*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:** | **October 19, 2010** |
| **Meeting Time:** | **1:00 P.M.** |
| **Meeting Place:** | **Alumni Room, Administration Building, Indiana University South Bend** |
| **Meeting City:** | **South Bend, Indiana** |
| **Meeting Number:** | **4** |

**Members Present:** **Rep. Ryan Dvorak, Chairperson; Rep. David Wolkins; Rep. Matt Pierce; Rep. Timothy Neese; Sen. Beverly Gard; Sen. Frank Mrvan; Dwayne Burke; John Hardwick.**

**Members Absent:** **Sen. Edward Charbonneau; Sen. Karen Tallian; Doug Meyer; Dave Wyeth; Art Umble; Calvin Davidson; Jon H. Moll; Thomas Easterly; Heather Hill.**

1. Call to Order Rep. Dvorak called the meeting to order at 1:05 P.M.

2. Nitrogen Pollution and Innovations in Ditch Design A presentation entitled Two-Stage Ditch Efficacy for Nitrogen Removal (Exhibit 1) was made by Sarah Roley, Ph.D. candidate, Department of Biological Sciences, University of Notre Dame. In response to questions from Council members, Ms. Roley indicated that the studies referred to in her presentation were done in Kosciusko County and that the Nature Conservancy did most of the work with land owners in the county.

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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.

A presentation on the subject of two-stage ditches (Exhibit 2) was made by Joe Draper, Western Lake Erie Basin Conservation Director, The Nature Conservancy. Mr. Draper also distributed a map (Exhibit 3) showing two-stage ditches by county. In response to questions from Council members, Mr. Draper:

- ✦ Addressed potential cost savings from and funding alternatives for two stage ditches.
- ✦ Discussed potential alternative uses of ditch funds for two stage ditches and other water quality projects.
- ✦ Acknowledged the difficulty in convincing farmers of the benefits of ditch improvements that take farm land out of production.
- ✦ Discussed the possibility of further study of the efficacy of two stage ditches by comparing maps of ditch locations with maps reflecting water quality.

Rep. Dvorak asked Ms. Roley and Mr. Draper to provide to the Council any recommendations they might have for improved ditch funding.

3. Environmental Crimes Rep. Dvorak observed that IC 13-30-10-1.5, enacted in 2008 to improve the statutory scheme for the prosecution of environmental crimes, is not being used.

Angela Hamm, Water Policy Director, Hoosier Environmental Council, reported to the Council on environmental cases in Indiana that could have been prosecuted under the new statute but were not. She described the following:

- ✦ A discharge by Materna Mint Farms, which was operating without an NPDES permit, of one hundred ninety degree water in Starke County that killed a dog and injured people.
- ✦ A spill by Muncie Sow Unit of 4,500,000 gallons of hog manure into the Mississinewa River.
- ✦ Land application of over 200,000 gallons of hog manure by Chalfant Farms in Randolph County that was washed by a heavy rain into Bear Creek and caused the death of fish and vertebrates.
- ✦ Waste storage issues at V.I.M. Recycling in Elkhart County, which was operating without registration as a yard waste composting facility and later failed to obtain a solid waste processing permit as directed by IDEM, that resulted in a fire that killed a person in one incident and resulted in ground water contamination in another.
- ✦ Dumping of oil by Nature's Fuel in Kosciusko County that pooled on the ground and required soil excavation and disposal.

The members of the Council discussed the new environmental crimes statute, which was supported by local prosecutors and the Attorney General. The new statute eliminated IDEM's potentially unconstitutional discretion to apply criminal penalties and clarified penalties and local prosecutorial authority. The question was raised whether IDEM should be required to refer certain matters to local prosecutors for prosecution.

4. Pipeline Safety A presentation entitled Marshall, MI Oil Spill Kalamazoo River State Involvement and Impacts (Exhibits 4 and 5) was made by Danielle Korpalski, Midwest Regional Outreach Coordinator and Beth Wallace, Oil Spill Response Coordinator, National Wildlife Federation (NWF). Ms. Korpalski and Ms. Wallace also distributed a NWF article entitled The Enbridge Oil Spill (Exhibit 6). In response to questions from Council members, Ms. Korpalski and Ms. Wallace:

✦ Stated that the NWF supports both improvements in pipeline safety and reduced oil usage that will result in reduced pipeline usage.
✦ Indicated that some states have enacted pipeline safety laws that supplement federal requirements.
✦ Stated that the Enbridge pipeline rupture in Michigan was attributed to pipeline corrosion.
✦ Stated that public drinking water supplies were not affected by the Enbridge oil spill.
✦ Discussed the extent to which the age of a pipeline contributes to the likelihood of failure.

Maggie McShane, Executive Director, Indiana Petroleum Council, addressed the Council on the importance of pipeline infrastructure (Exhibit 7). In response to questions from Council members, Ms. McShane discussed studies and other activities undertaken by the petroleum industry in response to recent oil spills.

A presentation entitled The Pipeline Safety Division's Regulatory Authority: A Briefing on the Commission's Role, Responsibilities, and Jurisdiction (Exhibit 8) was made by Bill Boyd, Director of the Pipeline Safety Division, Indiana Utility Regulatory Commission. In response to questions from Council members, Mr. Boyd:

✦ Discussed the requirement for all pipeline operators to have emergency response plans and the state and federal procedures to enforce that requirement.
✦ Described the procedures for pipeline safety inspections and investigations.
✦ Stated that pipelines transporting carbon dioxide will be subject to the same safety standards that apply to other pipelines.
✦ Described the procedures for inspection of underground pipelines.
✦ Discussed the responsibilities of state agencies for response to spills from pipelines.

A presentation entitled NIPSCO Pipeline Safety Update (Exhibit 9) was made by Tim Dehring, Senior Vice President, Energy Delivery, Northern Indiana Public Service Company. In response to questions from Council members, Mr. Dehring:

✦ Stated that seventy-four percent of accidents related to underground pipelines are caused by failure to call to determine pipeline location and that most other accidents are caused by either incorrect location information or failure to wait for location information.
✦ Described the company's emergency plans that require communication with community emergency responders.
✦ Described industry actions and studies in response to the recent San Bruno, California natural gas explosion.

5. Final Report Although the Council lacked the quorum necessary to take official action, the members present voted unanimously in favor of the following:

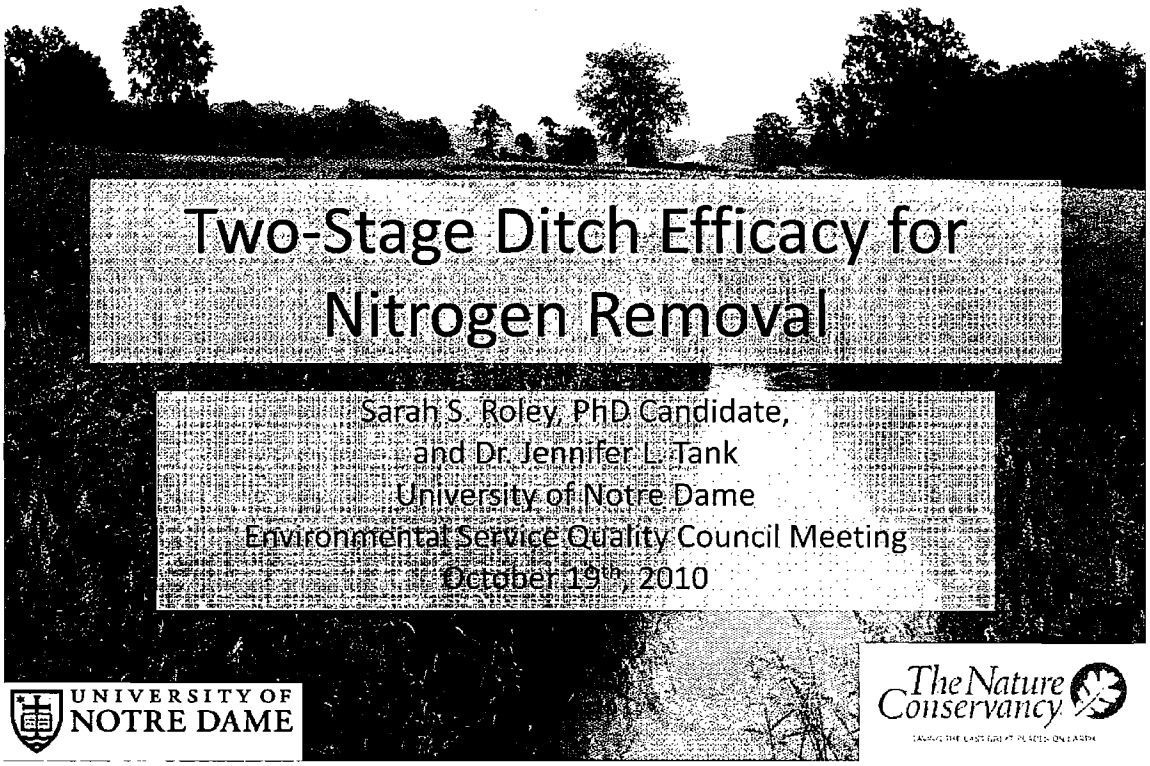
A. A recommendation for legislation to: (1) specify that an environmental law judge has the same authority and responsibilities as an administrative law judge; (2) establish additional grounds for disqualification of an administrative law judge and replacement procedures; (3) provide that the proceedings before an administrative law judge are de novo; (4) provide that settlement of an administrative matter results in the issuance of a final order that effectuates the settlement; and (5) in administrative proceedings, conform electronic service procedures and summary judgment procedures

to the procedures under the Indiana Rules of Trial Procedure.

B. A request that the Legislative Services Agency research state and federal pipeline safety laws and programs and report its findings to the Council.

6. Adjournment Rep.Dvorak adjourned the meeting at 3:55 P.M.

EXHIBIT 1
EQSC
OCTOBER 19, 2010



# Two-Stage Ditch Efficacy for Nitrogen Removal

Sarah S. Roley, PhD Candidate,
and Dr. Jennifer L. Tank
University of Notre Dame
Environmental Service Quality Council Meeting
October 19th, 2010

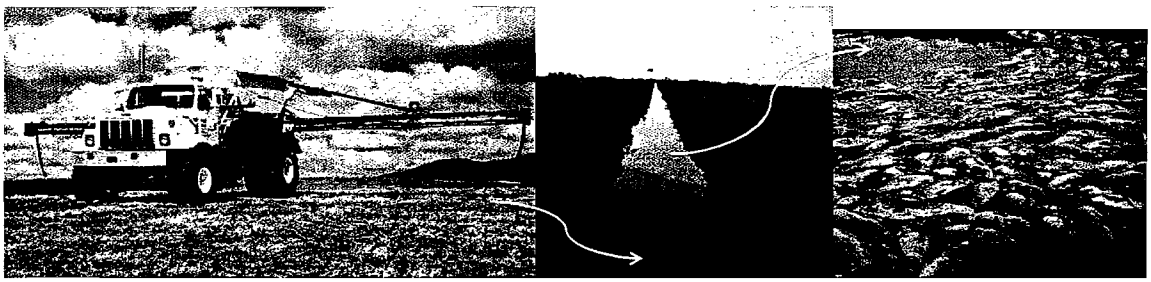
UNIVERSITY OF NOTRE DAME

The Nature Conservancy

## Nitrogen (N) Pollution: Too Much of a Good Thing

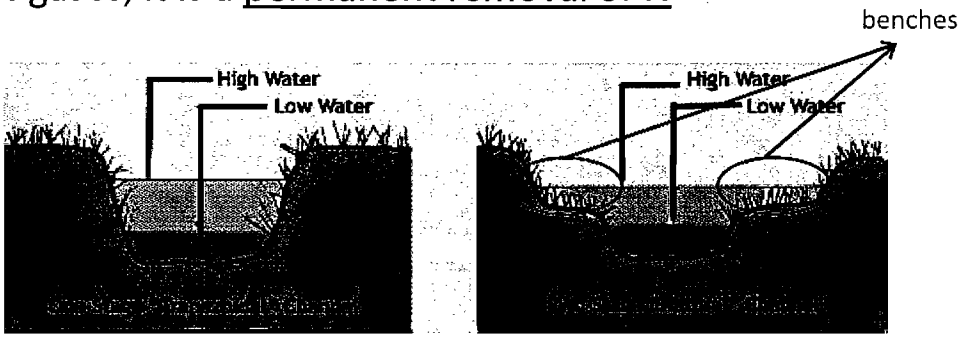
- On fields, N helps crops grow
- In water bodies, excess N results in…

| Local | Coastal |
|---|---|
| Drinking water contamination | Dead Zones |
| Harmful algal blooms | Harmful algal blooms |
| Toxicity to freshwater fish & mussels | |

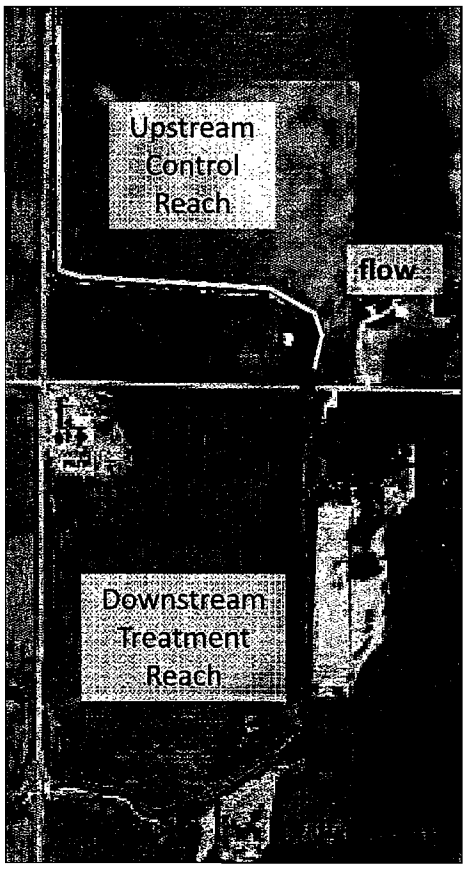


# Two-Stage Ditch: Tool for N Removal

- Two-stage ditches optimize the natural N removal capacity of stream ecosystems
  - Decrease water velocity during storms
    - allows more time for N removal
    - encourages particles to settle from water column onto benches
  - Increase "bioreactive" stream surface area
- Denitrification: microbial conversion of dissolved N into N gases; it is a permanent removal of N

