

Public Comments

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September 19, 2022

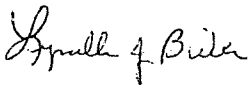
Moody County Board
101 E Pipestone Ave
Flandreau, SD 57028

Dear Moody County Board

A lot of information on CO2 pipelines have been provided, but there are four important issues that I have not found adequate support for.

1. For landowners, will there a maximum number of acres that a CO2 pipeline can be placed on their property? Where a pipeline exists a certain amount of land becomes unusable for various purposes. For landowners owning a significant number of unusable acres, the inability ability for facility expansion, impact on rental income, and loss of land sales value could be devastating. Will landowners with significant pipeline exposure be adequately compensated for their loss of usage rights and value?
2. There will be pipeline pumping stations that require energy. Can the increase in electrical needs, caused by the pipelines, be met without impairing existing service to customers? Would there be a need for electrical power plants to burn more coal or obtain natural gas? If so, wouldn't there be increased CO2 output that would offset the intended benefit of the pipeline?
3. Has evidence been provided to assure that testing of pipe line safety has been adequately done and that the results have properly disclosed?
4. What will be the long-term impact on the land and crop production? Has it been adequately tested and disclosed?

I know there are more unanswered questions, but these are my current concerns.



Lynelle Bieber

March 1st, 2022

Let it be known that the Board of Supervisors, of Riverview Township, Moody County South Dakota, and all voting members present at the Annual Meeting, on March 1st, 2022, are expressly opposed to the proposed CO₂ pipeline that is planned to run through Riverview Township and Moody County.

Let it be known, by the Board of Supervisors of Riverview Township that anyone tiling fields for the purpose of draining water, need to gain permission to cross any township roads by the Board of Supervisors. Also, those granted permission to cross township roads with tile lines need to deliver and apply one load of gravel back over the road surface and grade it back to the approval of the Board of Supervisors.

Duffey Payne, Clerk
Riverview Township

CONCERNS ON THE PROPOSED HAZARDOUS CO2 PIPELINE:

A. SETBACK

1. How far from an occupied building (house, office, barn, etc)? Federal minimum 50 feet; SCS 500 feet
2. What is acceptable setback???
 - a. ½ mile- 880 yards- 2640 feet
 - b. 1 mile 1760 yards- 5280 feet

B. DEPTH

1. How far under crop ground, pastures, hay ground? Federal 12 inches; SCS 3 feet and 4 feet from ground surface to top of pipe.
2. How far under highways, railroads, county roads, township roads, WEB water lines, tiling, creeks, rivers, wetlands, etc? At certain times of the year and under certain conditions, county and township roads can have significant ruts due to the heavy farm equipment going over them. Due to these conditions, what depth of a hazardous pipeline is appropriate? (In the SCS permit to the PUC I think I saw a depth of 25 feet??? under highways.)
3. What is acceptable depth???
 - a. 6 feet- 72 inches under crop ground, pastures, hay ground
4. What depth of the hazardous pipeline is acceptable due to natural freezing and thawing of the ground???
 - a. How will the temperature of the hazardous CO2 pipeline affect the depth???
 - b. 6 feet/72 inches underground to the top of the pipe , to prevent the hazardous CO2 pipeline from heaving or rising over time to the surface due to natural freezing and thawing of the ground.

C. CONCERNS CROSSING AT RIGHT ANGLE:

1. Weight of vehicles- 4-wheel drive tractors, 2-wheel tractors, track tractors, combines, self-propelled silage cutter, semi-truck and trailer loaded with corn, wheat, hay bales, etc., grain carts loaded, gravity wagon loaded, loaded hay mover, loaded silage wagon, etc

D. CONCERNS IF THE HAZARDOUS CO2 PIPELINE THAT RUNS PARALLEL TO ROW CROPS:

1. Same as 90-degree crossing with equipment above-except is there a shock wave produced ahead of equipment?

E. EFFECTS OF HEATED HAZARDOUS CO2 PIPELINE- 80 TO 120 DEGREES F:

1. How will this temperature affect corn, wheat, soybeans, etc; grasses, native plants, etc
2. How will this temperature change the amount of moisture available for the plants?
3. How much evaporation will there be?
4. How will it affect a tree planting after installation of pipe, depending on pipe depth?
5. How will this temperature affect the microbial make-up of the soil?
6. Could this soil temperature lead to new soil pests over the winter?
7. How will this temperature affect livestock pests and diseases?
8. How will this temperature affect wildlife and wildlife habitat?
9. What can be done yearly to appropriately compensate land owners along the route of the pipeline due to loss of crops, etc.???

F. SAFETY CONCERNS WITH HAZARDOUS CO2 PIPELINE:

1. Who will be responsible???
2. Will diesel, gasoline engines operate in area of leak or rupture?
3. What happens to pumping stations and valves during electric outages?
4. When there is a leak or rupture, how will the pipeline be shut down?
5. Will the sensors be controlled by SCS?
6. Could the Hazardous CO2 leak into ground water and nearby wells? If so, what are the effects?
7. Will there be manual shut off valves and who will have access to these? SCS only, local Fire Department, Law Enforcement, Emergency Management, Landowner?
8. Who will alert people of the Hazardous CO2 Pipeline leak or rupture?
 - a. How will people be alerted?
 - b. When will they be alerted-people need to be alerted immediately?The incident in Mississippi in February 22,2020, NO ONE WAS NOTIFIED OF THE LEAK.

- c. Who will be alerted, EMT's, Emergency Management, Law Enforcement, Fire Department, Healthcare Facilities, and those living and working near the pipeline, general public, schools, and area towns/ EMT's, Emergency Management, Law Enforcement, Fire Department, healthcare facilities (in the event additional help, ambulances, helicopters, etc., are needed so they avoid the area of the leak/rupture)???
- 9. Who will educate and in-service local Fire Departments, EMT's, Emergency Managers, Healthcare Facilities, Law Enforcement, etc., so these individuals know how to provide proper care for themselves and those in the area of the leak or rupture so there is proper medical management. INDIVIDUALS IN THE MISSISSIPPI INCIDENT WERE IMPROPERLY MANAGED MEDICALLY- SOME WERE SENT HOME FROM THE HOSPITAL TOO SOON, ONLY TO RETURN FOR FURTHER MEDICAL TREATMENT AS THEY STILL HAD HIGH LEVELS OF CO2 IN THEIR BLOODSTREAM.
- 10. Who will provide annual education? Annual education needs to be done due new treatments and staff turnover. Since the education is needed due to the hazardous CO2 pipeline, it should be at the expense of SCS.
- 11. What safety equipment – breathing apparatus, etc., is appropriate for the various individuals. Since the equipment is needed due to the hazardous CO2 pipeline, it should be at the expense of SCS.
- 12. Who will provide appropriate CO2 meters, detectors, etc.? Since the CO2 meters, detectors, etc., are needed due to the hazardous CO2 pipeline, it should be at the expense of SCS.
 - a. What personnel and citizens will be provided with CO2 meters, detectors, etc.?
 - b. Where will CO2 meters, detectors, etc., be placed???
Near cities, towns, schools, highways, county and township roads, homes, etc., along the route of the hazardous CO2 pipeline???
- 13. Who will pay for the appropriate education, safety equipment and annual equipment upgrades? Upgrades will be needed. The upgrades needed needs to be determined by all entities affected by the hazardous CO2 pipeline: Fire Department, Emergency

Management, EMT's, Healthcare Facilities, Law Enforcement, etc., at the expense of SCS.

