a collection site near you.
unused
Rx
Got Drugs?
ALERT
EXTORTION SCAM
DEA
Regulations.gov
The voice in Federal decision-making
NATIONAL TAKE-BACK INITIATIVE
Saturday, September 25, 2010
On September 25, 2010, DEA will coordinate a collaborative effort with state and local law enforcement agencies to remove potentially dangerous controlled substances from our nation's medicine cabinets. Collection activities will take place from 10:00 a.m. through 2:00 p.m. at sites established throughout the country. The National Take-Back Day provides an opportunity for the public to surrender expired, unwanted, or unused pharmaceutical controlled substances and other medications for destruction. These drugs are a potential source of supply for illegal use and an unacceptable risk to public health and safety.
This one-day effort is intended to bring national focus to the issue of increasing pharmaceutical controlled substance abuse.
• The program is anonymous.
• Prescription and over the counter solid dosage medications, i.e. tablets and capsules accepted.
• Intra-venous solutions, injectables, and needles will not be accepted.
• Illicit substances such as marijuana or methamphetamine are not a part of this initiative.
Find collection site(s) near you
Please check back often as new collection sites will be added daily.

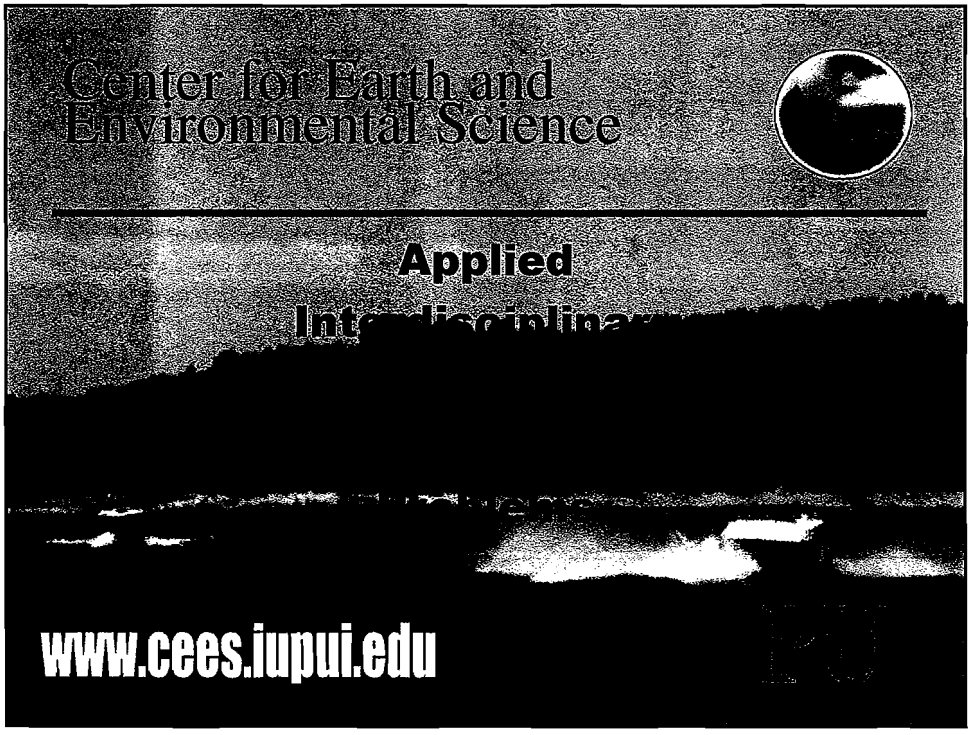

Center for Earth and Environmental Science
Applied
www.cees.iupui.edu

EXHIBIT 3
EQSC
SEPTEMBER 9, 2010

Lindsay Shipps

From: Marc Nelson [MNELSON@co.st-joseph.in.us]
Sent: Friday, September 03, 2010 3:13 PM
To: Lindsay Shipps
Subject: Pharmaceuticals in drinking water

I wish to thank Representative Dvorak for beginning to address the issue of pharmaceuticals in our drinking water. There is substantial evidence assembled by EPA that this is a growing issue in many areas of the country but there is a severe lack of information for Indiana. I am aware of only one study. Dr. Melody Bernot of Ball State University performed a study on a watershed in Central Indiana and found pharmaceuticals in 80% of the surface water. She found that "pharmaceuticals are ubiquitous in the aquatic ecosystem" and also found pharmaceuticals in **treated municipal drinking water.**

This issue is a special concern for St. Joseph County because of our unique hydrogeologic conditions. In the northeastern third of this county we have one of the State's most prolific aquifers. Our aquifer is a thick glacial sand deposit that holds great quantities of water and yields great quantities to wells. In fact, it is the only aquifer in Indiana designated as a Sole Source Aquifer by EPA which gives it special protection from Federal Projects.

However, because the aquifer is a course sand deposit, it is highly susceptible to contamination from anything put in septic systems. In the northeastern third of St. Joseph County we have an estimated 10,000 residential septic systems and 10,000 residential wells serving over 50,000 people. It is likely to be one if the first aquifers in the state where pharmaceuticals become a serious issue.

The county would need a modest grant to assess the status of the issue in this area or IDEM could have one of their contractors do it. We need answers to the following questions before the issue has a substantive impact on public health:

1. What is the current degree of contamination?
2. What are the trends? How quickly is the contamination becoming worse?
3. What treatment devices can treat pharmaceuticals? There is some evidence that a reverse osmosis system on each home would be effective but we do not know this for sure. Would a carbon filtration system be sufficient?
4. Is it time to start recommending the installation of treatment devices?
5. Are there measures that can be taken to reduce the release of pharmaceuticals into our groundwater? Would a public education program be useful?