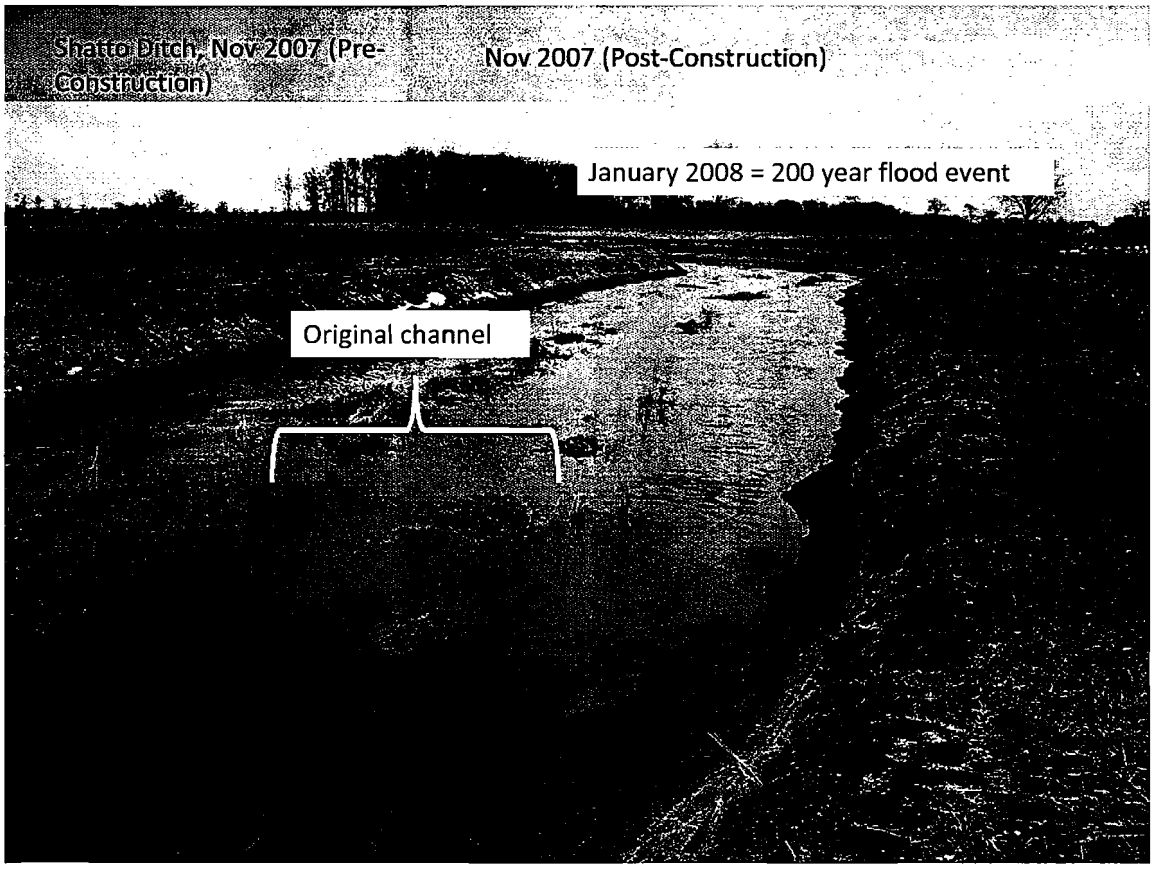



Ohio State University, http://streams.osu.edu/naturalchannel.php

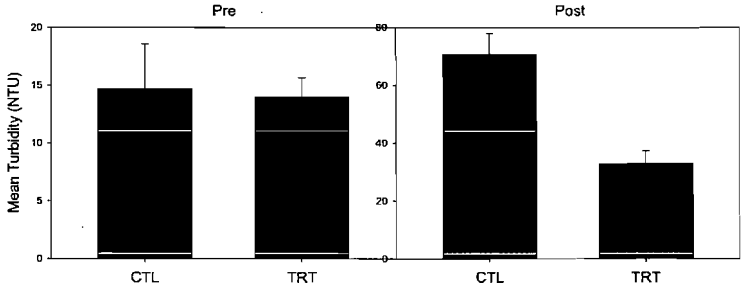



# Experimental Design

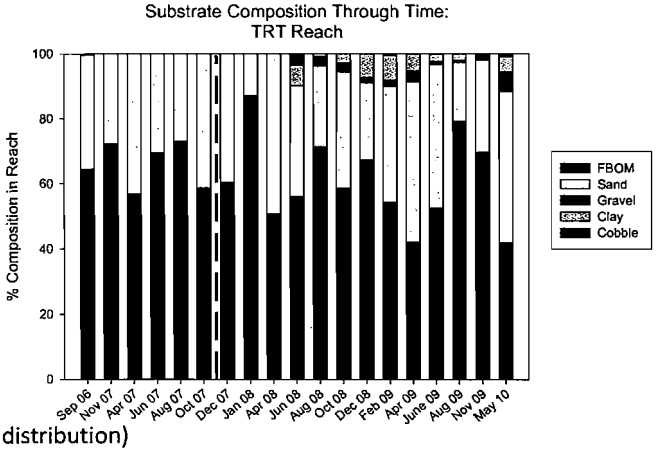
- Before After Control Impact (BACI)
- 1 year of pre-construction data collection in the stream (Sep 2006 – Nov 2007)
- 2 years of post-construction data collection in the stream and on the benches (Nov 2007- Nov 2009)
- Accounts for inter-annual variation
- In progress: study of 5 other ditches in Indiana, Michigan, and Ohio to assess applicability of results




# Physical Changes After Two-Stage Construction

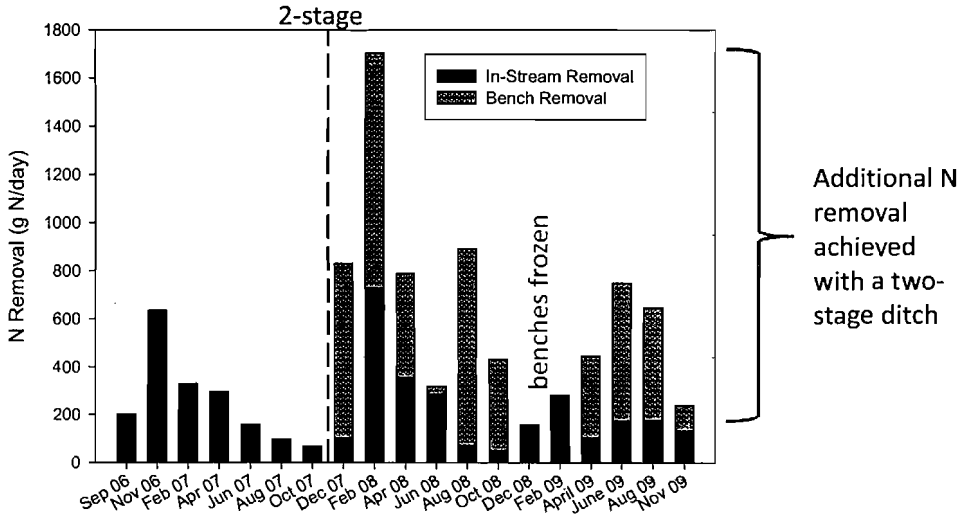



- Turbidity and sediment export significantly decreased
- New substrates exposed on stream bottom→ better habitat for fish and bugs




S. Roley and J. Tank, unpublished data (not for distribution)

# N Removal Benefit after two-stage construction

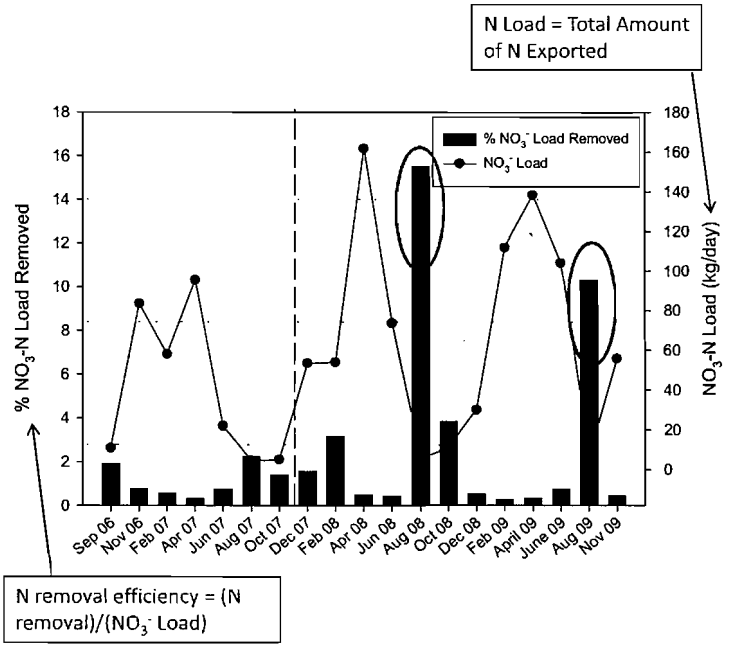



On average, benches removed <u>3 times more N per day</u> than stream sediments alone (range 0-12)

S. Roley and J. Tank, unpublished data (not for distribution)

# Two-Stage Ditch Influence on N Export

- Two-stage ditch restoration increased N removal efficiency from 1% to 3%
- Highest efficiency occurs when load is lowest
- Therefore, <u>additional N removal efficiency could be achieved with additional reduction of N inputs to stream</u>




S. Roley and J. Tank, unpublished data (not for distribution)

# N removal efficiency and two-stage ditch length

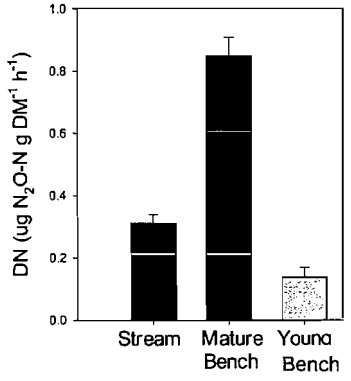
| | Total N Load Reduction | |
|---|---|---|
| 2-Stage Extent | Flooded 29 days/yr | Flooded 132 days/yr |
| 2.6 miles (50% of watershed) | 12% | 19% |
| 5.2 miles (100% of watershed) | 16% | 21% |

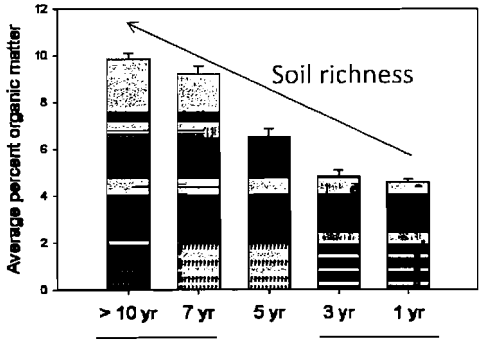
- Shatto Two-Stage Ditch is 0.4 miles long – how much N would it remove if it were longer?
- Two scenarios: dry year (2008), wet year (2009)
- Potential for reduction of N load by 21% if implement longer two-stage ditches

S. Roley and J. Tank, unpublished data (not for distribution)

# N Removal and "age" of two-stage construction

- Previous N removal calculations conducted on a new two-stage ditch → conservative estimate of N removal potential
- N removal capacity increases with floodplain "age"
- Older floodplain benches have richer soils, which support more N removal
- Two-stage ditch function improves over time without any additional ditch maintenance




S. Roley and J. Tank, unpublished data (not for distribution)

# Management of N Pollution Must Work Within Constraints of Ag Production System

- Field drainage and crop fertilization are necessary for (profitable) agricultural production
- It is very costly to take land out of production
- Reducing N export from agricultural landscapes will likely require a *combination* of approaches
  - On-field strategies to reduce N inputs (e.g., fertilizer management)
  - In-stream strategies to optimize N removal (e.g., two-stage ditch)
- Bottom line: Two-stage ditches enhance N removal in agricultural streams, but will not solve our N pollution problem unless combined with other N mitigation efforts.


# Acknowledgements

- **Field and Lab**: Mia Stephen, Chad Watts (TNC), Kent Wamsley (TNC), Jake Beaulieu, Laura Taylor Johnson, Caroline Turner
- **Funding**: The Nature Conservancy (TNC), Indiana Department of Environmental Management (IDEM), USDA
- **Site Access**: Creighton Brothers Farms LLC, Michael Long, Scott and Sally Kauffman, Edward Antonides


The Nature Conservancy

EXHIBIT 2, EWSC OCTOBER 19, 2010

# FISH CREEK, BELL TRACT, IN

The Nature Conservancy
Protecting nature. Preserving life.

Presentation to the Environmental Quality Service Council on Two-stage ditches - October 19, 2010
By: Joe Draper, TNC and Sarah Roley, ND

The Nature Conservancy
Protecting nature. Preserving life.

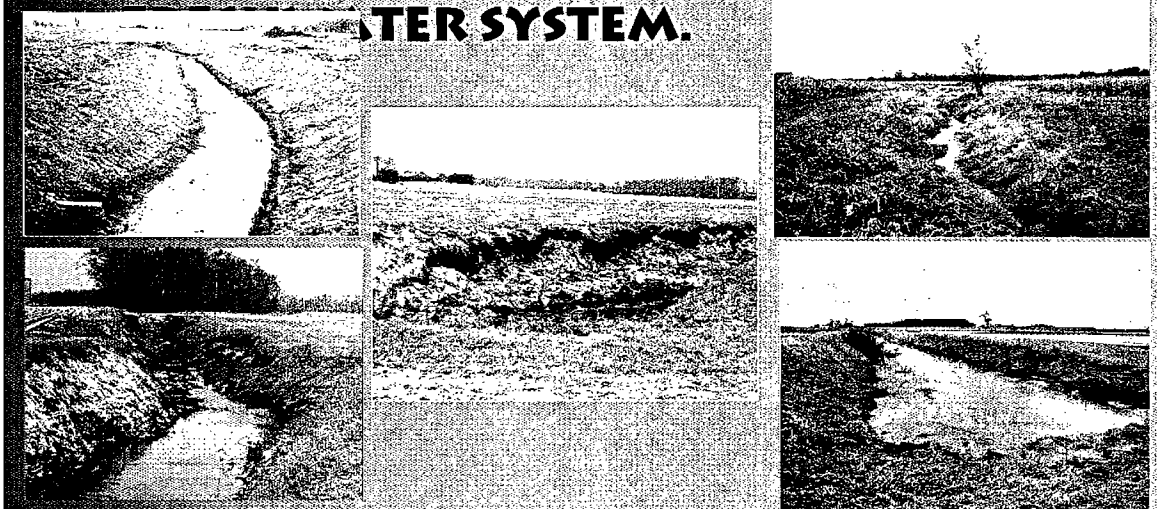
## Stresses to freshwater systems

**ALTERED HYDROLOGY, HIGH NUTRIENT LEVELS, LOCALIZED CITY INPUTS, LAND ALTERATIONS, LACK OF TREE COVER ALONG THE RIVER, INVASIVE SPECIES**

The Nature Conservancy
Protecting nature. Preserving life.

