Understanding Illinois CO_2 Pipeline Resistance

Coalition to Stop CO_2 Pipelines

https://noillinoisCO2pipelines.org

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Teleconference Presentation

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Participants:

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Introduction

- Federal legislation such as the Infrastructure Investment and Jobs Act and the Inflation Reduction Act have unleashed an unprecedented rush to construct CO_2 pipelines across the Midwest. Illinois is a prime target.
- Despite federal guidance otherwise, this infrastructure is being moved forward without a full understanding of its short- and long-term impacts, without formal public engagement and without adequate safety regulations in place.
- Thousands of Illinois residents and their local leaders are saying **NO** to CO_2 pipelines, in large part because they have no confidence in the corporations proposing them or the agencies that are intended to regulate them.
- PHMSA is in a unique time and position to change that by adopting strong rules that will measurably improve public safety protections.

Martha Ross

- President, Southside Community United for Change
- President, Goose Lake Neighborhood Association
- Resident of Peoria, IL

PHMSA Safety Responsibility must Include People Impacted by CO2 Pipelines

- All residents must be assured that they can be rescued or escape quickly enough to have no health impacts in the event of a rupture.
- CO_2 pipeline leak or rupture emergencies are not the same as for gas or oil pipelines. CO_2 is an asphyxiant and at high levels a toxin.
- CO_2 plumes can be dangerous miles away from pipeline ruptures.
- How health and safety is viewed must be restructured. Thus, the public must be protected via strict standards for the separation of the pipeline from people.

Consider the Situation in Peoria

- The south side of Peoria is a federally recognized environmental justice area. The residents are predominately black and saddled with poor housing conditions and a legacy of environmental pollution.
- The BioUrja ethanol plant within the city wants to capture and transport CO_2 by pipeline.14,000 households and eight schools are within a mile and a half of the BioUrja plant. Any rupture could result in mass casualties.
- Many people in this neighborhood would not be able to respond to an emergency warning about a CO_2 release, even if such a warning system existed. Just as in many rural areas, we have elderly and mobility challenged residents and households with many small children.
- It is essential for PHMSA to set criteria and establish standards for the tools necessary to identify HCAs and safety thresholds that will ensure the health and safety of communities such as Peoria.
- This is a critical component of any effective regulation, yet is totally missing from the current regulatory framework. PHMSA has the power to address this as they revise and improve PHMSA rules and should do so.

Kathleen Campbell, PhD

- Landowner and Fact Witness at the Illinois Commerce Commission for the Applications of the Navigator Heartland Greenway Pipeline, The Wolf Carbon Solutions Pipeline, and the One Earth Sequestration Pipeline
- Navigator planned to run a 20 inch CO_2 pipeline 1,000 feet from my home

Status of CO2 Pipeline Applications Filed in Illinois

- Navigator Heartland Greenway Pipeline was denied approval in South Dakota, withdrew its application for scheduling in Iowa, and withdrew its application twice in Illinois after the Illinois Commerce Commission (ICC) staff and intervenors recommended denial. The pipeline was then canceled.
- The Wolf Carbon Solutions Pipeline withdrew its application in 2023 in Illinois after the ICC staff and intervenors recommended denial. Wolf stated that they would reapply "early in 2024" but have not done so.
- One Earth Sequestration applied to the ICC and the ICC staff has recommended denial. Intervenors also objected to the pipeline on safety and other concerns.
- In each of these cases, concerns regarding safety and landowner opposition played critical roles.