Thank you for this opportunity to raise our concerns.

Marc E. Nelson
Environmental Health Director
St. Joseph County Health Department
227 W. Jefferson Blvd.
9th Floor County-City Building
South Bend, IN 46601
Phone: 574-245-6760
Fax: 574-235-9497

EXHIBIT 4
EQSC
SEPTEMBER 9, 2010

What to do with Unwanted Medications

Take unwanted medications to your local household hazardous waste collection program. Call (800) 988-7901 or visit www.recycle.IN.gov for collection programs in your area. If your community or solid waste management district does not collect medications, follow these steps for proper disposal with your regular trash:

- Remove labels from prescription bottles or completely mark out all patient information;
- Dissolve tablets or capsules in the original container with a small amount of water. For liquid medications, add sawdust, kitty litter or flour to the original container;
- Put lids back on the containers tightly and place them in a heavy-duty plastic bag; and
- Seal the bag and put it in your trash so it is not visible from outside the trash bag (to discourage unintended use).

When you dispose of medications improperly— such as dumping them down the drain, they contaminate the water and are difficult for treatment plants to remove. Improper disposal leads to contamination of the water you drink. Do your part and remember... use your brain before pouring anything down the drain!

IDEM

Indiana Department of Environmental Management

To learn more, visit www.useyourbrain.IN.gov or call (800) 988-7901.

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Use your brain before pouring anything down the drain.

EXHIBIT 5
EQSC
SEPTEMBER 9, 2010

Nutrient Enrichment of Waterbodies

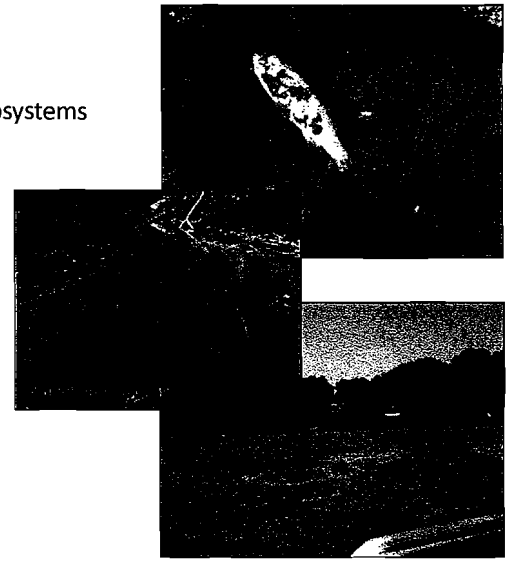
- Problems
  - Nutrients – Phosphorus and Nitrogen – are essential ingredients for plant growth
  - When occur in excess – lead to nuisance growth of algae and plants in waterways
- Excess nutrients are well-known and well-documented to be the cause of algal blooms
- Algal blooms are causing recreational and health impacts in Indiana communities

Center for Earth and Environmental Science

Impacts Associated with Algal Blooms

CENTRAL INDIANA WATER RESOURCES PARTNERSHIP

- Oxygen Depletion
  - Fish kills
  - Changes in lake and stream ecosystems
- Degradation of recreational resources
  - Socio-economic impacts
  - Property value impacts
  - Recreational use limitation
- Taste and odor in drinking water
- Algal Toxins



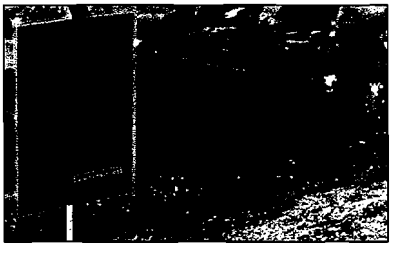
Photos: IDNR: Water Column

Algae – in the News

Summer 2010

OHIO LAKE'S ALGAE DANGEROUS TO SWIMMERS, ECONOMY

Killer lake kills property values, tourism, jobs (8/4/2010)



There is a 13,000 acre lake in western Ohio that has turned into a killer. Thanks to an overabundance of **phosphorus from runoff fertilizer and manure**, an outbreak of toxic algae has taken it over. The algae is suspected of making **eleven people sick** and likely contributing to, if not causing, the **death of three dogs.** The state has declared the lake a "No Contact" zone, meaning people should not even touch the water.

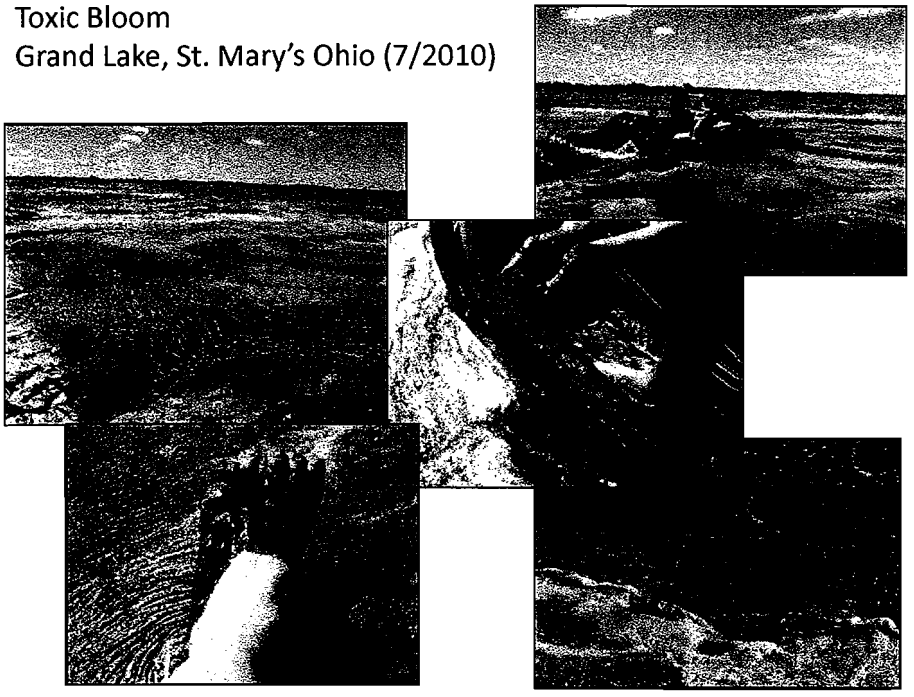
But **health** problems are only one aspect of the disaster. For homeowners in the area with lakefront properties, the algae has been financially devastating. I spoke with Wilhelmina Klosterman of **Grand Lake Realty**, who told me that since they were forced to add **"EPA issue"** to listings, **home sales have virtually died**