## Why is The Nature Conservancy interested in ditches?

**DITCHES ARE EVERYWHERE. THEY RECEIVE AND CONVEY WATER, AND ARE THE VEINS THAT FEED THE ATER SYSTEM.**



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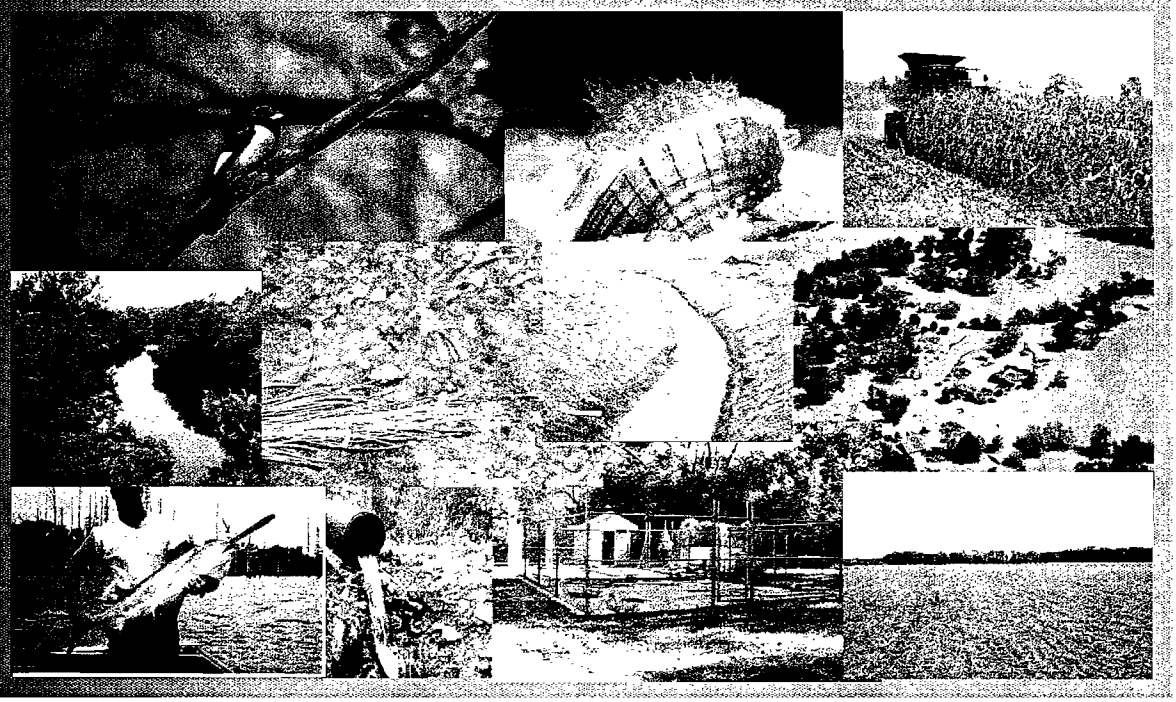
## The Balancing Act



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# The Technology – two-stage ditch

**USES EXISTING INFRASTRUCTURE**

**MAKES DITCHES MORE THAN CONVEYORS OF WATER – INCREASES STORAGE AND FILTRATION, ACTS AS IN-STREAM FILTER**

A PRACTICAL SOLUTION TO WATER QUALITY

The Nature Conservancy
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# Design and Engineering Using Simple Tools

**CALCULATED EARTHWORK FOR TWO-STAGE**

| | |
|---|---|
| 188,707 | Earthwork Volume (cubic ft) |
| 6,989 | Earthwork Volume (cubic yds) |
| 3.5 | Earthwork Volume (cubic yds/linear ft) |

**EARTHWORK COSTS FOR TWO-STAGE CONSTRUCTION**

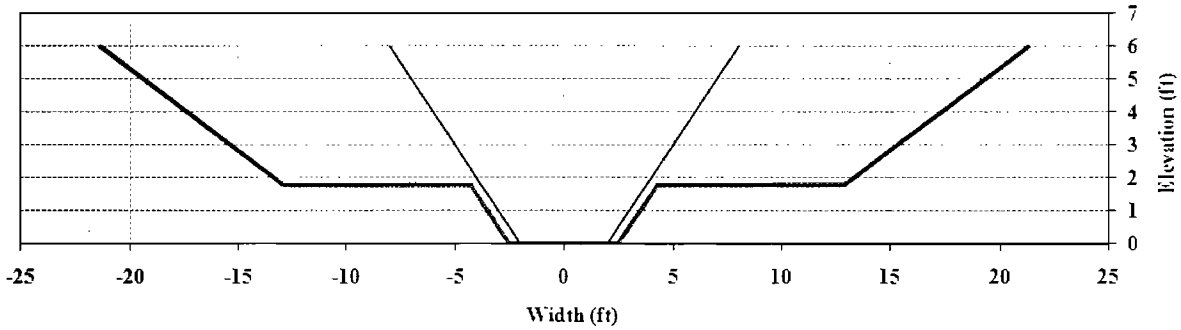
| | |
|---|---|
| $2.00 | Excavation Cost ($ per cubic yd) |

17

**CALCULATED COSTS FOR TWO-STAGE CONSTRUCTION**

| | |
|---|---|
| $13,978 | Total Earthwork Costs ($) |
| $6.99 | Cost per Linear Foot ($) |

Cross Section View  Earthwork Balance: cut 94 sq.ft.  Bench Elevation: 1.8 ft



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# The bottom line - $$$

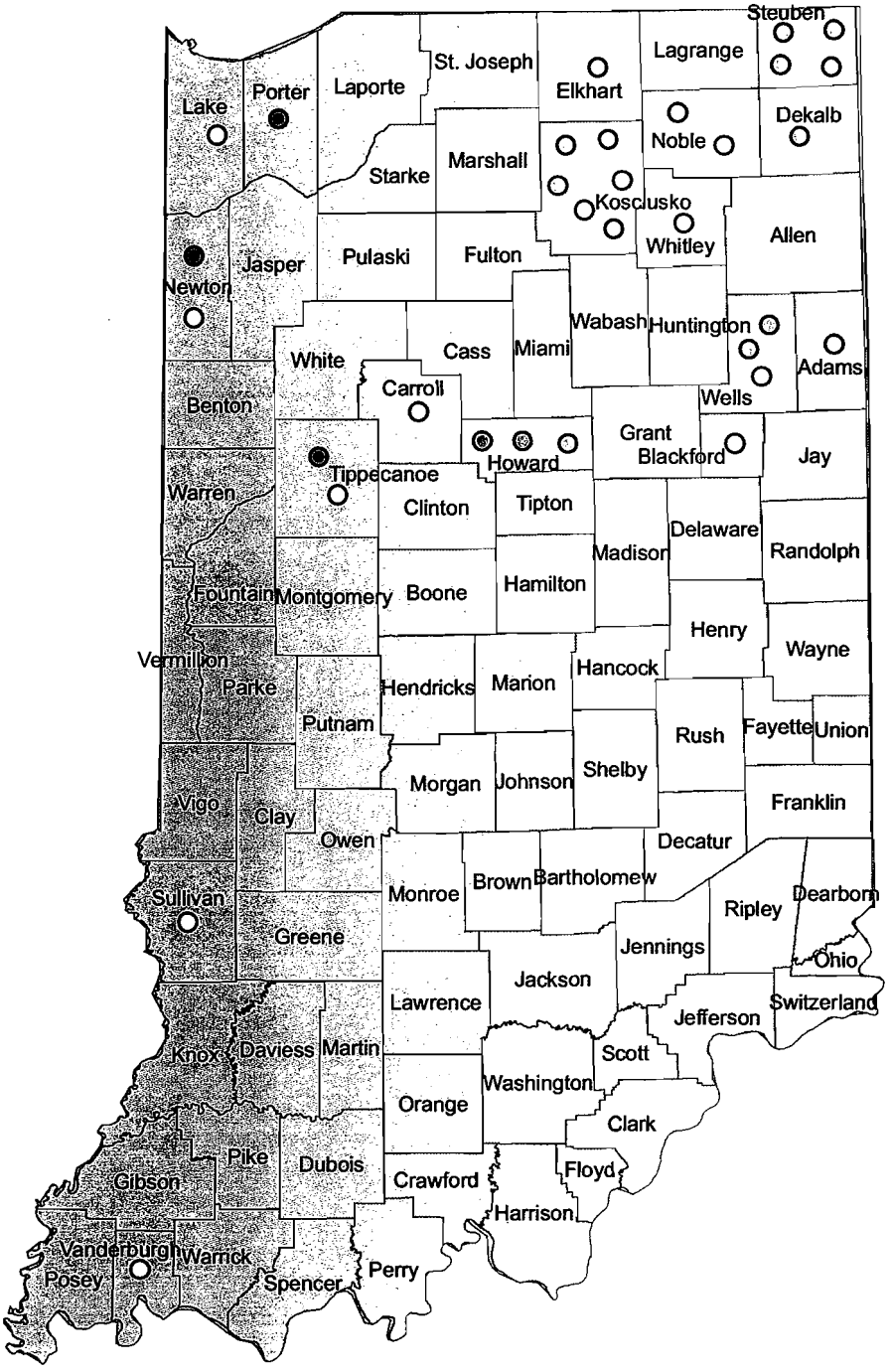
## TWO-STAGE DITCHES

- ABOUT 3 -5 TIMES THE COST OF TRADITIONAL CLEAN-OUT/DIPPING
- TAKES GROUND OUT OF PRODUCTION (COMPENSATION?)
- REQUIRES LESS MAINTENANCE (30 – 50 YR DESIGN LIFE)
- REDUCES FLOODING (GREATER WATER HOLDING CAPACITY)
- INCREASES BANK STABILITY RESULTING IN LESS BANK FAILURE
- NO BOTTOM DIPPING: NATURAL

PROCESSES ARE USED FOR A "SELF CLEANING" EFFECT WHICH LEAVES BIOTA INTACT

EXHIBIT 3
EQSC
OCTOBER 19, 2010

# 2 Stage Ditches by County

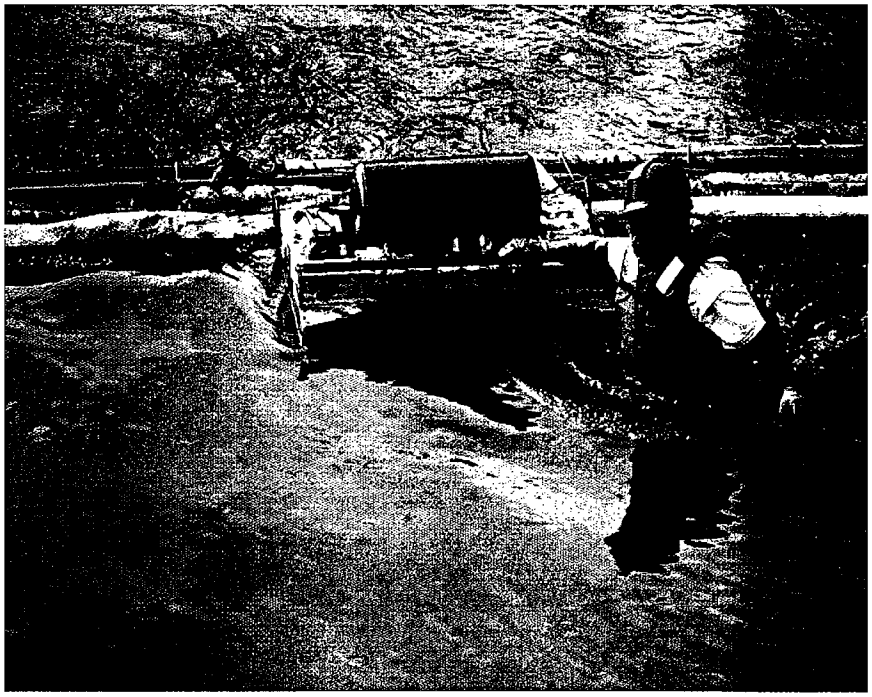



Green Implemented
White Planned

EXHIBIT H, EQSC, OCTOBER 19, 2010

# National Wildlife Federation
# Great Lakes Regional Center

## Marshall, MI Oil Spill
## Kalamazoo River
## Sate Involvement and Impacts



*Scott Harmsen – Kalamazoo Gazette*

*Photo By: Mick Stolz*

- Agency for Toxic Substances and Disease Registry
- Allegan County Emergency Management
- American Red Cross
- Augusta Police Department
- B&B Fire Safety Emergency Response
- Calhoun Conservation District
- Calhoun County Commissioners
- Calhoun County Drain Commission
- Calhoun County Sheriff's Office
- Calhoun County Treasurers Office
- Calhoun Conservation District
- Calhoun Greenation District
- City of Battle Creek, Michigan
- City of Marshall, Michigan
- Federal Energy Regulatory Commission
- Fredonia Township Fire Department
- Huron Potawatomi
- Kalamazoo County Office of Emergency Management
- Kalamazoo Public Safety
- Kalamazoo County Health Department
- Kalamazoo Watershed Council
- Marshall Township Government and Fire Department
- Marshall Police Department
- Michigan Department of Community Health
- Michigan Occupational Safety & Health Administration
- Natural Resource Group
- Pipeline Hazardous Materials Safety Administration
- National Oceanic and Atmospheric Administration
- U.S. Coast Guard U.S. Department of Transportation
- U.S. Fish & Wildlife Service
- Occupational Safety & Health Administration

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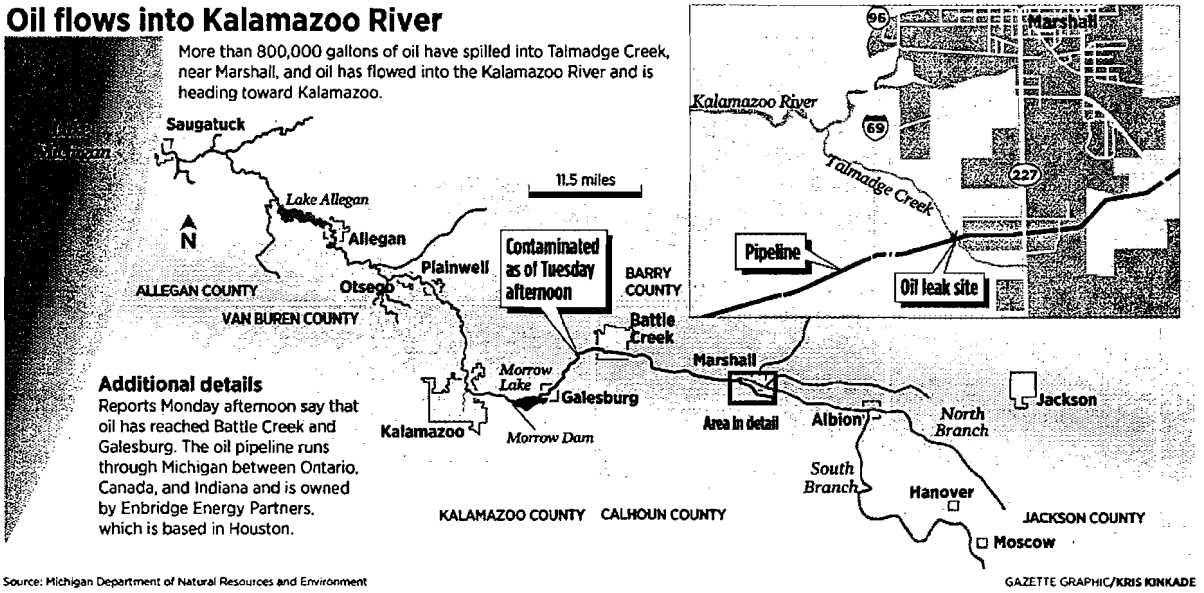


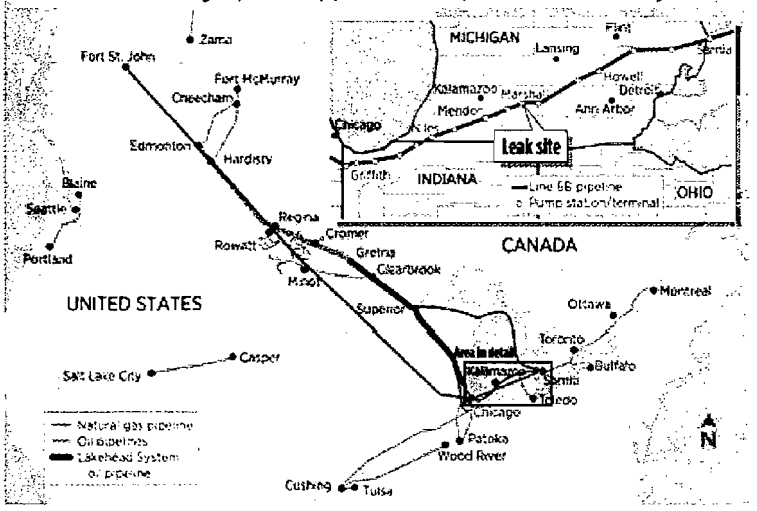

Source: Michigan Department of Natural Resources and Environment

GAZETTE GRAPHIC/KRIS KINKADE

[redacted]

## Enbridge Inc.'s operations in North America

The pipeline that leaked (called 6B) is a 30-inch, 8 million-gallons-per-day line transporting light synthetics, heavy and medium crude oil from Griffith, Ind., to Sarnia, Ontario. It is part of Enbridge Inc.'s Lakehead System. The 1,900-mile Lakehead System line is the U.S. portion of one of the world's longest petroleum pipelines and has operated for more than 60 years.




