

Minutes - Woodbury County Zoning Commission – November 28, 2022

The Zoning Commission (ZC) meeting convened on the 28th of November at 6:00 PM in the basement of the Woodbury County Courthouse. The meeting location in the Courthouse was moved from the first-floor boardroom to the basement due to limited seating in the first-floor boardroom. The meeting was also made available via teleconference.

ZC Members Present: Christine Zellmer Zant, Tom Bride, Barb Parker, Jeff O'Tool, Corey Meister
County Staff Present: Dan Priestley
Public Present: Carole Hennings, Deb Main, Axel Johnston, Britany Heath, Karen Heath, Vicki Hulse, Jana Martens, Diane Weaver, Sandi Brouwer, Stee Maxwell, Gayle Palmquist, Doyle Turner, Jim Colyer, Renee Colyer, Barb Petersen, Loren Peterson, Luke Grigg, Christine Gant, Kyle Karrer, Ron Karrer, Dennis Karrer, JoAnn Sadler, Brian Sadler, Dan Bittinger, Alan McGaffin, Terri McGaffin, Jody Wilson, Todd Grohs, Curt Grigg

Call to Order

Chair Christine Zellmer Zant formally called the meeting to order at 6:00 PM CST.

Public Comment on Matters Not on the Agenda

None.

Approval of Previous Meeting Minutes – October 24, 2022 Meeting

Motion by Meister second by Parker to approve the minutes of the October 24, 2022 meeting. Carried 5-0.

PUBLIC HEARING: Zahnley First Addition, Minor Subdivision Proposal

Priestley read the staff report summary into the record. Phirman E. Zahnley has filed for a one-lot minor subdivision including Parcel #894227200001 as referenced above. The purpose is to spilt the house from the farm ground. This proposal has been properly noticed in the Sioux City Journal Legals Section on November 12, 2022. The neighbors within 1000 FT have been duly notified via a November 9, 2022 letter about the November 28, 2022 Zoning Commission Public Hearing. Appropriate stakeholders including government agencies, utilities, and organizations have been notified and have been requested to comment. The Woodbury County Engineer found the proposal in compliance with Iowa Code closure requirements and found that the lot has adequate access to the road system. Extraterritorial review, as required by Iowa Code 354.9, was completed by the City of Correctionville on October 10, 2022. The property is not located in the floodplain. The proposed lot contains both the well and septic system. Based on the information received and the requirements set forth in the Zoning and Subdivision Ordinance, the proposal meets the appropriate criteria for approval. It is the recommendation of staff to approve this proposal as proposed. Surveyor Axel Johnston was present on behalf of the applicant and reported that the structure to the north of the property was 22.5 FT from the north property line. Motion by O'Tool second by Bride to close the public hearing. Carried 5-0. Motion by O'Tool second by Meister to recommend approval of the Zahnley First Addition to the Woodbury County Board of Supervisors as proposed. Carried 5-0.

PUBLIC HEARING: Zoning Ordinance Text Amendment for Hazardous Liquid Pipelines

Priestley read the staff report summary into the record. On October 11, 2022, the Woodbury County Board of Supervisors unanimously approved a motion to direct staff and the Zoning Commission to initiate a review process and provide a recommendation of a Zoning Ordinance Text Amendment to the Zoning Ordinance to address the permitting of Hazardous Liquid Pipelines. There is already a process in place to address the permitting of pipelines, however, the intent is to review the current process and consider supplemental language to the ordinance that would account for specific separation distances from occupied structures due to concerns about the health and safety of residents being located in close proximity to pipelines. Priestley referenced a report prepared by staff including a review of literature that considers a series of studies as it relates to the consequences of pipeline failures including the impact to the population as well as measures local communities can employ for mitigation. The report describes the county's existing conditional use permit procedure and makes the recommendation to institute a setback of 330 FT as rooted in the Emergency Response Guidebook (2022) from residential structures or dwellings. The recommendation also includes a 50 FT setback in commercial and industrial zoning districts. It is also recommended to institute 1000 FT planning areas and consultation zones to foster collaboration among landowners, pipeline operators, government officials, and other stakeholders. Priestley stated other counties in Iowa such as Shelby County and Story County have passed ordinances for the regulation of hazardous liquid pipelines including the establishment of separation distances. On Monday, November 14, 2022, a federal court case was filed in the United States District Court for the Southern District of Iowa Central Division between William Couser and Summit Carbon Solutions, LLC (Plaintiffs) v. Story County, Iowa: Story County Board of Supervisors...The case considers questions of whether the local ordinance No. 306 is preempted by federal and state measures.

Carole Hennings, 1970 Garner Avenue, Merville, IA; Deborah Main, 1026 Charles Avenue, Sioux City, IA; Alan McGaffin 1122 S. Paxton, St., Sioux City, IA; Gayle Palmquist, 1848 130th St., Lawton, IA; Jana Martens, 2678 110th St., Merville, IA; Karen Heath, 4809 Oxford Drive, Sioux City, IA; Jim Collyer, 1650 Old Hwy 141, Sergeant Bluff, IA; Viki Hulse, 2700 100th Street, Merville, IA; Stee Maxwell, 248 Pearl St. S, Merville, IA; Doyle Turner, 2738 200th St., Merville, IA; Dan Bittinger, 2901 Sunset Circle, Sioux City, IA; Jody Wilson, 1449 Charles, Avenue, Lawton, IA; Todd Grohs, 1661 180th St., Sioux City, IA; Curt Grigg, 1261 Delaware Ave., Lawton, IA addressed the board with concerns regarding the placement of hazardous liquid pipelines and the ordinance proposal.

Motion by Bride second by Meister to receive documents from Deborah Main. Carried 5-0. Copy filed.



Motion by Meister second by O'Tool to receive documents from Gayle Palmquist. Carried 5-0. Copy filed.



Motion by Parker second by Bride to close the public hearing. Carried 5-0.

In consideration of the proposed draft zoning ordinance text amendment, members of the Commission discussed the proposal including the proposed setbacks while taking questions and clarifying information for the public during the executive session. The consequences of the proposed setbacks were referenced including the potential establishment of reverse setbacks thereby establishing a class of legal nonconforming structures along pipeline corridors. The conditional use permit process currently on the books, including the criteria used by the Zoning Commission and Board of Adjustment to make a determination were discussed and shared including the ability to institute conditions as part of the permit application approval. The current criteria was referenced as reviewing applications based on the situation and relevant circumstances as they relate to the ordinance criteria. The options for moving forward with a recommendation were discussed.

Motion by Bride second by Parker to stay with the existing process with the Conditional Use Permit instead of going with the draft amendment ordinance proposal. Carried 5-0.

Meister stated he would like more time to review the case. Priestley responded that the motion passed is sticking with the current process but some questions rooted in the criteria could be formulated to assist with the Conditional Use process.

