Appendix O

Comments on Draft EIS and Responses

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This appendix contains the written and verbal comments received on the draft Environmental Impact Statement (EIS) for the Otter Tail to Wilkin Carbon Dioxide Pipeline Project (project), and responses to these comments by Department of Commerce, Energy Environmental Review and Analysis (EERA) staff. The draft EIS was issued January 23, 2024. Comments on the draft were solicited through public meetings and a public comment period. The public comment period ended on February 23, 2024. Approximately 176 written comments were received during this time from individuals, companies, agencies, Tribes, and organizations.

During this same public comment period, the Minnesota Public Utilities Commission (Commission) received testimony regarding the project from parties to the hearing. Where this testimony includes comments on the draft EIS, these comments are included in this appendix and responses are provided (see comment-response table in **Attachment 1**).

Written Comments

Written public comments are compiled and presented in the attached comment-response table (**Attachment 1**). The comment-response table also includes EERA staff's responses. Some of the responses include modifications to the EIS, as indicated in the responses. All modifications to the text of the EIS are denoted by a vertical line in the margin next to the text that has been modified.

The comment-response table in **Attachment 1** presents comments from agencies, Tribes, and organizations first, followed by individuals in alphabetical order. The comment-response table also includes the date that the comment was received and the eDocket identification number.

After receiving Minnesota Department of Natural Resources (DNR) comments on the draft EIS, EERA staff obtained Conservation Planning Reports for the RA-North and RA-Hybrid route alternatives. These Conservation Planning Reports are included in **Attachment 2**.

Attachment 3 includes the response from EERA staff (dated February 28, 2024) to an information request from CURE. This response was not filed to the project eDocket and is included here to help clarify comment responses.

Verbal Comments

During the Draft EIS comment period, the public was invited to provide verbal comments at the following in-person and virtual public meetings:

- February 6, 2024, 6:00 p.m., Breckenridge, Minnesota
- February 7, 2024, 1:00 p.m., Fergus Falls, Minnesota
- February 7, 2024, 6:00 p.m., Fergus Falls, Minnesota
- February 8, 2024, 6:00 p.m., virtual

Transcripts of these public meetings are provided in **Attachment 4**. During the meetings, EERA staff and its consultants provided responses to most comments raised during the meetings. Thus, the responses to these comments are included in the transcripts. EERA staff identified five comments from the public meetings where an additional response is appropriate. These comments and responses are as follows:

- In response to a question about use of eminent domain, as indicated in Section 3.5, the applicant cannot exercise the power of eminent domain for the project.
- In response to comments about capture facility water usage calculations, Section 5.7.8.2 was revised to clarify the applicant's calculation of approximately 13 million gallons per year.
- A figure showing the three alternative routes has been added to the Executive Summary, as suggested by a commenter.
- In response to comments that figures attached to the applicant's Minnesota Environmental Construction Plan (ECP) in Appendix D refer to a pipeline diameter of 4 to 24 inches, the cover page for the ECP has been revised to clarify that the proposed Otter Tail to Wilkin CO_2 pipeline would be 4 inches. The figures in question are "typical" and are used to convey best management practices for a range of pipeline diameters.
- In response to comments about whether the volume of water needed for operation of the capture facility is sustainable, additional information has been added to Section 5.7.8.2 to address the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to including a contingency plan as part of its DNR appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a request from the DNR, when necessary.

Appendix O

Comments on the Draft EIS and Responses

Attachment 1
Comments on the Draft EIS and Responses

Agency or Org	Name	Date	Comment	Response	eDocket Document ID
American Carbon Alliance	Buis, Tom	2024-02-08	On behalf of the American Carbon Alliance (ACA), I am writing to express my unequivocal support for the Summit Carbon Pipeline project and to encourage the Minnesota Public Utilities Commission to approve its implementation. The Summit Carbon Pipeline represents a pioneering effort to address the challenges associated with carbon emissions, providing an effective and scalable solution for the capture and transport of CO_2 from various industrial sources to secure storage sites. The technological advancements, strategic partnerships, and effort to obtain voluntary easements, made by the Summit team underscore the project's commitment to cutting edge practices and its potential to make a substantial positive impact on Minnesota's carbon footprint.	Thank you for your comment.	20243-204403-01
American Carbon Alliance	Buis, Tom	2024-02-08	The ACA believes this transformative pipeline project represents a significant milestone in our nation's agricultural landscape. This project isn't merely about environmental sustainability but bolstering the agricultural economy, preserving generational farming, and ensuring a stable foundation for ethanol production. Connecting ethanol plants to a CO_2 pipeline to enable the creation of sustainable aviation fuel further underscores the ingenuity and forward-thinking approach that benefits both our farmers and the broader energy industry. The successful implementation of this project will not only lower carbon intensity scores but foster an environment where American-produced liquid fuel remains competitive in a rapidly evolving global marketplace. It will create new opportunities for job growth within our communities, drive up land values for farmers, and increase the price of corn. I urge the Commission to consider the long-term benefits of the Summit Carbon Pipeline and to prioritize the advancement of projects that contribute to both environmental stewardship and economic growth. By supporting initiatives like this, we can position Minnesota as a leader in responsible energy practices and contribute to the ongoing global efforts to combat climate change. Thank you for your time and consideration. I trust that the Commission will make a well-informed decision that reflects the best interests of our state and its residents.	Thank you for your comment.	20243-204403-01
American Carbon Alliance	Peterson, Collin	2024-02-08	I am writing to express my wholehearted support for the Summit Carbon Pipeline project, which is slated to have a positive impact on Minnesota's energy landscape and contribute significantly to the state's efforts in carbon capture and storage. Embracing innovative solutions such as this pipeline is crucial for addressing the challenges posed by climate change and provides Minnesota farmers and producers with new markets. The Summit Carbon Pipeline aligns with Minnesota's commitment to reducing greenhouse gas emissions. The project's focus on carbon capture and sequestration not only demonstrates a forward thinking approach to environmental sustainability but also emphasizes the importance of collaboration between the public and private sectors.	Thank you for your comment.	20243-204403-01
American Carbon Alliance	Peterson, Collin	2024-02-08	The Summit Carbon Pipeline is not only an investment in cleaner energy but also a step towards supporting economic growth and job creation throughout the Midwest. This would mean the creation of jobs and revenue for local communities, and a generational opportunity for family farms and rural economies. Connecting ethanol plants to a CO_2 pipeline to enable the creation of sustainable aviation fuel further underscores the ingenuity and forward-thinking approach that benefits both our farmers and the broader energy industry. I urge the Minnesota Public Utilities Commission to carefully consider the facts presented by Summit Carbon Solutions and to support the Summit Carbon Pipeline project. By endorsing initiatives like this, we can position Minnesota as a leader in sustainable energy practices, setting an example for other states and contributing to the global fight against climate change. Thank you for your attention to this matter, and I trust that you will make a decision that prioritizes the long-term environmental and economic well-being of our state.	Thank you for your comment.	20243-204403-01
City of Lamberton	Halter, Valerie	2024-02-21	Dear Members of the Minnesota Public Utilities Commission, I am writing to express the deep concerns of the City of Lamberton regarding Docket 22-422 and the proposed carbon pipeline projects that may affect our community. The City Council appreciates your time and consideration in addressing the following concerns, which pertain to the potential impacts on our Emergency Medical Services (EMS) personnel, water supply, and local recreational spaces.	Thank you for your comment.	20243-204403-01
City of Lamberton	Halter, Valerie	2024-02-21	1. EMS Personnel Concerns: The safety and preparedness of our EMS personnel are paramount. In the event of a pipeline failure, it is crucial that our volunteers are adequately trained and equipped with the necessary tools to handle such situations. The City of Lamberton, like many communities, faces challenges in staffing our emergency services, and we fear that the perceived hazard associated with potential pipeline failures may discourage individuals from joining our EMS or fire departments. Given the volunteer nature of our EMS, compensating them at a level commensurate with the associated risks is unfeasible. Additionally, the lack of training for our EMS personnel is a pressing concern, and we request that training initiatives commence before any construction begins.	Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to respond safely to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a carbon dioxide (CO_2) rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. The Emergency Response Plan included as Appendix N is a draft	20243-204403-01

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				plan would be revised as required by the Pipeline and Hazardous Materials Safety Administration (PHMSA) if the project is approved. Additionally, Energy Environmental Review and Analysis (EERA) staff recommended a special permit condition requiring the applicant to file its Emergency Response Plan that is filed with PHMSA with the Commission, and other special permit conditions as described in Section 8.5.3.	
City of Lamberton	Halter, Valerie	2024-02-21	2. Water Supply Concerns: Our city is currently dependent on a single well with limited backup well availability. During the summer months, we have had to restrict water usage for businesses within our community due to the inability to meet demand. We are apprehensive about the potential impact on our municipal water facilities if they are required to supply water to the pipeline. Moreover, concerns regarding the effects on surrounding aquifers, coupled with limited options for water access, necessitate careful consideration to safeguard the essential needs of our residents.	Thank you for your comment. Water resources are described in Section 5.7.8 of the Environmental Impact Statement (EIS). The commenter references an area in Redwood County. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-01
City of Lamberton	Halter, Valerie	2024-02-21	3. Recreational Space and Economic Impact: The presence of a pipeline poses a threat to our local parks, particularly the one located on the Cottonwood River. This park not only serves as a recreational space for residents but also attracts visitors from surrounding areas. The associated construction activities could disrupt the natural landscape, affecting the camping sites and revenue generated from them. This, in turn, may deter individuals from enjoying the park due to perceived risks associated with the pipeline. In conclusion, the City Council of the City of Lamberton urges the Minnesota Public Utilities Commission to thoroughly assess and address these concerns before proceeding with any decisions related to Docket 22-422. Our community's safety, water security, and recreational spaces are integral to our residents' well-being and the vitality of Lamberton as a whole. Thank you for your attention to this matter, and we look forward to a comprehensive evaluation of the potential impacts on our community. Sincerely, Valerie Halter City Clerk on Behalf of the City Council	Thank you for your comment. The commenter references an area in Redwood County. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-01
Consumer Energy Alliance	Ventura, Chris	2024-02-16	On behalf of Consumer Energy Alliance (CEA), I write today to thank the Minnesota Department of Commerce and the Minnesota Public Utilities Commission for receiving public comments on the draft environmental impact statement regarding the Otter Tail to Wilkin Carbon Dioxide Pipeline Project. Founded in 2006, CEA is a nonpartisan, nonprofit organization advocating for a balanced energy policy and responsible access to resources. CEA represents virtually every sector of the U.S. economy – from the iron and steel industry to truckers, airlines, agriculture, labor organizations, restaurants, chemical manufacturers, small businesses, and families across the nation – that are concerned about U.S. energy policies, energy security, and long-term price and supply stability. Since our founding, CEA and its members have strongly supported actions that thoughtfully advance our nation towards a cleaner, more environmentally responsible energy future. This includes emissions reductions that help meet our nation's climate goals. As put forth in the Department of Commerce's Draft EIS, the Otter Tail to Wilkin Carbon Dioxide Pipeline Project will contribute to helping both Minnesota and our nation meet these climate goals. As stated in the Draft EIS, "The project would have a net beneficial effect on climate change as it would capture and store CO_2 emissions," from ethanol being produced in state. This is because the proposed pipeline is designed to be a carbon management solution that would allow for the capture of up to 12 million tons of CO_2 each year – the equivalent of removing the emissions of 2.6 million vehicles from our roads.	Thank you for your comment.	20243-204403-01
Consumer Energy Alliance	Ventura, Chris	2024-02-16	Safely capturing, transporting, and storing the CO_2 emissions from Minnesota's ethanol plants will ensure that Minnesota's ethanol industry will be able to continue to supply fuel that will meet new regulations calling for minimized emissions as our country looks to aggregate cumulative impact. As a result, it will also ensure Minnesota's corn farmers will be able to market their harvests locally, as ethanol production in 2022 generated $8 billion of economic activity in Minnesota, which includes $1.9 billion of income for Minnesota residents. More than	Thank you for your comment.	20243-204403-01

Agency or Org	Name	Date	Comment	Response	eDocket Document ID
			meeting our environmental goals, the proposed project will allow families, farmers, and local businesses across the state to continue having access to affordable, reliable fuel and ensure the stability of the industry that provides it. The stable and predictable energy supplies supported by investments in projects like this will help people power their lives, make payroll, and support local communities. We appreciate the opportunity to offer these comments and urge the Minnesota Department of Commerce and the Minnesota Public Utilities Commission to consider not just the economic benefits projects like the Otter Tail to Wilkin Carbon Dioxide Pipeline Project will deliver but also the environmental benefits these projects will provide to Minnesota. Sincerely, Chris Ventura Executive Director Consumer Energy Alliance-Midwest		
CURE	Dolph, Christy	2024-02-13	Q. Please summarize your conclusions. A. The DEIS does not provide enough information to allow me to determine which route alternative is least damaging to water resources and soils in a comprehensive way. In particular, the DEIS does not provide sufficient geotechnical evidence to allow for an assessment of the comparative risks presented by the three route alternatives to 1) disruption of sensitive groundwater resources and 2) the likelihood of inadvertent spills of drilling fluid to the environment. According to the DEIS, this lack of evidence is because geotechnical investigations have not been completed for critical areas along the route alternatives. However, given the existing information that is available in the DEIS, RA-North would appear to have lesser potential impacts on soil and surface water resources compared to RA-South and RA-Hybrid. Overall, the available scientific evidence on the subject of impacts of pipeline installation on soil and water resources points to the likelihood of lasting impacts from pipeline construction. And, as pipeline infrastructure continues to grow, the impacts of single projects accumulate, and together with other stressors such as agricultural intensification and environmental contamination, likely create thresholds in environmental degradation and habitat loss that can't be easily reversed.	The applicant would complete a geotechnical evaluation of each horizontal directional drill (HDD) location along the pipeline prior to the start of construction. As described in Chapter 5, soils and geology along the three routes are generally similar. Because soils and geology are similar, geotechnical investigations, with the associated time and costs, would be unlikely to aid the Commission in its decision.	20242-203381-02
CURE	Dolph, Christy	2024-02-13	Q. What does the DEIS generally conclude about the potential environmental impacts of the proposed project? A. In general, the DEIS concludes that many of the potential environmental impacts will be "minimal," "temporary," or "negligible." Q. Do you agree with these conclusions? A. No. The science regarding the impacts of pipeline installation and operation on ecosystems has not remotely kept pace with large increases in pipeline infrastructure installed in the United States in recent decades. *(1)* Given the lack of data regarding impacts arising from pipeline installation, repeated characterization in the Executive Summary of the DEIS of potential environmental impacts from the proposed project as 'minimal', 'temporary', or 'negligible' cannot be based on much evidence. Moreover, the scientific evidence that does exist points to the likelihood of lasting environmental impacts to ecosystems and soil. *(1) Brehm, Theresa, and Steve Culman. 2023. "Soil degradation and crop yield declines persist 5 years after pipeline installations." Soil Science Society of America Journal 87 (2):350-364.*	Thank you for your comment. As indicated by the definitions found on Page 5-1 of the draft EIS, "long-term impacts extend beyond the end of construction and are generally associated with operation of the project." Disturbance to soils and crops from construction can result in impacts that extend beyond the construction phase, and the text in the final EIS has been revised to indicate that impacts can be long term.	20242-203381-02
CURE	Dolph, Christy	2024-02-13	Q. How would you describe the groundwater resources along the routes presented in the DEIS? A. In this region, unconsolidated permeable glacial deposits and recent alluvial deposits are the most important sources of groundwater. These deposits consist of glacial sand and/or gravel outwash, ice-contact deposits, or sand and gravel alluvium deposited along existing streams. There are both surficial and buried glacial aquifers in the project area. Glacial aquifers are classified as surficial when the water table is in the deposit. Glacial aquifers are classified as buried when they are separated from the ground surface or from overlying surficial glacial aquifers by some continuous barrier to vertical flow. The DEIS states that most lakes, rivers, and many wetlands near the project are hydrologically connected to the water table. In Otter Tail County, the depth to water table is on average less than 20 feet below ground surface. In Wilkin County, the depth to water table is on average less than 10 feet below ground surface.	Thank you for your comment.	20242-203381-02
CURE	Dolph, Christy	2024-02-13	Q. Are there specific construction methods that pose significant risks to groundwater resources? A. Yes. As the DEIS notes, the planned construction methods, such as using sheet piling to reinforce the pipeline trench, represent a substantial risk to sensitive groundwater resources that can have "significant long-term impacts." (Page 5-136). This is consistent with accepted scientific knowledge.	Thank you for your comment.	20242-203381-02

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CURE	Dolph, Christy	2024-02-13	Q. What specific type of aquifers are likely to be impacted by the planned construction methods? A. On p. 5-133 the DEIS notes that RA-South has been confirmed by the applicant to cross a sensitive artesian groundwater aquifer in an area with complex and highly variable groundwater. An artesian aquifer is a type of confined aquifer characterized by its natural ability to release water under pressure without the need for external pumping. This pressure arises from the geological confinement of the aquifer between relatively impermeable layers of sediment, causing water to rise above the aquifer's surface when a well is drilled into it. The DEIS further notes that is it is possible RA-North and RA-Hybrid cross this aquifer, though that has not been evaluated directly or confirmed.	Thank you for your comment.	20242-203381-02
CURE	Dolph, Christy	2024-02-13	Q. What are your concerns about the risk to confined artesian aquifers from construction of the project? A. As noted in the DEIS, planned construction methods (i.e., using sheet piling to reinforce the pipeline trench) represents a substantial risk to these types of aquifers that can have "significant long-term impacts." (Page 5-136). If sheet piling punctures the sediment cap of the aquifer it can create an aquifer "breach" where water flows uncontrollably out of the punctured location. Such a breach could drain or partially drain the aquifer, which could have long term or permanent effects on this groundwater resource. The uncontrolled flow of this water to the surface in new locations could also change the temperature and water chemistry of existing surface waters near the aquifer. If the aquifer is currently welling up to the surface naturally in some locations (i.e., existing artesian springs), then puncturing the aquifer in other locations could cause loss of water to the surface in these existing locations where it may currently support important freshwater ecosystems. Q. Have these kinds of impacts occurred in other pipeline projects? A. Yes. Most notably, the recently constructed Line 3/93 pipeline in Northern Minnesota has caused ongoing damage and groundwater impacts at multiple locations along the pipeline route via this mechanism—specifically, sheet piling puncturing into confined aquifers. This highlights the risk of pipeline construction methods, especially in areas with abundant shallow groundwater that is vulnerable to disturbance. Q. Can these aquifer breaches be corrected after they occur? A. In the case of Line 3/93 it has been the case that aquifer breaches are very difficult to plug or remedy after they have been caused. The attempts to repair damaged aquifers have resulted in additional environmental impacts, such as insertion of thousands of gallons of grout concrete into the subsurface environment in an effort to plug ruptured aquifer caps. The only real way to avoid damage from aquifer breaches is to avoid breaching in the first place.	Thank you for your comment.	20242-203381-02
CURE	Dolph, Christy	2024-02-13	Q. Does the DEIS recommend or identify any other mitigative measures? A. Yes, the DEIS mentions that geotechnical investigations will be conducted prior to construction to assess the proximity to aquifers. Q. Do you believe this method will adequately protect aquifers from construction damages? A. It could, but this approach seems backwards in regards to resource protection. Investigations conducted after route approval are not useful in determining the best route alternative for the project that would minimize groundwater impacts. Q. Do you have any recommendations regarding process? A. Yes. In order to best protect water resources, detailed geotechnical investigations should be conducted along all route alternatives prior to route approval, and routes that cross vulnerable aquifer areas should be avoided.	Minnesota Rule 4410.2300(H) indicates that an EIS shall include "a thorough but succinct discussion of potentially significant adverse or beneficial effects generated" by the proposed project and each major alternative with "[l]ess important material … summarized, consolidated, or simply referenced." Factors to be considered include "the impact and the relevance of the information to a reasoned choice among alternatives" and "the relationship between the cost of data and analyses and the relevance and importance of the information." The groundwater resources that could be affected by the project would be similar for all three route alternatives; therefore, potential impacts would be similar. The time and costs associated with performing an additional study on groundwater resources would not be expected to aid the Commission in its decision.	20242-203381-02
CURE	Dolph, Christy	2024-02-13	Q. Which alternative presents the lowest risk to groundwater resources? A. The No Action Alternative presents the lowest risk to groundwater resource. Otherwise, the DEIS does not contain the requisite information needed to evaluate the comparative risks posed by the remaining route alternatives to groundwater, although RA-South does present a confirmed risk to a vulnerable aquifer. The DEIS shows that RA-South presents a known and confirmed risk to a vulnerable aquifer system and that the other route alternatives have not been evaluated for their risk to similar aquifers. (Page 5-133). Without a fully informed comparison of groundwater conditions across the route, a comparable evaluation of risk to vulnerable water resources across all routes is not possible.	Minnesota Rule 4410.2300(H) indicates that an EIS shall include "a thorough but succinct discussion of potentially significant adverse or beneficial effects generated" by the proposed project and each major alternative with "[l]ess important material … summarized, consolidated, or simply referenced." Factors to be considered include "the impact and the relevance of the information to a reasoned choice among alternatives" and "the relationship between the cost of data and analyses and the relevance and importance of the information."	20242-203381-02

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				The groundwater resources that could be affected by the project would be similar for all three route alternatives; therefore, potential impacts would be similar. The time and costs associated with performing an additional study on groundwater resources would not be expected to aid the Commission in its decision.	
CURE	Dolph, Christy	2024-02-13	Q. Based on the available information do you think that RA-South would have the least impact to groundwater resources? A. No. Based on available information RA-South has a significant risk of groundwater impacts that could be difficult or impossible to avoid or remediate.	Thank you for your comment.	20242-203381-02
CURE	Dolph, Christy	2024-02-13	Q. Are there risks associated with the HDD method? A. Yes. HDD involves drilling a tunnel underneath a river or wetland, often at considerable depth (e.g., ~50 ft deep) and then installing prefabricated sections of pipe into the tunnel. To drill these tunnels, contractors lubricate a large drill bit with something called drilling fluid or drilling mud. This fluid is typically a mix of bentonite clay and other unknown chemicals that are typically not disclosed to the public and are listed as “proprietary”, or trade secret. As noted in the DEIS, “during HDD installation it is possible to encounter existing weak areas in the ground where pressurized drilling mud can escape into the surrounding matrix. These can include unconsolidated gravel, coarse sand, soil fissures, and fractured bedrock.” (Page 5-104). In other words, when HDD is used to drill through sensitive sediments beneath rivers and wetlands, the tunnels can lose structural integrity and develop leaks. These leaks are known as ‘frac outs’, and result in drilling fluid spills into the surrounding environment. Leaks happen initially in the subsurface, and can spread all the way to the land or water surface, or to other subsurface locations and aquifers. Notably, conditions that create vulnerability for frac outs (i.e., the presence of unconsolidated gravel and sand) are prevalent in the proposed project region as noted by the DEIS, indicating a risk for HDD-related inadvertent releases. Bentonite clay (one of the primary constituents of drilling fluid) is a very fine sediment that represents a stressor to aquatic life if spilled into streams, rivers or wetlands. Fine sediments can clog the gills and suffocate aquatic life like mussels, insects, and fish. Fine sediments can also degrade habitat for these life forms. There have been relatively few scientific studies of drilling mud toxicity to the environment. Most of the available scientific studies were conducted for coastal environments. In coastal settings, drilling muds have demonstrated toxicity for fish, crustaceans, mollusks and other organisms.	The EIS discloses the potential for an inadvertent release of drilling mud and describes potential impacts in Chapter 5.	20242-203381-02
CURE	Dolph, Christy	2024-02-13	Q. Is there any potential additional risk to aquatic life from the chemicals used in drilling fluid? A. The DEIS notes that chemical additives may be mixed with drilling fluid to lubricate the drill or improve viscosity. (Page 5-136). Ecotoxcity data for potential drilling fluid additives are not presented in the DEIS. Without more information on the additional chemicals used in the drilling fluid it is not possible to fully assess the extent of risk to aquatic organisms from this chemical mix. It is reasonable to assume that drilling fluid mixes have acute toxicity to aquatic life, but the lack of information in the DEIS makes further analysis exceedingly difficult to complete. Q. Do you have any recommendations for mitigating these risks? A. There is no way to completely mitigate the potential risks associated with HDD. Given the likely risk of inadvertent drilling fluid release at river crossing locations where HDD is used and the potential impact of these releases on water quality and ecosystem health, the applicant should be required to document and report the amount of drilling fluid lost to the environment in each release. Ideally, the applicant should be required to disclose all chemicals used for HDD and the amounts used in its drilling fluid so that there is more clarity on potential toxicity to aquatic life. Geotechnical investigations should also be conducted along all route alternatives prior to route approval. In the DEIS, no geotechnical investigation is listed for the Red River crossing for RA-North, and the investigation for the Pelican River has not been completed. Without this information, we cannot evaluate the comparative risks associated with HDD for the different routes. These investigations are critical to informing route selection and crossing method. Construction of the recent Line 3/93 pipeline project in northern 1 Minnesota resulted in ‘frac outs,’ or an inadvertent releases of drilling fluid to the environment at a majority (67%) of river locations crossed using HDD, in part because the pipeline company conducted crossings in geologic conditions that were unsuitable for the HDD crossing method.	As described in Section 5.7.8.2, an additive approved by the Minnesota Department of Health (MDH) or meeting NSF International/American National Standards Institute (ANSI) Standard 60, Drinking Water Treatment Chemicals – Health Effects, might need to be mixed with the drilling mud for viscosity or lubricating reasons and to reduce the potential for an inadvertent release or failed HDD. The specific additive used would depend on the conditions at the crossing location and would be determined by the HDD contractor. The EIS discloses the potential for an inadvertent release of drilling mud and describes potential impacts in Chapter 5. The applicant would conduct a geotechnical investigation and prepare a site-specific HDD engineering design before implementing any HDD at waterbody crossings. As described in Chapter 5, soils and geology along the three routes are generally similar. Because soils and geology are similar, geotechnical investigations, with the associated time and costs, would be unlikely to aid the Commission in its decision.	20242-203381-02
CURE	Dolph, Christy	2024-02-13	Q. What are typical crossing methods for smaller rivers, streams, and other surface waters? A. Often, for smaller surface waters, construction companies will use the “open cut” trenching method for crossing. This method	Thank you for your comment.	20242-203381-02

Agency or Org	Name	Date	Comment	Response	eDocket Document ID
			involves digging a trench directly across the stream banks and stream bed. If water is flowing through the stream, methods such as temporary dams or continuously pumping water out of the channel are used to dewater the stream during construction. Q. Is this kind of crossing method proposed in the DEIS? A. Yes, this is listed in the DEIS as the proposed crossing method. Q. Are there risks associated with the open cut trenching crossing method? A. There are several risks associated with open cut trenching. Risks include permanent loss of riparian habitat along the pipeline right-of-way, potentially resulting in loss of stream bank stabilization. Open cut trenching can also increase stream channel erosion and entry of eroded sediments into waterways due to construction activities prior and subsequent to the actual digging of a trench across a stream, including excavation of intake pits, placement of barriers, installation, and removal of temporary bridges and stream stabilization efforts. This method of stream crossing, especially if the streams are dewatered for dry trench construction, can result in a loss of in-stream habitat and death of any aquatic organisms in the length of the dewatered stream. Finally, the disturbance of the bed and banks of streams during open cut trenching can result in instability and potential future vertical or lateral erosion (i.e., the stream channel migrating to the side or up and down), in turn resulting in additional turbidity and potential degradation of water quality.		
CURE	Dolph, Christy	2024-02-13	Q. Which alternative presents the lowest risk to surface water resources? A. The No Action Alternative presents the lowest risk to surface water resources. Otherwise, because of the lack of geotechnical investigations for all potential HDD crossings as described above, the DEIS does not contain the requisite information needed to evaluate the comparative risks posed by the remaining route alternatives to surface water. However, based on the existing information provided in the DEIS, RA-South and RA-Hybrid would appear to impact more surface waters than RA-North. RA-South and RA-Hybrid cross more surface waters than RA-North. The Regions of Influence (ROI) for RA-South and RA-Hybrid also intersect more perennial streams than the ROI for RA-North. Perennial streams are typically wet all year long, and water quality and aquatic life in these streams are more likely to be impacted by pipeline construction activities, compared to intermittent streams or ditches that may be dry during construction. Even if streams are not directly crossed by the project, sediment-laden water from construction activities in the ROI can enter these waterways and cause pollution. Q. Does RA-South demonstrably reduce risk to surface water resources? A. No. Based on the available information RA-South will have significant negative impacts on surface water resources.	Thank you for your comment. As shown in Table 5-48, Table 5-49, and Table 5-50, impacts on perennial waterbodies would be mitigated by the use of HDD. Impacts on surface water resources are not characterized as significant for any of the route alternatives.	20242-203381-02
CURE	Dolph, Christy	2024-02-13	Q. How would you describe the wetland resources along the routes presented in the DEIS? A. Throughout much of the state of Minnesota, including the area crossed by the route alternatives for this project, the large majority of naturally occurring wetlands have been eliminated from the land as the result of European colonization and the wholesale conversion of land from a grasslands/wetland/forest complex to intensive agriculture. Q. Does Minnesota have special protections for wetlands? A. Yes, in fact, the state's Wetland Conservation Act states that protecting the state's remaining existing wetlands is critical to the goal of no-net-loss for wetland ecosystems. Q. How do we protect wetlands? A. The best way to protect the function of wetland ecosystems is to prevent their degradation in the first place, as these functions typically can't be readily restored once damaged. For example, a recent report by the MPCA entitled Status and Trends of Wetlands in Minnesota: Vegetation Quality Baseline concludes that "Ultimately, a greater emphasis on protection would be an appropriate approach to further promote the no-net-loss of wetland quality and biological diversity of Minnesota's wetlands. The plant community changes that occur (i.e., increased abundance of non-native invasive species) when wetlands are exposed to virtually any variety of impact are typically not self-correcting. Direct management of the vegetation itself is often required—in addition to correcting external impacts—to reestablish native composition and abundance distributions. Enhancing degraded plant communities is typically time consuming and requires a significant financial investment." *(2)* Similar research based on a meta-analysis of the available scientific literature found that restoration activities typically do not restore the structure and functional attributes of wetlands that are lost or damaged during development projects. *(3)* For example, both wetland plant assemblages and biogeochemical functioning in terms of carbon storage in wetland soils remained critically reduced even 100 years post-restoration of damaged wetlands. This study is attached as Schedule CD-2.	Thank you for your comment.	20242-203381-02

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			(2) Minnesota Pollution Control Agency, Status and Trends of Wetlands in Minnesota: Vegetation Quality Baseline (Sept. 2015), https://www.pca.state.mn.us/sites/default/files/wq-bwm1-09.pdf. *(3) Moreno-Mateos, D., Power, M. E., Comín, F. A., & Yockteng, R. (2012). "Structural and functional loss in restored wetland ecosystems." PLoS Biology 10(1), e1001247. https://doi.org/10.1371/journal.pbio.1001247.*		
CURE	Dolph, Christy	2024-02-13	Q. What does this mean for this DEIS? A. Because conserving existing wetlands is critical to maintaining key ecosystem functions and an existing state policy goal, and because degraded wetlands cannot be readily restored once damaged, evaluating comparative impacts of route alternatives to wetland health is an important consideration. Q. Which alternative presents the lowest risk to wetlands? A. The No Action Alternative presents the lowest risk to existing wetland health. When evaluating comparative wetland impacts among the route alternatives as summarized in the DEIS, RA-South impacts more than twice as many wetland acres (44.6 acres) as RA-North (20.9 acres), and RA-South impacts nearly twice as many wetland acres as RA-Hybrid (24.7 acres). This comparative difference is not noted in the Executive Summary of the DEIS. RA-South and RA-Hybrid also impact comparatively more acres of forested wetlands and riverine wetlands than RA-North. These wetland types are especially sensitive to disturbance and more difficult to restore. Q. Is RA-South protective of wetland resources? A. No. Other alternatives would seem to be preferable in terms of protecting wetland resources.	The acres referenced in this comment from Table 5-53 are the total acres within the region of influence (ROI), which is the route width, not the anticipated acres of impacts. Additionally, the route width for RA-South has been increased to allow for additional study and the potential need to make modifications to the alignment, while a similar increase has not been included for the other route alternatives, contributing to the greater acres within the ROI for RA-North. Text has been added to Table 5-53 noting this. Table 5-54 reports the anticipated temporary and permanent impacts, which are greatest for RA-South but similar across the three alternatives. Text has been added to the Executive Summary noting this difference.	20242-203381-02
CURE	Dolph, Christy	2024-02-13	Q. What is your opinion on the DEIS's conclusions about the impacts of flooding on the operation of the project? A. The DEIS states, "Because the pipeline would be underground, flooding would not impact operation of the project." (Page 5-96). This statement is blatantly inaccurate, as flooding represents a known risk to pipeline operation and safety, and increases the risk of pipeline exposure via erosion and subsequent potential for rupture and leaks. As stated by the U.S Pipeline and Hazardous Materials Safety Administration (PHMSA), "Operators should be aware that severe flooding, river scour, and river channel migration may create unusual operating conditions that can adversely affect the safe operation of a pipeline, and may require corrective action." *(4)* *(4) Pipeline Safety: Potential for Damage to Pipeline Facilities Caused by Flooding, River Scour, and River Channel Migration, 84 Fed. Reg. 14715 (Apr. 11, 2019).*	The text in Section 5.7.2 has been expanded to clarify that the pipeline would be buried underground with sufficient cover to protect it from flooding. The minimum depth of cover would be 54 inches, extended to 60 inches at waterbody crossings, and the depth would be greater at the waterbody crossings installed via HDD. All perennial streams would be crossed by HDD or bore, as shown in Tables 5-48 through 5-50. Other streams that would be crossed are intermittent or ephemeral streams, many of which are drainage ditches, and they would not be at significant risk of flooding-related problems like scour.	20242-203381-02
CURE	Dolph, Christy	2024-02-13	Q. Does pipeline installation impact the health of the soil in which it is installed? A. According to the existing scientific literature, pipeline installation is likely to have lasting permanent effects on soil health. A recent review of the scientific literature identified 34 studies reporting pipeline impacts on agricultural and natural ecosystems from eight countries. *(5)* They concluded that pipeline installation typically results in degraded soils and degraded vegetation resources (including diminished crop yields) that can persist for many years following installation. These researchers found that even current best management practices of pipeline installation and remediation employed by three different companies in Ohio (including soil 'double lift' and 'deep ripping' practices) were insufficient to mitigate widespread soil degradation and crop yield loss along pipeline routes. *(6)* *(5) Brehm, Theresa, and Steve Culman. 2022. "Pipeline installation effects on soils and plants: A review and quantitative synthesis." Agrosystems, Geosciences & Environment 5 (4):e20312. doi: https://doi.org/10.1002/agg2.20312.* *(6) Brehm, Theresa, and Steve Culman. 2023. "Soil degradation and crop yield declines persist 5 years after pipeline installations." Soil Science Society of America Journal 87 (2):350-364.*	The impacts of pipeline construction on soils are addressed in Section 5.7.6. As indicated by the definitions found on Page 5-1 of the draft EIS, "long-term impacts extend beyond the end of construction and are generally associated with operation of the project." Disturbance to soils and crops from construction can result in impacts that extend beyond the construction phase, and the text in the final EIS has been revised to indicate that impacts can be long term.	20242-203381-02
CURE	Dolph, Christy	2024-02-13	Q. In general, what kind of soils do the route alternatives cross? A. The DEIS identifies the large majority of soils crossed by all three route alternatives as especially prone to disturbance and sensitive to compaction, and as representing prime farmland. Q. How would you characterize the potential impacts of the construction of the proposed project on soils? A. The Executive Summary of the DEIS describes the soil impacts as "minimal and temporary." (Page ES-8). This is likely inaccurate. Degradation of sensitive soils from pipeline installation can cause changes in soil that can damage the germinating and growing environment for crops and native vegetation, alter nutrient cycling and water movement in the soil, and increase the potential for wind and water erosion for years following the disturbance. *(7)*	As indicated by the definitions found on Page 5-1 of the draft EIS, "long-term impacts extend beyond the end of construction and are generally associated with operation of the project." Disturbance to soils and crops from construction can result in impacts that extend beyond the construction phase, and the text in the final EIS has been revised to indicate that impacts can be long term. Section 5.7.6 includes the acreages of various soil characteristics along each route alternative as well as the total footprint for each route alternative.	20242-203381-02

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			Q. Which alternative presents the lowest risk to soils? A. Based on the soil characterization data in Table 5-42 (p.5-117), RA-North appears to present the least risk to soil degradation (other than the No Action option, which would present no risk to soil degradation). RA-North has the smallest project footprint of all route alternatives in total acres affected (17% smaller than RA-South). Compared to RA-South, RA-North crosses fewer acres that are prone to soil compaction (19% fewer), fewer acres of wet soils that are susceptible to compaction (i.e., hydric soils, 6% fewer), substantially fewer acres that are susceptible to water erosion (92% fewer), fewer wind erodible acres (14% fewer), and substantially fewer acres with revegetation concerns (35% fewer). RA-Hybrid appears to be intermediate in these impacts between RA-South and RA-North. *(7) Brehm, Theresa, and Steve Culman. 2023. "Soil degradation and crop yield declines persist 5 years after pipeline installations." Soil Science Society of America Journal 87 (2):350-364.*		
CURE	Dolph, Christy	2024-03-14	Q. Mr. Zoller describes the applicant's proposed actions to mitigate damage from horizontal directional drilling (HDD). Do you believe these activities will adequately protect impacted waterbodies? A. No. If soils are not amenable to HDD, that route should not be selected. But from Mr. Zoller's testimony, it seems like the applicant will still try to cross water bodies with HDD in non-amenable places and instead just have a contingency plan for spills. Once drilling fluid is spilled to subsurface environments or waterways, it is impossible to remove, and may have negative impacts on surface or subsurface water quality. Q. Do you agree with Mr. O'Konek's opinion that RA-North 1 and RA-Hybrid do not avoid or minimize potential impacts? A. No. First, not all routes have been assessed equally. In particular, necessary geotechnical investigations to evaluate impacts to groundwater and suitability for HDD crossings have not been completed for RA-North and RA-Hybrid. Because not all routes have been equally assessed, it is impossible to evaluate and compare the potential impacts of all the routes. Second, where routes have been evaluated (in terms of impacts to wetland acres, vulnerable soils, and surface waters), RA-South appears to have larger impacts than RA-North and RA-Hybrid. Even if these differences are argued by the applicant to be "small," less impact is less impact. Our wetlands and native prairies were removed from the pre-settlement landscape one by one, after all.	Alternatives are not required to be studied in the same level of detail. Minnesota Rule 4410.2300(H) indicates that an EIS shall include "a thorough but succinct discussion of potentially significant adverse or beneficial effects generated" by the proposed project and each major alternative with "[l]ess important material … summarized, consolidated, or simply referenced." Factors to be considered include "the impact and the relevance of the information to a reasoned choice among alternatives" and "the relationship between the cost of data and analyses and the relevance and importance of the information." As described in Chapter 5, soils and geology along the three routes are generally similar. Because soils and geology are similar, geotechnical investigations, with the associated time and costs, would be unlikely to aid the Commission in its decision. The applicant would complete a geotechnical evaluation of each HDD location along the pipeline prior to the start of construction.	20243-204360-02
CURE	Dolph, Christy	2024-03-14	Q. Do you have any response to Mr. O'Konek's comments about the applicant's groundwater investigations? A. Yes. I am concerned that the applicant appears to only have groundwater investigations underway for the RA-South route and not RA-North or RA-Hybrid. Q. Why does this matter? A. Without detailed investigations, it is impossible to determine what impacts RA-North or RA-Hybrid may have on groundwater resources along the route. Without that information, it is also impossible to adequately assess whether one route is better or worse than another. Q. Do you have any response to Mr. O'Konek's statement about sheet piling? A. Yes. The applicant's commitment to not using sheet piling in beach ridge areas is good practice. Sheet piling is used to support the walls of the pipeline trench as the pipeline is being installed, preventing collapse of the trench or soil erosion. However, this raises the question about how the applicant will construct the pipeline in these areas instead. It is important to know this because the groundwater is complex and prevalent in the beach ridge areas, and it is unclear how the applicant will construct a trench or perhaps drill through a groundwater-rich area that may be unstable, without harming this sensitive groundwater resource. Without more detail on the proposed construction method for this region, it is difficult to anticipate how construction— whether via HDD or open cut trenching method—might impact those resources.	Minnesota Rule 4410.2300(H) indicates that an EIS shall include "a thorough but succinct discussion of potentially significant adverse or beneficial effects generated" by the proposed project and each major alternative with "[l]ess important material … summarized, consolidated, or simply referenced." Factors to be considered include "the impact and the relevance of the information to a reasoned choice among alternatives" and "the relationship between the cost of data and analyses and the relevance and importance of the information." The groundwater resources that could be affected by the project would be similar for all three route alternatives; therefore, potential impacts would be similar. The time and costs associated with performing an additional study on groundwater resources would not be expected to aid the Commission in its decision. In surrebuttal testimony on March 28, 2024, the applicant indicated that, should trench wall stability be a concern in beach ridge system areas, the applicant would use trench boxes to stabilize the trench walls, which would not result in additional excavation. Additionally, as part of its coordination with the Department of Natural Resources (DNR), the applicant has agreed to use ground penetrating radar to study the depth of the confining layer through the entire beach ridge system area crossed by the pipeline to further define existing conditions and advise on construction methodology. Furthermore, EERA staff recommends that the applicant develop, in coordination with DNR, a plan for pipeline construction in areas crossing the beach ridge system	20243-204360-02

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				area. The plan would include, at a minimum, measures to minimize the potential for breaching a shallow confined aquifer during trenching and contingency measures to mitigate the impacts of a breach, should one occur. This information has been added to Section 5.7.8.2.	
CURE	Dolph, Christy	2024-03-28	Q. In rebuttal testimony, Mr. DeJoia critiques the Brehm and Culman studies you referenced in direct testimony. What is your response? A. In his testimony, Mr. DeJoia argues that the Brehm and Culman studies are unreliable for a number of reasons. I disagree with his assessment. First, Mr. DeJoia argues that the study by Brehm and Culman (2023) only evaluates pipeline construction impacts at year 2 and 3 post construction. But Mr. DeJoia does not acknowledge the time that was required for pipeline construction itself in the total duration of impact. The study authors measured soil impacts during a period of 4 to 5 years following the inception of pipeline construction. The time required for pipeline construction itself does represent a time of impact and decreased crop yield, as the right of way is being actively disturbed during this time and is not able to be planted or harvested. Second, although Mr. DeJoia takes issue with the conclusions drawn by Brehm and Culman (2023), he also indicates that there will likely be impacts to agricultural soils for several years after the project, in concurrence with the general findings of these papers. As Mr. DeJoia states in his testimony regarding Ohio farm fields impacted by pipeline construction that were studied by Brehm and Culman (2023): "The yield losses for 2020 and 2021 (years 2 and 3) were reported to be 21% and 14% respectively. These average yield losses are consistent with what a reclamation scientist would expect yield losses to be after 2- and 3-years post-construction completion." (Page 3). Thus, Mr. DeJoia's testimony indicates that, based on his own experience, there are likely to be significant and measurable impacts on agricultural yields in the years following pipeline construction, in agreement with the analysis by Brehm and Culman (2023). Notably, this conclusion is further supported by a separate study in Iowa by Tekeste et al., attached as Schedule CD-3, which showed that even after best management practices were implemented to help reclaim soil after pipeline construction, crop yields in a pipeline right of way were still substantially lower after two years (25% decrease in soybean yield, 15% decrease for corn yield). Mr. DeJoia also argues that approximately 50% of fields studied by Brehm and Culman (2023) showed no significant impacts to crop yields following pipeline construction. His testimony appears to offer this as evidence of limited impact. But half of all measured farm fields exhibiting significant impacts to crop yields does indicate substantial impact, especially if this impact is scaled up along the entire length of a large linear infrastructure project, such as the one proposed by the applicant. Next, Mr. DeJoia raises the concern that farmers whose fields were damaged by pipeline construction were more likely to self-identify for inclusion in the study. These comments are speculation and cannot be verified one way or the other. It also stands to reason that all farmers will be broadly concerned about potential damage to farm fields from any large infrastructure project and would wish to know what the longer-term impacts to their agricultural production might be. Mr. DeJoia also raises the concern that only a small proportion of fields out of the total number impacted by pipeline construction were studied by Brehm and Culman (2023). I agree that the long-term impacts associated with pipeline construction have been wildly understudied compared to the extent of their (ever increasing) footprint on the landscape. However, rather than find reassurance from this lack of data, lack of information about potential harm should invoke the precautionary principle, in which our society and governance structures have a responsibility to protect the public (including farmers) from harm, where there is plausible scientific risk. In my opinion, the studies by Brehm and Culman (2022; 2023) and Tekeste et al., have indicated there is certainly a plausible risk of longer-term degradation of soil from pipeline construction. Finally, Mr. DeJoia's testimony does not provide evidence about how soils are expected to recover in time periods beyond 3 years following construction. Indeed, few to no long-term studies have been conducted regarding the impacts of pipeline construction to soils over a time frame exceeding 5 years. Again, I do not generally find this lack of data reassuring with regards to our understanding of the long-term impacts of pipeline construction. However, it is reasonable to assume the impacts to soil measured in years 2 and 3 following the completion of construction do not immediately disappear over longer time frames. Thus, there are likely to be longer term impacts to soil and crop yield following pipeline construction, even with implementation of best management practices.	As indicated by the definitions found on Page 5-1 of the draft EIS, "long-term impacts extend beyond the end of construction and are generally associated with operation of the project." Disturbance to soils and crops from construction can result in impacts that extend beyond the construction phase, and the text in the final EIS has been revised to indicate that impacts can be long term.	20243-204752-02
CURE	Dolph, Christy	2024-03-28	Q. Do you agree with Mr. DeJoia's assertion that impacts on soil will primarily be the same across route alternatives? A. No. Mr. DeJoia argues that "soils data included in the DEIS is critical to evaluate potential impacts to soils." (Page 5). However, he then argues paradoxically that measures of soil data in the DEIS are not an important consideration when evaluating route	Section 5.7.6 includes the acreages of various soil characteristics along each route alternative as well as the total footprint for each route alternative.	20243-204752-02

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			alternatives, because construction practices will be the most important factor determining soil health outcomes. While pipeline construction practices are the main driver of soil degradation in the proposed project, evaluating the extent of potential impacts is critical when comparing route alternatives, which is why this information is presented in the DEIS. As stated in my original testimony, RA-North presents the lowest total potential impact on soil conditions among route alternatives (other than the No Build Alternative, which of course would have no impact on soils). RA-North has the smallest project footprint of all route alternatives, crosses fewer acres that are prone to soil compaction, fewer acres of wet soils that are susceptible to compaction (i.e., hydric soils), substantially fewer acres that are susceptible to water erosion, fewer wind erodible acres, and substantially fewer acres with revegetation concerns. RA-Hybrid appears to be intermediate in these impacts between RA-South and RA-North.		
CURE	Dolph, Christy	2024-03-28	Q. Do you have any other responses to Mr. DeJoia's rebuttal testimony? A. It is also important to consider the potential soil impacts of a single pipeline in the context of future planned CO_2 pipeline infrastructure. If CO_2 pipelines become widely adopted, the installation of a vast new network of CO_2 pipelines across Minnesota would have a cumulative impact on some of the richest and most productive agricultural soils in the country.	Installation of other pipelines is outside the scope of this EIS.	20243-204752-02
CURE	Dolph, Christy	2024-03-28	Q. Mr. Zoller states in rebuttal testimony that the applicant will not use sheet piling in beach ridge areas and would conduct exploratory borings where sheet pile will be used elsewhere along the route. What is your response? A. From this testimony, it is not clear what alternative construction methods will be used in the beach ridge areas or in any groundwater-rich areas if the work/trench area is unstable and the pipeline is not able to be inserted without the use of sheet pilings. More detailed information on how construction will be conducted in these areas is needed to assess potential impacts to groundwater in these cases. According to water table data from the Minnesota Natural Resource Atlas, the depth to groundwater for the majority of the RA-South construction workspace is estimated to be 0-10 feet (Attached as Schedule CD-4). *(1)* This indicates that construction will likely intersect surficial groundwater given the ground disturbance depths listed by Mr. Zoller for construction either without sheet piling (disturbance depths of 5-6ft) or with sheet piling (disturbance depths of 10-15 ft). *(1) Minnesota Natural Resources Research Institute, Minnesota Natural Resources Atlas, https://mnatlas.org/resources/water-table-depth/.*	In surrebuttal testimony on March 28, 2024, the applicant indicated that, should trench wall stability be a concern in beach ridge system areas, the applicant would use trench boxes to stabilize the trench walls, which would not result in additional excavation. The applicant currently has an ongoing groundwater investigation underway to further inform construction practices and is continuing to consult with DNR. As part of its coordination with DNR, the applicant has agreed to use ground penetrating radar to study the depth of the confining layer through the entire beach ridge system area crossed by the pipeline to further define existing conditions and advise on construction methodology. Furthermore, EERA staff recommends that the applicant develop, in coordination with DNR, a plan for pipeline construction in areas crossing the beach ridge system area. The plan would include, at a minimum, measures to minimize the potential for breaching a shallow confined aquifer during trenching and contingency measures to mitigate the impacts of a breach, should one occur. This information has been added to Section 5.7.8.2.	20243-204752-02
CURE	Dolph, Christy	2024-03-28	Q. Does Mr. Zoller's rebuttal testimony address the issues you raised in direct testimony regarding horizontal directional drilling (HDD)? A. No. From Mr. Zoller's testimony and from the original DEIS, it is clear that HDD methods are proposed for all three route alternatives (apart from the No Build alternative). But Mr. Zoller's testimony does not provide additional information about whether geotechnical investigations as to the suitability of HDD have been conducted for proposed HDD crossings for all three route alternatives. In the DEIS, geotechnical investigations had only been conducted for a portion of HDD crossings in all route alternatives, with no geotechnical investigations listed for the Red River crossing for RA-North, and the investigation for the Pelican River listed as not yet completed. Without evidence from these geotechnical investigations, it is difficult to assess the comparative risk to water bodies presented by HDD in the different route alternatives.	The applicant would complete a geotechnical evaluation of each HDD location along the pipeline prior to the start of construction. As described in Chapter 5, soils and geology along the three routes are generally similar. Because soils and geology are similar, geotechnical investigations, with the associated time and costs, would be unlikely to aid the Commission in its decision.	20243-204752-02
CURE	Dolph, Christy	2024-03-28	Q. What is your response to Mr. Zoller's comments about the DEIS's calculation of expected impacts to wetlands crossed by RA-South? A. Mr. Zoller explains that he believes the expected impacts to wetlands reported in the DEIS are overstated. He argues that this is due partly to the use of the National Land Cover Dataset (NLCD), which has a 30m resolution (i.e., it presents the landscape in 30m x 30m pixels). Mr. Zoller is correct that land cover data of this resolution often does not adequately capture wetland cover. However, the occurrence of small wetlands (smaller than 30m x 30m) is also very likely to be *underestimated* by the NLCD. Thus, there is the possibility that the land cover data currently used in the DEIS is actually undercounting wetlands crossed by the route alternatives. An alternative approach to evaluating wetland cover would be to use the Minnesota National Wetland Inventory (NWI) dataset. As stated by the Minnesota Department of Natural Resources, the updated National Wetland Inventory for Minnesota has recently been remapped using lidar and high-resolution aerial imagery, making it the most comprehensive, current and accurate wetland inventory in the country. *(2)* If there are concerns about accurately measuring wetland impacts across route alternatives, the Minnesota-specific	Clarification regarding National Wetlands Inventory (NWI) and National Land Cover Database (NLCD) data sources has been added to Tables 5-3, 5-4, 5-53, and 5-54. The widening of the route for future routing flexibility is "for additional route study and the potential need to make modifications to the pipeline alignment," not for future construction.	20243-204752-02

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			NWI is likely a better resource than the NLCD. I would argue that the DEIS should be improved by including wetland estimates from the updated Minnesota NWI into estimates of wetland impact across route alternatives (note the distinction between the Minnesota NWI and the national NWI from U.S. Fish and Wildlife Service, the latter of which may not contain recent updates). Mr. Zoller also notes that some of the potential impact of RA-South to wetlands occurs because of a part of the route that has been widened to account for future routing flexibility, and that this area is highly populated with wetlands. This statement seems to imply that this area is intended to incur future construction impacts. Having a widened area intended for future construction located in an area of especially high wetland density seems likely to indicate potential future wetland impacts in this area and raises the question of why a wetland-dense area was selected for this purpose. *(2) Minnesota Department of Natural Resources, National Wetlands Inventory Update, https://www.dnr.state.mn.us/eco/wetlands/nwi_proj.html.*		
CURE	Dolph, Christy	2024-03-28	Q. Do you agree with Mr. Zoller's assessment that all three route alternatives will have the same environmental impacts? A. I agree with Mr. Zoller's testimony that all three route alternatives apart from the No Build Alternative will result in environmental degradation associated with construction. However, Mr. Zoller argues that the environmental impacts from RA-South, RA-North and RA-Hybrid are equivalent in terms of their extent of impact. I disagree with this assessment. As summarized in the DEIS and noted in my direct testimony, there are numeric differences in impact across the route alternatives. Based on the existing information provided in the DEIS, RA-South and RA-Hybrid would appear to impact more surface waters than RA-North, RA-South appears to intersect more wetland acres than the other route alternatives, and RA-South also crosses more soils that are prone to degradation, compaction, and erosion.	Thank you for your comment.	20243-204752-02
CURE	Dolph, Christy	2024-03-28	Q. Does Mr. Zoller's rebuttal testimony address issues you raised in direct testimony regarding the assessments of comparative impacts to sensitive groundwater areas between the route alternatives? A. Mr. Zoller's comments do not address the concern identified in my direct testimony that all route alternatives have not received the same level of assessment with regards to potential and comparative impacts to sensitive groundwater areas. Without this assessment, it is difficult to determine which routes will have the least impact to groundwater resources. Mr. Zoller notes that routes RA-North and RA-Hybrid are "within one mile" of sensitive confined aquifers that RA-South has been confirmed to cross (i.e., the beach ridge aquifer areas). (Page 2). One mile is a considerable distance and the exact proximity of these routes to beach ridge aquifer areas should be assessed directly, with regards specifically to the construction workspace.	Section 5.7.8.1 has been revised to clarify that all three routes would cross the beach ridge system area. Minnesota Rule 4410.2300(H) indicates that an EIS shall include "a thorough but succinct discussion of potentially significant adverse or beneficial effects generated" by the proposed project and each major alternative with "[l]ess important material … summarized, consolidated, or simply referenced." Factors to be considered include "the impact and the relevance of the information to a reasoned choice among alternatives" and "the relationship between the cost of data and analyses and the relevance and importance of the information." The groundwater resources that could be affected by the project would be similar for all three route alternatives; therefore, potential impacts would be similar. The time and costs associated with performing an additional study on groundwater resources would not be expected to aid the Commission in its decision.	20243-204752-02
CURE	Gorman, John	2024-02-13	Q. What is the purpose of your testimony in this proceeding? A. I am providing a review of the Accidental Release Dispersion Reports found in Appendix G of the Draft Environmental Impact Statement for Summit Carbon Solutions' Otter Tail to Wilkin County Carbon Dioxide Project. Q. Please summarize your conclusions. A. I conclude that it is impossible to determine the overall quality of the modeling work presented because of the lack of details and discussion provided.	Thank you for your comment.	20242-203381-03
CURE	Gorman, John	2024-02-13	Q. Please summarize your experience with modeling software that estimates the dispersion of supercritical CO_2 or similar substances. A. Over the course of the last 10+ years, I have used a wide range of modeling software that has the ability to estimate the dispersion of supercritical CO_2 or similar substances. The majority of the relevant modeling software I have used employed Computational Fluid Dynamics (CFD). These programs are generic in the sense that they can model a diverse range of situations and are not limited to only estimating the dispersion of CO_2 or similar substances. My most relevant software experience includes ANSYS-CFX and ANSYS-FLUENT (ANSYS Inc, Southpointe 2600, Ansys Drive Canonsburg, PA 15317 USA), COMSOL (COMSOL, Inc., 100 District Avenue, Burlington, 1 MA 01803, USA), and OpenFOAM (OpenCFD Ltd, owner of the OpenFOAM Trademark, is a wholly owned subsidiary of ESI Group). ANSYS3	Thank you for your comment.	20242-203381-03