The Lakehead System is the primary transporter of crude oil from Western Canada to the United States. It consists of approximately 4,700 miles of pipe with diameters ranging from 12 to 48 inches; 60 pump stations; and 66 crude oil storage tanks with a capacity of about 12.1 million barrels. Approximately 68 percent of western Canadian crude oil exports to the United Sates in 2009 were shipped via the Lakehead System.

Source: Enbridge Inc.

GAZETTE GRAPHIC/KRIS KINKADE

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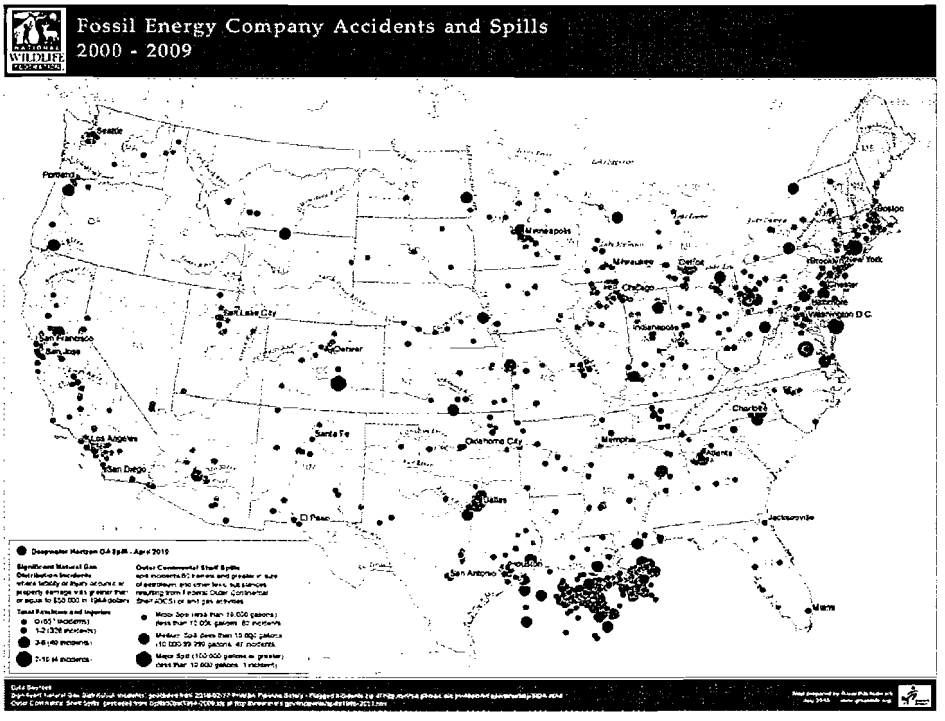


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NATIONAL WILDLIFE FEDERATION

EXHIBIT 5
EQSC
OCTOBER 19, 2010

We would like to highlight the importance for states, like Indiana, to develop response plans and to have constant vigilance and understanding of the pipelines running throughout the state. It is very important for our Great Lakes states, like Michigan and Indiana, to understand what's at stake and to understand what roles states play during the oversight and regulatory process. Each state should require oil companies, like Enbridge, to fully engage with their requirements.

Below is a time-line on what happened in Mid-Michigan with the Enbridge oil spill.

On Sunday, July 25th, the Lakehead system, Line 6b - operated by Enbridge Energy Partners, burst spilling nearly 1 million gallons of crude oil in and around Talmadge Creek and the Kalamazoo River. I would like to provide a very quick timeline on the events that occurred during this break.

On Sunday, July 25th at 5:56pm, Enbridge shut down line 6b for "routine upkeep".

A few minutes later, an alarm sounds indicating there was a loss of pressure in the pipeline. Enbridge has said that those types of alarms were considered "normal".

Later that evening, on the 25th, 911 calls started pouring into Marshall's police station. These calls were to report the smell of gas filling residence homes, inside and out. *Emergency responders and utilities were dispatched to investigate the source of the odors, but because of limited visibility, due to the time of day, no source was found.

Throughout the night, the control center for line 6b continued to give off alarms while Enbridge continued to try and trouble shoot the issue, to restart the line.

The 911 calls continued into the morning and it was not until mid-morning, approximately 11am on the next day, that the local energy utility- Consumers- saw the oil and reported a spill to Enbridge.

A couple more hours pass before the spill is officially reported to the National Response Center, which occurred around 1:30pm on Monday July the 26th 2010.

This timeline is extremely important for a number of reasons:

A) Enbridge did not have proper sensors in place to understand that a spill occurred. Had they discovered the burst in the pipeline, there could have been faster and proper containment.
B) Because emergency responders and utilities were unaware of the presence of the pipeline, they ignored the possibility of an oil spill, further delaying response.
C) Weak and perhaps non-existing emergency response plans further delayed the official reporting of the spill and proper response for a spill of this size.

In the days to follow, Enbridge was not prepared and deployed a minimal workforce which further delayed containment of the spill, allowing the flow of oil to travel 30 miles up the Kalamazoo River.

Enbridge ensured Federal and State agencies, along with the media, that they had control over the spill, highlighting that they had as few as 100 workers on the scene. As those agencies and the media began to understand the full magnitude of the disaster, there was a State of Emergency issued and response increased which helped to contain the oil around Marrow Lake, just before Kalamazoo, MI. It was quickly apparent that the response was not fast enough and the plans drawn up by Enbridge were not appropriate nor did federal or state agencies have proper understanding of those emergency plans.

Currently, the EPA is in charge of oversight and they developed the "Unified Command".
Regardless of this, Enbridge continues to be the acting body and makes most, if not all, decisions around clean-up and response. However, it is important to note that most of the other lead agencies are throughout the state and impacted counties. This is a list of the top agencies involved:

Michigan Department of Natural Resources and Environment (MDNRE)
Michigan State Police Emergency Management Division
Calhoun County Public Health Department
Calhoun County Sheriff
Kalamazoo County Sheriff

Here is another list of other agencies involved in this disaster clean-up effort (I've highlighted in red all the state and county agencies):

- Agency for Toxic Substances and Disease Registry
- Allegan County Emergency Management
- American Red Cross
- Augusta Police Department
- B&B Fire Safety Emergency Response
- Calhoun Conservation District
- Calhoun County Commissioners
- Calhoun County Drain Commission
- Calhoun County Sheriff's Office
- Calhoun County Treasurers Office
- Calhoun Conservation District
- Calhoun Greenation District
- City of Battle Creek, Michigan
- City of Marshall, Michigan
- Federal Energy Regulatory Commission
- Fredonia Township Fire Department
- Huron Potawatomi
- Kalamazoo County Office of Emergency Management
- Kalamazoo Public Safety
- Kalamazoo County Health Department
- Kalamazoo Watershed Council
- Marshall Township Government and Fire Department
- Marshall Police Department
- Michigan Department of Community Health
- Michigan Occupational Safety & Health Administration
- Natural Resource Group
- Pipeline Hazardous Materials Safety Administration
- National Oceanic and Atmospheric Administration
- U.S. Coast Guard U.S. Department of Transportation
- U.S. Fish & Wildlife Service
- Occupational Safety & Health Administration

**Overview of impacts:**

Because of heavy rain the days before the spill, the river was at flood state which amplified the progression of the oil and increased the impact to the sensitive shorelines along the river where wildlife resides.

During the first couple weeks, Enbridge, Federal and State agencies worked to contain the spill and frustrations within the different communities reached an unbearable level with residence because basic communication needs were not being met. Residences were left wondering if it was safe to breathe the air or drink the water. Many residences felt the "red zone" was not large enough. Local wildlife recovery groups were angry because Enbridge was not properly responding to oiled wildlife.
It quickly became clear that not enough was being done to help the affected communities cope.

The local health departments determined the 200ft "red zone" around parts of the river and the creek. Residences within this zone were asked not to drink well water and voluntary and mandatory evacuations were put in place. The lead factor for evacuations was because of the presence of Benzene. There were being detected so mandatory evacuations orders were put in place which displaced 30-40 families.
(Benzene – a gas or order from Crude oil, which is considered a carcinogen. While the effects have been studied in adults, there have been no studies on exposure infants, children and elderly – it is important to note that BECAUSE response plans were not set in place until days after the spill occurred, many families and businesses were exposed to Benzene while it was at its highest)

There were also several advisories put in place, including a ban on the use of water from the river: which means no hunting, fishing, boating, etc. The 30 miles of impacted river are closed to recreation and last week, an announcement was given during a public meeting, indicating that officials are still not sure how long the river closer will remain- but they know it will run into next year at the least.

Because a majority of the impacted area was vegetation and wetlands along the river, the wildlife have taken a very big hit and until the oil is 100% removed, there will continue to be impacts.
As of Oct. 13th The USFWS reported:
301 animals were live in care
2159 were released
And just over 100 animals have lost their lives due to this disaster.

Fast forwarding to today, the Unified Command has now moved away from crises mode (which was making sure the oil was 100% contained) and they are now focusing on clean-up and restoration.
To date:
There's around 118,389 feet of boom currently deployed
Enbridge has dropped the containment locations to 19
Around 12,100,000 gallons of oil/water collected (MOST is water)
And 68,954 cubic yards soil shipped off-site (again, most is soil)

**Recommendations**

The lessons learned from the Enbridge and BP oil disasters should be used as stepping stones for proper response and regulation at both the state and federal levels. Here are several recommendations that the National Wildlife Federation would propose, based on our on-the-ground experience:

1. The Enbridge pipeline rupture never should have happened. Enbridge failed to adequately monitor and maintain its pipeline, and the federal agency charged with overseeing pipeline operations did not require Enbridge to take the actions that were necessary. There needs to be

more effective monitoring, maintenance, and reporting on existing pipelines to both federal and state agencies.

2. Within days of the official 'acknowledgment' from Enbridge about the spill, it became very clear the company was grossly under-resourced and unprepared to handle or manage the rapidly growing disaster. States need to ensure that their resources are protected by requiring an adequate response plan.
3. Public safety authorities within the affected communities did not have adequate knowledge of the pipeline. During early detection of the spill, this lack of knowledge and understanding lead to confusion and delays in discovering the disaster at hand thus adding to the delay in response. Local first responders and utilities need to be updated on the status of pipelines and there needs to be constant engagement between pipeline companies and those operators on how to respond to a spill.
4. Ineffective and delayed communications and lack of organization by Enbridge and many of the agencies have significantly increased public frustration and anger over the spill. Lack of transparency and the inability to obtain basic information – a problem that continues even today for some areas – has enraged local citizens and made it impossible to assess how bad the damage really is. The government- run oil spill command structure needs to be more directly engaged in the response and recovery efforts. The responsible parties should pay for all the activities, but the company should not be in charge. The designated government commander should not delegate too much control to the company, which in this case was Enbridge.
5. Due to those delays and the lack of transparency, many of the people and wildlife near the thirty miles of river have suffered devastating (and in the case of wildlife, fatal) impacts and those impacts are likely to continue. The local agencies need to have better engagement with the impacted residence. The response and monitoring plans need to also include local input and engagement.

The issue underlining each experience and recommendation is the lack of transparency from agency to agency which translates to confusion and lack of organization within the affected communities. We would like each state, including Indiana, to have a heavier hand in regulating and overseeing the pipelines that run through their state. By having proper response plans, sustained engagement and transparency, you can decrease the possibility of a spill occurring in your districts or at least be prepared when one does occur.

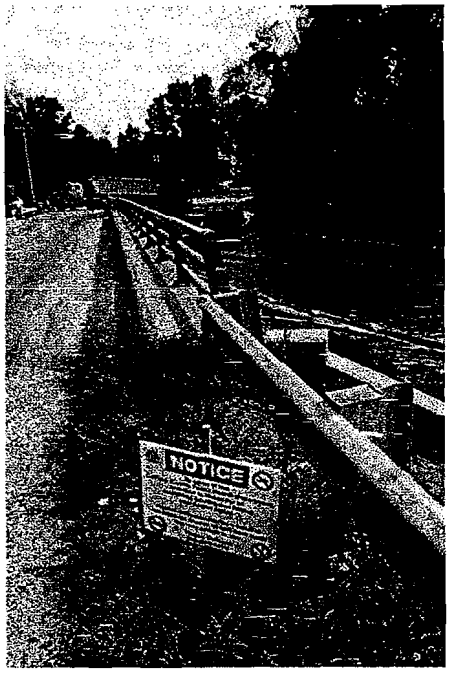
There was an article recently published in Michigan, which highlighted the gaps in both state and federal regulation for pipeline safety. I think these are relevant to the discussion the Committee is having today. Here were the highlights from the article:
- Pipeline and Hazardous Material Safety Administration, a federal agency did not have a copy of Enbridge's emergency response plan on file.
-Federal regulations require that pipeline operators conduct safety drills and public education around pipelines, but Michigan officials could not confirm nor deny when and with whom any such drills were conducted.
-It is unclear whether or not Enbridge and federal officials shared information with local officials or residents about possible corrosion along the pipeline
-Carl Weimer of the Pipeline Safety Trust pointed out that federal pipeline safety law allows states to take on responsibility for regulating pipelines and that a state can require more transparency in pipeline safety planning. The state of Washington has this policy in place. Washington law gives a detailed timeline for what is expected from pipeline operators after a spill.

CLEAN ACT

On the Federal level, action has been taken to address pipeline safety and regulation. Immediately following the spill, Congressman Mark Schauer of Michigan introduced the Corporate Liability and Emergency Accident Notification, otherwise known as the CLEAN Act into the House of Representatives Transportation and Infrastructure Committee. The bill, which passed the House would do the following:

- retain the "immediate" requirement, by which a company must respond to a pipeline incident, but additionally creating an outside cap of one hour after the discovery of a leak
- companies that exceed the one-hour requirement or violate other pipeline safety requirements would face a penalty of $250,000, up from the current $100,000, and penalties would increase to $2.5 million from $1 million for companies having multiple related violations
- would also increase transparency by creating a public, searchable internet database of all incidents involving gas or hazardous liquid pipelines, holding companies accountable for the damage they cause

EXHIBIT 6
EQSC
OCTOBER 19, 2010




# The Enbridge Oil Spill

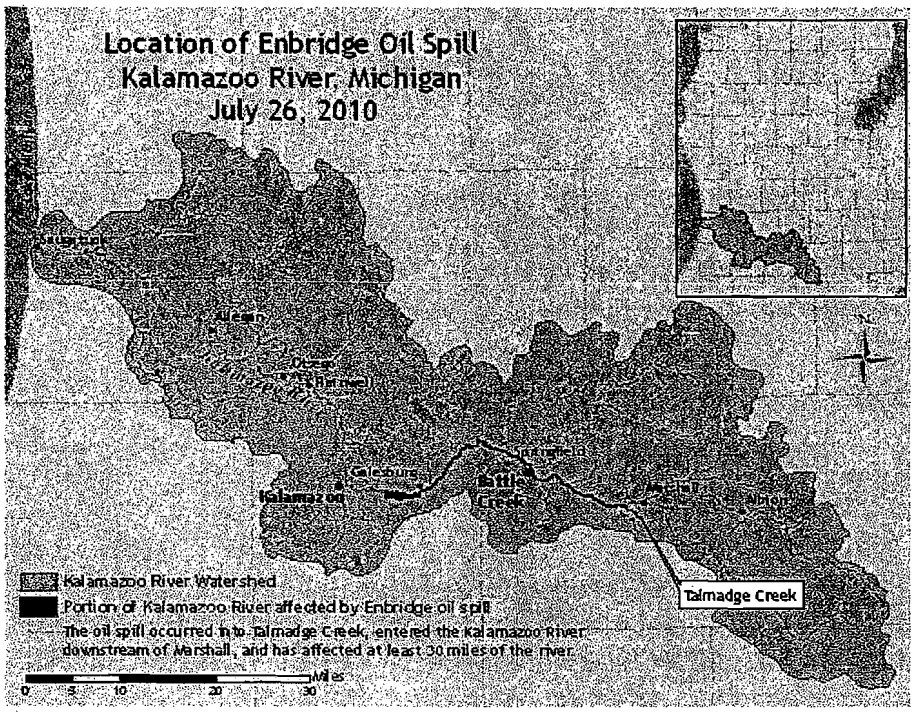
## Calhoun County, MI

On July 26, 2010, an accident on the Line 6B oil pipeline owned by Enbridge Energy Partners in Calhoun County, Michigan released over 800,000 gallons of crude oil into a tributary of the Kalamazoo River.[1] As of August 5, the spill had affected Talmadge Creek and at least 30 miles of the Kalamazoo River downstream of Marshall, and the cause of the leak was still unknown. The spill has led to evacuations as well as drinking water, fish consumption and swimming advisories, and containment and cleanup response by the company and a number of agencies.