14. Any and all education needs to be completed prior to use of the hazardous pipeline.
15. All entities affected by the hazardous CO2 pipeline: Fire Department, Emergency Management, EMT's, Healthcare Facilities, Law Enforcement, etc., need to be involved in selecting all educational and in-service materials, safety equipment, CO2 meters, detectors, etc., at the expense of SCS.

G. HEALTHCARE CONCERNS FOR PEOPLE WHO ARE EXPOSED TO CO2:

1. Short term: breathing problems, circulatory problems, cardiac problems, headaches, sweating, numbness, irritability, disorientation, unconsciousness, death
2. Long term: mental foggy, lung dysfunction, kidney dysfunction, chronic fatigue, anxiety, insomnia, digestive disorders
3. What are the short and long term effects of CO2 poisoning on the development of an infant, child, teenager???
4. Who pays for healthcare and/or funeral expenses for those who are exposed to a CO2 leak/rupture???

H. LIABILITY CONCERNS OF HAZARDOUS CO2 PIPELINE:

1. SCS for leaks or ruptures of pipeline in pipe or joint failure?
 - a. Has SCS show proof of liability insurance on the permit they have filed with the PUC???
 - b. Liability for duration of the use of the hazardous pipeline???
2. If Landowner, Utility, or Construction Company, etc., damages the pipeline?
 - a. Landowner will be unable to get insurance for their property with hazardous CO2 pipeline on their property, what are they to do???
 - b. Will Utility, Construction, etc., companies insurance cover any damages, etc., when they need to do work in the area of a hazardous CO2 pipeline???

I. WHAT MEASURES ARE GOING TO BE TAKEN TO SECURE THIS HAZARDOUS CO2 PIPELINE FROM ACTS OF TERRORISM???

1. This plan needs to be in place prior to any use of a hazardous pipeline.

J. WHAT MODIFICATIONS CAN BE MADE DURING THE EASEMENT AGREEMENT?

1. Examples: routing of pipeline, setback, depth?
2. Where the Hazardous CO2 Pipeline is near a town, how close would housing be allowed in the future as towns expand?
3. Would tree planting be allowed in easement area? Could a calf shelter be located on the easement area?
4. Limit additional pipelines from being included on the agreement.

K. CONCERNS WITH USE OF EMINENT DOMAIN:

1. Eminent domain should not be used for something that is toxic and hazardous to the public.
2. Laws need to be in place so that if eminent domain is used the easement cannot be sold to a foreign country.

L. HOW MUCH WILL THIS HAZARDOUS CO2 PIPELINE BE TAXED?

1. Who will benefit from these tax dollars? Emergency management, Fire Department, EMT's, healthcare facilities, counties and townships, schools, etc.???
2. How much do taxes need to increase yearly???

MEMORANDUM

TO: South Dakota Concerned Persons
FROM: Brian Jorde (credit to Paul Blackburn, Esq.)
DATE: July 18, 2022
RE: **County Zoning Ordinances and Setbacks**

Key questions summarized:

- Can a South Dakota County enact reasonable zoning regulations and setbacks related to CO2 hazardous pipelines? YES.
- Does the South Dakota PUC make any decisions as to proposed CO2 hazardous pipeline route or location? NO.
- Does the State of South Dakota or Federal law prohibit South Dakota counties from enacting zoning regulations related to CO2 hazardous pipeline setbacks? NO.
- Is anyone who is telling/advising you that “Federal law” prohibits South Dakota Counties from taking reasonable actions via enactment of zoning ordinance setbacks for CO2 hazardous pipelines either misinformed or lying to you? YES.

Detailed Explanation:

The federal Natural Gas Act (NGA) does preempt county setbacks for interstate natural gas pipelines, but this act does not apply to oil and CO2 pipelines. No federal law authorizes the federal government to generally determine the route or location of an oil or CO2 pipeline. More specifically, the federal Pipeline Safety Act does not prohibit county setbacks for or county routing of oil and CO2 pipelines.

The Pipeline Safety Act actually prohibits the Pipeline and Hazardous Materials Safety Administration (PHMSA), a part of the U.S. Department of Transportation, from issuing or enforcing setbacks or otherwise determining the location or route of a pipeline for safety or any other reason. Section 60104(e) of the Pipeline Safety Act expressly states in full:

“(e) Location and routing of facilities. –This chapter does not authorize the Secretary of Transportation to prescribe the location or routing of a pipeline facility.”

Since setbacks relate to the location of a pipeline, federal law prohibits PHMSA from requiring or prohibiting setbacks or otherwise dictating the location or route of a pipeline.

This means that PHMSA cannot examine route alternatives and pick the safest or order a pipeline developer to stay away from sensitive locations, such as schools, nursing homes, or hospitals. In South Dakota this important role is filled by each County who can take such action via county zoning ordinances.

The mistaken belief that the federal government regulates setbacks appears to be based on a misinterpretation of Section 195.210 of the federal pipeline safety regulations (49 CFR § 195.210). This regulation contains two short provisions, subsections (a) and (b), both of which appear to regulate the location or route of a pipeline.

Subsection (a) states in full:

“(a) Pipeline right-of-way must be selected to avoid, as far as practicable, areas containing private dwellings, industrial buildings, and places of public assembly.”

If the Department of Transportation can't regulate location or route, how could it have issued this regulation? The answer lies deep in the history and timing of the many amendments to the Pipeline Safety Act and the regulations issued under it.

The federal government first issued subpart (a) with this exact language in 1981. 46 CFR 38357, 38366 (July 27, 1981). In contrast, the statutory language in 49 USC §60104(e) prohibiting the Department of Transportation from determining the route or location of a pipeline was enacted by Congress on July 5, 1994, in Public Law 103-272, 1994, 108 Stat. 745, thirteen years later. This later act of Congress prohibits the Department of Transportation from enforcing subsection (a), making it at best advisory and more likely void of legal effect. Subsection (a) is a historical anomaly that violates the will of Congress. It's still on the books because the Department of Transportation has been too lazy to remove it. Passively keeping subsection (a) in the Code of Federal Regulations also serves the interest of the pipeline industry, because it adds confusion to this complex area of law.

Now for a basic rule of law. The language of a statute (such as the Pipeline Safety Act) always takes precedence over the language of a regulation (such as Section 195.210 of the Code of Federal Regulations). Regulations must be interpreted by agencies and the courts in accordance with the meaning of a statute. The Pipeline Safety Act clearly states that PHMSA may not determine the “location or routing” of a pipeline. Therefore, PHMSA may not issue or enforce a regulation that allows it to determine pipeline location or route, nor may it interpret an old regulation to give it authority that was taken from it by Congress. If Congress changes the law, the agency that implements the law must abide by the new law.

Turning now to subsection (b) of 49 CFR § 195.210, it states that if a pipeline is constructed within 50 feet of a structure, it must be buried beneath an additional 12 inches of cover. Here's the full and exact language of this regulation:

“(b) No pipeline may be located within 50 feet (15 meters) of any private dwelling, or any industrial building or place of public assembly in which persons work, congregate, or assemble, unless it is provided with at least 12 inches (305 millimeters) of cover in addition to that prescribed in § 195.248.”