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			CFX, ANSYS-FLUENT, and COMSOL are all commercially available CFD software. OpenFOAM is the free open source CFD software package. All of the aforementioned software has the ability to estimate the dispersion of CO_2 or similar substances using CFD, and I have used them on countless occasions. My relevant experience includes modeling supercritical CO_2 and other substances (gases, pollution, particles (solid and liquid), etc.) being dispersed into the atmosphere over different terrains (with trees, windbreaks, hills, houses, etc.) and within urban cities (such as New York and Beijing, China). The purpose of these various activities was to estimate the dispersion of substances, predict the outcomes, and find solutions to mitigate the effects.		
CURE	Gorman, John	2024-02-13	Q. Are there other variables described in the report or missing from the report that would impact the outcomes of the modeling? A. Yes. None of the governing model equations were provided, so it is difficult to know what precisely was included in the model or the limitations of the model. Also, it is unclear how the CO_2 was modeled, that is, what equations of state may have been used to account for phase changes (not all equations of state have the same accuracy or validity). There also is no discussion of determining the real-world, worst-case conditions, such as wind speed or CO_2 in the pipe (amount, phase, etc.). These details have a significant impact on the dispersion of the CO_2 and are important parameters to study for finding worst-case results (maximum impact distances).	As Dr. Gorman has stated, the CO_2 was modeled as starting in a liquid phase. The CANARY model automatically calculates the phase based on temperature and pressure. The liquid phase was used for modeling because the aerial dispersion modeling and report (Appendix G) determined a worst-case temperature and pressure indicating the product in a liquid state. The angle of release is addressed in detail in Appendix G.	20242-203381-03
CURE	Gorman, John	2024-02-13	Q. What is Verification and Validation? A. Verification and Validation (often referred to as V&V) are independent procedures that are used together to check that something (a device, software, or model) fulfills its intended purpose. In terms of simulation and modeling, verification is a process to ensure the underlying mathematical model is implemented correctly and then accurately solved. Verification can be separated into two activities: code verification and calculation verification. Validation is the process of assessing the degree to which the model is an appropriate representation of reality. Validation activities are concerned with demonstrating the correctness of the underlying model assumptions and the degree to which sensitivities and uncertainties of the computational model are understood. Validation is generally demonstrated by comparing model predictions with the results from appropriate real-world data (e.g., physical results, experiments). Q. Why is Verification and Validation important? A. The outcome of performing V&V activities is to show agreement between actual real-world data and model prediction, as well as the predictive accuracy of the model. Without performing and presenting results related to V&V activities, it is impossible to know how accurate the results presented from any modeling activity are. In other words, without V&V activities, it is impossible to know if the results from the CANARY software (or any other model) have any basis in reality.	Thank you for your comment.	20242-203381-03
CURE	Gorman, John	2024-02-13	Q. Does the report adequately describe the assumptions or inputs used, and why is it important? A. The report does not adequately describe the assumptions or inputs used; this includes both the CANARY software and the model's results being presented. Any result from any model is only as good as the assumptions and inputs used. Without knowing the assumptions, it is impossible to frame the results as they might apply to real-world situations. In terms of the inputs, those also directly affect the outcome of the results. For example, this report demonstrated the results change notably by ~19.1% (or 107.9 ft) when they changed inputs and got a maximum impact distance of the 40,000-ppm of CO_2 to be 617.5 ft instead of 509.6 ft. Q. Does the report state what phase the modeled CO_2 was assumed to be in? A. No. It's not clear from the report that the conditions of the CO_2 within the pipe are fully known. Q. Why does the phase of the CO_2 matter? A. The initial phase (liquid, vapor, supercritical) will impact its dispersion (the jet) leaving a pipe rupture. Based on the report, it's not clear what impact the initial phase of the CO_2 within the pipeline would have on the dispersion. For CO_2 to be in the supercritical phase, it has to be above both the critical pressure and the critical temperature. For instance, CO_2 at 2,200 psi for temperatures in the range of -20F and 30F would be in the liquid phase and not supercritical.	As Dr. Gorman has stated, the CO_2 was modeled as starting in a liquid phase. The CANARY model automatically calculates the phase based on temperature and pressure. The liquid phase was used for modeling because the aerial dispersion modeling and report (Appendix G) determined a worst-case temperature and pressure indicating the product in a liquid state.	20242-203381-03
CURE	Gorman, John	2024-02-13	Q. Does the report state what angle of release was modeled? A. Yes. The report states that the angle of CO_2 release is 19 degrees from horizontal. Q. Why does the angle of release matter? A. According to the Aerial and Thermal Dispersion Analysis report, within the CANARY software, the angle of release can have a great impact on the predicted dispersion (Table 6, page 8). However, the report does not describe how the angle relates to a ruptured pipe and the rupture diameter, which, according to the report, the rupture diameter is identical to the pipe diameter (Table 7, page 11). It is also not clear if this angle would represent a real-world worst-case or merely the worst-case result that can be generated within the CANARY software.	The angle of release is addressed in detail in Appendix G.	20242-203381-03

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CURE	Gorman, John	2024-02-13	Q. Does the report state what the assumed flow rate at the time of rupture? A. Yes. The Aerial and Thermal Dispersion Analysis report states that for the results being presented they assumed a mass flow rate of 13.34 lbs/sec of CO_2 at the rupture (Table 7, page 11). However, the value listed in the CO_2 Pipeline Sensitivity Analysis Report is listed as 10.36 lbs/sec (Table 2, page 9). Q. Why does the flow rate at the time of release matter? A. The flow rate is the amount of CO_2 being released into the air and directly affects the size of the resulting plume, the concentration levels, and the impact distance. Q. How does missing or unclear information about the flow rate impact the DEIS analysis? A. It is unclear from the report why this mass flow rate was chosen, how it was determined, and if this value represents the maximum possible value. It is unclear whether any consideration was given to the initial rupture/breakage or if the mass flow rate was assumed to be a constant value over the modeling time period.	The value of 10.36 lbs/sec is for a theoretical pipeline and does not differ significantly from the 13.34 lbs/sec used for the EIS modeling. The sensitivity study shows relationships between key inputs used in aerial dispersion and is not modeling the project pipeline, as explained in Appendix G.	20242-203381-03
CURE	Gorman, John	2024-02-13	Q. From your review of Appendix G, was there any validation and verification of the CANARY software? A. No. Q. What did the report in Appendix G conclude? A. For the portion of the report dedicated to the CANARY analysis, Allied Solutions concludes an earlier analysis (by Summit Carbon Solutions using the CANARY software) was valid but could have been more conservative. This report, by Allied Solutions, found the maximum impact distance of the 40,000-ppm of CO_2 using CANARY to be 617.5 ft from the rupture. In contrast, the original analysis by Summit Carbon Solutions found 509.6 ft. They also conclude that conducting a CFD analysis would provide better insight into the effects of local terrain, windbreaks, and exposure times related to different concentration levels. Q. Do you agree with these conclusions? A. With regard to the two separate analyses performed using the CANARY software, there is not enough information to make a conclusion. With regard to the maximum impact area, it is impossible for me to know without performing an independent analysis. In terms of conducting a CFD analysis, I agree that conducting a CFD analysis would be advantageous and provide better insight, assuming it was performed properly.	Computational Fluid Dynamics (CFD) and CANARY are validated together and discussed in the CFD Analysis Report dated January 15, 2024 (in Appendix G of the draft EIS). Quest Consultants, the developers of CANARY, provide validation of the software in the CANARY User Guide for each analysis module. Quest Consultants address verification through the release and dispersion models contained in the QuestFOCUS package (the predecessor to CANARY by Quest), which were reviewed in a United States Environmental Protection Agency (EPA) sponsored study (TRC [1991], Evaluation of Dense Gas Simulation Models. Prepared for the U.S. Environmental Protection Agency by TRC Environmental Consultants, Inc., East Hartford, Connecticut, 06108, EPA Contract No. 68-02-4399, May, 1991) and an American Petroleum Institute (API) study (Hanna, S. R., D. G. Strimaitis, and J. C. Chang [1991], Hazard Response Modeling Uncertainty (A Quantitative Method), Volume II, Evaluation of Commonly-Used Hazardous Gas Dispersion Models. Study cosponsored by the Air Force Engineering and Services Center, Tyndall Air Force Base, Florida, and the American Petroleum Institute; performed by Sigma Research Corporation, Westford, Massachusetts, September, 1991). In both studies, the QuestFOCUS software was evaluated on technical merit (appropriateness of models for specific applications) and on model predictions for specific releases. One conclusion drawn by both studies was that the dispersion software tended to overpredict the extent of the gas cloud travel, thus resulting in too large a cloud when compared to the test data (i.e., a conservative approach). Also, a third study prepared for the Minerals Management Service (Chang, et al. 1998) reviewed models for use in modeling routine and accidental releases of flammable and toxic gases. CANARY by Quest received the highest possible ranking in the science and credibility areas. In addition, the report recommends CANARY by Quest for use when evaluating toxic and flammable gas releases (Chang, Joseph C., Mark E. Fernau, Joseph S. Scire, and David G. Strimaitis [1998], A Critical Review of Four Types of Air Quality Models Pertinent to MMS Regulatory and Environmental Assessment Missions. Mineral Management Service, Gulf of Mexico OCS Region, U.S. Department of the Interior, New Orleans, November, 1998).	20242-203381-03

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				Appendix C of Allied's Aerial and Thermal Dispersion Analysis Report (in Appendix G of the EIS) has been updated with the above validation information.	
CURE	Gorman, John	2024-02-13	Q. Can you describe the typical steps used for preforming and presenting a CFD analysis? A. Yes, it typically involves a process where a scientist or engineer will: • Check and present assumptions that are 1 inherent to the model and model parameters, (such as boundary conditions (inputs), flow regimes, relevant physical phenomena, etc.) and explaining how they were determined/chosen. • Determine, create, describe, and show the geometry being modeled or represented (e.g., terrain, structures, pipe rupture, etc.). • Discuss and show the numerical methods being used, including the governing equations, constitutive equations, fluid properties, etc., to know precisely what was modeled. • Discretize the model into calculation points, often called the grid, mesh, nodes, or cells. Perform an analysis to ensure the grid/mesh/cells (calculation points) are sufficient for obtaining an accurate simulation result. • Discuss and use reliable convergence criteria for the numerical methods. The convergence criteria is the condition chosen to ensure the error in the solution to all the mathematical equations is acceptably small. • Perform validation and verification activities to show that the numerical model can accurately represent the desired situation and that the obtained results are realistic. • Present the results in a clear manner with accompanying discussion. Q. Did the CFD modeling in Appendix G follow these steps? A. I am unable to determine that. Q. Why are you unable to determine that? A. The report does not describe or discuss any of the important details needed regarding these steps or to fully evaluate the CFD model and analysis.	Appendix A of the Aerial and Thermal Dispersion Analysis Report dated January 11, 2024, (in Appendix G of the draft EIS) explains how the CFD modeling was done and validated. While the processes explained in Appendix G may not have been organized the same way that Dr. Gorman explained he would organize it, it covers all of the material points needed for correctly modeling CFD. CURE filed Information Request No. 2 on February 15, 2024, after Mr. Gorman's testimony was filed on February 13, 2024. The Minnesota Department of Commerce, Energy Environmental Review and Analysis Unit provided a response on February 28, 2024, which is attached to this comment matrix (Appendix O). See the answer to question 17 of the CURE IR 002 EERA ("Was any validation or verification of the CFD model performed? Please provide records of the verification and validation.") In the response to CURE Information Request No. 2, Allied answered: Yes, we validated the CFD model (Scenario 2 in the CFD report) against the CANARY model (Scenario 1 in the CFD report). Using two different modeling software applications with completely different computational approaches, we applied them to the same scenario and validated the CFD model against the CANARY model on a macro level—comparing the final result of one model to the final result of another model—which accounts for any and all variations in data, assumptions, and modeling between the two approaches. As is shown in the CFD report, the results of Scenarios 1 and 2 are very close, which validates that both approaches are reasonable and appropriate. If the results of Scenarios 1 and 2 would not have been reasonably close, neither model would have been validated, and a different validation approach would have become necessary. Furthermore, CANARY is the accepted industry standard for aerial dispersion modeling, thereby providing a reasonable standard by which to compare and validate the CFD model in Scenario 2.	20242-203381-03
CURE	Gorman, John	2024-02-13	Q. What important details did you think were missing from the report? A. In general, the CFD modeling approach is vastly different from the CANARY analysis approach. There are many more steps and details involved with CFD modeling that need to be explained in order to understand and interpret the results. In my professional opinion, the following questions remain unanswered in the report: • What were the boundary conditions? (e.g., was an atmospheric boundary layer profile used or a flat/uniform wind velocity? Was there thermal radiation? How was the CO_2 introduced (phase)? How were the winter conditions (snow) taken into account?). • How large was the solution domain compared to the area of interest? (e.g., were the boundary conditions far enough away so as not to artificially affect the results?) • What was the ruptured pipe geometry, and was it created to match the scenario analyzed by the CANARY software? • What is the justification for using such a simplified model (Darcy's Law approach) to account for the windbreaks? Were any steps taken to ensure this simplified model and the values for the porous media used were accurate and appropriate for modeling trees? • Regarding the modeled terrain and geometry, what was upstream of the pipe rupture? Images or diagrams to illustrate the scenarios seem appropriate. • How were the fluids modeled (laminar or turbulent flow regimes)? And how was the flow regime determined for the wind and the CO_2 rupture? What turbulence model was used if the fluid flow was treated as turbulent? • Were phase change, variable material properties, and buoyancy (natural convection) included in the analysis? And how were they	CURE filed Information Request No. 2 on February 15, 2024, after Mr. Gorman's testimony was filed on February 13, 2024. The Minnesota Department of Commerce, Energy Environmental Review and Analysis Unit provided a response on February 28, 2024, which is attached to this comment matrix (Appendix O). The Minnesota Department of Commerce and Allied responded to these comments in questions 3-6, 8, 9, 13, 14, 16, and 17 of the CURE IR 002 EERA.	20242-203381-03

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			implemented? • Was there a grid/mesh/cells study performed to ensure it was sufficient to model the scenario and get accurate results? Similarly, was a time-step sensitivity study used to ensure the relevant physical phenomena were modeled accurately? • What were the convergence criteria used for determining if the simulation was acceptable? • Was any validation or verification of the CFD model performed?		
CURE	Gorman, John	2024-02-13	Q. Based on the conclusions and modeling described in Appendix G, do you agree with the potential impact areas identified? A. Because of the lack of detail in this report, it is impossible to determine whether the conclusion about potential impact areas is correct. Q. Are you able to conclude anything about the safety of the proposed project based on the results described in Appendix G? A. No. There is not enough detail about the modeling to determine whether the conclusions it reaches are correct. Q. Are you able to conclude whether any of the routes—RA-North, RA-Hybrid, or RA-South—pose fewer risks to humans and animals than the others? A. No. Q. Does the information provided in Appendix G demonstrate that any of the routes—RA-North, RA-Hybrid, or RA-South—is safe for public health or the environment when considering possible CO_2 plume impacts? A. No.	Thank you for your comment. Modeling was not used to determine if one pipeline route is safer than another route.	20242-203381-03
CURE	Gorman, John	2024-02-13	Q. What is CANARY? A. CANARY is analysis software created by Quest Consultants (908 26th Avenue N.W., Norman, OK 73069-8069, USA). Q. What does it calculate or analyze? A. The CANARY software uses a simplified approach to estimate/analyze where a plume of a potentially hazardous substance, such as CO_2, might spread in the event it is released by a leak or rupture. Q. Are there limits to what the CANARY software can analyze? A. Yes. The terms 'modeling' and 'simulation' are generic and can refer to a wide range of analysis activities. Not all analysis activities are equal in terms of accuracy, detail, and capability. The type of analysis the CANARY software performs is a simplified form of modeling based on solving mathematical algorithms to predict outcomes. This type of analysis should not be confused with other modeling approaches, such as CFD. CFD is a more advanced form of modeling, and when performed correctly, is far more accurate and precise. Q. What are the specific limitations of CANARY that render it less useful for this type of modeling? A. The CANARY software modeling approach does not take into account critical factors such as: 1.) effects due to spatial or temporal variations in the local windspeed; 2.) changes in terrain or obstacles (such as buildings or trees); 3.) dynamic three-dimensional thermal-fluid phenomena (such as natural convection or entrainment); and 4.) ruptures where the released jet of CO_2 is primarily in the vertical direction. This modeling approach also relies on certain assumptions, such as the resulting shape of the CO_2 plume and how it travels in the wind with a uniform velocity. Q. Do you have additional concerns about this type of software and the lack of information about how it was used to complete the reported modeling? A. Yes. The report does not discuss the actual equations being solved or the assumptions the software uses to perform the analysis. Other software in the same category of the CANARY software cannot accurately handle a situation with low wind speeds (at or near zero). This is particularly relevant since low wind speeds tend to have the worst outcome.	The equations used in CANARY are available in the CANARY User Guide for licensed users. There is one set of predetermined equations for each type of analysis within the CANARY software. The assumptions used by Allied in the CANARY model were described in Appendix A of the Aerial and Thermal Dispersion Analysis Report dated January 11, 2024 (in Appendix G of the draft EIS). The industry standard looks at 4.5 miles per hour as an acceptable wind speed for this type of analysis, and Allied used 4.0 miles per hour in the CANARY modeling. To address concerns that the CANARY software cannot accurately handle a situation with low wind speeds (at or near zero), Allied completed additional aerial dispersion modeling using CFD and 1.0 mile per hour wind speeds. Allied has now modeled this (at or near zero wind speed) case using CFD to supplement the previous modeling efforts to also cover this particular scenario. Chapter 8 of the EIS has been updated, and the detailed results of this supplemental modeling are included in Appendix G.	20242-203381-03
CURE	Gorman, John	2024-03-14	Q. Do you have a response to Mr. Lange's discussion of frost heave and soil temperature as it relates to dispersion of CO_2 in the event of a rupture? A. While the temperature chosen might be conservative for potential issues such as "frost heave," the DEIS did not demonstrate that the temperatures were conservative for issues of dispersion or how changes in the ambient soil and air temperatures affect dispersion (regardless of the initial CO_2 phase) exiting from a pipe rupture. The issue of what might cause a pipe rupture (like frost heave) is a separate issue from modeling the dispersion after it hypothetically occurs. Q. Mr. Lange states that computational fluid dynamics (CFD) modeling has many shortcomings which make it less useful for predicting the potential dispersion of CO_2 in the event of a pipeline rupture. Do you agree? A. No. I do agree with Mr. Lange that CFD modeling requires many input values and complex parameters, which are identified by the	Appendix A of the Aerial and Thermal Dispersion Analysis Report dated January 11, 2024, (in Appendix G of the draft EIS) explains that the temperatures chosen for this project were done based on worst-case dispersion impact distance. All inputs are detailed in the Aerial and Thermal Dispersion Report and in the CFD Analysis Report. Supplemental information about the CFD model was provided by the Minnesota Department of Commerce in response to CURE's Information Request Number 2, which is attached to this comment matrix (Appendix O).	20243-204360-03

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			analyst. This is why it is necessary to know the input values and complex parameters used by Allied Solutions in its modeling. Without that information, it is not possible to do a detailed analysis. And if the analyst does not have that information, it is unclear how a thorough analysis can be done or how an analyst could expect a tool, such as a simplified analysis program (like CANARY), to provide a relevant analysis alone.		
CURE	Gorman, John	2024-03-14	Q. Is CFD modeling unable to model or less useful when modeling long linear infrastructure projects like the one proposed by the applicant? A. Not necessarily. In terms of a pipe rupture, as Allied Solutions attempted to demonstrate, CFD models can be used to gather more detailed results relevant to the issues of dispersion. Therefore, employing a select number of CFD models would provide a more thorough analysis, augmenting existing means of studying the entire infrastructure. Q. Mr. Lange states that the applicant and Allied Solutions used “extremely conservative” inputs for the CANARY model and that CFD modeling using the same data would result in less conservative dispersion distances. Do you agree? A. Assuming the chosen inputs are indeed conservative for the basis of conversion, it is not possible to say a CFD model would result in less conservative distances without actually performing the CFD analysis. Also, a conservative input for a CANARY model has not been demonstrated to be a conservative input for a CFD model. For example, dispersion models similar to that employed by CANARY have been shown to underpredict concentrations after 30 meters (approximately 98 feet) from the CO_2 source. This study is attached as Schedule JG-2. Other studies, like the one attached as Schedule JG-3, have shown that CFD models are more adaptive and provide better predictions than dispersion modeling software. Therefore, CFD may result in more conservative predictions.	The JG-2 paper referenced addresses the results of a specific experiment done on DNV's PHAST dispersion model. The validation or comparison is specific to the experiment and the PHAST model predictions. The results of this validation only apply to PHAST. This paper does not reflect on a class or category of dispersion models—nor does not claim to. The paper specifically refers to PHAST in the title and throughout the paper. Any findings or conclusions in this paper may apply to PHAST, but should not be applied to other dispersion models or a class of models. PHAST was not used in modeling for the EIS, but CANARY was used instead. The JG-3 paper references a project that compares a Gaussian dispersion model, a "tuned" Gaussian dispersion model, and a CFD model. The paper goes on to say that the "tuned" Gaussian is very close to the CFD model for low momentum releases, which is what Gaussian models are appropriate for. The paper does not reflect on any other types of models besides a Gaussian model. CANARY uses equations that include Gaussian equations, but are more than Gaussian equations, enabling CANARY to account for high momentum/velocity during a rupture. While the JG-3 paper may indicate that Gaussian models have difficultly at predicting concentrations as distances increase—a specific distance is not actually stated in the JG-3 paper, but is generally indicated in a non-specific graph—it is difficult to see how the paper materially comments on models that do account for high product momentum/velocity during a rupture. Recognizing the limits of CANARY, Allied supplemented the aerial modeling with CFD modeling, as shown in Appendix G.	20243-204360-03
CURE	Gorman, John	2024-03-14	Q. Do you agree that the CANARY software allows for conservative results? A. No. In addition to the studies referenced above which suggest that CFD models may be able to provide better and more conservative predictions, there does not appear to be supporting evidence in the DEIS or related documents that demonstrates the CANARY model would provide “very conservative” results compared to an actual pipe rupture or compared to real-world data. Q. How long will it take for harmful concentrations of CO_2 to dissipate? A. It is not possible to know with any certainty. There are many assumptions made by the applicant and in the DEIS with regard to the time it takes CO_2 to dissipate, including a constant wind speed. For example, it might be possible the ambient air is stagnant, allowing a concentration of CO_2 to build up, and then a brief gust of wind moves the cloud of higher concentration CO_2 to another location.	Given that the CANARY software is valid/verified and that reasonably conservative inputs were used for modeling, one can conclude that the modeling results will also be reasonably conservative. The term "very conservative" is not used in the EIS. The purpose of the modeling is to be reasonably conservative—to model reasonable worst-case scenarios. Allied modeled four reasonable worst-case conditions, which requires certain assumptions to be made and scenarios to be modeled. These assumptions and scenarios are discussed in Appendix G of the EIS. Making these assumptions and modeling these scenarios provides reasonably conservative estimates for the extent of CO_2 concentrations and the time required for these concentrations to dissipate. The assumption of a constant wind speed is an industry accepted practice for modeling a worst-case scenario. The commenter, Dr. Gorman, brings up a particular scenario that does not use a constant wind speed. Dr Gorman suggests a scenario in which a release occurs with no wind, which is then followed by a gust of wind. Allied has modeled this scenario using CFD; results are presented in Appendix G of the final EIS.	20243-204360-03

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CURE	Gorman, John	2024-03-28	Q. Mr. Lange states in rebuttal testimony that the CANARY model has been validated but does not state whether the model has been verified. Do you have any response? A. Yes. First, if the CANARY software has been validated, the results of that validation should be provided by the applicant and the Department of Commerce's Energy Environmental Review and Analysis (EERA) Unit in this proceeding or in the DEIS. Second, it is imperative that the applicant and/or EERA state whether there has been any verification of the CANARY software model. As I stated in my direct testimony, verification is a process to ensure an underlying mathematical model is implemented correctly and then accurately solved. Without both of these crucial steps, it is not possible to know how accurate the results from any modeling are.	Appendix C of the Aerial and Thermal Dispersion Analysis Report dated January 11, 2024, (in Appendix G of the draft EIS) has been revised to provide additional information about the verification and validation of the models. Also see the Minnesota Department of Commerce answer to question 17 of the CURE Information Request Number 2 for additional verification and validation information.	20243-204752-03
CURE	Gorman, John	2024-03-28	Q. In rebuttal testimony, Mr. Lange addresses your previous testimony regarding the conditions of the CO_2 within the pipeline. What is your response? A. Mr. Lange states that "although the report does not explicitly state what phase the CO_2 was modeled in, the phase can be determined based on the content in the report…" (Lange Rebuttal, Page 2). According to Appendix G of the DEIS, for the CANARY analysis, Table 6 lists the values of pressure and temperature to be 2,197.89 psi and -20 °F, making it liquid CO_2. However, for the CFD analysis, and as clarified by CURE IR 002, "Mr. Prascher and Dr. Ward did not model a phase change. Mr. Prascher and Dr. Ward assumed that the all the CO_2 in the pipeline became gaseous, which is more conservative than what happens in reality. This simplifies the modeling process. At the same time, the downwind results are not affected because they set the release CO_2 mass to be the same as the mass released in the CANARY model." (Attached as Appendix JG-4). This means the CANARY model used liquid CO_2, and the CFD analysis used gaseous CO_2 without phase change. The report does not justify or explain the reasons for this difference. But again, as I stated in my direct testimony, the phase of the CO_2 will greatly impact the dispersion from the rupture and must be accurately modeled. Concerningly, if the CANARY model was using liquid CO_2 and the CFD was using gaseous CO_2, there is no way those things could have been validated against each other. If the mass flow rate of 13.34 pounds per second was used for both CANARY and the CFD, there is a large density difference between the gas and liquid phase. Liquid CO_2 leaving the 4.5" pipeline diameter rupture would have a velocity of around 1.75 feet per second, whereas gaseous CO_2 leaving the same rupture would have a velocity of around 881.9 feet per second, or approximately 600 miles per hour. The discrepancy here must be addressed.	Dr. Gorman acknowledges the modeling approach Allied took was more conservative than reality, which is the goal of such modeling. The Minnesota Department of Commerce addressed Dr. Gorman's other concerns in its answer to question 13 of the CURE Information Request Number 2, which is attached to this comment matrix (Appendix O).	20243-204752-03
CURE	Gorman, John	2024-03-28	Q. Do you have any other concerns you would like to raise? A. Yes. Although the applicant has provided some rebuttal to my direct testimony identifying issues with the modeling in the DEIS, EERA, who oversaw the contractors conducting the modeling, has not responded to my direct testimony. Therefore, the key questions and concerns I raised there about the validity and reliability of the modeling results remain unanswered by the party that initially offered the information.	EERA addressed Dr. Gorman's questions and concerns through its responses to CURE Information Request Number 2.	20243-204752-03
CURE	Grubert, Emily	2024-02-13	Q. What are your findings? A. Optimizing carbon dioxide pipeline infrastructure around ethanol plants is not an effective use of resources. It is not clear that this project will be subject to updated federal standards for carbon dioxide pipelines once a widely expected update is issued, given that current standards are widely understood to be inadequate. The Otter Tail to Wilkin Carbon Dioxide Pipeline Project Draft Environmental Impact Statement (DEIS) does not accurately or adequately estimate the carbon intensity of the proposed project, which is problematic because the project justification is largely on the basis of the impacts on carbon intensity.	Thank you for your comment. The draft EIS discusses PHMSA rules and regulations, and the pending rulemaking process it is undertaking for CO_2 pipelines, and acknowledges pending PHMSA changes to such regulations (see draft EIS, Chapter 3, Chapter 8, and Appendix G). The carbon intensity of the project is discussed in Chapter 6.	20242-203381-04
CURE	Grubert, Emily	2024-02-13	Q. Are all CO_2 pipelines specifically regulated at the federal level? A. No. The Pipeline and Hazardous Materials Safety Administration (PHMSA) has regulatory jurisdiction over CO_2 pipelines, but specific rules are only in place for pipelines that transport CO_2 as a supercritical fluid rather than as a liquid or a gas. Q. Are the current federal regulations generally accepted to be adequate? A. No. The lack of specific and updated regulations for CO_2 pipelines is widely recognized as a gap. Currently, a first draft of updated rules on CO_2 pipelines from PHMSA is expected in late 2024, but final rules will likely not be in place until much later. Although the DEIS notes that the pipeline contemplated in this project would be managed in accordance with PHMSA minimum federal safety standards, it is important to know that the existing PHMSA minimum federal safety standards for CO_2 pipelines are widely considered inadequate and are currently being updated by PHMSA. (1) For the full context I am including a report by Pipeline Safety Trust on this topic as Schedule EG-2. (1) Pipeline and Hazardous Materials Safety Administration, PHMSA Announces New Safety Measures to Protect Americans From Carbon Dioxide Pipeline Failures After Satartia, MS Leak, May 26, 2022, https://www.phmsa.dot.gov/news/phmsa-announces-new-safety-measures-protect-americans-carbon-dioxidepipeline-failures; Mike	Thank you for your comment. PHMSA regulations (that is, their appropriateness) and related standards for CO_2 pipelines are outside the scope of the EIS (Appendix A). The draft EIS discusses PHMSA rules and regulations, and the pending rulemaking process it is undertaking for CO_2 pipelines, and acknowledges pending PHMSA changes to such regulations (see draft EIS, Chapter 3, Chapter 8, and Appendix G). The Applicant has stated its proposed CO_2 pipeline would be designed, constructed, and operated to meet PHMSA regulations, including any operational changes to PHMSA regulations that may occur in the future. To the extent applicable, and in response to this and similar comments, Section 3.6 and Appendix G of the EIS have been updated to include this information.	20242-203381-04

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			Soraghan, Midwest CO_2 Pipeline Rush Creates Regulatory Chaos, Mar. 3, 2023, https://www.eenews.net/articles/midwest-co2-pipeline-rush-creates-regulatory-chaos/.		
CURE	Grubert, Emily	2024-02-13	Q. What is a carbon intensity (CI) score? A. A carbon intensity, or CI, score is defined by the DEIS as "the amount of CO_2e [carbon dioxide equivalent] emissions per unit of energy produced." (Page 6-3). This value is calculated on a life cycle basis, and requires accounting for both new sources of greenhouse gas emissions (e.g., energy inputs to carbon capture and storage; emissions associated with oil production from CO_2-driven enhanced oil recovery) and any sequestration, among other components. Q. Does the DEIS adequately evaluate the CI score for the Green Plains Ethanol Plant 10 project? A. No. In particular, the DEIS overstates the CI score benefit of carbon capture and sequestration applied to the Green Plains Ethanol Plant. The DEIS claims that capturing 0.19 million metric tonnes per annum (mmtpa) of CO_2 from the ethanol plant would reduce the project's CI score from 76 g CO_2/MJ ethanol to 36.3 g CO_2/MJ ethanol. (Page 6-6). The calculation provided on Page 6-6, however, has two major flaws. First, the calculation suggests that the CI score for ethanol across its life cycle would be 0.19 mmtpa CO_2 (the amount of CO_2 proposed for capture) divided by the total energy contained within the ethanol, or 36.3 g CO_2/MJ. This is incorrect: this equation gives the amount of CO_2 captured per MJ of ethanol, not the life cycle CI score for ethanol. I also note that the DEIS inappropriately rounds 0.185454 mmtpa CO_2 captured (Table 5-39) prior to making this calculation: the value presented should be 35.4 g CO_2/MJ captured, not 36.3. Further, the DEIS inconsistently refers to CO_2 versus CO_2e (which accounts for the CO_2 equivalent climate impact of other greenhouse gases emitted over the life cycle of the analyte), despite defining CI score in CO_2e terms. (Page 6-3). Q. What other flaw in the assumptions about CI scoring renders the DEIS analysis questionable or invalid? A. The second flaw is that the DEIS is not estimating the amount of CO_2 abated per MJ of ethanol, but rather the amount captured: an abatement value would need to account for any additional life cycle GHG emissions associated with energy and other inputs to the carbon capture and storage process. Table 5-39 does not provide sufficient information to assign emissions to the capture and storage processes specifically (particularly as emissions from operation of the capture facility are combined with emissions from fermentation that are not captured), but illustratively, this Table suggests that net capture from the plant is actually 0.14 mmtpa, not 0.19 mmtpa CO_2 – 25% lower than the DEIS credits the project with. Further, this abatement value would need to account for any losses (e.g., leaks) of CO_2 between capture and storage, and after storage. Q. How should the CI score be recalculated to be valid? A. The Project CI Score should not be calculated (g CO_2/MJ captured) as is presented in the DEIS, but as (CI score without CCS) – (g CO_2/MJ abated). Q. What other errors in the analysis make the CI score difficult to validate and assess? A. In general, the DEIS fails to consistently distinguish between the amount of CO_2 captured and the amount of CO_2 permanently stored, and does not address the level of net CO_2 abatement, which would require careful evaluation of the emissions associated with energy inputs for the carbon capture and storage. Q. Why is it a problem that the DEIS does not adequately evaluate the CI score for the Green Plains Ethanol Plant? A. The stated rationale for the project evaluated in the DEIS, a CO_2 capture facility and 28.1 miles of pipeline that would transport captured CO_2, is that it "would reduce the carbon intensity of the ethanol produced and thereby improve the ethanol plant's ability to compete in low carbon fuel standard (LCFS) markets." (Page ES-1). Without an accurate CI score for the project, it cannot be verified that the project would successfully deliver this benefit. One particularly relevant point is that the DEIS contemplates the possibility that CO_2 from the project might be used for enhanced oil recovery (EOR) (Page 5-101), which would significantly reduce any CI score benefits and thus fundamentally alter the rationale for the project. Q. Based on the available information, has the applicant or the DEIS provided sufficient information to recalculate and verify the CI score? A. No. An accurate CI score cannot be estimated without a clear understanding of the fate of captured CO_2, including pipeline leakage, storage leakage, and failure to permanently store CO_2.	The carbon intensity score (CI Score) metric used in the draft EIS reflects the net emissions of the full life cycle analysis according to the United States Department of Energy Argonne National Laboratory's Greenhouse gasses, Regulated Emissions, and Energy use in Technologies (GREET) model, and results are current as of the release date of the draft EIS. The California Air Resources Board's (CARB) Low Carbon Fuel Standard (LCFS) may require CA-GREET results to calculate greenhouse gas (GHG) emissions to participate in the program. Argonne has developed this full fuel-cycle model to estimate energy use and emissions from transportation fuel/vehicle technology systems. The model includes detailed information on corn farming and chemical manufacturing. The model and its documents are posted at http://greet.anl.gov. Section 2.1 has been revised to clarify that the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and that commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. The analyses in Section 5.7.1.3 and Chapter 6 have been revised to include capture rate scenarios of 100 percent, 70 percent, 40 percent, and 10 percent. The equation presented in Section 6.1.4. has been revised to estimate the impact of the proposed project on the net CI score as suggest: (CI score without CCS) – (gCO_2/MJ abated). Table 6-2 has been added to include a range of net CI scores for various capture rate scenarios and a footnote has been added to clarify unit conversions such as the CO_2 captured presented in units of CO_2e since the Global Warming Potential (GWP) for CO_2 is 1.	20242-203381-04
CURE	Grubert, Emily	2024-03-28	Q. Do you agree with Mr. Nelson's carbon intensity score calculations? A. Based on the information he provided, I do not disagree with Mr. Nelson's calculations or the conclusion that the project would have a carbon intensity of 46.5 g CO_2e/MJ, instead of 36.3 g CO_2e/MJ as reported in the DEIS. However, I disagree with Mr. Nelson's	Section 2.1 has been revised to clarify that the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and that commenters have questioned the	20243-204752-04

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			assessment that this is a "small inaccuracy." (Nelson Rebuttal, Page 5). The updated carbon intensity is 28% higher than the value actually presented in the DEIS, which is not a minor or insignificant error for the core value being used to justify this project. It is essential to demand high quality analysis for these key metrics. Q. Mr. Nelson states that your statement that the project would not deliver benefits is "baseless." What is your response? A. Although this project might be able to deliver a fuel with CI lower than that of gasoline (though most ethanol is blended with gasoline and thus reinforces ongoing use of that infrastructure), it does not deliver a fuel with a CI lower than that of the most likely alternative in a climate policy-aware setting, which is electricity. I do not dispute that the project lowers the emissions associated with ethanol. I do dispute the applicant's claims that the project provides climate benefits at a system level, a claim that would need to be evaluated in the context of alternative fuels like electricity.	feasibility of this capture rate given the performance of existing capture facilities. The analyses in Section 5.7.1.3 and Chapter 6 have been revised to include capture rate scenarios of 100 percent, 70 percent, 40 percent, and 10 percent. As indicated by the scoping decision, the EIS reviewed existing studies of the human and environmental impacts of ethanol production and provide a synthesized analysis of potential impacts on human and environmental resources. The CI score range presented in Chapter 6 includes potential direct and indirect emissions associated within the proposed design and construction of the project. Table 5-39 has been updated to provide a summary of GHG emissions from the initial construction as well as the proposed ongoing annual operations at the capture facility, CO_2 capture (abated), and electricity use.	
CURE	Grubert, Emily	2024-03-28	Q. Mr. Powell states that the applicant does not intend to ship captured CO_2 for enhanced oil recovery (EOR). What is your response? A. It is good to hear that the applicant does not intend to use CO_2 transported via the project for EOR. But I would reiterate the concerns I expressed in my direct testimony that intent is not a binding commitment, and the DEIS does contemplate this possibility (Page 5-101). Additionally, because the CO_2 is going to be put into a system of networked infrastructure (i.e., pipelines), claiming that the project is distant from existing oil production does not prove a physical impossibility for the CO_2 to be used for EOR. Furthermore, Mr. Powell himself acknowledges in his rebuttal testimony that it is the shipper, not the applicant, who "ultimately determine[s] the purpose and end use for CO_2 transported on their behalf." (Powell Rebuttal, Page 2).	Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for enhanced oil recovery (EOR).	20243-204752-04
CURE	McKinney, Zeke	2024-03-14	Q. What is a safe level of exposure to CO_2 for humans? A. Because each person is different in how they may respond to different levels of CO_2, it is best practice to follow the exposure limits established by various regulatory and guidance agencies, such as NIOSH, the U.S. Environmental Protection Agency (EPA), the American Conference of Governmental Industrial Hygienists (ACGIH), and the Minnesota Department of Health (MDH) to minimize potential harms from CO_2 exposure. It is generally accepted that human beings will not experience discomfort from carbon dioxide exposure at levels around 1,000 ppm CO_2 (0.01% CO_2). The variability in human response was emphasized in the Discussion section of the article by van der Schrier et al., in which they state, "When individuals are exposed to an excess of CO_2 in ambient air, an important question is at what levels of CO_2 inhalation does the human body maintain its ability to adequately function to, for example, escape from the incident scene or to perform a cognitively challenging task. An answer to this question is not only dependent on the results of our current study in healthy young volunteers but is certainly also dependent on the age and more importantly the physical condition of the exposed individual as well as presence of underlying cardiac or pulmonary disease. Our current results indicate that during exposure to 9% CO_2 the body retains its ability to function for 10 min, albeit with large variability in tolerance with some subjects able to withstand 30 min and one subject 60 min of exposure…. Note that we expect CO_2 tolerance to decrease rapidly in older individuals with lower resilience and those with existing cardiac or pulmonary disease." In general, indoor air quality studies suggest that humans experience discomfort and symptoms with prolonged exposure to carbon dioxide at levels of 1,000 ppm CO_2 (0.1% CO_2). A relatively recent study of cognitive performance testing in young, healthy, male subjects by Tu et al. (2020), attached as Schedule ZM-3, where subjects were exposed to varying concentrations of CO_2 in a controlled setting, demonstrated that at or below CO_2 levels of 12,000 ppm (1.2% CO_2) subjects reported "higher rates of headache, fatigue, agitation, and feeling depressed," in addition to decreasing cognitive performance in parallel with evident changes in physiologic parameters (decreased systolic blood pressure and increased diastolic blood pressure). A recent review of low-level indoor CO_2 exposures by Azuma et al. made strong conclusions from available evidence, including that "recent studies show clear linear physiological changes in circulatory, cardiovascular, and autonomic systems, including an increase of pCO_2 in the blood, elevated blood pressure, increased heart rate, increased peripheral blood circulation, and increased sympathetic stimulation at CO_2 exposures in the range of 500 to 5000 ppm", and that "several experimental studies on humans suggest that CO_2 may affect cognitive performance (decision making, problem resolution, speed of addition, number of correct links) starting at concentrations of approximately 1000 ppm for short-term exposure to CO_2." (Attached as Schedule ZM-2).	A review of the science concerning CO_2 toxicity levels is not necessary for a reasoned choice among alternatives. The EIS continues to use CO_2 concentration levels defined by federal agencies in its discussion.	20243-204360-04

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CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	[This comment letter includes the following attachments: • Accufacts' Perspectives on the State of Federal Carbon Dioxide Transmission Pipeline Safety Regulations as it Relates to Carbon Capture, Utilization, and Sequestration within the U.S. • PHMSA letters • CO_2 EOR Potential in North Dakota • Should Transportation Be Transitioned to Ethanol with Carbon Capture and Pipelines or Electricity? A Case Study] This is the first ever carbon dioxide (CO_2) pipeline proposed to be routed by the Minnesota Public Utilities Commission (Commission), and EERA has far more experience with analyzing impacts of other kinds of large energy infrastructure, such as centralized power generation and transmission infrastructure. That said, this first CO_2 pipeline DEIS lacks large amounts of necessary information and does not yet constitute a hard look at the foreseeable impacts of the proposed pipeline.	See the responses to CURE's more detailed comments below.	20242-203795-01
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	I. The DEIS Mischaracterizes the Impacts of the Proposed Project to Human and Environmental Resources Over-reliance on the applicant or a failure to secure the assistance of sufficiently experienced contractors for this analysis does not obviate or relieve the Commission of its duties as a Responsible Governmental Unit. In order to provide the necessary information EERA must make significant and substantial changes to the DEIS in order to assure an adequate analysis of the significant impacts attributable to the human environment for this first-of-its-kind project. Wishing that impacts are minimal and transitory does not make it so.	See the responses to CURE's more detailed comments below.	20242-203795-01
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	a. Human Settlement The DEIS concludes that the project's potential impacts on human settlement—including environmental justice, land use and zoning, populated areas, property values, public health and safety, public services and infrastructure, socioeconomics, and Tribal treaty rights—will be "minimal" to "moderate." The potential impacts on these aspects of human settlement, however, will likely be more long-term and substantial than the DEIS currently states. The DEIS should be revised/rewritten to include the following considerations.	See the responses to CURE's more detailed comments below.	20242-203795-01
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	i. Environmental Justice Environmental justice is broadly understood by regulatory agencies and is not a mapping exercise alone. The U.S. Environmental Protection Agency defines environmental justice as "the just treatment and meaningful involvement of all people, regardless of income, race, color, national origin, Tribal affiliation, or disability, in agency decision-making . . . activities that effect human health and the environment so that people . . . are fully protected from disproportionate and adverse human health and environmental effects (including risks) and hazards . . ." Similarly, the MN Pollution Control Agency defines environmental justice as "the right of communities of color, indigenous communities, and low-income communities, to the enjoyment of a health environment and to fair treatment with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies." According to the MPCA, "fair treatment" as used in this way "means no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental and commercial operations or policies. The DEIS concludes that "EJ impacts from construction and operation of the project would not result in disproportionate adverse impacts for EJ areas of concern within the ROI." The "EJ area of concern" appears to be limited by a rigid understanding of a census tract map and doesn't admit that the project is proximate to Indian Country and tribal communities. This statement also appears to be based on the assumption that the only environmental-justice-related impacts that might occur are limited to traffic, noise, and air pollution. But we know that the health and environmental risks associated with the project go beyond these issues and limited geography. The rest of the DEIS confirms this. Limiting consideration of potential impacts to traffic, noise, and air pollution ignores the many other impacts a project can have on overburdened individuals and communities.	Chapter 8 has been revised to include a new section (8.3.1.2) describing effects on environmental justice populations in the event of an accidental release of CO_2.	20242-203795-01
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	i. Environmental Justice (cont. 1) The DEIS also fails to consider the mental health impacts of hosting this kind of infrastructure. Although more research should be done in this area, studies have shown that there are tangible mental health impacts for those who live near industrial projects.1 The project asks the communities along the route to bear the burden of the mental health impacts—namely the stress and anxiety associated with a potential leak or rupture—that comes with hosting this kind of infrastructure. The community closest to the existing ethanol plant will be especially impacted by further concentration of industrial impacts.	Section 8.3.1.4 has been revised to acknowledge that people in the vicinity of the project may experience stress and anxiety related to fear of the effects of a potential leak or rupture. However, mental health impacts associated with the project would not be anticipated to be of the same magnitude as those experienced by those living near a large petrochemical complex in Texas City, Texas, as reported in the study cited by CURE.	20242-203795-01

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CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	i. Environmental Justice (cont. 2) The DEIS fails to link its EJ analysis to Indigenous cultural practices and the importance of a clean and abundant ecosystem for people who rely on native species for sustenance and traditional practices, such as collecting and preparing medicinal plants. As with the other part of the DEIS regarding treaty rights, the DEIS fails to adequately discuss and acknowledge that all of Minnesota is the historical homeland of Indigenous peoples, and all natural landscapes have some potential to be significant to communities that use these areas for cultural practices. The DEIS could be read to say that EERA only meaningfully consulted the Sisseton-Wahpeton Oyate regarding archeological resources, without providing opportunity for tribal members or staff to speak more broadly to impacts to living resources close to their reserved lands on the Lake Traverse Reservation. The DEIS should fully memorialize any and all concerns voiced by Tribal Nations regarding their access to cultural resources and practices, including any ongoing access to species and habitat in the project footprint.	Thank you for your comment. The EIS acknowledges that the project area was most recently occupied by the Dakota and Ojibwe. Other Tribes with historic cultural interest or ancestral ties to the project area are also noted. The EIS does, in the treaty rights discussion, state that the project area has been home to various peoples and cultures since time immemorial. The landscape within the project area, post-European contact, has been greatly altered toward a predominantly agricultural use. “Natural” landscapes are uncommon in the project area. The current project area is mainly private agricultural land and not available for public access. Native Minnesota plants and wildlife of potential significance to Tribes are discussed in Section 5.4.2 of the EIS. The project would temporarily impact the portions of the project area containing plant and wildlife habitat of potential Tribal significance during construction until restoration of disturbed areas is complete. Outreach to Tribal governments has been conducted throughout the environmental review and permitting process for the project. Tribes were provided an opportunity to comment on the content of the draft EIS while it was being prepared (Appendix J). Additionally, Tribes provided comment on the draft EIS after issuance (see Appendix O).	20242-203795-01
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	ii. Land Use and Zoning The summary of land cover provided in the DEIS states that zero acres of open water would be impacted by the RA-South route, but that RA-Hybrid and RA-North would impact 1.3 and 1.6 acres, respectively. Based on the definition of “open water” used in the DEIS, which references “surface water” generally, this seems inconsistent with the more detailed surface water impacts information presented later in Chapter 5. The DEIS states that activities which could impact open water include clearing and grading, dewatering and trenching, access road construction, waterbody crossings, surface water withdrawals and discharges, fueling and use of hazardous materials, and restoration or reclamation of construction areas. Per Chapter 5.7.8 of the DEIS, all three routes might result in “clearing and grading of stream banks, topsoil disturbance, in-stream trenching, trench dewatering, backfilling, and expansion of access roads,” which “can increase sedimentation and erosion, modify hydrological flow, release chemical and nutrient pollutants from sediments, and introduce chemical contaminants such as fuel and lubricants.”2 And all three routes might use surface water withdrawals for hydrostatic testing.3 The DEIS also confirms that all three routes cross more than 100 surface waters within the project area.4 Given this apparent discrepancy, EERA should revisit its statements and calculations of open water crossed by the routes to ensure their accuracy.	Although more than 100 surface waters are within the ROI for each route alternative, many fewer would actually be crossed by the project, because the ROI is larger than the construction workspace and because some waterbodies within the ROI would be crossed or avoided by HDD or bore technique, as shown in Tables 5-48, 5-49 and 5-50, thereby mitigating impacts on surface waters. Further mitigation for impacts on surface waters is addressed in section 5.7.8.3. Note: NLCD dataset resolution is often not sufficient to pick up small surface waters that would be included in the DNR Hydrography Dataset. Section 5.7.8.1 was revised, and a note was added to Table 5-47.	20242-203795-01
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	iii. Populated Areas The way in which the DEIS discusses potential impacts on populated areas conflicts with how other potential impacts are described. This seems to stem in part from the decision to consider the ROI for populated areas to only be the local vicinity (within 1,600 feet of the route width) instead of the project area (within one mile of the route width) or even the entirety of Otter Tail and Wilkin Counties. Because there are no census-designated places or incorporated places directly within the route or in the local vicinity, the DEIS concludes that “there would be no impacts on populated areas.” Yet, at the same time, the DEIS acknowledges that construction personnel and employees of the capture facility would rely on and use resources in the cities of Fergus Falls and Breckenridge during construction and operation of the project. These cities are therefore impacted populated areas, and the analysis of impacts should be scoped properly to include foreseeable impacts to populated areas. More importantly, the Department heard from residents living along and near the route at the public meetings in May 2023 and February 2024. These residents expressed disappointment over the Department’s decision to consider the places along the route as being not “populated.” If there is no population impacted by this project, then who exactly did EERA invite to the public meetings to learn about it? It is inconsistent and dismissive to describe rural areas as depopulated simply because the immediate area next to the applicant’s preferred route doesn’t include a high-density housing development. Given the above, the Department should expand the ROI for populated areas to at least within one mile of the route width, but more	Minnesota Rule 7852.1900, Supb. 3(A) requires the Commission to consider the impact of a pipeline to, among other considerations, the "existence and density of populated areas." Minnesota Rule 7852 provides no definition of "populated area." As described in Section 5.4.6, the EIS defines populated areas using United States Census Bureau data for incorporated areas and census-designated places. As stated in Section 5.4.6.1, the ethanol plant is near, but not within, the incorporated city of Fergus Falls. The EIS does not state that no population is impacted by the project, and does not state that rural areas are not populated. Section 5.4.6.1 has been revised to more clearly define "Populated Areas" as analyzed in the EIS. Minnesota Rule 7852.1900, Supb. 3(A) requires the Commission to consider the impact of a pipeline to, among other considerations, the "existence and density of populated areas." Minnesota Rule 7852 provides no definition of "populated area." Section 5.4.6 has been	20242-203795-01