## Oil Spill Fate and Impacts on Human Health and Environment

Following an oil spill on water, the oil goes through a process termed "weathering", involving processes such as evaporation of the more volatile chemicals (e.g. benzene), natural dispersion, emulsification, dissolution of certain chemicals into water, sedimentation, and biodegradation.[2] Health concerns with oil spills include prolonged inhalation exposure to crude oil components, which can cause respiratory irritation and headaches, nausea, and other symptoms. In addition to the carcinogen benzene, other chemicals of concern in crude oil include toluene, n-hexane, and hydrogen sulfide.[3] Following the spill, recommendations for evacuations had been issued for 30-50 residences near the spill site, due to elevated levels of benzene monitored in the air.[4] In addition, the Michigan Department of Community Health issued a precautionary advisory for the Kalamazoo River and vicinity, which includes avoiding (until further notice) consumption of fish of any kind if oiled or smelling of oil, from both Talmadge Creek and the Kalamazoo River down to the west end of Morrow Lake. In addition, the Department recommended against swimming in or touching the water of the river, from I-69 downstream to the west end of Morrow Lake.[5]

The Enbridge spill occurred into Talmadge Creek, a coldwater stream which feeds into the Upper Kalamazoo River just downstream of Marshall. Common fish in the creek include mottled sculpin, blacknose dace, and blackside darter.[6] The mainstem of the Kalamazoo River from Marshall to Morrow Dam just upstream of the city of Kalamazoo has been classified as "top quality warmwater" fish habitat by the Michigan Department of Natural Resources (now the Michigan Department of Natural Resources and Environment, MDNRE).[7] A number of fish species utilize all or part of the affected portion of the Kalamazoo River, including smallmouth and largemouth bass, northern pike, and various suckers, shiners, and other species. Even if fish can swim away from a spill, exposure to some bulk oil can lead to reduced growth rates, and then to increased mortality.[8] In addition, fish and other organisms can be exposed to dissolved components of oil (such as polycyclic aromatic hydrocarbons (PAHs)), leading to acute or chronic effects; for example, increased deformities in lake whitefish were associated with increased PAH exposure associated with an oil spill in Wabamun Lake in Canada.[9] Some fish species that may be at particular risk from the Enbridge spill include black crappie, bluegill, greater redhorse, pugnose shiner, walleye, and western blacknose dace.[10] Several turtle species have been reported in the upper or middle segments of the Kalamazoo River, including the threatened spotted turtle, and Blanding's and eastern box turtle, both of which are identified as special concern species by the state.[11] Adult turtles can be harmed by exposure to oil, and eggs and hatchlings are also at risk.




A number of other animal species are present in the Kalamazoo River watershed as a whole, including a number of waterfowl that use the Mississippi Flyway (including Canada geese and numerous duck species). In addition, several threatened or endangered water-dependent birds use the watershed, including the common loon, trumpeter swan, osprey, bald eagle, king rail, and Caspian and common terns.[12] In addition to potentially suffering acute poisoning from oil ingestion or severe oiling which leads to death, birds are also susceptible to more chronic effects from oil, such as laying of fewer eggs, reduced hatching success, or decreased growth rate in the young. Mammals present in the watershed that may be at risk from the oil spill include beavers, muskrats and mink.[13] Wetlands and other habitat adjacent to the river are also at risk from the oil spill; segments immediately upstream and downstream of Battle Creek in particular have a high abundance of wetlands.[14]

## Tar sands and Oil Pipelines

The Line 6B oil pipeline, where the leak occurred, runs from Griffith, Indiana to Sarnia, Ontario, and transports up to 190,000 barrels per day of light synthetics, heavy, and medium crude oil. The pipeline is part of the Enbridge partnerships' Lakehead System; according to the company, 68% of Western Canadian crude exports to the U.S. in 2009 were shipped via the Lakehead System, which provides oil for refining in the Midwest and Ontario, and has increasing access to refineries in the Mid-Continent and Gulf Coast.[15]

An increasing amount of the crude oil shipped to and through the Midwest is being produced from tar sands (or oil sands), in Western Canada. Tar sands are a mixture of organic matter, bitumen (a viscous hydrocarbon mixture), sand and water that are either mined and processed, or extracted *in situ*, producing crude oil.[16] Starting in 2006, production of crude oil from tar sands in Canada surpassed conventional production, and tar sands production is projected to make up an increasingly larger fraction of Canadian production in the coming decades.[17] A number of concerns have been raised about the production of oil from tar sands, including regarding forest destruction and degradation, water quality impacts, human health concerns (including incidences of rare cancers), and increased greenhouse gas emissions compared to convention oil production.[18] Parallel with increased tar sands production has been growth of pipelines in the U.S., including the Keystone XL project proposed by the company TransCanada. Two recent NWF reports have highlighted the ecological threats and harm to people that can come with these developments, including the risks from pipeline accidents. For example, from 2000-2009, there were 2,554 significant pipeline incidences in the U.S. and 161 fatalities; Michigan ranked ninth nationally in the number of significant incidences, and three other Great Lakes states were also in the top 10.[19] Pipeline corrosion (and the risk of spills) is an increasing concern with aging pipelines; Enbridge had notified the U.S. Pipeline and Hazardous Materials Safety Administration (PHMSA) on July 15, 2010 concerning an alternative remediation plan to address metal loss anomalies in the pipeline identified in a June 2009 survey.[20] NWF has recommended a number of policy changes (including more aggressive efforts to promote renewable energy) to lessen the environmental and other risks from our heavy reliance on petroleum (see note 19).

## Remediation and Restoration

Response to the oil spill has included involvement of Enbridge, county, state and federal agencies, and U.S. Environmental Protection Agency (USEPA) as the Federal On-Scene Coordinator. Response activities as of August 5 included deployment of over 99,000 feet of containment booms, establishment of 37 containment locations, collection of 53,061 barrels of oil/water mixture in storage, and removal of over 19,028 barrels of oil/water from the site.[21] As of August 5, the U.S. Fish and Wildlife Service had reported that 138 animals had been collected and brought to the wildlife rehabilitation center, including 64 Canada geese and 52 turtles.[22] Concerning the ruptured pipeline, the U.S. PHMSA issued a Corrective Action Order on July 28 calling on Enbridge Energy Partners to develop and submit to the agency a restart plan prior to resuming operation of the pipeline, and following approval to restart, operate at reduced pressure. In addition, the order called for submission of an integrity verification and remedial work plan, which would include an evaluation of the remaining portions of the pipeline for any integrity threatening conditions.[23]

In response to the Removal Administrative Order from USEPA (requesting an oil recovery and containment plan among others), Enbridge provided to USEPA a work plan on July 29. On July 31, USEPA announced an order of disapproval, including disapproval of the eight component plans. The disapproval order included a number of comments concerning the plan for downstream impacted areas, including the need to reference USEPA Shoreline Contamination Assessment Team recommendations, and Enbridge was to have submitted a revised plan by August 2.[24]

The Kalamazoo River more broadly has been heavily impacted by other activities. Historic paper production operations downstream of the Morrow Dam resulted in the release of significant quantities of polychlorinated biphenyls (PCBs), and the contaminated sites, a segment of Portage Creek, and the 80-mile stretch of the Kalamazoo River from Morrow Dam to Lake Michigan had been placed on the National Priorities List in 1990 as a Superfund site.[25] The same river segment is also designated an Area of Concern under the Great Lakes Water Quality Agreement,[26] and a number of fish consumption advisories for several fish species (in particular for PCBs) remain in place in the river.[27] Previous restoration objectives had been identified for the Kalamazoo River Superfund site; in addition to eliminating fish consumption advisories and PCB loadings to Lake Michigan, objectives include restoring natural river flow, in-stream movement of fish, and diverse habitats to support various species, including mussels, turtles, mink, otter, and bald eagles.[28]

Though the new oil spill appears to have been essentially contained above Morrow Dam, the damage from the spill will need to be considered as part of broader restoration objectives for the river. Addressing some damages in the spill area will be particularly challenging, given the potential for some response methods (such as manual oil removal and mechanical removal) to cause high impact in a number of shoreline habitats, including wetlands.[29] Following removal and restoration work, monitoring of diverse biota and habitats will be essential; a similarly sized crude oil spill in the Gasconade River in Missouri was associated with decreased biodiversity of macroinvertebrates in backwater sediment habitats, including 18 months after the spill.[30] Successful recovery of the river will require both well-planned restoration work, protection from new stresses, and comprehensive and long-term monitoring.

**To report oiled or injured wildlife, please contact:**
**Fish and Wildlife Service - 800-306-6837**

**Questions about air quality and human safety:**
**Calhoun County Public Health Department - 269-969-6371**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**National Wildlife Federation**
**Great Lakes Regional Center**
**Ann Arbor, MI**
**www.nwf.org/greatlakes**


*August 2010*

## Resources

**Calhoun County Public Health Department**
http://www.calhouncountymi.org/Departments/HealthDept/EnbridgeOilSpill.htm

**City of Marshall**
**http://www.cityofmarshall.com/events/33**

**Enbridge, Line 6B Response**
http://response.enbridgeus.com/response/

**Kalamazoo County, Health and Community Services Department**
http://www.kalcounty.com/hsd/

**Kalamazoo River Watershed Council**
http://www.kalamazooriver.org/

**Kalamazoo River Area of Concern**
http://www.epa.gov/glnpo/aoc/kalriv.html

**Michigan, Oil Spill News and Updates**
http://www.michigan.gov/oilspill

**National Wildlife Federation**
http://www.nwf.org/MichiganOilSpill

**Pembina Institute**
http://www.pembina.org/

**U.S. Environmental Protection Agency**
http://www.epa.gov/enbridgespill/

**U.S. Pipeline and Hazardous Materials Safety Administration**
http://www.phmsa.dot.gov/

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[1] Enbridge Energy Partners, Line 6B Response, available from http://response.enbridgeus.com/response/; and U.S. Environmental Protection Agency (USEPA), EPA's Response to the Enbridge Oil Spill, available from http://www.epa.gov/enbridgespill/. 1;000,000 gallons corresponds to approximately 23,810 barrels of oil.

[2] See for example Fingas, M. 2001. The Basics of Oil Spill Cleanup, 2nd Edition. Lewis Publishers, Boca Raton, FL; and Hibbs, D.E., and J.S. Gulliver, 1999. Processes controlling aqueous concentrations for riverine spills, *Journal of Hazardous Materials* B, 64:57-73.

[3] Enbridge, Crude oil – heavy, Material Safety Data Sheet, available from http://www.calhouncountymi.org/ReferenceDesk/Forms/CCPHD_MSDS_Heavy_Crude.pdf.

[4] Calhoun County Public Health Department (CCPHD), Health Department Recommends Evacuation of Residents, available from http://www.calhouncountymi.org/ReferenceDesk/Forms/CCPHD_Oil_Spill_Evacuation.pdf. In addition, at least 26 people had been treated in emergency rooms, according to the Detroit Free Press (Neavling, S., and Hall, C., EPA: A lot of work ahead in Michigan oil cleanup, Detroit Free Press, August 2, 2010, available from http://www.freep.com/apps/pbcs.dll/artikkel?Dato=20100802&Kategori=NEWS05&Lopenr=8020357&Ref=AR&template=fullarticle).

[5] Michigan Department of Community Health (MDCH), Swimming and Fish Advisory, available from http://www.michigan.gov/som/0,1607,7-192-39745_40885_56784-241538--,00.html.

[6] Wesley, J.K. 2005. Kalamazoo River assessment. Michigan Department of Natural Resources, Fisheries Division, Special Report 35, Ann Arbor. Available from http://www.dnr.state.mi.us/PUBLICATIONS/PDFS/ifr/ifrlibra/special.htm.

[7] *Ibid.*

[8] Burger, J. 1997. Oil Spills, Rutgers University Press, New Brunswick, New Jersey.

[9] Debruyn, A. M. H., B.G. Wernick, C. Stefura, B.G. McDonald, B-L. Rudolph, L. Patterson, P.M. Chapman, 2007. In situ experimental assessment of lake whitefish development following a freshwater oil spill. Environmental Science & Technology 41(20): 6983-6989. Also see review of PAH impacts on marine fish in Boehm, P.D., J.M. Neff, and D.S. Page. 2007. Assessment of polycyclic aromatic hydrocarbon exposure in the waters of Prince William Sound after the Exxon Valdez oil spill: 1989–2005, Marine Pollution Bulletin, 54:339-367.

[10] Based on intolerance to turbidity and/or low dissolved oxygen conditions. Species characteristics described in Wesley 2005.

[11] Wesley 2005.

[12] *Ibid.*

[13] *Ibid.*

[14] Michigan Department of Natural Resources and Environment (MDNRE), Wetland Inventory Maps, available from http://www.michigan.gov/deq/0,1607,7-135-3313_3687-11178--,00.html.

[15] Enbridge Energy Partners, About Lakehead, available from http://response.enbridgeus.com/response/main.aspx?id=12780.

[16] Humphries, M. 2008. North American Oil Sands: History of Development, Prospects for the Future, CRS Report for Congress, Updated January 17, 2008, available from http://fas.org/sgp/crs/misc/RL34258.pdf.

[17] Canadian Association of Petroleum Producers. 2010. 2010-2025 Canadian Crude Oil Forecast and Market Outlook, available from http://www.capp.ca/getdoc.aspx?DocId=173003.

[18] See for example Humphries, 2008; Tenenbaum, D.J. 2009. Oil sands development: A health risk worth taking? Environmental Health Perspectives, A150-A156; Charpentier, A. D., J.A. Bergerson, and H.L. MacLean. 2009. Understanding the Canadian oil sands industry's greenhouse gas emissions, Environmental Research Letters, 4:1-11; and Droitsch, D., M. Huot, and P.J. Partington. 2010 Canadian Oil Sands and Greenhouse Gas Emissions: The Facts in Perspective, Pembina Institute Briefing Note, available from http://www.pembina.org/pub/2057.

[19] See Doyle, J., and M. Mejia. 2010. Assault on America: A Decade of Petroleum Company Disaster, Pollution, and Profit, National Wildlife Federation, available from http://www.nwf.org/News-and-Magazines/Media-Center/News-by-Topic/Global-Warming/2010/07-28-10-Oil-Disasters-Report.aspx; also see Glick, D. 2010. Staying Hooked on a Dirty Fuel: Why Canadian Tar Sands are a Bad Bet for the United States, National Wildlife Federation, available from http://www.nwf.org/News-and-Magazines/Media-Center/Reports/Archive/2010/Tar-Sands-Staying-Hooked-on-a-Dirty-Fuel.aspx.