STATE REPORTS HIGH LEVELS OF BLUE-GREEN ALGAE AT RESERVOIRS AND LAKES

INDIANAPOLIS—The Indiana State Department of Health cautions Hoosiers of possible high levels of blue-green algae, also known as Cyanobacteria, at many of Indiana's reservoirs and lakes.

7/23/2010

Toxic Bloom
Grand Lake, St. Mary's Ohio (7/2010)



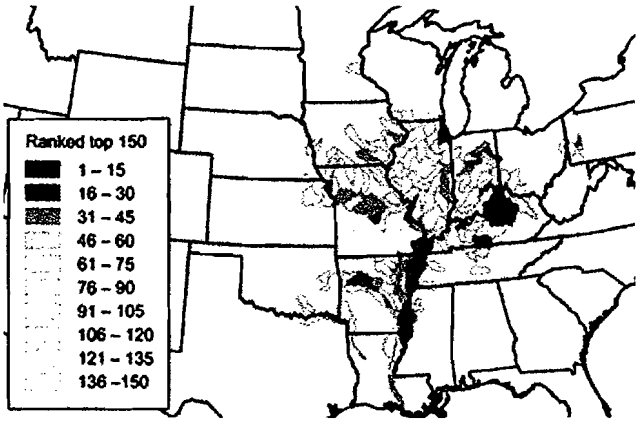
Nutrient Sources and Levels

- Nutrients- especially phosphorus - cause degradation of water bodies
- Water bodies with high nutrient levels experience excessive aquatic plant and algae growth that impact recreational and other uses of lakes and streams
- So…
  - What are the sources and how bad is it really?

Center for Earth and Environmental Science

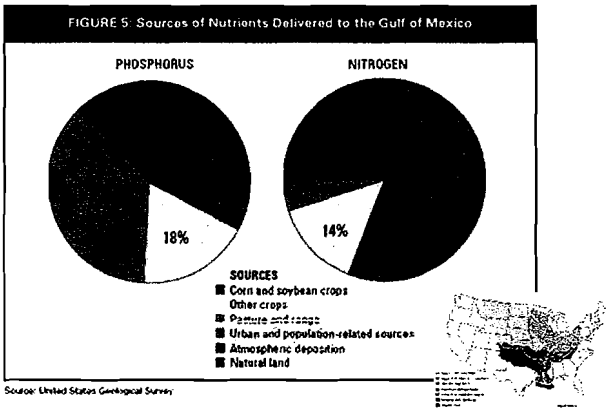
Phosphorus Export from Midwestern Watersheds

- All 818 watersheds in the Mississippi River Basin were analyzed for stream nutrient levels
- Indiana has many watershed with high loads of phosphorus in our waterways
- Only a handful of Indiana watersheds are not ranked very high for nutrient loss to waterways



Robertson et al., 2009

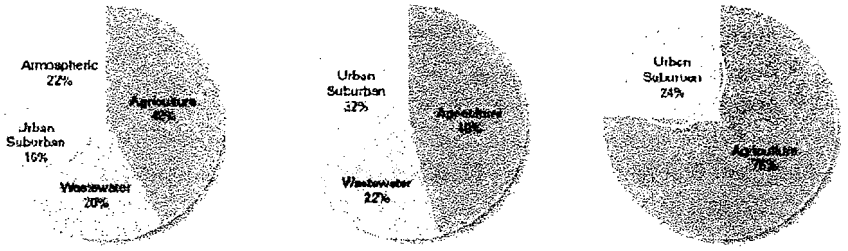
Nutrient Sources in Upper Mississippi Basin



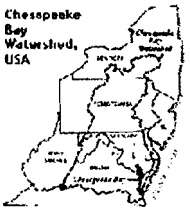
Agricultural watersheds have nutrient inputs from many sources that vary for Nitrogen and Phosphorus

Chesapeake Bay Watershed

Relative Responsibility for Pollution Loads to the bay



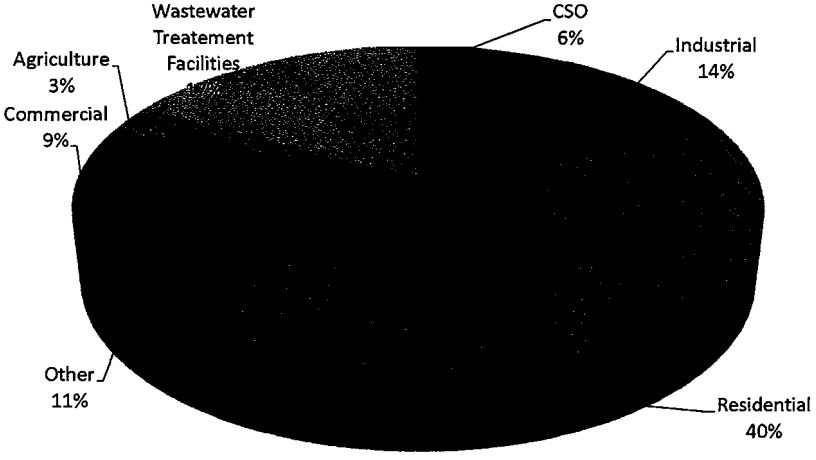
Nitrogen **Phosphorus** **Sediment**



Bay Barometer

Increasing contribution of urban sourced pollutants in mixed land use watersheds

Phosphorus Sources
Charles River Watershed, Massachusetts



308 mi² watershed drains to Boston Harbor
and is most densely populated watershed in New England