This regulation does not prohibit construction within 50 feet of a structure, which is what a setback would do. Pipeline developers could build a pipeline within 50 feet of a structure, or not because this regulation is actually a depth of cover requirement. It says that if a pipeline is routed closer to a structure than 50 feet, then the builder must dump another 12 inches of dirt on top of it. That's not a setback. Again, setbacks are for the counties to reasonably determine.

PHMSA can't issue a setback or interpret a regulation to be a setback. So, if PHMSA has no authority to determine a pipeline's route or to issue setbacks, then who does? The first part of the answer is, it depends on the type of pipeline. As previously stated, the routes for interstate natural gas pipelines are determined by the Federal Energy Regulatory Commission (FERC) under the Natural Gas Act. This special federal routing authority is strictly limited to natural gas pipelines. The Natural Gas Act does not regulate petroleum or CO2 pipelines.

No federal law exists that regulates the routes of oil and CO2 pipelines on private or state-owned land. Some federal laws, such as Section 404 of the Clean Water Act, the Rivers and Harbors Act, and laws regulating construction on land actually owned by the federal government (for example, national parks and forests), control the route of a pipeline at particular locations. However, these laws do not grant any federal agency the authority to generally determine the route of an oil or CO2 pipeline on private, state, tribal, or local government lands. Also, the President may determine the location of a pipeline's crossing of an international border under Constitutional powers to regulate international affairs, for example the Keystone XL border crossing. However, the President cannot dictate oil or CO2 pipeline route within the United States. The President's authority is limited to determining the location of pipeline border crossings with Canada or Mexico.

In the absence of federal authority to determine the route of oil or CO2 pipelines, under the U.S. Constitution this authority remains with the states. Accordingly, many states regulate oil and/or CO2 pipeline route, including but not limited to Iowa, Nebraska, North Dakota, Minnesota, and Illinois (see descriptions and links, below). No reasonable argument exists that state routing of oil and CO2 pipelines is preempted by federal law.

Other states, such as South Dakota and Kansas, have voluntarily chosen not to regulate pipeline location or route.

If a state law does not prohibit a county from regulating the route of a pipeline, the county may determine its location just like it can any other land use, including via setbacks or determining the route of the pipeline through the county.

If neither a state nor a county take any action to regulate route, i.e. through reasonable county level setbacks, and the state has given pipeline companies the power of eminent domain, then a pipeline developer can by itself choose the route, and landowners have no say in this decision. This is why CO2 pipelines are intimidating and hounding county commissioners and others in similar positions because they don't want you to exercise the rights you have to protect yourselves and your land via instituting setbacks through a zoning ordinance.

The issue of whether or not state law allows a county to issue a setback for oil and CO2 pipelines varies by state, and for some states determining the scope of county authority requires an analysis that can't be squeezed into a single blog post. As a start:

South Dakota state law does not regulate route and instead leaves such regulation to counties, but South Dakota law does have a construction permit process under which the Public Utilities Commission may supersede "unreasonably restrictive" county ordinances. SDCL § 49-41B-28. Thus, so long as your county does not "unreasonably" restrict location of a CO2 pipeline via its county zoning ordinance, then it is likely to survive any legal challenge brought by the CO2 pipeline company.

Ultimately, county officials should consult with their county attorneys about the scope of county authority over CO2 pipeline setbacks and route. This blog post will give them a head start. They should request a formal written memorandum rather than a shoot-from-the-hip opinion, because pipeline law is obscure and complex, so sometimes even lawyers are misinformed.

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TELEPHONE (605) 225-6310
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June 1, 2022

South Dakota Public Assurance
Alliance

To Whom It May Concern:

Re: Counties authority to regulate interstate
hazardous liquid pipelines

The South Dakota Public Assurance Alliance commissioned a report to determine what authority local governments within South Dakota have to pass their own laws and ordinances regulating the safety and siting requirements pertaining to interstate hazardous liquid pipelines. This report is specific to interstate pipelines used to transport carbon dioxide under the Hazardous Liquid Pipeline Safety Act of 1979.

The idea and method to transport carbon dioxide using interstate pipelines is a relatively new phenomenon. The Hazardous Liquid Pipeline Safety Act of 1979 ("HLPESA") directed the U.S. Department of Transportation ("DOT") to issue safety standards for all hazardous liquid pipelines. In 1988, the United States Congress amended the Hazardous Liquid Pipeline Safety Act of 1979 ("HLPESA") to require the regulation of carbon dioxide pipeline facilities.¹ Through the DOT, the Pipeline and Hazardous Material Safety Administration ("PHMSA") regulates the

¹ An Act of October 31, 1988, Pub. L. No. 100-561, 102 Stat. 2805; Paul Biancardi & Lisa Bogardus, *An Introduction to Federal Pipeline Safety Regulations*, 38A ROCKY MTN. MIN. L. INST. 5 (1995)

construction, pressure testing, operation, maintenance, corrosion control and reporting requirements of interstate hazardous liquid pipelines as required under the HLPISA.² The HLPISA regulates the minimum safety standards that must be followed for all interstate hazardous liquid pipelines and preempts state and local governments from enforcing their own safety regulations. However, the HLPISA expressly restricts the DOT from prescribing location and routing of the pipelines.³ Under South Dakota law, the location and routing of pipelines is left to the counties, so long as the zoning laws are not deemed unreasonably restrictive by the South Dakota Public Utilities Commission ("PUC").⁴

A. FEDERAL PREEMPTION OF SAFETY STANDARDS ON HAZARDOUS LIQUID PIPELINES

In addition to mandating minimum safety standards for the construction of hazardous liquid pipelines, the HLPISA expressly prohibits any state or local government from passing or enforcing its own safety standards. Specifically, HLPISA states, "[a] state authority may not adopt or continue in force safety standards for interstate pipeline facilities or interstate pipeline transportation."⁵ Due to the federal government expressly preempting the area of safety, neither a state or local government can pass laws or ordinances to enforce their own safety standards.

In Kinley Corp. v. Iowa Utils. Bd., Utils. Div., Dep't of Commerce, the 8th Circuit specifically addressed the federal preemption language in the HLPISA. 999 F.2d 354 (8th Cir. 1993). In Kinley, the state of Iowa, through the Iowa Utilities Board ("IUB"), attempted to regulate safety standards pertaining to an interstate hazardous liquid pipeline. The 8th Circuit found that, "[t]he Supremacy Clause, U.S. Const., Art. VI, cl.2, invalidates state [or local] laws that 'interfere with, or are contrary to' federal law." Id. at 357 (citing Hillsborough County v. Automated Medical Laboratories, Inc., 471 U.S. 707, 712, 85 L.Ed. 2d 714, 105 S. Ct. 2371 (1985)). In making this determination, "Congressional intent is the critical question in

² 49 C.F.R §§190, 195-199

³ 49 U.S.C. § 60104(e) (2006) ("Location and Routing of Facilities. - This chapter does not authorize the Secretary of Transportation to prescribe the location or routing of a pipeline facility.")