[20] U.S. Pipeline and Hazardous Materials Safety Administration (PHMSA). 2010. Corrective Action Order, CFP No. 3-2010-5008H, available from http://www.phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Files/Pipeline/CAO_07282010.pdf

[21] USEPA. Available from http://www.epa.gov/enbridgespill/ (accessed August 5, 2010).

[22] U.S. Fish and Wildlife Service Michigan Oil Spill Response, available from http://www.fws.gov/midwest/oilspill/ (accessed August 5, 2010).

[23] PHMSA, 2010 (see note 20).

[24] See Enbridge Energy, Limited Partnership, Work Plan, Enbridge Marshall Pipeline Release, July 29, 2010, http://www.epa.gov/enbridgespill/pdfs/enbridge_workplan_complete_20100729.pdf; and U.S. EPA, Notice of Disapproval of Enbridge Energy Partners' submissions in response to the Removal Administrative Order issued by U.S. EPA on July 27, 2010, pursuant to §311(c) of the Clean Water Act in Docket No. CWA 1321-5-10-001, http://www.epa.gov/enbridgespill/pdfs/enbridge_disapproval_notice_20100731.pdf.

[25] National Oceanic and Atmospheric Administration (NOAA), Case, Kalamazoo River, MI, available from http://www.darrp.noaa.gov/greatlakes/kalamazoo/index.html.

[26] U.S. EPA, Kalamazoo River Area of Concern, available from http://www.darrp.noaa.gov/greatlakes/kalamazoo/index.html.

[27] MDCH, 2010 Michigan Fish Advisory, available from http://www.michigan.gov/documents/FishAdvisory03_67354_7.pdf.

[28] NOAA, 2010. Restoration Activities, Case, Kalamazoo River, MI, available from http://www.darrp.noaa.gov/greatlakes/kalamazoo/restore.html.

[29] NOAA. 1994. Options for Minimizing Environmental Impacts of Freshwater Spill Response, available from http://response.restoration.noaa.gov/book_shelf/902_freshwater.pdf.

[30] Poulton, B.C., S.E. Finger, and S.A. Humphrey. 1997. Effects of a Crude Oil Spill on the Benthic Invertebrate Community in the Gasconade River, Missouri. Archives of Environmental Contamination and Toxicology 33, 268–276.

EXHIBIT 7
EQSC
OCTOBER 19, 2010

**Testimony of**
**Maggie McShane**
**Executive Director, Indiana Petroleum Council**

**Environmental Quality Service Council**
**October 19, 2010**

**Liquid pipelines overview**
Pipelines are the safest, most reliable, economical and environmentally favorable way to transport oil and petroleum products, other energy liquids, and chemicals, throughout the U.S.

Liquid pipelines bring crude oil to the nation's refineries and important petroleum products to our communities, including all grades of gasoline, diesel, jet fuel, home heating oil, kerosene, and propane. Some of our members transport or may soon transport renewable fuels via pipeline, as well. Our members transport carbon dioxide to oil and natural gas fields, where it is used to enhance production. In addition to providing fuels for the transportation sector (including cars, trucks, trains, ships and airplanes), we provide hydrocarbon feedstocks for use by many other industries, including food, pharmaceuticals, plastics, chemicals, and road construction. America depends on the network of more than 168,000 miles of liquid pipelines to safely and efficiently move energy to fuel our nation's economic engine.

Pipelines transport more than 17 percent of freight moved in America, yet pipelines account for only 2 percent of the country's freight bill. Approximately 2.5 cents of the cost of a gallon of gasoline to an end-user can be attributed to pipeline transportation[1], resulting in a low and predictable price for pipeline customers (referred to as "shippers"). Liquid pipeline transportation rates are regulated by the Federal Energy Regulatory Commission (FERC). Rates are generally stable and predictable, and do not fluctuate with the changes in crude oil and gasoline or other fuel prices. Typically, pipelines only take custody of the product tendered for transportation and, as such, are unaffected by changes in the price of commodities being transported.

Pipelines are the preferred mode of transportation for crude and refined products. The approximate share of domestic shipments, measured in barrels of product moved per mile, is:[2]

- Pipelines – 68 percent
- Water Carriers – 25 percent
- Trucks – 4 percent

[1] "Liquid Transportation Fuels from Coal and Biomass: Technological Status, Costs, and Environmental Impacts", National Academy of Sciences, 2009.
[2] Association of Oil Pipe Lines, *Shifts in Petroleum Transportation*, 2009.

- Rail – 3 percent[3]

Pipelines are the safest method of transporting fuels, as demonstrated by the lowest number and volume of releases of any transportation mode. As a result of enhancements to pipeline safety laws, implementing regulations, and vigorous industry efforts, liquid pipeline spills along rights-of-way have decreased over the past decade, in terms of both the number of spills and the volume of product released per 1,000 barrel-miles transported.

In addition to its record of fewest releases, pipeline transportation enjoys the lowest input energy requirement and carbon footprint as compared to other transportation modes (barge, truck, rail, and marine). Replacing a medium-sized pipeline that transports 150,000 barrels of gasoline a day would require operating more than 400 trucks or a 270-car train every day. Use of trucks or trains would increase mobile source greenhouse gas emissions, wear and tear on our transportation infrastructure, road congestion, and the number and volume of releases.

**Pipeline operators insist on safety**

Pipelines have every incentive to invest in safety. Indeed, in our members' view, there are no incentives to cut corners on pipeline safety. Most important is the potential for injury or loss of life to members of the public and our employees and contractors. If a pipeline experiences a failure or a release, there are numerous consequences for the operator. We could also incur potentially costly repairs, cleanup, litigation, and fines. Next, the pipeline may not be able to accommodate our customers. Finally, the pipeline company's reputation could be hurt.

Operators of liquid pipelines invest millions of dollars annually to maintain their pipelines and comply with federal pipeline safety laws and regulations. Liquid pipeline assets are inspected regularly, using a combination of practices.
Pipeline operators continually seek to reduce the risk of accidental releases by taking measures to minimize the probability and severity of incidents. These measures include proper pipeline route selection, design, construction, operation, and maintenance, as well as comprehensive public awareness and excavation damage prevention programs.

The frequency of releases from liquid pipelines decreased from 2 incidents per thousand miles in 1999-2001 to 0.7 incidents per thousand miles in 2006-2008, a decline of 63 percent. Similarly, the number of barrels released per 1,000 miles decreased from 629 in 1999-2001 to 330 in 2006-2008, a decline of 48 percent[4]. The industry is proud of this record, but continues to strive for zero releases, zero injuries, zero fatalities and no operational interruptions.

On many pipelines, operators also seek to minimize the consequences of a release through the use of automated systems that detect releases or other abnormal operating

[3] One barrel mile equals one barrel (or 42 gallons) transported one mile.
[4] These figures are from the Industry's Pipeline Performance Tracking System, a voluntary reporting system that tracks pipeline system spills.

conditions and quickly shut off product flow to isolate the incident. Pipeline operators are required to put response plans in place, conduct emergency response drills on worst-case discharges, and conduct exercises in cooperation with local first responders to ensure that emergency preparedness and planning is at a continued state of readiness.

In 1998, the U.S. oil pipeline industry launched an Environmental and Safety Initiative (ESI) to make further improvements in spill and accident prevention. The ESI promotes inter-company learning, improves pipeline operations and integrity, and provides opportunities for information sharing. An important part of the ESI is the liquid pipeline industry's voluntary reporting system, the Pipeline Performance Tracking System (PPTS), which tracks spills and allows operators to learn from industry data. Another key element of the ESI is the Performance Excellence Team (PET), which seeks to promote inter-company learning to improve pipeline operations and integrity, and provides methods and opportunities for information sharing.

**Pipeline safety laws and regulations**

In 1979, Congress enacted comprehensive safety legislation governing the transportation of liquids by pipeline in the Hazardous Liquids Pipeline Safety Act of 1979 (HLPSA, 49 U.S.C. 2001). HLPSA added to previous laws and regulations and expanded the existing statutory authority for safety regulation. Since then, several new laws have been passed to govern the liquids pipeline industry, including: the Pipeline Safety Act (PSA) of 1994, the Pipeline Safety Improvement Act of 2002 (PSA), and the Pipeline Inspection Protection, Enforcement, and Safety Act of 2006 (PIPES).

Pipeline safety is closely regulated by the Department of Transportation (DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA) Office of Pipeline Safety (OPS). PHMSA's OPS is responsible for establishing and enforcing regulations to assure the safety of liquid pipelines. (Title 49 CFR Parts 190-199). OPS sets prescriptive performance-based regulations and standards that are intended to address the dynamic nature of pipeline operations.

**Integrity management**

Most pipeline operators are required under federal statute (Title 49 C.F.R., part 195.450 and 452) to develop an Integrity Management Plan (IMP), for pipelines that could affect High Consequence Areas (HCAs). HCAs for liquid pipelines include any of the following:

- Population centers, urbanized areas, or areas with large population density;
- Commercially navigable waters; and
- Environmentally sensitive areas such as water supplies and ecological reserves.

**Costs of integrity management programs**
Liquid pipelines have implemented comprehensive programs to ensure compliance with PHMSA's IMP regulations, and have incurred significant costs associated with these activities. It was estimated by DOT before implementation that the liquid pipeline industry would spend approximately $279.5 million from 2001-2007 to comply with the IMP regulations.[5] However, industry experience demonstrates that the actual costs far exceed DOT's early projection.

Data from a subset of the industry illustrates the extent of these integrity-related costs. Lines representing less than 15 percent of the total DOT-regulated pipeline mileage, including systems that transport refined products, crude oil, and natural gas liquids, estimate expenditures in excess of $1 billion on required pipeline integrity management activities in the years from 2005 through 2009. In other words, in just the past five years these pipelines alone exceeded by nearly four times DOT's estimate for the total industry for the period 2001-2007. These figures, moreover, do not include integrity costs associated with DOT-regulated storage tanks, which would add substantially to the total.

It is important to note that as integrity management tools become more sophisticated, they are more effective at identifying issues for pipeline operators to consider. As a result, integrity management compliance costs have trended upward since implementation of the IMP regulations, a trend that the industry expects to continue in the coming years.

**Damage prevention and One-Call**
Excavation damage to pipelines is less frequent today, but can have extremely high consequences. Incidents from excavation damage by third parties accounted for only 7 percent of release incidents from 1999 to 2008. However, 31 percent of all significant incidents (those that result in spills of 50 barrels or more, fire, explosion, evacuation, injury or death) come from excavation damage by third parties. Further, at an even higher frequency, pipelines suffer damages from third parties that are not severe enough to cause a release at the time of excavation.

To protect communities, sensitive environmental areas, as well as the pipeline itself, the pipeline industry and other operators of underground facilities joined together to create notification centers that are used by those preparing to conduct excavation close to underground facilities. These centers – called One-Call Centers – serve as the clearinghouse for excavation activities that are planned close to pipelines and other underground utilities. Established by federal law in 2007, 811 is the national "call-before-you-dig" number which informs operators, homeowners, and excavators about the location of underground utilities before they dig to prevent unintentional damage to underground infrastructure, including pipelines.

When calling 811 from anywhere in the country, a call is routed to the local One-Call Center. Local One-Call Center operators discern the location of the proposed excavation

[5] Five Year Review of Oil Pricing Index, FERC Stats and Regs (Order), 71 Fed. Reg. 15,329, 15,331 (March 28, 2006).

and route direct information about the proposed excavation to affected infrastructure companies. Under One-Call regulations, excavators must wait a specified amount of time before beginning any excavation project, to allow operators of underground infrastructure can mark and protect underground infrastructure from digging and other excavation projects.

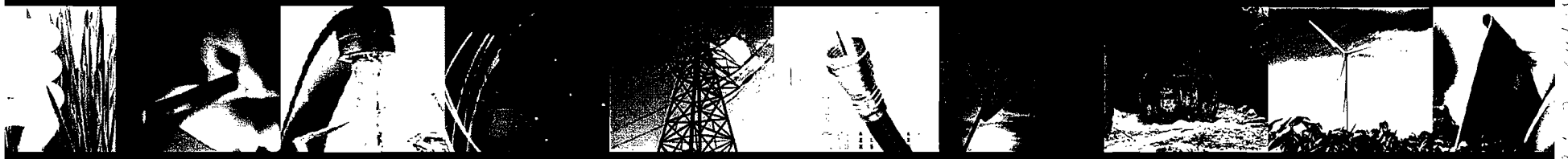
In addition, pipeline operators, associations, state regulators and federal and state agencies take part in the Common Ground Alliance (CGA), an association that promotes effective damage prevention practices for all underground utility industry stakeholders to ensure public safety, environmental protection, public awareness and education to guard against damage prevention. Membership in CGA spans 1,400 members and sponsors, demonstrating that damage prevention is everyone's responsibility. Industry has worked closely with CGA to develop best practices and participates fully in its damage prevention programs, including the establishment and implementation of 811.

The industry supports fundamental requirements that should apply to all excavators, including state agencies and municipalities:

- Use state One-Call systems prior to excavation by dialing the national 811 Call Before You Dig number;
- Follow location information or markings established by pipeline operators and other utility owners and operators;
- Report any and all excavation damage to pipeline operators; and
- Immediately notify emergency responders when excavation damage results in a release of pipeline products.

I am happy to respond to any questions.

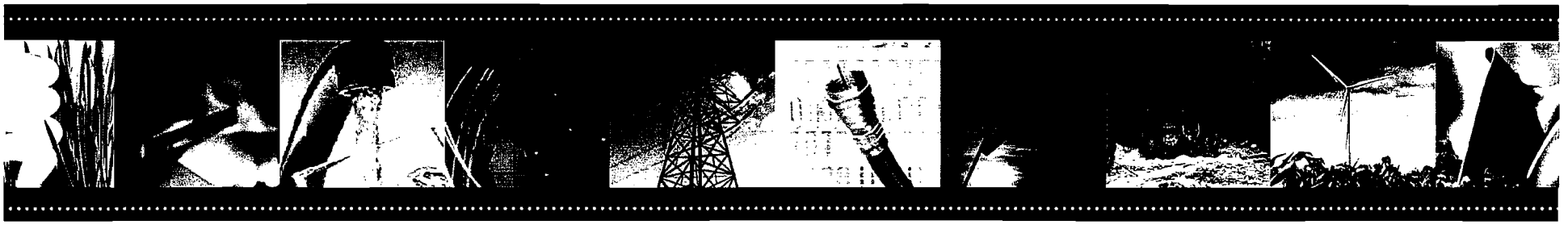
# The Pipeline Safety Division's Regulatory Authority



*A briefing on the Commission's role, responsibilities, and jurisdiction*

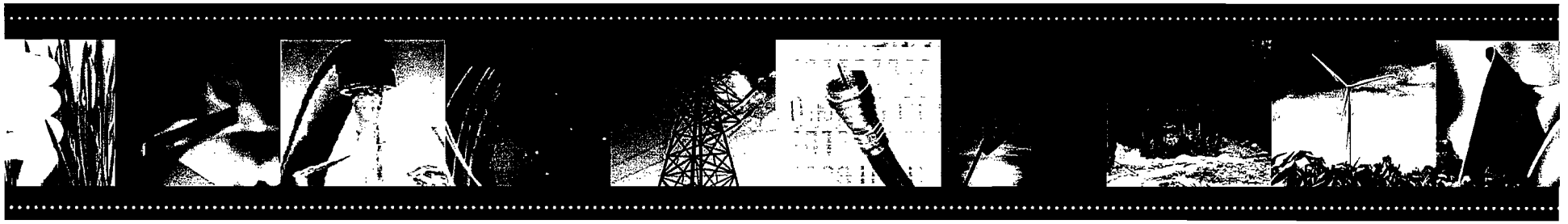
EXHIBIT 2, IEC SC, OCTOBER 19, 2010

**William Boyd, Pipeline Safety Director**
Indiana Utility Regulatory Commission



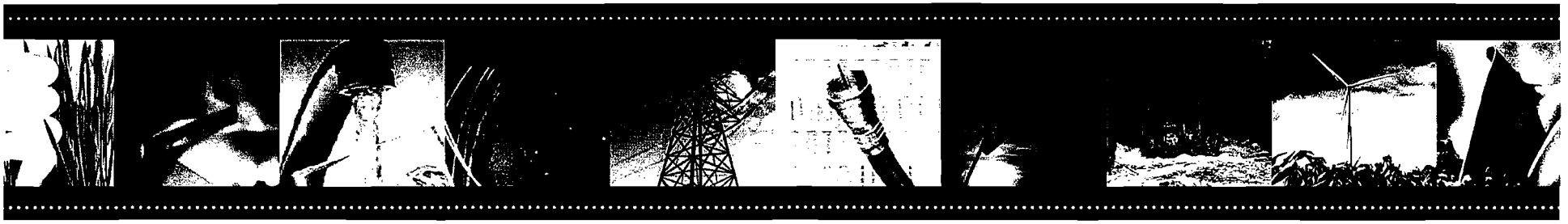
# What is Jurisdictional?