After Perry, 2009

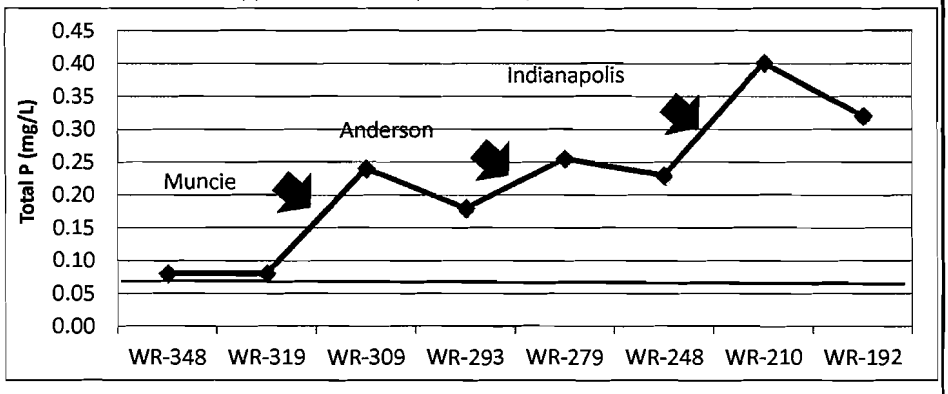
Phosphorus Enrichment of Indiana Waters

- Total Phosphorus in Indiana Waters
  - Average All Rivers 0.158 mg/L
  - Average All Natural Lakes 0.046 mg/L
  - Average All Reservoirs 0.081 mg/L
- Important Biological Boundary (Mesotrophic/Eutrophic Boundary)
  - Streams 0.07 mg/L
  - Lakes 0.03 mg/L
- EPA Reference Conditions for Central Indiana (2000)
  - Streams 0.0625 mg/L
  - Lakes /Reservoirs 0.023-0.028 mg/L

Morris et al., 2009; TetraTech, 2008

Phosphorus Enrichment in Upper White River Watershed (mixed agriculture and urban)

IDEM Fixed Stations - Upper White River (1991-2006)

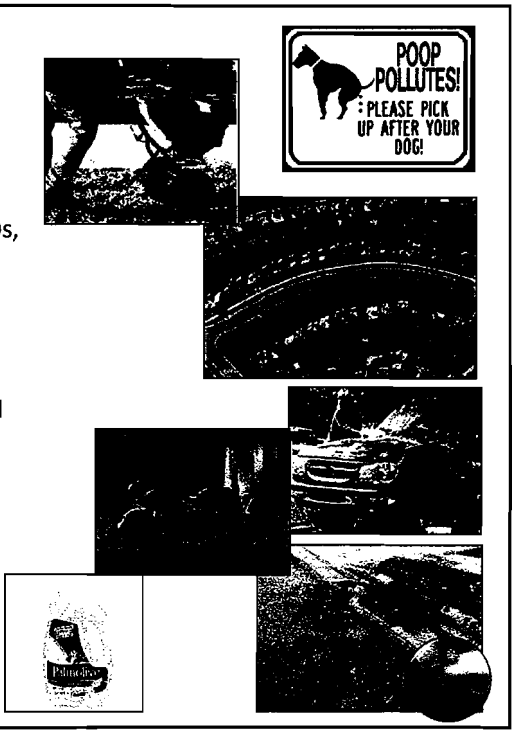


- Large increases in total P concentration downstream associated with urban areas
- EPA Criteria 0.0625 mg/L

Center for Earth and Environmental Science

Typical Urban Phosphorus Sources

- Fertilizers
- Waste Water Treatment Plants, CSOs, and Septic Systems
- Animal Waste
- Development...Sediment Loss & Exposure
- Airborne Fallout: Dust, Pollen, Fossil Fuels
- Vegetation / Leaves
- Detergents
- Hydrocarbons & Lubricants



Effectiveness of Phosphorus Limitation

- Several States and Municipalities have Instituted Restrictions on Residential Use of P-Containing Fertilizers
  - Maine, Minnesota, New Jersey, Sarasota FL, Dane County Wisconsin, Ann Arbor, Michigan
- Ann Arbor, Michigan
  - 28% - 31% reduction in stream total P following residential fertilizer P-ban
    - Lehman, Bell, and McDonald, 2009 Lake and Reservoir Management
- Minnesota
  - Use of P-free Fertilizer reduced P export from residential areas to streams 12-16%
    - Barten and Johnson, 2007, Lakeline