⁴ SDCL §49-41B-28

⁵ 49 U.S.C. §60104(a)

any preemption analysis." Id. The 8th Circuit looked at the express preemption language in the HLPSCA and found "Congress has expressly stated its intent to preempt the states [or local governments] from regulating in the area of safety in connection with interstate hazardous liquid pipelines." Id. at 358. "This Congressional grant of exclusive federal regulatory authority precludes state [or local government] decision-making in this area altogether and leaves no regulatory room for the state [or local government] to either establish its own safety standards or supplement the federal safety standards." Id. at 359.

Examples of areas preempted by federal law include the depth required for an underground pipe, the size and material of the pipe, pipe pressures, valves, pipe fittings and connectors, as well as multiple other areas specifically spelled out under the HLPSCA and the regulations in 49 C.F.R. §190, 195-199.⁶

1. *How the PHMSA's definition of Carbon Dioxide under the HLPSCA doesn't affect the exclusive regulatory authority regarding the construction and operation of interstate pipelines carrying liquid carbon dioxide.*

There are three different ways to transport carbon dioxide through a pipeline: (1) carbon dioxide compressed into a supercritical state; (2) liquid carbon dioxide; and (3) carbon dioxide gas. The majority, if not all, carbon dioxide collected and transported through carbon capture, utilization, and sequestration ("CCUS") is liquid carbon dioxide. As part of the 1988 Congressional amendment to the HLPSCA, the PHMSA defined Carbon dioxide as "a fluid consisting of more than 90 percent carbon dioxide molecules compressed to a supercritical state."⁷ The carbon dioxide that will likely be transported through the South Dakota pipelines will not be compressed to a supercritical state. This does create some confusion, as liquid carbon dioxide is not technically regulated under the HLPSCA.

However, the 8th Circuit in Kinley addressed the situations where a federal department exempts specific areas, such as the transportation of liquid carbon dioxide, from regulation. It stated in Kinley, "[a] federal decision to forgo regulation in a given area may imply an authoritative federal determination that the area is best left *unregulated*, and in that event would have as much pre-emptive force as a decision to regulate." 999 F.2d

⁶ Exhibit A - 49 C.F.R. §195

⁷ 49 C.F.R §195.2; Definitions

at 359. Given the 1988 Congressional amendment to regulate all carbon dioxide under the HLPESA and, ultimately, PHMSA's decision to limit the definition of carbon dioxide, it is possible that a court would find the PHMSA simply exempted pipelines transporting liquid carbon dioxide. Unfortunately, under the authority in Kinley, this does not give a state or local government the ability to fill the gaps left by a federal regulatory scheme. "The decision of the Department of Transportation to exempt certain pipelines from federal regulation does not necessarily mean that the state [or a local government] can step in and impose its own regulations." Id. Any attempts to do so could be deemed invalid.

B. SITING AUTHORITY RESERVED FOR COUNTIES UNLESS UNREASONABLY RESTRICTIVE

Under the HLPESA, the Secretary of Transportation is not authorized to prescribe the location or routing of a pipeline facility.⁸ However, the federal regulations do prohibit pipelines from being located within 50 feet of any private dwelling, or any industrial building or place of public assembly in which persons work, congregate, or assemble, unless it is provided with at least 12 inches of cover in addition to that prescribed in 49 C.F.R. §195.248.⁹ While this appears inherently contradictory, it is believed the HLPESA leaves siting authority to those who hold that power within a state. Based on the current guidance available, this includes the authority to create reasonable setbacks for an underground pipeline and surface land use structures.

Currently, the counties within South Dakota have siting authority pertaining to pipelines. No transmission facility, as defined by SDCL §49-41B-2.1, shall be designated which violates local land-use zoning, or building rules, or regulations, or ordinances.¹⁰

However, if a permit is granted for the construction of a transmission facility within a certain designated area, the PUC may supersede or preempt any county or municipal land use, zoning, or building rules, regulations, or ordinances upon a finding by the PUC that such rules, or regulation, or

⁸ 49 U.S.C. § 60104(e) (2006) ("Location and Routing of Facilities. - This chapter does not authorize the Secretary of Transportation to prescribe the location or routing of a pipeline facility.")

⁹ 49 CFR §195.210

¹⁰ SDCL §49-41B-28

ordinances, as applied to the proposed route, are unreasonably restrictive. The PUC takes into consideration existing technology, factors of cost, economics, needs of parties, or any additional information to aid the commission in determining whether a permit may supersede or preempt a local control.¹¹

Some counties have passed moratoriums, otherwise known as emergency temporary ordinances, on the construction of any new hazardous liquid transmission pipelines within their county.¹² It should be noted that emergency temporary ordinances are limited to one year from the date the ordinance or resolution is ratified. An emergency temporary ordinance may also be renewed for one year. However, in no case may such a measure be in effect for more than two years.¹³ Counties should proceed with caution in passing moratoriums to simply delay the process. Counties are required to conduct or in good faith intend to conduct studies within a reasonable time for the purpose of considering a comprehensive plan.¹⁴

Ultimately, given the PUC's authority to supersede and preempt unreasonably restrictive ordinances, if a county fails to conduct the necessary studies within a reasonable time it is likely the PUC will find a complete moratorium to be unreasonably restrictive. Lastly, if zoning laws or ordinances include any restrictions that conflict with the minimum safety standards regarding the construction or operation of the pipeline under the HLPSCA and its regulations, they will likely be deemed invalid.¹⁵

C. OTHER AREAS A LOCAL GOVERNMENT MAY BE ABLE TO REGULATE

While there is very little guidance regarding what local governments can regulate with interstate carbon dioxide pipelines, it is believed local governments have the authority to enter into reasonable road maintenance agreements, control noise and odor levels, regulate areas where towns and counties plan for legitimate future development, and minimize aesthetic, nuisance, and visual impacts of surface land uses. This can be done through the conditional use permitting process.

¹¹ SDCL §49-41B-28; SDAR 20:10:22:19

¹² Exhibit B - McPherson County, South Dakota; Moody County, South Dakota

¹³ SDCL §11-2-10

¹⁴ SDCL §11-2-10

¹⁵ Kinley, 999 F.2d 354 (8th Cir. 1993)

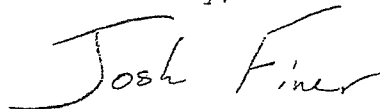
For example, state and local governments can require landscaping to screen and buffer surface land areas and facilities, limit the visual impact of surface land use areas and facilities, require companies to demonstrate a legitimate need for a surface land use facility, require the removal of surface land uses that are no longer in operation, and require reasonable setbacks for surface land use facilities. However, the PUC still has the ultimate authority to supersede and preempt anything that it deems unreasonably restrictive.

CONCLUSION

It is believed that counties can create reasonable zoning laws to determine where a hazardous liquid pipeline can be routed as well as regulate surface land uses associated with the pipeline. However, if the zoning laws are unreasonably restrictive, the PUC has the authority override them. Counties do not have the authority to create or enforce any measures that conflict, interfere with, or attempt to change the minimum safety standards set forth in the HLPSC and its regulations. Safety of the pipeline is expressly preempted and federal law controls this area under the Supremacy Clause of the United States Constitution.

Best regards.

Sincerely,

A handwritten signature in cursive script that reads "Josh Finan". The signature is written in dark ink and is positioned above the printed name.