Bride indicated that he remains open to further guidance from the Board of Supervisors including any language/questions to assist the Zoning Commission and Board of Adjustment in analyzing the Conditional Use Permit criteria in the Zoning Ordinance.

Priestley indicated that the Board of Supervisors, even with the rejection of this draft ordinance amendment by the Zoning Commission, have the ability to consider this ordinance language or adjustments to it. The Board also has the ability to direct the Zoning Commission to look into the issue further.

Priestley stated that this will be brought up as an information item at tomorrow night's Board of Supervisors meeting (11/29/22).

Information / Discussion: Application process for positions on the Board of Adjustment and Zoning Commission

Priestley discussed the application process for membership on the Zoning Commission and Board of Adjustment. Applications are due in the Board of Supervisors office before December 15, 2022. The Board of Supervisors make appointments to both boards.

Public Comment on Matters Not on the Agenda

None

Commissioner Comment of Inquiry

None

Staff Update

The Zoning Commission recommendation on a hazardous liquid pipelines zoning ordinance amendment will be brought to the Board of Supervisors as an information item tomorrow, Tuesday, November 29 to update the Supervisors about tonight's proceedings.

Adjourn

Motion by Meister second by O'Tool to adjourn the meeting. Carried 5-0. Meeting ended at 8:42 PM CST.

APPENDIX – RECEIVED DOCUMENTS FROM THE PUBLIC

Next eight (or 16 - 2 sided) pages received by Deborah Main into the Zoning Commission 11/28/22 Minutes

Filed with the Iowa Utilities Board on October 28, 2022, HL-P-2021-0001

Jessica Wikkus
Iowa County
October 26, 2022

Dear Members of the Iowa Utilities Board:

For over a year now, Summit Carbon Solutions has made public its proposal to transport supercritical liquid CO₂ to North Dakota via pipeline.

My neighbors and I have been organizing to take a stand against the use of eminent domain for this and, indeed, all three of these CO₂ projects. We've distributed yard signs, we've cheered each other on at public meetings, we've sent letters to the Iowa Utilities Board, and contacted all of our Iowa legislators, multiple times. And our little group has grown in numbers, joining with a state-wide non-profit organization to help us fight against the abuse of eminent domain.¹



Why are we so opposed to these CO₂ pipeline projects? First of all, all three pipeline companies are seeking to use eminent domain for their projects. Now, eminent domain is a power granted by the government to take away your property or the use of your own property, against your will. Eminent domain, as an extraordinary governmental power that condemns your private property for someone else's use, can be used ONLY for "public convenience and necessity," at least, according to the law.

¹ <https://iowareassessment.org/>

What is “public convenience and necessity”? In Iowa, an individual’s or a corporation’s economic development is not enough to warrant eminent domain. In a legal case brought before the Iowa Supreme Court in 2019, the court found that “trickledown benefits of economic development are not enough to constitute a public use.”² And the Court spelled out: “If economic development alone were a valid public use, then instead of building a pipeline, [a company] could constitutionally condemn Iowa farmland to build a palatial mansion, which could be defended as a valid public use so long as 3100 workers were needed to build it, it employed twelve servants, and it accounted for \$27 million in property taxes.”³ But in Iowa, this kind of thing simply is *not allowed*.

Therefore, we have to look closely at what Summit is claiming about its project. Do these CO₂ pipelines promote “public convenience and necessity”?

This general question breaks down into three specific questions:

1. Are these pipeline projects safe? I ask this because it cannot be convenient nor necessary to force the public to live under conditions of unreasonable risk.
2. Are these projects a necessary public good for the environment?
3. Are these projects a necessary public good for the future of ethanol?

So, these three questions will be explored in this document.

1. Are these CO₂ pipelines safe for rural Iowans and our communities?

I want to begin by focusing on safety concerns. Many of us already live near gas or petroleum pipelines, and we don’t give them a second thought. They are established infrastructure, and we willingly live with the minimal risks that they pose. But as it turns out, pipelines that transport supercritical CO₂ are quite different from any other kind of pipeline that currently runs through Iowa.

What is this CO₂? Is it the stuff in the atmosphere, a gas in its natural state? No. According to Det Norske Veritas, (or DNV) the industry’s leading risk management research company, the typical amount of CO₂ in the air that we breathe, by volume, is 0.04%.⁴ This does not harm us.

But what will be transported via these pipelines is quite different. It is 99.9% or “pure” CO₂ in what scientists call a “supercritical” or “dense-phase” state: this is kind of a fancy way to talk about a gas that has been put under so much pressure—1300-2100 psi—that it is forced into a different state (sometimes referred to as a liquid state).⁵

And liquid, pressurized, dense-phase carbon dioxide is uniquely unstable and dangerous. The liquid carbon dioxide that these projects will capture is 99.9% carbon dioxide (what the industry calls, “pure” CO₂)—compare that to the 0.04% that we breath as a gas in the air.

many of us will not sign voluntarily easements with these pipeline companies—no matter the dollar amount. *AND THE STATE OF IOWA SHOULD STAND WITH US, NOT AGAINST US.*

Respectfully,

Jessica Wiskus

² Puntenney v. Iowa Utilities Board, 928 N.W.2d 829 (2019).

³ *Ibid.*

⁴ <https://www.dnv.com/oil/gas/download/dnv-rp-1104-design-and-operation-of-carbon-dioxide-pipelines.html>

⁵ *Ibid.*

And Linn county's Farm Bureau, citing "potential infringement on the private property rights of Iowans," submitted an objection to the Iowa Utilities Board against Navigator's proposed pipeline, stating:⁴⁴

"Representing Linn County Farm Bureau members, we are requesting the Iowa Utilities Board to deny the use of eminent domain for Navigator LLC at this time."

It is not every day that the Farm Bureau and the Sierra Club agree! They agree because there is something really fundamental that is at risk here.

Let me close with one last thought. Look, maybe you think that this issue is about *his* back yard or *her* back yard—that this issue just boils down to money. After all, everyone knows that a farmer's wealth is in the land... But, my experience in the last months, listening to my neighbors, has shown me how this issue cuts to the very core of our values.

Private corporations want to take the part of the wealth that is seen on a property deed, but they disregard what the land really means—they disregard the part that is the true gift. Land, for many of us, means something more than just a line on a balance sheet. Many of us come from families who have lived here and farmed here for generations—I am the 7th generation in my family to live on the good Iowa soil.

As the descendant of pioneers, it is not lost upon me that the land never truly "belonged" to my family in the first place. The taking of land from Native peoples was one of our nation's original sins. This crime against nations was sanctioned according to the rules of the "common carrier"—the railroad. The "justification" for the CO₂ pipelines—because they clearly do not meet any kind of public good—is strikingly similar.⁴⁵ Will ours be the generation to see that crime repeated?