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			reasonably within five to ten miles of the route width to capture more accurately who might be impacted by the proposed project. This should at the least capture Fergus Falls, Foxhome, Sunnyside, Doran, and Breckenridge.	revised to clarify the definition used in the EIS for populated areas and to note that the EIS describes potential impacts on the human environment, regardless of whether they would or would not occur within defined populated areas.	
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	iv. Property Values As direct testimony from Silvia Secchi explains, *(5)* the DEIS's conclusion that the presence of the proposed project "would not be expected to affect the value of residential properties during project operation," is based on outdated studies. *(6)* More recent research from 2023 found that "[p]roximity to an RMP [Risk Management Plan] facility, irrespective of any incidents, is associated with significantly lower home values." *(7)* Another study concluded that "pipeline incidents on average dampen housing prices within 1,000 meters (3,280 feet)" of the pipeline. *(8)* Given the public knowledge of the Satartia, Mississippi incident, it is reasonable to assume these effects might also be significant for those living along the proposed project route for this proposed CO_2 pipeline. As such, the DEIS should be amended to acknowledge these more recent studies and address the possibility that the presence of the project will impact property values. In doing so, the DEIS should realistically discuss the impact of lowered property values throughout the project area on the local economy. To the extent that EERA lacks this economic expertise and information, it should engage additional outside experts to assess the negative impacts on property values. Without accurate information on the economic costs of this project, the DEIS's rosy assessment of economic benefits is inaccurate and inadequate. *(5) CURE – Exhibit ____, Secchi Direct, eDockets Document No. 20242-203381-05.* *(6) DEIS, at 5-38.* *(7) Dennis Guignet et al., The property value impacts of industrial chemical accidents, Journal of Environmental Economics and Management, https://doi.org/10.1016/j.jeem.2023.102839 (2023). The study only considered RMP facilities, which are stationary sources. But there are many similar characteristics between RMP facilities and the proposed project that make comparison and reference to this study relevant.* *(8) Nieyan Cheng et al., Pipeline Incidents and Property Values: A Nationwide Hedonic Analysis, SSRN, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4116305 (2023).*	A new section on property value impacts related to pipeline incidents has been added to Chapter 8.	20242-203795-01
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	v. Public Health and Safety The majority of CURE's comments about public health and safety will be addressed below, in Sections IV and V, in the discussion about Chapter 8 and Appendix G. Here, we raise concerns about DEIS's failure to consider the possibility of human trafficking and an increase in incidences of violence against community members as a result of the increase of temporary, transient construction workers. This is a difficult subject to discuss and brings up many emotions for all impacted by this work, including nearby communities and the workers themselves. But given the well-documented history of violence perpetrated against communities in the vicinity of similar projects—especially violence against Indigenous women and children—it is unacceptable to ignore the very real potential for these kinds of human health and safety impacts. It is especially concerning given the applicant's decision to hire the same contracting company, Precision Pipeline, LLC, that worked on the Line 3 pipeline.9 Two of the men employed by Precision Pipeline to work on Line 3 were arrested during a human trafficking sting operation in Itasca County.10 Crisis centers also reported receiving an increase in reports about Line 3 workers harassing and assaulting women and girls living near the pipeline.11 These incidents occurred, despite Enbridge being required to create a Human Trafficking Plan—noticeably absent from discussion in this DEIS—and Enbridge confirming that "each worker goes through 'human trafficking awareness training'" before beginning work on Line 3.12 The applicant has made similar promises here, notably only via direct testimony and not in its application or the DEIS: "Summit will require that all of its employees and contractors complete a Human Trafficking Prevention Training prior to construction work."13 The health and safety of the workers themselves is also of concern. The same contractor has a checkered history with safety, according to incident report data from the Occupational Safety and Health Administration (OSHA).14 The final EIS should take a close look at the contractor's history of workplace incidents and discuss how this might impact the construction workers who would work on the project.	Section 5.4.8.2 has been revised to note the potential for violence associated with the presence of temporary workers. The applicant's commitment to educating all employees and contractors about prevention of human trafficking has been added to Section 5.4.8.3. In addition, Section 5.4.8.3 has been revised to add an EERA staff recommendation for a special permit condition requiring the applicant to provide its Human Trafficking Prevention Training for Commission review 30 days prior to submittal of the Plan and Profile. The decision to be made by the Commission does not include the specification of a specific contractor.	20242-203795-01
CURE	Sarah Mooradian,	2024-02-23	The DEIS contains little information or analysis regarding the energy demand of the project that shows the full anticipated impacts to the grid and other member-owners of the relevant power provider. There is a minor discrepancy in the DEIS regarding the potential electricity use of the project that should be resolved in the final EIS. In discussing potential impacts to electric utilities, the DEIS	Section 5.4.9.1 has been updated to include the natural gas and electricity usage at the existing ethanol plant. The GHG Emissions Summary table, Table 5-39, has been updated to use 38,501,733 kWh to	20242-203795-01

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	Hudson Kingston		reports that the applicant anticipates the project's operational needs to be approximately 38,501,733 kilowatt hours (kWh) per year.15 The GHG Emissions Summary table, however, states the annual project electricity use would be 39,297,360 kWh.16 The DEIS assumes without support that the project "is anticipated to have negligible impacts" on electric utilities. But the DEIS doesn't provide for a clear comparison of existing electric use at the facility and the additional demand from the project. In fact, the only mention of existing electricity use is found in Appendix I. Over the last two years, the Green Plains Ethanol Plant has averaged 3,171,885 kWh per month, or a total of 38,062,620 kWh per year. So, the proposed project is anticipating using the equivalent of an additional ethanol facility in terms of electricity – the project will roughly double electrical usage at an already energy-intensive industrial plant. For even more context, it is helpful to compare the proposed use to Lake Region Coop's existing electricity sales. According to the Coop's December 2023 financial report, the coop sold approximately 470,000,000 kWh of electricity in 2022 and 2023.17 The new addition of the capture facility's electricity would be about 8% of those sales. Most importantly, this additional electricity puts a new demand on the grid that is not otherwise needed. Despite the above, the DEIS did not consider whether there would be rate impacts on Lake Region Coop member-owners. EERA should revisit the potential for impacts to the electrical system and other Lake Region Coop customers and member-owners. It is important to know both the total expected energy use as well as the variable demand that is anticipated by the project's additional electric usage. Will the project's use spike at the same time as the existing plant's demand? Will Lake Region Coop have to implement peak-shaving policies and technologies elsewhere to manage this new intense use? Even if no immediate upgrades are required to deliver energy to the plant, will this increase member-owners' exposure to power outages or brown-outs in times of peak demand?	be consistent. Per the applicant, Lake Region Electric Cooperative (LREC) has not indicated that the additional load would necessitate implementing peak-shaving policies (see Appendix I, Supplemental Information Inquiry 13 response and email from LREC).	
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	The DEIS is also lacking a thorough discussion about how the project may impact emergency services, especially in light of consistent evidence that emergency medical services in rural Minnesota are facing significant challenges when it comes to staffing, funding, and coverage.18 The legislature recently established a Joint Task Force on Emergency Medical Services, and just last week, legislators introduced a bill seeking funding for EMS services across the state.19 The final EIS should take a hard look at the existing EMS services in the project ROI, including number of personnel and whether those individuals are volunteers or paid employees, average response times, and whether the departments have adequate funding. The final EIS should then discuss whether these services will be able to respond to a potential leak or rupture in a timely manner and with the necessary equipment.	The existing conditions of, and potential impacts and mitigations on, infrastructure and public safety, including emergency services, are discussed in Sections 5.4.8 and 5.4.9. Table 5-12 provides a list of emergency services in Otter Tail and Wilkin Counties. Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to respond safely to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. Additionally, the applicant's draft emergency Response Plan is included in Appendix N of the EIS. EERA staff recommended a special permit condition requiring the applicant to file its Emergency Response Plan that is filed with PHMSA with the Commission, and other special permit conditions as described in Section 8.5.3. Section 8.5.1.5 has been revised to address Emergency Medical Services (EMS) staffing shortage problems.	20242-203795-01
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	As the DEIS correctly notes, all routes have the potential to impact recreation during construction. However, the DEIS only considers the potential impacts to these resources during normal operations and does not address what might occur in the event of a rupture or leak. The final EIS should specifically address how a rupture in, say, the Fergus Falls Fish & Game Club's parcel or near the Orwell 9 unit, would impact recreation at those locations. Furthermore, abandoned pipeline infrastructure has the potential to have ongoing environmental impacts and the DEIS should fully assess the foreseeable impacts to recreation from this project after it has been decommissioned and abandoned in place by the company.	Impacts of a CO_2 release on recreation have been addressed in Section 8.3.1.5.	20242-203795-01
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	CURE agrees with the DEIS's conclusion that the economic impacts of the project would be minimal, if not entirely negative when considering the property value losses due to the hazardous nature of this project. It is clear that the economic benefits being reported externally by the applicant are not accurately describing all the foreseeable economic impacts. This raises important questions about why the DEIS reports the applicant's estimated tax revenue and overall economic benefits, without any analysis or independent verification of those amounts. As Dr. Secchi notes in her direct testimony, "there is robust literature that shows that these applicant reports are rhetorical devices that use inappropriate methods."20 The applicant's report itself acknowledges the limits of its usefulness: *This report is intended solely for use by Summit Carbon Solutions…we make no representation as to the sufficiency of the report and our work for any other purposes. Any third party reading this report should be aware that the report is subject to*	The EIS discloses the results of a socioeconomic analysis performed by a third party contracted by the applicant. EERA staff concludes that socioeconomic impacts are anticipated to be minimal, short term to long term, and similar across the three route alternatives. A full, independent economic analysis is outside the scope of this EIS, and it is not implied that one was conducted. Chapter 6 describes alternative technologies for decreasing CO_2 emissions.	20242-203795-01

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			*limitations, and the scope of the report was not designed for use or reliance by third parties for investment purposes or any other purpose.*21 Importantly, these kinds of applicant-funded and applicant-supplied economic "studies" only look at benefits, not costs. Conspicuously absent is a discussion about opportunity costs, such as alternative use of public funds the projects depend on.22 A recent study compared the applicant's project with building wind farms at the same cost. The study concludes that "investing in wind turbines to provide electricity for BEVs [battery electric vehicles] is far more beneficial in terms of consumer cost savings, CO_2e emissions, land use, and air pollution than making the same investment in a plan to capture CO_2 from ethanol refineries, pipe the CO_2 to an underground storage facility," and use the ethanol for consumption in vehicles.23 Given that the report relied upon to determine economic impacts of the project is supplied by the applicant and has not been independently verified, EERA cannot use the applicant's report as an accurate, full economic analysis. This is especially true since the report itself cautions against this exact type of false reliance. It is essential that the final EIS either entirely remove and replace the applicant's estimations, or independently verify or vet those estimations. The final EIS should also consider the opportunity cost of the project. This may require EERA to redo a significant amount of analysis, which is necessary in order to have an accurate assessment of the actual economic impacts likely to flow from this project.		
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	The DEIS recites the horrifying dispossession of land that occurred in 1863 along with the shameful history of promises made and broken, as well as the forced signing of land cessions under duress. It would be helpful for the DEIS to specifically acknowledge any experts who contributed to this part of the environmental analysis. Treaties between the federal government and Indian Nations are inherently difficult to interpret without fully understanding the intention of the tribal leadership at the table, which generally requires proper consultation with experts in the affected tribal communities. The DEIS should acknowledge any preparers who supplemented EERA's staff on this analysis. It is incorrect to state that simply because land was stolen, and the treaties were abrogated in 1863 there is no potential for impacts to treaty rights. For example, to the extent that this project perpetuates the ethanol industry it also increases inputs to concentrated animal feeding operations, also known as "factory farms." Ethanol distillers grains are regularly used as cheap feed for animals in factory farms.24 Such facilities are being proposed on the doorstep of tribal communities in the same region as this project, such as White Earth's reservation.25 As a result, an analysis of treaty rights that ends in the 1800s is incomplete and all Dakota and Ojibwe Tribes with historic connections to this land should be given the opportunity to add information to the EIS regarding foreseeable impacts to their air, water, wildlife, and cultural interests from this project.	Thank you for your comment. A list of preparers is included in Chapter 12. The ROI for Tribal Treaty Rights is the project area; therefore, the EIS describes treaties that overlap this geographical area. Tribes have had the opportunity to provide comment on potential impacts analyzed in the EIS throughout the environmental review and permitting process (see, e.g., Appendices J and O).	20242-203795-01
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	Tribes also have significant responsibility for emergency response and public safety, and that staff is not limited by arbitrary laws from 1863 that seek to hem them into small geographic spaces. To the extent that Tribal EMS staff may be called on to deal with a rupture of this pipeline that should be viewed as impacts to relevant tribal resources and fully analyzed in the EIS with the input of the foreseeably impacted governments. At minimum, the same Tribes who contributed staff time and expertise to the archeological studies for the DEIS should also be consulted regarding their concerns, and Tribal EMS capabilities that could be impacted by any part of the proposed pipeline network attached to this project.	Given the proposed pipeline route and associated facilities would be located in Otter Tail and Wilkin Counties and would be in proximity to the city of Breckenridge and the city of Fergus Falls, these local governmental EMS services and personnel would likely be the first responders called upon in the event of an unanticipated release associated with the project. Tribal reservations and lands are not located in proximity to the proposed project, and Tribal EMS staff would not likely be called to respond to an unanticipated release. Section 8.3.1.5 has been updated to indicate that impacts on Tribal EMS services are not anticipated.	20242-203795-01
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	The DEIS concludes that the economic impacts of the project on agriculture over the long term would be minimal. This appears to be in part because the DEIS believes any impacts to crop productivity will last for two to three years, on average. But recent research summarizing studies in this area contradicts this assumption and suggests that impacts from construction may be much more long-term.26 For example, one study found that corn grain yields were reduced by up to 50% during the first two years after the installation of the pipeline, but that even after ten years, "ROW crops were only yielding 77% of control area yields."27 Another study confirmed that "silking was delayed, corn plants were stunted, and yields were decreased on ROW," and persisted even with the use of fertilizer.28 In short, "published research has demonstrated a general consensus that pipeline installations have resulted in lasting soil physical and chemical degradation and subsequent decreases in plant productivity."29 This remains true, even with more contemporary construction practices that aim to separate topsoil and subsoil.30 The final EIS must reconcile the fact that	As indicated by the definitions found on Page 5-1 of the draft EIS, "long-term impacts extend beyond the end of construction and are generally associated with operation of the project." Disturbance to soils and crops from construction can result in impacts that extend beyond the construction phase. The text in the final EIS has been revised to indicate that impacts can be long term.	20242-203795-01

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			"contemporary pipelines installation still results in sustained soil degradation and crop yield losses," with its assumption that any economic impacts to agriculture will be short-term and minimal.		
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	While the DEIS goes through the motions of listing impacted resources, it appears that information provided by the applicant generally leads to overly optimistic analysis. In order to adequately analyze the foreseeable impacts of this project, EERA must acknowledge the technological limitations and recent history of the carbon capture industry. It does not work well and it generally is used to extract oil, not reduce climate emissions. Given the widely available facts about this project and others in the U.S., the DEIS should be updated and put in the larger context of the existing industry. Similarly, the DEIS cannot assume total mitigation of other impacts by other state agencies when the available evidence shows that regulatory enforcement is lacking and ineffective.	Thank you for your comment. The sources of information used to prepare the draft EIS are included at the end of each chapter. Section 5.7.2.3 has been revised to further discuss EOR and provide estimated volumes of produced oil and CO_2 emissions from EOR for different CO_2 capture rate scenarios.	20242-203795-01
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	By this point, it is widely accepted that climate change is happening, and that the impacts of a warming climate are here to stay. Our unseasonably warm and relatively snow-free winter and the previous few years of drought and wildfires are just the most immediate symptoms of these changes.31 Many of us have good-faith desires to stop climate change by reducing greenhouse gas emissions, including the emissions of carbon dioxide. But because carbon dioxide removal is a limited resource, how we choose to make those GHG emissions reductions is extremely important.32 Carbon capture applied to ethanol refineries is not the best use of these resources. As Dr. Grubert notes in her direct testimony, projects like the one proposed by applicant rely on pipelines, which are extremely long-lived,33 "with serious implications for host communities, landscapes, and long-term land use options." Furthermore, corn ethanol itself is highly land and water intensive and provides limited benefits to the energy system. It has a high carbon intensity relative alternative fuels like renewable-generated electricity, even with the addition of carbon capture and storage. Of course, the DEIS is not intended to consider the merits of a particular project. But the DEIS must accurately describe the potential impacts of that project. And in this case, the DEIS has failed to do so when it comes to describing and estimating the climate change impacts of the proposed project.	Thank you for your comment.	20242-203795-01
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	1. *The DEIS Erroneously Assumes 100% Capture and 0% loss of CO_2 Captured at the Green Plains Ethanol Plant* The DEIS assumes, without any evidence of independent verification, that the proposed project is capable of and will capture 100% of the CO_2 emitted by the Green Plains ethanol plant: "By capturing and sequestering the CO_2 underground, the project would provide a net benefit to GHG emissions and lower the carbon intensity of the ethanol plant because the emissions sequestered from ongoing annual operations would outweigh the capture facility's construction and operation emissions."34 This assumption is apparently based only on the applicant's own statement that "the capture facility is designed to capture 100 percent of the CO_2 produced by the ethanol plant."35 But there is significant gap between what a facility is designed to capture and what it is actually capable of capturing. In reality, no carbon capture facility has produced publicly available information that supports the conclusion that the technology can and consistently does capture 100% of the target emissions.36 For example, the Illinois Industrial Carbon Capture and Storage project in Decatur, IL, has been in operation since 2017.37 Originally designed to capture one million metric tons of CO_2 per year from the Archer Daniels Midland ethanol facility, the project has never been able to meet that goal.38 In fact, it has consistently been underperforming by about 48%.39 The only other example of a "large-scale" carbon capture facility at an ethanol plant is the Red Trail Energy facility in Richardton, North Dakota. The facility started capturing and sequestering CO_2 from the adjacent ethanol facility in June 2022, claiming it is capable of capturing 100% of the plant's emissions. 40 But publicly available information about its first full year of operation has yet to be released. More recently, the Blue Flint ethanol facility in Underwood, North Dakota, began capture and sequestration of facility emissions and has reported, without evidence, a 100% capture rate.41 Press releases aside, there is no available proof that any ethanol plant can capture as much CO_2 as the DEIS assumes without proof will be captured at this project. Even if the applicant is able to defy what current technology has proven it is capable of accomplishing in other ethanol plants and captures 100% of the emissions from the Green Plains ethanol plant, the DEIS still assumes that no CO_2 is lost throughout the transportation or sequestration process and that the CO_2 will be stored for a climate-relevant (1,000 years) period of time. There is no evidence to support that assumption. Additionally, other carbon capture facilities attached to CO_2 pollution sources have been turned on and off depending on the need for CO_2 and the upkeep of the capture technology. For example, the Petra Nova plant in Texas stopped capturing CO_2 for three years before its owner announced it may begin again.42 Similar to the examples noted above, Petra Nova never met its goals for tons of CO_2 captured over the years it did operate.43 It is not realistic to assume that the project will operate without any breakdown or updates for the entire lifetime of the ethanol plant. The DEIS must assess the excess pollution potential for regular or unplanned shutdowns of	Section 2.1 has been revised to clarify that the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. Text has been added to Section 2.1 describing the suitability of the Broom Creek Formation in North Dakota for CO_2 sequestration, as well as the monitoring and testing that would be done to verify that the CO_2 is contained in the storage reservoir. The analyses in Section 5.7.1.3 and Chapter 6 have been revised to include capture rate scenarios of 100 percent, 70 percent, 40 percent, and 10 percent.	20242-203795-01

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			the carbon capture technology while ethanol is still being produced. What the DEIS fails to capture is the lifecycle CO2 emissions reduction—or increase—that the project will actually accomplish. This is confirmed by Dr. Grubert's direct testimony, in which she concludes that "the DEIS fails to consistently distinguish between the amount of CO_2 captured and the amount of CO_2 permanently stored and does not address the level of net CO_2 abatement."44 The final EIS must reflect the lack of evidence for the project's ability to capture, transport, and permanently store all of the emissions from the facility.		
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	2. *The DEIS Ignores the Potential for Enhanced Oil Recovery* The DEIS does briefly address the issue of enhanced oil recovery (EOR) in the larger discussion of GHG emissions from the project. But the DEIS makes several significant errors. First, it asserts that "production of oil through EOR would not be dependent on the availability of CO_2 produced by the ethanol plant."45 North Dakota regulators and businesses with an eye on CO_2-EOR say otherwise. Indeed, a consultant report presented to the North Dakota Legislature in 2016 went into great depth of the link between CO_2 brought to North Dakota and EOR potential. It found: *If the Bakken is to realize its full EOR potential, the CO_2 EOR projects in North Dakota will have to rely primarily on anthropogenic sources of CO_2 supply….The development of CO_2 EOR in the Bakken will require about 35 MMt of CO_2 per year by 2035. That would require a combination of sources of supply within the state a**nd from states nearby**.46* Plans to expand CO_2 supply from anthropogenic sources have been on the radar for the oil and gas industry and their lobbyists for many years. This 2017 report from the Great Plains Institute explains the relationship: *Natural geologic supplies of CO_2 are constrained and gradually depleting, so the potential to grow the EOR industry hinges upon increasing the supply of anthropogenic CO_2, thereby also reducing net carbon emissions. In that context, low-cost, high-purity biogenic CO_2 from fermentation in ethanol production represents a key early target for making additional anthropogenic CO_2 available for EOR.47* Lyn Helms, the Director of North Dakota Mineral Resources, also recently reiterated the need for external sources of CO_2 for North Dakota CO_2-EOR production: *Carbon dioxide has got to come to North Dakota from somewhere, if we're going to stabilize and sustain Bakken oil production. So, we've got to find a way for carbon capture and utilization to become a part of North Dakota's economy, or we will leave billions of barrels of oil in the ground.48* *In short, the relationship between EOR and CO_2, especially CO_2 produced by ethanol plants, are well-documented and expected to continue. And as the DEIS acknowledges, "it is possible" for CO_2 captured by the project will be used for EOR. Statements made by the applicant's Chief Organizational Officer, Jimmy Powell, confirm this point: "If another carrier decided to use, or ask us to transport CO_2 for another purpose, like enhanced oil recovery, then that's a possibility."49 Powell also confirmed that the applicant will be maintaining 10% of their capacity for other shippers.50 The Petra Nova plant, mentioned above, went offline for three years due to the price of oil and the direct link between its carbon capture facility and its income from EOR,51 which was how the carbon capture was funded and made profitable in years of higher oil prices.* *Given the above, and the uncertainty of whether the CO_2 sent to North Dakota will be stored or used for EOR, the DEIS must consider the very real possibility that all of the CO_2 captured at the facility will be used for EOR. The 190,000 tons of CO_2 proposed to be captured is about 2% of the contracted amount of CO_2 the applicant has reported. It's about 1% of the maximum capacity of CO_2 the applicant has reported being able to capture and transport. This is dwarfed by the 10% that the applicant says can be used for any purpose after it is shipped in the pipeline. In short—all of the CO_2 captured at the Green Plains facility could be used for EOR, and then some.*	The text questioned by the commenter in Section 5.7.2.3 was prefaced with the following: "if all the CO_2 produced by the ethanol plant is sequestered as proposed, EOR would likely continue in North Dakota using other sources of CO_2, other gases, thermal methods, or chemical methods." Revisions are not necessary. However, Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for EOR.	20242-203795-01
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	Despite this, the DEIS concludes that "given the number of variables, quantifying this amount could not be done with any reasonable certainty, and a generalized formula to predict oil extraction could not be identified," and that therefore, "it would be speculative to conclude whether the availability or absence of CO_2 from the ethanol plant would have a significant effect on future oil production."52 But data from the EPA, International Energy Agency (IEA), and the Carnegie Endowment provide clear information which the DEIS can and should use to estimate the GHG emission impacts of CO_2-EOR. First, the IEA reports that between "300 kg CO_2 and 600 kg CO_2 is injected in EOR processes per barrel of oil produced in the United States."53 The EPA estimates that an average carbon dioxide coefficient of one 42-gallon barrel of oil is 426.10kg CO_2.54 The Carnegie Endowment's Oil-Climate Index confirms this general average and estimates an average carbon dioxide coefficient of 471kg CO_2-e per barrel of crude oil for Bakken No-Flare-produced oil and 532 kg CO_2-e per barrel for Bakken Flare-produced oil.55 Clearly, the information is available for EERA to estimate the potential GHG emissions impacts of the project's CO_2 being used for EOR.	Section 5.7.2.3 has been revised to include an estimate of emissions from oil produced with EOR using the CO_2 captured from the ethanol plant.	20242-203795-01

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CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	Following the pipeline rupture near Satartia, Mississippi, the Pipeline and Hazardous Materials Safety Administration (PHMSA) issued an advisory bulletin related to the risks of land-movements and geohazards for pipelines. Chapter 8 of the DEIS mentions this advisory bulletin, but does not address whether the applicant has followed the recommended procedures outlined in the bulletin. The final EIS must include that information, as well as evidence supporting any claims by the applicant that it has followed those guidelines. If the applicant has not followed those guidelines, the final EIS should include an explanation from the applicant as to why it did not and an analysis of the failure to comply with best practices identified by federal expert agencies.	Text has been added to Section 5.7.3.4 describing geohazard assessments for the project designed to comply with PHMSA Advisory Bulletin 2022-01. As noted in Section 5.7.3.4 and Section 8.1, the applicant has committed to conducting a Phase I Geohazard Assessment to identify areas surrounding the pipeline that may be prone to large earth movement, as recommended by PHMSA in its June 2022 Advisory Bulletin, and EERA staff recommends that the results of the Phase I Assessment, and any subsequent assessments, should be provided to the Commission.	20242-203795-01
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	The DEIS fails to include an analysis of the potential impacts, both short- and long-term of the proposed project on public and designated lands in the event of a leak or rupture. General impacts of a leak or rupture are of course described in Chapter 8. But the specific impacts that might occur in these unique public and designated lands are ignored. This is especially concerning as the DEIS lists federally- and state-listed endangered/threatened/special concern species without any meaningful discussion of how impacts to their habitat would harm their ability to continue to live in the area. The final EIS should look at each of the Waterfowl Production Areas within at least 1,000 feet of the ROW, given what the rupture modeling in Appendix G estimates about the potential impact radius of a rupture. Furthermore, a more in-depth analysis of the potential impact on aquatic ecosystems on public lands is necessary to better understand potential impacts to aquatic life long-term.	As described in Chapter 8, operation of the proposed pipeline would include integrated systems for detecting leakage, as well as protocols for addressing leaks promptly. Minor CO_2 leaks from operation of the proposed pipeline would not elevate ambient CO_2 to a level that is detrimental to waterfowl and other wildlife within Waterfowl Protection areas (WPA). RA-South would cross the corner of an unnamed WPA and be near other WPAs, including the Orwell 9 Unit and Ridgeway WPA in Otter Tail County. If a leak or rupture occurred within a WPA, wildlife habitat could be affected in the same way as described above. RA-North and RA-Hybrid would cross the same unnamed WPA, but would not cross any other WPAs.	20242-203795-01
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	The DEIS identifies lake sturgeon as a species potentially impacted by the project and that is under consideration by the U.S. Fish & Wildlife Service for listing in mere months. No further discussion is given to the potential impacts of the project on these fish, because it is assumed that "documented occurrences in the Otter Tail River [are] well upstream of all three route alternatives."56 But the DNR has recently tagged and released sturgeon into the lower Otter Tail River, below the Orwell Dam in Fergus Falls, which totally refutes the assumption that the fish only exist upstream.57 The DEIS's silence on this runs counter to state government's ongoing and important conservation and research activities regarding this species. Lake sturgeon (Acipenser fulvescens) is a large, long-lived, freshwater fish species that historically inhabited rivers and lakes throughout three major North American watersheds: the Hudson Bay, the Great Lakes basin, and the Mississippi River.58 This includes the Red River Basin.59 Lake sturgeon's preferred habitats are large shallow lakes, rivers, and near-shore areas.60 Lake sturgeon feed by using their protruding mouths to suction up bottom-dwelling organisms such as crayfish and other crustaceans as well as insect larvae.61 Lake sturgeon have a low reproductive rate and may not begin to spawn until they are fifteen to twenty-five years old.62 Mature males spawn on average every other year and females spawn on average every three to four years.63 Sturgeons are highly vulnerable to habitat alteration because of their specialized habitat requirements, the long time it takes them to reach breeding maturity, and their episodic reproductive success. Temporary impediments, changes to behavior, temporary loss of habitat, and/or the alteration of water quality could increase the stress rates, injury, and/or mortality experienced by fish. If a pipeline rupture, spill, or other inadvertent release occurs within a waterbody, the resulting turbidity could impact water quality and impede fish movement, potentially increasing the rates of stress, injury, and/or mortality experienced by fishes. Because of the project's potential to "increase sedimentation and erosion, modify hydrological flow, release chemical and nutrient pollutants from sediments, and introduce chemical contaminants such as fuel and lubricants," the final EIS should include a detailed discussion of how the proposed project may impact this vulnerable species—including what may happen in during construction, operation, and in the event of a leak or rupture. The DEIS should more generally have sufficient information regarding all the listed species noted to assure that any potential take is foreseen and mitigated. Merely naming species and assuming they will be fine is not an analysis of potential impacts.	The United States Fish and Wildlife Service (USFWS) recently announced (on April 23, 2024) that listing of the lake sturgeon is "not warranted" at this time. Therefore, the draft EIS discussion of potential impacts on all fish species potentially present applies to the lake sturgeon as well. However, additional language regarding lake sturgeon presence in the upper and lower reaches of the Otter Tail River was added to the Rare and Unique Resources section (5.7.5) and to the Wildlife section (5.7.10.1) in order to more fully describe the extent of lake sturgeon presence in the river.	20242-203795-01
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	The DEIS incorrectly states that potential impacts on soil and corresponding vegetation would be expected to be short-term, lasting between two and three years, and potentially up to five years after restoration.64 As discussed in section I.b.i. above, studies suggest that the impacts of pipeline construction on soil and vegetation can last well beyond two to three years. The final EIS must include a more robust discussion of this issue and either adjust its estimates or explain why this project will be different from those studies and	Section 5.7.6 explains that the applicant would comply with required permits and implement its Minnesota Environmental Construction Plan (ECP) and Minnesota Agricultural Protection Plan (APP), which would minimize impacts on soils. The text in Section 5.7.6 has been revised to	20242-203795-01

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			able to ensure it will not have long-lasting impacts on soil health and plant productivity. EERA should also respond to concerns raised by Dr. Secchi and Dr. Dolph in direct testimony in PUC Docket No. 22-422.	indicate that while most impacts on soils during construction would be minimal and temporary, some impacts could be longer term.	
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	Water is a precious resource, one that is threatened by climate-change induced drought and deluge making water availability and quality uncertain, even in the land of 10,000 lakes.65 The DEIS provides a cursory discussion of the amount of water that might be needed during construction and operation of the project, but assumes that because the Department of Natural Resources (DNR) has regulatory authority over water appropriations, it is not necessary at this time to require clear answers from the applicant about total water use, evidence for those estimates, and an analysis of how existing water use would be impacted by the proposed project. This is incorrect and ignores the clear directives of the Minnesota Environmental Protection Act (MEPA). DNR has famously and consistently failed to enforce groundwater appropriation limits, both across agricultural areas in Minnesota as well as against pipeline companies, namely Enbridge and its ongoing aquifer breaches caused by Line 3. Both the Star Tribune and New York Times have reported on the state's failure to make any meaningful efforts to rein in over-pumping of groundwater by well permit owners in recent years.66 "During the 2021 drought, nearly 800 Minnesota farmers with high-capacity wells pumped 6.5 billion more gallons of water than their permits allowed, state records show."67 In response DNR merely acknowledged that that was a lot of water and said they were "trying" to get people to comply with their permits.68 The reporting of over use is said to be an "honor system" with no compliance checks by DNR.69 Minimal fines are often given, and frequently forgiven before they are fully paid, but are not sufficient to deter violations in any case.70	Thank you for your comment.	20242-203795-01
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	Closer to EERA's expertise and experience, the Line 3 pipeline has repeatedly been shown to have caused aquifer breaches that resulted in millions of gallons of groundwater lost for no economic purpose.71 Although Enbridge was charged criminally for three of the breaches, more breaches are still being discovered72 and criminal enforcement clearly had no deterrent effect on what was already a fait accompli when the pipeline construction repeatedly punctured aquifers leading to uncontrolled leaks. Environmental review and mitigation before construction is the only viable opportunity for preventing such breaches and misappropriations, reliance on DNR rather than proper analysis in the DEIS is a mistake that has demonstrably not protected groundwater resources in the past.	Thank you for your comment.	20242-203795-01
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	EERA must revisit its discussion about water resources and include a detailed discussion about where the applicant's water appropriations will come from (what water source), what the existing water use conditions are for that source, and how the proposed use will impact nearby wells (ROI should be at least at the County level, given the intricate and interconnected nature of water resources). Additionally, the DEIS should discuss what available mitigation measures for fixing aquifer breaches would be sufficient to cure construction mishaps when they occur. To the extent that aquifer breaches cannot be fixed after the fact, the DEIS should discuss this and fully lay out the foreseeable impacts of these water appropriations that are known to occur when pipelines are constructed through Minnesota aquifers.	Additional detail regarding water appropriations has been added to Section 5.7.8.2. Section 5.7.8.2 acknowledges that damage to aquifers is a serious problem and indicates that an uncontrolled flow of water from a shallow confined aquifer could have a significant, long-term impact on groundwater. Furthermore, text has been added to Section 5.7.8.2 to indicate EERA staff recommends the applicant develop, in coordination with DNR, a plan for pipeline construction in areas crossing the beach ridge system area. The plan would include, at a minimum, measures to minimize the potential for breaching a shallow confined aquifer during trenching and contingency measures to mitigate the impacts of a breach, should one occur.	20242-203795-01
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	Additionally, CURE would like to incorporate by reference all of Dr. Christy Dolph's direct testimony as it is also relevant to the inadequacy of the DEIS analysis regarding water andsoil impacts. Dr. Dolph's points about the failure to assess different routes' potential impacts on the relevant aquifer should be addressed in the final EIS.	Thank you for your comment.	20242-203795-01
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	The DEIS does acknowledge that horizontal directional drilling (HDD) may negatively impact soils and waterbodies in which installation occurs. But the DEIS does not provide an adequate discussion of the potential impacts to water quality and overall ecosystem harms that may occur in the event of "frac outs," from either bentonite clay or additives mixed with drilling fluid for lubrication purposes. Furthermore, the DEIS fails to discuss whether or how the risk of frac outs can be mitigated or explain why the risk cannot be mitigated. As noted above, this is especially important to consider given the record of numerous frac outs that occurred during construction of Line 3.73	The EIS discloses the potential for an inadvertent release of drilling mud and describes potential impacts in Chapter 5.	20242-203795-01
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	Despite comments submitted by CURE and others during the scoping process,74 the DEIS does not address the potential impacts of a CO_2 leak or rupture in water during winter conditions, and particularly, when there may be ice covering open waters or wetlands. The final EIS must include information about this issue.	Sections 8.3.1 and 8.3.4 have been revised to discuss the potential impacts of ice covering waters or wetlands at the point of a rupture. In general, if CO_2 released from the pipeline was trapped by ice, then the CO_2 would release more slowly into the atmosphere as it traveled	20242-203795-01

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				laterally under the ice until it escaped through cracks or gaps in the ice, thereby decreasing the impact distance (the distance the CO_2 would travel through the air). The EIS modeled the worst-case scenario where the CO_2 is not trapped by ice. In the event of a pipeline rupture that caused CO_2 to be trapped by ice covering a waterbody, CO_2 could remain in contact with the water for more time, and the concentration of carbonic acid could increase. In other words, the water and aquatic species could experience a greater impact from the CO_2, but the atmosphere would experience less CO_2, and the risk to humans and other terrestrial species would be lower.	
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	Wetlands ecosystems are among the most valuable in the world because they provide critical ecosystem functions like carbon sequestration, biodiversity conservation, fish production, water purification, and erosion control.75 In general, most of the state's naturally occurring wetlands have been eliminated, in large part due to the conversion of that land to agricultural purposes.76 But wetlands are also difficult to restore once damaged and often never recover their original functions. This means that remaining wetlands are even more important to protect from degradation. As a result, Minnesota has "adopted a broad policy goal to achieve no-net-loss" of remaining wetlands and promote "increases in the quantity, quality, and biological diversity of wetlands."77 There appears to be a discrepancy in how the DEIS reports the potential wetland impacts of the project. In one place, the DEIS asserts that "the loss of wetlands would be less than 0.01 acre, resulting in minimal change in water resource land cover."78 But in Table 5-44, the DEIS reports that acres of wetland impact within the construction workspace alone for all three routes would be between 0.8 acres and 4.7 acres for both construction and operation of the project.79 And in Table 5-51, the acres of wetlands within the ROI (route width), are even larger—20.9 acres for RA-North, 24.7 acres for RA-Hybrid, and 44.6 acres for RA-South.80 The final EIS must identify which of these totals is most accurate in estimating potential wetland impacts and losses and explain why it reaches that conclusion.	Discrepancies between Table 5-4 and Table 5-54 result from different datasets and the associated resolutions. Table 5-4 uses NLCD data to analyze land cover, and Table 5-54 uses NWI data to analyze wetlands. Table 5-40 has been edited to be consistent with discussions of impacts on wetlands in Section 5.7.9 and Table 5-53 and Table 5-54.	20242-203795-01
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	As explained above, the DEIS lacks a detailed discussion about the potential impact on lake sturgeon, which is up for federal listing consideration this year. Additionally, the DEIS assumes without support that in the event of a rupture, any mobile animals would simply move away from the point of rupture. This is inconsistent with the rupture modeling in Appendix G, which suggests that the rate at which CO_2 is released in the event of a rupture would make it difficult for even highly mobile animals to escape quickly enough to avoid harm or death.81	USFWS recently announced (on April 23, 2024) that listing of the lake sturgeon is "not warranted" at this time. Therefore, the draft EIS discussion of potential impacts on all fish species potentially present applies to the lake sturgeon as well. However, additional language regarding lake sturgeon presence in the upper and lower reaches of the Otter Tail River was added to the Rare and Unique Resources section (5.7.5) and to the Wildlife section (5.7.10.1) in order to more fully describe the extent of lake sturgeon presence in the river. The data presented in Appendix G describes models of dispersal patterns in the immediate vicinity of a rupture. These models support the statements in Chapter 8 that wildlife in the immediate vicinity of a rupture might be exposed to high levels of CO_2, which could be toxic for species or individuals unable to leave the area of the release.	20242-203795-01
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	On February 6, 2023, the Commission denied CURE's petition for an EAW for the entire Minnesota footprint of the Midwest Carbon Express. According to the Commission, because there is no application currently before it on the Jackson to Kandiyohi and Martin County portions of the MCE, it cannot consider the impacts of those routes. CURE petitioned for reconsideration and the Commission again disagreed, maintaining its denial of CURE's petition for an EAW. Since then, the applicant has made multiple public statements about its intent to submit applications for the Jackson to Kandiyohi and Martin County portions of its MCE project. The DEIS also recognizes the inevitability of those applications, saying: The project would connect to a larger CO_2 system known as the MCE Project….the applicant expects to submit additional routing permit applications in the future. The applicant anticipates having permits for all pending applications in hand to start construction for portions of the project by first quarter 2025 and plans to begin operation by early 2026.82 Undeniably, the Otter Tail to Wilkin project is the MCE Project. As CURE has stated multiple times, the MCE is a phased project, and	Thank you for your comment. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20242-203795-01

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			the environmental, human, economic, and other impacts of all 241.8 miles of the project must be considered cumulatively now, not through piecemeal environmental review over the next two years.83		
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	III. T*he DEIS does not adequately consider the full environmental impacts of corn ethanol.* The Greenhouse gas, Regulated Emissions, and Energy Use in Transportation (GREET) model was developed by the Argonne National Laboratory to "examine[] the life-cycle impacts of vehicle technologies, fuels, products, and energy systems."84 The GREET model can offer some insight into how to quantify and compare the carbon intensity of products, but is not designed to provide a comprehensive overview of all the impacts, including water quality and soil health.85 The final EIS should more explicitly explain the externalities associated with ethanol production, not only the fuel's carbon intensity. Additionally, as explained by Dr. Grubert in direct testimony, the DEIS incorrectly calculates the carbon intensity score of ethanol at the Green Plains plant with the project.86 Not only does the DEIS use the wrong calculations, it also only measures the amount of carbon captured instead of the amount of CO_2 abated per megajoule (MJ) of ethanol. Because "an accurate CI score cannot be estimated without a clear understanding of the fate of captured CO_2, including pipeline leakage, storage leakage, and failure to permanently store CO_2," the final EIS must estimate the amount of CO_2 abated instead of only the amount captured.87	The EIS has been revised to include the proposed changes presented by Summit's response to commenters' suggestion: (1) The draft EIS states, "[t]he project would reduce the ethanol plant's CI score to 36.3." The following sentence states, "The following equation shows how the project would change the CI score of the ethanol plant by serving as a credit that can be deducted from the overall score." Those two statements are in conflict with each other. However, by changing "to" to "by" in the first sentence, they would no longer be in conflict. Accordingly, this language has been revised in the final EIS to more accurately reflect the Project's impact on the CI score by stating, ""[t]he project would reduce the ethanol plant's CI score by 36.3." (2) The calculations provided in the draft EIS (Chapter 6, Page 6-7) represent the CI score impact of capturing and storing fermentation CO_2 from the Green Plains Ethanol plant. The CI score determined in the draft EIS includes the direct and indirect emissions associated within the proposed design and construction of the project. Table 5-39 provides a summary of GHG emissions from the initial construction as well as the proposed ongoing annual operations from capture (abated), capture facility, and updated values for electricity use. Electricity use in the draft EIS was estimated to be 26,893 (MT CO_2e/yr) and was calculated using the California GREET model emission factor of 684.35 g CO_2e/kWh for the Midwest Reliability Organization West region, which includes Otter Tail and Wilkin Counties. The draft EIS estimated an annual project electricity use of 39,297,360 kWh. [CO_2e (metric tpy) = 39,297,360 kWh x 684.35g CO_2e/kWh x 0.0022046 lb CO_2/g CO_2/2000 lb/ton x 0.907185 metric ton/ton]. The annual project electricity use has been updated to reflect the design for 100 percent electrical use from an updated source at about 38.5 million kilowatt hours (kWh), an about 0.8 percent reduction in kWh (the 38.5 million kWh assumption is updated to reflect Summit's response to Question 6 in Summit's Response to Supplemental Information Inquiry 5). Utilizing the GREET emission factor for LREC of 132.2 g CO_2e/kWh, this results in emission sources of 5090 MT CO_2e (about 3 percent of the 0.19 metric tons per annum at 100 percent capture design rate). The equation in Section 6.1.4 has been edited to estimate the impact of the proposed project on the net CI score as suggested: (CI score without CCS) – (g CO_2/MJ abated). Table 6-2 has been added to include a range of net CI scores for various capture rate scenarios. The analyses in Section 5.7.1.3 and Chapter 6 have been revised to include capture rate scenarios for 100 percent, 70 percent, 40 percent, and 10 percent.	20242-203795-01
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	*IV. The Rupture Analysis Does Not Provide Enough Information to be Relied Upon* CURE is appreciative of the Department's work to find and coordinate with an analyst to create the rupture study in Appendix G. Minnesota is the only state in the footprint of the applicant's MCE project to have conducted independent modeling and made it publicly available. However, there are several issues with the analysis that must be addressed in the final EIS and prior to any decision the Commission makes on the route permit. The final EIS must "show its work" and prove the validity of its analysis.	Thank you for your comment.	20242-203795-01

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CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	*IV. The Rupture Analysis Does Not Provide Enough Information to be Relied Upon (cont.)* At public meetings in Breckenridge and Fergus Falls in February 2024, commenters identified a discrepancy in the reported estimated time for closing mainline valves (MLVs) during an emergency. The applicant states that it will be able to respond to an emergency situation and close the relevant valves within ten minutes of a rupture or release occurring. The final EIS should scrutinize the applicant's assertions on this issue and require applicant to provide evidence supporting those assertions.	Text in Section 4.5 on valve closure time has been revised from 25 minutes to 10 minutes. Elsewhere in the EIS, including the rupture analysis, valve closure time is listed/calculated as 10 minutes. Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. The Emergency Response Plan included as Appendix N is a draft plan that is not outdated but would be revised, as required by PHMSA, if the project is approved. Additionally, EERA staff recommended a special permit condition requiring the applicant to file its Emergency Response Plan that is filed with PHMSA with the Commission, and other special permit conditions as described in Section 8.5.3.	20242-203795-01
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	*IV. The Rupture Analysis Does Not Provide Enough Information to be Relied Upon (cont.)* As noted by Dr. John Gorman in direct testimony submitted on behalf of CURE, the CANARY software used in Appendix G does not apparently account for critical factors related to pipeline ruptures, including spatial or temporal variations in local windspeed, changes in terrain or obstacles, dynamic three-dimensional thermal-fluid phenomena like convection, and ruptures where the angle of release is primarily vertical.88 Beyond the limitations of the model itself, Dr. Gorman notes that "any result from any model is only as good as the assumptions and inputs used."89 Unfortunately, Appendix G fails to "discuss the actual equations being solved or the assumptions the software uses to perform the analysis," and does not appear to have undergone verification and validation activities to determine how accurate the results of the model may be.90 Dr. Gorman identifies similar gaps in information for the Computational Fluid Dynamics model included in the rupture report.91 In sum, Dr. Gorman ultimately concluded that because of lack of detailed information, "it is impossible to determine whether the conclusion about potential impact areas is correct."92 Because EERA has never conducted this type of environmental review before, and because this analysis is so important to the public's overall understanding of this new technology, it is imperative that the EIS transparently demonstrate the validity of the modeling it purports to present. At this point there is not enough information in the DEIS for experts to be able to understand what is being presented, this undercuts the purpose of environmental review because neither decision makers nor the public can be confident of the results proffered.	The rupture analysis performed for the EIS by Allied uses CANARY software developed by Quest Consultants. CANARY uses publicly available equations. These equations along with a discussion of how they are applied are in the CANARY User Guide. Critical factors were accounted for in the Aerial and Thermal Dispersion Analysis Report and the CFD Analysis Report dated January 15, 2024 (Appendix G of the EIS). CURE filed Information Request No. 2 on February 15, 2024, after Dr. Gorman's testimony was filed on February 13, 2024. The Minnesota Department of Commerce, Energy Environmental Review and Analysis Unit provided a response on February 28, 2024, which is attached to this comment matrix (Appendix O). In the February 28, 2024, response, the Minnesota Department of Commerce and Allied responded to further questions about "critical factors" in questions 3-6, 8, 9, 13, 14, 16, and 17 of the CURE IR 002 EERA. The CFD Analysis Report in Appendix G explains how Allied validated the CANARY model against the CFD modeling. This is not the approach Dr. Gorman explained he would take, but it is a valid way to vet a model. Allied has provided additional information about the verification and validation of CANARY in Appendix C to the Aerial and Thermal Dispersion Analysis Report (Appendix G of the EIS).	20242-203795-01
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	*V. The DEIS Inaccurately Describes the Role of PHMSA and the Commission in Regulating the Project* The DEIS makes a number of errors in describing the potential human health impacts of a leak or rupture. This starts with the incorrect summary about the role PHMSA plays in regulating CO_2 pipelines included in both Chapter 8 and Appendix G. PHMSA is the federal agency tasked with regulating "the safe and secure movement of hazardous materials to industry and consumers by all modes of transportation, including pipelines." PHMSA does not issue permits to individual operators to transport hazardous materials, though it does issue permits when an operator seeks a variance to the standard Hazardous Materials Rules. Instead, PHMSA sets standard regulations for various elements of pipeline construction and operation—most of which explicitly reference industry-established standards. PHMSA did not regulate CO_2 transported via pipeline until 1991, following a 1988 Congressional directive that was prompted by concerns over a massive natural carbon dioxide release in Lake Nyos, Cameroon in 1986. Ultimately, PHMSA decided not to set standards specifically applicable to supercritical CO_2, because there were so few CO_2 pipelines in existence at the time, and those that	Thank you for your comment. PHMSA regulations (that is, their appropriateness) and related standards for CO_2 pipelines are outside the scope of the EIS (Appendix A). Section 3.6 acknowledges that PHMSA is currently conducting rulemaking proceedings on proposed amendments to its pipeline safety rules, and the Commission states it would be prudent for EERA staff and the applicant to take that information into account, even if the updates have not been finalized. Appendix G of the EIS further summarizes the extensive and detailed PHMSA CO_2 pipeline regulations applicable to the construction, operation, and maintenance of such pipelines, and the status of pending PHMSA changes to such (see draft EIS, Appendix G.2 and G.3).	20242-203795-01

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			were in operation were almost exclusively used for enhanced oil recovery. The limits of PHMSA's rulemaking are now more apparent than ever, as more and more companies line up to put CO_2 pipelines in the ground across the country. A 2022 report from the Pipeline Safety Trust explains these various gaps in regulation and why they are important to resolve before permitting the thousands of miles of CO_2 pipelines currently proposed. Most important for this discussion is the fact that "current federal pipeline safety regulations do not provide any methodology for assessing the hazard zone for CO_2 pipelines or require that pipeline operators adequately address this risk."	EERA staff has been following PHMSA CO_2 pipeline rulemaking proceedings before and since issuance of the draft EIS. As of July 5th, 2024, PHMSA has not published the Notice of Proposed Rulemaking that will describe the scope of new and amended regulations, and changes to existing rules and regulations are not known. Therefore, as ordered by the Commission, it is not possible for the EIS to include a "discussion of mitigation strategies and measures to ensure public safety including, but not limited to, measures consistent with the proposed and final federal rules to the extent available" (Commission. September 26, 2023. Order Approving Scope of Environmental Review and Denying Stay. eDockets No. 20239-199149-01). Section 3.6 and Appendix G of the EIS have been updated with the above information.	
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	There is also uncertainty about whether PHMSA's regulatory authority extends to all CO_2 pipelines. PHMSA's current definition of "carbon dioxide" does not include pipelines transporting CO_2 in liquid or gaseous phases, or streams that contain less than 90% CO_2. Here, the applicant has stated that the pressure and temperature of the pipe will be between 30 and 115 degrees Fahrenheit. The supercritical point for CO_2, or the pressure and temperature at which it enters a supercritical phase, is 88 F and 1070 pounds per square inch (psi). At temperatures below the supercritical point, "part of the fluid will condense to liquid with a higher density than the fluid." And if pressure drops below 1070 psi, "part of the CO_2 will convert to a gas/liquid mixture depending on the temperature." Based on the applicant's provided information, the CO_2 in its pipeline may vary between a supercritical state and some combination of a liquid or gaseous state. Thus, it is unclear whether PHMSA regulations even apply to the applicant's pipeline. But more importantly, because PHMSA regulations are designed with only supercritical CO_2 in mind, it is unclear whether the regulations are adequately protective in instances where CO_2 is not consistently held in a supercritical phase in the pipeline. The final EIS must acknowledge and discuss this discrepancy and what it might mean for the health and safety of those living along or near the applicant's pipeline. The final EIS must clearly identify which Code of Federal Regulations provisions it relies upon if it is in fact asserting that this project will be covered by relevant PHMSA regulations. If EERA cannot cite any relevant law that would apply standards to a pipeline carrying liquid or gaseous CO_2, the environmental review should explain this and discuss the potential impacts of routing a liquid/gaseous CO_2 pipeline that is built without applicable federal standards. It is also worth noting that when announcing its intent to update its regulations, PHMSA specifically identified a need to update its emergency preparedness and response standards. To the extent that the DEIS assumes there are federal standards for emergency response, it should discuss how the lack of current standards will impact public safety in the pendency of PHMSA's regulatory updates. Appendix G and the DEIS do correctly note that while PHMSA is in the process of updating its CO_2 pipeline regulations, those rules will likely not be complete for some time. And there are no assurances from the applicant, nor any condition proposed in the DEIS that construction on the project—if permitted—should not begin until PHMSA has completed its rulemaking. Given the gaps that currently exist in PHMSA's regulation, it is unconscionable to consider permitting the proposed project and subject people, places, and environments in the vicinity of the project to the potentially life-threatening impacts of a CO_2 pipeline.	Thank you for your comment. The appropriateness and adequacy of PHMSA regulations and related standards for CO_2 pipelines is outside the scope of the EIS ordered by the Commission. (Appendix A). To EERA staff's understanding, PHMSA's regulatory authority extends to the project. PHMSA defines carbon dioxide as a *fluid* consisting of more than 90 percent carbon dioxide molecules compressed to a supercritical state (see 49 CFR Part 195.2) (emphasis added). The Applicant's Route Permit Application (RPA) includes a description of the proposed project design specifications and operating parameters (see Table 2, Page 8, of the RPA) indicating an operating pressure of 1,200 pounds per square inch gauge (psig) to 2,150 psig (which is above the 1,070 psi [or 1,084.7 psig converted relative to atmosphere] noted by the comment, below which "part of the CO_2 will convert to a gas/liquid mixture depending on the temperature") and an operating temperature of 115 to 30 degrees Fahrenheit. Section 3.2.1 of the RPA describes the proposed capture facility and how it would operate (see Page 10 of the RPA). The feed gas (emissions from the ethanol plant's fermentation process) would be cooled, compressed, and dehydrated until it reaches a dense phase or supercritical state prior to entering the pipeline to allow the product to be transported more efficiently, with less energy, and in a smaller pipe relative to gas phase transportation. Since the CO_2 would enter the proposed pipeline in a supercritical state, it would meet the PHMSA definition of "carbon dioxide" and thus would be subject to PHMSA regulations. The Applicant indicates the proposed project will meet or exceed state and federal safety requirements and will be designed in accordance with 49 CFR Part 195, because the pipeline will be an interstate pipeline project (see Section 4.6, Page 25, of the RPA). The Applicant also states that operations and maintenance programs and integrity management programs (IMP) developed under 49 CFR Part 195 Subpart F (and associated Appendix C) will also be performed (see Section 4, Page 18, of the RPA). In Section 4.6.2 of the RPA, the Applicant states the project will comply with emergency response requirements set forth in 49 CFR Part 195.401(e) and included a draft Emergency Response Plan (ERP) with the	20242-203795-01