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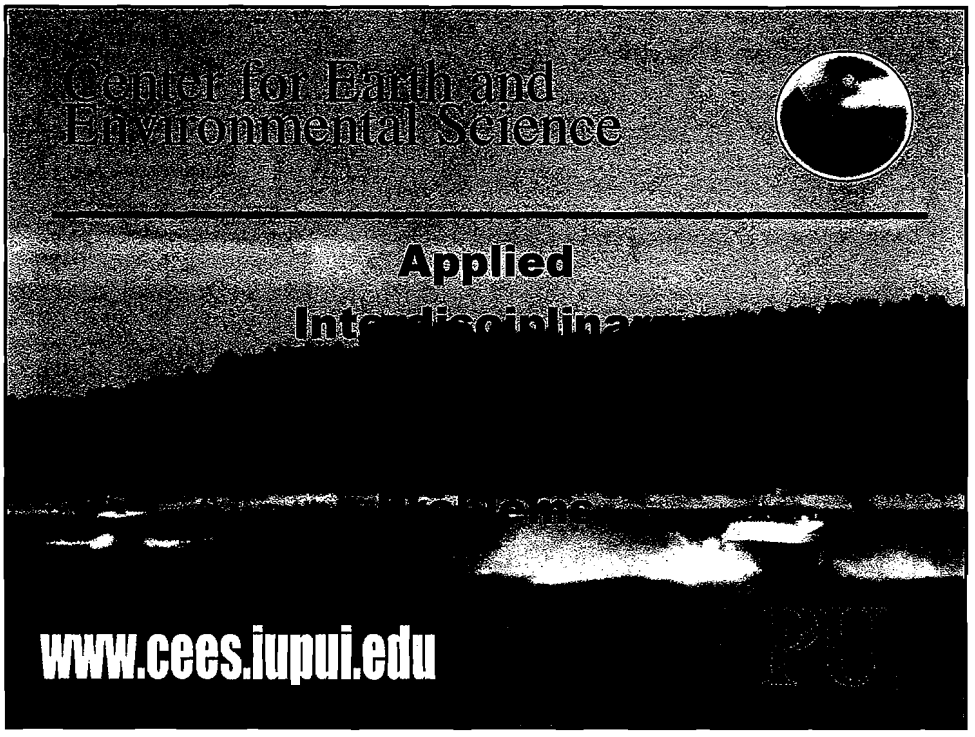
Center for Earth and
Environmental Science
Applied
www.cees.iupui.edu

Simple Steps for Healthy Lawns and Clean Water

- **Know Your Numbers!** Remember to look for a zero or low phosphorus fertilizer for lawns. Never use an all-purpose or garden fertilizer on your lawn.
- **Don't fertilize before a rainstorm.** Heavy rainfall can overwhelm soils and cause fertilizers to be washed into waterways.
- **Fertilize at the proper time.** Spring fertilizing helps grass grow all summer, and fall fertilizing helps prepare grass for winter. Never fertilize frozen ground.

- **Clean up by sweeping up.** Sweep excess fertilizer and debris from driveways, roads and sidewalks onto the grass.
- **Set your mower to its highest setting.** Taller grass is stronger grass. It develops deeper roots, withstands heat and drought, and crowds out unwanted weeds.
- **Leave grass clippings on the lawn.** They act as a natural lawn fertilizer, recycling nutrients and adding moisture back into the soil.

IDEM

Indiana Department of Environmental Management

(800)451-6027

www.idem.IN.gov/4527.htm

Hoosiers Care

it's your Indiana, your future

www.HoosiersCare.IN.gov

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Your watershed.
Your home.
Your future.

Water Pollution Isn't Cute.

Learn more about nonpoint source water pollution.
Visit: www.idem.IN.gov/4139.htm

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WA-563-BE 06/09

Read it. Pass it on. Recycle it.

When Fertilizing Your Lawn...

KNOW YOUR NUMBERS!

16 - 0 - 4

24 - 0 - 6

4 - 17

14

EXHIBIT 6
EQSC
SEPTEMBER 9, 2010

How Low Can You Go?

Hoosiers Care

it's your Indiana, your future

LAWN PATROL

Know Your Numbers!

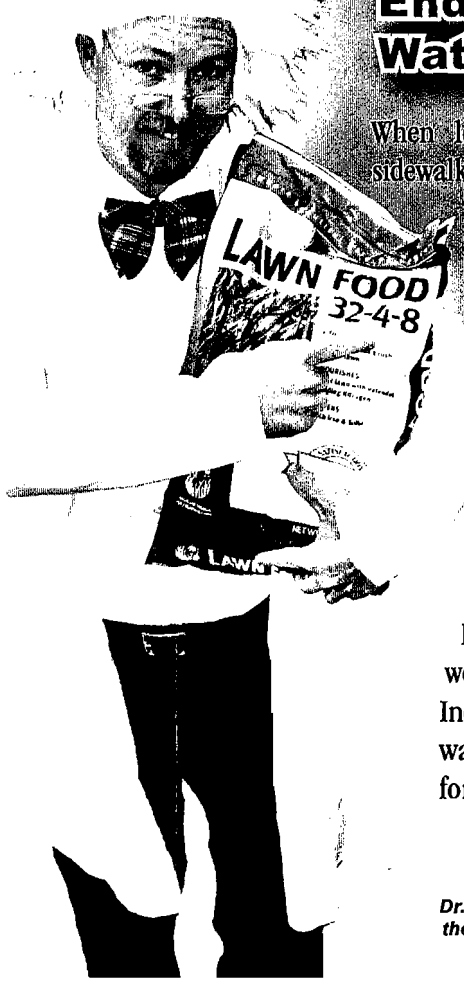
Doctor Reese Ickle of the Lawn Patrol wants to help you *Know Your Numbers* when using fertilizer on your lawn. Lawn fertilizer has three numbers on each bag, which represent *nitrogen, phosphorus, and potassium* (N-P-K). Most lawns do not need extra phosphorus. Find the phosphorus percent by looking at the middle number. A zero in the middle means no phosphorus, a number of 4 or lower in the middle means low phosphorus. Remember, the lower the middle (phosphorus) number, the better for Hoosier streams and lakes.