Joshua K. Finan

Linda Goetz

From: Clayton Rentschler <claytonrentschler1962@gmail.com>
Sent: Monday, July 25, 2022 3:08 PM
To: Linda Goetz
Subject: Fwd: SD Landowners - County Zoning
Attachments: SDPPA Letter on County regulations.pdf; CO2 SD Setback Memo - State and Federal Law.pdf

Sent from my iPhone

Begin forwarded message:

From: Brian Jorde <BJorde@dominalaw.com>
Date: July 25, 2022 at 11:14:27 AM CDT
To: Brian Jorde <BJorde@dominalaw.com>
Cc: Jordan Custer <JCuster@dominalaw.com>
Subject: SD Landowners - County Zoning

Folks:

1. FYI - Attached is the legal memo prepared for the "South Dakota Public Assurance Alliance" that apparently some Counties (State's Attorneys) have been relying upon to NOT take action on developing reasonable zoning setbacks for CO2 pipelines or enacting a Moratorium.
2. The key aspects of this memo is that we are correct – a County CAN enact "reasonable" setbacks and integrate those into its Zoning regulations. That should be the take away and this should empower all Counties who are not taking action to do so.
3. The start of the memo related to Federal Preemption is correct but they leave out an important fact – Federal preemption as to "safety standards" of hazardous liquid pipelines has NOTHING TO DO WITH COUNTY ZONING OR SETBACKS.
 - a. "Safety standards" relates to construction and material standards – which makes sense for INTERSTATE pipelines as you would want some cohesion for a pipeline that will go through multiple states for consistency of construction and material standards.
4. The pipeline companies ALWAYS go to the "safety standard" preemption argument to chill any proactive County/State action and they seek to cast a wide net as if "safety standard" eliminates any type of action that may, tangentially, have to do with safety.
5. I attached also our summary of the law.
6. Best practice is to AVOID the word "safety" when speaking at the County level as to Zoning – think more in terms of intelligent land use and planning and the

orderly development of land and uses consistent with existing uses of land etc. These is the primary purpose of Zoning regulations.

7. Even if a goal of zoning is safety, however, that is not preempted by Federal Law. A County can enact reasonable setbacks designed to further "safety" concerns without having anything to do with "safety standards" of how a hazardous pipeline is put together or constructed.
8. Zoning has to do with WHERE something can/can't be placed or HOW land can/can't be used and there are NO "safety standards" Federal preemption in this area.

Respectfully,

Brian E. Jorde

Lawyer

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MEMORANDUM

TO: South Dakota Concerned Persons
FROM: Brian Jorde (credit to Paul Blackburn, Esq.)
DATE: July 18, 2022
RE: **County Zoning Ordinances and Setbacks**

Key questions summarized:

- Can a South Dakota County enact reasonable zoning regulations and setbacks related to CO2 hazardous pipelines? YES.
- Does the South Dakota PUC make any decisions as to proposed CO2 hazardous pipeline route or location? NO.
- Does the State of South Dakota or Federal law prohibit South Dakota counties from enacting zoning regulations related to CO2 hazardous pipeline setbacks? NO.
- Is anyone who is telling/advising you that “Federal law” prohibits South Dakota Counties from taking reasonable actions via enactment of zoning ordinance setbacks for CO2 hazardous pipelines either misinformed or lying to you? YES.

Detailed Explanation:

The federal Natural Gas Act (NGA) does preempt county setbacks for interstate natural gas pipelines, but this act does not apply to oil and CO2 pipelines. No federal law authorizes the federal government to generally determine the route or location of an oil or CO2 pipeline. More specifically, the federal Pipeline Safety Act does not prohibit county setbacks for or county routing of oil and CO2 pipelines.

The Pipeline Safety Act actually prohibits the Pipeline and Hazardous Materials Safety Administration (PHMSA), a part of the U.S. Department of Transportation, from issuing or enforcing setbacks or otherwise determining the location or route of a pipeline for safety or any other reason. Section 60104(e) of the Pipeline Safety Act expressly states in full:

“(e) Location and routing of facilities. –This chapter does not authorize the Secretary of Transportation to prescribe the location or routing of a pipeline facility.”

Since setbacks relate to the location of a pipeline, federal law prohibits PHMSA from requiring or prohibiting setbacks or otherwise dictating the location or route of a pipeline.

This means that PHMSA cannot examine route alternatives and pick the safest or order a pipeline developer to stay away from sensitive locations, such as schools, nursing homes, or hospitals. In South Dakota this important role is filled by each County who can take such action via county zoning ordinances.

The mistaken belief that the federal government regulates setbacks appears to be based on a misinterpretation of Section 195.210 of the federal pipeline safety regulations (49 CFR § 195.210). This regulation contains two short provisions, subsections (a) and (b), both of which appear to regulate the location or route of a pipeline.

Subsection (a) states in full:

“(a) Pipeline right-of-way must be selected to avoid, as far as practicable, areas containing private dwellings, industrial buildings, and places of public assembly.”

If the Department of Transportation can't regulate location or route, how could it have issued this regulation? The answer lies deep in the history and timing of the many amendments to the Pipeline Safety Act and the regulations issued under it.

The federal government first issued subpart (a) with this exact language in 1981. 46 CFR 38357, 38366 (July 27, 1981). In contrast, the statutory language in 49 USC §60104(e) prohibiting the Department of Transportation from determining the route or location of a pipeline was enacted by Congress on July 5, 1994, in Public Law 103-272, 1994, 108 Stat. 745, thirteen years later. This later act of Congress prohibits the Department of Transportation from enforcing subsection (a), making it at best advisory and more likely void of legal effect. Subsection (a) is a historical anomaly that violates the will of Congress. It's still on the books because the Department of Transportation has been too lazy to remove it. Passively keeping subsection (a) in the Code of Federal Regulations also serves the interest of the pipeline industry, because it adds confusion to this complex area of law.

Now for a basic rule of law. The language of a statute (such as the Pipeline Safety Act) always takes precedence over the language of a regulation (such as Section 195.210 of the Code of Federal Regulations). Regulations must be interpreted by agencies and the courts in accordance with the meaning of a statute. The Pipeline Safety Act clearly states that PHMSA may not determine the “location or routing” of a pipeline. Therefore, PHMSA may not issue or enforce a regulation that allows it to determine pipeline location or route, nor may it interpret an old regulation to give it authority that was taken from it by Congress. If Congress changes the law, the agency that implements the law must abide by the new law.

Turning now to subsection (b) of 49 CFR § 195.210, it states that if a pipeline is constructed within 50 feet of a structure, it must be buried beneath an additional 12 inches of cover. Here's the full and exact language of this regulation:

“(b) No pipeline may be located within 50 feet (15 meters) of any private dwelling, or any industrial building or place of public assembly in which persons work, congregate, or assemble, unless it is provided with at least 12 inches (305 millimeters) of cover in addition to that prescribed in § 195.248.”

This regulation does not prohibit construction within 50 feet of a structure, which is what a setback would do. Pipeline developers could build a pipeline within 50 feet of a structure, or not because this regulation is actually a depth of cover requirement. It says that if a pipeline is routed closer to a structure than 50 feet, then the builder must dump another 12 inches of dirt on top of it. That's not a setback. Again, setbacks are for the counties to reasonably determine.