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				RPA that would be finalized prior to placing the project in service (see Section 4.6.2, Page 26, and Appendix 6, of the RPA).	
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	Finally, the DEIS incorrectly states that "EERA staff reiterates that the Commission cannot set safety standards." While it is true that certain elements of pipeline safety are the exclusive jurisdiction of PHMSA—see the discussion above—the DEIS makes an improper and erroneous leap to conclude that the Commission is unable to consider and act upon any safety concerns related to the project. PHMSA itself has explicitly responded to this federal preemption issue in letters to the applicant and other pipeline companies, saying: *"PHMSA cannot prescribe the location or routing of a pipeline and cannot prohibit the construction of non-pipeline buildings in proximity to a pipeline. Local governments have traditional exercised broad powers to regulate land use, including setback distances and property development that includes development in the vicinity of pipelines.* ***Nothing in the federal pipeline safety law impinges on these traditional prerogatives of local—or state—government.****"* Minnesota statutes indicate that this kind of regulatory authority rests solely with the Commission: The issuances of a pipeline routing permit under this section and subsequent purchase and use of the route locations is the only site approval required to be obtained by the person owning or constructing the pipeline. The pipeline routing permit supersedes and preempts all zoning, building, or land use rules, regulations, or ordinances promulgated by regional, county, local, and special purpose governments. Therefore, the Commission—and only the Commission—has the authority to not only consider health and safety when routing a pipeline, but to also establish safety requirements or conditions for that pipeline, so long as the issue being regulated is not preempted by federal law. The final EIS must accurately reflect this relationship between the Commission and PHMSA in addressing the health and safety impacts of CO_2 pipelines and consider mitigative measures to ensure public safety, including setbacks and depth-of-cover. For these reasons it is inaccurate for the DEIS to say that state and local regulators cannot set safety standards, and the EIS should be amended to more accurately state the limited preemption that was clarified by PHMSA as stated above.	Although the Commission cannot set safety standards for pipeline construction or operation, state or local units of government may, to the extent authorized by law, set land use requirements that indirectly contribute to pipeline safety by regulating the activities of third parties located in the pipeline's vicinity. The Commission's obligation is to identify a pipeline route consistent with the criteria found in statutes and the applicable administrative rules. Federal law, by contrast, exclusively prescribes pipeline safety requirements. Section 3.4 of the EIS has been revised with this information. The appropriateness of PHMSA regulations and related standards for CO_2 pipelines is outside the scope of the EIS (Appendix A). In PHMSA's letter to CO_2 pipeline companies (dated September 15, 2023),which is referenced in the comment, it states: "Congress vested PHMSA with authority to regulate the design, construction, operation, and maintenance of pipeline systems, including carbon dioxide pipelines, and to protect life, property, and the environment from hazards associated with pipeline operations." The letter also stated that Congress determined pipeline safety is best promoted through PHMSA's development of nationwide safety standards; PHMSA has promulgated comprehensive safety regulations at 49 CFR Parts 190-199, as summarized in the draft EIS (see Chapter 8 and Appendix G). In the September 2023 letter, PHMSA also clarifies that federal safety standards apply to both interstate and intrastate pipeline facilities, only PHMSA can regulate the safety of interstate pipelines, and federal pipeline safety laws expressly prohibit states from enacting or enforcing pipeline safety standards with respect to interstate pipelines (except one-call notification program regulations).	20242-203795-01
CURE	Sarah Mooradian, Hudson Kingston	2024-02-23	*VI. The No Action Alternative is Preferrable* Although several issues need to be resolved before the final EIS, CURE does note that at this point, the No Action Alternative would have fewer negative impacts than any of the proposed alternatives and would create significant benefits. First, by not building the project, the state retains acres of wetlands, agricultural land, and native plant communities. As explained above, wetlands offer essential ecosystem and climate change benefits and once degraded, are extremely difficult to regain. Second, by not building the project, additional burdens on the local water supply will not be realized. Third, the No Action Alternative will ensure that there will be no project-related decreases in soil health or crop productivity/yield. None of the alternatives can stack up to the No Action Alternative, but even amongst the losers, RA-South seems to be an exceptionally poor choice. It crosses the greatest number of public and designated land, crosses the greatest number of wetlands and the second greatest number of surface waters, uses the least amount of existing ROW or ROW sharing and paralleling, and is located within one mile of 76 wells (as opposed to 56 wells and 42 wells for RA-North and RA-Hybrid, respectively).	Thank you for your comment.	20242-203795-01
CURE	Secchi, Silvia	2024-02-13	Q. What is the purpose of your testimony in this proceeding? A. My testimony provides a review of the socioeconomic, soil, and climate change impacts of the proposed project as presented in the Draft Environmental Impact Statement (DEIS). Q. Please summarize your conclusions. A. My overall conclusion is that the DEIS takes the project's socioeconomic impacts directly from the applicant's economic impact study. The study itself has a disclaimer that it should not be used for this purpose, and these types of studies are well known to overestimate benefits of pipeline projects. The soil impacts in the DEIS do not consider recent evidence from Iowa and Ohio that find	Section 5.4.11.2 has been revised to clarify that the conclusions in the EIS are not based on the conclusions of the Ernst and Young study prepared for the Midwest Carbon Express project. Information from the Ernst and Young study, as well as another study on the socioeconomic impacts of the Midwest Carbon Express project that was prepared by North Star Policy Action, is presented in Section 5.4.11.2. Information from these studies is presented but was not used to determine impacts.	20242-203381-05

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			longer-term negative effects. The DEIS also does not consider recent compelling evidence that disputes and puts in question the climate change benefits of corn ethanol. As a result, the DEIS presents an unreasonably favorable picture of the impacts of the project.		
CURE	Secchi, Silvia	2024-02-13	Q. What does the DEIS conclude about the proposed project's potential impact on property values? A. The DEIS states that: "Although no studies related to the impacts of CO_2 pipelines on property values have been identified, there are several studies that assess the effects of natural gas pipelines and compressor stations on property values. While research demonstrates that property value impacts vary, most studies indicate that the presence of an underground natural gas transmission pipeline does not affect the sales price or value of residential properties." (Page 5-40). Q. Do you agree with this conclusion? A. No. The most recent study presented in Table 5-11 in the DEIS is from 2016. But a more recent study has found that the proximity to facilities that can cause accidental chemical releases is associated with significantly lower home values. *(1)* It is important to note that this is regardless of whether incidents have occurred. The property value reduction is associated with the risk of an accident. *(1) Guignet, Dennis, Robin R. Jenkins, James Belke, and Henry Mason. 2023. "The property value impacts of industrial chemical accidents." Journal of Environmental Economics and Management 120:102839. doi: https://doi.org/10.1016/j.jeem.2023.102839.*	A new section on property value impacts related to pipeline incidents has been added to Chapter 8. EERA staff does not agree with the relevance of the Guignet et al. study, as described in Section 8.3.1.3.	20242-203381-05
CURE	Secchi, Silvia	2024-02-13	Q. In the study, were lower home values seen only after an incident had occurred? A. No. Home values were lower regardless of whether incidents occurred. Q. Why is that? A. The property value reduction is associated with the risk of an accident. Another recent study found that learning about the location of a pipeline negatively impacts a homebuyer's willingness to pay for a house. *(2)* So the general conclusion of these more recent studies is that when the public is alerted to presence of pipelines and the risk associated with them, before incidents or through incidents, the values of impacted properties decreases. Q. What about pipeline incidents, do they also reduce property values? A. Most likely yes, because they inform the public about the risk associated with pipelines. A recent paper based on a national dataset that includes 864 incidents and 17 million house sales, comparing pre- and post-incident transactions, finds that the value of homes within 1 kilometer (km) decline by 4–6% compared to a control group of houses 1–2 km from an explosion. *(3)* Q. Were these differences short-term? A. No. Those conducting the study found that price divergence persisted for almost two years. And the risk of accidents is, of course, a permanent one, for as long as the pipeline is in operation. The risk of accidents is a separate issue from the negative effects of pipelines post-operations, which should also be considered. *(2) Hilterbrand Jr, Charles M. 2020. "The Potential Impact Radius of a Natural Gas Transmission Line and Real Estate Valuations: A Behavioral Analysis." Muma Business Review 4:087-089.* *(3) Cheng, Nieyan, Minghao Li, Pengfei Liu, Qianfeng Luo, Chuan Tang, and Wendong Zhang. 2022. Pipeline Incidents and Property Values: A Nationwide Hedonic Analysis. SSRN.*	A new section on property value impacts related to pipeline incidents has been added to Chapter 8.	20242-203381-05
CURE	Secchi, Silvia	2024-02-13	Q. What does the DEIS conclude about the potential socioeconomic impacts of the proposed project? A. The DEIS concludes that, based on a report commissioned by the applicant in 2022, the project's total capital expenditures would be $39,193,000 in Otter Tail County and $42,631,000 in Wilkin County. The DEIS also states that the purchase of goods and services across the project footprint during construction would have "moderate short-term and negligible to minimal long-term beneficial impact on the local economy." (Page 5-60). Finally, the DEIS concludes that the project would increase tax revenues in the short- and long-term, estimated to be $894,000 in Otter Tail County and $972,000 in Wilkin County during the first year of operation, resulting in minimal beneficial impacts on the counties. Q. Do you agree? A. I agree with the general conclusions that project would have negligible to minimal long-term beneficial impact on the local economy. I do not agree that is it appropriate to use the specific numbers of the applicant's economic impact study in the DEIS. Q. Can you explain why you disagree with this conclusion? A. There is robust literature that shows that these applicant reports are rhetorical devices that use inappropriate methods. According to Professor Crompton at Texas A&M University, for example, these studies use "mischievous procedures that produce large numbers that study sponsors seek to support a predetermined position" coupled with "explicit and extensive qualifying statements", with the	Section 5.4.11.2 has been revised to clarify that the conclusions in the EIS are not based on the conclusions of the Ernst and Young study prepared for the Midwest Carbon Express project. Information from the Ernst and Young study, as well as another study on the socioeconomic impacts of the Midwest Carbon Express project that was prepared by North Star Policy Action, is presented in Section 5.4.11.2. Information from these studies is presented but was not used to determine impacts.	20242-203381-05

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			intent to buy “the aura of respect and integrity that accompanies the consultant’s name, anticipating that this will enhance the credibility and public and political acceptance of the results and quell any questioning of the procedures used.” *(4)* These studies of course only look at benefits and do not consider costs at all, and particularly opportunity costs, including alternative uses of the public funds the projects depend on. *(5)* It is inappropriate to use the applicant’s reported numbers without independent verification or vetting. *(4) Crompton, John L. 2006. "Economic Impact Studies: Instruments for Political Shenanigans?" Journal of Travel Research 45 (1):67-82. doi: 10.1177/0047287506288870.* *(5) Crompton, John L, and Dennis R Howard. 2013. "Costs: The rest of the economic impact story." Journal of Sport Management 27 (5):379-392.*		
CURE	Secchi, Silvia	2024-02-13	Q. Why is independent verification important? A. When independent experts perform rigorous analysis of the economic impacts of this type of project, the estimates of benefits are much lower. In the case of Keystone XL, for example, where the State Department performed a separate assessment, their job estimates “were nearly two-thirds lower than the first Keystone XL study”, as observed by my esteemed colleague Dave Swenson. *(6)* Q. Did independent experts verify the conclusions from the report referenced in the DEIS? A. No. Q. Is the applicant’s economic report reliable and sufficient evidence to support the economic cost and benefit of this project? A. No, by its very terms the report cannot be used as a full economic analysis. The report referenced included a specific disclaimer that read: “The report is intended solely for use by Summit Carbon Solutions. […] we make no representation as to the sufficiency of the report and our work for any other purposes. Any third parties reading the report should be aware that the report is subject to limitations, and the scope of the report was not designed for use or reliance by third parties for investment purposes or any other purpose. We assume no duty, obligation, or responsibility whatsoever to any third parties that may obtain access to the report.” *(7)* Q. What are specific concerns regarding these studies that the public should be aware of? A. These studies depend largely on information provided by the applicant, which the consultant uses, assuming they are correct. This can be a problem in terms of job numbers, job characteristics and duration, purchases of materials and other project-specific information that is critical to the accuracy of the study. These studies also do not consider alternative uses of the public funding that the project will receive. *(7) Ernst & Young, Economic Contributions of Summit Carbon Solutions, 1, https://summitcarbonsolutions.com/wpcontent/uploads/2022/04/Full-Report.pdf (Apr. 2022).*	Thank you for your comment.	20242-203381-05
CURE	Secchi, Silvia	2024-02-13	Q. Does pipeline construction impact soil productivity? A. Yes. Q. How do you know this? A. Recent independent research—some of it from Iowa following the deployment of the Dakota Access pipeline—show that impacts can be long term. One such review study, attached here as Schedule SS-2, concludes that “from our quantitative synthesis that pipeline installation typically results in degraded soil and vegetation resources, and this can persist for many years following installation.” *(8)* The same authors last year found that soil degradation persisted 5 years after the installation of pipelines. *(9)* This study is attached as Schedule SS-3. The scientific evidence shows that the long-term impacts on soils—particularly if there is tile drainage— should not be discounted. Q. How does tile drainage relate to the potential impacts of the project on soil productivity? A. Tile drainage is important to keep soils dry so the crops can grow. In Otter Tail County, there are over 53,000 acres of land under tile drainage, and 34,000 in Wilkin County. If the pipeline impacts areas of tile drainage, the effects could be long-lasting and expensive for farmers to address. Such negative impacts to soils may also not be immediately apparent, and it might be difficult for the farmers to find recourse if the effects do not manifest soon enough to alert landowners and give them time to respond. *(8) Brehm, Theresa, and Steve Culman. 2022. "Pipeline installation effects on soils and plants: A review and quantitative synthesis." Agrosystems, Geosciences & Environment 5 (4):e20312. doi: https://doi.org/10.1002/agg2.20312.* *(9) Brehm, Theresa, and Steve Culman. 2023. "Soil degradation and crop yield declines persist 5 years after pipeline installations." Soil Science Society of America Journal 87 (2):350-364.*	As indicated by the definitions found on Page 5-1 of the draft EIS, “long-term impacts extend beyond the end of construction and are generally associated with operation of the project.” Disturbance to soils and crops from construction can result in impacts that extend beyond the construction phase, and the text in the final EIS has been revised to indicate that impacts can be long term. Section 2.4.6 states that any drain tiles damaged during pipeline construction would be repaired before backfilling the trench. Section 6.7 of the applicant's Minnesota APP (Appendix E) specifies the procedures and timelines for repair of drain tiles disturbed during construction. The APP notes that tiles disturbed or damaged by pipeline construction would be repaired to their original or better condition, and in accordance with the applicant's Minnesota ECP (Appendix D), permanent repairs would be completed within 21 days after the pipeline is installed. Section 5.5.1.3 has been revised to include a reference to this mitigation measure. Timeframes associated with landowner easement agreements are outside the scope of the EIS.	20242-203381-05

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CURE	Secchi, Silvia	2024-02-13	Q. Will the proposed project have a significant effect on greenhouse gas (GHG) emission reductions? A. Based on available information it is too speculative to conclude the project will have any significant effect on GHG emission reductions. Q. Why are you unable to determine that? A. There is no guarantee that the applicant—or subsequent buyers of the carbon dioxide the company captures and transports—will permanently sequester the captured carbon dioxide (CO_2) in geologic storage. Q. How else might the captured CO_2 be used or disposed of? A. The applicant could sell some of the captured CO_2 for enhanced oil recovery (EOR) at any point after the pipeline would become operational. Q. What is EOR? A. Enhanced oil recovery, or EOR, is a process that allows for the recovery of additional oil from a depleted oil well. CO_2 is injected into a depleted well, where it is miscible, or able to mix in all proportions, with the trapped oil. When the oil and CO_2 are miscible, the physical forces holding them apart disappear, enabling the CO_2 to displace the oil from the reservoir and pushing the oil to a producing well. The oil would not otherwise be obtainable if it were not for the CO_2 being injected.	Section 5.7.2.3 addresses the possibility that the captured CO_2 transported by the project could be used for EOR.	20242-203381-05
CURE	Secchi, Silvia	2024-02-13	Q. Why would the applicant or others use the captured CO_2 for EOR? A. The federal government has created tax credits, most often referred to as "45Q" credits after their section of the tax code, for all kinds of carbon capture, transportation, and sequestration activities. Both EOR and geologic sequestration are eligible for 45Q credits, with EOR's credit being less generous but accompanying the extra income from potential oil sales. The differential in 45Q credits makes it plausible that, for high enough oil prices, EOR would be a more profitable use of the CO_2 than permanent sequestration. Q. Has this historically been the case with 45Q tax credits for geologic storage or EOR? A. Yes. Existing incentives for carbon sequestration and EOR largely led to CO_2 to be used for EOR and very little has historically been sent to geologic sequestration that does not produce oil.	Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for EOR.	20242-203381-05
CURE	Secchi, Silvia	2024-02-13	Q. How would the CO_2 being used for EOR influence the GHG emission reductions impact described in the DEIS? A. Because the potential for the CO_2 in this project to be used for EOR, and because EOR directly relates to oil production—and specifically of oil that would have otherwise been unavailable— it is reasonable to conclude that the potential GHG emission reductions are much lower than reported in the DEIS. Worse, in some circumstances, there may even be a net GHG emission increase from CO_2 used in EOR activities. Q. How do GHG emissions relate to the carbon intensity score of ethanol? A. As the DEIS states, the project's purpose is to "capture CO_2 from the ethanol plant and transport it to the North Dakota border, enhancing the marketability of the ethanol produced at the ethanol plant." (Page 1-1). Q. How does the carbon intensity score increase the marketability of ethanol? A. The marketability is enhanced because California is willing to pay a premium for ethanol that has lower GHG emissions, as measured by lower carbon intensity score. The lower the emissions as measured by the carbon intensity score, the higher the premium offered by California's gasoline producers regulated by this system. Q. What is a carbon intensity score? A. A carbon intensity score is the metric used to measure the lifecycle GHG emissions of a fuel per unit of energy, from cradle to grave. So, in the case of ethanol, this includes emissions from farm level operations to production, distribution, and consumption.	While the EIS addresses the possibility that the captured CO_2 transported by the project could be used for EOR in Section 5.7.2.3, the applicant indicates the project as proposed would permanently sequester the CO_2 underground. The CI score was determined accordingly.	20242-203381-05
CURE	Secchi, Silvia	2024-02-13	Q. How was carbon intensity measured in the DEIS? A. The DEIS uses the Greenhouse gases, Regulated Emissions, and Energy use in Transportation, or GREET model to calculate the carbon intensity score of the ethanol produced by the Green Plains Ethanol facility in Otter Tail County. Q. Do you believe this is an accurate way to measure the carbon intensity of ethanol? A. No. Recent scientific evidence shows that the GREET model underestimates land use changes and therefore overestimates the benefits of corn ethanol. *(10)* In fact, the GHG emission impacts of corn ethanol are under such dispute that the Environmental Protection Agency Science Advisory Board is concerned about the continuation of the Renewable Fuel Standard. (*11)* In light of all these considerations, and the absence of these details about the questionable carbon intensity scoring in the DEIS, it is legitimate to	Section 6.1.3 has been revised to discuss the debate between Lark et. al. and GREET model authors.	20242-203381-05

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			be concerned that the DEIS is presenting a biased picture that overestimates the climate benefits of ethanol and the climate change mitigation potential of the pipelines. Q. Do you believe the proposed project will provide the socioeconomic and GHG emission reduction benefits as described in the DEIS? A. No. In my professional opinion, there is substantial uncertainty on both those categories of benefits, and the DEIS is presenting results from the upper end of those ranges. The public should be aware that both sets of benefits could be substantially lower, and that there are alternative uses of the 45Q subsidies that would negate any reductions in GHG emissions. *(10) Lark, Tyler J., Nathan P. Hendricks, Aaron Smith, Nicholas Pates, Seth A. Spawn-Lee, Matthew Bougie, Eric G. Booth, Christopher J. Kucharik, and Holly K. Gibbs. 2022. "Environmental outcomes of the US Renewable Fuel Standard." Proceedings of the National Academy of Sciences 119 (9):e2101084119. doi: doi:10.1073/pnas.2101084119.* *(11) Science Advisory Board to the U.S. Environmental Protection Agency, Commentary on the Volume Requirements for 2023 and Beyond under the Renewable Fuel Standard Program (RIN 2060-AV14), EPA-SAB-23-008, Sept. 29, 2023.*		
CURE	Secchi, Silvia	2024-03-14	Q. Do you have any concerns about how Mr. Powell characterized the potential long-term agricultural impacts of the proposed project? A. Yes. Mr. Powell states that "permanent impacts to agricultural land (including cropland/pasture/hay/range lands) are only anticipated at aboveground facility locations that will be fenced and removed from current use." (Powell Direct, page 6). But as I stated in my direct testimony, new research about the impacts of pipeline construction on agricultural lands has shown that it can extend well beyond the two-to-three-year period for crop loss payments anticipated by the applicant. To reiterate what those studies concluded: "pipeline installation typically results in degraded soil and vegetation resources, and this can persist for many years following installation." (See Schedule SS-2 attached to my direct testimony). Mr. Powell's testimony mischaracterizes the potential long-term or even permanent impacts of the proposed project along the entire route, not just at aboveground facility locations.	As indicated by the definitions found on Page 5-1 of the draft EIS, "long-term impacts extend beyond the end of construction and are generally associated with operation of the project." Disturbance to soils and crops from construction can result in impacts that extend beyond the construction phase, and the text in the final EIS has been revised to indicate that impacts can be long term.	20243-204360-05
CURE	Secchi, Silvia	2024-03-14	Q. Will the applicant permanently store CO_2 captured from the Green Plains Ethanol Plant? A. Mr. Powell states in his direct testimony that the project "will capture and permanently store" CO_2 from the Green Plains Ethanol Plant. (Powell Direct, page 4). But this contradicts what Mr. Powell has said previously before the Iowa Utilities Board. In September 2023, Mr. Powell stated that "if another carrier decided to use – or ask us to transport CO_2 for another purpose, like enhanced oil recovery, then that's a possibility." (Attached as SS-4, Page 1628). Because of this, I cannot say with any certainty that any of the CO_2 captured at the Green Plains Ethanol Plant will be permanently sequestered instead of being used for enhanced oil recovery.	Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for EOR.	20243-204360-05
CURE	Secchi, Silvia	2024-03-28	Q. Mr. Powell explains in his rebuttal testimony how Summit worked with Ernst & Young to complete an economic impact analysis of its project. What is your response? A. I appreciate that Mr. Powell agrees with what I expressed in my direct testimony—that Summit provided Ernst & Young with the "key assumptions," such as the job numbers, job characteristics and duration, and purchases of materials, among other data, to conduct the economic impact analysis. Helpfully, Mr. Powell also confirms that no independent party has verified either the conclusions in the Ernst & Young report or the assumptions that inform the report. Mr. Powell's rebuttal testimony also does not respond to my comment regarding the disclaimer in the Ernst & Young report itself that "Any third parties reading the report should be aware that the report is subject to limitations, and the scope of the report was not designed for use or reliance by third parties for investment purposes or any other purpose." *(1)* *(1) Ernst & Young, Economic Contributions of Summit Carbon Solutions, 1, https://summitcarbonsolutions.com/wpcontent/uploads/2022/04/Full-Report.pdf (Apr. 2022).*	Section 5.4.11 has been revised to clarify that the conclusions in the EIS are not based on the conclusions of the Ernst and Young study prepared for the Midwest Carbon Express project. Information from the Ernst and Young study, as well as another study on the socioeconomic impacts of the Midwest Carbon Express project that was prepared by North Star Policy Action, is presented in Section 5.4.11. Information from these studies is presented but was not used to determine impacts.	20243-204752-05
CURE	Secchi, Silvia	2024-03-28	Q. Do you agree with Mr. DeJoia's critiques of the Brehm and Culman studies you referenced in your direct testimony? A. No. The Brehm and Culman studies are not the only ones which provide strong evidence that pipeline construction has long-term impacts on crop yields and soil productivity. *(2)* Also, although Mr. DeJoia seems to take issue with the metanalysis in Brehm and Culman (2022), that analysis shows that reduced soil production and/or crop yield due to pipeline construction is a widespread issue. Q. Mr. DeJoia notes that Summit's Agricultural Protection Plan is similar to those used in other states. Does that reassure you with regard to the potential impacts to soil and crops? A. Not at all. In fact, it does the opposite. As the research I have referenced here and in my direct testimony shows, existing methods for mitigating damage to soils and crops have in many instances been unsuccessful. The fact that Summit's APP is apparently no different than what has been previously done should, in my opinion, give people pause.	As indicated by the definitions found on Page 5-1 of the draft EIS, "long-term impacts extend beyond the end of construction and are generally associated with operation of the project." Disturbance to soils and crops from construction can result in impacts that extend beyond the construction phase, and the text in the final EIS has been revised to indicate that impacts can be long term.	20243-204752-05

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			(2) See, e.g., Ebrahimi et al., Measured and Modeled Maize and Soybean Growth and Water Use on Pipeline Disturbed Land, Soil and Tillage Research, June 2022, https://www.sciencedirect.com/science/article/abs/pii/S0167198722000265?via%3Dihub.		
Fergus Falls Area Chamber of Commerce	Workman, Lisa	2024-02-21	As the President of the Fergus Falls Chamber of Commerce, I am happy to support Summit Carbon Solutions' proposed pipeline in Fergus Falls, Minnesota. The construction and operation of Summit's proposed pipeline will stimulate our local economy. As heard at the public meetings in February, Summit plans to hire local workers during both the construction and operational phases of the project. These workers will in turn spend a portion of their incomes at other local businesses in our community. Once the pipeline is operational, economic benefits will continue to pour into Otter Tail County via property taxes, which will be paid by Summit. This new tax revenue can be used to improve infrastructure and fund projects in Otter Tail County. The proposed pipeline will also support the Green Plains ethanol plant and its employees in Fergus Falls. By capturing the emissions from the ethanol plant, Summit will open the low-carbon fuel market for Green Plains' ethanol, ensuring the plant and its employees are secure for decades to come. Summit's proposed pipeline will bring millions of dollars of economic revenue to the Fergus Falls area. I urge the Public Utilities Commission to approve application and I look forward to the pipeline becoming operational in Fergus Falls.	Thank you for your comment.	20243-204403-01
Green Plains Inc.	Mogler, Devin	2024-02-09	Sections 7.1.1 and 7.1.2 suggest that stable or decreasing ethanol production would lead to farming practices changes including no-till, cover cropping and precision farming. To the contrary, if the carbon capture and storage ("CCS") project was implemented, the carbon intensity ("CI") of the facility would be lowered to a point where it would be in the best interest of the ethanol producer and farmer to lower CI of production practices to capture more value from low-carbon markets, e.g. if the CCS reduces the CI of the plant from 54 to 25, every marginal reduction in CI would have value, whereas in a scenario where CCS is not in place, the ethanol produced at the plant may not be able to participate in low carbon fuels markets, and there would be little or no monetary incentive to expand regenerative agricultural practices.	With the passage of the Inflation Reduction Act, and in particular the creation of the Clean Fuel Production Credit under section 45Z, biofuel producers are eligible for a tax credit of $0.02 per gallon for every CI point below 50 $kgCO_2e/MMBtu$, up to $1.00 per gallon. The basis for the CI score calculation under this program is the most recent Argonne GREET model, as measured in kilograms of CO_2e per Metric Million British Thermal Units, or MMBtu. The current estimated (2023) Argonne GREET CI score of the Otter Tail ethanol facility is 59 $kgCO_2e/MMBTU$ (equivalent to 56 gCO_2e/MJ). The RFS requires that a renewable fuel (or conventional biofuel; typically refers to ethanol derived from corn starch) must meet a 20 percent lifecycle GHG reduction compared to a 2005 petroleum baseline. The 2005 EPA average gasoline baseline for CI is 93.08 gCO_2 e/MJ. The current estimated (2023) Argonne GREET CI score of the Otter Tail ethanol facility is meeting this requirement at an estimated 40 percent reduction.	20243-204403-02
Green Plains Inc.	Mogler, Devin	2024-02-09	Sections 7.1.1 and 7.1.2 contend that local corn prices to farmers would not be impacted from losing the ethanol plant as a market for their grain, with the exception of freight costs to ship the crop elsewhere, and alternatively that expanded ethanol production would not impact local crop prices. This does not take into consideration the basis impact, a cursory review of which clearly demonstrates that ethanol production positively impacts local corn bids. This is also refuted in Section 7.2.2.1.	Section 7.1.1 has been revised to better communicate the impact of ethanol production on crop pricing.	20243-204403-02
Green Plains Inc.	Mogler, Devin	2024-02-09	Section 7.1.1 suggests that the ethanol plant would remain in operation and compete in standard fuel markets outside of LCFS markets if the project is not constructed, which is possible in the short run, but given macroeconomic trends towards lower-CI fuels, including expanded policies at the state, federal and international level, it is unreasonable to assume the facility would continue operating in perpetuity without reducing the CI of the ethanol.	Section 7.1.1 has been revised to better communicate uncertainty associated with the ethanol plant.	20243-204403-02
Green Plains Inc.	Mogler, Devin	2024-02-09	Section 7.2.2.1 rightfully points out the socioeconomic value of agricultural communities, and the benefits they have derived from increased ethanol production over the past two decades. The uplift to corn prices, the wealth creation in rural communities and the reduction in government farm program payments cannot be overstated.	Thank you for your comment.	20243-204403-02
Green Plains Inc.	Mogler, Devin	2024-02-09	Section 7.2.2.2 infers that land, including grasslands, wetlands and conservation reserve land, is being converted to crop land to produce corn for ethanol production. This is both inaccurate and misleading. According to the Renewable Fuels Standard ("RFS") statute, corn produced on converted crop land is not eligible for producing ethanol.2 None of the corn we process into ethanol comes from land converted to cropland from forests, grasslands or wetlands, in compliance with the RFS. Land use change in the U.S. is almost entirely attributable to urban sprawl, not agriculture. While corn production in the U.S. has increased over the past 100 years,	Section 7.2.2.2 has been revised to convey that while cropland has been in decline for Otter Tail County and Wilkin County, an increase in ethanol production would likely result in either direct or indirect land use change toward an increase in cropland. CARB's LCFS program includes the assumption that ethanol production generates an indirect land use	20243-204403-02

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			the amount of land used to grow corn has actually decreased over time. Scientific and agronomic advances, notably precision agriculture and better seed genetics have contributed to marked increases in yield per acre. These increased yields have been accompanied by reductions in chemical, fertilizer and water inputs for every kernel grown, including a 50% reduction in the amount of nitrogen application since the 1970s, and the EIS is silent on this point, but rather points to potential negative impacts of fertilizer use on water quality. The inferences around neonicotinoid impacts on bee populations have not been definitively proven.	change impact. Since this project is attempting to reduce the CI score of the ethanol plant, assumptions consistent with LCFS guidance were made.	
Green Plains Inc.	Mogler, Devin	2024-02-09	Section 7.2.2.2 goes on to attribute land use change to GHG emissions, which again, does not come from agriculture. The section rightfully points to a study highlighting how conservation reserve program enrollment actually increased in areas with ethanol production after the federal renewable fuels mandate went into effect	Thank you for your comment.	20243-204403-02
Green Plains Inc.	Mogler, Devin	2024-02-09	Section 7.2.3.1 rightfully points out the economic impact that ethanol plants have on rural communities' tax bases, employment and overall economic activity.	Thank you for your comment.	20243-204403-02
Green Plains Inc.	Mogler, Devin	2024-02-09	Section 7.2.3.2 discusses risks of ethanol leaks and impacts that would have on soil and groundwater. These impacts are largely speculative and leaks from corrosion of storage tanks occur rarely if ever. This section also discusses water usage for ethanol production. Our Otter Tail facility has reduced water consumption by 33% from 2019 to 2023, and recently installed a controlled backwash system that returns water previously discharged back into the process, further improving water efficiency. This section points out that upstream and on-site emissions for corn ethanol production is higher than that of gasoline, but is silent on the impact of the fossil carbon that is released from the combustion of gasoline. The section rightfully points out the improvements made to plant efficiencies from 2005 to 2019, the improvements made in on farm practices, and the most recent science around land use change according to Argonne National Laboratories. The section mentions coal powered ethanol plants having higher emissions, and Green Plains Otter Tail does not utilize coal, nor do our other biorefineries. Recent investments to further improve the efficiency of our Otter Tail facility have led to a 23% reduction in Natural Gas usage and a 27% reduction in electrical consumption (2019-2023).	Thank you for your comment.	20243-204403-02
Green Plains Inc.	Mogler, Devin	2024-02-09	Section 7.2.4.2 rightfully points out that ethanol spills during transport are very rare, and that when they do occur, the nature of the product allows it to biodegrade rapidly in soil, and completely dissolve in water. The section contemplates ethanol transport in a vacuum, rather than comparing it to the environmental impacts of transporting the alternative – fossil fuels and refined fuels – which can be more harmful to ecosystems in the event of a spill.	Thank you for your comment.	20243-204403-02
Green Plains Inc.	Mogler, Devin	2024-02-09	Section 7.2.5.1 rightfully points out that when ethanol is added to petroleum gasoline, it reduces emissions of harmful and toxic pollutants including CO, NOx, PM, VOCs and CO_2.	Thank you for your comment.	20243-204403-02
Health Professionals for a Healthy Climate	Schuler, Kathleen	2024-02-23	I am writing today on behalf of Health Professionals for a Healthy Climate to comment on the Draft Environmental Impact Statement (DEIS) for the Otter Tail to Wilkin CO_2 Pipeline Project in Otter Tail and Wilkin Counties (Docket Number: 22-422). Health Professionals for a Healthy Climate (HPHC) is a network of over 500 nurses, doctors, public health experts, and allied health professionals across the state of Minnesota, dedicated to inspiring and activating health professionals to address climate change through interprofessional education, clinical practice, and public advocacy	Thank you for your comment.	20243-204403-01
Health Professionals for a Healthy Climate	Schuler, Kathleen	2024-02-23	HPHC is very concerned that CO_2 pipelines are a false climate solution and we do not support installing CO_2 pipelines in the ground in Minnesota. The urgency of the climate crisis requires that we pursue the most cost-effective strategies to reduce greenhouse gasses (GHGs). Fossil-fuel caused air pollution is responsible for 350,000 premature deaths in the U.S. each year. The faster we get to a zero-carbon economy, the faster we clean up air pollution, which results in more lives saved. The Intergovernmental Panel on Climate Change (IPCC) states, "The continued installation of unabated fossil fuel infrastructure will 'lock-in' GHG emissions." The IPCC has also analyzed the cost-effectiveness of carbon capture and storage (CCS) and found that the cost per ton of GHGs reduced (GHG reductions per Gt CO_2 equivalent) is $100-200 compared with a cost of close to zero for solar, wind, and natural carbon sequestration.1 CO_2 pipelines are sold as a climate solution, when in reality new CO_2 pipelines are new fossil fuel infrastructure needed for enhanced oil recovery (EOR).	Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for EOR.	20243-204403-01
Health Professionals for a	Schuler, Kathleen	2024-02-23	Specific to the Summit pipeline DEIS, we ask that the Public Utilities Commission and Department of Commerce consider the following serious issues with the draft EIS to ensure a robust environmental review to protect the interests of all Minnesotans, especially communities impacted by these pipelines, first responders, and health professionals. While we are concerned about the adverse	Thank you for your comment.	20243-204403-01

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Healthy Climate			impacts of this project on land, water, and local economies, we will limit our comments to two areas of public health interest: CO_2 emissions and health and safety.		
Health Professionals for a Healthy Climate	Schuler, Kathleen	2024-02-23	A. The DEIS consistently fails to properly account for the real CO_2 emissions and climate impacts of the project. 1.Lifetime of Project: The applicant states that the anticipated lifetime of this project is 25 years. This means at the end of its life, the project could stop capturing the CO_2 from the ethanol plant. Unless the ethanol plant will also cease operations at that point in time, it will continue to emit CO_2 unabated into the future.	Section 2.7 describes project decommissioning. If the ethanol plant continues to operate beyond the life of the proposed project, its CO_2 emissions would not be captured.	20243-204403-01
Health Professionals for a Healthy Climate	Schuler, Kathleen	2024-02-23	2. 100% CO_2 Capture Rate: Summit states that the capture facility "is designed to capture 100% of the CO_2 produced by the ethanol plant." There is no carbon capture facility in the world, ethanol or otherwise, that captures carbon at a rate of 100%. This claim is not supported by any data/information or verified by a third party. Additionally, the DEIS should emphasize that any CO_2 capture is solely associated with emissions from the ethanol fermentation process and provides zero reductions on the significant emissions from the facility's electricity use.	Section 2.1 has been revised to clarify that the captured CO_2 is produced by the ethanol plant as part of its fermentation process, that the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and that commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. Section 6.3 describes energy efficiency and energy alternatives that could reduce emissions from the ethanol plant's electricity and process fuel use.	20243-204403-01
Health Professionals for a Healthy Climate	Schuler, Kathleen	2024-02-23	3. Added CO_2 from electricity use: Carbon capture technologies are highly energy intensive and will significantly increase the carbon emissions at the facility from electricity use. The DEIS uses the Midwest Reliability Organization West Region average to calculate these emissions, which is unnecessarily inaccurate given the availability of the actual emissions factor from Great River Energy.	The CI from electricity use has been updated to reflect the grid mix from LREC in Sections 5.7.1.3, 6.1.4, 6.3.2, and 6.3.3.4. LREC serves the ethanol plant and represents the most localized data source available for the electricity use. The emission factor calculated for LREC is 291.4 lb CO_2e/MWh. GHG emissions were calculated using the projected electricity consumption of 38,501,733 kWh per year, as modeled by Summit Carbon Solutions. Historically, from 2021 to 2023, the Green Plains Ethanol Plant used 3,171,885 kWh of electricity on average per month over the past 24 months. This equates to an average annual electricity use of 38,062,620 kWh.	20243-204403-01
Health Professionals for a Healthy Climate	Schuler, Kathleen	2024-02-23	4. CO_2 Storage: The DEIS assumes 100% of captured CO_2 is being permanently stored underground. There is no guarantee that this will occur and no explanation of the monitoring and verification protocols that would ensure it.	Text has been added to Section 2.1 describing the suitability of the Broom Creek Formation in North Dakota for CO_2 sequestration, as well as the monitoring and testing that would be done to verify that the CO_2 is contained in the storage reservoir.	20243-204403-01
Health Professionals for a Healthy Climate	Schuler, Kathleen	2024-02-23	5. Enhanced Oil Recovery: The DEIS fails to explain whether the applicant can sell any of its captured CO_2 to others for alternative uses instead of permanent sequestration and what the impacts of that would be. The DEIS incorrectly states that "Production of oil through EOR would not be dependent on the availability of CO_2 produced by the ethanol plant." This claim is contradicted by countless public statements from public officials in North Dakota and oil industry representatives.	The text questioned by the commenter in Section 5.7.2.3 was prefaced with the following: "if all the CO_2 produced by the ethanol plant is sequestered as proposed, EOR would likely continue in North Dakota using other sources of CO_2, other gases, thermal methods, or chemical methods." Revisions are not necessary. However, Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for EOR.	20243-204403-01
Health Professionals for a Healthy Climate	Schuler, Kathleen	2024-02-23	B. We are concerned about the safety and health impacts of the Summit pipeline, including how this project will affect the health of workers in impacted communities. The DEIS consistently underplays the known and unknown risks of transporting large amounts of CO_2 at high pressures through a pipeline. CO_2 is a hazardous material in high concentrations and CO_2 pipelines pose unique problems for first responders and healthcare providers. 1. CO_2 Rupture Impact Zone: According to the analysis in the DEIS, the potential impact radius for levels of CO_2 that would be "immediately dangerous to life or health" is 617 feet. This expands to 910 feet for lower concentrations that cause dizziness, drowsiness, severe muscle twitching, and unconsciousness within a few minutes. Although Summit indicates that it will take 25 minutes for the system to shut off the relevant valves in the event of "abnormal operation," the DEIS does not mention any meaningful safety measures for a rupture and instead suggests that it is "reasonable" for Summit to simply supply indoor CO_2 detectors for residences within 1,000 feet of the project. But the rupture report in Appendix G states that "a full rupture results in	Text in Section 4.5 on valve closure time has been corrected from 25 minutes to 10 minutes. Elsewhere in the EIS, including the rupture analysis, valve closure time is listed/calculated as 10 minutes. Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. The Emergency	20243-204403-01

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			impact distances too quickly for an early warning device, such as an oxygen detector, to be effective." This pipeline should not be approved without a clear understanding of the risks to human health and meaningful measures to ensure the safety of people and animals in the area. 2. First responders and health professionals: CO_2 pipelines pose unique problems for first responders and health care providers. Because CO_2 is colorless and odorless, both victims and first responders have no way of knowing what is causing the health problems. In addition, first responders require special equipment, including non-internal combustion engines, to respond to a CO_2 disaster. The DEIS does not consider the burdens this will put on local EMS and health providers in the case of a pipeline rupture or accident or an assessment of how they should be prepared to respond given the unique needs. The DEIS includes Summit's September 2022 Emergency Response Plan (Appendix N). This plan is not only outdated but also unclear as to how local EMS and first responders will interact with the applicant in the event of a leak or rupture. Though the plan talks of multiple company personnel as playing roles in an emergency response, it ignores the fact that the applicant only plans on having one full-time employee at the capture facility. Local first responders deserve more clarity about how they will be expected to respond to an emergency situation and what the applicant will do to ensure they are adequately equipped and informed for such an event. 3. Compliance with PHMSA Rules: The DEIS accepts Summit's assurances that it will "comply with federal emergency response requirements," but as noted in a Pipeline Safety Trust report and by the Pipeline Hazardous Material Safety Administration (PHMSA) itself, the current emergency response requirements are dangerously outdated. 4. Setbacks: The DEIS states that the PUC "cannot set safety standards" for Summit's proposed pipeline. PHMSA has expressly said in public letters to CO_2 pipeline companies like Summit that state and local authorities can exercise their powers to regulate land use—including setback distances—and that "nothing in the federal pipeline safety law impinges on these traditional prerogatives of local—or state—government." The PUC must consider where the pipeline is placed and what is the safest option for Minnesotans, which means the PUC can and should determine what routing, setback, and depth requirements are necessary to adequately protect Minnesotans. Thank you for your careful consideration of these critical concerns with the draft EIS.	Response Plan included as Appendix N is a draft plan that is not outdated but would be revised as required by PHMSA, if the project is approved. Additionally, EERA staff recommended a special permit condition requiring the applicant to file its Emergency Response Plan that is filed with PHMSA with the Commission, and other special permit conditions as described in Section 8.5.3.	
Land Stewardship Project	Koehler, Amanda	2024-02-23	Land Stewardship Project concurs with the comments offered by CURE and MN Interfaith Power & Light.	Thank you for your comment.	20242-203795-01
LIUNA Minnesota & North Dakota	Pranis, Kevin	2024-02-23	LIUNA Minnesota & North Dakota ("LIUNA") appreciates the opportunity to offer comments on the Draft Environmental Impact Assessment for a Routing Permit for a carbon dioxide ("CO_2") pipeline that Summit Carbon Solutions LLC ("Summit") has proposed to build in Otter Tail and Wilkin County.	Thank you for your comment.	20242-203792-01
LIUNA Minnesota & North Dakota	Pranis, Kevin	2024-02-23	We want to begin by thanking the Department of Commerce Energy Environmental Review and Analysis ("EERA") staff and consultants for producing a Draft Environmental Impact Statement ("DEIS") that thoroughly reviews the potential impact of the project and proposed alternatives and mitigation measures. While the direct impacts of installing just over 28 miles of four-inch pipeline in Minnesota are quite minor, the DEIS also provides context for understanding how this piece of pipe segment fits into a larger strategy for avoiding greenhouse gas ("GHG") emissions, as well as what local communities unfamiliar with carbon management infrastructure need to know about local risks and mitigation measures.	Thank you for your comment.	20242-203792-01
LIUNA Minnesota & North Dakota	Pranis, Kevin	2024-02-23	LIUNA members strongly support the development of carbon management technologies, and believe that pipeline infrastructure on the scale proposed by Summit will be necessary to achieve climate goals, and to underpin the long-term economic success of Minnesota businesses and communities. Leading experts and institutions focused on climate agree that successful deployment of carbon capture and sequestration technologies is essential to meet state, national and international climate goals. The International Energy Agency, for example, projects that 8.6 billion tons of annual emissions reductions are needed from carbon capture by 2050, while the Intergovernmental Panel on Climate Change estimates that the cost of reaching net-zero would be 140 percent higher without use of carbon capture.	Thank you for your comment.	20242-203792-01
LIUNA Minnesota	Pranis, Kevin	2024-02-23	While Minnesota and the nation as a whole have made substantial progress toward decarbonizing electric power generation and have identified paths forward, decarbonization of transportation remains a substantial challenge. The DEIS provides evidence that strongly supports the potential for the proposed project to reduce carbon emissions associated with production of ethanol, therefore lowering the carbon intensity of E10 and other ethanol-blend fuels. As Table 5-39 shows, the project is expected to safely capture and store	Thank you for your comment.	20242-203792-01

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& North Dakota			roughly 140,000 metric tons of carbon dioxide ("CO_2") on an annual basis with lifetime avoidance of nearly 3.5 million tons. These figures are net of CO_2-equivalent emissions associated with construction and operation of the proposed facilities.		
LIUNA Minnesota & North Dakota	Pranis, Kevin	2024-02-23	The DEIS considers a wide range of alternatives, including No Action, alternative routes and alternative technologies for reducing carbon emissions such as adoption of climate-friendly agricultural practices for feedstock and implementation of process efficiency and energy use changes at the ethanol plant. Unsurprisingly, EERA's analysis finds none of the alternatives meet the need to avoid CO_2 emissions without comparable impacts, and that proposed technologies could supplement, but do not replace, carbon capture, transportation and storage.	Thank you for your comment.	20242-203792-01
LIUNA Minnesota & North Dakota	Pranis, Kevin	2024-02-23	Beyond reviewing climate impacts, the DEIS also carefully evaluates the potential impact of the project on environmental resources and human health. The DEIS finds that the proposed facilities can be expected to operate well within the state's limits for a wide range of air pollutants as depicted in Table 5-38.	Thank you for your comment.	20242-203792-01
LIUNA Minnesota & North Dakota	Pranis, Kevin	2024-02-23	EERA also conducted dispersion modeling in order to assess the potential impact of an unplanned release of CO_2. Using the worst case scenario, a full "guillotine rupture" resulting in an uncontrolled release and assuming the worst possible atmospheric conditions ("a temperature of -22°F and a humidity level of 74.3 percent") the DEIS found that the outside range of immediate danger to life and health would be 617 feet, which is well short of the minimum distance between the pipeline and any inhabited dwellings. The DEIS further identifies regulatory requirements and best practices that minimize the likelihood and potential impact of an unplanned release, and shows that the incidence of any type of release is extremely low for hazardous liquids pipelines in Minnesota (0.0013 incidents per mile).	Thank you for your comment.	20242-203792-01
LIUNA Minnesota & North Dakota	Pranis, Kevin	2024-02-23	In addition to climate, other environmental and safety concerns, the DEIS also comprehensively considers socioeconomic impacts to local communities and to the state. Based on our industry experience, we generally agree with the DEIS characterization of construction employment opportunities that would be associated with the project – at least half of which would be available to local residents based on the applicant's commitment to use of local union labor.	Thank you for your comment.	20242-203792-01
LIUNA Minnesota & North Dakota	Pranis, Kevin	2024-02-23	We also generally agree with the summary of economic benefits provided by the applicant. While a North Star Policy Action ("NSPA") analysis found that the Ernst & Young ("E&Y") report likely overestimates local workforce share compared to the levels common for such projects, NSPA also finds that "E&Y" understates the value of jobs by assuming wage levels below those typically earned by union pipeline construction workers and neglecting the economic value of fringe benefits entirely. 1 1 https://northstarpolicy.org/capturingthemoment/	Section 5.4.11.2 has been revised to clarify that the conclusions in the EIS are not based on the conclusions of the Ernst and Young study prepared for the Midwest Carbon Express project. Information from the Ernst and Young study, as well as another study on the socioeconomic impacts of the Midwest Carbon Express project that was prepared by North Star Policy Action, is presented in Section 5.4.11.2. Information from these studies is presented but was not used to determine impacts.	20242-203792-01
LIUNA Minnesota & North Dakota	Pranis, Kevin	2024-02-23	While generally accurate, we believe that the DEIS could be strengthened by addressing the role of the project in creating opportunities for local workers to improve their earnings, skills and career prospects. Today, the median construction laborer working in Northwest Minnesota earns $22.36 in hourly wages and based on anecdotal information from worker surveys, many receive little or nothing in fringe benefits.2 By contrast, a construction laborer working on the proposed project would earn at least $37.02 per hour in taxable wages with full family health coverage, defined benefit pension and training benefits that bring hourly compensation up to $55.13. As a consequence, the typical construction laborer living in Otter Tail County who secures a new job on the project could conservatively be expected to double his or her hourly compensation while gaining they experience and training needed to secure similar family-supporting wages and benefits once the project is complete. 2 https://mn.gov/deed/data/data-tools/oes	Section 5.4.11.2 has been revised to clarify that the conclusions in the EIS are not based on the conclusions of the Ernst and Young study prepared for the Midwest Carbon Express project. Information from the Ernst and Young study, as well as another study on the socioeconomic impacts of the Midwest Carbon Express project that was prepared by North Star Policy Action, is presented in Section 5.4.11.2. Information from these studies is presented but was not used to determine impacts.	20242-203792-01
LIUNA Minnesota & North Dakota	Pranis, Kevin	2024-02-23	We thank EERA for their work on the DEIS and the Commission for its consideration.	Thank you for your comment.	20242-203792-01
Lower Sioux Indian	Larsen, Robert	2024-02-24	The Summit CO_2 pipeline project's proposed route is within Dakota Homelands. Lower Sioux Indian Community is directly associated to many areas of cultural importance and/or religious signifcance identified within the project area. The proposed route is located within an archaeologically dense area with a high volume of known cultural resources and/or significant sites. These resources and sites had, and continue to have, a significant cultural and spiritual role in the identity of Mdewakanton Dakota practices and lifeways,	Thank you for your comment. Potential impacts on cultural and archaeological resources are discussed in Sections 5.4 and 5.6 of the EIS.	20243-204403-02

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Community			We request that meaningful and diligent evaluation of project need be carefully considered. Such sites and resources are irreplaceable.		
Lower Sioux Indian Community	Larsen, Robert	2024-02-24	The Dakota Peoples have a strong spiritual connection to the lands and waters within the ancestral territories of the Dakota. Protection of natural and cultural resources is critically impottant not only now but for seven generations. Therefore, projects that impact the Waters, Air, Lands, wildlife and plant life need a thorough assessment as not to contaminate or destroy the natural environment. Further projects involving relatively new technology are patticularly concerning and should be thoroughly researched to avoid issues or consequences. The Lower Sioux Indian Community provided a letter (dated 05-16-2023) to the Dept of Commerce with our concerns reading the scoping EAQ and the draft scoping decision for the route permit application for this project (see attachment). We continue to have concerns and questions upon our review of the DEIS.	Thank you for your comment.	20243-204403-02
Lower Sioux Indian Community	Larsen, Robert	2024-02-24	The purpose of DEIS is to provide an overview of affected resources and discuss potential human and environmental impact and mitigation measures. We have concerns that the proper review hasn't been accomplished and have identified gaps in the impacts and mitigation measures. The following are the concerns regarding the impact to Cultural resources, waters, safety, land, climate change and greenhouse gas emissions, and cumulative impacts.	See responses to detailed comments on each topic below.	20243-204403-02
Lower Sioux Indian Community	Larsen, Robert	2024-02-24	Tribes are tasked with evaluating impacts to known cultural resources and cultural sites without relevant case studies, scientific analysis, and precedent to guide informed determinations on CO_2 pipeline impacts. To consider for example subsurface artifacts, human remains or any organic material and how exposure and interaction to CO_2 would affect them, yet such studies are not available and even more detrimental are not being required in the EIS. The purpose of an EIS is to provide such studies and info1mation. The Summit Carbon Solution pipeline route is a large-scale project, with many complex variables to consider when evaluating cultural resource impact, it is unreasonable for THPO's to review such considerations when key infonnation is absent. The DEIS fails to address cumulative landscape impacts as well as exposure and interaction studies (as cited above).	Thank you for your comment. A study focused on the interaction of CO_2 and subsurface artifacts, human remains, or any organic material is outside the scope of the EIS (Appendix A). Potential impacts on cultural resources are discussed in Section 5.4.2. Cumulative potential effects are discussed in Chapter 10.	20243-204403-02
Lower Sioux Indian Community	Larsen, Robert	2024-02-24	The proposed project and the identified right-of-way will impact numerous streams, rivers, wetlands, aquifers, and other waterbodies. This includes the Pelican River, the Otter Tail River, and the Bois de Sioux River, and up to 44.6 acres of wetlands. We are concerned that the DEIS did not take an in-depth look at how the proposed project will impact the health and abundance of these water resources. The DEIS describes the potential impact of construction activity within or near these waterbodies as being short-term and minimal. But we know from past experiences with other pipelines, like Line 3, that the pipeline construction can have long-term and widespread impacts on both surface water and groundwater resources.	Section 5.7.8 and Section 5.7.9 describe the impacts of the project on water resources and wetlands.	20243-204403-02
Lower Sioux Indian Community	Larsen, Robert	2024-02-24	Additional questions that were mentioned in our comments on the scoping (attachment) included the need to identify the amount of water usage that is needed, what will be added to the water, and where will the water be discharged? Further, how will this project impact the medicinal and cultural plants, fish, macroinvertebrates, mammals, macrophytes, human health, surface water quality, wetlands/connected waterbodies, groundwater, etc.? What is the cumulative impact of the project over the course of the route? These are vital questions about this proposed project that have not been sufficiently investigated. In the past, Lower Sioux staff have reviewed the EIS documents of pipeline and renewal energy projects that addressed these types of questions with specific research and studies. It is not evident in the DEIS that these questions were addressed. Merely stating the project will have minimal impact is not adequate for the NEPA EIS process.	Thank you for your comment. Section 2.4 discusses water discharge locations and processes, Section 3.7 discusses water use and discharge permits that would be acquired, Sections 5.4.4 and 5.7.8 discuss impacts on water and water usage, Section 5.7.7 addresses impacts on vegetation, Section 5.7.10 addresses impacts on wildlife and habitats, Section 5.7.9 addresses impacts on wetlands, Section 5.4 addresses impacts on human settlement, and Section 5.4.8 specifically addresses health and safety. Native Minnesota plants and wildlife of significance to Tribes are discussed in Section 5.4.2. The project would temporarily impact the habitats of plants and wildlife of Tribal significance during construction until restoration of disturbed areas is complete. Additional studies on these topics are outside the scope of the EIS. Section 8.3 addresses effects on humans, health, wildlife, and the environment from an accidental release of CO_2. Chapter 10 describes the cumulative impacts of the project.	20243-204403-02
Lower Sioux Indian Community	Larsen, Robert	2024-02-24	The technology used to capture carbon can also require significant amounts of water. The DEIS states that the average annual water usage for the capture equipment will be 13 million gallons, and that such water will come from on-site wells at the ethanol facility. There is no information in the DEIS about how the additional water use from the ethanol plant will impact surrounding wells or other water resources. Also the DEIS does not consider the water usage in context of the nearby Communities and the impacts from this	Section 5.7.8 addresses impacts on water resources. Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In	20243-204403-02