Why Limit the Amount of Phosphorus?

Grass clippings, tree pollen, leaves and many fertilizers contain phosphorus. When too much phosphorus enters our waterways, it promotes excess algal growth, which robs fish and other aquatic life of oxygen. We need to keep phosphorus out of our storm sewers and waterways. It's easy to take care of your yard and protect water resources. By making proper lawn care part of your routine, we all can enjoy healthy lawns and protect our waterways.

"When you fertilize your lawn properly, our water is protected."

...Dr. Reese Ickle



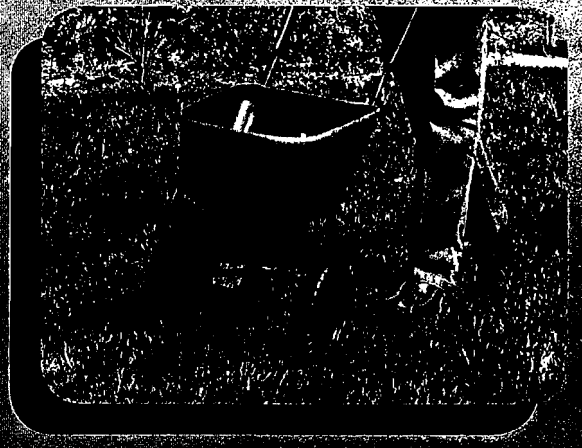
Dr. Reese Ickle displays the phosphorus number.

How Do Nutrients End Up in Waterways?

When left on the street, driveway, or sidewalk, and washed into storm drains, fertilizer, leaves, grass clippings and soil can end up in local streams and lakes. A well maintained lawn prevents run-off and erosion. Lawns also filter pollutants and impurities as rainwater recharges our ground water. Lawns help clean the air, trap dirt and remove greenhouse gases from the atmosphere. Proper lawn care practices can work for you, your community and Indiana's water resources. Clean water means a better quality of life for everyone.

How Low Can You Go?

Generally, only new lawns require additional phosphorus for root development. For mature lawns, choose a fertilizer that is phosphorus-free or very low in phosphorus. Some people think the three numbers have to be high in order to grow a healthy lawn. But, using fertilizer high in phosphorus (the middle number) doesn't help your lawn; phosphorus is only needed on newly seeded lawns or where soil testing indicates a deficiency. *Know Your Numbers!*



For More Information:

Find out more about low or zero phosphorus fertilizers and eco-friendly lawn care at www.HoosiersCare.IN.gov . You can also get more information by contacting the Indiana Department of Environmental Management at **(800)451-6027** or by visiting www.idem.IN.gov/4527.htm .

EXHIBIT 7
EQSC
SEPTEMBER 9, 2010

Grand Lake St. Marys, Ohio: A Threat to Indiana Waters

EQSC September 9, 2010

Hoosier Environmental COUNCIL
All Together Now.

Grand Lake St. Marys

- Grand Lake St. Marys is Ohio's largest inland lake
- A spillway on GLSM feeds Beaver Creek, a tributary to the Wabash River and a pathway to Indiana
- GLSM headwaters for St. Marys River which travels from St. Marys Ohio west through Decatur to Ft. Wayne where it joins the St. Joe River to form the Maumee River which empties into Lake Erie.

Hoosier Environmental COUNCIL
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Grand Lake St. Marys

- 80% of Grand Lake watershed is farmland
- Livestock operations in the watershed produce 629,504 tons of manure every year.
- 46,000-48,000 acres are needed to appropriately land apply the waste that is produced; however the soil in the area is oversaturated and cannot absorb additional nutrients

Hoosier Environmental Council
All Together Now.

Grand Lakes St. Marys & Its Watershed: Water Quality Improvement Initiatives

- OHDNR, OEPA, ODA, ODH, Mercer and Auglaize SWCDs, NRCS
- Determined that the majority of the problem results from the land application of manure and commercial fertilizers and subsequent migration into waterways
- Recommends better overall nutrient management and land application practices that truly balance agronomic and environmental needs.

Hoosier Environmental Council
All Together Now.

Grand Lakes St. Marys & Its Watershed: Water Quality Improvement Initiatives

- Recommendations have significance for Indiana as Ohio has determined to "Foster efforts to import more manure from the watershed"
- Document poultry manure exports from the watershed and assist in raising the already high percentage

Hoosier Environmental COUNCIL
All Together Now.

Current Transport from Ohio

- 90% of the chicken manure and 75% of the turkey manure (90,000 tons in 2008) was sold out of state and exported by poultry litter brokers
- Hog and dairy manure generally remains in the watershed because shipping is too costly; however, Ohio is attempting to utilize grant funds to begin shipping this waste to Indiana.

Hoosier Environmental COUNCIL
All Together Now.

Hoosier Environmental COUNCIL

All Together Now.

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Ohio Action Plan

- July 30, 2010 State Actions for Water Quality Improvement at Grand Lake St. Marys
  - Action plan to address both internal phosphorous loading and external nutrient sediment loading

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Ohio Action Plan

- Request additional assistance from the USDA to transfer and export manure outside the watershed (EQIP)
- Promote manure hauling practice improvements building on the success of the transport of poultry waste outside the watershed.