PHMSA can't issue a setback or interpret a regulation to be a setback. So, if PHMSA has no authority to determine a pipeline's route or to issue setbacks, then who does? The first part of the answer is, it depends on the type of pipeline. As previously stated, the routes for interstate natural gas pipelines are determined by the Federal Energy Regulatory Commission (FERC) under the Natural Gas Act. This special federal routing authority is strictly limited to natural gas pipelines. The Natural Gas Act does not regulate petroleum or CO2 pipelines.

No federal law exists that regulates the routes of oil and CO2 pipelines on private or state-owned land. Some federal laws, such as Section 404 of the Clean Water Act, the Rivers and Harbors Act, and laws regulating construction on land actually owned by the federal government (for example, national parks and forests), control the route of a pipeline at particular locations. However, these laws do not grant any federal agency the authority to generally determine the route of an oil or CO2 pipeline on private, state, tribal, or local government lands. Also, the President may determine the location of a pipeline's crossing of an international border under Constitutional powers to regulate international affairs, for example the Keystone XL border crossing. However, the President cannot dictate oil or CO2 pipeline route within the United States. The President's authority is limited to determining the location of pipeline border crossings with Canada or Mexico.

In the absence of federal authority to determine the route of oil or CO2 pipelines, under the U.S. Constitution this authority remains with the states. Accordingly, many states regulate oil and/or CO2 pipeline route, including but not limited to Iowa, Nebraska, North Dakota, Minnesota, and Illinois (see descriptions and links, below). No reasonable argument exists that state routing of oil and CO2 pipelines is preempted by federal law.

Other states, such as South Dakota and Kansas, have voluntarily chosen not to regulate pipeline location or route.

If a state law does not prohibit a county from regulating the route of a pipeline, the county may determine its location just like it can any other land use, including via setbacks or determining the route of the pipeline through the county.

If neither a state nor a county take any action to regulate route, i.e. through reasonable county level setbacks, and the state has given pipeline companies the power of eminent domain, then a pipeline developer can by itself choose the route, and landowners have no say in this decision. This is why CO2 pipelines are intimidating and hounding county commissioners and others in similar positions because they don't want you to exercise the rights you have to protect yourselves and your land via instituting setbacks through a zoning ordinance.

The issue of whether or not state law allows a county to issue a setback for oil and CO2 pipelines varies by state, and for some states determining the scope of county authority requires an analysis that can't be squeezed into a single blog post. As a start:

South Dakota state law does not regulate route and instead leaves such regulation to counties, but South Dakota law does have a construction permit process under which the Public Utilities Commission may supersede "unreasonably restrictive" county ordinances. SDCL § 49-41B-28. Thus, so long as your county does not "unreasonably" restrict location of a CO2 pipeline via its county zoning ordinance, then it is likely to survive any legal challenge brought by the CO2 pipeline company.

Ultimately, county officials should consult with their county attorneys about the scope of county authority over CO2 pipeline setbacks and route. This blog post will give them a head start. They should request a formal written memorandum rather than a shoot-from-the-hip opinion, because pipeline law is obscure and complex, so sometimes even lawyers are misinformed.

Applicant shall provide to the Moody County Office of Emergency Management:

- The exact content and all known dangers of the Hazardous liquids, the flammable, toxic or corrosive gas or substance being transported in the Pipeline;
- A copy of Applicant's emergency response and hazard mitigation plan as may be required pursuant to regulations adopted by PHMSA emergency preparedness, emergency response, and hazard mitigation;

Applicant shall include a proposed county and municipal emergency response plan for a potential full-bore rupture of the Pipeline. The applicant shall coordinate development of this proposed plan with county and municipal emergency response agencies. This proposed county emergency response plan shall at a minimum include:

- A list of local emergency response agencies that the Applicant must notify immediately in the event of a rupture;
- The names, phone numbers, and contact information of the Applicant's emergency response personnel and personnel authorized by the Applicant to receive service and respond to all notices, demands, complaints, concerns or other requests;
- A telephonic and electronic emergency alert system for individuals who live and operate businesses within one mile that provides alerts to evacuate in the event of a rupture;
- Cost-free distribution and replacement of CO2 detectors with alarms to occupied structures within one mile;
- An evacuation plan for each occupied structure within one mile that avoids travel toward the pipeline;
- A plan for county and municipal first responders to assist with evacuations;
- A list of roadways that pass within one mile of the pipeline, and a plan to barricade impacted roadways to prevent vehicles and pedestrians from entering the danger zone;
- A list of recommended emergency response equipment and training needed by county and municipal emergency response personnel and a commitment to provide such equipment and training to county and municipal agencies;
- Other information that may be reasonably requested by the Moody County Office of Emergency Management; and
- Applicant shall notify the Moody County Office of Emergency Management within ten (10) days if any of the information required under this Section changes.

Abandonment or bankruptcy: A commitment to provide a bond or equivalent enforceable financial assurance instrument sufficient to guarantee removal and mitigation of the Pipeline upon abandonment or bankruptcy. The County shall approve the amount and terms of such financial assurance instrument as necessary to protect the public interest.

Level of cultivation: Pipeline depth of cover shall be two feet below the depth of plowing, decompaction, drainage tiles, or other physical modification of the subsurface soils undertaken in the normal course of agriculture, but in no event less than 4-1/2 feet, unless otherwise agreed to by mutual agreement between a landowner whose land is subject to an easement for a hazardous liquid or carbon dioxide pipeline and the company that proposes to construct a pipeline on landowner's land.

DOT	US Department of Transportation
PHMSA	Pipeline and Hazardous Materials Safety Administration
OPS	Office of Pipeline Safety – Accident Investigation Division

Principal Investigator	Wesley Mathews
Acting Accident Investigation Director	Chris Ruhl
Date of Report	May 26, 2022
Subject	Failure Investigation Report - Denbury Gulf Coast Pipelines, LLC – Pipeline Rupture/ Natural Force Damage

Operator, Location, & Consequences

Date of Failure	February 22, 2020
Commodity Released	Carbon Dioxide
City, County and State	Satartia, Yazoo County, MS
OpID and Operator Name	32545, Denbury Gulf Coast Pipelines, LLC
Unit # and Unit Name	75379 – MS-2
WMS Activity ID	20-176125
Milepost (MP) / Location	MP 6.6 / Pipeline Stationing 348+63
Type of Failure	Natural Force Damage
Fatalities	None
Injuries	None
Description of Area Impacted	Rural, “Could Affect” High Consequence Area (HCA) - Other Populated Area
Total Costs	\$ 3,947,009

Failure Investigation Report – Denbury Gulf Coast Pipelines LLC
Pipeline Rupture/Natural Force Damage
February 22, 2020