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			new water demand on the current, existing water demands of the aquifers that serve as the source water for these Communities. This is particularly a concern as we have seen recent drought conditions the past few years.	addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	
Lower Sioux Indian Community	Larsen, Robert	2024-02-24	Consideration must also be given to the impact on surface and groundwater in the event of a pipeline leak or rupture. It is necessary to state what will be the response to minimize and remediate after such an event.	Potential impacts of a pipeline rupture on water resources are addressed in Section 8.3.4.	20243-204403-02
Lower Sioux Indian Community	Larsen, Robert	2024-02-24	We remain concerned about the potential risks to human and environmental health in the event of a leak or a rupture. High concentrations of CO_2 are hazardous and can sicken and asphyxiate humans and animals. The DEIS has also confirmed that vegetation and soil near a leak or rupture could be significantly impacted, from slowing plant growth to freezing soils and killing off vegetation, soil microbes, mycorrhizae, and soil animals.	Potential impacts on human health, vegetation, and soils are discussed in Sections 8.3.1.2 and 8.3.4.3.	20243-204403-02
Lower Sioux Indian Community	Larsen, Robert	2024-02-24	Appendix G provides some information about what the potential impact radius of a rupture might be, but overall, the DEIS does not adequately address how the applicant will be able to guarantee the safety of those living along or near the project. The Pipeline and Hazardous Material Safety administration (PHMSA) has issued public statements that their regulations are not adequate to address the safety risks associated with CO_2 pipelines. CO_2 pipelines need special considerations because when a pipeline leaks or a rupture occurs it will release an asphyxiant that can suffocate people and prevent combustion-type vehicles from working. The equipment and training needs for Emergency response personnel to response to a pipeline incident needs to be thoroughly addressed and placed into practice prior to pipeline construction. All responders will need additional training and equipment to safely respond. This includes replacing all the gasoline/diesel vehicles with Electric Vehicles. In many rural areas the first responders/emergency response are often volunteers. Communities near the route of the pipeline should not have to bear the expense of specialized equipment needed for response to a new hazard brought to the area by a commercial entity.	Section 3.6 acknowledges that PHMSA is currently conducting rulemaking proceedings on proposed amendments to its pipeline safety rules, and that the Commission states it would be prudent for EERA staff and the applicant to take that information into account, even if the updates have not been finalized. PHMSA regulations (that is, their appropriateness) and related standards for CO_2 pipelines are outside the scope of the EIS. Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. The Emergency Response Plan included as Appendix N is a draft plan that would be revised as required by PHMSA, if the project is approved. Additionally, EERA staff recommended a special permit condition requiring the applicant to file its Emergency Response Plan that is filed with PHMSA with the Commission, and other special permit conditions as described in Section 8.5.3.	20243-204403-02
Lower Sioux Indian Community	Larsen, Robert	2024-02-24	The impact of the proposed project to the land is not fully addressed and needs additional research. Studies on the long-term impacts of Line 3 pipeline on the land have shown that the environment does not always recover as promised after construction and other major disturbances, despite assurances from companies that impacts will be short-lived. The degradation and loss of habitats is noted as one of the main reasons native plants are lost. The sensitivity of native and medicinal plants to disruption that will occur during construction is a concern that needs to be studied further before the project occurs. Also the impact of a leak or rupture of the pipeline to sensitive plants needs to be defined and mitigation measures need to be proposed if this type of event happens.	Section 2.4 discusses water discharge locations and processes, Section 3.7 discusses water use and discharge permits that would be acquired, Sections 5.4.4 and 5.7.8 discuss impacts on water and water usage, Section 5.7.7 addresses impacts on vegetation, Section 5.7.10 addresses impacts on wildlife and habitats, Section 5.7.9 addresses impacts on wetlands, Section 5.4 addresses impacts on human settlement, and section 5.4.8 specifically addresses health and safety. Native Minnesota plants and wildlife of significance to Tribes are discussed in Section 5.4.2. The project would temporarily impact the habitats of plants and wildlife of Tribal significance during construction. Additional studies on these topics are outside the scope of the EIS. Chapter 8 addresses effects on	20243-204403-02

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				humans, health, wildlife, and the environment from an accidental release of CO_2. Chapter 10 describes the cumulative impacts of the project.	
Lower Sioux Indian Community	Larsen, Robert	2024-02-24	In the DEIS, it is assumed that the applicant will be able to capture and permanently sequester 100% of the CO_2 from the ethanol facility, but there is no evidence to support that assumption. Without the evidence to support 100% sequestration, it is not possible to know what the actual GHG emission reductions (if any) might be.	Text has been added to Section 2.1 describing the suitability of the Broom Creek Formation in North Dakota for CO_2 sequestration, as well as the monitoring and testing that would be done to verify that the CO_2 is contained in the storage reservoir.	20243-204403-02
Lower Sioux Indian Community	Larsen, Robert	2024-02-24	Further, it is not stated length of the life of this project. If a project is for 25 years or perhaps 50 years, does this simply move the issue of greenhouse gases down the road for the future generations to deal with?	Section 2.7 describes project decommissioning. As noted in Section 2.7, the life of the project is anticipated to be 25 years.	20243-204403-02
Lower Sioux Indian Community	Larsen, Robert	2024-02-24	The purpose is to make ethanol a green fuel to sell more of it and make it a viable energy source. Summit Carbon Solutions' full proposal is an extensive project with a 239.64-mile footprint in Minnesota, connecting multiple ethanol plants. It aims to impact the State's agricultural and ethanol industry. It is critical that the environmental concerns be addressed now as there may be more permit applications and environmental reviews of this type in the future. The DEIS does not consider the potential environmental and human impacts of the entire Minnesota portion of the applicant's CO_2 pipeline project. Because of this, we do not know the true cumulative impacts of this entire project on the water, soil, air, health, vegetation, and animals. The DEIS should look at all 240+ miles of pipeline the applicant has publicly proposed. The cumulative impacts of the carbon pipeline are more than listed in the DEIS. For example, the fresh gallons of drinking water currently used for ethanol production is around 3-3.5 gallons in the more efficient ethanol plants. In the year 2021 15 billion gallons of ethanol were reportedly produced. Multiply that number by 3 to get a total of 45 billion gallons of fresh drinking water used to produce the ethanol. Additionally, it is necessary to factor in the amount of natural gas used to manufacture ethanol. The current most efficient ethanol plant is using 37,883 btu's of natural gas to manufacture one gallon of ethanol about the equivalent to one cubic meter of natural gas now multiply those times 15 billion. This is an unlikely source of green energy with all the inputs of natural resources and safety concerns with ethanol carbon capture technology. This should also be for the whole "Midwest Carbon Express" pipeline project as the project described in the current DEIS is merely a pipeline to the North Dakota border with no known end connection point.	Thank you for your comment. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS. The appropriateness of federal and state policies regarding carbon capture and ethanol is outside the scope of the EIS.	20243-204403-02
Lower Sioux Indian Community	Larsen, Robert	2024-02-24	Based on the broad-reaching implications of this project, we respectfully request that the Commission appropriately broaden the scope of the DEIS to the Minnesota footprint of the "Midwest Carbon Express" project rather than studying the northern and southern portions of the pipeline in separate reviews. The "Midwest Carbon Express" is Summit's full proposed project- a pipeline across five states, connecting 30 ethanol plants to an underground storage location in North Dakota. In Minnesota, Summit plans to construct approximately 240 miles of pipeline; approximately 212 miles of that pipeline will connect six ethanol plants in southern Minnesota ("Southern Branch"). The project in the DEIS is only the smaller 28.1-mile branch in Otter Tail and Wilkin Counties, that will connect one ethanol plant to the pipeline network ("Northern Branch"). This proposal meets the Minnesota Environmental Policy Act's ("MEPA") definition of a "phased action," and the rules allow the Commission to include the entire Minnesota footprint. By reviewing the entire Midwest carbon express project in one environmental review would allow the Commission to fully understand and evaluate the impact the Carbon pipeline could have on land use conversion, the ethanol industry, environmental impacts, emergency response needs, and climate change.	Thank you for your comment. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-02
Lower Sioux Indian Community	Larsen, Robert	2024-02-24	The Summit project aims to significantly impact our state's ethanol production industry. It would be impossible to clearly evaluate those potential impacts without looking at Summit's full Minnesota footprint and all the ethanol facilities contracted to connect to the pipeline. This type of project has the potential to induce further proliferation of carbon capture facilities across the state, as well as impact land use. And, ultimately, this DEIS is precedent-setting. It would be unwise to examine a 28.1-mile segment out of the context of the planned 240-mile Minnesota footprint.	Thank you for your comment. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-02

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			We strongly urge that the Commission re-evaluate and research further into the environmental impact of this new type of project by considering the impacts of the entire MN footprint of the Midwest Carbon Express pipeline including impacts to cultural and natural resources along the proposed route.		
Lower Sioux Indian Community	O'Brien, Joseph	2023-05-18	With this project, the Public Utilities Commission ("PUC" or "Commission") is in the position to review the first proposed carbon capture pipeline in the State. These types of projects are being proposed across the Midwest, by Summit Carbon Solutions ("Summit"), and by other companies who are seeking to complete similar projects. Summit's full proposal is extensive with a 239.64-mile footprint in Minnesota, connecting six ethanol plants. It aims to impact the State's agricultural and ethanol industry. It is critical that environmental concerns be addressed now as there may be more permit applications and environmental reviews of this type in the future.	Thank you for your comment.	20243-204403-02
Lower Sioux Indian Community	O'Brien, Joseph	2023-05-18	Based on the broad-reaching implications of this project, we respectfully request that the Commission appropriately broaden the scope of review to the Minnesota footprint of the "Midwest Carbon Express" project rather than studying the northern and southern portions of the pipeline in separate reviews. The "Midwest Carbon Express" is Summit's full proposal - a pipeline across five states, connecting 30 ethanol plants to an underground storage location in North Dakota. In Minnesota, Summit plans to construct approximately 240 miles of pipeline; approximately 212 miles of that pipeline will connect six ethanol plants in southern Minnesota ("Southern Branch"). Summit proposes to study only the smaller 28.1-mile branch in Otter Tail and Wilkin Counties, which will connect one ethanol plant to the pipeline network (''Northern Branch"). This proposal meets the Minnesota Environmental Policy Act's ("MEPA") definition of a "phased action," and the rules allow the Commission to include the entire Minnesota footprint. Not only would this process be more efficient than studying the segments in separate EISs, but it would also allow the Commission to fully understand and evaluate the impact this project could have on land use conversion, the ethanol industry, environmental impacts, emergency response needs, and climate change.	Thank you for your comment. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-02
Lower Sioux Indian Community	O'Brien, Joseph	2023-05-18	The Summit project aims to significantly impact our state's ethanol production industry. It would be impossible to clearly evaluate those potential impacts without looking at Summit's full Minnesota footprint and all the ethanol facilities contracted to connect to the pipeline. This type of project has the potential to induce further proliferation of carbon capture facilities across the state, as well as impact land use. And, ultimately, this EIS is precedent-setting. It would be unwise to examine a 28.1-mile segment out of the context of the planned 240-mile Minnesota footprint.	Thank you for your comment. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-02
Lower Sioux Indian Community	O'Brien, Joseph	2023-05-18	The Summit CO_2 pipeline project's proposed route is within Dakota Homelands. The Dakota Peoples have a strong spiritual connection to the lands and waters within the ancestral territories of the Dakota. Protection of natural and cultural resources is critically important not only now but for seven generations. Therefore, projects that impact the Waters, Air, Lands, wild life and plant life need a thorough assessment as not to contaminate or destroy the natural environment. The questions that need to be addressed are many. For example, what amount of water usage is needed, what will be added to the water, and where will be the discharged? How will this impact medicinal and cultural plants, fish, macroinvertebrates, mammals, macrophytes, human health, surface water quality, wetlands/connected waterbodies, groundwater, etc.? What is the cumulative impact of the project over the course of the route? These are vital questions about this proposed project that have not been sufficiently investigated.	Thank you for your comment. Section 2.4 discusses water discharge locations and processes, Section 3.7 discusses water use and discharge permits that would be acquired, Sections 5.4.4 and 5.7.8 discuss impacts on water and water usage, Section 5.7.7 addresses impacts on vegetation, Section 5.7.10 addresses impacts on wildlife and habitats, Section 5.7.9 addresses impacts on wetlands, Section 5.4 addresses impacts on human settlement, Section 5.4.2 addresses cultural resources, and Section 5.4.8 specifically addresses health and safety. Native Minnesota plants and wildlife of potential significance to Tribes are discussed in Section 5.4.2. Chapter 10 describes the cumulative impacts of the project. Applicable updates have been made to these chapters and sections in the EIS.	20243-204403-02
Lower Sioux Indian Community	O'Brien, Joseph	2023-05-18	Another concern is the safety risks associated with CO_2 pipelines. The Pipeline and Hazardous Material Safety administration (PHMSA) has issued public statements that their regulations are not adequate to address the safety risks associated with CO_2 pipelines. CO_2 pipelines need special considerations because when a pipeline leaks or a rupture occurs it will release an asphyxiant that can suffocate people and prevent combustion-type vehicles from working. The equipment and training needs for Emergency response personnel to response to a pipeline incident needs to be thoroughly addressed and placed into practice prior to pipeline construction. All responders will need additional training and equipment to safely respond. This includes replacing all the gasoline/diesel vehicles with Electric Vehicles. In many rural areas the first responders/emergency response are often volunteers. Communities near the route of the pipeline should not have to bear the expense of specialized equipment needed for response to a new hazard brought to the area by a commercial entity.	Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. The Emergency Response Plan included as Appendix N is a draft plan that is not outdated but would be revised as required by PHMSA, if the project is approved. Additionally, EERA staff recommended a special permit	20243-204403-02

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				condition requiring the applicant to file its Emergency Response Plan that is filed with PHMSA with the Commission.	
Lower Sioux Indian Community	O'Brien, Joseph	2023-05-18	In addition to broadening the scope of review, we request that the forthcoming Environmental Impact Statement ("EIS") contains a more accurate analysis of the expected climate impacts of the proposal. The EA W overestimates the carbon removal that can reasonably be expected from this project. Furthermore, the Draft Decision proposes to exclude any analysis of life-cycle emissions from ethanol. This is not only inconsistent with the purpose statement but will also inhibit Summit and the Commission from understanding the potential impacts of the project. And, finally, we ask the Commission to consider the ways in which the narrow purpose statement inhibits the Commission's ability to explore less harmful alternatives.	Section 2.1 has been revised to clarify that the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and that commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. The analyses in Section 5.7.1.3 and Chapter 6 have been revised to include capture rate scenarios of 100 percent, 70 percent, 40 percent, and 10 percent. As directed by the scoping decision, the EIS reviews existing studies of the human and environmental impacts of ethanol production and provides a synthesized analysis of potential impacts on human and environmental resources. The CI score range presented in Chapter 6 includes potential emissions associated within the proposed project. Table 5-39 has been updated to provide a summary of GHG emissions from the initial construction as well as the proposed ongoing annual operations at capture facility, CO_2 capture (abated), and electricity use. An alternative that does not include ethanol production was not studied in the EIS because it would not meet the purpose of the project.	20243-204403-02
Lower Sioux Indian Community	O'Brien, Joseph	2023-05-18	We strongly urge that the Commission consider the impacts of the entire MN footprint of the Midwest Carbon Express pipeline including impacts to cultural and natural resources along the proposed route. Thank you for the opportunity to comment on this issue. We hope the Commission will consider our above comments when determining the scope of the EIS.	Thank you for your comment. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-02
MCEA	Hencheck, Abigail	2024-03-26	The new information outlined below is relevant to the FEIS because it demonstrates the high likelihood that the captured carbon will be used in EOR rather than being permanently sequestered. As MCEA outlined in its comments on the DEIS, if the CO_2 is used for EOR, the project could create more CO_2 than it captures,8 significantly affecting the potential environmental effects of the project. Because the information constitutes "substantial new information or new circumstances that significantly affect the potential environmental effects from the proposed project,"9 a supplemental EIS ("SEIS") could be required under Minnesota Rule 4410.3000, subp. 3, if the information is not considered in the FEIS. By considering this information now, shortly after the comment period has closed and with considerable time before the FEIS is issued, EERA can eliminate the possibility of a costly and time-consuming SEIS process. This will help to keep the project on track with future deadlines and within budget proposals. Therefore, MCEA respectfully requests that the new information outlined below be added to the DEIS record and considered in preparing the FEIS. New Information Relevant to Summit's Intent to Provide CO_2 for EOR. On March 11, 2024, Reuters published a news article10 regarding Summit's "dual messages" regarding EOR, specifically in the Bakken. The article characterizes Summit's public message as a pledge that its project won't be used for EOR. However, the article goes on to describe its private message, saying "Summit has a different message for prospective clients…: If you want to use our project for [EOR]…just write a check." More important than the article itself is the evidence that supports it. This evidence did not come to MCEA's attention until the article was released. This evidence highlights the increasing likelihood that Summit will use its CO_2 for EOR which would eviscerate the touted climate benefits of the project. The evidence referenced in the article is summarized below: · On December 20, 2023, Summit attended an event put on by Friends of Ag and Energy. Friends of Ag and Energy is a North Dakota-based organization that supports the use of Fossil Fuels and advocates for the use of man-made carbon to benefit the oil, gas, and coal industries. At this event, organizers promoted the construction of CO_2 pipelines so they could be converted into transport for EOR purposes in the future. At this event, Summit was asked, "Enhanced Oil Recovery will ultimately be available from this, and Summit is a part of that, right?" Summit responded, "We're building a common carrier pipeline, right, that will deliver CO_2 for fee. Today, we don't have any shippers who want to ship CO_2 for EOR. When that changes, we will likely move it for that purpose."11 This exchange shows how Summit intends to use its captured CO_2 for EOR as soon as it has a buyer.	Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for EOR.	20243-204682-01

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			· On January 19, 2024, Summit filed a Post-Hearing Reply Brief with the Iowa Utilities Board ("IUB").12 In this filing, Summit asks the IUB to reject the suggestion that their permit should require sequestration of all CO_2 and prohibit the use of CO_2 for other purposes, including EOR.13 Summit argues that: Summit's Project is a common-carrier pipeline, so it cannot control what future shippers ultimately choose to do with their product. Summit offers pipeline transportation for product meeting its specifications. While the currently contracted ethanol plants all currently seek to sequester all of their CO_2, and the economic realities dictate that is the most valuable decision, Summit does not ultimately control what future shippers may choose to do with their CO_2 shipped on the pipeline. This statement makes it clear that Summit has no intention of preventing its CO_2 from being used in EOR, and will allow it to be used for EOR at any point its customers want to do so. Based on Summit's own comments, it is clear that using CO_2 for EOR is not only possible but "likely." Because of the sizable impact this will have on the project's environmental impacts, it should be fully and thoroughly studied. Therefore, MCEA asks that this information be added to the DEIS record and considered when developing the FEIS. [MCEA provided attachment to the Post-hearing reply brief of Summit Carbon Solutions, LLC Filed with the Iowa Utilities Board on January 19, 2024, HLP-2021-0001]		
MCEA	Hencheck, Abigail	2024-02-23	[attachments include: Attachment 1 EPA GHG Facility Details ADM 2022 Attachment 2 Archer Daniels Midland MRV Plan Attachment 3 Soil Science Soc of Amer J - 2022 - Brehm Attachment 4 to Soil Use and Management - 2020 - Tekeste] CO_2 pipelines are being proposed across the Midwest as a potential climate solution to reduce greenhouse gas emissions from the ethanol industry.2 However, the claim that CO_2 pipelines have a net climate benefit is strongly debated3 and the public has raised many concerns about the human and environmental impacts of CO_2 pipelines. Given that this Project is the first of its kind in Minnesota, it is especially important for its environmental review to include a thorough investigation of this technology and its impacts. The public and decision makers need this information to make an informed decision about the propriety of this Project for Minnesota. MCEA appreciates the significant work of the Department of Commerce ("the Department") in preparing this DEIS which addresses many key issues. However, MCEA believes additional content is needed in the final Environmental Impact Statement ("FEIS") for it to be complete and legally sufficient under the Minnesota Environmental Policy Act ("MEPA"). Under MEPA, an EIS must provide useable information concerning the primary environmental effects of a proposed project,5 explore measures that could mitigate the environmental impacts, and analyze those effects that cannot be mitigated.6 Ultimately, the EIS must contain the pertinent information about a project such that it can be used as a guide by decision makers in issuing, amending, or denying a permit and taking other actions to avoid or minimize adverse environmental effects.7	The EIS is an analysis of the project to assist the Commission with making a routing permit decision. A study of carbon capture technology is outside the scope of the EIS as it would not aid the Commission's decision on issuing a route permit.	20243-204403-02
MCEA	Hencheck, Abigail	2024-02-23	The DEIS for this Project addresses many key issues, but it fails to adequately address several important impacts and possible mitigations for the Project that must be included pursuant to the requirements of MEPA. Specifically, the DEIS fails to provide a thorough analysis of the Project's primary environmental effects if less than 100 percent of the CO_2 is captured by the Project, if any of the CO_2 is used for enhanced oil recovery, or if the Plant does not produce or capture enough CO_2 to safely operate the pipeline. The DEIS also does not explore measures that could mitigate the impacts of construction that causes reduced crop yields, nor mitigations for farmers that experience reduced yields over multiple years. In addition to these major concerns, the DEIS also does not fully address the use of an odorant as a possible mitigation, does not include important sources of greenhouse gas emissions in the discussion of the Project's emissions, does not address the environmental impacts of an accidental release of drilling fluid, and does not do enough to ensure meaningful consultation with tribal governments. This missing information is necessary for the Commission to make a reasoned decision about the potential for, or significance of, the Project's environmental effects, and the DEIS must be revised accordingly.	See responses to detailed comments on each topic below.	20243-204403-02
MCEA	Hencheck, Abigail	2024-02-23	**I. The DEIS Does Not Adequately Discuss the Carbon Capture Feasibility of the Project** The DEIS analyzes the Project using a carbon capture rate of 100 percent.8 To the best of MCEA's knowledge, it is unlikely that this capture rate can be realized. To our understanding, the best performing ethanol carbon capture project known to date is capturing a very small percentage of the carbon produced by that plant.9 It does not appear that the Applicant is proposing any new technology or operating procedures that would explain such a significant increase in performance for this Project.10 The DEIS also does not produce any data-driven evidence of this capture rate being possible, despite its claim that the rate is "proven."11 The DEIS only	The analyses in Section 5.7.1.3 and Chapter 6 have been revised to include capture rate scenarios for 100 percent, 70 percent, 40 percent, and 10 percent. Section 2.1 has been revised to clarify that the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and that commenters have questioned the feasibility of this capture rate given the performance of	20243-204403-02

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			analyzes the Project using the 100 percent carbon capture rate; it does not consider alternatives where less than 100 percent of the carbon from the Plant is captured.12 Given the questionable nature of the 100 percent capture rate, the FEIS must provide evidence that capturing 100 percent of the carbon is possible and study the environmental impacts of the Project if it does not achieve the 100 percent capture rate using a high-medium-low framework. [continued below]	existing capture facilities. Finally, Section 5.7.2.3 has been revised to include ranges of the amount of oil that could theoretically be produced with EOR using CO_2 captured by the project, based on lower capture rates scenarios.	
MCEA	Hencheck, Abigail	2024-02-23	*A. It Is Improper to Assume a 100 Percent Capture Rate Without Evidence Demonstrating the Feasibility of 100 Percent Capture* In its Environmental Assessment Worksheet, the Applicant estimates it will capture 185,454 metric tons of CO_2 from the Plant each year.13 This is the maximum potential annual CO_2 emissions from the wet scrubber at the Plant.14 Thus, the Applicant estimates a 100 percent capture rate at its capture facility. Citing the capture facility's design, the DEIS assumes this capture rate of 100 percent.15 This capture rate represents an 89 percent increase from the most successful ethanol plant carbon capture rate known to date. MCEA's understanding is that the most successful known carbon capture project applied to an ethanol plant is at the Archer Daniels Midland ethanol plant in Decatur, IL.16 That facility emits a little more than 4.1 million metric tons of CO_2 each year.17 The capture facility, in that case, was designed to capture 26 percent of the overall emissions.18 In 2022, the Archer Daniels Midland plant captured 428,580 metric tons of carbon, which is only 40 percent of the carbon it was designed to capture.19 In other words, in the most successful example of carbon capture technology used at an ethanol plant, the project was only able to capture 11 percent of the overall CO_2 emissions. To the best of MCEA's knowledge, the Applicant is not capturing carbon using any new technology or procedure that would explain an 89 percent increase in the success rate of their carbon capture technology.20 If the Applicant is using new or different technology, this should be made explicit in the FEIS, along with data supporting the ability of this technology to achieve a 100 percent capture rate. At present, the DEIS only explains the Project's 100 percent capture rate by citing to the capture methodology.21 The Project methodology uses a "tie in connection at the CO_2 scrubber stack and then process[es] the CO_2 to the desired chemistry to transport or store the CO_2."22 It describes this technology as the "industry standard methodology to capture the most CO_2 at an ethanol plant."23 The DEIS goes on to explain that the Applicant would capture 100 percent of the CO_2 by "adhering to the standard operating procedures and minimizing equipment downtime through preventative maintenance programs."24 This is not sufficient to explain how the "industry standard methodology" for carbon capture and the "standard operating procedure" at the capture facility would capture 89 percent more carbon than the most successful capture facility in the industry. In sum, the FEIS must provide support for a 100 percent capture rate. It must show that this capture rate is feasible by producing data-driven evidence that something near this capture rate has been achieved at some point by some project using the technology and operating procedures proposed for this Project. [continued below]	The analyses in Section 5.7.1.3 and Chapter 6 have been revised to include capture rate scenarios for 100 percent, 70 percent, 40 percent, and 10 percent. Section 2.1 has been revised to clarify that the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and that commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. Finally, Section 5.7.2.3 has been revised to include ranges of the amount of oil that could theoretically be produced with EOR using CO_2 captured by the project, based on lower capture rates scenarios.	20243-204403-02
MCEA	Hencheck, Abigail	2024-02-23	*B. It Is Improper to Assume a 100 Percent Capture Rate Will Be Achieved When Assessing the Project's Environmental Impacts* When assessing the possible environmental impacts of the Project, the DEIS bases its analysis on the assumption the project will achieve a 100 percent capture rate.25 For example, the DEIS relies on the 100 percent capture rate in finding a net decrease in the greenhouse gas emissions for the Project,26 a net positive impact on climate change,27 and the carbon intensity score for the Project.28 All of these assumptions would be impacted in the likely event that the Project does not capture all of the CO_2 produced. The intensity of the impact would, of course, depend on how much CO_2 was captured. However, given the 89 percentage point difference between this Project's proposed capture rate and the next best-performing ethanol carbon capture project, the impact could be significant; up to 89 percent of the benefits assumed by the DEIS could fail to materialize. Unless there are multiple studies that can confirm the feasibility of the projected 100 percent capture rate for the Project's capture technology, the FEIS must acknowledge that the actual carbon capture rate of the Project is speculative and that there is a substantial possibility that less than 100 percent of the CO_2 is captured. The FEIS must study how this would affect the environmental impacts of the Project, particularly the Project's climate impact. To accomplish this, MCEA suggests the FEIS study the impact of a range of potential capture rates using a high-medium- low framework (ex: 10% of emissions captured, 40% captured, 90% captured) to provide the Commission with bookends that show the Project's impacts if different capture rates come to fruition. The Commission will not have usable information that addresses the Project's significant environmental issues unless the FEIS contains a complete picture of climate benefits that may or may not be achieved by the Project.30 Without this information, the Commission cannot make a fully informed decision about the Project. Thus, the FEIS must fully support its use of a 100 percent capture rate and study alternatives where less than 100 percent of the CO_2 is captured, using a high-medium-low framework.	The analyses in Section 5.7.1.3 and Chapter 6 have been revised to include capture rate scenarios for 100 percent, 70 percent, 40 percent, and 10 percent. Section 2.1 has been revised to clarify that the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and that commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. Finally, Section 5.7.2.3 has been revised to include ranges of the amount of oil that could theoretically be produced with EOR using CO_2 captured by the project, based on lower capture rates scenarios.	20243-204403-02

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MCEA	Hencheck, Abigail	2024-02-23	**II. The DEIS Does Not Adequately Consider that CO_2 May be Used for Enhanced Oil Recovery** In this Project, the Applicant proposes to transport the captured CO_2 to North Dakota and inject it underground for permanent sequestration.31 However, captured CO_2 can also be used for Enhanced Oil Recovery ("EOR").32 This is a highly controversial process where CO_2 is injected into oil reservoirs to recover oil that is unreachable by primary recovery processes.33 The U.S. EPA estimates that, in 2022, approximately 60 percent of all captured CO_2 was, in fact, used for EOR.34 There is evidence that this percentage will increase due to tax credits for carbon capture and the false narrative that EOR supports climate goals by avoiding additional fossil fuel drilling projects.35 But this discounts the risk associated with using CO_2 injection for EOR. EOR projects have raised environmental concerns over leakage into adjacent groundwater and soils, the impacts of chemicals leaching from wells, the high-intensity water usage rates of EOR injection wells, and the impacts on communities surrounding EOR sites.36 The Applicant has stated that it does not propose or plan to use CO_2 from this project for EOR.37 However, there is no permitting mechanism that prevents the Applicant from using the CO_2 for EOR once the Project is built, as the Commission does not retain jurisdiction at the pipeline's endpoint in North Dakota. Additionally, the Applicant's parent company has expressed an interest in using the captured CO_2 for EOR.38 Yet the DEIS does not fully investigate how the environmental impacts of the Project would be altered if the CO_2 was used for EOR. A full and robust FEIS must consider the possibility that the CO_2 may be used for EOR by analyzing the climate effects of additional oil production, considering how the environmental impacts of the project change if not all the CO_2 is permanently sequestered, and providing the information needed to determine the likelihood of the CO_2 being used for EOR.	As indicated in Section 5.7.2.3, it is possible that CO_2 captured from the ethanol plant could contribute to further fossil fuel extraction through its use for EOR; however, it would be speculative to conclude whether the availability or absence of CO_2 from the ethanol plant would have a significant effect on future oil production. Section 5.7.2.3 has been revised to include an estimate of emissions from oil produced with EOR using the CO_2 captured from the ethanol plant.	20243-204403-02
MCEA	Hencheck, Abigail	2024-02-23	*A. The DEIS Fails to Consider the Likelihood that the Applicant Will Use the CO_2 for EOR* The DEIS acknowledges the connection between carbon capture projects and EOR, including the use of EOR in North Dakota.40 The DEIS states, "EOR methods used in the Bakken Formation (the shale oil formation in North Dakota) include CO_2 injection…."41 However, it fails to acknowledge the proximity of EOR sites in North Dakota to the termination point of this pipeline. The proximity of the pipeline to known EOR sites is concerning because it increases the ease with which the Applicant can divert CO_2 from its sequestration sites to the EOR sites, thus increasing the likelihood that the captured CO_2 is not, in fact, permanently sequestered. This concern is exacerbated by comments from the CEO of the Applicant's parent company, Summit Agricultural Group. He has publicly stated that Summit is exploring not just storing CO_2 but also using it for EOR.42 Given that federal tax credits are available for both sequestration and EOR, these comments raise genuine concerns that the Applicant may use its CO_2 either partially or wholly for EOR. The Commission cannot understand the environmental impact of the Project without understanding the likelihood of it becoming involved with EOR. Therefore, the FEIS must discuss the proximity of EOR sites to the planned sequestration site. This information will be critical for the Commission to understand the significant impact EOR participation could have on the Project's alleged benefits.	Section 5.7.2.3 has been revised to include ranges of the amount of oil that could theoretically be produced with EOR using CO_2 captured by the project that are based on several capture rate scenarios. Information regarding the location of the sequestration facilities relative to oil and gas fields has also been added to this section.	20243-204403-02
MCEA	Hencheck, Abigail	2024-02-23	*B. The FEIS Must Consider the Climate Impacts of Using CO_2 for EOR* The DEIS does not adequately address the environmental impacts of increased oil production in the event the captured CO_2 is used for EOR. It opines that the climate impacts that would occur if the Project CO_2 is used for EOR are too speculative to analyze because the amount of CO_2 needed to produce a barrel of oil is site-specific.43 While this may be true, the DEIS also provides "for illustrative purposes" that the Project could help produce 316,700 to 633,300 barrels of oil per year if the CO_2 was used for EOR.44 This number is based on the estimated amount of CO_2 used for EOR in the United States in 2019.45 The DEIS could have used these estimated barrels of oil to study the climate effects of using the CO_2 for EOR, but it did not. According to the EPA, 316,700 to 633,300 barrels of oil annually would produce between 136,181-272,319 metric tons of CO_2 emissions annually.46 At best, this Project will capture 185,454 metric tons of CO_2 annually.47 And this is only in the unlikely scenario that the Project captures 100 percent of the CO_2 produced.48 In other words, if the captured CO_2 is used for EOR, there is a good chance that the Project will result in more CO_2 emissions than it captures. This would render many assertions in the DEIS inaccurate, specifically the assertion that the Project is a net benefit for emissions and the climate.49 [49 See DEIS at 5-93, 5-98 to 5-99, 6-6.] Given that the use of the Project's CO_2 for EOR is not, and will not be prohibited, and that use for EOR would turn the current DEIS findings on their head, the FEIS must study this possibility in order to sufficiently inform the Commission of the possible environmental effects of this Project.	Section 5.7.2.3 has been revised to include ranges of the amount of oil that could theoretically be produced with EOR using CO_2 captured by the project that are based on several capture rates scenarios. Additionally, statements regarding the net benefit of the project have been clarified as applicable, such as section 5.7.2, which has been revised to note that the project would contribute to a net beneficial effect on climate change as it would capture and store CO_2 emissions from the ethanol plant.	20243-204403-02

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MCEA	Hencheck, Abigail	2024-02-23	*C. The FEIS Must Consider How Much CO_2 Could Be Released During the EOR Process* The DEIS acknowledges that the EOR process fails to sequester all the CO_2 injected into oil wells.51 It states, "[i]f CO_2 was used for EOR, it is likely not all the CO_2 would be sequestered."52 However, the DEIS fails to analyze how much CO_2 would escape sequestration or how that would affect the overall environmental impacts of the Project.53 It states that it cannot complete such an analysis because the amount of CO_2 that would escape is too speculative.54 Specifically, it states that "[b]ecause there are multiple variables that would affect the retention of CO_2 in the subsurface during the EOR process, the amount of CO_2 that would be released at the surface cannot be quantified with a reasonable degree of certainty."55 Given the prevalence of EOR, it is likely that data is available concerning the general amount of CO_2 or a range of CO_2 that is not sequestered during EOR. The Department can use this data or use an estimation to create a reasonable range of the high, medium, and low amounts of CO_2 at risk of not being permanently sequestered through the EOR process. With these scenarios in hand, the FEIS can provide information regarding how the CI score of the Project would change if some or all of the captured CO_2 were used for EOR. Permanent sequestration is a pivotal piece of the Project and central to determining its environmental effects. Understanding the likelihood that the CO_2 is not sequestered, and the environmental impacts of that possibility will be essential information for the Commission. To provide usable information for the Commission in its decision-making, the FEIS needs to provide information regarding the likelihood that the Applicant will participate in EOR, including information regarding the prevalence of EOR and the proximity of EOR to the pipeline and its sequestration site. The FEIS must also analyze the environmental impacts if any of the CO_2 is used for EOR, including the impacts of additional oil production resulting from this Project's CO_2 and the impacts of CO_2 being released in the EOR process rather than sequestered.	Use of CO_2 for EOR is not purported to be an effective method to sequester CO_2. The discussion in Section 5.7.2.3 is intended to disclose potential impacts in the event that the captured CO_2 is used for EOR rather than being sequestered, as proposed. One of those impacts is that not all of the CO_2 is likely to remain in the subsurface. Text has been added to Section 2.1 describing the suitability of the Broom Creek Formation in North Dakota for CO_2 sequestration, as well as the monitoring and testing that would be done to verify that the CO_2 is contained in the storage reservoir. Section 5.7.2.3 addresses the possibility that the captured CO_2 could be used for EOR instead of being sequestered and includes estimates of the amount of oil that could theoretically be produced based on different capture rates. Additionally, estimates of the amount of GHGs that would result from the produced oil have been added to Section 5.7.2.3.	20243-204403-02
MCEA	Hencheck, Abigail	2024-02-23	III. The DEIS Does Not Consider the Effect that Reduced CO_2 Production or Capture Would Have on the Safety of the Pipeline The DEIS observes that this Project must operate at a minimum pressure in order to be safe.56 To obtain this pressure, the Project must collect and transport a minimum throughput to safely operate the pipeline.57 The Applicant can shut in or isolate the pipeline and close the mainline valves ("MLVs") to accommodate temporary reductions in throughput and pressure,58 for example, due to maintenance or unforeseen plant closures. However, "[p]ermanent reductions in throughput would result in changes in operational parameters that could impact the ability to safely operate the pipeline. Permanent reductions in throughput could also hamper the ability to perform in-line pipeline integrity inspections because the inspection tool could not move at its designed rate to optimally inspect the pipeline."59 In other words, the safe operation of the pipeline requires a minimum amount of CO_2 to be continuously pushed through the pipeline, in turn requiring a minimum amount of CO_2 to be produced and captured at the Plant. The DEIS does not state what minimum pressure would be required for safe operations, nor does it state the metric tons of CO_2 that would be needed daily to support the required pressure.60 This is concerning because Minnesota's climate goals (or federal climate policies) could result in reduced ethanol usage and therefore reduced CO_2 production by the Plant, which could undermine the safety of the pipeline. The State of Minnesota has a statutory goal of reducing greenhouse gas emissions to net zero economy-wide, by 2050.61 In furtherance of these goals, Minnesota is likely to implement policies, regulations, and incentives over the next 26 years that work towards meeting this goal. These actions could have a significant impact on ethanol markets, the amount of ethanol produced in the State, and consequently, the amount of CO_2 produced through ethanol production. For example, the move toward electric vehicles and other alternative means of transportation, as outlined in the Minnesota Climate Action Framework,62 could impact the ethanol industry, causing less ethanol to be produced in the State. Additionally, the Plant could choose to or be required to implement technology alternatives, like those considered in the DEIS.63 Regardless of the specific policies implemented, the fact remains that Minnesota's climate goals are likely to bring about a reduction in the amount ethanol produced and therefore the amount of CO_2 produced by this industry. This could mean that the Plant does not produce enough CO_2 to safely operate the pipeline. If there is not enough CO_2 to safely operate the pipeline, there are two potential outcomes, both of which the FEIS must address. First, the pipeline could cease operations much earlier than planned by the Applicant. This would alter the environmental benefits that would be realized by the Project. The intensity of this change would depend on how long the pipeline was operational before it was decommissioned. What are the environmental implications if the pipeline is only operational for five years? Ten years? 15 years? The	If less CO_2 becomes available in the future, it is anticipated that the flow rate would be reduced, not the pressure. Federal law requires that the pressure always remain at levels conducive to safe operations. There are other options that can be exercised to compensate for reduced product flow.	20243-204403-02

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			answer to these questions will change the risk-benefit analysis for the Project, and the FEIS must answer them in order to provide the Commission with all the information needed to make an informed decision on this Project. Second, the pipeline could continue to operate but in an unsafe manner, increasing the risk of a rupture or other negative environmental effects. The FEIS must consider the potential environmental impacts of the pipeline operating below the minimum safe pressure. Additionally, due to the financial resources required to initiate this Project, the FEIS must consider that the Applicant is at risk of choosing this option in order to operate the pipeline longer and recoup more of its costs. The DOC-EERA should request information from the Applicant to better understand how long the pipeline must remain operational in order to be profitable. The FEIS must fully address the safe operation of the pipeline. To do so, it must address the amount of CO_2 needed to safely operate the pipeline and consider the potential outcomes if that amount of CO_2 is not available.		
MCEA	Hencheck, Abigail	2024-02-23	IV. The DEIS Must Include Information on the Efficacy of Mitigations to Reduce Impacts to Cropland and Crop Yields The DEIS contains information showing the Project's construction will have a potentially significant impact on cropland that could last for years after construction is complete and could reduce crop yields in a way that would impact the livelihoods of Minnesota farmers. Therefore, pursuant to Minn. Stat. § 116D.04, subd. 2a(a), Minn. R. 4410.0200, subd. 51, Minn. R. 4410.2300(I), and Minn. R. 4410.2800, subp. 4, the FEIS must contain information about the efficacy of discussed and planned mitigation measures to reduce this potentially significant impact. This information must be included in the FEIS in order for it to "provide usable information to the project proposer, governmental decision makers and the public. The DEIS makes clear that if construction of the pipeline were permitted, it would have a potentially significant impact on area cropland. The land that would be disturbed during construction is predominantly cropland.66 When construction occurs on cropland, compaction of the soil and mixing of the topsoil with other soils can reduce the ability of that land to successfully grow crops, and these impacts can last for multiple growing seasons after construction has taken place.67 Unfortunately, the cropland that would be disturbed by this Project is considered some of the best in the State, as 90% or more of the land along each of the routes is designated as "prime farmland."68, 69 Indeed, Figure 5-10 of the DEIS shows that nearly all the land along the 3 routes is either prime farmland, farmland of statewide importance, or prime farmland if drained.70 In addition to being valuable agricultural land, the DEIS also reports that the croplands impacted by the Project are the type of lands that are especially susceptible to impacts from construction. The DEIS notes that soils that are most susceptible to the negative impacts from construction include: (1) prime farmland, (2) compaction-prone soils,71 and (3) soils with poor revegetation72 among others.73 The routes where proposed pipeline construction would take place are 90% or more prime farmland and have 70% or more acres that are compaction-prone, and 13% or more acres with revegetation concerns where achieving adequate vegetation following construction and restoration may not be possible.74 Given these characteristics of the land, if the Project is allowed, the impacts to farmers could be significant. The most basic impact to these lands is lost crop yields during the period of construction— estimated to be approximately one growing season.75 However, the DEIS identifies multiple impacts of construction that could alter future agricultural productivity of the land for as long as five years after construction. Moreover, recently published studies show these impacts can last even longer.76 The DEIS identifies the following impacts to croplands from construction: • The removal of topsoil during construction could expose soils that are classified as prime farmland and farmland of statewide importance to wind and water erosion causing this topsoil that is classified as some of the best in the State be lost to erosion.77 • Mixing of topsoil with other soils during the backfilling process could alter the properties of the soil which in turn could affect the ability of crops to reestablish for multiple growing seasons (up to 5 years) after restoration activities are complete.78 • Soil compaction and rutting would occur from the use of heavy construction vehicles.79 Soil compaction is known to cause reduced crop yields.80 Effects typically last for 2 to 3 years but can last up to 5 years (or even longer) depending on impacts on soils from construction disturbance.81 • These impacts from construction have the potential to lead to financial impacts, for example, lost farm revenue.82	As indicated by the definitions found on Page 5-1 of the draft EIS, "long-term impacts extend beyond the end of construction and are generally associated with operation of the project." Disturbance to soils and crops from construction can result in impacts that extend beyond the construction phase, and the text in the final EIS has been revised to indicate that impacts can be long term.	20243-204403-02
MCEA	Hencheck, Abigail	2024-02-23	Given the potentially serious impacts to the productivity of farmland and farmers' livelihoods that can last for years, the DEIS must provide more information about how well these conditions can be mitigated. MEPA foundationally requires that the EIS "explore[] methods by which adverse environmental impacts of an action could be mitigated."83 Mitigation is defined as "avoiding impacts altogether by not undertaking a certain project or parts of a project; . . . rectifying impacts by repairing, rehabilitating, or restoring the affected environment; . . . compensating for impacts by replacing or providing substitute resources or environments; or . . . reducing or avoiding impacts by implementation of pollution prevention measures."84 An EIS is required to contain a section on mitigation	The EIS acknowledges that crop production would be affected by changes to soils from construction disturbance. Text in Chapter 5 has been revised to indicate that impacts on crop production would be long term. Measures to minimize these impacts are described in the applicant's Minnesota ECP and Minnesota APP, which are provided as appendices. These measures include standard best management	20243-204403-02

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			measures which "shall identify those measures that could reasonably eliminate or minimize any adverse environmental, economic, employment, or sociological effects of the proposed project At present, the DEIS makes reference to multiple other documents and permits the permittee is required to comply with, but it does not actually identify the mitigation measures that can or must be implemented according to those plans and permits, nor does it report whether those mitigation measures can actually minimize the impacts of concern. For example, as a mitigation the DEIS references the terms in the sample routing permit which state, "[c]ompaction of agricultural lands by the Permittee must be kept to a minimum and mitigated in accordance with its agricultural protection plan [if applicable]."86 However, given the high sensitivity of the lands on the construction route, 70% of which are designated as compaction-prone, is it even possible for the applicant to "keep compaction to a minimum" or "mitigate it?" The DEIS does not provide further discussion on what mitigation practices could be implemented, and whether they would be effective, especially in this highly sensitive area. Instead, the DEIS says, "[c]onstruction practices that would minimize impacts on soils, such as erosion and mixing of topsoil and subsoil, are described in detail in the applicant's Minnesota ECP (Appendix D) and Minnesota APP (Appendix E)."87 Those documents mention some specific actions the Applicant plans to take, for example, the APP mentions the use of deep-tillage to alleviate compaction of the subsoil and/or deep subsoil ripping.88 However, the FEIS must indicate whether these practices are effective at addressing soil compaction and decreased crop yields, how effective they are expected to be (25% effective? 100% effective?), and over what timeline. This analysis is especially critical in light of recent studies that have found persistent soils issues years after pipeline installation resulting in reduced crop yields despite the use of best management practices like double-lift excavation to address soil mixing and deep ripping to address soil compaction.89	practices (BMP), such as erosion and sediment control, topsoil segregation, and soil decompaction. An analysis of the effectiveness of these BMPs is outside the scope of the EIS. Additionally, impacts on agricultural production can be mitigated through landowner agreements. These agreements are outside the scope of the EIS.	
MCEA	Hencheck, Abigail	2024-02-23	The FEIS must also include information about the applicant's proposed mitigation to compensate farmers for lost crops due to construction.90 Currently, the DEIS states "[c]ompensation for crop loss would be negotiated between the applicant and the landowner. These agreements are outside the scope of this EIS."91 This analysis is insufficient given the requirement that an EIS must include a section on mitigation measures that "shall identify those measures that could reasonably eliminate or minimize any adverse environmental, economic, employment, or sociological effects of the proposed project. Given the significant economic and employment impacts from lost revenue to farmers, MEPA requires the FEIS to identify whether the proposed compensation regime is actually a meaningful mitigation such that it would eliminate or minimize the adverse effects of lost crop yield. To provide a legally sufficient analysis, the FEIS needs to include more details about this proposed mitigation, including but not limited to: • Whether landowners are notified that they can seek compensation for lost crop yields in their easement agreement; • What formulas or methods are used to determine compensation for lost crops, or what are average compensation amounts; • Whether landowners are informed that crop losses could extend for more than just the year of construction, and yields could in fact be impacted as long as 5 or more years after construction; • Whether landowners can be compensated for lost crops or reduced yield beyond the year of construction in easement agreements (does the Applicant plan to allow for this); and • Which state agency (if any) has jurisdiction to address ongoing issues with lost or diminished crop yields after construction has been completed. The purpose of MEPA is to "look before you leap." The EIS is meant to "provide usable information to the project proposer, governmental decision makers, and the public"93 and to serve as a guide to decision makers in issuing, amending, or denying permits so that adverse effects to the environment and communities can be minimized.94 Understanding the true impact to farmers' livelihoods is key information the public and decision makers require and is undoubtedly information the Commission will want to understand before making a decision on this Project.	Thank you for your comment. Landowner agreements are outside the scope of the EIS. The EIS discusses potential impacts on agricultural production, soils, etc. This information can be used by landowners when negotiating easement agreements. Should ongoing issues with lost or diminished crop values occur, an individual can file a complaint with the Commission. This information has been added to Section 5.5.1.2.	20243-204403-02
MCEA	Hencheck, Abigail	2024-02-23	**V. The DEIS Contains Other Inadequacies that Should Be Addressed** In addition to the above major concerns, MCEA believes the FEIS would be improved by analyzing whether an odorant is a feasible and effective mitigation, including land use change emissions in the Project's emissions calculation, further discussing the environmental impacts of an accidental release of drilling fluid, and doing more to reach tribal governments.	See the responses to the more detailed comments on these topics below.	20243-204403-02
MCEA	Hencheck, Abigail	2024-02-23	*A. The DEIS Did Not Investigate Adding an Odorant as a Possible Mitigation* Public concerns about the Project have largely centered around the possibility of a pipeline leak or rupture.96 The DEIS acknowledges receiving comments about the possibility of adding an odorant to the CO_2 to help mitigate this concern.97 However, the DEIS did not adequately address whether this is a feasible or effective mitigation measure.98 The FEIS must address the concerns of the public, in	As indicated in the EIS, CO_2 is odorless at low concentrations but has a sharp, acidic odor at very high concentrations, such as would occur in the event of a rupture. EERA staff evaluated the addition of an odorant, as described in Section 8.5.2. Adding an odorant would fall under safety	20243-204403-02

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			part, by exploring the efficacy in mitigating the effects of a rupture by adding an odorant to the CO_2. Rather than addressing whether an odorant can mitigate potential harms from a rupture, the DEIS simply states that "[t]here are no PHMSA regulations that require use of odorants in CO_2 pipelines . . . and the applicant does not propose to add an odorant."100 While this is true, it is not, on its own, sufficient grounds to not study the mitigation measure. While there may be no PHMSA regulations requiring the use of odorants, it also does not appear to be prohibited. Thus, whether this is a feasible and effective mitigation is relevant, helpful, and requested information. While the DEIS correctly states that only PHMSA can set levels for allowable impurities in CO_2 pipelines and that the Commission cannot set safety standards,101 the scope of environmental review is broader than just those mitigations or conditions that the Commission has authority to order.102 The purpose of environmental review is to understand the full impacts of a project on Minnesotans' environment, health, and livelihoods.103 If adding an odorant is possible and effective, but the Applicant has simply chosen not to do so, this is important information for the public and the Commission to consider when assessing whether this Project is safe for Minnesotans.104 To know this, the FEIS must provide this information The DEIS currently relies on the Applicant's vague assertion that it would be too difficult to add an odorant because it would "require multiple injection facilities and would introduce additional logistic and design changes needed for the safe storage and overland transport of the odorant."105 The DEIS does not verify these statements.106 The FEIS should fact-check these assertions and consider the feasibility and efficacy of adding an odorant by analyzing whether it is technologically feasible and what impact it would have on reducing the impacts from a pipeline rupture.	standards. The Commission cannot set safety standards for pipeline construction or operation. The Commission's obligation is to identify a pipeline route consistent with the criteria found in statutes and the applicable administrative rules. Federal law, by contrast, exclusively prescribes pipeline safety requirements.	
MCEA	Hencheck, Abigail	2024-02-23	*B. The Section on Greenhouse Gas Emissions Must Include Emissions from Land Use Change to Accurately Reflect the Project's Climate Impact* The DEIS correctly recognizes that if land is converted from its current use to agricultural land that is growing feedstocks for ethanol, this will emit greenhouse gas emissions.107 Moreover, the DEIS recognizes that market mechanisms can incent changing a land's use to growing ethanol feedstocks because market signals provide incentives to grow more feedstocks for ethanol production.108 The California Air Resources Board ("CARB") has also identified land use change as a key element in understanding the climate consequences biofuels like ethanol.109 CARB has found the emissions impacts from land use change are so significant that failing to account for them when assessing the carbon intensity of biofuels would create such an inaccurate picture of their climate consequences that it could actually jeopardize the ability of California's low carbon fuels market to achieve carbon reductions.110 In studying land use change, CARB found that increasing worldwide demand for biofuels will stimulate a corresponding increase in the price and demand for the crops used to produce those fuels. In order to meet that demand, farmers will either grow more biofuel crops on existing land by reducing or eliminating crop rotations, will convert existing land from food to fuel crop production, will convert non-agricultural land to fuel crop production, or will try to increase yields on existing land.111 Many of these changes will result in increased greenhouse gas emissions from the release of carbon sequestered in soils and land cover vegetation.112 The DEIS sections discussing the Project's greenhouse gas emissions and impact on climate change do not account for the emissions that will occur if land is converted from its current use to fuel crop production for use at the ethanol plant. Low carbon fuel markets are being increasingly proposed in various states (including Minnesota). And this Project plans to make ethanol more competitive in low carbon fuel markets. As such, it is unreasonable to assume that conversion of lands to fuel crop production as a result of this Project over its lifetime will be zero. This is especially true given that the DEIS notes that the capacity of the capture facility was determined based on current ethanol production and "potential growth at the ethanol plant."113 If growth of the ethanol facility's capacity is contemplated, the corresponding land use change needed to feed that growth should also be accounted for. The impact of potential land use change as a result of this Project is also an important impact for the public and decision makers to understand in light of Minnesota's policy to reduce its greenhouse gas emissions economy-wide to net zero during the lifetime of this Project.114 As the DEIS recognizes, agriculture is one of the top three sectors that produce the most greenhouse gas emissions in Minnesota115 and reducing emissions from this sector is necessary to reach our statewide goals.116 If reducing agricultural emissions is critical to achieving state goals, decision makers need to understand if this Project is actually increasing emissions in this sector as a result of land use change. The DEIS currently states that this Project would have "a net beneficial effect on climate change,"117 but this statement is unsupported by the DEIS in its current form given that the land use impacts are not currently being considered in its greenhouse gas emission calculation. Similar to the DEIS's recognition that the lifecycle emissions of fuels (expressed as carbon intensity scores) guide stakeholders, policymakers, and industries in their efforts to reduce carbon emissions, so too is this information important to decision makers to understand consequences of this Project on achieving Minnesota's climate policy objectives.118 The DEIS cannot assert this Project has a net climate benefit when it has only examined a snapshot of the Project's emissions.	Consistent with the scoping decision, the EIS does not attempt to predict future ethanol production at the ethanol plant, but does discuss variable levels of production under the no action alternative in Chapter 7. As stated in Section 7.1.3, production of corn would not be expected to increase if the ethanol plant were to increase production; rather, a shift in corn sales to the ethanol plant from other markets would likely occur. Section 7.2 states, "impacts from ethanol production are expected to be proportional to the amount of ethanol produced. An increase or decrease in ethanol production would result in a relatively proportional increase or decrease in potential impacts." To analyze impacts of the proposed project (Chapter 5), the EIS assumes the current level of ethanol production is maintained. Chapter 6 analyzes two alternative technologies—a suite of agricultural practices and a suite of energy use and efficiency changes—and assumes the current level of ethanol production is maintained with no land use change associated with expanded crop conversion from forestland, wetlands, or grazing lands. All cropland analyses assume historical persistence of conventional management pre-1980s for the region supplying feedstock to the ethanol plant. Emissions associated with introducing another variable (increase or decrease in ethanol production) would needlessly complicate the analysis of these alternative technologies. Section 6.1.3 has been revised to discuss the debate between Lark et. al. and GREET model authors. In addition, Section 5.7.2 has been revised to note that the project would contribute to a net beneficial effect on climate change as it would capture and store CO_2 emissions from the ethanol plant.	20243-204403-02