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Ohio Action Plan

- USDA funding through the Environmental Quality Incentive Program (EQIP) was awarded to farmers to transport manure outside of the watershed.
- Current regulations do not allow EQIP funds to be used to transport manure across state lines
- Ohio has requested that these regulatory requirements be altered to allow Ohio to use EQIP funds to facilitate the transport of manure to Indiana

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All Together Now

Indiana Action

- State needs to step in in order to protect Indiana waterways from further water quality degradation
- Need to determine the capability of Indiana soils to utilize these additional nutrients in terms of protecting Indiana waterways

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Indiana Action

- Interstate Commerce Clause
- Need to make transport to Indiana unattractive
  - Regulate satellite lagoons
  - More stringent staging and storage regulations for crop agriculture
  - More stringent land application rules
  - Honor more stringent county/municipal ordinances

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Satellite Lagoons

- Two identified lagoons in Henry County
- IDEM has no authority to regulate manure storage lagoons owned and controlled by those that do not also own and control the requisite number of livestock
- IDEM has authority to regulate construction, maintenance and operation of waste disposal systems only when the facility is defined as a CFO or CAFO

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Waste Storage & Staging

- Adopt more stringent BMPs
  - Decrease amount of time manure may be stockpiled before land application
  - Utilize BMP to control stormwater run off
  - Increase set back
  - Increase resources for inspection and enforcement

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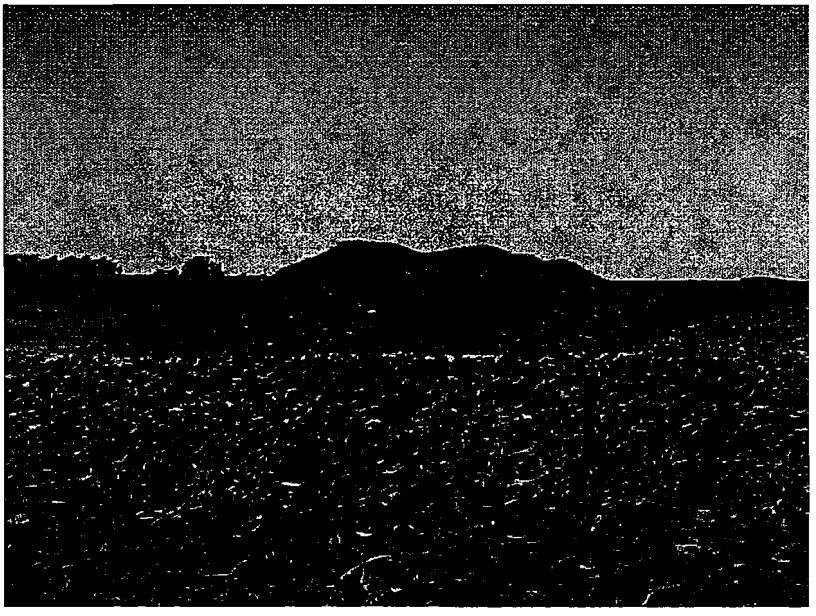

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Hoosier Environmental COUNCIL

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OISC

- The Indiana State Chemist has jurisdiction over manure that is used as fertilizer material and they have responsibility to ensure that fertilizer is applied safely
- IDEM has a duty to protect human health and the environment
- Need to define how these agencies are going to work together to protect Indiana waterways from additional nutrient impacts
- Need to protect county/municipal ordinances that are more stringent

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Questions

- Contact Angela Hamm, Water Policy Director, Hoosier Environmental Council
  - ahamm@hecweb.org
  - (317) 685-8800 ext. 116

Hoosier Environmental COUNCIL

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EXHIBIT 8
EQSC
SEPTEMBER 9, 2010

Ask about Phosphorus-free Lawn Fertilizers...

To conserve local habitats and improve Indiana's water quality!

Go Phosphorus Free

IndianaWildlife.org

What is Phosphorus?

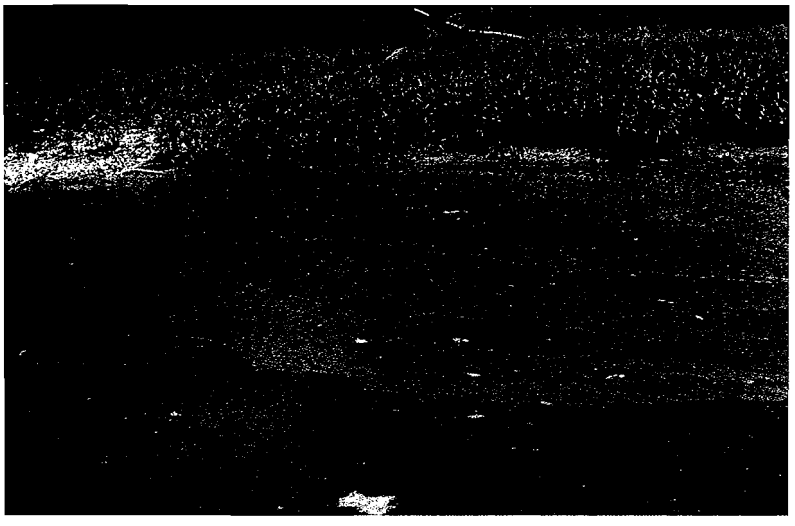
- A naturally-occurring nutrient that plants only use in small quantities for growth & energy storage

Why is it a problem?

- Excess phosphorus travels into rivers, streams, and lakes resulting in algal blooms and undesirable plant growth
- 1 lb. Phosphorus can result in the growth of 10,000 lbs. weeds[1]
- Algae overgrowth turns water green and makes it unsustainable for many species due to the lack of food, oxygen, and viable habitats
- Phosphorus damages the natural habitats, and biodiversity declines

How can this influence my health?