You see, Mother Nature is more powerful than any history, than any people. Over the course of seven generations, like a flowing river, she has worn away the sharp edges of our pride, corrected us, and put us in our place: so that we, too, know that the land does not belong to us—we belong to the land.

And so, we're fighting these pipelines not just because *we* are affected; it's about more than just us. It's about all those who lived and loved the land before us, and those who will come after us. It's about the grandparents, the great-grandparents, and the more ancient ancestors; it's about the children, the grandkids, and the lives to come. It's about heritage, and it's about hope. And it's about our neighbors—about what it means to be a community, and to treat one another with respect. "Land" for us, is about the abundance of life that is rooted in the earth, and that, fundamentally, is not of our own making. We live our lives in relation to something that is greater than just ourselves—that is the true gift, the true wealth, that the land gives to us. It's because of this that so

⁴⁴ Filed on the Navigator docket at the IUB and dated December 14, 2021.

⁴⁵ However, the following distinction between a railroad track for a railcar and a pipeline for CO₂ should be made: whereas the railroad car transports goods for commerce, thereby potentially benefiting the consumer by lowering prices, the CO₂ pipeline transports nothing but industrial waste, doing nothing but *raising* the costs for the consumer through the tax-payer subsidized 45Q credits. It therefore does not meet the criteria for eminent domain.

According to DNV's research, concentrations of 10-15% carbon dioxide can cause, "headache, increased heart rate, dizziness, rapid breathing, and unconsciousness," in less than *one minute*. At higher concentrations, within one minute it can cause "unconsciousness, convulsions, coma, and death."⁶

Carbon dioxide is an asphyxiant—it displaces the oxygen in your lungs. Only about 5,000 miles of CO₂ pipelines exist in the US—**less than 1%** of the total pipelines in our country.⁷ CO₂ pipelines are not like other oil and gas pipelines. As it turns out, *what travels through the pipe and under what pressure matters—a lot*. While a typical gas pipeline is under 500-1400 psi, a CO₂ pipeline operates under 1300 – 2100 psi.⁸ The extra high pressure means that a rupture would release CO₂ at an explosive force. We know that carbon pipeline ruptures can and do happen.⁹ DNV has conducted testing to see what this would look like and posted a short video of one such test demonstration conducted in England.¹⁰



Demonstration of a CO2 pipeline rupture (conducted by Det Norske Veritas).

⁶ *Ibid.*

⁷ <https://www.phmsa.dot.gov/data-and-statistics/pipeline/annual-report-mileage-hazardous-liquid-or-carbon-dioxide-systems>. This tiny proportion of pipelines has been responsible for 61 accidents involving the release of CO₂ over the past ten years (2011-2021), as reported to the Pipeline and Hazardous Materials Safety Administration. See <https://www.phmsa.dot.gov/data-and-statistics/pipeline/distribution-transmission-gathering-liqu-and-liquid-accident-and-incident-data>. That's about one accident every 82 miles.

⁸ This is according to Navigator's materials.

⁹ <https://climaticinvestigations.org/co2-pipelines-and-carbon-capture-the-satartia-mississippi-accident-investigation/>

¹⁰ <https://brandcentral.dnvgl.com/mains/embed?o=4D2E198D78A666F&c=10651&a=N>

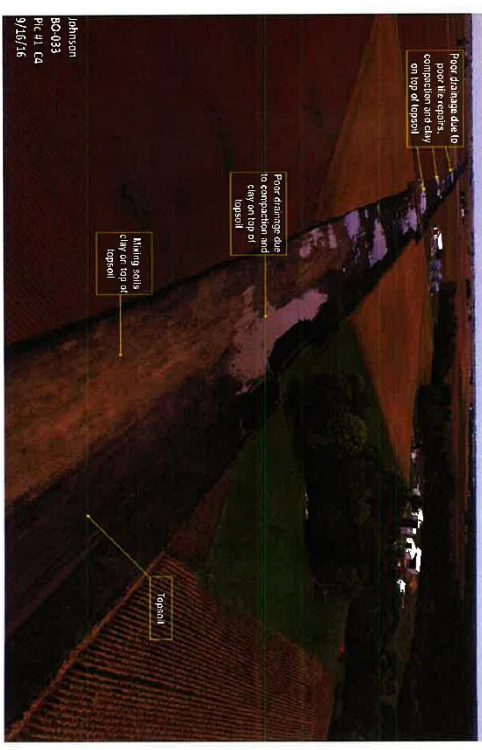
A peer-reviewed, scientific article published in July 2021, called "Risks and Safety of CO₂ Transport via Pipeline," reports the results.¹¹ I will compare them to Navigator's CO₂ pipeline project because they have released specific details about their project, and we expect Summit's to be similar. The rupture of an 8"-diameter steel pipe, buried underground, under pressure and temperature parameters equivalent to Navigator's pipeline project, resulted in 136 ton of CO₂ released in 204 seconds—that's under 4 minutes; the visible plume caused by the CO₂ went up approximately 197 feet and spread out, horizontally across the ground, approximately 1312 feet—a ¼ of a mile.

What is the visible plume? It's a solid form of CO₂, basically like dry ice. In section 3.4.5 of the industry standard publication, "Design and operation of carbon dioxide pipelines" from September 2021, DNV warns that, "Inhalation of air containing solid CO₂ particles within a release cloud is particularly hazardous since this could result in cryogenic burns to the respiratory tract as well as additional toxicological impact due to sublimation in the lungs."¹²

Representatives from both Navigator and Wolf have admitted at their public informational meetings that, by default, the minimum setback for habitable structures would be 2.5 feet from the pipeline. It is the same for Summit.

Until now, carbon pipelines in the US have been routed through sparsely-populated areas. And while some people think that Iowa is just a fly-over state, we know that Iowa's history of settling in 40-acre parcels means that our rural areas have quite a few farmhouses and thriving small-town communities. This places us at risk when it comes to carbon pipelines. As an example, Navigator's route put Iowa farmhouses, ballfields, churches, historic sights, and even schools in the pipeline corridor (for example, the College Community School District in Linn County). The figures, indicated below, offer such examples.

And yet, hundreds of Iowans, including me, continue to contact our legislators and asked them to stop the use of eminent domain for private projects like these, because the threat of eminent domain has a host of consequences for rural landowners. As it turns out, Iowa recently experienced a kind of "test case" of modern pipeline construction when Dakota Access came through our state in 2016.