Key Points

- On February 22, 2020, a carbon dioxide (CO₂) pipeline operated by Denbury Gulf Coast Pipelines LLC (Denbury) ruptured in proximity to the community of Satartia, Mississippi. The rupture followed heavy rains that resulted in a landslide, creating excessive axial strain on a pipeline weld.
- Carbon dioxide is considered minimally toxic by inhalation and is classified as an asphyxiant, displacing the oxygen in air. Symptoms of CO₂ exposure may include headache and drowsiness. Individuals exposed to higher concentrations may experience rapid breathing, confusion, increased cardiac output, elevated blood pressure, and increased arrhythmias. Extreme CO₂ concentrations can lead to death by asphyxiation.
- When CO₂ in a super-critical phase (which is common for CO₂ pipelines) releases into open air, it naturally vaporizes into a heavier than air gas and dissipates. During the February 22 event, atmospheric conditions and unique topographical features of the accident site significantly delayed dissipation of the heavier-than-air vapor cloud. Pipeline operators are required to establish atmospheric models to prepare for emergencies—Denbury’s model did not contemplate a release that could affect the Village of Satartia.
- Local emergency responders were not informed by Denbury of the rupture and the nature of the unique safety risks of the CO₂ pipeline. As a result, responders had to guess the nature of the risk, in part making assumptions based on reports of a “green gas” and “rotten egg smell” and had to contemplate appropriate mitigative actions. Fortunately, responders decided to quickly isolate the affected area by shutting down local highways and evacuating people in proximity to the release. Denbury reported on its PHMSA F 7000.1 accident report that 200 residents surrounding the rupture location were evacuated, and forty-five people were taken to the hospital. Denbury also reported that to the company’s knowledge, one individual was admitted to the hospital for reasons unrelated to the pipeline failure. No fatalities were reported.
- This event demonstrated the need for:
 - Pipeline company awareness and mitigation efforts directed at addressing integrity threats due to changing climate, geohazards, and soil stability issues.
 - Improved public engagement efforts to ensure public and emergency responder awareness of nearby CO₂ pipeline and pipeline facilities and what to do if a CO₂ release occurs. This is especially important for communities in low-lying areas, with certain topographical features such as rivers and valleys.

Failure Investigation Report – Denbury Gulf Coast Pipelines LLC
Pipeline Rupture/Natural Force Damage
February 22, 2020

Executive Summary

On February 22, 2020, at 7:06 p.m. Central Standard Time (CST¹), Denbury's 24-inch Delhi (Delhi) Pipeline ruptured, releasing liquid CO₂ that immediately began to vaporize at atmospheric conditions. The site of the rupture was on the northeast side of Highway 433 (HWY 433), approximately one mile southeast of Satartia, Mississippi. Denbury subsequently reported the rupture released an estimated total of 31,405² barrels of CO₂. Following the accident, investigators from the Pipeline and Hazardous Material Safety Administration's (PHMSA's) Accident Investigation Division (AID) and Southwest Regional Office, conducted an investigation, including an onsite investigation.

Liquid CO₂ vaporizes when released to the atmosphere. Carbon dioxide vapor is 1.53 times heavier than air, and displaces oxygen, so it can act as an asphyxiant to humans and animals. The National Institute for Occupational Safety and Health has established that concentrations of 40,000 parts per million (ppm) are immediately dangerous to life and health. The Occupational Safety and Health Administration has established 5000 ppm as a permissible exposure limit, which is an 8-hour time-weighted average. The weather conditions and unique topography of the accident site prevented the CO₂ vapor from rapidly dispersing and allowing a plume to form that migrated toward Satartia. Upon learning of the pipeline rupture, Yazoo County Office of Emergency Management (Yazoo County OEM) shut down HWY 433 to all traffic and evacuated the area. Local authorities evacuated approximately 200 people near the rupture, including the entire town of Satartia (around 50 residents), and three homes across the Yazoo River. According to Denbury's PHMSA F 7000.1 accident report, forty-five people sought medical attention at local hospitals, including individuals who were caught in the vapor cloud while driving a vehicle. One individual was admitted to the hospital for reasons unrelated to the pipeline failure. There were no fatalities.

The pipeline failed on a steep embankment adjacent to HWY 433, which had recently subsided. Heavy rains are believed to have led to a landslide, which created axial strain on the pipeline and resulted in a full circumferential girth weld failure. After the accident, Denbury, under PHMSA's oversight, cut out the failed sections of pipe and sent them to Det Norske Veritas' (DNV) Columbus, Ohio laboratory for metallurgical analysis. DNV confirmed the initial onsite observations of a girth weld failure.

PHMSA's investigation also revealed several contributing factors to the accident, including but not limited to, Denbury not addressing the risks of geohazards in its plans and procedures, underestimating the potential affected areas that could be impacted by a release in its CO₂ dispersion model, and not notifying local responders to advise them of a potential failure.

System Details

Denbury's Delhi Pipeline, on which the failure occurred, consists of 77 miles of 24-inch diameter pipeline, the majority of which is located within Mississippi. The entire Delhi Pipeline system flows east to west, beginning at the Jackson Dome in Mississippi and terminating in Delhi, Louisiana. Denbury primarily uses the CO₂ for enhanced oil recovery (EOR) for Denbury Resources Inc. onshore oil wells. The pipeline is controlled from the Denbury control room located in Plano, Texas.

¹ All times are reported in CST unless otherwise noted.

² Denbury reported a total release volume of 31,405 barrels in Form PHMSA F-7000.1, Accident Report – Hazardous Liquid Pipeline Systems, dated November 25, 2020. The actual release volume likely exceeded this amount due to a valve operation error, however, Denbury has not confirmed and reported any new release volume to PHMSA.

1 mile = 1.6 Kilometer

Failure Investigation Report – Denbury Gulf Coast Pipelines LLC
Pipeline Rupture/Natural Force Damage
February 22, 2020