Some Safety Risks of the Recently Proposed Illinois Pipelines

- Most currently existing CO_2 pipelines are in remote areas. But proposed pipelines in Illinois also run through populated areas.
- All pipelines rupture or leak eventually, and over 90% of CO_2 pipeline accidents are caused by engineering failures and/or operator errors per PHMSA statistics. New pipelines have a worse safety record than old pipelines,
- In the event of a rupture of any of the three CO_2 pipelines proposed to the ICC, residents would have less than 5 minutes before being exposed to CO_2 levels at, or exceeding, CDCs "Immediately Dangerous to Life or Health Level" of 40,000 ppm.
- For two pipelines, within 5 minutes resident pipeline rupture exposure could have reached 105,000 ppm which has a 50% fatality rate within 10 minutes of exposure. Because gas combustion engines will stall, residents cannot self evacuate.
- Self evacuation may not be possible for those in high CO_2 concentrations that can cause confusion, and vision and hearing loss limiting their ability to escape. This is especially tragic if they are responsible for the safety of others.
- EMS services, even if fully equipped and staffed, which they are not, cannot evacuate residents in less than 5 minutes.
- Even if EMS arrived in the area in time, the task of going door to door, checking around homes and schools, will require many more responders than most areas would have available.

Citizen Concerns: Lack of Company Honesty and Transparency Regarding Safety

Landowners Assume All Risks, Companies Keep All Profits

1. CO_2 is a waste product produced by private companies for their profit. The public is being put at risk with CCS infrastructure, by allowing companies to take private property through eminent domain and use our tax dollars to put us in harms way.
2. Examples of companies ignoring landowner's legitimate safety concerns include:
3. Companies refusing to either obtain or share plume modeling with landowners, regulators or EMS.
4. Companies not using appropriate Computer Fluid Dynamics (CFD) plume models that address topography and weather conditions and accurately estimate plume spread.
5. Companies denying health risks of a CO_2 pipeline rupture.
6. Companies not adequately addressing EMS concerns.
7. One Earth Sequestration now proposes to issue oxygen masks and tanks to landowners rather that ensuring that houses will not be exposed to dangerously high levels in the event of a rupture. That is not an acceptable solution.

Citizen Concerns: HCAs, Environmental Justice, Notification, Denial of Satartia Injuries

1. Companies are not identifying HCAs at the time of route submission to ensure adequate evacuation time in the event of a CO_2 Pipeline rupture.
2. Environmental Justice communities are particularly vulnerable with disparities of health, transportation , housing, etc. They live in areas of disinvestment. Why would they believe that safety monitoring and upkeep would occur when they see living proof around them that this can not be expected? People in rural areas have many of the same issues with low incomes and housing of lesser quality. A CO_2 emergency will make these already vulnerable people more vulnerable.
3. No immediate notification to landowners is required in the event of a rupture. Some companies have proposed cell phone notification, but rural areas can have poor cell phone service and not everyone uses them or carries them with them.
4. Companies claim that "there has never been an injury from a CO_2 pipeline", citing the flawed PHMSA database that ignores multiple Satartia injuries.

EMS Concerns Are Not Being Addressed

1. The CO_2 Companies are not presenting and publicly sharing complete and appropriate Emergency Response Plans (ERPs). Local EMS units and medical facilities do not have the capacity to handle CO_2 ruptures.
2. For routing through populated areas like Illinois, following a pipeline rupture, residents may be exposed to CO_2 levels at or above, perhaps greatly above, 40,000 ppm in less than 5 minutes. Consequently, it may not be possible for EMS to safely evacuate all residents without adverse health impacts or deaths. Safe rescue would have to be completed within minutes.
3. No EMS service along the routes has said that they have the capability to handle CO_2 pipeline leaks or ruptures.
4. EMS and Fire Services usually rural, are mostly volunteers. They do not have the training, personnel, equipment or budget to adequately respond to a CO_2 pipeline rupture. The EMS worker pool is already strained and short staffed.
5. In this type of emergency, first responders typically will not enter a hazardous area, but will form a perimeter to keep people from entering it. A large city's Hazmat Team must be called which can take a long time to arrive, leaving many people in the highest CO_2 concentration areas to asphyxiate without help.
6. A rural area volunteer fire fighter wrote in testimony opposed to the Wolf Pipeline that "The prospect of the number of possible casualties all at once, as a volunteer and a human being, is terrifying." "Adding the threat of a CO_2 pipeline rupture disaster to our emergency response duties will decrease our ability to recruit". Volunteer fire departments have fundraisers like spaghetti dinners, to support their basic equipment needs. How would they ever fund CO_2 pipeline emergency response?