Photos, graciously provided by an Iowa farmer who went through it, show evidence of mixing of soils, compaction, draining of water into surrounding fields, damage to the tiling, and more. You see, the pipeline company obeyed the letter of the law when they separated out the topsoil from the subsoil, but then they drove over the topsoil while they were building the pipeline—mixing the soils—and they worked the land under extremely wet conditions—compacting the soil. The tiling never was made right, and farmers were left with reduced fertility, problems with erosion, and lowered yields—you can see the scar two years later. All of this has direct financial consequences for rural families, of course.

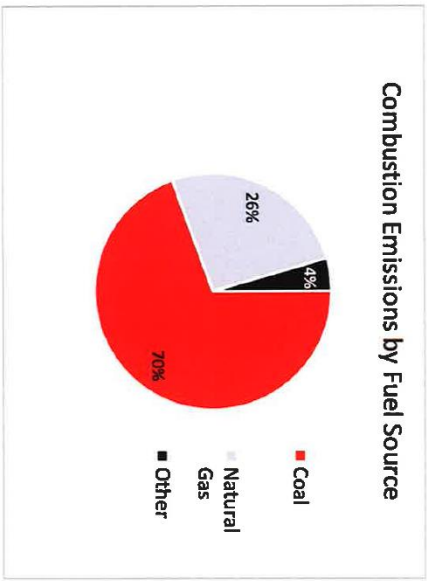
For example, this letter from State Farm Insurance warns an affected landowner that:⁴³
 "As history has proved, any pipeline has a chance to fail, leak and seep resulting in significant damage to life and property. To place this type of risk or burden upon unwilling landowners, like yourselves, is tantamount to placing a risk to your livelihood without your permission.
 "In summary, having a pipeline running through your property, carrying CO₂, a pollutant, subjects you to substantial uninsurable exposure."

¹¹ <https://www.mdpi.com/1996-1073/14/1/514601>
¹² <https://www.dnv.com/olgas/download/dnv-rp-f1-04-design-and-operation-of-carbon-dioxide-pipelines.html>

⁴³ Private letter from State Farm to landowner, identity protected.

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biogenic CO₂ is actually a relatively small portion of ethanol's own carbon footprint. 70% of ADM's on-site emissions comes from coal.⁴⁰



The real problem is coal, not corn—but emissions from coal cannot be captured and sequestered.

No surprise, then, that ADM's report concludes that the most effective way that they can lower their carbon footprint, is to wean themselves off of coal. That, and increase other efficiencies around their facility. POET, another giant in the ethanol industry, also has alternative ways to *actually stop producing more carbon dioxide in the first place*, rather than capturing and transporting it for the oil industry.⁴¹

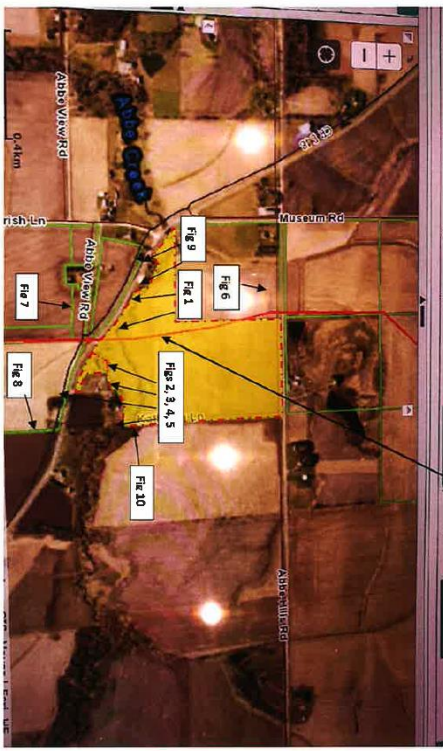
In other words, to "go green," they don't need an interstate pipeline that would transport hazardous waste through rural Iowa countryside—and they don't need to take our land through eminent domain.

What motivates these projects is not "necessity" but rather a personal business decision by Bruce Rashtler, the head of Summit. And a personal business decision is not a public good. When a bill to stop the use of eminent domain came up in the Iowa State Senate last winter, SF 2160, neither ADM nor POET registered opposition to the bill.⁴² Clearly, they know that the CO₂ pipelines aren't necessary. They're just being forced to get on board and push this through because their competitor, Summit, seems unstoppable. (Former Governor Terry Branstad is paid to sit on the corporate board of Summit; the son of former Governor Tom Vilsack, Jess Vilsack, serves as one of Summit's corporate lawyers.)

⁴⁰ See page 7 of the report.
⁴¹ <https://poet.com/sustainability/report>. Recently, POET did sign with Navigator for CCS.
⁴² <https://www.legis.iowa.gov/lobbysist/reports/declarations?ga=89&ba=SF2160>

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Pipeline Route Highlighted in "Red" Below



We live here. Our families live here. Our communities are built here. And we deserve respect.

What about PHMSA, the federal Pipeline and Hazardous Materials Safety Administration? PHMSA's job is to regulate the pipe itself within the 50-foot right-of-way (hence the 25-foot distance between the pipe itself and our houses). PHMSA has no regulatory authority over the siting of the pipelines—*where* they are built. States that have experience with carbon pipelines—states like OK, TX, and WY—have recognized this safety loophole and, according to an article called, "Siting Carbon Dioxide Pipelines," from the *Oil and Gas Natural Resources, and Energy Journal*, have passed their own legislation to regulate the siting of these pipelines, for example, a required minimum distance from a school.¹³ But we have no such protections in Iowa because, frankly, CO₂ pipelines are less than 1% of all pipelines in this county, and in Iowa we have no experience with them *at all*.

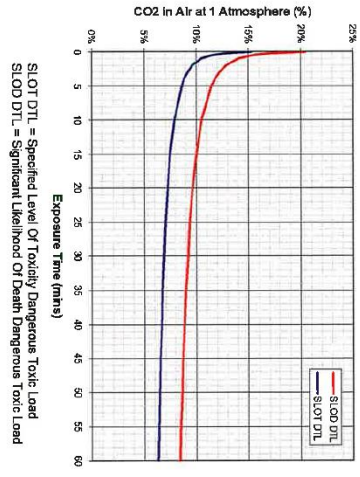
Are the proposed pipeline routes safe? DNV, the world's leading authority on recommended practice for the design and operation of CO₂ pipelines, does not specify a distance from the pipeline that would be safe in case of a rupture. *That is because even they do not know.*

No one knows. It depends on many different factors, not just the diameter of the pipe, the pressure under which the CO₂ was traveling, or the distance between safety valves, but also the local topography, soil composition, ambient temperature, wind speed, and other highly variable factors. In the end, it's not about distance; it's about concentration and time.