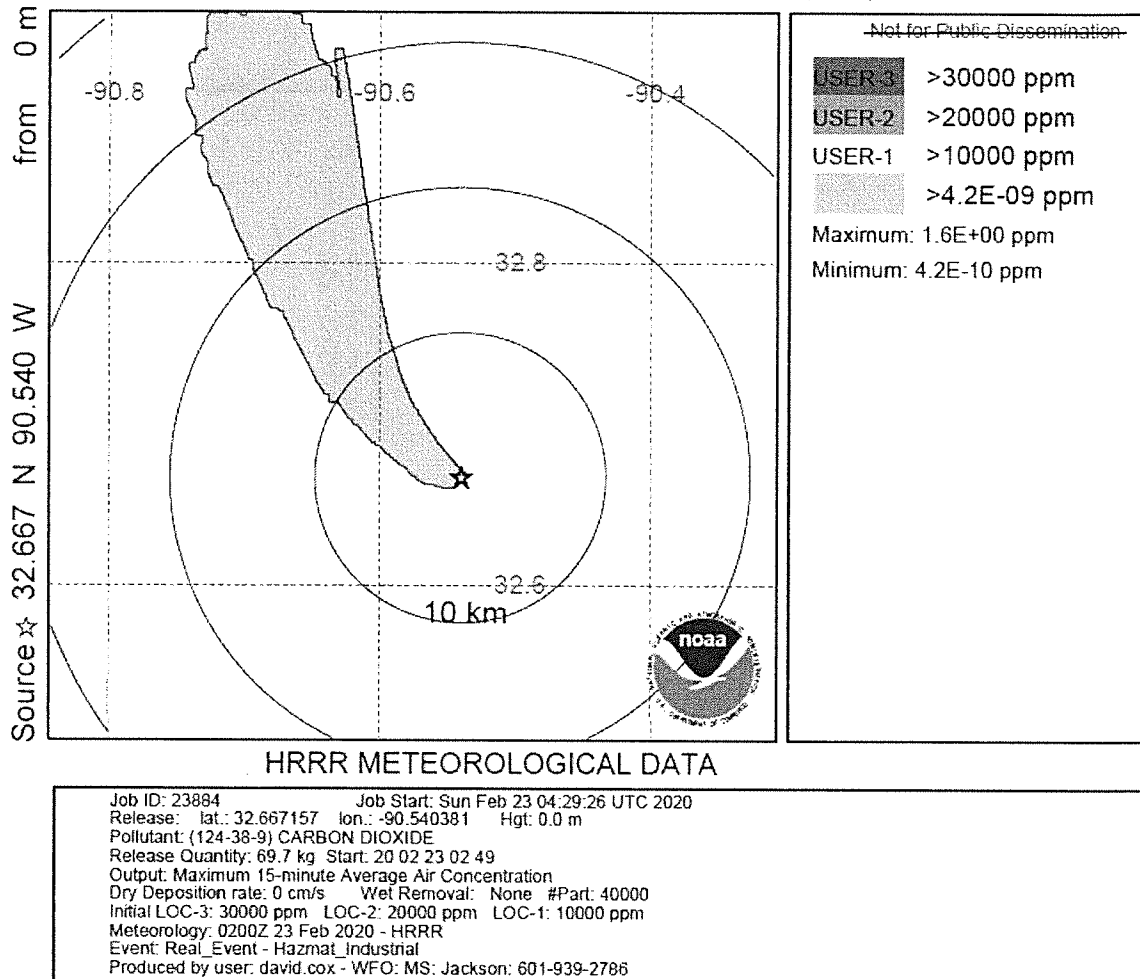


Figure 5: This Chart Shows the Plume Model Data Generated by the National Weather Service/NOAA - The Model Indicates the Direction a Plume or Cloud of CO₂ Would Have Followed from Ground Level While Dissipating, According to Atmospheric Data at the Time of the Release - Each Ring is 10 Kilometers (Satartia is Less Than Two Kilometers Northwest of Release Site, Indicated by the Star)⁸

Prior to the accident in 2011, Denbury had contracted a third-party company to generate an affected radius model for a potential CO₂ release. Denbury used the model to generate a zone along the pipeline ROW to identify pipeline segments which were within or “could affect” an HCA and to develop its Public Awareness Program (PAP).⁹ The model established a zone for the Delhi Pipeline (Figure 6) that left Satartia outside of the affected radius, and therefore the pipeline segment was not identified by Denbury as a “could affect” HCA. Additionally, Satartia was not included in Denbury’s PAP or considered in any local

⁸ The NWS approved inclusion of the chart within this report and clarified that “Not for Public Dissemination” (in the upper right-hand corner) pertains to real-time emergency response utilization, due to inherent uncertainties with several variables.

⁹ Required by 49 CFR § 195.440.

Failure Investigation Report – Denbury Gulf Coast Pipelines LLC
Pipeline Rupture/Natural Force Damage
February 22, 2020

emergency response plans. The rupture location was one mile from the center of Satartia, where the entire town was evacuated.

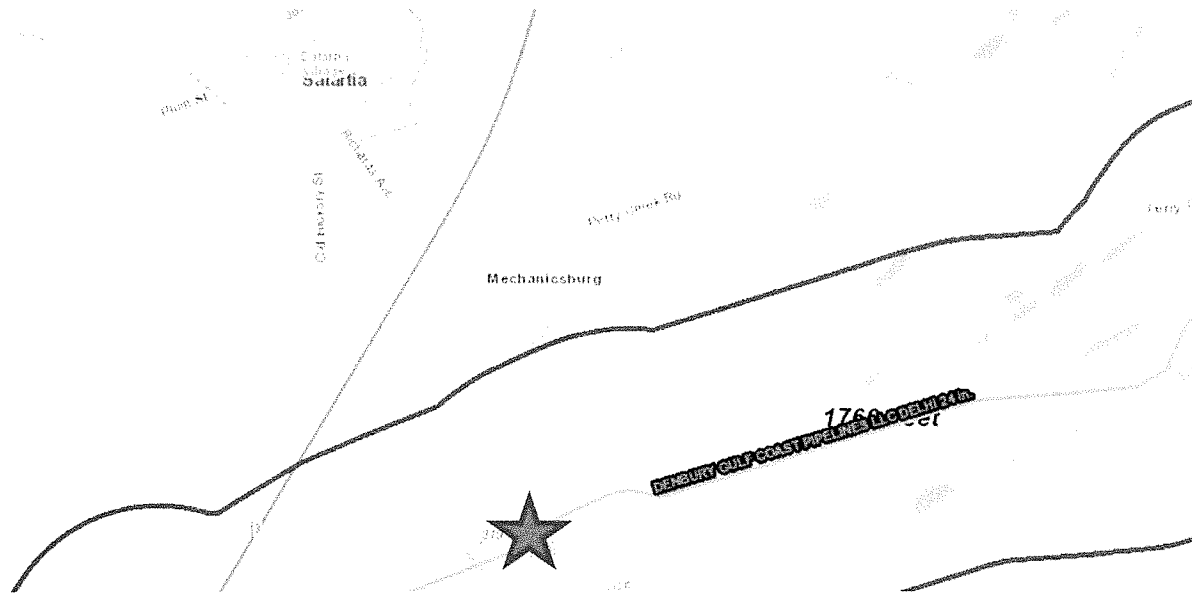


Figure 6: Topographical Map Showing the Delhi Pipeline (Green) and Denbury's Buffer Zone (Red) on Either Side of the Pipeline and the Proximity to Satartia (Blue Star Indicates the Rupture Site)

Soil and Geohazards

The soil at the failure location is identified as a loess soil typical to the area and was relatively saturated due to the recent heavy rainfall. Dry patches of the soil observed later were powdery, confirming the loess to be silty and clayey, indicating the soil would be prone to absorb water as well as collapse or slump under the right conditions.¹⁰ Vertical erosion of the steeply sloped hillside, made heavier by water saturation, produced enough axial loading on the pipeline to cause the girth weld to fail.

On February 23, 2020, representatives from the Mississippi Department of Transportation assessed the condition of the crater's edge along HWY 433. They determined the highway was at risk of further land movement due to current and future soil saturation from rainfall, the weight of the trees at the edge of the crater, and the HWY 433 ROW was impinged upon by the rupture. Crews were dispatched to cut down the trees and mitigate the risk of additional land movement. Soil instability along roads is not unusual in the region. The PHMSA AID investigator observed road damage from unstable soil slumping away from a road along roadways leading to the accident site. Denbury representatives mentioned that, along the Delhi pipeline, they experience two to three issues per year involving land movement. Denbury's Integrity Management Program (IMP)¹¹ identified "geo-technical hazards" (geohazards) as a potential risk to its pipelines but lacked additional details concerning threat assessment or preventative/mitigative measures for its operational pipelines such as: using in-line inspection tools with inertial measurement unit sensors, conducting bending strain analysis, or conducting geohazard assessments. Denbury's operations and

¹⁰ Loess soil has a relatively high porosity (typically around 50-55%) and often contains vertical capillaries that allow the sediment to fracture and form vertical bluffs. The loess bluffs tend to erode vertically.

¹¹ Required by 49 CFR § 195.452.