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MCEA	Hencheck, Abigail	2024-02-23	*C. The DEIS Does Not Sufficiently Consider the Negative Impacts of an Accidental Release of Drilling Fluid* The DEIS identifies four locations within the Project area at which the Applicant intends to utilize horizontal directional drilling ("HDD") to crossroads and rivers. These locations are the Pelican River, Otter Tail Valley Railroad / State Highway 210, Otter Tail River, and BNSF Railway / US Highway 75.119 Accidental releases of drilling fluid are a known risk of HDD construction methods and should be thoroughly analyzed in the FEIS. The recent construction of a crude oil pipeline in northern Minnesota resulted in accidental releases of drilling fluid at 67 percent of the HDD sites. The DEIS states that "[d]rilling fluids and additives used for the HDD would be non-toxic to the aquatic environment and humans."121 However, non-toxic does not mean non-damaging; independent analysis of inadvertent release sites for previous HDD construction in Minnesota has shown high levels of iron pollution and the Minnesota Pollution Control Agency ("MPCA") has advised the public that the undisclosed chemicals in previous released slurry had the potential to "cause respiratory and skin irritation."122 The bentonite clay that makes up the bulk of the slurry "is a very fine sediment that . . . can clog the gills and suffocate aquatic life like mussels, insects, and fish," as well as degrade the aquatic habitat.123 The MPCA considers the drilling mud (which "can create turbid water/nuisance conditions") and the chemicals it contains to be pollutants.124 These pollutants should be disclosed and analyzed in the EIS to adequately assess the risks of construction. The DEIS also provides contradictory information about the provision of an inadvertent release contingency plan, stating in Chapter 2 that "[t]he applicant would develop a contingency plan to address an inadvertent release of drilling fluid at the ground surface should one occur during HDD,"125 and in Appendix D that development of this plan would instead be the responsibility of a construction contractor.126 Parties and the public deserve both clarity on what entity will be responsible for producing this report and the opportunity to review it. In light of the above, the following changes should be made to the FEIS: • The FEIS should include disclosures from the Applicant about the specific chemicals to be included in the HDD drilling fluid. • The FEIS should include the accidental release plan for review, whether developed by the Company or a contractor, and the plan should contain a commitment to ongoing regular environmental monitoring at any site where an accidental release is suspected following any such incident; and • The FEIS should further analyze the risks of a release at each of the sites.	As described in Section 5.7.8.2, an additive approved by MDH or meeting NSF International/ANSI Standard 60, Drinking Water Treatment Chemicals – Health Effects, might need to be mixed with the drilling mud for viscosity or lubricating reasons and to reduce the potential for an inadvertent release or failed HDD. The specific additive used would depend on the conditions at the crossing location and would be determined by the HDD contractor. The EIS discloses the potential for an inadvertent release of drilling mud and describes potential impacts in Chapter 5. As stated in Chapter 2, "The applicant is designing the project but would hire contractors to construct the pipeline, restore the right-of-way (ROW), and other activities. Because the applicant would direct the work of the contractors, the EIS refers to the applicant as the entity that would conduct all project activities." The inadvertent release contingency plan would be prepared by the HDD contractor and is not available to include in the EIS. As stated in Section 5.7.3.4, an assessment of the potential for an inadvertent release of drilling mud is part of the feasibility analysis and design for HDDs.	20243-204403-02
MCEA	Hencheck, Abigail	2024-02-23	*D. The DEIS Lacks Sufficient Input from Tribal Governments* Finally, the DEIS received input from only one tribal government (Mille Lacs Band of Ojibwe),127 despite acknowledging that the affected land is in the traditional homelands of the Ojibwe and Dakota people, and fourteen tribes—including in Minnesota the Leech Lake Band, Lower Sioux Indian Community, Prairie Island Indian Community, and the six tribal governments encompassed by the Minnesota Chippewa Tribe—have cultural and ancestral ties to the project area.128 This lack of engagement is indicative of an ineffective process, and should not be considered adequate for this caliber of environmental review. The FEIS should be based on input from a variety of affected tribal governments, which may require the DOC-EERA to use engagement methods such as in-person consultation meetings with tribal staff or receiving input via transcribed phone call to achieve adequate meaningful input. For the foregoing reasons, MCEA requests that the EIS for the Project be revised to incorporate the suggestions contained herein.	As described in Section 3.2.2 of the draft EIS, in its scoping Order, the Commission requested EERA staff "coordinate with the Minnesota Office of Pipeline Safety along with other state agencies and Tribal governments to ensure that their expertise is reflected in the EIS." As detailed in the draft EIS (Appendix J), EERA staff provided the opportunity for all recognized Tribes in Minnesota to provide comments on a preliminary draft EIS. Comments were received from the Shakopee Mdewakanton Community, Mille Lacs Band of Ojibwe, and the White Earth Nation. Section 12.3 of the EIS (Contributing Tribes and Minnesota State Agencies) has been revised to reflect the three Tribes who provided comments on the preliminary draft EIS chapters indicated above. Additionally, Tribes have provided comments on the draft EIS (Appendix O).	20243-204403-02
Midwest AG Future	Franzen, Doug; Scwartz, Craig; Harney, Paul; Bunes, Taylor; Johnson, Scott; Gunderson, Jeremy; Pell, Kenneth; Brown,	2024-02-23	I am writing today in support of the proposed carbon capture pipeline project from the Green Plains Ethanol Plant in Otter Tail County to Wilkin County, along the Minnesota & North Dakota border. Docket Number 22-422. Last year, Governor Walz signed legislation establishing the lofty goal of being carbon-free by 2040. In order to meet those goals and others, it is imperative that we invest in infrastructure that will allow us to reduce carbon emissions and accomplish the carbon-free standards. As the draft EIS states, there is a net benefit to this project with the CO_2 sequestered through the operation of this pipeline would far outweigh any emissions during construction. Additionally, the EIS notes the beneficial impact this carbon capture project would have on climate change. Throughout the draft EIS, there is a common theme: the benefits outweigh any negatives. From minimal impact to communities or farming in the area, to overwhelming benefits once completed, it is evident that this project should be grated its permits and allowed to proceed.	Thank you for your comment.	20242-203761-01

Agency or Org	Name	Date	Comment	Response	eDocket Document ID
	Shadly; Thomas, Roy; Neisinger, Nate; Witt, George; Walters, Kenneth; Swenson, Steven; Maki, Jason; Eastlick, Kevin; Boys, Corey		This project also provides great employment opportunities for the men and women of the pipeline trades. It will create a huge number of construction jobs that carry the wages and benefits needed to sustain a Minnesota family. I encourage you to move forward with the carbon capture pipeline on the route proposed by Summit Carbon Solutions. Thank you for your consideration.		
Midwest AG Future	Heinzer, Donald; Cuta, Joseph; Maresch, Brodie; Stelter, Aaron; Wachlin, Victor; Etzler, Chad; Kolpien, Gregory; Connor, Michael; Koch, Brandon; Lowrey, Rick; Grzeskowiak, Steven; Kraus, Adam; Randolph, Ryan	2024-02-23	I am writing today in support of the proposed carbon capture pipeline project from the Green Plains Ethanol Plant in Otter Tail County to Wilkin County, along the Minnesota & North Dakota border. Docket Number 22-422. Last year, Governor Walz signed legislation establishing the lofty goal of being carbon-free by 2040. In order to meet those goals and others, it is imperative that we invest in infrastructure that will allow us to reduce carbon emissions and accomplish the carbon-free standards. As the draft EIS states, there is a net benefit to this project with the CO_2 sequestered through the operation of this pipeline would far outweigh any emissions during construction. Additionally, the EIS notes the beneficial impact this carbon capture project would have on climate change. Throughout the draft EIS, there is a common theme: the benefits outweigh any negatives. From minimal impact to communities or farming in the area, to overwhelming benefits once completed, it is evident that this project should be grated its permits and allowed to proceed. This project also provides great employment opportunities for the men and women of the pipeline trades. It will create a huge number of construction jobs that carry the wages and benefits needed to sustain a Minnesota family. I encourage you to move forward with the carbon capture pipeline on the route proposed by Summit Carbon Solutions. Thank you for your consideration.	Thank you for your comment.	20242-203762-01
Midwest AG Future	Siemers, Rick; Curley, Thomas; Snidarich, Daniel; Kenmir, Brian	2024-02-23	I am writing today in support of the proposed carbon capture pipeline project from the Green Plains Ethanol Plant in Otter Tail County to Wilkin County, along the Minnesota & North Dakota border. Docket Number 22-422. Last year, Governor Walz signed legislation establishing the lofty goal of being carbon-free by 2040. In order to meet those goals and others, it is imperative that we invest in infrastructure that will allow us to reduce carbon emissions and accomplish the carbon-free standards. As the draft EIS states, there is a net benefit to this project with the CO_2 sequestered through the operation of this pipeline would far outweigh any emissions during construction. Additionally, the EIS notes the beneficial impact this carbon capture project would have on climate change. Throughout the draft EIS, there is a common theme: the benefits outweigh any negatives. From minimal impact to communities or farming in the area, to overwhelming benefits once completed, it is evident that this project should be grated its permits and allowed to proceed. This project also provides great employment opportunities for the men and women of the pipeline trades. It will create a huge number of construction jobs that carry the wages and benefits needed to sustain a Minnesota family.	Thank you for your comment.	20242-203848-01

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			I encourage you to move forward with the carbon capture pipeline on the route proposed by Summit Carbon Solutions. Thank you for your consideration.		
Midwest AG Future	Thomssen, Garritt; Sheridan, Tim; Kuitunen, John; Gustafson, Evan; Lahr, Brent; Kucera, Steve; Root, Jason; Schultze, Alan; Szafranski, Michael	2024-02-23	I am writing today in support of the proposed carbon capture pipeline project from the Green Plains Ethanol Plant in Otter Tail County to Wilkin County, along the Minnesota & North Dakota border. Docket Number 22-422. Last year, Governor Walz signed legislation establishing the lofty goal of being carbon-free by 2040. In order to meet those goals and others, it is imperative that we invest in infrastructure that will allow us to reduce carbon emissions and accomplish the carbon-free standards. As the draft EIS states, there is a net benefit to this project with the CO_2 sequestered through the operation of this pipeline would far outweigh any emissions during construction. Additionally, the EIS notes the beneficial impact this carbon capture project would have on climate change. Throughout the draft EIS, there is a common theme: the benefits outweigh any negatives. From minimal impact to communities or farming in the area, to overwhelming benefits once completed, it is evident that this project should be grated its permits and allowed to proceed. This project also provides great employment opportunities for the men and women of the pipeline trades. It will create a huge number of construction jobs that carry the wages and benefits needed to sustain a Minnesota family. I encourage you to move forward with the carbon capture pipeline on the route proposed by Summit Carbon Solutions. Thank you for your consideration.	Thank you for your comment.	20242-203760-01
Midwest AG Future	Turner, Jonathan; Young, Jonathan; Geislinger, Junior; Mathison, Matthew; Coburn, Tristan; Gullikson, Thomas; Voxland, Adam; Fuchs, Adam; Stenquist, Eric; Maxson, Dale; Heinrich, Paul; Richter, Eric; Lagerquist, Theodore; Lafountain, Christopher; Tangeman, John	2024-02-23	I am writing today in support of the proposed carbon capture pipeline project from the Green Plains Ethanol Plant in Otter Tail County to Wilkin County, along the Minnesota & North Dakota border. Docket Number 22-422. Last year, Governor Walz signed legislation establishing the lofty goal of being carbon-free by 2040. In order to meet those goals and others, it is imperative that we invest in infrastructure that will allow us to reduce carbon emissions and accomplish the carbon-free standards. As the draft EIS states, there is a net benefit to this project with the CO_2 sequestered through the operation of this pipeline would far outweigh any emissions during construction. Additionally, the EIS notes the beneficial impact this carbon capture project would have on climate change. Throughout the draft EIS, there is a common theme: the benefits outweigh any negatives. From minimal impact to communities or farming in the area, to overwhelming benefits once completed, it is evident that this project should be grated its permits and allowed to proceed. This project also provides great employment opportunities for the men and women of the pipeline trades. It will create a huge number of construction jobs that carry the wages and benefits needed to sustain a Minnesota family. I encourage you to move forward with the carbon capture pipeline on the route proposed by Summit Carbon Solutions. Thank you for your consideration.	Thank you for your comment.	20242-203757-01
Midwest Ag Future	Davies, Ryan; Tighe, Brad; Peil, Daniel;	2024-02-23	I am writing today in support of the proposed carbon capture pipeline project from the Green Plains Ethanol Plant in Otter Tail County to Wilkin County, along the Minnesota & North Dakota border. Docket Number 22-422. Last year, Governor Walz signed legislation	Thank you for your comment.	20243-204403-01

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	Koch, Sherry; Johnson, Warren; Wagener, Peter; Gilbert, Dan; Nick, Brian; Nybo, Michael; Boege, Thomas; Kreuser, Tara		establishing the lofty goal of being carbon-free by 2040. In order to meet those goals and others, it is imperative that we invest in infrastructure that will allow us to reduce carbon emissions and accomplish the carbon-free standards. As the draft EIS states, there is a net benefit to this project with the CO_2 sequestered through the operation of this pipeline would far outweigh any emissions during construction. Additionally, the EIS notes the beneficial impact this carbon capture project would have on climate change. Throughout the draft EIS, there is a common theme: the benefits outweigh any negatives. From minimal impact to communities or farming in the area, to overwhelming benefits once completed, it is evident that this project should be grated its permits and allowed to proceed. This project also provides great employment opportunities for the men and women of the pipeline trades. It will create a huge number of construction jobs that carry the wages and benefits needed to sustain a Minnesota family. I encourage you to move forward with the carbon capture pipeline on the route proposed by Summit Carbon Solutions. Thank you for your consideration.		
Midwest Ag Future	Holmes, Josh; Todavich, Greg; Barnes Elizabeth; Omang, Brenda; Nelson, Brady; Peterson, Anthony; Grannes, Michael; Nuss, Greg; Vynckt, Joe Van; Kontz, Kim; Moy, Jeremy	2024-02-22	I am writing today in support of the proposed carbon capture pipeline project from the Green Plains Ethanol Plant in Otter Tail County to Wilkin County, along the Minnesota & North Dakota border. Docket Number 22-422. Last year, Governor Walz signed legislation establishing the lofty goal of being carbon-free by 2040. In order to meet those goals and others, it is imperative that we invest in infrastructure that will allow us to reduce carbon emissions and accomplish the carbon-free standards. As the draft EIS states, there is a net benefit to this project with the CO_2 sequestered through the operation of this pipeline would far outweigh any emissions during construction. Additionally, the EIS notes the beneficial impact this carbon capture project would have on climate change. Throughout the draft EIS, there is a common theme: the benefits outweigh any negatives. From minimal impact to communities or farming in the area, to overwhelming benefits once completed, it is evident that this project should be grated its permits and allowed to proceed. This project also provides great employment opportunities for the men and women of the pipeline trades. It will create a huge number of construction jobs that carry the wages and benefits needed to sustain a Minnesota family. I encourage you to move forward with the carbon capture pipeline on the route proposed by Summit Carbon Solutions. Thank you for your consideration.	Thank you for your comment.	20243-204403-01
Midwest Ag Future	Omang, DJ; Hansen, Rick; Fournier, Matt; Rickard, Nate; Garay, Jorden; Rothe, Todd; Seger, Bart; Siefert, Martin; Neumayer, Shannon; Runke, Nathaniel; Gruhot, Brad; Darif, Timothy	2024-02-23	I am writing today in support of the proposed carbon capture pipeline project from the Green Plains Ethanol Plant in Otter Tail County to Wilkin County, along the Minnesota & North Dakota border. Docket Number 22-422. Last year, Governor Walz signed legislation establishing the lofty goal of being carbon-free by 2040. In order to meet those goals and others, it is imperative that we invest in infrastructure that will allow us to reduce carbon emissions and accomplish the carbon-free standards. As the draft EIS states, there is a net benefit to this project with the CO_2 sequestered through the operation of this pipeline would far outweigh any emissions during construction. Additionally, the EIS notes the beneficial impact this carbon capture project would have on climate change. Throughout the draft EIS, there is a common theme: the benefits outweigh any negatives. From minimal impact to communities or farming in the area, to overwhelming benefits once completed, it is evident that this project should be grated its permits and allowed to proceed. This project also provides great employment opportunities for the men and women of the pipeline trades. It will create a huge number of construction jobs that carry the wages and benefits needed to sustain a Minnesota family. I encourage you to move forward with the carbon capture pipeline on the route proposed by Summit Carbon Solutions. Thank you for your consideration.	Thank you for your comment.	20243-204403-01

Agency or Org	Name	Date	Comment	Response	eDocket Document ID
Midwest Ag Future	Warden, Shane; Smallman, Connie; LaFriniere, Sheila; Grapetin, Joseph; Becker, Levi; Carson, John; Sarvie, Stven	2024-02-23	I am writing today in support of the proposed carbon capture pipeline project from the Green Plains Ethanol Plant in Otter Tail County to Wilkin County, along the Minnesota & North Dakota border. Docket Number 22-422. Last year, Governor Walz signed legislation establishing the lofty goal of being carbon-free by 2040. In order to meet those goals and others, it is imperative that we invest in infrastructure that will allow us to reduce carbon emissions and accomplish the carbon-free standards. As the draft EIS states, there is a net benefit to this project with the CO_2 sequestered through the operation of this pipeline would far outweigh any emissions during construction. Additionally, the EIS notes the beneficial impact this carbon capture project would have on climate change. Throughout the draft EIS, there is a common theme: the benefits outweigh any negatives. From minimal impact to communities or farming in the area, to overwhelming benefits once completed, it is evident that this project should be grated its permits and allowed to proceed. This project also provides great employment opportunities for the men and women of the pipeline trades. It will create a huge number of construction jobs that carry the wages and benefits needed to sustain a Minnesota family. I encourage you to move forward with the carbon capture pipeline on the route proposed by Summit Carbon Solutions. Thank you for your consideration.	Thank you for your comment.	20243-204403-01
Minnesota Interfaith Power & Light	Wolff, Sara	2024-02-23	Though the permit application by Summit Carbon Solutions says it has no plans to use the CO_2 captured at the ethanol plant for enhanced oil recovery, there is a great deal of evidence that would suggest the captured CO_2 would inevitably be used for enhanced oil recovery to facilitate the extraction of more oil than would otherwise be accessible. Statements made by Summit Carbon Solutions Company representatives have said enhanced oil recovery could be facilitated by this pipeline: “If another carrier decided to use, or ask us to transport CO_2 for another purpose, like enhanced oil recovery, then that's a possibility.” - Jimmy Powell Summit Carbon Solutions COO, Sept. 5, 2023, IUB hearing1 “Summit is also exploring other options, including injecting the gas into depleted oil fields to boost oil production.” - Bruce Rastetter, CEO of Summit Carbon Solutions AG, March 2, 2021, MPR News article2 State Work Group Report (2017) outlining plan for using CO_2 from ethanol plants for EOR A December 2017 report prepared by the State CO_2 - EOR Deployment Work Group articulated the business plan to take CO_2 captured at ethanol facilities through a to-be-built network of pipelines to oilfields so the CO_2 can be used for Enhanced Oil Recovery. The Table of Contents includes the role Low Carbon Fuel Standards play in supporting this business plan [see figures attached]. Oil Industry Demand for CO_2 for Enhanced Oil Recovery Representatives of the oil industry in North Dakota and their allies have said they need CO_2 to get more oil from their marginally producing oil fields. President of the North Dakota Petroleum Council, Ron Ness, said: “The use of EOR (enhanced oil recovery) techniques is critical to our future success. By injecting CO_2 in wells as they decline in productivity, EOR will substantially extend the life of a well and the amount of oil that can be recovered from that well.” Ness has also said: "We have the opportunity to extend the life of the Bakken another 30 to 50 years, and produce another 5 to 8 billion more barrels, just because of technology." Covering a decision by the North Dakota Public Services Commission to deny a permit for Summit Carbon Solutions, KFYR-TV reported the Director of the North Dakota State Department of Mineral Resources, Lynn Helms, saying of using CO_2 for enhanced oil recovery: “We’ve got to find a way for carbon capture and utilization to become a part of North Dakota’s economy or we will leave billions of barrels of oil in the ground.” John Harju, Vice President of Strategic Partnerships at the Energy and Environmental Research Center in Fargo, North Dakota, has stated: "I think if we don't get adequate volumes of CO_2 to our Bakken system, we're going to leave 90-plus percent of the oil in the ground." Importantly, industry allies have explicitly stated that North Dakota will need to get this CO_2 from other states.	Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for EOR.	20243-204403-02
Minnesota Interfaith Power & Light	Wolff, Sara	2024-02-23	Proximity of CO_2 pipeline end points to oil fields The proposed pipeline project will deliver carbon to the direct vicinity of oil wells, as shown in the map below from the ND Public Services Commission/ND Oil and Gas Division [see figure attached]. Map Courtesy of ND Public Services Commission/ND Oil and Gas Division, republished in South Dakota Searchlight, “Critics Allege CO_2 Pipelines Farm the Government for Climate Money While Helping Oil Industry” November 10, 2023. As a pipeline is considered a “Common Carrier,” there is no way to ensure that the CO_2 captured and transported via those pipelines will not end up being used for EOR.	Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for EOR, and a description of the sequestration facility location relative to oil and gas fields was added.	20243-204403-02

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			To suggest that the CO_2 captured in Minnesota and taken to North Dakota by pipeline will not have a strong chance of being used for EOR is to ignore the facts of the situation. It is incumbent upon the EIS to acknowledge there is a very strong likelihood that the CO_2 captured at the ethanol plant in Minnesota will be used for enhanced oil recovery and further perpetuate the burning of fossil fuels.		
Minnesota Interfaith Power & Light	Wolff, Sara	2024-02-23	Emissions Result from the Pipeline Delivering CO_2 for Enhanced Oil Recovery Must Be Calculated and Attributed to this Pipeline It is imperative that emissions from oil extracted through enhanced oil recovery be included in the emissions assessments and carbon intensity scores for this document and others. The impact of continued burning of fossil fuels has significant environmental implications – not just for our ability to meet climate goals, but also for the communities who suffer from the pollution fossil fuels create – including extraction, refining, transportation and burning.	Section 5.7.2.3 addresses the possibility that the captured CO_2 could be used for EOR. An estimate of resulting GHG emissions has been added.	20243-204403-02
Minnesota Interfaith Power & Light	Wolff, Sara	2024-02-23	Sequestration Discussion Must Acknowledge CO_2 Leakage Potential and the Increased Probabilities for Leaks if Not Monitored and Repaired Continuously The DEIS is calculating emissions on the assumption that carbon sequestration will have a positive impact on climate and carbon emissions. This is not an appropriate assumption with accounting for potential leakage during and after the sequestration process. "Sequestered" CO_2 leaks into the atmosphere in a variety of ways, as shown by the graph below from a Nature study and the carbon emissions from this leakage must be calculated and attributed to this proposed pipeline project [see figure attached]. In addition, the DEIS should note that continued sequestration requires substantial monitoring and maintenance, a responsibility that industry has indicated a desire to discharge. For instance, in the Texas state legislature proposed bills "would allow operators to pass on their liability to the state 10 years after their injections end. Similar laws are already in place in North Dakota and Wyoming". Monitoring sequestration sites is a massive and expensive job. Without investment in proper and continuous monitoring for hundreds of years, the sequestered CO_2 is likely to escape.	Text has been added to Section 2.1 describing the suitability of the Broom Creek Formation in North Dakota for CO_2 sequestration, as well as the monitoring and testing that would be done to verify that the CO_2 is contained in the storage reservoir.	20243-204403-02
Minnesota Interfaith Power & Light	Wolff, Sara	2024-02-23	Carbon Intensity Values Must Not Be Grounded in Flawed Science. One of the most serious concerns surrounding the establishment of a market framework for reducing emissions is that industry stakeholders might try to rig the game in their favor. It is therefore imperative to demonstrate scientific trustworthiness by rejecting those studies that lack integrity. The Scully et al. study (2021) is deeply flawed and should not be allowed to inform the assignment of carbon intensity scores for the ethanol plants or producers under review in this or other proposals. Two examples illustrate how the Scully study is not a credible review of the state of the science of corn ethanol for purposes of assigning carbon intensity. Scully deconstructs then recombines data12 from different studies to arrive at its own estimate for the carbon intensity of land use change to corn production – which is lower than any of the studies in the range of estimates it considered – then labels this new lower number a "central best estimate." [see attached figure] Figure 1. Boxplot of all the studies initially considered by Scully et al (represented by blue and beige dots), as well as the much lower estimate the Scully et al authors advance after reviewing these studies (represented by the red dot). Each dot shows the total land use change carbon intensity estimate from a particular study. These values were taken from figure 2 of Scully et al. 2) Scully creates its own model to predict that the conversion of pastureland to cropland results in soil carbon sequestration instead of losses. Scully achieves this by assuming the land history to be "50 years as cropland followed by 25 years of pasture and 25 years of cropland" — essentially pre-depleting baseline soil organic carbon stocks then misleadingly calling it conversion from pastureland to cropland. The Scully study was funded by Poet, a large biofuels producer, and has been widely cited by industry interests as determining that corn ethanol is up to 46% less carbon intensive than gasoline. The flawed methodologies and assumptions underlying this study should make its findings ineligible for use in determining carbon intensity scores. For a more detailed analysis of the Scully Study please reference Appendix A or view a full file here. Please note: the DEIS mistakenly states on page 6-5 that the values in Table 6-1 do not account for land use change. In fact, flawed as it is, the Scully Study does portray itself as determining carbon intensity values that incorporate land use change.	Section 6.1.3 has been revised to discuss the debate between Lark et. al. and GREET model authors.	20243-204403-02
Minnesota Interfaith Power & Light	Wolff, Sara	2024-02-23	The EIS Should replace the Scully study findings with the Lark study findings in all tables, graphs, calculations and analysis. The DEIS creates unwarranted confusion about different studies, wrongly suggesting that some incorporate land use changes while others don't. Table 6-1 should list the two fuels relevant to the analysis of the value of the proposed pipeline: ● Corn ethanol ● Gasoline The carbon intensity score should be based on the Lark study which the DEIS references ("Research funded by the National Wildlife Federation and DOE found that ethanol is likely at least 24 percent more carbon-intensive than gasoline due to emissions from land	Section 6.1.3 has been revised to discuss the debate between Lark et. al. and GREET model authors.	20243-204403-02

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			use change associated with corn cultivation practices") but fails to apply to the fuels receiving carbon intensity scores (page 6-5). Furthermore, the carbon intensity score found in the Lark study represents a floor, not a ceiling. The statement: "Conventional fuels such as gasoline and diesel, which have the highest CI scores" is not grounded in the research it cited just words before. (Page 6-5) Without the flawed Scully Study, but instead using the DEIS's acknowledgement of the study indicating that "ethanol is likely at least 24 percent more carbon-intensive than gasoline": the carbon intensity value assigned in Table 6-1 must reflect that the carbon intensity of corn ethanol is most likely significantly higher than gasoline. Carbon intensity comparisons and emission calculations must be based on credible science.		
Minnesota Interfaith Power & Light	Wolff, Sara	2024-02-23	EIS must acknowledge that the system of creating value for CO_2 pollution from ethanol production creates a perverse feedback loop: the more you burn, the more you earn. The DEIS should acknowledge that building pipelines for the commodification of CO_2 pollution encourages the continued production of ethanol and CO_2 pollution, even in the context of market forces that might otherwise diminish its production. Creating value for pollution creates an incentive to keep creating the pollution: the more you burn, the more you earn.	As described in Section 1.2, the project's purpose is to capture CO_2 from the ethanol plant and transport it to the North Dakota border, enhancing the marketability of the ethanol produced at the ethanol plant.	20243-204403-02
Minnesota Interfaith Power & Light	Wolff, Sara	2024-02-23	The DEIS acknowledges the need to minimize impact on groundwater resources, but defers providing information by placing this responsibility on the Department of Natural Resources permitting. Independent calculations should measure the impact of this project on groundwater and this information must be provided as part of the EIS. Making the assumption that the DNR permitting system will stop any long-term impacts on water resources as explained in the DEIS Page 5-126 is not appropriate. In 2021, Enbridge quickly exceeded their water permits and eventually applied for a ten-fold increase for dewatering. The impact on groundwater is important and far-reaching and deserves to be analyzed and reported to the public. Minnesota continues to suffer the consequences of drought and over-commitment of water supplies. The DEIS must have a project specific assessment done on how this project throughout its lifetime, including the carbon capture technologies used, will impact these current drought conditions.	Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has also been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-02
Minnesota Interfaith Power & Light	Wolff, Sara	2024-02-23	Communities rely on accurate and quantifiable data to assess the environmental impacts of drilling and pipeline projects. Horizontal Directional Drilling (HDD) is destructive and polluting to ecosystems and it is incumbent on the EIS to fully acknowledge and explain this. Despite Line 3 permit application claims that there was only a "low" probability that HDD drilling would result in a frac-out, it happened: 28 times. From the MPCA spill data shared on August 9, 2021, Enbridge had thus far in the construction caused: - 28 unique spill incidents in 21 water crossings - 63% (12 out of 21) of the HDD crossings were polluted with drilling fluid - 80% of the rivers crossed with HDD were impacted	Thank you for your comment. The EIS discloses the potential for an inadvertent release of drilling mud and describes potential impacts in Chapter 5.	20243-204403-02
Minnesota Interfaith Power & Light	Wolff, Sara	2024-02-23	Aquifer breaches are another outcome from pipeline construction, as we have seen from Line 3. This must be discussed in the EIS.	Aquifer breaches are addressed in Section 5.7.8.2.	20243-204403-02
Minnesota Interfaith Power & Light	Wolff, Sara	2024-02-23	Also, it is simply not accurate for the EIS to portray HDD as being a benefit to wildlife and stream health as it seems to do on page ES-10: "Most impacts on wildlife would be highly localized, short-term, and negligible. Impacts on freshwater species would be minimized by the use of HDD techniques and sediment controls. Operation of the project would have minimal impact on wildlife and their habitats"	Use of the HDD method for crossing waterbodies avoids direct disturbance to streambeds, banks, and riparian vegetation. The applicant would use HDD to cross larger waterbodies, thereby reducing overall construction impacts on aquatic species.	20243-204403-02
Minnesota Interfaith Power & Light	Wolff, Sara	2024-02-23	Drilling mud at the surface of the water is like the tip of an iceberg – it is connected to a whole lot more underwater. Enormous plumes of drilling mud remain in the water unless it is removed. The DEIS should explain how the drilling mud will be tracked and then removed from the water or land when it is inadvertently leaked, not just from the top of the water where the drilling mud surfaces, but from the point of the leak. Merely collecting what is at the surface leaves most of the drilling mud polluting the water, impacting water quality, habitat, vegetation and wildlife. The EIS should discuss the impacts of this drilling mud on ecosystems, including consultation with ecosystem and species specialists about the impact of polluted water on the health of the ecosystem, not just in the immediate area but in the areas that are downstream from and connected to the area of pollution and degradation.	In the event of an inadvertent return to a waterbody, drilling mud would not "float" on the water surface. It would be suspended within the water column, creating turbidity that would be carried downstream and/or settle out, depending on water flow. An inadvertent return in an upland area could be contained and cleaned up more easily. Additional detail regarding inadvertent returns has been added to Section 5.7.8.2.	20243-204403-02

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Minnesota Interfaith Power & Light	Wolff, Sara	2024-02-23	Definitions are critically important: they can help us understand or they can serve to camouflage important information. The report uses the term 'minimal' over 60 times to describe the estimated impact on agriculture, environmental aesthetic, property value, public health, infrastructure, recreation, socioeconomics, air quality, topography, animal and vegetation habitat loss, soils and ecosystems, and the environment broadly. However, the DEIS defines "minimal" to cover a very broad range of significant impacts, thereby not providing an understandable assessment of what landowners or the public might expect. According to the definitions, even "negligible" impacts are "short-term impacts that affect common resources." "Minimal" is more than "negligible" and could affect "common resources over the short- or long-term." It is disingenuous for a long term impact to be called minimal. Using the term "minimal" in this EIS disguises in every instance the nature of the damage and how long it might be expected to last. Quoting from the report on page 5-2: Impact intensity levels are as follows: ● Negligible impacts do not alter an existing resource condition or function and are generally not noticeable to an average observer. These short-term impacts affect common resources. ● Minimal impacts do not considerably alter an existing resource condition or function. Minimal impacts might, for some resources and at some locations, be noticeable to an average observer. These impacts generally affect common resources over the short- or long-term. "Minimal," used dozens of times through the DEIS, varies in its definition. For example, 'minimal' means anywhere from 2-3 years to 5 years of interrupted crop production (ES-6). This language is contradictory and confusing. The use of 'temporary' suffers from the same problem. The DEIS uses 'temporary' over 40 times, with no consistent definition (page 5-38). The point of the EIS is to help people understand the impact of the proposed project: it is incumbent on the EIS to use language that clarifies the range of impacts possible for each category that is explored. Instead of using words like "minimal" or "temporary" the description should say name the impact itself and how long it is possible the impact could be affecting the ecosystem.	Thank you for your comment. As noted in Section 5.1 of the EIS, the EIS defines the terms used to characterize potential impacts in order to ensure common understanding among readers and to compare potential impacts among alternatives.	20243-204403-02
Minnesota Interfaith Power & Light	Wolff, Sara	2024-02-23	Further investment in ethanol production infrastructure incentivizes its continued use and maintains or grows the environmental consequences associated with that system. Pesticide application to corn crops is one such issue. Pesticide treated seeds also can cause harm, particularly if waste from these seeds are not disposed of properly. An ethanol plant disaster in Mead, Nebraska in 2021 is a poignant example of environmental and human health harm from neonicotinoids in treated corn seed: significant water contamination and poisoning of the ecosystem. The rapid decline of bee colonies near Mead was an early warning sign, prompting investigations that uncovered unsafe levels of neonic compounds. Overall, the Mead ethanol plant disaster underscores the interconnectedness between ethanol production, environmental sustainability, and public health. A complete EIS would consider these risks. Understanding the effects of pesticide contamination on water quality and ecosystem health is important for informed decision-making and effective mitigation strategies.	Thank you for your comment. Impacts of current agricultural practices are outside the scope of the EIS.	20243-204403-02
Minnesota Interfaith Power & Light	Wolff, Sara	2024-02-23	Water is interconnected: depletion in one area can have rippling consequences nationwide. Minnesota's drought and lack of groundwater retention, exacerbated by the depletion of aquifers, have far-reaching implications extending beyond state lines. As we remove water from the ground, soils compress and collapse, leading to sinking land surfaces. This phenomenon especially threatens cities built on drained marshland or fill. Lack of groundwater also impacts surface waters – consequences which are felt from the top to the bottom of a watershed. The decrease of freshwater flow downstream from the Mississippi River is resulting in saltwater creeping upstream. This "slow-motion crisis" has devastating effects on communities and their drinking water and now is merely 25 miles away from New Orleans. Peter LaFontaine with Friends of the Mississippi River, a Minnesota environmental organization, interviewed Matt Rota of Healthy Gulf, an environmental nonprofit working to strengthen environmental justice and protection in Louisiana and the lower Mississippi basin. Rota said that "when it comes to long-term resiliency, the farm landscape of the Midwest has these extensive drainage systems designed to get the water off the ground as quickly as possible. [If] we changed that to make sure the water is held in the ground as long as possible, [it] would buffer against both droughts and floods." This problem has a clear link to groundwater and drought issues in the Midwest. The design of the Midwest's extensive drainage systems exacerbates groundwater depletion and stifles the downstream flow of freshwater, in turn threatening the accessibility to clean drinking water in Louisiana. Minnesota farms exceeded pumping permits by a staggering 6 billion gallons in 2021, putting into question the state's ability to sustainably manage its water resources. The EIS must acknowledge and analyze the role depleting groundwater resources.	Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has also been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-02
MN Department of Natural Resources		2024-02-23	Page 5-112. A Natural Heritage review request was submitted and completed for RA-South only. All route alternatives should have undergone a formal natural heritage review by the DNR prior to writing of the draft EIS. With that said, DNR natural heritage staff reviewed the information within the draft EIS and conducted reviews of the route alternatives discussed.	Section 5.7.5.1 was revised to note that Natural Heritage Information System (NHIS) data for the RA-South route was obtained by EERA staff through a licensed use, as that was the route originally proposed by the applicant. After receiving DNR comments on the draft EIS, EERA staff obtained Conservation Planning Reports for the RA-North and RA-Hybrid	20242-203780-01

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				routes, which are included in Appendix O. EERA staff also consulted NHIS records through a licensed use to identify listed species in the project area.	
MN Department of Natural Resources		2024-02-23	The following comments apply to the "State-Listed Species section" starting on page 5-112: • We recommend modifying the second paragraph to more accurately describe the potential for impacts (suggestions are bolded) "The potential for take of state-listed bird species is confined to highest in native habitat types, especially short-grass prairie, wet-mesic prairie, wet meadows, and marsh areas. Marbled godwits will nest in short crop or roadside ditch cover, if near larger wet prairie/wetland areas. Take of other state-listed bird species in agricultural areas and woodlots is unlikely to occur, as no state-listed species use that they are not likely to nest in these habitats are known to occur within the ROIs of any of the route alternatives."	The proposed revisions to the paragraph have been made.	20242-203780-01
MN Department of Natural Resources			The following comment also applies to the "State-Listed Species section" starting on page 5-112: Third paragraph, last sentence. We recommend providing more robust discussion regarding impacts to local bird populations. Since these species are already rare, losing nests may have a local impact, especially if nest loss might happen multiple times, and over a longer duration, such as during the construction phase and during operational maintenance.	Revisions have been made to Section 5.7.5.2.	20242-203780-01
MN Department of Natural Resources			Page 5-113. "The potential for direct take of state-listed plants is confined to native habitat types, specifically wet prairie, mesic prairie, and wet meadows." This statement needs to be revised, as there are several mapped occurrences of small-white lady's slipper, a state-listed species of special concern, within the Region of Influence (ROI), and some within a few hundred meters of the project area that are not within native habitat types (as defined by being an Native Plant Community or within an identified Minnesota Biological Survey site of biodiversity significance).	Revisions have been made to Section 5.7.5.2.	20242-203780-01
MN Department of Natural Resources			Pg. 5-113. First full paragraph, second to last sentence. A more robust discussion of the potential impacts to local rare plant populations is needed, accounting for the issue that a decrease of plants that are already rare could have more than a short-term impact on local populations. A discussion on life-cycle of each relevant rare plant species would be helpful in developing a more robust assessment of impacts.	Revisions have been made to Section 5.7.5.2.	20242-203780-01
MN Department of Natural Resources			In addition, the DNR is aware that in 2022 and in 2023, surveys for state-listed butterfly and plant species were conducted. Suitable habitat for Dakota skipper, powesheik skipperling, and western-prairie fringed orchid (all state-listed as endangered) was found to be present within the survey area. Surveys were also conducted for small-white lady's slipper (state-listed as special concern), with several plants documented within the survey area. The final EIS should discuss these surveys, the results, impacts, and proposed mitigation. (The DNR is currently reviewing the survey report submitted and will provide a response to the applicant.)	The information requested by DNR regarding field surveys for state-listed butterfly and plant species was added to Section 5.7.5.1 .	20242-203780-01
MN Department of Natural Resources			The draft EIS does not seem to discuss the distinction between state-listed species, and state-protected species. Providing this discussion within the EIS could aid in understanding of impacts as they relate to state law, and state-listed species, and in understanding discussion of required mitigations or needs for Take permits from the State of Minnesota.	Revisions have been made to Section 5.7.5.2.	20242-203780-01
MN Department of Natural Resources		2024-02-23	Page 5-116, Chapter 7.7.6. Soils. Soils in parts of the Red River Valley (such as between Detroit Lakes and Fargo) are very corrosive to metals (such as sewer pipes). The EIS should discuss the potential risk of some soil types to cause corrosion of the underground pipeline as well as the proposer's plans to mitigate or minimize potential for degradation of infrastructure.	Text has been added to Section 5.7.6.2 to address corrosive soils and measures to protect against corrosion.	20242-203780-01
MN Department of Natural Resources		2024-02-23	Page 5-126. The EIS should clearly identify which surface waters are DNR public waters. Table 5-45 includes the numbers of public waters crossed for each route alternative, however, the following tables and discussions on each route alternative do not clearly identify which of those are DNR public waters. This distinction is important for discussion, because regulatory requirements differ between DNR public waters and other surface water types.	Tables 5-48, 5-49, and 5-50 have been revised to add a column indicating whether each listed surface water is on the Public Waters Inventory (and thus a protected public water).	20242-203780-01
MN Department of Natural Resources		2024-02-23	Page 5-136. In addition to the stated potential risk of sheet pile causing a breach in a confining layer, the proposed depth of excavation for the pipeline may also be deep enough to compromise shallow confining layers, if present. This may be of heightened concern through the beach ridge system or near wetlands and surface water features. The EIS should discuss these potential impacts, as well as proposed mitigation.	The applicant currently has an ongoing groundwater investigation underway to further inform construction practices and is continuing to consult with DNR. As part of its coordination with DNR, the applicant has agreed to use ground penetrating radar to study the depth of the confining layer through the entire beach ridge system area crossed by the pipeline to further define existing conditions and advise on construction methodology. This information has been added to Section	20242-203780-01

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				5.7.8.2. Furthermore, as described in Section 5.7.8.2, EERA staff recommends that the applicant develop, in coordination with DNR, a plan for pipeline construction in areas crossing the beach ridge system area. The plan would include, at a minimum, measures to minimize the potential for breaching a shallow confined aquifer during trenching and contingency measures to mitigate the impacts of a breach, should one occur.	
MN Department of Natural Resources		2024-02-23	Page 5-139. Pipeline construction design should consider the prevention of French drain effects via the pipeline trench across the entire project, and especially in the beach ridge area. At a minimum, Pennsylvania standards for trench breaker placement should be used and additional knowledge gained from more expansive subsurface site characterization may provide further guidance on where to place trench breakers most effectively.	The applicant provided a detailed discussion regarding French drain effects and Pennsylvania standard for trench breaker placement relative to the proposed project in response to Question 5 of Supplemental Information Inquiry 12 (see Appendix I). Text regarding trench breakers has been added to Section 5.7.8.2.	20242-203780-01
MN Department of Natural Resources		2024-02-23	Page 5-146. The discussion on fish and wildlife present within the proposed project area lacks sufficient detail. The Otter Tail River supports a diverse community of native fish and mussel species, so more detailed discussion would better inform how natural features could potentially be impacted from the proposed project.	Text based on a published 1995 North Dakota State University (NDSU) Masters Thesis habitat study describing mussel species abundance and habitat has been added to Section 5.7.10.1. Section 5.7.10.1 discusses the major fish and wildlife species present in the project area. Section 5.7.10.2 discusses potential impacts on fish, mussel, and wildlife populations. Potential impacts on fish, mussels, and wildlife are also discussed in Chapter 8.	20242-203780-01
MN Department of Natural Resources		2024-02-23	Page 5-151. Chapter 5.7.10 Wildlife and their Habitats: In addition to the mitigations discussed in Chapter 5.7.10.3, the DNR recommends that any open trenches incorporate escape routes so that any animals that enter the trench can escape, such as by including moderate grade ramps. The DNR also recommends that trenches are inspected are inspected immediately prior to backfilling, and that any trapped animals present be removed.	Section 5.7.10.3 was updated, based on DNR recommendations and the applicant's commitment, to note that "Plugs of subsoil in the ditch would be left as moderate grade ramps," and "Trenches would be inspected immediately prior to backfilling in order to locate and remove any trapped animals present."	20242-203780-01
MN Department of Natural Resources		2024-02-23	Page 5-137. The EIS describes the purposes of water use needed during construction (such as the installation of HDDs, hydrostatic testing, and dust control), however, it does not clearly describe annual water use during operation at the capture facility. The EIS should include a description of annual operational water use and describe where the 13 million gallons of water would come from. If the 13 million gallons is proposed to be obtained from an existing DNR Water Appropriation Permit, then an application for an amendment to an existing permit may be required. If an amendment is not requested, then a new permit would be needed.	Additional information has been added to Section 5.7.8.2 to address the source of water use for the capture facility as well as the need to amend an existing DNR Water Appropriation Permit, or obtain a new permit, for the capture facility's operational water needs. Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20242-203780-01
MN Department of Natural Resources		2024-02-23	Page 5-138, 5-145, and sample routing permit, Appendix H. The sample routing permit states, "Soil excavated from the wetlands and riparian areas shall be contained and not placed back into the wetland or riparian area." This statement is repeated in the mitigation sections on pages 5-138 and 5-145. However, this statement seems to contradict needed trench restoration. Soil that is excavated from wetlands and riparian areas must be used to restore excavated trench. The DNR recommends that this statement be refined or further explained.	"Soil excavated from the wetlands and riparian areas shall be contained and not placed back into the wetland or riparian area" means that, during construction, the contractor may not store trench soils in wetlands—trench soil must be stored in uplands. When necessary in the construction process, these soils are taken from the upland and used to restore the trench. Text in Section 5.7.8.3 and Section 5.7.9.3 has been revised: "Soil excavated from wetlands and riparian areas shall be contained in uplands and not placed back into the wetland or riparian area until necessary to restore the excavated trench."	20242-203780-01

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MN Department of Natural Resources		2024-02-23	Page 8-19. The EIS states that CO_2 leaks would be unlikely to impact fish and freshwater mussels. The conclusion of this is dependent of limestone buffering ability of soils, which is not applicable to soils within the Red River Basin. The EIS should discuss the alkalinity and chemical characteristics of the waterbodies that would be crossed by the proposed project to assess risks present. The EIS should examine the impacts a change in CO_2 would have in varying conditions, such as water flows, temperatures, amounts of CO_2 released, and alkalinity present, and discuss the downstream distances where fish mortality could occur.	Chapter 8 discusses impacts on fish and freshwater mussels from two perspectives—effects from CO_2 leaks and effects from a CO_2 pipeline rupture. We defer to the DNR's expertise and authority regarding fish and wildlife. Consistent with this authority, EERA staff believes that a special permit condition requiring the applicant to prepare monitoring protocol to identify potential impacts on fish and wildlife, water resources, and other environmental resources should an accidental release (leak or rupture) of CO_2 occur is reasonable. This protocol should be developed in coordination with DNR.	20242-203780-01
MN Department of Natural Resources		2024-02-23	Page 9-1 Chapter 9.1.1 Unavoidable Impacts: Construction states that, “Intermittent waterbodies such as drainage ditches would experience temporary and unavoidable increases in turbidity during open cut construction.” Increases in turbidity could be avoided if an isolated crossing technique (e.g. dam and pump) is used under flowing conditions, or, if water is present but not flowing, then temporary dams could be used. The EIS should consider additional options on how to avoid turbidity during open cut construction.	The applicant has clarified that it would use the isolated dry-trench crossing method on delineated waterbodies with perceivable water flow during construction. The flowing open-cut crossing method would not be used for the project. Sections 5.7.8.2 and 5.7.10.2 have been revised accordingly.	20242-203780-01
MN Department of Natural Resources		2024-02-23	Chapter 10. Cumulative potential effects. It is not clear if the Fargo-Moorhead Diversion project was considered for inclusion for discussion on cumulative potential effects, but the DNR offers this suggestion for inclusion.	The Fargo-Moorhead Diversion project was added to Chapter 10 for analysis for potential cumulative impacts.	20242-203780-01
MN Department of Natural Resources		2024-02-23	Appendix D. Environmental construction plan (ECP) • Page 5. The DNR recommends that erosion control mesh be limited to materials that specify only natural fibers, with no plastic.	The applicant has stated, “The Contractor will select wildlife-friendly erosion control fabric that contains biodegradable netting (Category 3N or 4N natural fibers) and will avoid the use of plastic mesh following MnDOT’s 2020 Standard Specifications for Construction (or more recent edition) for rolled erosion control materials that specify only natural fibers with no plastic mesh be used.” See response to Supplemental Information Inquiry 12 in Appendix I (Supplemental Information Inquiries and Responses) and applicant-proposed mitigation in Sections 5.7.5.3 and 5.7.10.3	20242-203780-01
MN Department of Natural Resources		2024-02-23	• ECP Page 7, trench breakers. The DNR previously provided recommendations to follow Pennsylvania standards for trench breaker placement. The draft EIS includes these recommendations in sections 4.6 and 5.7.83, which discuss mitigation measures offered during scoping. The DNR continues to recommend that Pennsylvania standards for trench breakers be utilized, and recommends that the ECP be updated.	The applicant provided a detailed discussion regarding French drain effects and Pennsylvania standards for trench breaker placement relative to the proposed project in response to Question 5 of Supplemental Information Inquiry 12 (see Appendix I). Text regarding trench breakers has been added to Section 5.7.8.2. Trench breaker/plug placement would be tailored to site-specific conditions and would be at least as protective as the Pennsylvania standards.	20242-203780-01
MN Department of Natural Resources		2024-02-23	The ECP should clarify if travel lanes will be used on HDD river crossings. If a travel lane is used across waterbodies, significantly more vegetation removal and disturbance will occur, including bridge construction. The DNR recommends that no travel lanes be utilized across waters that use HDD.	As described in several resource sections in Chapter 5, vegetation between HDD entry and exit points would not be cleared during construction, aside from hand trimming necessary to set the HDD guidewires or a pump for water withdrawal. Text has been added to Section 2.4.8 to clarify that no travel lanes would be used between an HDD entry and exit.	20242-203780-01
MN Department of Natural Resources		2024-02-23	[ECP]• Where trench crossings are used for streams, we recommend segregating the streambed surface material for restoring streambed surface material that is usually courser than underlaying material (similar to how topsoil is segregated in uplands).	In response to comments from DNR, the applicant states that it will add the following statement to Section 4.8 of the Minnesota ECP: “Where trenched crossings were used, the Contractor will restore the stream by first replacing underlying streambed materials in the trench before replacing streambed surface/substrate materials to support the consistency of the disturbed stream bottom relative to undisturbed areas.” Section 5.7.8.3 has been updated.	20242-203780-01

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MN Department of Natural Resources		2024-02-23	[ECP]• The DNR recommends not using flowing open cut method for any stream crossing.	The applicant has clarified that it would use the isolated dry-trench crossing method on delineated waterbodies with perceivable water flow during construction. The flowing open-cut crossing method would not be used for the project. Sections 5.7.8.2 and 5.7.10.2 have been revised accordingly.	20242-203780-01
MN Department of Natural Resources		2024-02-23	• The ECP should address trench crowning/subsidence. The ECP should address post construction monitoring for topography and crowning/subsidence, vegetation restoration, erosion, and monitoring groundwater expressions along the project route.	In response to Supplemental Information Inquiry 12, the applicant stated that it would include details in the ECP for preventing excessive crowning or subsidence above the restored centerline. If uneven settling occurs or surface drainage problems develop as a result of pipeline construction, the applicant would provide additional land leveling services after receiving a landowner's written notice, weather and soil conditions permitting. As indicated in Section 8.2 of the ECP, the applicant would monitor areas where stabilization and restoration methods are implemented in accordance with requirements in state permits and landowner agreements. Monitoring would identify areas where remedial measures are required to establish a stable surface for reclamation to be successful. This may include re-grading, re-seeding, re-mulching, and additional monitoring. Monitoring of groundwater expressions was added to Section 5.7.8.2 as a DNR-recommended mitigation.	20242-203780-01
MN Department of Natural Resources		2024-02-23	• ECP Page 14. The ECP states that HDD drilling fluids and additives will be nontoxic to the aquatic environment and humans. Toxicity is primarily related to magnitude of release, as larger amounts of even “nontoxic” drilling fluids could be harmful to aquatic life. The contingency plan to address inadvertent release response should include equipment such as a functioning vac-truck on site and other equipment/materials. This contingency plan should be in coordination with the DNR utility license application.	Section 5.7.8.2 summarizes the components of the contingency plan to address the unintended release of drilling mud to the environment that the applicant would develop prior to conducting HDD. Containment, response, and clean-up equipment would be available at both sides of an HDD crossing location prior to beginning the HDD to assure a timely response in the event of an inadvertent release. Text has been added that the contingency plan should be in coordination with the DNR utility license application at locations where a utility crossing license is required.	20242-203780-01
MPCA	Green, Chris	2024-02-20	Dear: Craig Janezich Thank you for the opportunity to review and comment on the Draft Environmental Impact Statement (DEIS) for the Otter Tail to Wilkin CO_2 Pipeline Project (Project) located in Wilkin, Otter Tail County, Minnesota. The Project consists of approximately 28.1 miles of 4-inch diameter CO_2 pipeline and associated facilities in portions of Wilkin and Otter Tail counties. The Project would capture CO_2 from the Green Plains Ethanol Plant near Fergus Falls and transport it to the North Dakota and Minnesota border south of Breckenridge. The Project would interconnect to a larger proposed CO_2 pipeline network, referred to as the Midwest Carbon Express Project, to transport the CO_2 to a sequestration area in North Dakota. The Minnesota Pollution Control Agency (MPCA) staff has reviewed the EAW and have no comments at this time. We appreciate the opportunity to review this project. Please be aware that this letter does not constitute approval by the MPCA of any or all elements of the Project for the purpose of pending or future permit actions by the MPCA. Ultimately, it is the responsibility of the Project proposer to secure any required permits and to comply with any requisite permit conditions. If you have any questions concerning our review of this DEIS, please contact me by email at Chris Green@state.mn.us or by telephone at 507-476-4258. Sincerely, Chris Green	Thank you for your comment.	20243-204403-01
Operating Engineers Local 49	Runke, Nathan	2024-02-23	The International Union of Operating Engineers Local 49 (IUOE Local 49) is a construction labor union in Minnesota representing heavy equipment operators and mechanics, along with stationary engineers. Our members have extensive experience constructing and maintaining pipeline infrastructure in the state of Minnesota and we welcome the opportunity to provide comments on the Draft Environmental Impact Statement (DEIS). We appreciate the Department of Commerce’s (DOC) work on the DEIS and believe it is a complete and accurate description of the potential impacts of the Summit Carbon project.	Thank you for your comment.	20243-204403-01