¹³ <https://digitalcommons.law.ou.edu/cgi/viewcontent.cgi?article=1129&context=onej>

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DNV developed a graph to show how this works.¹⁴



The red line indicates “significant likelihood of death,” while the blue line indicates a scientifically-specified level of toxicity—when you will suffer harmful effects. At concentrations of 10%, you will likely die in 15 minutes. At a concentration of 1.5%, you will likely die within 1 minute. How long do you have to escape? (By the way, unless you have an electric vehicle, car engines will stall out and fail if they are in an area of high CO₂ concentration because combustible engines, too, need oxygen to survive.)

How do we site these pipelines, safely? At the most recent public informational meetings—with Wolf and the IUB in August—Wolf’s engineer said, “The industry doesn’t have a standard.” And, “The results aren’t in on the dispersion modelling.” And when asked to estimate what distance he would recommend to avoid death from a pipeline rupture, he said something in the “800 to 1500 foot range.”¹⁵ That’s a really large range because so much is unknown about how supercritical CO₂ disperses—but notice that 25 feet is not a recommended option.

What we do know is that the day scientists conducted the test demonstration of a CO₂ pipeline rupture under the auspices of DNV, the visible plume of CO₂ travelled 1/3 of a mile—1312 feet—in under 4 minutes. And now, thanks to a real-life accident, we also know that *the gas form of CO₂* can travel much farther.

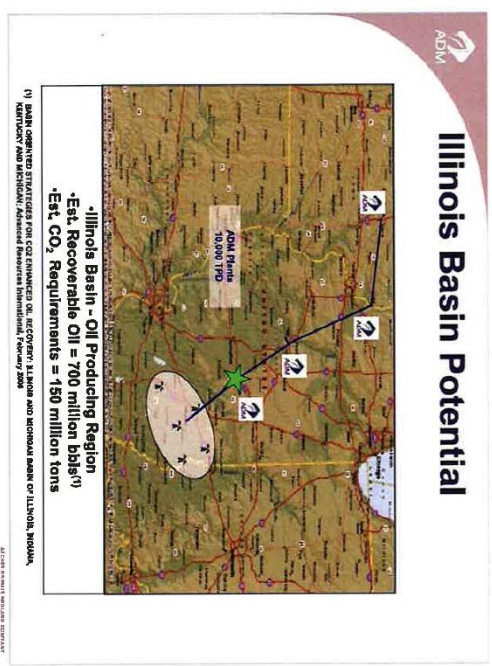
We learned that, unfortunately, when a CO₂ pipeline owned by Denbury Resources suddenly ruptured on a Saturday night in February of 2020 in Saratoga, Mississippi,¹⁶ The rupture of the 24”

¹⁴ <https://www.dnv.com/oilgas/download/dnv-rp-fl04-design-and-operation-of-carbon-dioxide-pipelines.html>

¹⁵ Comments from Wolf’s engineer, recorded on August 29th and 30th, 2022.

¹⁶ https://www.huffpost.com/entry/gassing-saratoga-mississippi-pipe-002-pipeline_n_60d6e19efc4b0dd6f8b0ad6e8f

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The presentation as a whole contains research as recent 2020, and so I believe that we can consider this a fairly current source of information. The “Illinois Basin Potential,” describes the millions of barrels of oil that will be recoverable by injecting liquid CO₂ into the ground of depleted oil fields in Illinois. Indeed, there have been multiple studies by the oil and gas industry about the *quote* “stranded oil prize” that waits, underground, in Illinois. However, there is no such “oil prize” for Iowa...

So, that leads me to my third question: what about ethanol?

3. Are the CO₂ pipelines necessary for ethanol’s future? As it turns out, ADM knows the answer to this question, as well.

A report from March of 2020 was commissioned by ADM to look at several options for reducing CO₂, including the option of carbon sequestration.³⁸ But in this report, carbon sequestration comes in *dead last* of all the options.³⁹ You see, right now, the carbon that the technology can capture is only the CO₂ from biogenic sources—from the corn fermentation. That’s because the corn fermentation produces a very “pure” stream of CO₂—CO₂ not mixed with other gasses—that is the easiest to capture, dehydrate, and pressurize for transport through a pipeline. Indeed, that’s why the oil and gas industry wants it from ethanol facilities for the use of enhanced oil recovery. But this

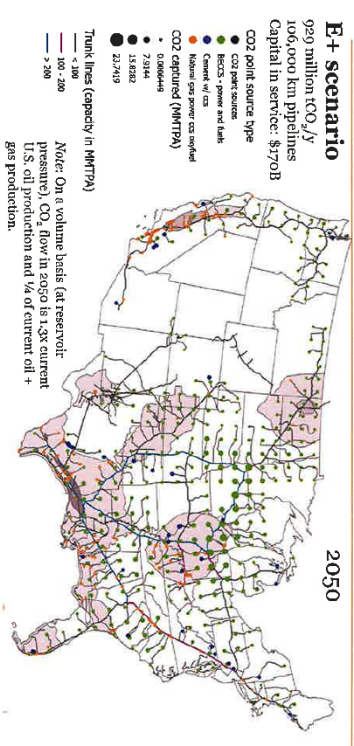
³⁸ <https://assets.adm.com/Sustainability/2019-Reports/ADM-WSP-Feasibility-Study-and-Goal-Document.pdf>

³⁹ See page 9 of the report.

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for enhanced oil recovery,³⁵ and David Giles, COO of Navigator, admitted at public meetings in December 2021 and January 2022 that, because the pipeline company simply transported the liquid CO₂ but didn't, technically, own it, he could not say what would be done with it, in the end. Wolf has verbally denied that they intend to pursue EOR, but we have no binding document from them, and it doesn't bode well that both Summit and Navigator began saying the same thing before they changed their tunes.

It's rather telling to look at this map, from a study under the auspices of Princeton University but funded by Exxon Mobile and BP—funded by the oil and gas industry.³⁶



The green dots represent bio-energy sources of CO₂ like ethanol and fertilizer facilities in the Midwest, and the gray shading show the location of oil fields where enhanced oil recovery could be used. Please notice, North Dakota and Illinois on this map—precisely the destinations for the Summit, Navigator and Wolf pipelines. The lines connecting them are the pipelines necessary for CO₂ transport.

And what, for example, does an ethanol company like ADM know about this national plan for enhanced oil recovery? Well, here is a slide from a PowerPoint presentation by Scott McDonald, Biofuels Development Director at ADM, housed at the Department of Energy website.³⁷

³⁵ <https://www.imprnews.org/story/2021/03/02/iowa-company-wants-to-store-carbon-dioxide-under-north-dakota>

³⁶ <https://netzeroamerica.princeton.edu/the-report> Please see page 218 from the full report for the map. Also note that Exxon Mobile and BP fund this report.

³⁷ https://www.energy.gov/sites/prod/files/2017/10/158/mcdonald_bioeconomy_2017.pdf see slide 36.