- Indiana abides by federal rules and regulations regarding pipeline safety, and in some cases, has implemented more stringent rules.
- States, including Indiana, that have certified pipeline programs are delegated federal authority by the U.S. Department of Transportation.
- 49 U.S. CFR 601
- I.C. 8-1-22.5



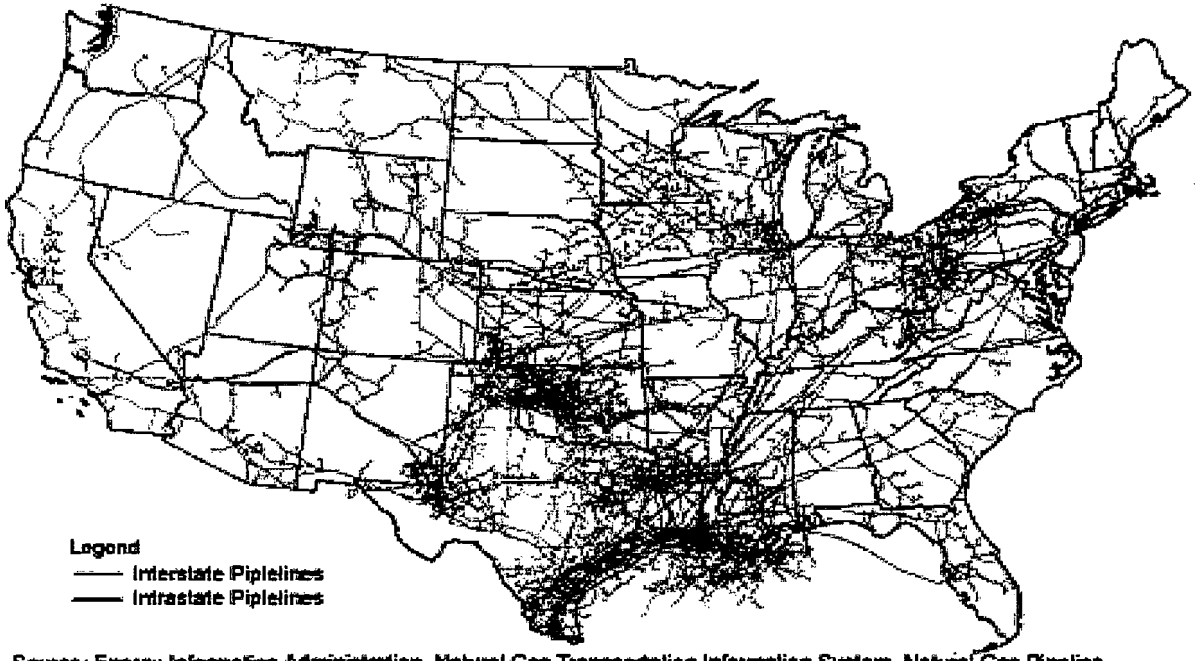
# What isn't Jurisdictional?

- States have delegated authority over intrastate pipelines; PHMSA retains jurisdictional over interstate pipelines.
- Interstate pipelines
  - Buckeye Partners
  - Enbridge
  - Texas Eastern Products Pipeline
  - Panhandle
  - Rockies Express Pipeline, I.C. 8-1-22.6

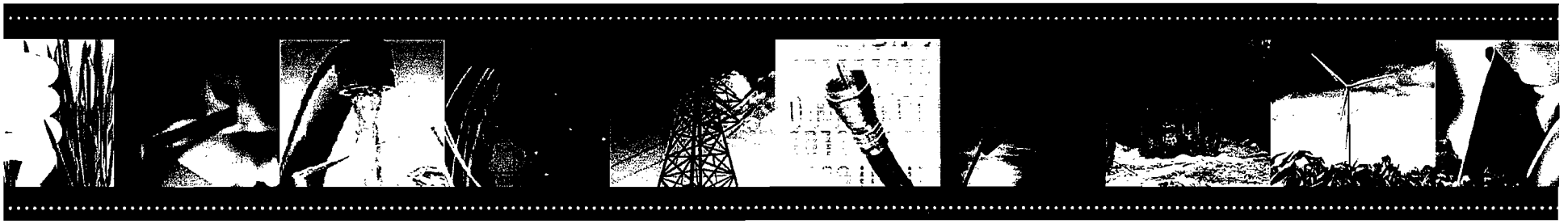


# Interstate and Intrastate Pipelines

***The national natural gas mainline transmission grid is made up of approximately 217,000 miles of interstate pipelines and 89,000 miles of intrastate pipeline.***

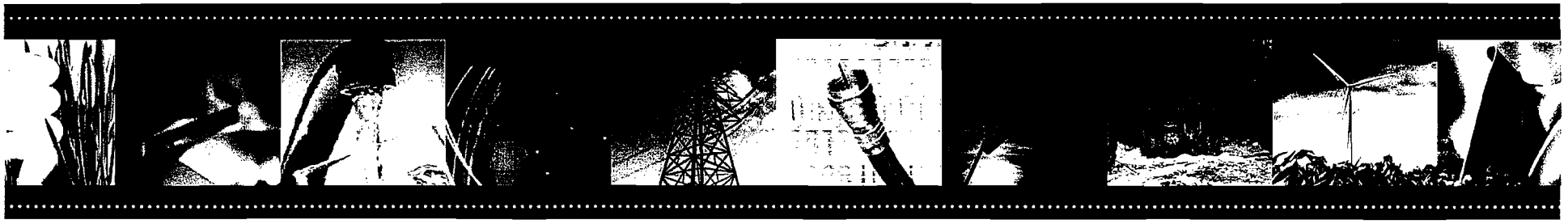



Source: Energy Information Administration, Natural Gas Transportation Information System, Natural Gas Pipeline Maps Database (December 2008)



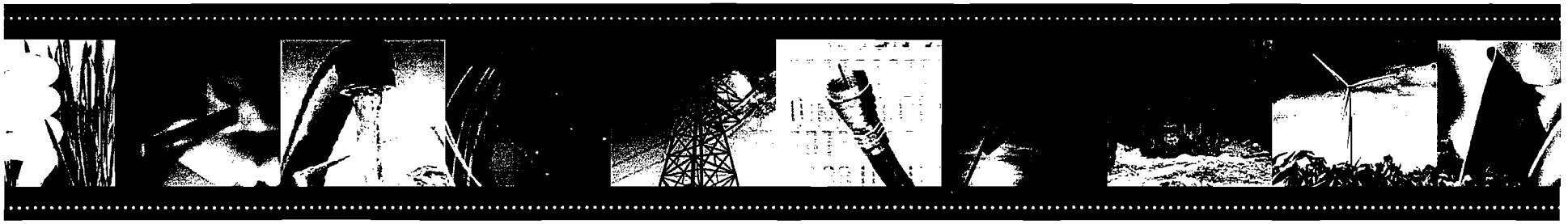
# Jurisdiction by Commodity Type

- There are two distinct programs for natural gas and hazardous materials.
  - Natural gas, 49 CFR 192
  - Hazardous liquid materials, 49 CFR 195
- There are more environmental concerns with regard to hazardous liquid materials.
- Therefore, the rules differ by commodity type.



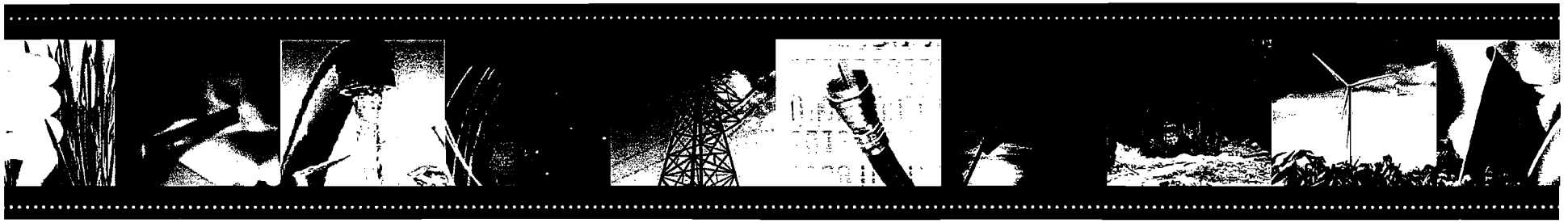
# Natural Gas Infrastructure

- Indiana's natural gas infrastructure consists of more than 75,320 miles of jurisdictional intrastate pipelines, approximately 1,950 of which are transmission mains.
- A majority of the transmission and distribution mains in Indiana are less than 50 years but more than 20 years old. A third of all of the transmission mains were built during the 1960s.



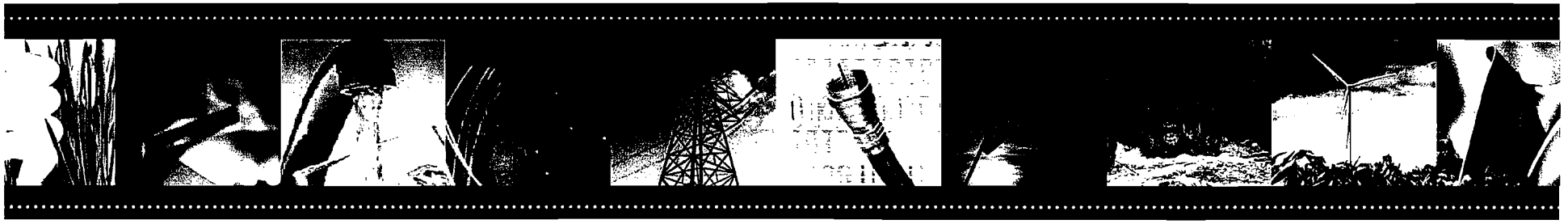
# Hazardous Material Infrastructure

- There is one jurisdictional operator in Indiana.
  - CountryMark
    - Wholly-owned Indiana corporation
    - Refinery in Mt. Vernon
    - Pipeline stretches from Mt. Vernon to Peru
    - Transports diesel fuel, gasoline and lubricants for agriculture, fleet and commercial vehicles
  - CountryMark operates approximately 245 miles of 8" and 4" steel pipeline.



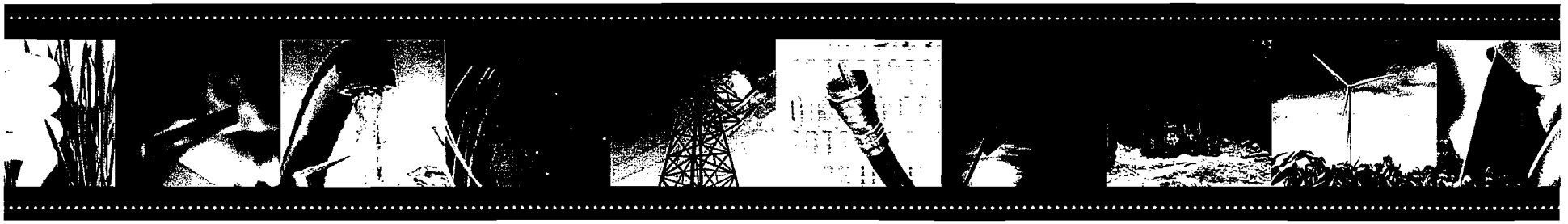
# Role of the IURC and the Operators

- The IURC is the auditor; whereas, the operators are the managers.
  - Record keeping
  - Compliance filings and violation letters
  - Inspections
- It is a collaborative effort among the parties.
  - NTSB → PHMSA → IURC → Operators
  - The number one goal is <u>safety</u>.



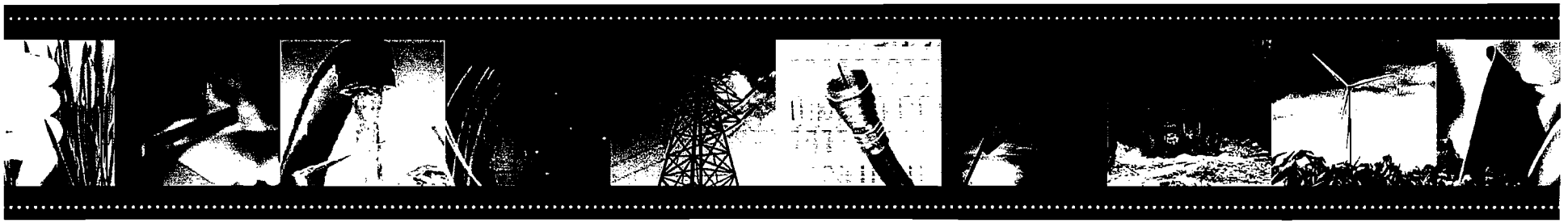
# IURC Inspections

- Distribution lines' valves, identified as emergency or critical, are inspected annually.
- Transmission mains are inspected for leaks annually.
  - Non-odorized transmission mains are inspected every six months or every four months, depending on its class location
- H/L mainline valves are inspected twice annually.



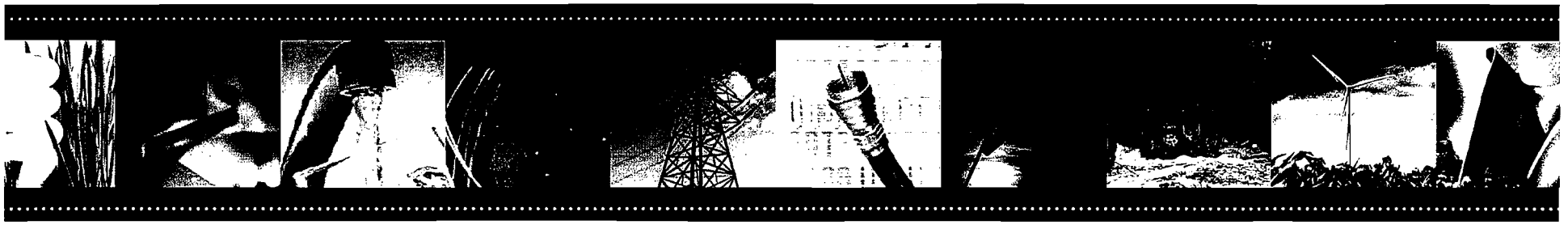
# Operations & Maintenance

- There are multiple factors that contribute to the need for infrastructure replacement .
  - Construction, location, type of material used, environment, and pressure
- Operators conduct leak repair, correct coating, replace meter settings, etc.
- Operator inspections are required by code.