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			The construction and maintenance of pipeline infrastructure is an important industry for members of IUOE Local 49. Our members have constructed pipelines for the transportation of oil, natural gas, and other substances. The use of pipelines has consistently been shown to be the safest and most cost effective means of transporting liquids, gasses, and slurries. As Minnesota seeks to reduce its greenhouse gas emissions, carbon capture, utilization and storage (CCUS) technologies will become increasingly important to the ongoing decarbonization efforts. This is especially the case as we seek to decarbonize the transportation and industrial sectors. Carbon dioxide pipelines are a needed component of most CCUS systems and it will be critical to construct these pipelines in Minnesota if we are to achieve the state's greenhouse gas emission reduction goals. This is reflected in the DEIS discussion of impacts on air quality and greenhouse gas emissions. As the DEIS correctly notes, the use of low-carbon fuels has been identified as one of the strategies in Minnesota's Climate Action Framework to meet the state's climate goals. Carbon pipelines are the most effective ways to reduce the carbon intensity of ethanol production and are the most feasible pathway to significant carbon dioxide reductions in liquid fuels.		
Operating Engineers Local 49	Runke, Nathan	2024-02-23	As the DEIS discusses, 100% of the construction workforce for the project will be unionized with most of the workers coming from the local area or within the state of Minnesota. As such the project would be built safely by highly skilled construction workers and the majority of the employment benefits will return to Minnesota workers and their families. We, again, thank the DOC for their work on the DEIS and the opportunity to provide comment. We look forward to continuing to support this project throughout the permitting process. Sincerely, Nathan Runke Regulatory & Political Affairs Coordinator, International Union of Operating Engineers Local 49	Thank you for your comment.	20243-204403-01
SHPO	Beimers, Sarah J.	2024-02-23	Chapter 3 Regulatory Framework On Table 3.1 Potential Federal Permits, Approvals and Consultations – Pipeline Facilities the SHPO, along with our partner agency the Office of the State Archaeologist, is correctly identified as having a consulting role under Minnesota Statutes Chapter 138 (Minnesota Field Archaeology Act and Minnesota Historic Sites Act). Since there may be other possible federal undertakings associated with the Project, and because Section 106 of the National Historic Preservation Act (NHPA) is mentioned in the corresponding "Description" cell, it would be beneficial to include reference to Section 106 of the NHPA in the "Type" cell as well. Also, most importantly, the DEIS is incorrect in stating that consultation with Tribes or the Tribal Historic Preservation Offices is "facilitated by SHPO." This government-to government tribal consultation, whether it be under Section 106 of the NHPA or pursuant to Minnesota's tribal consultation statute, is carried out by the lead federal agency and/or the lead state agency which may be providing assistance, approval, permits, or licenses for the Project, not the SHPO.	Section 106 of the National Historic Preservation Act has been added to the "Type" column of Table 3-1, Potential Federal Permits, Approvals, and Consultations – Pipeline Facilities. The text in the "Description" column associated with the State Historic Preservation Office (SHPO) and Office of the State Archaeologist (OSA) has also been updated to clarify that Tribal consultation is carried out by the lead federal agency and/or lead state agency.	20243-204403-01
SHPO	Beimers, Sarah J.	2024-02-23	Chapter 4 Alternatives We understand by this chapter that, along with the No Action Alternative, the DEIS has evaluated the applicant's proposed route (RA-South) and two (2) alternative routes (RA-Hybrid and RA-North) which are all clearly described and documented on maps included in the DEIS.	Thank you for your comment.	20243-204403-01
SHPO	Beimers, Sarah J.	2024-02-23	Chapter 5 Potential Impacts and Mitigation for Alternative Routes Section 5.6 Archaeological and Historic Resources Although not specifically stated in the DEIS, we acknowledge that our office has consulted with Summit Carbon Solutions (Permittee) since September 2021 as the company and their consultants have completed and submitted to our office for review and comment the archaeological and historic/architectural field surveys within their preferred pipeline route, which is referenced in survey reports as MNL-321 and identified as RA-South in the DEIS. It is important to note that while our office has reviewed and commented on the eligibility of recorded archaeological sites for listing in the National Register of Historic Places (NRHP) within the ROI for RA-South (MNL-321), to date, we have not reviewed or provided comment on the archaeological survey methodology as we have not been asked to do so by the Permittee.	In a letter dated October 14, 2021, SHPO indicates that it reviewed the survey methods proposed in the "Archaeological Survey Methodology and Protocols for Minnesota, Summit Carbon Solutions" (9/20/2021) and assessed them as appropriate for the project. The SHPO letter is included in Appendix G of the Scoping Environmental Assessment Worksheet (EAW) (filed April 10, 2023, eDockets file no. 20234-194670-02). Section 5.6 of the EIS has been updated to reference this previous consultation with SHPO.	20243-204403-01
SHPO	Beimers, Sarah J.	2024-02-23	Section 5.6.1 Archaeological Resources We understand that, for RA-Hybrid and RA-North, the DEIS has utilized recorded archaeological site data from both the SHPO and the OSA, which is appropriate since these two route alternatives have not yet been subject to comprehensive archaeological field survey for the specific Project. It is important to note that there was minimal information provided in the DEIS related to previous archaeological survey area coverage and how it may overlap, or not, with the Project area/route width for each of these alternatives.	Survey coverage for each alternative is summarized in Section 5.6.1.2 of the EIS based on the defined corridor for each alternative (89 percent of RA-South, 60 percent of RA-Hybrid, and 1 percent of RA-North). Since landowner permission is needed to complete surveys, it is not typical to complete surveys and evaluations on all route alternatives other than those proposed by the applicant at the environmental review	20243-204403-01

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			Based upon information provided in Table 5-23 Archaeological Resources within the RA-North Project Area and Table 5-25 Archaeological Resources within the RA-Hybrid Project Area, we understand that there is one (1) previously recorded site identified within RA-North and there are four (4) previously recorded sites within RA-Hybrid. It would be helpful if Section 5.6.1.1 Existing Conditions provided a detailed assessment of whether the Permittee's surveys conducted to date were completed to the guidelines and standards outlined in the SHPO's "Guidelines for Archaeological Projects in Minnesota" and the Secretary of the Interior's Standards for the Identification of Historic Properties. If the information collected in these surveys was not completed to existing guidelines and standards, there leaves open the question of whether all of the archaeological resources within the proposed route and route alternatives have been identified accurately. Under Section 5.6.1.2 Potential Impacts there are references to the fact that RA-North and RA-Hybrid route widths have only been partially surveyed for archaeological resources. It is important to note that, due to this incomplete survey, a full evaluation of either alternative's potential to impact archaeological resources cannot be determined until those surveys have been completed. When SHPO was asked to review Permittee's Phase I archaeological reconnaissance reports for MNL321 (RA-South), we were only asked to comment on/concur with the NRHP eligibility recommendations in the reports. We understand that the survey was completed by one archaeological consultant (Merjent) and the DEIS was prepared by a different archaeological consultant (HDR Inc.). In other states, 3 it is standard practice to have reports independently peer-reviewed by separate archaeological consultants to ensure the survey was complete and carried out consistent with state and federal standards/guidelines. It would also be useful in the final EIS to have complete evaluations for all the archaeological sites within the route width for the three route alternatives evaluated. If RA-South has the most sites, but all of those sites are "not eligible" for listing in the NRHP and RA-North has the fewest sites and the lowest potential for new sites, but one of the sites within the route width had been determined "eligible" for listing in the NRHP, RA-South would be the preferred option to avoid the eligible site (aka the Historic Property). This includes an evaluation of archaeological sites 21WL0029 and 21WL0005. It may be useful to have other sites in the project area evaluated as well if it is possible that these sites will be impacted by the Project. While we understand that the PUC recommends avoidance of all archaeological sites, SHPO would recommend avoidance of NRHP-eligible archaeological sites in preference over sites that have been determined not eligible for listing in the NRHP. SHPO recommends further clarification to the proposed "Commission Sampling Routing Permit" which should also require continued consultation with our office and others to ensure that archaeological field methodology was carried out consistent with state standards and guidelines, and all parties interested in the results of field survey, including THPOs, are given ample opportunity to review and comment on survey reports and results.	stage. Therefore, information regarding known archaeological resources and the potential for unknown archaeological resources to exist is used to inform comparison of the potential impacts of alternative routes being considered. However, as stated in Section 5.6.1.3, survey of the route alternative selected by the Commission is recommended by EERA staff. In addition, the Mitigation Recommended by EERA Staff section has been revised to clarify that the survey should be completed to meet state standards and guidelines. Also, the text has been clarified to reference continued consultation with the OSA, in addition to the Tribes and SHPO, regarding the results of additional survey to determine if additional studies to evaluate the National Register of Historic Places (NRHP) eligibility of the resource are warranted and to develop appropriate avoidance or treatment plans. In a letter dated October 14, 2021, SHPO indicates that it reviewed the survey methods proposed in the "Archaeological Survey Methodology and Protocols for Minnesota, Summit Carbon Solutions" (9/20/2021) and assessed them as appropriate for the project. The SHPO letter is included in Appendix G of the Scoping EAW (filed April 10, 2023, eDockets file no. 20234-194670-02). The survey protocol was designed following Minnesota state methodological guidelines as defined in the Minnesota State Historic Preservation Office Manual for Archaeological Projects in Minnesota (SHPO 2005) and the State Archaeologist's Manual for Archaeological Projects in Minnesota (OSA 2011). Methods used during the archaeological survey align with the protocols SHPO approved prior to survey initiation. Section 5.6.1 of the EIS has been updated to reflect this previous consultation with SHPO.	
SHPO	Beimers, Sarah J.	2024-02-23	Section 5.6.1 Historic Architectural Resources The narrative summary and tables associated with existing conditions appear to accurately reflect data included in our state historic inventory records. Similar to our recommendation above as it relates to archaeological survey, **we recommend completion of survey of historic and archaeological resources within the route corridors for each of the Project alternatives** Please contact me at sarah.beimers@state.mn.us if you have any questions regarding this comment letter. Sincerely, Sarah J. Beimers Environmental Review Program Manager	Section 5.6.2.2 has been revised to state, "No properties listed in State or National Register of Historic Places, nor the State Historic Sites Network, have been previously inventoried within the route widths for the route alternatives. Therefore, further review pursuant to the Minnesota Historic Sites Act is not warranted. If federal permits are needed, compliance with Section 106 may be required, historic architectural surveys will be completed if determined by the lead federal agency as needed."	20243-204403-01
Sierra Club North Star Chapter	Levin, Margaret	2024-02-23	The Sierra Club North Star Chapter is deeply concerned about the Summit proposal and about carbon dioxide pipeline proposals generally because: they fail to address other emissions and pollution from fossil fuel extraction and industrial agriculture; allow for the extension of fossil fuel extraction through enhanced oil recovery; and because of the risks that a pipeline leak or break could harm surrounding communities and first responders. Specifically:	Thank you for your comment.	20243-204403-01
Sierra Club North Star Chapter	Levin, Margaret	2024-02-23	The DEIS underplays the risks of a pipeline rupture that could endanger first responders and communities, and safety measures that would need to be in place.	Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. The Emergency Response Plan included as Appendix N is a draft plan that	20243-204403-01

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				would be revised as required by PHMSA, if the project is approved. Additionally, EERA staff recommended a special permit condition requiring the applicant to file its Emergency Response Plan that is filed with PHMSA with the Commission, and other special permit conditions as described in Section 8.5.3.	
Sierra Club North Star Chapter	Levin, Margaret	2024-02-23	The DEIS discounts the direct and long term impacts of pipeline construction on lands and soil, and fails to accurately assess the risks and dangers to water, wetlands, aquifers, and critical habitat.	Thank you for your comment.	20243-204403-01
Sierra Club North Star Chapter	Levin, Margaret	2024-02-23	The DEIS does not properly and accurately account for the real carbon dioxide and nitrous oxide emissions and climate impacts of the proposed project, including the relationship to enhanced oil recovery and the growing of corn for ethanol.	Thank you for your comment.	20243-204403-01
Sierra Club North Star Chapter	Levin, Margaret	2024-02-23	The DEIS fails to account for the cumulative impacts of the Summit project on Minnesota. The practice of segmenting permitting requests for individual segments will prevent a thorough review.	Thank you for your comment. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-01
Sierra Club North Star Chapter	Levin, Margaret	2024-02-23	We ask that the Public Utilities Commission and Department of Commerce take these issues as well as the concerns raised by other commenters into account, in order to ensure that the forthcoming Environmental Impact Statement (EIS) is a factual and thorough account of the project impacts. Minnesotans need a robust environmental review that includes properly weighing the State's greenhouse gas emissions goals in Minnesota Statute 216H.02. We also need transparency,accountability, and regulatory oversight to ensure the greater public good and interests of communities impacted by these pipelines and across our state are respected and protected.	Thank you for your comment.	20243-204403-01
Summit Carbon Solutions	DeJoia, Aaron	2024-03-14	Q. Do you believe that Summit's APP adequately addresses impacts to agricultural lands? A. Yes, Summit's APP represents best practices regarding topsoil separation and replacement, erosion, and revegetation. Summit's APP is similar to agricultural impact mitigation plans/agreements that I have written, reviewed, and executed in other states throughout the nation including in South Dakota, Iowa, Missouri, Illinois, Wisconsin, Indiana, Ohio, and Pennsylvania. Moreover, I am aware that the Minnesota Department of Agriculture has also reviewed the APP and found that "the treatment of agricultural lands is well addressed in the required Agricultural Impact Mitigation Plan." *(1)* *(1) Minnesota Department of Agriculture Comments, In the Matter of the Application of Summit Carbon Solutions, LLC, for a Routing Permit for the Otter Tail to Wilkin Carbon Dioxide Pipeline Project in Otter Tail and Wilkin Counties, PUC Docket Number: IP-7093/PPL-22-422 (May 13, 2023), eDockets ID No. 20235-195961-01.*	The applicant's Minnesota APP is provided as Appendix E.	20243-204356-06
Summit Carbon Solutions	DeJoia, Aaron	2024-03-14	Q. Please respond to Dr. Dolph's assertion that the RA-North route alternative is preferable to RA-South because it will present the least risk to soil degradation. A. Having designed and/or implemented reclamation on over 10,000 miles of pipeline right-of way throughout the country, in my professional experience, the potential for soil degradation is more likely due to poor planning and construction techniques than small changes in soil physical and chemical composition identified in USDA-NRCS SSURGO data. The different routes identified have very similar soils characteristics and approximately the same percentage of soil compaction, water erosion, hydric soil, wind erosion, and revegetation soil concerns. In my professional opinion, the differences in soils and potential for soil degradation along the three different routes, based on the SSURGO data, are inconsequential as long as the APP is implemented. The soils data included in the DEIS is critical to evaluate potential impacts to soils, but soil actually disturbed by pipeline construction, weather during construction, and construction practices used are ultimately going to determine if reclamation can be achieved. I am in agreement with the MDA in that if the APP is implemented the soils along the final route will returned to preconstruction productivity and functionality. In my professional opinion based on the information available, there is no difference in soil degradation potential between the route alternatives as long as the APP is followed.	Section 5.7.5 concludes that the route alternatives generally share similar soil characteristics.	20243-204356-06
Summit Carbon Solutions	Lange, Alexander	2024-02-13	Q. The DEIS evaluates both a worst-case rupture scenario and a leak scenario. Are there any clarifications you would like to make regarding Summit's emergency response actions for a leak (as compared to rupture)? A. Yes. As I was reviewing the DEIS at 8-21, where the DEIS describes Summit's emergency response actions, I noticed that we had not previously highlighted an important aspect of our response to a small release, or leak. When emergency conditions indicate a small	Thank you for your comment.	20242-203374-05

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			leak, in addition to closing valves and isolating the pipe segment, Summit's operations team would also open vents and complete a controlled blowdown at the MLV site to safely evacuate the pipeline segment of product such that the duration of the leak would be much shorter than described in the DEIS.		
Summit Carbon Solutions	Lange, Alexander	2024-02-13	How many MLVs are planned along Summit's Preferred Route (RA-South)? A. When Summit filed its Application, it initially proposed four MLV locations – one at the capture facility and three along the pipeline route. Since filing the Application, Summit has added an additional MLV near milepost (MP) 4.8, bringing the total number of MLVs in Minnesota to five. Each of these MLVs were evaluated in the DEIS.	Thank you for your comment.	20242-203374-05
Summit Carbon Solutions	Lange, Alexander	2024-02-13	Q. Why did Summit add an additional MLV? A. As Summit continued to gather information about resources and potential impacts along its Preferred Route, Summit refined the boundaries of the Other Populated Areas (OPAs, as defined in 49 CFR 195.450) along the Preferred Route and identified that the refined boundary of the City of Fergus Falls created another "could affect" high consequence area (HCA). Summit identified that an additional valve location was then needed to meet the spacing interval requirements of 49 10 CFR 195. The specific location near MP 4.8 was selected because it meets and exceeds federal requirements 49 CFR 195 for maximum valve spacing, is accessible via existing road access, has electric power available to serve the location, and is located on land Summit has under voluntary easement. Q. During the scoping process, members of the public asked why Summit did not propose MLVs on either side of the Pelican River. Can you please discuss why MLVs are not proposed at that location? A. Title 49 CFR 195.260 requires pipeline operators to install valves on each side of one or more adjacent water crossings that are more than 100 feet wide from high water mark to high water mark. Under this regulation, a valve must be placed outside of the 100-year floodplain, and the maximum spacing between the valves that protect multiple water crossings cannot exceed one mile in length. Summit conducted a survey at the Pelican River and found that the ordinary high water mark width of the Pelican River is about 70 feet, thus 49 CFR 195.260 does not require valves at this location. It is important to recognize, however, that valves proposed for the Applicant's Preferred Route (RA-South) will be able to isolate the segment of the pipeline that crosses under the river as needed.	Thank you for your comment.	20242-203374-05
Summit Carbon Solutions	Lange, Alexander	2024-02-13	Q. Have you reviewed the DEIS? A. Yes. I focused my review on DEIS Chapter 8 and Appendix G related to the potential impacts of an accidental release of CO_2. Q. Do you have any comments on the DEIS discussion of accidental releases? A. Overall, the independent evaluation of Summit's CO_2 dispersion model in air contained in the DEIS confirmed Summit's "methodology and results are valid," and the independent modeling completed by Allied Solutions, while more conservative in some respects than Summit's analysis, was not materially different than Summit's dispersion modeling for the Project. I did notice what appear to be several internal inconsistencies in the DEIS and some areas where further information could provide additional context related to the potential impacts associated with an accidental CO_2 release. Summit is providing separate DEIS comments containing additional discussion of these items. In this testimony, I provide additional explanation and context regarding several of the more significant issues.	Thank you for your comment.	20242-203374-05
Summit Carbon Solutions	Lange, Alexander	2024-02-13	Q. What are your observations regarding the assumptions used in Allied Solutions' air dispersion modeling? A. For the most part, Allied Solutions used assumptions that are similar to those used by Summit. As discussed in the DEIS, in several instances, Allied Solutions used assumptions that resulted in more conservative (i.e., greater area of potential impact) than Summit's assumptions. However, these differences did not result in material differences in the modeling results.	Thank you for your comment.	20242-203374-05
Summit Carbon Solutions	Lange, Alexander	2024-02-13	Q. Were any of the modeling assumptions used in the Allied Solutions' dispersion model unreasonable in your opinion? A. Yes. Allied Solutions assumed a product temperature of -20 degrees Fahrenheit. *(1)* Summit assumed 30 degrees in its modeling. *(2)* Q. Why do you believe the product temperature assumption is unreasonable? A. The DEIS justifies this assumption stating, "Due to a measured soil temperature at burial depth being subzero and the existence of aboveground valve sets, this temperature should be nearly the same as the air temperature." *(3)* It cites "NOAA. Soil Temperature Maps by Depth: History data in CSV" as the source for this justification. *(4)* In my experience, only soil surface temperatures can experience temperatures this extreme. The further below grade you go, the better insulated the soil is from air temperature fluctuations. It would take many weeks, if not months, of colder than -20 degrees Fahrenheit days to result in soil temperature near this value, at a depth of 54-inches. Further, I could not confirm a -20 degrees soil temperature assumption in the cited source. To the contrary, when pulling 10-year data from four USDA Natural Resources Conservation Service soil temperature probes (Mandan #1,	Thank you for your comment.	20242-203374-05

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			Glacial Ridge, Crescent Lake, and Eros Data Center), the minimum annual temperature at 40-inch depth ranged between 30-35 degrees Fahrenheit. With Summit's pipeline proposed depth of cover at 54-inches, it is expected that actual soil temperatures around the pipeline would be slightly above these levels. Once the product enters the pipeline, no additional energy is added and thus the product will begin cooling and ultimately equalizing with surrounding soil temperature. As was discussed in the DEIS, colder ambient conditions result in a more conservative dispersion model, which is why both Summit as well as Allied Solutions utilized winter conditions. However, based on the discussion above, Summit believes a soil temperature and, in turn, product temperature of 30 degrees Fahrenheit represents a "reasonable worst-case temperature". *(1) DEIS App. G at Aerial and Thermal Dispersion Analysis at Table 7 (Jan. 23, 2024) (eDocket No. 20241-202530-04).* *(2) DEIS App. G at Aerial and Thermal Dispersion Analysis at Table 6.* *(3) DEIS App. G at Aerial and Thermal Dispersion Analysis at Table 7.* *(4) DEIS App. G at Aerial and Thermal Dispersion Analysis at Table 7.*		
Summit Carbon Solutions	Lange, Alexander	2024-02-13	Q. Do you believe the Allied Solutions' dispersion modeling should be revised with an updated product temperature in the FEIS? A. No. The stated objective of the independent modeling was to provide a more conservative worst-case representation of potential release impacts. *(5)* An overly conservative ground and product temperatures results in very conservative results. Revising this assumption will not materially change the outcome of this conservative modeling analysis. Q. Why raise an issue with this temperature assumption if you do not recommend revising the modeling? A. Several individuals have asked about the potential risk to the pipeline related to frost heave. As we have previously stated, frost heave is not a risk to the pipeline because it will be buried at a depth of at least 54 inches for this Project, *(6)* which under all years and locations reviewed, would be well below the frost line. In addition, as discussed in the Frost Heave Study, in a situation where frost could reach depths below the pipeline, the amount of movement expected at such a depth would be very small given the relation to the thickness of any underlying ice lenses and the unconstrained expansion that would occur above. *(7)* Today's materials and construction practices have evolved, including the introduction of more ductile steels, allowing greater allowable deformation (strain) due to external loads (frost heave). *(8)* I was concerned that if we did not raise this issue, individuals concerned about the risk of frost heave may misinterpret this modeling assumption to suggest that, in fact, the frost line could be significantly below our pipeline. As I stated above, none of the soil temperature data collected by USDA over the last ten years would support this conclusion. *(5) DEIS App. G at Aerial and Thermal Dispersion Analysis at 3.* *(6) Route Permit Application at 5 (Sept. 12, 2022) (eDocket No. 20229-189023-02) (Route Permit Application).* *(7) DEIS App. I at Response to EERA Inquiry No. 5-2 at Frost Heave Study at 7.* *(8) DEIS App. I at Response to EERA Inquiry No. 5-2 at Frost Heave Study at 7.*	Additional information on frost heave has been added to Section 5.7.6.2. As noted in Section 5.7.6.3, the applicant has committed to conducting a Phase I Geohazard Assessment to identify areas surrounding the pipeline that may be prone to large earth movement, as recommended by PHMSA in its June 2022 Advisory Bulletin, and EERA staff recommends that the results of the Phase I Assessment, and any subsequent assessments, should be provided to the Commission.	20242-203374-05
Summit Carbon Solutions	Lange, Alexander	2024-02-13	Q. Allied Solutions recommended and completed computational fluid dynamics (CFD) modeling as part of its analysis. Why didn't Summit Carbon complete CFD modeling on the Project? A. While Summit acknowledges and appreciates the value that CFD modeling can provide, the shortcomings are also important to understand. CFD modeling requires a wide range of input values and complex parameters be identified by the analyst. For this reason, CFD models excel at modeling small project models, not long linear infrastructure. There are many inputs and factors that can impact dispersion distances, which is why Summit and Allied Solutions utilized extremely conservative inputs for the CANARY model, such that small scale CFD models would only result in less conservative distances. Summit is required to identify all locations where the pipeline could affect a HCA and include those segments within the Integrity Management Plan as defined under 49 CFR 195.452. In doing so, Summit has elected to utilize a very conservative CANARY air dispersion model.	Thank you for your comment.	20242-203374-05
Summit Carbon Solutions	Lange, Alexander	2024-02-13	Q. The DEIS states that FLO2D software "is not intended to be used for aerial dispersion analyses." *(9)* Why did Summit Carbon use this tool? A. The DEIS generally misrepresents the applicability of FLO2D utilized by Summit. The DEIS often describes that carbon dioxide is heavier than air and can settle in low-lying areas. Summit recognizes this risk and utilized FLO2D to help identify critical valleys located in close proximity to HCAs to determine how terrain could affect the gravity-assisted transportation of carbon dioxide vapor as well as the pooling effects in low-lying areas. As was discussed in the DEIS, elevation does not greatly impact the dispersion distance. What was not discussed, however, was how to address low-lying areas where carbon dioxide may be more resistant to dispersion through ambient weather conditions. FLO2D allowed Summit to use Digital Elevation Maps across the entire footprint and highlight these low-	Thank you for your comment.	20242-203374-05

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			lying areas for use in our Emergency Management Plan procedures. Although the results from FLO2D did not impact our dispersion distances, it provides valuable insight for Emergency Responders. *(9) DEIS App. G at Aerial and Thermal Dispersion Analysis at 9.*		
Summit Carbon Solutions	Lange, Alexander	2024-02-13	Q. Do you have any concerns regarding the CFD modeling results presented in the DEIS? A. No. The independent CFD modeling completed by Allied Solutions appears to be reasonable, and the information regarding the mitigating effects of windbreaks in the area provides useful information to the public. It is also helpful for the public to understand that, based on this independent analysis, "regardless of the scenario, the time it takes for the 30,000-ppm concentration CO_2 release to dissipate is very short—less than 4 minutes. In fact, the total time of the entire event would be less than 7 minutes in a worst-case scenario." (*10)* *(10) DEIS App. G at CFD Analysis at 9.*	Thank you for your comment.	20242-203374-05
Summit Carbon Solutions	Lange, Alexander	2024-02-13	Q. EERA staff recommends a special permit condition requiring Summit it identify locations of fracture arrestors and any locations of thicker-walled pipe on the Plan and Profile filed with the Commission. *(11)* What are fracture arrestors and how do they impact pipeline integrity? A. Summit will not install fracture arrestors on the 4-inch pipeline. The standard method of ensuring arrest of a running fracture in a pipeline is to ensure that the fracture velocity in the pipeline wall is less than the decompression velocity of the product in the pipeline (CO_2). The decompression response is a function of the product composition and the pipeline operating conditions. The velocity of a running fracture in a pipeline is dependent on the size of the pipe, the pressure, and the material toughness. As the material toughness increases, the speed of the running fracture decreases. Based on the size of the pipe, pressure, and specified material toughness (above the values prescribed by API-5L), the 4-inch pipeline has been designed to be self-arresting. Q. Will Summit Carbon provide the location of fracture arrestors and thicker-walled pipe for the Project? A. Yes. Summit can provide this information. The Project will be constructed of 4-inch nominal diameter pipeline. The 4-inch pipe is all 0.189 inches thick and is self- arresting. This gives the entire pipeline a design factor of 0.5. The only difference along the pipeline route will be the coating, depending on installation method. Bores and horizontal directional drills will have an additional Abrasion Resistant Overcoat, which has no bearing on the fracture arresting properties of the pipeline. *(11) DEIS at 8-26.*	Thank you for your comment.	20242-203374-05
Summit Carbon Solutions	Lange, Alexander	2024-03-14	Q. Have you reviewed CURE witness Dr. Gorman's direct testimony? A. Yes. Q. Dr. Gorman suggests that it is impossible to know if "the results from the CANARY software (or any other model) have any basis in reality" without performing and presenting results related to verification and validation activities." (Gorman Direct, at 5:9-16.) When selecting the CANARY software for its dispersion modeling, did Summit consider whether the model was subject to verification and validation? A. Yes. The CANARY model has been validated against data obtained from large scale outdoor experiments. These outdoor experiments provide a more accurate validation method than lab-based wind tunnel validation, which is often used to validate other available dispersion modeling. As stated in Appendix G of the Draft Environmental Impact Statement (DEIS), "CANARY has a long and vetted history in the pipeline industry—so much so that some major pipeline operators have it written into their standards that they will use only CANARY when modeling aerial dispersions." *(1)* The CANARY model is widely accepted by the Pipeline and Hazardous Material Safety Administration (PHMSA) as well. Q. Dr. Gorman states that it is not clear from the report that the conditions of the CO_2 within the pipe are fully known (Gorman Direct, at 6:21-22). Do you agree? A. No. Although the report does not explicitly state what phase the CO_2 was modeled in, the phase can be determined based on the content in the report, which includes composition, pressure, and temperature. *(1) DEIS, Appendix G – Aerial and Thermal Dispersion Analysis: Otter Tail to Wilkin CO_2 Pipeline Project, p. 19 of 19.*	Thank you for your comment.	20243-204356-04
Summit Carbon Solutions	Lange, Alexander	2024-03-14	Q. Dr. Gorman also points out a presumed difference in the assumed flow rate at the time of rupture (Gorman Direct, at 7:16-20). Do you agree that the report should be clarified regarding what assumed flow rate was used in the modeling? A. No. The dispersion analyses completed both by Summit and Allied use a mass flow rate of 13.34 lbs/sec of CO_2. The CO_2 Pipeline	Modeling was done to confirm Aerial Dispersion analysis, inform emergency response, and provide public awareness. Modeling was not used to determine if one pipeline route is safer than another route.	20243-204356-04

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			Sensitivity Analysis Report appears to be a "sensitivity analysis on a representative pipeline," *(2)* not necessarily Summit's Project. The sensitivity analysis provides information on how different operating and ambient conditions can impact dispersion modeling. Q. Dr. Gorman testifies that information in Appendix G of the DEIS does not demonstrate which route alternative poses fewer risks to humans and animals or which is safer considering the possible impacts of a CO_2 release. Do you agree? A. Conceptually, I agree. Dispersion modeling is not intended to be used as a pipeline routing tool. It is intended to inform the emergency response planning for pipeline facilities as well as Integrity Management Plan prescribed under 49 CFR Part 195.452. Modeling must be performed for whatever route is selected and will be used to inform and update a pipeline operator's emergency response, public awareness, and similar measures. *(2) DEIS, Appendix G - CO_2 Pipeline Sensitivity Analysis Report, p. 5 of 9.*		
Summit Carbon Solutions	Lumpkin, Michael	2024-02-13	Q. What is the purpose of your Direct Testimony? A. The purpose of my testimony is to respond to select issues in the Draft Environmental Impact Statement (DEIS) published by the Minnesota Department of Commerce, Energy Environmental Review and Analysis Unit (EERA) on January 23, 2024. *(1)* My testimony also provides information regarding the toxicological effects of acute (meaning short-term) CO_2 exposures at varying concentrations higher than typically found in ambient air. Q. What schedules are attached to your Direct Testimony? A. The following schedule is provided with my Direct Testimony: • Schedule 1 – Statement of Qualifications *(1) DEIS (Jan. 23, 2024) (eDocket No. 20241-202524-01) (DEIS).*	Thank you for your comment.	20242-203374-06
Summit Carbon Solutions	Lumpkin, Michael	2024-02-13	Q. In your opinion, what are the important takeaways from the information presented in that Chapter? A. In my professional opinion as a toxicologist and human health risk assessor, I conclude that the information presented in Chapter 8 of the DEIS demonstrates that the risk of actual toxicological harm or a reduced capacity to escape in the event of an accidental release even under worst-case discharge conditions is small. Q. What is the basis for that conclusion? A. Primarily, even using what in my view are overly conservative measures of CO concentrations and exposure times, which I will discuss further below, the concentrations and exposure time presented in the DEIS are not high and long enough to present an undue risk of adverse effects to human health. Specifically, the DEIS findings that the total impact distance at which CO_2 concentrations would reach 40,000 ppm is 617 feet, *(2)* and that the total time for release and dispersion was less than 7 minutes, compels a conclusion that human health effects from exposure in even the worst-case scenario presented in the DEIS are minimal. Further, while CO_2 levels would be expected to be higher and at distances closer than 617 feet of the release, the likelihood of an individual being in this area (e.g., the risk of experiencing an exposure higher than 40,000 ppm for 7 minutes) is less than the likelihood of a person being beyond 617 feet of the release. *(2) DEIS at 8-14.*	Thank you for your comment.	20242-203374-06
Summit Carbon Solutions	Lumpkin, Michael	2024-02-13	Q. Chapter 8 of the DEIS discusses adverse health effects related to potential exposure to CO_2. Can you provide some context for how CO_2, a gas we all exhale every day, has the potential for adverse health effects? A. While normal inhalation and exhalation of CO_2 is part of regular bodily function, at very high levels, CO_2 can be toxic to humans. Toxicity is the ability of a chemical to cause harm to biological tissues, organ systems, or individual organisms. It is widely accepted by toxicologists that there exists some dose or exposure level at which a substance changes from harmless to harmful to an organism. This harm may range from relatively mild and reversible to lethal. This is true for substances ranging from water (a requisite for all living organisms) to botulinum toxin (one of the most potent known neurotoxins). Q. How does the human body respond to inhalation of a gas such as oxygen or CO_2? A. Changes in the human body's physiological or biochemical conditions due to inhalation of oxygen, CO_2, or other gases include a well-ordered sequence of biochemical adjustments. These adjustments are intended to establish or re- establish optimum use of energy sources so that bodily functions required for survival are maintained. In the case of normal CO_2 production within the body or inhalation of increasing CO_2 concentrations from ambient air, the body responds with neurological messaging that prompts shifts in breathing rates, blood pressure, and proportional blood flow to critical organ systems in an attempt to re-balance the delivery of oxygen and the removal of waste CO_2 from cells. This re-balancing process, called physiological compensation, occurs for many processes in the body in addition to oxygen and CO_2 transport and use. However, there are limitations to the body's ability to	Thank you for your comment.	20242-203374-06

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			compensate, after which further perturbations of oxygen or CO_2 inhalation and CO_2 elimination create conditions in blood and tissues that may not be conducive to normal function.		
Summit Carbon Solutions	Lumpkin, Michael	2024-02-13	Q. Are there published scientific studies regarding the potential health effects of high concentration acute CO_2 exposure? A. Yes, numerous case reports and studies of volunteers and lab animals contain data on the effect of high concentration acute (up to a few hours) CO_2 exposures. Many of these published studies were conducted in the early to mid-1900's. Several of these studies are limited by details regarding the actual CO_2 and oxygen composition of the test atmospheres (in the case of experimental studies) or presence of other unmeasured toxic gases (in the case of occupational case reports of injuries and fatalities). Further, these studies reported rather inconsistent results, with some studies suggesting loss of coordination, dizziness and headaches following exposures of 5,000 to 10,000 ppm while others reported no ill effects from acute and longer duration exposures up to 30,000 ppm. Similarly, some reported exposures at or more than 100,000 ppm indicated lethargy and transient loss of consciousness, while others reported death at these same concentrations. While some study authors have suggested that possible blood acidosis may have led to disruption of electrolyte balance (particularly potassium levels in blood), the details in reporting are lacking to verify this impact. Many authors have opined that the observed effects described in their respective studies are due to "CO_2 toxicity;" however, it is difficult to determine if the observed effects were a result of oxygen deficiency, actual overwhelming of the subjects' blood buffering capabilities, or neurological stimulation of cardiopulmonary changes resulting in secondary effects on mental acuity, coordination, or headaches. These older studies inform the current National Institute for Occupational Safety and Health (NIOSH) Immediately Dangerous to Life and Health (IDLH) limit of 40,000 ppm for healthy people. A NIOSH IDLH limit is an air concentration at or below which healthy workers may be exposed for 30 minutes without risk of permanent harm to health or ability to escape. The DEIS utilizes this 40,000 ppm IDLH limit as an identified level of concern in its analysis. *(3)* I disagree with the DEIS Appendix G characterization of 15,000, 30,000, or 40,000 ppm CO_2 as a "Toxic Level of Concern" as the weight of evidence from the available scientific literature on human effects do not show exposure to these levels to cause toxic effects. *(3) DEIS at 8-12; DEIS App. G at Aerial and Thermal Dispersion Analysis at 5 (Sept. 23, 2024) (eDocket No. 20241-202530-04).*	Minnesota Rule 4410.2300(H) indicates that an EIS shall include "a thorough but succinct discussion of potentially significant adverse or beneficial effects generated" by the proposed project and each major alternative with "[l]ess important material … summarized, consolidated, or simply referenced." Factors to be considered include "the impact and the relevance of the information to a reasoned choice among alternatives" and "the relationship between the cost of data and analyses and the relevance and importance of the information." A review of the science concerning CO_2 toxicity levels is not necessary for a reasoned choice among alternatives. The EIS continues to use CO_2 concentration levels defined by federal agencies in its discussion.	20242-203374-06
Summit Carbon Solutions	Lumpkin, Michael	2024-02-13	Q. Are there more recent studies of the potential health effects of high concentration acute CO_2 exposure? A. Yes. The most detailed and recent study on the subject is by van der Schrier, et al. (2022) (van der Schrier Study). The study authors reported CO_2 exposures from 60,000 to 120,000 ppm (or 6% to 12% CO_2 atmosphere) to healthy male volunteers. The volunteers were exposed for up to one hour. The inspired oxygen levels ranged from 19.7% down to 18.4% as CO_2 exposure levels increased. In the same study publication, rats were exposed from 100,000 to 500,000 ppm CO_2 for up to one hour. At the conclusion of the rat exposures or at the time of death, 3 rats were necropsied for examination of organs, including the lungs. The blood pH values from the human and rat data were used together to develop a mathematical model that could translate (or predict) human and rat blood pH changes over time given various CO_2 inhalation exposures. This is the first time such an intraspecies model of CO_2-induced blood pH changes has been reported. The human and rat data were complimentary, moving from sub-100,000 ppm exposures to up to 500,000 ppm exposures. The human subjects showed high tolerability of 60-minute exposures to up to 75,000 ppm and 10-minutes at 90,000 ppm. Blood pH levels decreased over time at all exposure levels but reached an equilibrium of no less than 7.2 at exposure levels up to 90,000 ppm (blood pH has a typical neutral value of 7.4). Transient changes to cardiac parameters and mental acuity were reported, indicating physiological compensation to increase blood elimination of CO_2. Exposures to 100,000 and 120,000 ppm were stopped early due to subject irritability, anxiety, or loss of consciousness. However, all subjects completely recovered in all aspects within minutes of exposure cessation. Q. Does the DEIS reference the van der Schrier Study? A. Yes, Section 8.3.4 of the DEIS cites the van der Schrier Study as it related to potential impacts on the natural environment, but the cited material focuses only on the impacts on rats at concentrations of 30 percent or higher. The DEIS does not mention the conclusions of the study as it relates to human exposures. Q. What conclusions do you draw from the van der Schrier Study as it relates to the potential human health effects of CO_2 exposure? A. Prior to the publication of the van der Schrier Study, it was difficult to use data from the earlier studies and case reports in humans to distinguish the effects caused by non-toxic physiological compensation to blood CO_2 burdens or actual toxic harm. The detailed effects reported for humans in the van der Schrier Study indicate a lack of toxic effect and the ability to make escape-	A review of the science concerning CO_2 toxicity levels is not necessary for a reasoned choice among alternatives. The EIS continues to use CO_2 concentration levels defined by federal agencies in its discussion. The Executive Summary, Chapter 8, and Appendix G have been revised to remove references to "Toxic Level of Concern" or "toxic impact distances."	20242-203374-06

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			related decisions for exposures between 75,000 and 90,000 ppm in typical, healthy individuals. The database of studies for inhaled CO_2 effects at levels from 2,000 ppm to less than 100,000 ppm are often missing sufficient detail to tease out toxic versus compensatory effects in humans. However, the van der Schrier Study provides the latest details into acute CO_2 tolerability and toxicity. The van der Schrier Study is a solid study on which to base the classification of acutely inhaled CO_2 exposures of less than 100,000 ppm as non-toxic and suggests revisiting the present NIOSH limit of 40,000 ppm for healthy people. Q. Do your comments about the van der Schrier Study change your view of how potential human health effects are addressed in Chapter 8 of the DEIS? A. I think that the van der Schrier Study and information in it will, or at least should, drive a review of the current CO_2 exposure limits. I also think that such an effort would lead to less conservative levels than those used in the DEIS, meaning that the likelihood of effects would be even lower. That said, using those different levels 1would not make a material difference in my ultimate conclusion, which is that the DEIS demonstrates there is not an undue risk of adverse human health effects from CO_2 exposures in the event of the worst-case scenario presented in the DEIS.		
Summit Carbon Solutions	Lumpkin, Michael	2024-02-13	Q. Do you have any other comments regarding the DEIS? A. Yes. In Section 8.5.3 of the DEIS, EERA recommends that Summit provide indoor CO_2 detectors to all residences within 1,000 feet of the project. I disagree that provision and installation of indoor CO_2 detectors in these homes will provide meaningful mitigation of health risks in the event of a pipeline failure. Indoor residential CO_2 concentrations are typically above ambient background levels due to a variety of factors, including increasing CO_2 from residents' exhaled breath, the unventilated portion of combustion gases from use of fireplaces or other wood-burning or gas appliances, tobacco use, or other indoor sources. In homes with relatively low rates of mixing of indoor and outdoor air (particularly in cold weather seasons), typical indoor CO_2 levels may be in the thousands of ppm with no adverse health impact to occupants. Addition of CO_2 detectors with alarm thresholds set close to these levels may likely result in frequent alarms sounding completely independent of the existence of the CO_2 pipeline within 1,000 feet. Conversely, the appearance of an outdoor CO_2 plume due to a pipeline failure in proximity to a residence will not be immediately detected by an indoor detector because of relatively low air changes rates of homes with doors and windows closed. Thus, the addition of indoor CO_2 detectors for the purpose of exposure mitigation from a pipeline failure may result in false alarms and subsequent discontinuation of detector use by the occupants as well as lack of timely alerting of home occupants to a change in outdoor CO_2 levels.	Thank you for your comments. EERA staff continue to believe that applicant-provided indoor CO_2 detectors for residences within 1,000 feet of the project is a reasonable mitigation measure. In addition, EERA staff believes that applicant-provided outdoor CO_2 detectors for residences within 1,000 feet of the project is a reasonable mitigation measure. This distance was chosen based on the area that could reach a concentration of 15,000 ppm CO_2, as described in Appendix G. Section 8.5.3 has been updated to include the recommendation for outdoor CO_2 detectors.	20242-203374-06
Summit Carbon Solutions	Lumpkin, Michael	2024-03-28	Q. Have you reviewed Dr. McKinney's Rebuttal Testimony? A. Yes. Q. Does anything in Dr. McKinney's Rebuttal Testimony contradict your conclusion that "the risk of actual toxicological harm or reduced capacity to escape in the event of an accidental release even under worst-case discharge conditions is small"? A. No. Dr. McKinney's Rebuttal Testimony addresses 1 CO_2 health hazards (the innate potential of CO_2 to produce effects that may damage human tissues or impair escape) but does not address CO_2 health risks (the chance that an adverse effect will occur) associated with hypothetical releases scenarios. The Draft Environmental Impact Statement (DEIS) reports air dispersion modeling predictions of greater than 40,000 ppm CO_2 going no further than 617.5 feet from the release point. Further modeling reported in the DEIS predicted a total CO_2 of greater than 30,000 ppm to exist for less than 7 minutes, extending no further than 711 feet from the release site. These predictions indicate that a worst-case release event would impact a very small distance from the pipeline beyond which CO_2 levels in air would rapidly dissipate to levels that have never been shown to cause tissue damage or impair the ability of a person to egress.	Thank you for your comment.	20243-204748-04
Summit Carbon Solutions	Lumpkin, Michael	2024-03-28	Q. Dr. McKinney's Rebuttal Testimony claims you assert "that it is reasonable to classify inhaled CO_2 exposures of less than 100,000 parts per million (ppm) as non-toxic. Is that your testimony? A. Yes, I testified that the van der Schrier et al. (2020) study of CO_2 exposures provides a robust data set indicating lack of tissue or physiological system damage resulting from exposures to less than 100,000 ppm (specifically, 90,000 ppm as reported by van der Schrier et al). Dr. McKinney conflates short-lived episodes of physical or mental discomfort reported by van der Schrier and others with toxicity and the inability to make decisions of egress. Indeed, his quotation from the van der Schrier study that "The translational model predicts that at inhaled CO_2 concentrations greater than 9%, pH will rapidly decrease to values that further hamper the capacity to function adequately" ignores data presented in the van der Schrier study that human blood pH from 90,000 ppm CO_2 exposure did not fall below or approach 7.2, which is not an acidotic blood condition and would not be expected to affect the ability to make decisions to escape.	Minnesota Rule 4410.2300(H) indicates that an EIS shall include "a thorough but succinct discussion of potentially significant adverse or beneficial effects generated" by the proposed project and each major alternative with "[l]ess important material … summarized, consolidated, or simply referenced." Factors to be considered include "the impact and the relevance of the information to a reasoned choice among alternatives" and "the relationship between the cost of data and analyses and the relevance and importance of the information." A review of the science concerning CO_2 toxicity levels is not necessary for a reasoned choice among alternatives. The EIS continues to use CO_2 concentration levels defined by federal agencies in its discussion.	20243-204748-04

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Summit Carbon Solutions	Lumpkin, Michael	2024-03-28	Q. Are you advocating for revisions to, or a departure from, NIOSH in this proceeding? A. No. As alluded to on page 9 of my Direct Testimony, the van der Schrier Study demonstrates the CO_2 exposure limits currently prescribed by NIOSH are conservative. The van der Schrier Study provides data showing healthy individuals are capable of withstanding much higher CO_2 exposure levels. Neither Summit nor I are advocating that NIOSH values should be revised or disregarded in this proceeding. NIOSH values should, however, be placed in context with other relevant materials such as the van der Schrier Study. Q. Does the debate between NIOSH, the van der Schrier Study, and overall ppm values change your ultimate conclusion in this proceeding? A. No. Though I reference the potential for less conservative tolerances, as I stated in my Direct Testimony "using those different levels would not make a material different in my ultimate conclusion, which is that the DEIS demonstrates that there is not an undue risk of adverse human health effects from CO_2 exposures in the event of the worst-case scenario presented in the DEIS." Q. Please explain. A. The NIOSH CO_2 IDLH value of 40,000 ppm is not a bright line exposure limit at which toxicity is expected, but is a conservative level based on a range of exposures (30,000 ppm to greater than 100,000 ppm) from older data that do not benefit from more recent and more detailed studies such as van der Schrier et al. (2020). Nevertheless, both the OSHA Short Term Exposure Limit (STEL) of 30,000 ppm and NIOSH IDLH of 40,000 ppm were used as decision points in the air modeling described in the DEIS. This modeling, as I explained previously, predicts that worst-case CO_2 levels greater than 30,000 ppm may only feasibly occur over very short distances for just minutes.	Minnesota Rule 4410.2300(H) indicates that an EIS shall include "a thorough but succinct discussion of potentially significant adverse or beneficial effects generated" by the proposed project and each major alternative with "[l]ess important material … summarized, consolidated, or simply referenced." Factors to be considered include "the impact and the relevance of the information to a reasoned choice among alternatives" and "the relationship between the cost of data and analyses and the relevance and importance of the information." A review of the science concerning CO_2 toxicity levels is not necessary for a reasoned choice among alternatives. The EIS continues to use CO_2 concentration levels defined by federal agencies in its discussion.	20243-204748-04
Summit Carbon Solutions	O'Konek, Scott	2024-02-13	Q. What areas would potentially be impacted by construction of the Project? A. Summit plans to utilize temporary construction workspace that typically varies from 25 to 100 feet wide, plus additional temporary workspace, to facilitate construction. Summit would use temporary roads to access the construction workspace. In addition, several above-ground facilities will also be constructed as part of the Project. These associated facilities are described in Section 3.2 of the Application and Section 2.3 of the DEIS. Following construction, land would be restored to pre-construction conditions and would remain suitable for farming, pasturing, and other activities. Structures and trees over the permanent right-of-way (ROW) would be restricted. Summit would retain a 25 to 50-foot-wide permanent ROW centered over the pipeline for inspection and maintenance access during operations. Permanent roads would also be established to access aboveground mainline valve (MLV) sites.	Thank you for your comment.	20242-203374-03
Summit Carbon Solutions	O'Konek, Scott	2024-02-13	Q. How has Summit incorporated input from landowners, agencies, tribes, and local government officials when developing its Preferred Route? A. Summit has engaged with landowners in the route refinement process to obtain survey permission and to learn more about specific impacts important to area landowners. Summit also held a number of open houses to solicit broader public input on the route. To date, Summit has surveyed over 98 percent of its Preferred Route and is committed to continue to work with landowners along the route to further minimize potential impacts. Summit has been successful in the acquisition of approximately 83 percent of the pipeline route through voluntary easements with nearly 55 landowners. As part of its larger Midwest Carbon Express Project, Summit also contacted sixty-two Native American tribes and offered the opportunity to participate in field surveys, provide review and input and contribute to knowledge of the resources in the area. The following Tribes have participated in archeological surveys for the Project to date: Mille Lacs Ojibwe; the Rosebud Sioux; the Yankton Sioux; and Sisseton, Wahpeton, Oyate of the Lake Traverse Reservation Tribes. Tribes did not identify features or areas of concern during surveys. Summit witness Mr. Jason Zoller provides additional discussion regarding Summit's tribal engagement efforts. Summit also shared the initial project design with regulatory agencies including the U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, Minnesota Department of Natural Resources, Minnesota Pollution Control Agency, Minnesota Board of Water and Soil Resources, and Otter Tail and Wilkin counties. Summit has continued to meet with and exchange information with federal, state, and local agencies to address potential impacts from the Project. Based on feedback from these agencies and local units of government, some route variations were proposed, and some route alignments were confirmed. Summit's evaluation and coordination resulted in a Preferred Route that begins at the Green Plains Ethanol Plant capture facility near Fergus Falls and travels approximately 28.1 miles to the Bois de Sioux River before crossing into North Dakota. The Preferred Route is collocated with existing powerlines, pipelines, and 16 roads for approximately 53 percent of its length. The Preferred Route reflects	A summary of Tribal engagement for the EIS is included in Appendix J.	20242-203374-03

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			Summit's review of sensitive routing resources, coordination with agencies regarding routing concerns, as well as coordination with affected landowners to cross their private properties to best reflect their preferences.		
Summit Carbon Solutions	O'Konek, Scott	2024-02-13	Q. Has Summit received landowner or agency feedback regarding either of these route alternatives? A. Summit has had limited interaction with landowners and agencies regarding their input on RA-North and RA-Hybrid. However, there would be differences. For example, based upon Summit's desktop analysis, there are more residences along RA-North versus RA-South within 300 feet (10 vs. 2) and within 500 feet (19 vs. 5) that may experience temporary impacts during construction. Further, based upon where RA-North would cross the Minnesota/North Dakota border, it is likely that the route would continue in between developed areas in and around Wahpeton, North Dakota, which could affect likely infill development in a way that RA-South would not. Q. Have there been any route modifications in North Dakota that would impact any of the route alternatives studied in the DEIS? A. No. Summit's route in North Dakota begins at the Minnesota/North Dakota border where RA-South and RA-Hybrid end in Minnesota. That is the location of the pipeline route in North Dakota that is currently being evaluated within the North Dakota Public Service Commission's permitting process. RA-North has no connection point to the rest of Summit's pipeline system in North Dakota.	Thank you for your comment.	20242-203374-03
Summit Carbon Solutions	O'Konek, Scott	2024-02-13	Q. Based on Summit's analysis, do any of the Route Alternatives better minimize potential human or environmental impacts as compared to the RA-South, the Applicant's Preferred Route? A. No. The DEIS demonstrates that RA-North and RA-Hybrid do not avoid or minimize potential impacts related to project construction, they simply shift potential impacts to another location. Importantly, Summit has worked with the landowners on RA-South to address potential impacts on land crossed by the Project and has also surveyed over 98 percent of RA-South for environmental and cultural features, providing strong evidence that potential impacts along RA-South will be avoided or minimized to the extent practicable.	Thank you for your comment.	20242-203374-03
Summit Carbon Solutions	O'Konek, Scott	2024-02-13	Q. Have you reviewed the DEIS? A. Yes. Q. Do you have any comments on the DEIS? A. Summit appreciates EERA's thoughtful and comprehensive approach to the analysis of potential benefits, impacts, and mitigation related to construction and operation of the Project. Summit appreciates EERA's thoughtful and comprehensive approach to the analysis of potential benefits, impacts, and mitigation related to construction and operation of the Project. Summit completed a detailed review of the DEIS and is offering written comments on a number of issues that could be added, corrected, or clarified in the final EIS to ensure a complete and accurate record. Summit's DEIS comments are included as Schedule 2 to my Direct Testimony and were also efiled under separate cover to EERA. Q. Do you have any comments on the recommendations EERA included in the DEIS? A. Yes. I will respond to several of EERA's recommendations related to construction mitigation.	Thank you for your comment.	20242-203374-03
Summit Carbon Solutions	O'Konek, Scott	2024-02-13	Q. EERA staff recommends that if a route permit for RA-South is granted, Summit should provide documentation of coordination with the Fergus Falls Fish & Game Club. *(1)* What is your response? A. Summit agrees with this recommendation. As discussed in the Application, Summit is coordinating closely with the Fergus Falls Fish & Game Club to minimize impacts to its land and associated recreational economies during construction and operation of the Project. *(2)* Summit will continue to coordinate with the Fish & Game Club and, if RA-South is approved, will provide documentation of such coordination prior to construction. *(1) DEIS at 5-56, 11-13 (Jan. 23, 2024) (eDocket No. 20241-202524-01).* *(2) Route Permit Application at 40-41 (Sept. 12, 2022) (eDocket No. 20229-189023-02).*	Section 5.4.10.3 has been updated to indicate that the applicant would adopt the EERA-recommended mitigation if issued a route permit for the project.	20242-203374-03
Summit Carbon Solutions	O'Konek, Scott	2024-02-13	Q. EERA staff included in the DEIS a recommendation by the Minnesota Pollution Control Agency (MPCA) that "details be provided in the ECP for preventing excessive crowning or subsidence above the restored centerline, and for addressing excessive crowning or subsidence if it is discovered during post-construction monitoring." *(3)* What is your response? A. Summit will include details in the Minnesota Environmental Construction Plan (ECP) for preventing excessive crowning or subsidence above the restored centerline. Summit will restore the construction workspace to as close to the original pre-construction contours as practicable. If uneven settling occurs or surface drainage problems develop as a result of pipeline construction, Summit will provide additional land leveling services after receiving a landowner's written notice, weather and soil conditions permitting.	Section 5.7.9.3 has been updated to indicate that the applicant would adopt the EERA-recommended mitigation if issued a route permit for the project.	20242-203374-03