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pipe released 9,532 barrels (401 ton) in the 8 minutes before the pipeline was shut down.¹⁷ Photos show that after the rupture, there is not even a speck of life, a speck of grass. Left Y4, because the rupture happened in a densely-wooded area one mile from the town center, with no houses nearby, and because the town had a tiny population (38 people) that emergency responders were able to evacuate, there were no deaths—only people sent to the hospital.¹⁸ [*] still, emergency responders later described what they found: [*] some people “choking,” some “unconscious,” some in a “seizure,” and others “foaming at the mouth.”¹⁹ In this case, distance was the difference between hospitalization... and death because distance from the pipeline rupture determined the concentration of CO₂ in the air.

The gas form of CO₂ released from the pipeline rupture travelled over 5,000 feet to the center of Sartaria, Mississippi. But in Iowa, many of us will be forced to live, work, learn, and play within tens of feet of these pipelines—forced by the power of eminent domain.

Recently, PHMSA announced that it must “strengthen its safety oversight of carbon dioxide (CO₂) pipelines around the country to protect communities from dangerous pipeline failures.” a move they are making as “a result of PHMSA’s investigation into a CO₂ pipeline failure in Sartaria, Mississippi in 2020.”²⁰ But the “new rulemaking to update standards for CO₂ pipelines” that PHMSA describes will take several years to put into place, since the research funding opportunities they offered have a timeline of “24-36 months.”²¹ Why are CO₂ pipelines being built in Iowa before the necessary safety studies have been completed? How can we consider such willful risk-taking to be a public good?

Recently, California—a state also considering a build-out of CO₂ pipelines—passed a law that prohibits the construction of any new CO₂ pipelines until PHMSA has issued its new safety rules. This makes sense, doesn't it? If you must do something, don't you want to do it safely? Here is the law:

71465. (a) Pipelines shall only be utilized to transport carbon dioxide to or from a carbon dioxide capture, removal, or sequestration project once the federal Pipeline and Hazardous Materials Safety Administration has concluded the rulemaking (RIN 2137-AT60) regarding minimum federal safety standards for transportation of carbon dioxide by pipeline (Parts 190 to 199, inclusive, of Title 49 of the Code of Federal Regulations) and the carbon dioxide capture, removal, or sequestration project operator demonstrates that the pipeline meets those standards.²²

¹⁷ <https://www.phmsa.dot.gov/data-and-statistics/pipeline/distribution-transmission-gathering-line-and-liquid-accident-and-incident-data>

¹⁸ <https://www.phmsa.dot.gov/news/phmsa-failure-investigation-report-denbury-gulf-coast-pipelines-llc>

¹⁹ <https://www.clarionledger.com/story/news/local/2020/02/27/yazoo-county-pipe-rupture-co-2-gas-leak-first-responders-rescues/4871726002/>

²⁰ <https://www.phmsa.dot.gov/news/phmsa-announces-new-safety-measures-protect-americans-carbon-dioxide-pipeline-failures>

²¹ <https://www.grants.gov/web/grants/view-opportunity.html?oppId=338415>

²² https://leginfo.ca.gov/pub/09_10_2012_1202_2012_09_15_1202208B905

Iowans deserve the same protection. CO₂ pipelines should not be built unless PHMSA closes the knowledge gap on safety.

2. Are these projects a “public convenience and necessity” for the environment?

The reason that the CO₂ will be captured is to sequester it—bury it underground. In Iowa, we are being told that that would reduce the carbon footprint of ethanol and help address concerns about climate change. But there is more to this story, as it turns out.

Like all three of the projects under review in Iowa, Summit’s would transport liquid CO₂ to a facility out of state, where it will be injected or sequestered underground. It sounds “green,” but unfortunately, it’s only *one* part of the story. *Liquid CO₂*—which is what we’re talking about with these projects—is a commodity. It’s worth something, it’s sold and bought, as the oil and gas industry itself will tell you. That’s because it is used as a tool for more oil and gas extraction. Most people have probably heard of fracking, but maybe they haven’t heard of “Enhanced Oil Recovery” (EOR). Enhanced Oil Recovery has been used by the oil industry for decades, mainly down in Texas and Louisiana, but also now in places like Wyoming, Colorado, and North Dakota. By injecting the liquid CO₂ into the ground (where it is stored, by the way—that part of the industrial cycle is true), oil companies extract barrels of oil out of fields that were otherwise depleted. How much oil? A lot. For example, at a facility called Petro Nova, the *Journal of Petroleum Technology* reports that in less than one year they “captured 1 million tons of CO₂ and increased oil production [at a field some 80 miles away] by 1,300%.”²³ For over a decade, the oil and gas industry has been searching for a reliable source of CO₂ with which to pursue enhanced oil recovery. Indeed, the *Oil & Gas Journal* reports back in 2010 that “Tracy Evans, president of Denbury Resources Inc., said the largest deterrent to expanding production from CO₂-EOR is the lack of large volumes of reliable, affordable CO₂.”²⁴ Indeed, the article goes on to state that, “Most CO₂ for EOR today comes from natural reservoirs, which are limited in capacity”—i.e. this industrial process has nothing to do with limiting our carbon footprint. (This article dates before the oil and gas industry hit upon the idea of using CO₂ from ethanol as their supply for Enhanced Oil Recovery—but I’ll tell you more about that later.)²⁵ What is important to note, for now, is that oil, when used, generates more CO₂—as it turns out, more than what was sequestered in the first place. According to an article in the *Proceedings of the National Academy of Sciences of the United States of America*, for every one ton of CO₂ they pump into the ground, they pull out two to three barrels of oil, which generate about 1.2 tons of new CO₂.²⁶ The process adds more CO₂ to the atmosphere than it takes out.

²³ <https://opt.spe.org/co2-eor-could-be-industry-key-sustainable-future-or-its-biggest-missed-opportunity>
²⁴ <https://www.ogj.com/general-interest/companies/article/17282591/art-carbon-capture-could-boost-eor-projects>
²⁵ <https://www.pnas.org/doi/10.1073/pnas.1806504115>
²⁶ <https://www.pnas.org/doi/10.1073/pnas.1719695115>. Note that this is the article that pioneered the use of CO₂ from ethanol for EOR and that the authors make the oft-repeated argument from oil and gas that EOR is necessary to battle climate change. It is only necessary, however, for the industry itself; carbon capture transforms an existential threat to the fossil fuel industry into a lucrative opportunity—no matter that it fails to address the problem of actually continuing to generate CO₂ from industrial processes.