Citizen Concerns: Geohazards

1. Climate change increases the likelihood and severity of geo-hazards induced pipeline failures, per PHMSA's 6/02/22 advisory bulletin. Geologic and soil changes can increase risks. Leaks and ruptures may be caused by geologic and soil conditions far from the easement in which the pipeline is located.
2. This finding is especially disturbing in Peoria County with the bluffs of the Illinois River having a similarity to the soil and bluff condition in Satartia. In Peoria County and throughout Illinois, abandoned mines, known and unknown, also increase the hazard level and risk of subsidence. Local road commissioners in these areas know the drastic but yet typical ground and soil changes that occur, and they discover them after the fact. A perhaps fatal circumstance for many if they have a CO_2 pipeline in their area.
3. Illinois is in two seismic zones and landowners are concerned that CO_2 pipelines and sequestration may leak or exacerbate our seismic risks.

What Can the Federal Government do to Alleviate the Citizens' Concerns?

1. **Overarching Need**: Recognize that CO_2 pipeline leak or rupture emergencies are not the same as for gas or oil pipelines. CO_2 is an asphyxiant and at high levels a toxin, and plumes that can spread for many miles. How health and safety is viewed must be restructured. High concentration CO_2 exposures travel too quickly for our typical EMR systems. Thus, the public must be protected via strict standards for adequate separation of the pipelines from people.
2. Reduce the allowable distance between shutoff valves and and increase the pipe wall thickness for both HCAs and non-HCAs. Require backflow valves for connections to sequestration sites.
3. Require third party monitoring on a scheduled routine that is in addition to the company's comprehensive requirements. This monitoring should cover the pipeline's physical condition, remote monitoring and ensure that EMR capacity is being sustained and adequately funded all along the pipeline route. These reports should be provided to local EMR providers.
4. Require that the PHMSA database for "injuries" be expanded to include symptoms and long term disabilities resulting from an emergency as those reported by victims and EMS workers in Satartia.
5. **Insurance:** Provide full unlimited Federal property and liability insurance anywhere that a CO_2 pipelines is installed or which is within the potential plume. Some landowners have been advised by their insurance companies they will become "uninsurable".

What Can the Federal Government do to Alleviate the Citizens' Concerns?

6. Expand the definition of High Consequence Areas (HCAs) to include all occupied buildings with four or more occupants at any point in time including schools, churches, businesses, prisons, or anyone with limited mobility such as seniors or children under age five to allow sufficient evacuation time.

   -Areas that have animal shelters, concentrations of livestock or Concentrated Animal Feeding Operations should be included in computations for HCA designations.

   -National or state-designated wild life refuge areas should be protected from pipelines

   -The Wolf pipeline route had churches and schools placed 300 ft - 1300 ft from their pipeline. The HCA definition must protect these stand-alone places with larger concentrations of people.

7. Given the risks of birth defects or miscarriage, residences with women of childbearing age should also be considered HCAs.

8. Geo-Hazard assessment criteria must be updated to account for the increased risks being caused by climate change and by sequestration If areas beyond the easement area are capable of causing a pipeline leak or rupture, standards must be created to disallow pipelines in those areas to protect health and safety.

   <u>All residents must be assured that they can be escape or be rescued quickly enough to have no health impacts in the event of a rupture.</u>

What Can the Federal Government Do to Alleviate Citizen's Concerns?