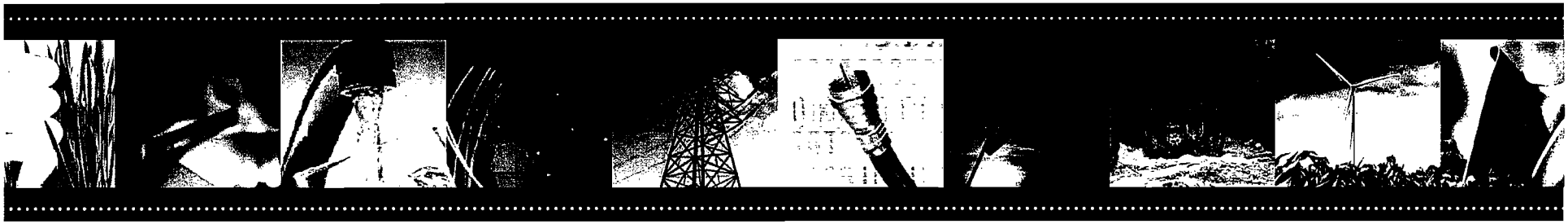
# Emergency Response Plans

- Critical
  - First question asked: "What are your procedures?"
- Required of all operators
- Procedures must be current, reviewed annually
- Operators must evaluate effectiveness of procedures
- Must anticipate all types of events



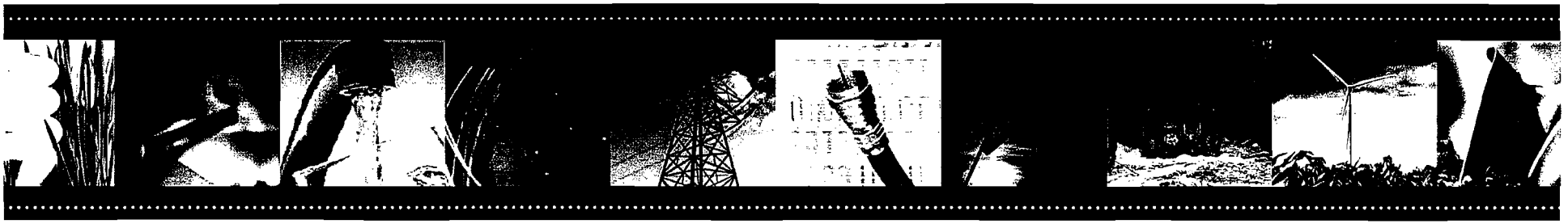
# Threats

- The single greatest threat to the state's pipelines is third-party damage.
- Recent incident in South Bend
  - The incident is under investigation.
  - One of the largest incidents in the recent past.
  - Commission will issue a final report to the PHMSA.
    - Reports are also required by the operator.
      - Preliminary telephonic report, supplemental report, damage information report, per 49 CFR 191, I.C. 8-1-26



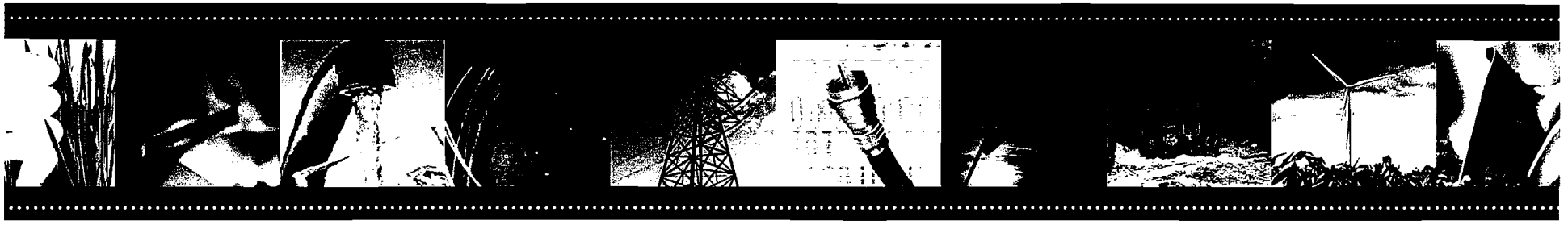
# Damage Statistics

- More than 200,000 underground utility lines are struck each year in the U.S.
- 37% of all U.S. digging damages result from not calling before digging.
- 2,220 cases of damages to gas facilities by excavation, per operators' annual reports
  - This figure decreased from 3,077 cases in 2006
  - Greater awareness, improved process



# Underground Plant Protection Law

- P.L. 62-2009
  - Requires utility lines to be marked in advance and for individuals to hand dig within 2 feet of the marked lines.
- Pipeline Safety serves as the investigative unit.
  - Violations are forwarded to the Governor's Advisory Committee, who may recommend the following penalties:
    - Civil penalties up to $10,000; participation in education or training programs; warning letters; and/or development of a plan to avoid future violations.



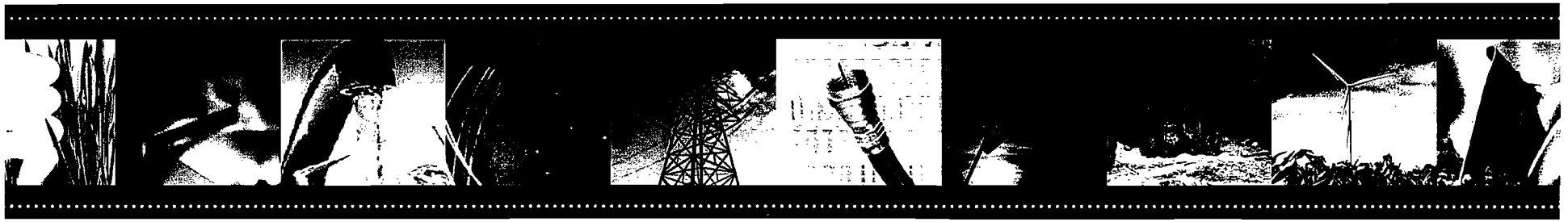
# Reportable Incidents

## Natural gas, 49 CFR 191.3

- (1) An event that involves a release of gas from a pipeline or of liquefied natural gas or gas from an LNG facility and
  - (i) A death, or personal injury necessitating in-patient hospitalization; or
  - (ii) Estimated property damage, including cost of gas lost, of the operator or others, or both, of $50,000 or more.
- (2) An event that results in an emergency shutdown of an LNG facility.
- (3) An event that is significant, in the judgement of the operator, even though it did not meet the criteria of paragraphs (1) or (2).

## Hazardous materials, 49 CFR 195

- Explosion or fire not intentionally set by the operator
- Release of 5 gallons or more of hazardous liquid or carbon dioxide, except that no report is required for a release of less than 5 barrels resulting from a pipeline maintenance activity if the release is: 1) not otherwise reportable under this section; 2) not one described in Sec. 195.52(a)(4); 3) confined to company property or pipeline right-of-way; 4) cleaned up properly
- Death of any person
- Personal injury necessitating hospitalization
- Estimated property damage, including cost of clean-up and recovery, value of lost product, and damage to property of the operator or other, or both, exceeding $50,000



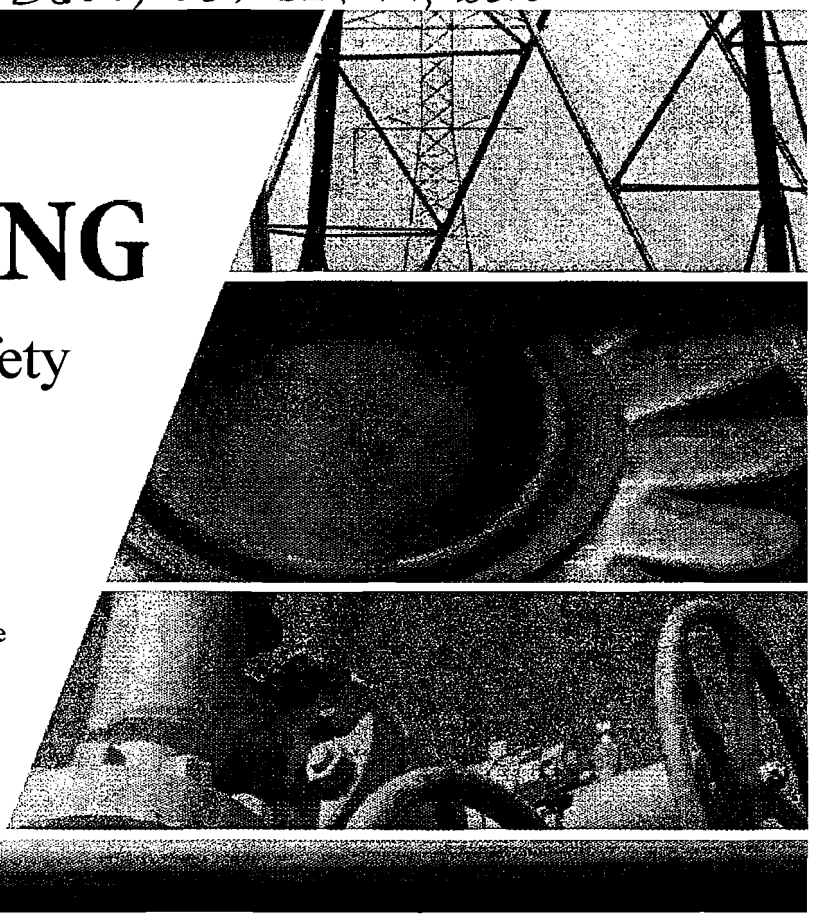
# Incident Response

- A multi-agency effort

EXHIBIT 9, EQSC, OCTOBER 19, 2010

# BUILDING

## Pipeline Safety



**NIPSCO Pipeline Safety Update**

Timothy Dehring
Sr. Vice President – Energy Delivery

October 19, 2010

NiSource



## Agenda

- Pipeline Safety Codes
- Core Pipeline Safety Activities
- Transmission Integrity Management Program
- Gas Distribution Pipeline Safety

# Pipeline Safety Codes

- Detailed requirements and procedures concerning
  - Operation, inspection, maintenance, and construction of gas pipelines
  - Response to emergencies
  - Damage prevention
  - The monitoring of pipeline integrity with required remediation
  - Qualifications of workforce
  - Public awareness and education





# Core NIPSCO Pipeline Safety Activities

- Damage prevention – call 811
- Leak surveys
- Operator qualifications
- Emergency response, operating, and maintenance procedures
- Corrosion control
- Public awareness
- Patrolling and continuing surveillance
- Identification and maintenance of critical valves, pressure regulators, crossings, etc.
- And many more……

## Indiana took the right step last year in passing legislation to provide enforcement actions against excavation damage

- Targets area of highest risk to the gas distribution system – Excavation Damage
- Advisory Committee can recommend fines for violations to dig safe statutes to the IURC
- IURC administers enforcement actions
- Indiana gas utilities worked with other stakeholders to support this needed legislation





## Facts - Locates and Damages

- Total Locate Requests
  - 2008 = 224,102
  - 2010 = 202,000 (est.)
- In the last three years, third party damage rates have been decreased by 44%
- Failure to call for locates (43%) coupled with excavator errors with accurate locate marks (31%) account for almost 3/4 of all third party damages
  - The new Dig-Safe law and targeted public awareness will help in this area
- Third party damages caused by locator errors have been declining
  - Improved accuracy and procedures
  - Field meetings and audits

# Gas Transmission Pipeline Integrity Management

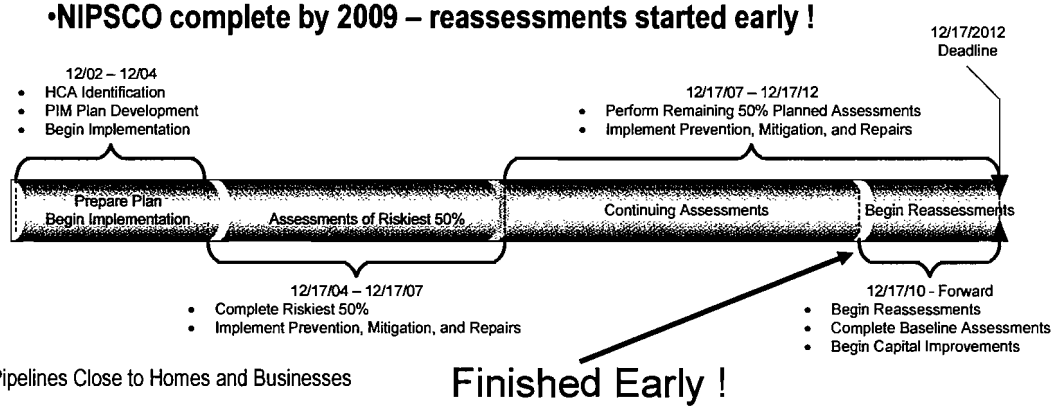
- Written compliance plan
- Identification of high consequence areas (HCA's)
- Detailed understanding of physical assets
- Continuous assessment and evaluation
- Prioritization and remediation
- Consistent dialogue with stakeholders





# Program Compliance Timeline

- **Final rule Issued: December 2002**
- **Requires Assessments of High Consequence Area (HCA) Pipelines***
- **Initial Assessment of 50% Riskiest Mains: December 2007**
  - **NIPSCO completed over 80% by this deadline**
- **Remaining Initial Assessments by December 2012**
  - **NIPSCO complete by 2009 – reassessments started early !**

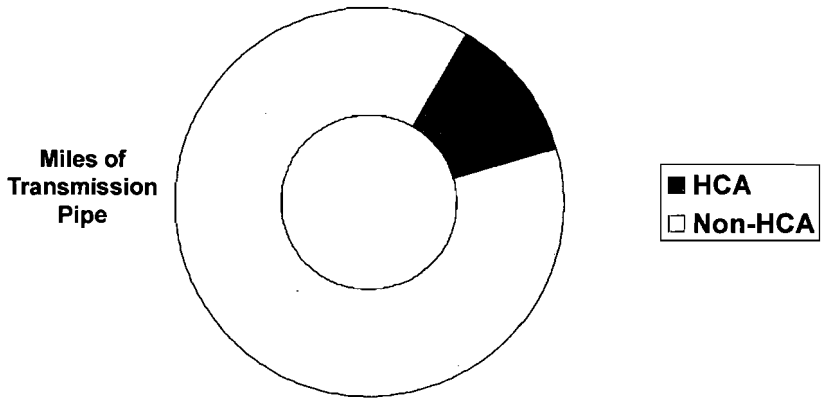



* Pipelines Close to Homes and Businesses

Finished Early !

# NIPSCO Gas Transmission Pipe Inventory

- ~810 Miles of Transmission Pipeline
  - ~100 Miles Within High Consequence Areas (HCA)








# We found a high quality gas system……

- Fixed a few isolated issue
  - Minor coating flaws
  - Minor atmospheric corrosion
  - Weak levels of cathodic protection
  - Insufficient cover or erosion
  - A few shorted casings

# Distribution Integrity Management (DIMP)

- Plan Development and Implementation due by August 2, 2011
- Indiana Operators are collaborating in this planning effort
- Requires Operators to:
  - Have Knowledge of their Systems
  - Identify Threats
  - Evaluate and Rank Risks
  - Identify and Implement Measures to Address Risks
  - Measure Performance, Monitor Results, and Evaluate Effectiveness
  - Periodically Evaluate and Improve Program
  - Report Results
- Primary Areas of Focus
  - **Damage Prevention – Third Party Damage *****
  - Leak Survey
  - Corrosion





# Our investments in our gas distribution system have paid off

- NIPSCO's gas distribution system contains 15,411 miles of very high quality gas mains
  - 99.6 % is plastic or cathodically protected steel (good pipe) vs. an industry average of 87%
  - "Good Pipe" is far less likely to leak
  - NIPSCO's priority pipe (bad pipe) composition is approximately 30 times better than the national average

# *Overall, NIPSCO has a safe, well maintained, high quality gas system !*

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