This article from *Biophysical Economics and Sustainability* confirms that, although “fossil fuel interests have moved to reframe an old oil extraction technique (“enhanced oil recovery”) as a new climate mitigation method,” they found that this process is “net CO₂ additive: CO₂ emissions exceed removals.”²⁷

Over 90% of liquid CO₂ in the world is currently used for Enhanced Oil Recovery. This is according to the “Global CCS Institute,” an “international think tank” headquartered in Melbourne, Australia.²⁸ The article mentioned, above, states directly that: “Major carbon dioxide capture and pipeline infrastructure projects based on CO₂-EOR [...] benefit the oil and gas industry and oil-producing states.”²⁹ Indeed, an article from 2014 in *The American Oil & Gas Reporter*, says it all in the title: “Industrial CO₂ Supply Crucial for EOR,” stating that, “The main barrier to growth in oil production from CO₂ EOR is insufficient supplies of affordable CO₂. [...] While a number of efforts have been under way to alleviate this supply shortage, new CO₂ supplies are absorbed quickly.”³⁰ Indeed, the article goes on to say that Texas (Navigator’s home base) is working “to encourage increasing CO₂ supplies from industrial sources to serve the EOR market.”³¹

Even most “demonstration” or “pilot” programs are driven by the fossil fuel industry, but one in the US—connected to ADM’s facility in Decatur, Illinois—pursued storage, only.³² This project (which didn’t require much of a pipeline—the company injected the CO₂ onsite) was funded by the federal government to the tune of hundreds of millions of federal tax dollars. From November 2011 to November 2014, they injected liquid CO₂ down into the ground (where, by the way, it doesn’t “just stay put” or solidify into rock—it migrates).³³ And did they lower their greenhouse gas emissions? No. According to data tracked by the EPA, in 2010—the year before carbon capture and sequestration began—their annual Total Facility Emissions in metric tons of CO₂ was 4,431,508. In 2011, the year they began sequestering, it went up to 4,662,337 tons. In fact, every year from 2011 to 2014 (the years of their sequestration project), CO₂ emissions actually increased rather than decreased, peaking at 4,695,431 in 2014. In 2015, when they stopped capturing and sequestering the CO₂, their emissions decreased to 4,462,580.³⁴ You see, the process of capturing, dehydrating, and injecting requires a tremendous amount of energy, and that generates additional CO₂.

The net addition of CO₂ to the atmosphere is not a “public convenience and necessity.”

Do we know, for certain, that Iowa’s CO₂ will be used for enhanced oil recovery? We don’t know for certain, but according to Minnesota Public Radio in 2021, Bruce Rastetter, the head of Summit, admitted that his economic model for the pipelines wouldn’t be viable without federal tax dollars

²⁷ https://www.bu.edu/eci/files/2020/10/2020_Article.pdf
²⁸ <https://co2re.co/facilityData>
²⁹ <https://www.pnas.org/doi/10.1073/pnas.1719695115>
³⁰ <https://www.ogor.com/magazine/editors-choice/industrial-co2-supply-crucial-for-eor>
³¹ *Ibid.*
³² <https://co2re.co/facilityData>
³³ See slides 14–22.
³⁴ <https://ghgdata.epa.gov/ghgpp/service/facilityDetail?0107&id=10056661&ds=EK&cr=Kpopp=true>

Next four pages received by Gayle Palmquist into the Zoning Commission 11/28/22 Minutes.



Dear [REDACTED]

Thank you for your liability coverage inquiry into the Navigator CO2 pipeline that is expected to run through your property. There is specific exclusions for liability protection involving the release of any contaminants per the following policy language:

Coverage L (Liability) does not apply to:

Bodily Injury or Property Damage arising out of the actual, alleged, or threatened presence, discharge, dispersal, escape, migration, release, seepage or exposure to contaminants or pollutants at or from any source or location. We also do not cover:

Any laws, suits, or expense arising out of any request, demand, order, or writ (court or regulatory) or government that may be issued or others that may require clean up, removal, abatement, repair, abatement, mitigation, remediation, disposal or, or in any way required to alleviate the effects of contaminants or pollutants.

Any laws, suits, or expense arising out of any claim or suit by or on behalf of a governmental authority or damages because of bearing, for, monitoring, cleaning up, removing, maintaining, emitting, denaturing, neutralizing, immobilizing, disposing of, or in any way responding to or necessary for effects of contaminants or pollutants.

While I am personally not privy to any proposed hold harmless agreements or the contract between the pipeline owners and yourselves, regardless of any agreements in place, there is significant personal liability exposure for yourselves while using your land for farming operations, for your own enjoyment and for your benefit renting the land out for others to do the same.

For example, if you or your tenants or own someone without permission someone to dig, grow, trench and place the pipeline causing a leak, the resulting damage may be signed to be your responsibility.

As time passes, nearby landowners may change hands, the pipeline owners and operators may change, future technology may render the pipeline useless or ineffective. All of these factors among others, increase the potential that you may be held personally liable in the future for cleanup, removal and other activities that could cause damage as a result of this pipeline being installed.

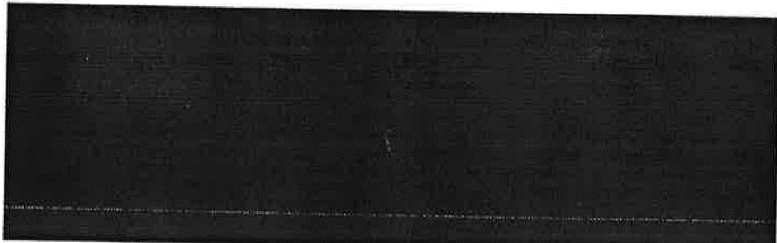
As history has proved, any pipeline has a chance to fail, leak and seep resulting in significant damage to life and property. To place this type of risk or burden upon unwilling landowners, like yourselves, is tantamount to placing a risk to your livelihood without your permission.

In summary, having a pipeline running through your property, carrying CO2, a pollutant, subjects you to substantial uninsurable exposure.

Sincerely,

[Signature] 1/1/2022

State Farm Agent



We've done the research and we oppose pipelines.

Des Moines Register, Sept. 25 2022

We've done the research, and we oppose pipelines



Your Turn

Matt Liebman, Elizabeth Garst and Neil Hamilton
Guest columnists

We are a group of concerned Iowans, farmland owners, academics, non-profit leaders, and environmental advocates who have urged the Iowa Utilities Board to reject permit applications for carbon dioxide pipelines that would run across Iowa. We recognize that climate change is driven by emissions of greenhouse gases, including carbon dioxide, and we support clean, safe, sustainable, and locally controlled and locally owned energy. But we can do better than the proposed pipelines. Science indicates that they are poor investments and unlikely to have a meaningful effect on reducing greenhouse gas emissions.

We filed a letter on July 29, 2022, with the Iowa Utilities Board and laid out four science-based objections to the projects proposed by Summit Carbon Solutions, Navigator CO2 Ventures, and Archer Daniels Midland partnered with Wolf Carbon Solutions. Our objections are based on publicly funded scientific and engineering studies; links to these studies can be found in our letter to the board.