- Emergency Management Services: PHMSA must mandate that pipeline companies shall adequately train and fund EMS, Fire Departments and hospitals to handle emergencies involving CO_2 pipelines.
- PHMSA regulation must prevent all residents from being exposed, in the event of a rupture, to CO_2 concentrations meeting or exceeding CDC's IDLH 40,000 ppm and STEL 30,000 ppm levels, either by mandated distance from the pipeline as predicted by appropriate plume modeling.
- Each company should provide a full EMS manual to all residents and EMS providers at the first public informative meeting prior to application for any approvals.
- PHMSA regulation must require the pipeline company to install technology that will let them determine with an accuracy of half a mile, the location of a rupture and provide an audible and visible siren system in half mile increments.
- PHMSA should provide a minimum standard list of all equipment, training and staffing needed for a full EMS, fire department and hospital response in the event of a rupture with a specification that all costs for the equipment and training will be paid by the company
- Plume modeling must be required that accounts for topography and wind. These studies must be made public when first available to the company and certainly before PHMSA issues a company the authority to proceed. This modeling sharing will further the public's and EMR's ability to determine risks and recommend to the company how to prevent harm through routing and other considerations.

Richard Stuckey

- Director, Save Our Illinois Land
- Legal liaison in five ICC dockets
  - Dakota Access Doubling
  - Navigator 1
  - Navigator 2
  - Wolf 1
  - One Earth
- Member, Sierra Club and many other environmental organizations

Route Planning Fundamentals

- PHMSA has the responsibility for providing standards to keep the CO_2 safely in the pipelines. That must be expanded to keep people safe after a rupture of a CO_2 pipeline occurs.
- Every pipeline breaks eventually. It is just a matter of time.
- CO_2 pipeline routes must be chosen so that when a pipeline ruptures it does not put people or livestock in danger of injuries or sacrifice lives.
- It must be the responsibility of the company that proposes a route to ensure that the route will not endanger lives or health.
- Selection of route planning tools and secret use of them is too important to be left to the pipeline companies. PHMSA must provide the tools that will enable the pipeline companies to plan safe pipelines.
- State and local authorities responsible for approving routes must have access to the proven tools necessary to evaluate the safety of proposed routes, or to propose alternative routes.
- The public must have the information from modeling tools to have confidence that they are not exposed to existential danger from the proposed pipelines.

Tools Used to Plan Routes are Deficient

- Dispersion models used by CO_2 pipeline companies are unable to produce results consistent with actual experience. Small scale tests are inadequate to validate models.
- PHAST models predicted that the plume would not reach Satartia.
- CFD models can accurately predict ruptures like Satartia and should be used.
- CFD tools exist and were used as long ago as 2010 to plan the Decatur CCS operation. They should be tested and validated by PHMSA and required for planning all CO_2 pipelines.
- The tools should be required for planning to identify HCAs and for determining distances from all other occupied buildings.
- The tools are expensive to use and their use should be funded by the pipeline companies for route approval authorities and the public and the inputs and results should be shared in full with the public.

Keeping Results of Modeling Secret Destroys Public Confidence

- Inputs and results of models used in route planning by pipeline companies should be provided fully to regulators and the public to build public confidence.
- Failure to release the results of plume models destroys public trust and confidence in route planning.
- Release of modeling does not create a national security risk. Terrorists already know where the pipelines are and which communities area at risk.
- Secrecy is only to hide the dangers from the public.

PHMSA Limitations on Route Planning may have to be Changed to Implement our Proposals

- PHMSA is currently prohibited from having a role in setting routes.
- We are not proposing that PHMSA determines routes.
- We would like PHMSA to test and provide the tools so that pipeline companies can plan safe routes and authorities responsible for approving routes and the public can know that they have been planned with safety in mind.

Conclusion

- We sincerely appreciate the opportunity to participate in this listening session and share our concerns and recommendations.
- The voices you have heard today represent the ultimate stakeholders in the rush to build out a nationwide infrastructure for carbon capture and sequestration
- We trust that the White House and the Pipeline and Hazardous Materials Safety Administration will place their highest priority on protecting the lives and safety of our communities. Thank You!