- Quality of drinking water is affected, indicated by poor taste and smell
- Some algae can produce toxins causing skin irritations
- If consumed, this water can lead to gastrointestinal problems and damage to internal systems or even major organs
- Harmful for pets, including livestock to consume contaminated water



Algal bloom White River (IUPUI Center for Earth and Environmental Science, 2009)

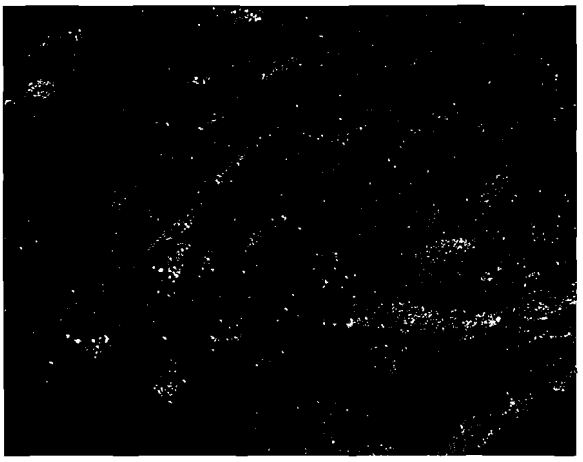
What precautions should I take?

- Be aware of contact with contaminated water
- Follow state restrictions and advisories
- Always wash thoroughly after contact with affected watersheds

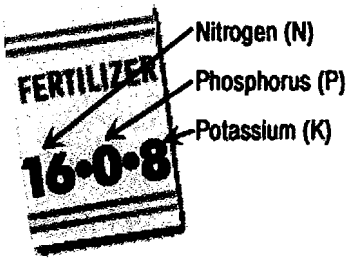
[1] http://www.indiana.edu/~clp/documents/WATER%20COL%20V18,%20N1.pdf

How can I help?

- Only use phosphorus in your fertilizer if you have a new lawn or a soil test indicates a low level of phosphorus
- Don't over-fertilize your lawn. On average, 89% of Indiana lawns do **not** need phosphorus according to a 2004 survey by Purdue[2]
- Best time to fertilize is in the fall, especially September[3]. If the ground is frozen, do not apply fertilizer
- Clean up any fertilizer spills on impervious surfaces, such as driveways
- Use grass clippings and fallen leaves as natural mulch
- Tell family and friends about the problems of excess phosphorus!



A closer look at the White River (IUPUI Center for Earth and Environmental Science, 2009)



What should I do before I fertilize my lawn?

- Check the label on the fertilizer bag to make sure the middle number is zero
- The first and last numbers indicate the concentrations of two additional nutrients: nitrogen & potassium
- Visit your local lawn care center and ask for **phosphorus-free** fertilizer!

Where can I buy it?

- Lawn care shops including Lowes, Home Depot, or your local garden center
- Some brand names to look for: Scotts, Pennington, Sta-Green, Lesco, or Rebel
- If you use a lawn care service, try these companies: TruGreen & NaturaLawn of America
- Prices are comparable for phosphorus-free fertilizer!

For more information, contact the Indiana Wildlife Federation (www.indianawildlife.org), or read more at Indiana Department of Environmental Management (www.in.gov/idem/algae/), Indiana Lakes Management Society (http://www.indianalakes.org/lawnCare.htm), and Indiana Clean Lakes Program (http://www.indiana.edu/~clp/)[4]

**This project is made possible through a generous grant from Nina Mason Pulliam Charitable Trust.*

[2] http://www.agry.purdue.edu/turf/report/2006/10.pdf
[3] http://www.agry.purdue.edu/turf/pubs/ay-22.pdf
[4] General Sources: http://www.ipni.net/; http://www.cees.iupui.edu; http://www.in.gov/idem/algae/

EXHIBIT 9
EQSC
SEPTEMBER 9, 2010

Subject: Fwd: John Winters PO4
From: pratt@netdirect.net
Date: Wed, March 17, 2010 8:56 pm
To: joneswi@indiana.edu, LBRIDGES@idem.IN.gov

Glenn----

RE: Geist Reservoir

I have given the matter considerable thought since you asked my opinion of the best ways to improve the situation.

Since I have been retired for more than ten years, I am not familiar with the most recent data that may have been collected from Geist. However, I am sure that that older data regarding nutrient limitation are still valid.

Probably the most useful study was the USEPA National Eutrophication Survey that was conducted in 1973 in cooperation with the Indiana State Board of Health and the Indiana National Guard. This survey is described in the 1976 report for Geist Reservoir. (see attached).

Of the 27 Indiana lakes and reservoirs studied, all but Sylvan Lake were clearly phosphorus limited. (Table 1 and Figure 1) The Sylvan Lake results were somewhat ambiguous.

Survey results disclosed that Geist Reservoir was phosphorus limited at all times samples were collected.

Lake studies conducted by the Indiana pollution control agency before and after the NES survey also indicated that phosphorus was the nutrient most responsible for objectionable algal blooms that plagued many Hoosier lakes and reservoirs.

Subsequently, the State developed phosphorus removal requirements for certain wastewater treatment plants and enacted a ban on phosphorus in household laundry detergents. As a result, the condition of a number of "problem lakes" improved.

As was the case with Geist Reservoir in 1973, non-point sources, including septic tanks, were often the major contributor of phosphorus. As the watersheds have become more developed, phosphorus loading to lakes and reservoirs from both point and non-point sources has undoubtedly increased.

Programs to locate and correct failing septic systems, encourage the use phosphorus free fertilizers, protect wetlands and reduce erosion in the watershed should be considered to reduce phosphorus input. A ban on phosphorus in dishwashing detergents should also be considered.

Other, more recent studies conducted as part of the Indiana Clean Lakes Program may provide additional data. Bill Jones of SPEA, IU, Bloomington, who conducts these studies is by far the most knowledgeable person when it comes to Indiana lakes and reservoirs and should be consulted regarding the problems at Geist Reservoir including that of "Cylindrospermopsis".

John Winters