Soil degradation, reduced crop yields. Iowa State University scientists recently published a study that examined crop yields in areas of fields affected by underground oil pipeline construction. They found that subsoil compaction reduced corn yields by 15% and soybean yields by 25% for at least several years after pipeline completion. Farmers are aware of these effects and are reluctant to allow degradation of their land by pipeline construction. To date, at least 40 county boards of supervisors in Iowa have filed objections

See CO2, Page 40P

CO2

Continued from Page 1DP

to the proposed pipelines.

Minor reductions in greenhouse gas emissions. Capturing carbon dioxide generated during the process of fermentation at ethanol plants and then transporting it by pipelines through Iowa and other states and storing it underground would have trivial effects on our nation's carbon dioxide emissions. Carbon dioxide emissions in the U.S. in 2020 were 110 times greater than the amount that might be captured at all our nation's ethanol plants under the most favorable projections.

Carbon dioxide emitted from tailpipes would greatly exceed what pipelines would transport. The use of ethanol in our cars contributes to greenhouse gas emissions, which exacerbate our ever-increasing climate crisis. Tailpipe emissions from U.S. vehicles in

2020 using gasoline blended with 10% ethanol (E10) were almost 25 times greater than the 43 million metric tons of carbon dioxide that could potentially be captured at all the nation's ethanol plants. Because vehicles using ethanol rather than regular gasoline typically get 4% to 5% fewer miles per gallon of fuel consumed, due to the lower energy content of ethanol, carbon dioxide emissions per mile traveled are as high or higher for ethanol blends as for pure gasoline.

Corruption of the ideal of private sacrifice for public good. The power of eminent domain, which allows private land to be condemned, is granted to governments carefully and must be executed carefully. This process should be used only for projects serving substantial public interest. Given the link between soil health, farm productivity, and forest and grassland integrity, a very large benefit to the public should accrue to offset the damage incurred from building private carbon dioxide

Linda D. Applegate, retired USDA/NRCS resource conservationist; Laura Belin, editor and publisher of Bleeding Heartland; Patricia Bodd, retired agricultural engineer; Christine Curry, environmental and conservation advocate; Mike Delaney, professor emeritus of environmental sociology; Des Moines Area Community College; Cornelia B. Flora, distinguished professor of agriculture and life sciences emerita, Iowa State University; Chris Henning, farm owner and manager; Susan Judkins, conservation advocate; Mary Ellen Miller, Wayne County soil and water conservation district commissioner; David Osterberg, professor emeritus of public health, University of Iowa; Mark Rasmussen, professor emeritus, Iowa State University; Ralph Rosenberg, former executive director, Iowa Environmental Council, and former Iowa state representative; Elizabeth Garst is a conservation farmland owner. Neil Hamilton is professor emeritus of agricultural law at Drake University and a Dallas County soil and water commissioner.

Support for this essay is provided by

More opposition to hazardous CO2 pipelines in Woodbury County...

Landowners in Midwestern states are fighting against large corporations to preserve rights and liberties guaranteed in our constitution. CO2 companies want to cash in on billions made available to them by the recent Infrastructure Bill. If allowed, these hazardous pipelines that have no guaranteed results to improve the net effect on the atmosphere will desecrate over 5000 miles of valuable farmland that has taken centuries for nature to build, and ruin some of the most valuable land in the world.

HAZARDOUS CO2 pipelines are not just another pipeline. The enormous pressure necessary to convert the CO2 to a solid for sequestration makes them extremely dangerous. Released CO2 takes as little as four minutes to kill humans and animals. The distance the CO2 could travel is unknown because of many variables, including wind speed, terrain, and weather. In 2020, a rupture in a remote area several miles from the village of Sartaria, Mississippi injured many, resulting in potentially lifelong health problems. There were no deaths, probably because of the distance. The problem, as diagnosed by PHMSA, was heavy rain on a highly erodible slope.

Neither PHMSA or Iowa have regulations for CO2 pipelines. PHMSA estimates two years to make regulations and rules. The pipelines are trying to rush the approval of their pipelines to be "grandfathered" in. Private pipeline companies seeking private gains are threatening to use eminent domain, traditionally used for projects benefiting the general populace, i.e. highways, schools, hospitals, utilities, etc. Approval by the Iowa Utilities Board would cause danger to thousands of people and animals plus thousands of acres of compromised Midwestern farmland. No public good will come from building these pipelines.

Sequestration isn't a proven science. Approximately 80% of projects have failed. Called "expensive failures", efforts have resulted in more CO2 released in the construction/operation than was sequestered, for a net loss. Examples: Chevron in Australia and Shell in Canada. A short line in Texas was recently closed. Experts at Iowa's state universities and the DNR have voiced concerns about the affect of hazardous pipelines on water supplies, energy, land and people. Crop yields, water sources, and infrastructure such as tile, irrigation systems, and terraces will never be the same.

Everyone should be concerned with who's behind these pipelines and who will profit from them. "The Kingmaker", Bruce Rastetter of Adel, Iowa, the force behind Summit, has donated hundreds of thousands of dollars to various politicians, including Governor Reynolds, Governor Noem, the Grassley family, and others, including at least one member of the IUB. Reynolds set up a task force with many members whose corporations will benefit from these pipelines.

Insurance companies are refusing to cover CO2 losses for customers. Farmers would have no liability coverage, leaving tenants and owners very vulnerable. CO2 pipelines will have a detrimental effect on land values. Future development in Woodbury County will be harmed, especially along HWY 20, Interstate 29 and HWY 75. Less tax money for the county and decreased money for sellers of land. When CO2 enters the water supply, it will turn our aquifers and wellwater into carbonic acid, not fit for man, beast or crops. Smaller, shallower aquifers are not uncommon in NW Iowa. Local EMR teams are not staffed, trained, or equipped to deal with CO2 eruptions. One hazmat team in NW Iowa is responsible for 7 counties. Gas powered vehicles will not run in a CO2 plume and Summit has refused to release a plume study requested by the IUB. These companies have been anything but transparent with landowners and the IUB, dodging requests from the IUB and lying to and bullying landowners.

Think it doesn't involve you? Guess again. Your taxes are supporting unproven, dangerous pipelines. Approval of Eminent Domain use will set a dangerous precedent. Other pipelines are watching, waiting to be next in line to use your money and control your property. Call our supervisors, sign petitions, put a sign up, write to the IUB, attend hearings and other meetings!

It is time to protect citizens -- not to cave in to corporations. Don't sign easements; the problems created by these pipelines will long outlast any amount of money they promise you! If Eminent Domain is used it will be detrimental to all.

11-24-22 Gayle Wilcox Palmquist
Iowa Record Lawton, Iowa