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			(3) DEIS at 5-145.		
Summit Carbon Solutions	O'Konek, Scott	2024-02-13	Q. EERA staff included in the DEIS a recommendation by the Minnesota Department of Natural Resources (MDNR) that "[e]xploratory borings should be conducted to characterize the shallow subsurface anywhere sheet piling would be used and submitted to DNR groundwater staff for evaluation Exploratory borings should be conducted to at least the maximum depth of any construction impacts." *(4)* What is your response? A. Summit agrees with this recommendation and will conduct exploratory borings in coordination with the MDNR anywhere sheet piling would be used, subject to obtaining landowner permission. *(4) DEIS at 5-139.*	Section 5.7.8.2 has been revised to indicate that the applicant would conduct geotechnical investigations prior to construction anywhere sheet pile would be used.	20242-203374-03
Summit Carbon Solutions	O'Konek, Scott	2024-02-13	Q. EERA staff included in the DEIS a recommendation by MDNR that "[a]t a minimum, Pennsylvania standards for trench breaker placement should be used, and knowledge gained from additional subsurface site characterization may provide further guidance on where to place trench breakers most effectively. Trench breakers should be used at the entrance and exit of every waterbody regardless of slope (except for HDD crossings)." *(5)* What is your response? A. Permanent trench breaker placement is discussed in Section 2.9.1 of the Minnesota ECP. *(6)* As committed to the MDNR in Enclosure of its September 1, 2022 Project introduction letter (see Application, Appendix 8), Summit is presently proposing to install trench breakers at the entry and exit from every public water crossing, except for at HDD crossings. In addition, as outlined in Section 5.5 of the Minnesota ECP, trench breakers will be installed at wetland boundaries where the pipeline trench may cause a wetland to drain, or the trench bottom will be sealed to maintain wetland hydrology. *(7)* Summit plans to select the location of additional trench breakers across the Project based on field conditions at the time of construction and will consider the degree and length of slope, presence of down-slope sensitive resource areas such as wetlands and waterbodies, and proximity to other features such as roads and/or railroads. Generally, slopes are higher in the eastern portion of the Project, while the majority of the Project, and particularly the western portion of the Project, is located in areas where slope is not a concern (0.001-6.71 degree slope; see 18 Figure 11-3 of the Scoping EAW). Summit's trench breaker plans account for the substantial body of knowledge that its construction staff has regarding the placement of trench breakers. In Summit's view, those plans are consistent with the intent of the Pennsylvania standards, while also accounting for local, site-specific knowledge to use trench breakers most effectively. Use of this field condition review will ensure that Summit will not install trench breakers where they would not provide the intended benefit (i.e., on steep slopes where trench line erosion has the risk of occurring and at slopes adjacent to wetlands and waterbodies). In other words, while Summit does not intend to specifically implement the Pennsylvania standards, Summit's plans will achieve the same or greater levels of protection, which is consistent with the Pennsylvania standards regarding the use of alternate best management practices. *(5) DEIS at 5-139.; (6) DEIS App. D at Minnesota Environmental Construction Plan at 7 (Jan. 23, 2024) (eDocket No. 20241- 202530-02) (Minnesota ECP).; (7) DEIS App. D at Minnesota ECP at 17.*	Text regarding the applicant's proposed use of trench breakers has been added to Section 5.7.8.2.	20242-203374-03
Summit Carbon Solutions	O'Konek, Scott	2024-02-13	Q. EERA staff included in the DEIS a recommendation by MDNR that the "pipeline should be installed deep enough to prevent pipe exposure over time. The DNR's Area Hydrologists may have specific data on depth of cover for river and stream crossings and should be consulted." *(8)* What is your response? A. Summit agrees with this recommendation relative to public waters and will consult with the MDNR when public water crossing designs are prepared for the License to Cross Public Waters application. Q. EERA staff included in the DEIS a recommendation by MDNR that Summit "should continue to consult with DNR on groundwater investigations for the potential routes and on construction methods in relation to groundwater." *(9)* What is your response? A. Summit currently has an ongoing groundwater investigation underway relative to the Preferred Route/RA-South and will continue to consult with the MDNR. Q. EERA staff included in the DEIS a recommendation to select a crossing technique that is most appropriate for each waterbody, after consultation with MDNR. *(10)* What is your response? A. Summit agrees with this recommendation relative to public waters and will consult with the MDNR when designing and selecting public water waterbody crossing techniques as part of the License to Cross Public Waters application. Q. The DEIS states that "[g]eotechnical investigations prior to construction in beach ridge areas would identify areas where sheet pile use should be avoided." *(11)* EERA staff also recommended certain procedures prior to sheet piling in beach ridge areas. *(12)* What is your response?	Text in Section 5.7.8 either already reflected this information or has been revised where needed.	20242-203374-03

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			A. Summit has committed to not using sheet piling in the beach ridge areas. Accordingly, the recommended procedures will not be applicable. *(8) DEIS at 5-139.* *(9) DEIS at 5-139.* *(10) DEIS at 5-150.* *(11) DEIS at 5-137.* *(12) DEIS at 5-139 – 5-140.*		
Summit Carbon Solutions	O'Konek, Scott	2024-03-28	Q. Do you agree with Dr. Christy Dolph's opinion that because all routes have not been equally assessed, it is impossible to evaluate and compare the potential impacts of all the routes? A. No. The Draft Environmental Impact Statement (DEIS) demonstrates that RA-North and RA-Hybrid do not avoid or minimize potential impacts related to project construction, they simply shift potential impacts to another location. Q. Dr. Dolph raises concerns with how construction will be completed in the beach ridge area without use of sheet piling. How will Summit construct the pipeline in beach ridge areas? A. Trench excavation will be limited to a maximum depth of 60 inches. To minimize the likelihood that construction activities will impact this area, Summit has committed to not using sheet piling within the beach ridge area. On RA-South, the beach ridge area is located between mileposts 4 and 9. Should trench wall stability be a concern, Summit will use trench boxes to stabilize the trench walls, which will not result in any additional excavation. If the horizontal direction drill (HDD) method is used outside the beach ridge area, pipe will be installed to a depth of six to ten feet. A shallow bore installed to a depth of six to ten feet will minimize the likelihood of intersecting groundwater. Continued groundwater studies will further inform construction practices in this area, and Summit will continue to consult with the Minnesota Department of Natural Resources.	Text in Section 5.7.8.2 has been revised to reflect that sheet piling would not be used in beach ridge system areas and to describe the use of trench boxes to stabilize trench walls, if needed. As confirmed by the applicant in response to Supplemental Information Inquiry 13, Question 7, the sentence "If the horizontal direction drill (HDD) method is used outside the beach ridge system area, pipe will be installed to a depth of six to ten feet" has an error. "[O]utside the beach ridge system area" should be "inside the beach ridge system area."	20243-204748-02
Summit Carbon Solutions	Piggott, Brad	2024-03-14	Q. Have you reviewed the CURE DEIS Comments and MCEA DEIS Comments? A. Yes. Q. The CURE DEIS Comments state, "[t]he DEIS assumes…the proposed project is capable of and will capture 100% of the CO_2 emitted by the Green Plains ethanol plant." Similarly, the MCEA DEIS Comments state, "the Applicant estimates a 100 percent capture rate at its facility." *(4)* Do you agree with these statements? A. No. It would be more accurate to state that the proposed Project is capable of capturing 100% of the CO_2 emitted by the Green Plains ethanol plant's CO_2 scrubber stack while the capture facility is online. Other CO_2 emissions from the Green Plains ethanol plant, such as fired heater emissions and yeast growth emissions, are not intended or designed to be captured by the Project.	Section 2.3.1 of Chapter 2 has been revised to include this additional information on the design of the CO_2 capture facility. Section 2.1 has been revised to clarify that the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. The analyses in Section 5.7.1.3 and Chapter 6 have been revised to include capture rate scenarios for 100 percent, 70 percent, 40 percent, and 10 percent.	20243-204356-07
Summit Carbon Solutions	Piggott, Brad	2024-03-14	Q. The CURE DEIS Comments and the MCEA DEIS Comments discuss the Archer Daniels Midland (ADM) CO_2 capture facility (the Illinois Basin – Decatur Project (IBDP)) in Decatur, IL. Do you agree that it is appropriate to compare the capture rate at the IBDP with the Project? A. No. There are a number of important technical differences between the ADM facility and the Green Plains Ethanol Plant that make this, at best, an apples to oranges comparison. First, ADM processes up to 600,000 bushels of corn per day through the Decatur facility. *(5)* The Green Plains Ethanol Plant makes 55 million gallons per year of ethanol from corn fermentation, *(6)* and a modern ethanol plant can convert one bushel of corn into 2.7 gallons of ethanol. *(7)* Thus, the Green Plains facility, when operating, processes 55,809 bushels of corn per day, or less than 10% of the amount of corn that the ADM Decatur facility can process. Second, the ADM facility in Decatur also contains a coal-fired power plant and soy processing facilities. *(8)* This ADM facility makes several products in addition to ethanol, such as citric acid, lactic acid, xanthan gum, and corn syrup, *(9)* none of which are made at the Green Plains Ethanol Plant to the best of my knowledge. All of these additional unit operations at the ADM facility have related energy consumption and resultant CO_2 emissions associated with them that will not be present at the Green Plains Ethanol Plant. Accordingly, comparing the ADM Decatur facility's emissions to the potential emissions at the Green Plains Ethanol Plant is not a reasonable comparison. Third, while the ADM Decatur CO_2 capture facility captures CO_2 from the ethanol plant's CO_2 scrubber in a manner similar to that of the Project at the Green Plains ethanol plant, I cannot comment on what fraction of the ADM ethanol plant's CO_2 emissions were actually captured since the large sequestration operation in Decatur began operations in 2017. This is because the capture facilities operate as auxiliary facilities to the ethanol plant. There are numerous reasons why the ADM ethanol plant may not be running at the	Thank you for your comment.	20243-204356-07

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			full design rate; and when the ethanol plant is not running at full design rates, the CO_2 capture unit is also running below the full design rate. Corn shortages, low profit margins, maintenance issues in the ethanol plant, etc. may all contribute to lower sequestration volumes than design that are not due to problems with the CO_2 capture unit. *(5) The Center for Land Use Interpretation, "Archer Daniels Midland Decatur Plant, Illinois," [Online]. Available: https://clui.org/ludb/site/archer-daniels-midland-decatur-plant.* *(6) Green Plains Inc., "Otter Tail," [Online]. Available: https://gpreinc.com/location/otter-tail/. [Last accessed Mar. 8, 2024].* *(7) N. S. Mosier and K. Ileleji, "How Fuel Ethanol Is Made from Corn," Purdue University, 2006.* *(8) The Center for Land Use Interpretation, "Archer Daniels Midland Decatur Plant, Illinois," [Online]. Available: https://clui.org/ludb/site/archer-daniels-midland-decatur-plant; Global Energy Monitor, "Archer Daniels Midland Decatur Power Plant," [Online]. Available: https://www.gem.wiki/Archer_Daniels_Midland_Decatur_Power_Plant. [Last Accessed Mar. 8, 2024].* *(9) The Center for Land Use Interpretation, "Archer Daniels Midland Decatur Plant, Illinois," [Online].*		
Summit Carbon Solutions	Piggott, Brad	2024-03-14	Q. Is there any other information from the IBDP that is more helpful in analyzing the technical capability of the capture facility technology to fully capture CO_2 produced at the ethanol plant? A. Yes. The initial three-year pilot project at the IBDP offers some useful information. Originally, the IBDP was a one million tonne CO_2 storage demonstration project that operated from November of 2011 – 2014. This capture facility was installed in the ADM Decatur plant with the goal of capturing, purifying, and injecting 1,000 tonnes of CO_2 per day to achieve a total injection volume of one million tonnes of CO_2 in a three-year period. This injection goal was achieved within the original timeline of that project. The equipment in the demonstration project is very similar to the equipment designed for the Summit Project. During the three-year operation period, CO_2 was injected for more than 90% of the time. *(10)* This included equipment downtime in the CO_2 capture unit and equipment downtime in the ethanol facility. The ADM ethanol plant was offline for 37 days during the three-year operation period. *(11)* I agree with CURE's comment that "it is not realistic to assume that the project will operate without any breakdown or updates for the entire lifetime of the ethanol plant." Operating equipment will have unscheduled maintenance needs that are difficult to predict either in terms of when they will occur or for how long the equipment will be offline. However, the above-mentioned operating experience would suggest that when the ethanol plant is operating, it is reasonable to expect that the CO_2 capture facility will be able to capture CO_2 nearly all of the time. *(10) R. McKaskle, R. Jones, A. Vance, B. Piggott, K. Fisher and S. Greenberg, "Illinois Basin - Decatur Project: Process Design and Operation of Carbon Dioxide Surface Facilities," Illinois State Geological Survey, Champaign, 2019.* *(11) Id.*	Thank you for your comment.	20243-204356-07
Summit Carbon Solutions	Piggott, Brad	2024-03-14	Q. CURE's DEIS Comments also include a paragraph discussing the Petra Nova plant in Texas. Does the Petra Nova facility provide a useful comparison of CO_2 capture rates as compared to the Project? A. No. The Petra Nova facility is a CO_2 capture plant that captures CO_2 from post-combustion emissions from a coal-fired power plant. The CO_2 emitted by the coal-fired power plant is dilute and must be enriched to higher concentrations using a chemical solvent circulation process before the CO_2 can be compressed, dehydrated, and sent to the oil field for injection in an Enhanced Oil Recovery (EOR) operation. The operating history of the Petra Nova plant is unlikely to be a representative comparison to the Summit capture project at the Green Plains ethanol plant for the following reasons: 1. The chemical solvent CO_2 capture and enrichment process is a much more operationally complex process than the Summit CO_2 capture process and will be much more likely to experience maintenance issues that are not applicable to the Summit CO_2 capture process. Not all of the CO_2 present in the post-combustion emissions is captured in the chemical solvent; some of the CO_2 in the stream flows out with the rest of the emissions to the atmosphere. The Petra Nova facility, by design, captures 90% of the CO_2 present in the post-combustion emissions. In contrast, the CO_2 emissions captured by Summit do not need to be enriched and no CO_2 flows out of the CO_2 scrubber when Summit's plant is operating. Summit's facility, by design, captures >99% of the CO_2 present in the CO_2 scrubber emissions. 2.The source gas is coal combustion flue gas and has a very high impurity load associated with it that can be detrimental to operational reliability and uptime for the solvent circulation process. There is no analogous issue in the Summit CO_2 capture process. 3.The CO_2 captured at Petra Nova is utilized for EOR, which is subject to different market forces than the Summit Project. The Rebuttal Testimony of Mr. James Powell further addresses the intended use of the CO_2 that will be captured from the Green Plains Ethanol Plant.	Section 2.1 has been revised to clarify that the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. The analyses in Section 5.7.1.3 and Chapter 6 have been revised to include capture rate scenarios for 100 percent, 70 percent, 40 percent, and 10 percent.	20243-204356-07

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Summit Carbon Solutions	Powell, James	2024-02-13	Q. What is the anticipated schedule for construction and operation of the Project? A. Summit plans to commence construction of the Project in the third quarter of 2025 and complete construction in the fourth quarter of 2026. Summit plans to place the Project into service in late 2026. However, construction timing is contingent on receipt of required permits and authorizations.	Section 2.9 and the Executive Summary have been updated to include the provided information.	20242-203374-02
Summit Carbon Solutions	Powell, James	2024-02-13	Q. What is the status of regulatory approvals for the Midwest Carbon Express Project in other states? A. The Midwest Carbon Express Project is in the permitting phase across the 5-state footprint. In Iowa, hearings before the Iowa Utilities Board are now complete, and a final decision is expected in Q1 2024. In South Dakota, Summit plans to submit a permit application to the South Dakota Public Utilities Commission in Q2 2024. South Dakota's permitting process is anticipated to take up to one year to complete. In North Dakota, Summit has submitted supplemental information and anticipates a final hearing will be scheduled in Q2 2024 as part of the reconsideration process before the North Dakota Public Service Commission. In Nebraska, permitting is underway and occurs at the county level. Summit anticipates having permits in hand to facilitate a start of construction for portions of the project by Q1 2025 and plans to be operational by late 2026. Q. Have there been any other significant changes to the Midwest Carbon Express Project since Summit filed its Route Permit Application in Minnesota? A. Yes. On January 29, 2024, Summit announced a strategic partnership with POET to add 17 of POET's biorefining facilities in Iowa and South Dakota to Summit's pipeline network. The addition of these facilities in neighboring states has no impact on Summit's proposed facilities in Minnesota which are the subject of this Route Permit Application.	Section 2.1 has been updated to include the provided information.	20242-203374-02
Summit Carbon Solutions	Powell, James	2024-02-13	Q. Please summarize the Project's benefits. A. The Project provides an important benefit to Minnesota as it moves forward with its clean energy and carbon reduction efforts. Each year, during normal operations, the Project will capture and permanently store approximately 0.19 million metric tons per annum of CO_2 from the existing Green Plains Ethanol Plant (Plant) that would otherwise be released into the atmosphere under the Plant's existing air permits. CO_2 is a leading contributor to climate change. The World Health Organization states that "[c]limate change is the single biggest health threat facing humanity, and health professionals worldwide are already responding to health harms caused by this unfolding crisis" (World Health Organization, 2023). The Centers for Disease Control has identified the following health-related impacts of climate change in the Midwest, including in Minnesota: temperature-related death and illness, air quality impacts, extreme events, vector-borne diseases, water-related illness, and high risks for certain populations of concern (Centers for Disease Control and Prevention, 2021). The Project would contribute in a concrete and meaningful way to reducing CO_2 in the atmosphere, and, coupled with other CO_2 capture and clean energy projects and initiatives, is an important tool for slowing or reversing the human health and safety impacts related to climate change. The Project will also provide significant economic benefits to Minnesota, local governments and communities, and landowners, including the following:	Thank you for your comment.	20242-203374-02
Summit Carbon Solutions	Powell, James	2024-02-13	• Provides additional income to landowners whose land will be crossed by the Project in the form of easement payments. Landowners will be compensated for use of the temporary construction workspace on their land, as well as for Summit's permanent right of way (ROW) necessary to install and operate the Project. • Creates up to approximately 200 construction-related jobs during the construction period, resulting in approximately $37,411,000 in employment expenditures during the construction phase. • Creates two new full-time equivalent (FTE) pipeline technicians and one new FTE capture facility operator once the Project is operational, resulting in approximately $450,000 per year in employment expenditures. These full-time staff are expected to live in the vicinity of the Project. • Construction of the Project would provide temporary increases in revenue through increased demand for lodging, food services, fuel, transportation, and general supplies. • Generates personal income by circulation and recirculation of dollars paid out by the Project as business expenditures and state and local taxes, as well as associated increases to the local tax base. • Diversifies economic development in Wilkin and Otter Tail counties, while complementing existing economic activities. See Sections 2 and 6.2.1.2 of the Application for further details on the benefits of the Project.	Section 5.4.11 has been updated to include the provided information.	20242-203374-02
Summit Carbon Solutions	Powell, James	2024-02-13	Q. Has the Project been designed to minimize potential impacts to agricultural production and uses? A. Yes. The Project has been designed to minimize potential impacts to agricultural production and uses. The Project is sited primarily on agricultural land. Following construction, lands impacted by construction will be restored to pre-construction conditions and	Text has been added to section 5.5.1 stating that the pipeline depth is below what would impact normal agricultural operations.	20242-203374-02

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			existing agricultural activities will resume, except at permanent aboveground facility sites (mainline valve (MLV) sites and access roads). Landowners will be compensated by Summit for losses to crop production during construction. Permanent impacts to agricultural land (including cropland, pasture/hay/range lands) are only anticipated at aboveground facility locations that will be fenced and removed from current use (approximately 0.7 acres). Further, the pipeline will be buried to provide a minimum of 54 inches depth of cover and will not interfere with normal agricultural operations. Landowners will be compensated for use of the temporary construction workspace on their land, as well as for Summit's permanent right-of-way to operate the Project. Measures within the Minnesota Environmental Construction Plan (DEIS Appendix D) and Minnesota Agricultural Protection Plan (DEIS Appendix E) will be implemented to minimize potential impacts to agricultural lands.		
Summit Carbon Solutions	Powell, James	2024-02-13	Q. Will the Project have a significant impact on community facilities and services? A. No. Summit will ensure medical services are available in the field during construction. Accordingly, existing social and health services should be adequate to support the workforce during construction. The Project is not likely to increase the need for public services, including police and fire protection, due to the short-term duration of the construction activities. Summit will work with local emergency management offices to develop procedures for response to emergencies. No significant increase in the permanent population of local communities would be expected from construction and operation of the Project, and the construction workforce would not create any measurable impact to the local government, utilities, or community services.	Thank you for your comment.	20242-203374-02
Summit Carbon Solutions	Powell, James	2024-02-13	Q. Do you have any comments on the recommendations EERA included in the DEIS? A. Yes. The DEIS discusses a number of mitigation measures recommended by EERA that Summit agrees with. For example: • EERA staff recommends requiring Summit to provide indoor CO_2 detectors for residences within 1,000 feet of the Project. *(1)*While Summit agrees with Dr. Michael Lumpkin's testimony, Summit is willing to supply CO_2 detectors to residents within 1,000 feet of Project centerline prior to the start of pipeline operations, if required by the Commission. • EERA staff recommends including a special permit condition requiring Summit to file with the Commission its Emergency Response Plan that is filed with Pipeline and Hazardous Materials Safety Administration (PHMSA). *(2)* As discussed in the Application, Summit has prepared a draft Emergency Response Plan (provided as Application Appendix 6) and will maintain and update its Emergency Response Plan in accordance with PHMSA requirements which will be provided to PHMSA. Summit has no objection to inclusion of a special permit condition requiring Summit to file with the Commission the Emergency Response Plan that is provided to PHMSA prior to the start of operations. *(1) DEIS at 8-26, 11-13 (Jan. 23, 2024) (eDocket No. 20241-202524-01).* *(2) DEIS at 8-26, 11-13.*	Thank you for your comment.	20242-203374-02
Summit Carbon Solutions	Powell, James	2024-02-13	• EERA staff recommends including a special permit condition requiring Summit to provide its public education plan for Commission review 30 days prior to submittal of the Plan and Profile. EERA staff notes that the public education plan could include specific safety information for neighboring landowners, including what to do in case of a rupture. *(3)* Summit has no objection to a special permit condition requiring it to provide its public education plan for Commission review 30 days prior to submittal of the Plan and Profile. As discussed in the Application, Summit will implement comprehensive public awareness and education outreach programs, including damage prevention programs, that meet or exceed industry standards and regulatory requirements concerning public awareness of pipelines and pipeline operations. *(4)* The public awareness programs are intended to inform members of the public in the vicinity of the pipeline and facilities to protect the public from injury, prevent or mitigate effects on the environment, protect the pipeline and facility assets from damage by the public, and provide ongoing public awareness. *(3) DEIS at 8-26, 11-13.* *(4) Route Permit Application at 26 (Sept. 12, 2022) (eDocket No. 20229-189023-02).*	EERA staff has revised Section 8.5.3 and removed the reference to "accidental release plan" and to list information to be filed as compliance filings 60 days prior to the Plan and Profile submittal.	20242-203374-02
Summit Carbon Solutions	Powell, James	2024-02-13	Q. EERA staff recommends including a special permit condition requiring the applicant to provide an "accidental release plan," developed in coordination with local emergency responders, for Commission review 30 days prior to submittal of the Plan and Profile. (5) What is your response? A. As discussed in the Application and noted above, Summit has prepared a draft Emergency Response Plan and will develop and maintain its Emergency Response Plan in accordance with PHMSA requirements. As noted above, Summit does not object to EERA's other recommended special permit condition requiring Summit to file with the Commission the Emergency Response Plan that is provided to PHMSA prior to the start of operations. The Emergency Response Plan will include the information required by PHMSA,	EERA staff has revised Section 8.5.3 to remove reference to "accidental release plan" and to list information to be filed as compliance filings 60 days prior to the Plan and Profile submittal.	20242-203374-02

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			and any additional/other information required by the Commission would be addressed separately. As I discuss further below, Summit does not object to filing additional information, as recommended by EERA, in a compliance filing, but I do not recommend calling it an "accidental release plan," as naming it as such creates the potential for confusion and/or conflict with PHMSA's emergency response plan requirements. *(5) DEIS at 8-26, 11-13*. Q. EERA staff also lists potential information that could be included in such an "accidental release plan."6 What is your response? A. As noted above, the Emergency Response Plan will include the information required by PHMSA, and any additional/other information required by the Commission would be addressed in a separate document. I do not recommend requiring creation of a separate "accidental release plan," but Summit does not object to providing a compliance filing addressing the following information recommended by EERA: • "include the specific equipment, training, and reimbursement that could be provided to emergency managers." *(7)* Summit will file a compliance filing describing its coordination with county emergency managers, including information about equipment, training, and reimbursement provided to emergency managers. • "list the names of the emergency responders and a provision to update contact information as needed." *(8)* Summit's Emergency Response Plan will include contact information for Summit's qualified and trained response personnel as well as contact information of the county emergency managers. • "discuss the feasibility of a 'reverse 911' notice that goes out to landowners' telephones in the event of an emergency shutdown or rupture." *(9)* In accordance with PHMSA regulations, in the event of an emergency condition on the pipeline, Summit's control center will immediately notify the public safety answering point (PSAP) for each county. Depending on the incident type and severity, additional regulatory notifications, including notifying the public will occur. Summit does not object to filing a compliance filing evaluating the feasibility of also using an electronic notification system, such as Send Word Now. • "identify how the applicant would pay for costs of any repair to public infrastructure or private property (including crops and livestock) that might occur during an accidental release." *(10)* Summit does not object to filing a compliance filing identifying how the applicant would pay for costs of any repair to public infrastructure or private property (including crops and livestock) that might occur during an accidental release. *(6) DEIS at 8-26, 11-13.; (7) DEIS at 8-26, 11-13.; (8) DEIS at 8-26, 11-13.; (9) DEIS at 8-26, 11-13.; (10) DEIS at 8-26, 11-13.*		
Summit Carbon Solutions	Powell, James	2024-03-14	Q. CURE witness Ms. Secchi asserts that the economic benefits of the Project are overstated in the DEIS, and that "job numbers, job characteristics and duration, purchases of materials and other project-specific information" provided by applicants should be independently verified. (Secchi Direct at 4-6.) Was Summit the sole source of the job creation and economic benefits stated in Summit's Application and your direct testimony? A. No. Summit engaged Ernst & Young LLP (EY) to complete an economic impact analysis of the Project. Summit provided key assumptions to EY to facilitate its analysis, but those assumptions were informed by third party bid proposals. As I stated in my direct testimony, since filing our Application, Summit has contracted with Precision Pipeline LLC to construct the Project. Through this contracting process, Summit has been able to verify its initial assumptions regarding job numbers, duration, materials, and other key components of the economic analysis. Importantly, by hiring a local, union contractor, the economic benefits are anticipated to increase over initial estimates, as the union is expected to source from local union halls for at least 50 percent of the construction workforce. Summit is pleased to partner with this skilled, local workforce to construct the Project.	Thank you for your comment.	20243-204356-02
Summit Carbon Solutions	Powell, James	2024-03-14	Q. CURE witnesses Dr. Emily Grubert and Ms. Silvia Secchi include discussion regarding the potential to use CO_2 transported on the Project for enhanced oil recovery (EOR) (Grubert Direct at 7:8-11 and Secchi Direct at 7-10). Does Summit intend to ship CO_2 on the Project for EOR? A. No. As stated in the Application, the intention is to capture and permanently sequester 100% of the CO_2 captured from the Green Plains Ethanol Plant in Fergus Falls. Green Plains has no plans to use the CO_2 for EOR, and to do so would lessen the Project's impact on reducing the carbon intensity (CI) score of the ethanol produced at the Green Plains Plant. Accordingly, there are both environmental and economic disincentives to use the CO_2 transported on the Project for EOR. Moreover, the sequestration facilities in North Dakota are geographically distant from any oil producing wells in the state, making use of the CO_2 for EOR physically impossible with the planned facilities.	Information regarding the possibility of using the captured CO_2 for EOR has been added to Section 5.7.2.3.	20243-204356-02

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			For clarity, Summit's pipeline is a common carrier system and, as such, Summit's shippers ultimately determine the purpose and end use for CO_2 transported on their behalf. If a shipper chooses to transport CO_2 for EOR, the shipper must have the means to physically receive the CO_2 from Summit's termination area in Oliver and Morton Counties, North Dakota, and transport it independently to an alternative destination. Most of the capacity of the Project is subscribed through a contract with Green Plains, and Summit is unaware of any other shippers with an interest in shipping CO_2 for EOR via the Project.		
Summit Carbon Solutions	Zoller, Jason	2024-02-13	Q. What environmental surveys have been conducted for the Project? A. Summit has conducted the following environmental surveys for the Applicant's Preferred Route (RA-South): • Wetland and waterbody delineation surveys • Phase I cultural survey (included participation by Tribal Cultural Specialists) • Aerial raptor nest survey • Threated and endangered species surveys • Groundwater monitoring Q. What percentage of the Applicant's Preferred Route (RA-South) has been surveyed? A. Summit has completed biological surveys for 98.4% of RA-South and cultural surveys for 99.8% of RA-South. Q. Do you have any additional survey reports summarizing the findings of Summit's environmental survey efforts? A. Yes, we do have additional survey reports. They are as follows: • Draft Minnesota Conventional Archaeological Resources Survey (Phase 1) Volume 4: Fieldwork Report Addendum (MNL-305 and MNL-321) For Work Completed Between July 2, 2022, and November 14, 2022 on MNL-321 in Otter Tail County and MNL-305 in Martin County, and Since December 3, 2021, for the Eliminated Segment of MNL-305 in Faribault County [dated March 31, 2023] • Wetland and Waterbody Delineation Report – Minnesota [dated October 3, 2022] • Wetland and Waterbody Delineation Supplemental Report for MNL-305 and MNL-321 (2022) – Minnesota [dated March 31, 2023] • Results of 2022 Field Surveys for Listed Butterfly and Plant Species in Minnesota [dated February 8, 2023] • Results of 2022-2023 Field Surveys for Listed Butterfly and Plant Species in Minnesota [dated January 18, 2024] Each of these reports has been provided to the appropriate resource agency for review. Q. Will Summit complete environmental survey efforts prior to the start of construction? A. Yes. Summit will complete all identified environmental surveys before beginning construction.	Thank you for your comment.	20242-203374-04
Summit Carbon Solutions	Zoller, Jason	2024-02-13	Q. Has Summit continued to coordinate with tribes on the development of this Project? A. Yes. Summit is committed to building relationships with Tribes, Tribal Communities, and Native American-Owned businesses as the Project is planned, constructed, and operated. Summit has reached out to 62 Tribes with current and historic ties to the Midwest Carbon Express (MCE) Project area, including the eleven federally recognized Minnesota Tribes. Initial outreach occurred at the very start of the MCE Project in August 2021 with Project information and an invitation to participate in field studies. Annual informational webinars hosted by Summit are put on every year to inform the Tribes of MCE Project activities. In December of 2021, each Tribe was invited to conduct Traditional Cultural Property (TCP) studies in the Project area. Summit offered to compensate Tribes for conducting studies that seek to identify possible TCP/historic properties that could be located within the Project corridor. Summit has elected to target 100 percent inventory or cultural survey of the Project route, not just high probability areas and federal jurisdictional areas. Where Summit has been granted permissions to access a property, the Tribes have been afforded the opportunity to accompany archaeological crews along the entire route, or to conduct their own studies if permitted by the landowner. **In Minnesota, specifically, the following Tribes have participated in the cultural resource surveys: Rosebud Sioux, Mille Lacs Ojibwe, Sisseton Wahpeton Oyate, and Yankton Sioux. All resources identified by the Tribal Cultural Specialists have been avoided.**	Thank you for your comment.	20242-203374-04
Summit Carbon Solutions	Zoller, Jason	2024-02-13	The following are some additional examples how Summit has engaged Tribes, Tribal Communities, and Native American-Owned businesses in the Minnesota and across the larger MCE Project: • In February of 2022, Summit Carbon and EXP reached out to Tribally-owned and operated enterprises and Native American-owned businesses to explore job opportunities. This outreach includes working with Tribal Employment Rights Offices (TERO) to maximize potential job opportunities related to the Project. • In May 2022, Summit sponsored a week-long Tribal Cultural Specialist training for the Mille Lacs Band of Ojibwe. • Summit has sponsored and presented at a number of Tribal Coalition meetings including the Coalition of Large Tribes (COLT), the	Thank you for your comment.	20242-203374-04

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			Midwest Alliance of Sovereign Tribes, the Great Plains Tribal Chairmans Association, the Northern Plains TERO Coalition, the Great Lakes TERO Association, and the National TERO Conference. • Summit is committed to workforce development in Indian Country and partnered with Five Skies Training and Consulting to host a Career Readiness Enhancement Training for Native Communities in May 2023 in Sioux City, Iowa. • In October 2023, Summit sponsored and helped develop a law enforcement training hosted by COLT in Billings, Montana focused on the Missing and Murdered Indigenous Persons (MMIP) crisis. A number of Tribes from across the nation were represented, law enforcement from Tribal nations, and law enforcement from "border towns" or those towns who border reservations.		
Summit Carbon Solutions	Zoller, Jason	2024-02-13	Summit recognizes that violence against Indigenous peoples is a crisis that has been underfunded in communities throughout Indian Country and that murders and missing persons cases go unsolved and unaddressed. Summit is fully committed to partnering with Tribes and Tribal communities to achieve justice and healing for families around the Project by investing in programs and services that: foster awareness of the issues related to MMIW/MMIWG; address issues of human trafficking; domestic violence; honor Indigenous cultural values; educate on the prevention of sexual violence; support community self-defense training; and invest in the empowerment of Native women and girls. Furthermore, Summit supports the programs and services of agencies responsible for investigating and resolving these cases. Safe communities are Summit's priority and violence against Native people has no place in the communities in which Summit serves and operates. Summit will require that all of its employees and contractors complete a Human Trafficking Prevention Training prior to construction work.	Section 5.4.8.3 has been updated to note that the applicant would require that all its employees and contractors complete a Human Trafficking Prevention Training prior to construction work.	20242-203374-04
Summit Carbon Solutions	Zoller, Jason	2024-02-13	Q. Have you reviewed the DEIS? A. Yes. Q. Do you have any comments on the DEIS? A. Yes. The DEIS provides a comprehensive evaluation of potential human and environmental impacts associated with construction and operation of the Project. Summit has provided separate DEIS comments recommending several additions, corrections, or clarifications. (O'Konek Direct, Schedule 2.) I assisted with preparation of those comments. In my Direct Testimony, I focus on several issues raised during the DEIS comments and respond to recommendations made by EERA related to environmental impacts and mitigation.	Thank you for your comment.	20242-203374-04
Summit Carbon Solutions	Zoller, Jason	2024-02-13	Q. During the DEIS meetings, several members of the public asked how much water will be used during construction and operation of the Project. How much water will the Project use during construction and operation, and how will water use be regulated? A. During construction, execution of horizontal directional drills (HDDs), hydrostatic testing, and dust control may involve appropriations from surface water or groundwater sources if permitted by the Minnesota Department of Natural Resources (MDNR). The use of water for HDDs and hydrostatic testing would be single-event appropriations, while dust control appropriations would be variable as needed based on conditions. As stated in DEIS on page 5-137, Summit is currently anticipating the need to use approximately 125,000 gallons of water for the execution of HDDs, hydrostatic testing, and dust control for the Project, of which 110,000 gallons would be used for pipeline hydrostatic testing. Summit is currently exploring options for appropriation of water, including duration of use, volume, and appropriation location(s). These could be private, municipal, or surface water sources. Once proposed/preferred and contingency sources and volumes are finalized, these details would be reviewed by the MDNR. Summit would obtain coverage under individual or general MDNR water appropriation permit(s) for any surface or groundwater appropriated for these activities. These permits would contain BMPs for water withdrawals. Water appropriation permits from the MDNR would inform the locations used, any seasonal restrictions to account for low-flow conditions, volume and measurement requirements, and BMPs to be used during appropriation activities.	Thank you for your comment.	20242-203374-04
Summit Carbon Solutions	Zoller, Jason	2024-02-13	Minnesota law sets standards for non-depletion, reasonable use, and non-degradation of water resources in striving to prevent negative impacts. *(1)* The MDNR, through its water appropriation permitting process, would ensure that water appropriations would not deplete or degrade the water source (e.g., the permit would specify maximum surface water withdrawal rates to protect aquatic life and allow for downstream uses). Summit would include a contingency plan as part of the appropriation permit application because it is challenging to predict how changes in total precipitation, large precipitation events, drought, increased temperatures, variable surface water flows and elevations, and longer growing seasons would impact proposed water resources. The contingency plan would include identification of potential alternate water supply sources and/or a statement that Summit agrees in advance to a suspension of withdrawals following MDNR request, when necessary.	Text has been added to Section 5.7.8.2 to include this commitment by the applicant to provide a contingency plan and apply for water appropriation permits for trench dewatering.	20242-203374-04

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			Trench dewatering is also considered an appropriations activity regulated by MDNR and would be conducted according to permit requirements. Summit is evaluating the need to appropriate water for dewatering, dust control, and hydrostatic testing during construction of the capture facility. A specific water source has not been determined at this time; however, Summit plans to obtain water from either a local surface water source or groundwater well directly, or indirectly, from the Green Plains Ethanol Plant or the City of Fergus Falls. *(1) Managing Water Sustainability: Report of the EQB Water Availability Project, available at: https://www.eqb.state.mn.us/sites/eqb/files/documents/Managing_for_Water_Sustainability_12-08.pdf.*		
Summit Carbon Solutions	Zoller, Jason	2024-02-13	During operations, the CO_2 capture facility would have estimated water supply needs ranging from 8.2 gallons per minute (gpm) in winter months and 40.9 gpm in summer months, for an average water usage of approximately 13 million gallons per year. The "13 million gallon" total was calculated by using the estimate of 8.2 15 gpm for 182.5 days and the estimate of 40.9 gpm for 182.5 days (for a total of 365 days of use). The water is expected to be obtained from the Green Plains Otter Tail Ethanol Plant's onsite wells. Water use at the capture facility may also be subject to permitting by the MDNR. The MDNR reported over 23.3 billion gallons of permitted water use in Otter Tail and Wilkin counties in 2022. *(2)* Due to the volume of current permitted appropriations in the counties crossed by the Project, the relatively small volume likely needed by the Project in comparison, and the measures and conditions outlined above, environmental effects from the Project's water appropriation activities are expected to be minimal. *(2) Minnesota Water Use Data. Permit Index Report: Water Use Data – 1988 to 2022, available at: https://www.dnr.state.mn.us/waters/watermgmt_section/appropriations/wateruse.html.*	Section 5.7.8.2 was revised to clarify the applicant's calculation of approximately 13 million gallons per year. Section 5.7.8.2 was also revised to provide context of the project's water use compared to water use in Otter Tail and Wilkin Counties. Section 5.7.8.2 was also revised to included updated permitted groundwater usage.	20242-203374-04
Summit Carbon Solutions	Zoller, Jason	2024-02-13	Q. Do you have any additional information regarding the eligibility status of cultural resources identified with the Project's environmental survey area during field surveys? A. The DEIS on page 5-78 says, "One of the six resources has not been evaluated (21WL0005)"; however, the October 2022 MN Cultural Report Volume 2 (Minnesota Conventional Archaeological Resources Survey (Phase 1) Volume 2: Fieldwork Report Addendum (MNL-305 and MNL-321) For work completed between December 3, 2021, and July 2, 2022) recommends site 21WL0005 be deemed not eligible, and the December 5, 2022 Minnesota State Historic Preservation Office (SHPO) letter concurred with that recommendation. Therefore, the characterization of 21WL0005 as "not evaluated" is incorrect, and it should be characterized as "not eligible." In response to the statement in the DEIS that "Construction of the project would result in negligible impacts on these resources", *(3)* under federal regulation (36 CFR 800, the implementing regulations for Section 106), effects can only happen to sites listed or eligible for listing under the National Historic Preservation Act (NHPA), and not to "not eligible" properties. As such, there would be no impact on the resources identified by Summit's surveys and no further work at the sites are needed. *(3) DEIS at 5-78 (Jan. 23, 2024) (eDocket No. 20241-202524-01).*	References to site 21WL0005 within Tables 5-25 and 5-27 and within the text of Section 5.6 of the final EIS has been updated to reflect its NRHP status is Not Eligible instead of Not Evaluated, per the December 5, 2022, SHPO letter. Sites 21OT0229, 21WL0107, and 21WL0108 have also been updated to Not Eligible in all applicable tables, per SHPO's agreement with the surveyor's recommendations.	20242-203374-04
Summit Carbon Solutions	Zoller, Jason	2024-02-13	Q. Do you have any comments on the recommendations EERA staff included in the DEIS? A. Yes. Q. EERA staff recommended that "appropriate surveys for archaeological resources should occur regardless of which route alternative is selected. If archaeological resources are found, treatment plans should be prepared in consultation with Tribes and SHPO, as appropriate." *(4)* What is your response? A. Summit will complete archeological surveys regardless of the route selected and is committed to avoiding impacts to any identified eligible cultural resources and Tribal areas of interest through route modifications or construction methodology. If identified resources cannot be avoided, then treatment plans would be developed with Tribes and SHPO, as appropriate. To date, Summit has surveyed 99.8% of RA-South, and the construction of the Project will not impact any cultural resources listed or eligible for listing under the NHPA or Tribal areas of interest. *(4) DEIS at 5-80, 11-13.*	Summit's commitment to avoid archaeological resources through route modifications or otherwise, or to develop treatment plans if resources cannot be avoided, is already documented in Sections 5.6.1.3 and 5.6.2.3 of the draft EIS.	20242-203374-04
Summit Carbon Solutions	Zoller, Jason	2024-02-13	Q. The DEIS states that "[p]otential impacts to ground-nesting birds during construction would be lessened or avoided by conducting surveys for these species and their nests, per USFWS standards, at appropriate timing ahead of construction." *(5)* What is your response? A. Summit intends to follow U.S. Fish and Wildlife Service (USFWS) guidance regarding compliance with the Migratory Bird Treaty Act (MBTA) and will continue to consult with the USFWS regarding MBTA. Additionally, a MBTA plan is under development for company use with the contractors during construction and during operations. Summit has also received the MDNR's August 23, 2023 Natural	Mitigation proposed in the draft EIS does not conflict with standard USFWS guidance; nevertheless, text in the Mitigation discussion in Section 5.7.5 has been amended to reference adherence to USFWS and DNR guidance.	20242-203374-04

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			Heritage Information review letter for the Project, and the MDNR did not recommend bird surveys. To avoid duplicative, and potentially conflicting requirements, Summit recommends any special condition related to this issue reference adherence to USFWS and MDNR recommendations, if needed, rather than including the specific language suggested on DEIS page 5-114. Q. EERA staff included in the DEIS a recommendation by DNR that "[o]ne additional mitigation for nesting birds in areas of grass/shrub vegetation to be cleared for construction would be to mow/cut these areas during non-nesting season prior to actual construction so suitable nesting habitat is not present prior to final clearing and construction." *(6)* What is your response? A. Summit intends to follow USFWS guidance regarding compliance with MBTA and will continue to consult with the USFWS regarding MBTA. Additionally, Summit is developing a MBTA plan for use by the contractors during construction and during operations. As I note above, I recommend that the Commission not establish separate conditions on this issue but rather defer to USFWS and MDNR to identify appropriate measures to minimize potential impacts to nesting birds, if needed. *(5) DEIS at 5-114.* *(6) DEIS at 5-151; see also DEIS at 5-115.*		
Summit Carbon Solutions	Zoller, Jason	2024-02-13	Q. EERA staff included in the DEIS a recommendation by CURE that "[p]rior to construction, field surveys should be conducted for state-listed species. Surveys for state-listed plants should follow the MnDNR protocol described in the April 2022 'Guidance for Documenting and Collecting Rare Plants.'" *(7)* What is your response? A. Summit has conducted surveys for state-listed species and has coordinated with the MDNR on survey efforts. Prior to all survey efforts, the MDNR reviews Summit's survey protocol. Surveys are then conducted under the MDNR-approved protocol. To date, surveys have not identified concerns for impacts to state-listed species. Pages 75-76 of the Scoping EAW contain additional discussion of this issue. *(7) DEIS at 5-115.*	Thank you for your comment.	20242-203374-04
Summit Carbon Solutions	Zoller, Jason	2024-02-13	Q. EERA staff included in the DEIS a recommendation by CURE that "[p]roper restoration of native vegetation communities would benefit rare and unique species. The proposed performance standard of 70 percent vegetation density relative to background native vegetation cover is too low and should be higher..." *(8)* What is your response? A. There is no regulatory requirement that mandates a performance standard greater than 70 percent; and therefore, Summit does not agree with this recommendation. The proposed 70 percent revegetation standard is in accordance with the revegetation standards contained within Condition 13.2 of the Minnesota Pollution Control Agency's (MPCA) Construction Stormwater General Permit. *(9)* The condition is as follows: Permittees must complete all construction activity and must install permanent cover over all areas prior to submitting the NOT. Vegetative cover must consist of a uniform perennial vegetation with a density of 70 percent of its expected final growth. Vegetation is not required where the function of a specific area dictates no vegetation, such as impervious surfaces or the base of a sand filter. [Minn. R. 7090]. *(8) DEIS at 5-115.* *(9)MPCA Construction Storm Water General Permit (issued Aug. 1, 2023), available at: https://www.pca.state.mn.us/sites/default/files/wq-strm2-81a.pdf.*	Thank you for your comment.	20242-203374-04
Summit Carbon Solutions	Zoller, Jason	2024-02-13	Q. EERA staff included in the DEIS a recommendation by MDNR that "[i]f the selected route alignment is near the Foxhome Prairie High Biodiversity [Minnesota Biological Survey] MBS site, the alignment should follow the south side of the road in the area and avoid crossing the MBS site." *(11)* What is your response? A. The Applicant's Preferred Route (RA-South) does not cross this MBS site, so there would be no impacts to the site. If the RA-North route was to be selected, Summit would evaluate resources along the route and coordinate with MDNR to avoid impacts to the Foxhome Prairie High Biodiversity MBS site. *(11) DEIS at 5-116, 5-151.*	Text has been added to section 5.7.5.3 stating that the applicant would evaluate resources and coordinate with DNR if RA-North was selected.	20242-203374-04
Summit Carbon Solutions	Zoller, Jason	2024-02-13	Q. EERA staff recommended that "[t]he applicant should use only 'bio-netting' or 'natural netting' types and mulch products without synthetic (plastic) fiber additives." *(12)* EERA staff also included in the DEIS a recommendation by Minnesota Department of Transportation (MnDOT) that "[t]o reduce potential construction impacts on state-listed species," applicant should use "erosion control techniques that avoid entrapping or entangling small wildlife." *(13)* What is your response? A. Summit has already committed to use wildlife-friendly erosion and sediment control BMPs that contain biodegradable netting	Sections 5.7.5.3 and 5.7.10.3 of the EIS note the applicant's stated intent to use erosion controls with natural fibers and not plastic netting. These sections also reference the applicant's intent to draft and implement a Vegetation Management Plan. Sections 5.7.5.3 and 5.7.10.3have been revised to remove EERA's recommended mitigation regarding plastic netting and mulch since it is stated in the applicant-proposed mitigation.	20242-203374-04

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			(Category 3N or 4N natural fibers) and to avoid the use of plastic mesh. Both BMPs help to minimize wildlife mortality resulting from the use of erosion and sediment control materials. *(14)* Q. EERA staff included in the DEIS a recommendation by MDNR that the Applicant "[f]ollow MnDOT's 2020 Standard Specifications for Construction for rolled erosion control materials that specify only natural fibers with no 20 plastic mesh be used." *(15)* What is your response? A. During construction, Summit will follow MnDOT's 2020 Standard Specifications for Construction for rolled erosion control materials that specify only natural fibers with no plastic mesh be used. *(12) DEIS at 5-116, 5-151.* *(13) DEIS at 5-115.* *(14) See DEIS App. D at Minnesota Environmental Construction Plan at 7 (Jan. 23, 2024) (eDocket No. 20241-202530-02) (Minnesota ECP).* *(15) DEIS at 5-151.*		
Summit Carbon Solutions	Zoller, Jason	2024-02-13	Q. EERA staff included in the DEIS a recommendation that "'[n]o temporary workspace areas shall be placed within or adjacent to wetlands or water resources, as practicable.'" *(16)* What is your response? A. This is not practicable, as the pipeline crosses some wetlands. When this occurs, temporary workspace will be required to install the pipe. Summit is reducing the width of temporary workspace required for the crossing of wetlands from 50 feet to 25 feet to minimize the temporary impacts to the wetland. Additionally, additional temporary workspace (ATWS) will be sited outside of wetlands to the extent practicable. *(17)* *(16) DEIS at 5-138.* *(17) See DEIS App. D at Minnesota ECP.*	EERA did not make this recommendation. Rather it is a standard condition of the pipeline routing permit issued by the Commission.	20242-203374-04
Summit Carbon Solutions	Zoller, Jason	2024-02-13	Q. EERA staff included in the DEIS recommendations that "[s]oil excavated from the wetlands and riparian areas shall be contained and not placed back into the wetland or riparian area." *(18)* What is your response? A. Summit will restore water resource areas disturbed by construction activities to pre-construction conditions in accordance with the requirements of applicable state and federal permits or laws and landowner agreements. The requirement to not replace wetland or riparian soil would be in conflict of Condition F.14 of the USACE's U.S. Army Corps of Engineer's (USACE)'s Utility Regional General Permit, *(19)* which Summit anticipates obtaining for the Project. The condition is as follows [bolded for emphasis]: Restoration of Temporary Impacts: All temporary impacts in waters of the US, including discharges resulting from side casting material excavated from trenching, that occur as a result of the regulated activity must be fully contained with appropriate erosion control or containment methods, be restored to pre-construction contours and elevations, and, as appropriate, revegetated with native, non-invasive vegetation, unless otherwise conditioned in a Corps RGP verification. All temporary access roads constructed in waters of the US must be properly bridged or culverted to maintain surface flows. **In temporarily excavated wetlands, the top 6 to 12 inches of the excavation should normally be backfilled with topsoil originating from the wetland.** No temporary excavation area, including, but not limited to trenches, may be constructed or backfilled in such a manner as to drain waters of the United States (e.g., backfilling with extensive gravel layers, creating a French drain effect). *(18) DEIS at 5-138.* *(19) https://www.mvp.usace.army.mil/Portals/57/docs/regulatory/RGP/Utility.pdf?ver=9pcj7dVPna3FU6CTYjnCVA%3D%3D*	"Soil excavated from the wetlands and riparian areas shall be contained and not placed back into the wetland or riparian area" means that, during construction, the contractor may not store trench soils in wetlands—trench soil must be stored in uplands. When necessary in the construction process, these soils are taken from the upland and used to restore the trench. Text in Section 5.7.8.3 and Section 5.7.9.3 has been revised: "Soil excavated from wetlands and riparian areas shall be contained in uplands and not placed back into the wetland or riparian area until necessary to restore the excavated trench."	20242-203374-04
Summit Carbon Solutions	Zoller, Jason	2024-02-13	Q. EERA staff included in the DEIS a recommendation by MDNR that "[i]solated dry trench crossing methods should be used on all stream crossings instead of the proposed open trench method. This method reduces silt and sediment suspension and transport to downstream waterbodies. This would reduce potential impacts from local and downstream transport of disturbed sediments on state-listed mussel species." *(20)* What is your response? A. Summit will implement the isolated dry trench crossing method on delineated waterbodies with perceivable water flow during construction. If a delineated waterbody is dry and has no perceivable water flow, then Summit intends to use the proposed open trench method. Q. EERA staff included in the DEIS a recommendation by MDNR that "[u]nintentional release evaluations should be conducted for water crossings proposed to be installed via HDD to ensure the soils are amenable to HDD. This would further reduce potential impacts from local and downstream transport of disturbed sediments on state-listed mussel species. (As described in Section 5.7.3.4,	Sections 5.7.8.2 and 5.7.10.2 have been revised to reflect the applicant's clarification that it would use the isolated dry-trench crossing method on delineated waterbodies with perceivable water flow during construction. The flowing open-cut crossing method would not be used for the project. Text regarding the HDD contingency plan in Section 5.7.8.2 has been revised to include the stipulation that the containment, response, and clean-up equipment would be available "at both sides of an HDD crossing."	20242-203374-04

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			the applicant would develop a contingency plan to address the unintended release of drilling mud to the environment during the execution of each HDD.)" *(21)* What is your response? A. Unintentional release evaluations will be conducted to ensure soils are amenable for each HDD crossing. Summit's contractor will develop an HDD contingency plan to address unintended return or release of drilling fluids. Containment, response, and clean-up equipment would be available at both sides of an HDD crossing location and one side of a bore prior to commencement to assure a timely response in the event of an inadvertent release of drilling fluid. *(20) DEIS at 5-115.* *(21) DEIS at 5-115.*		
Summit Carbon Solutions	Zoller, Jason	2024-02-13	Q. EERA staff recommends, and the Minnesota Department of Health concurs, requiring Summit to "provide documentation of coordination with residents located within 1,320 feet of HDD entries. The submittal should document locations of sound dampening barrier walls and include a plan for monitoring noise levels at these locations during HDD operations. The information should be provided 30 days prior to submittal of the Plan and Profile." *(22)* What is your response? A. The equipment needed to construct the HDD would have a temporary and short-term impact on noise levels in the vicinity of the Project, which would decrease from the levels presented in the response to Summit's Supplemental Information Inquiry Number 4, Question 8 based on distance, topography, and weather conditions. Summit will coordinate with nearby landowners along the Project prior to execution of HDDs. Summit's contractor will determine the need for noise mitigation and noise monitoring based on feedback received from landowners during construction. *(22) DEIS at 5-37, 11-12.*	Thank you for your comment. EERA continues to recommend this mitigation as worded in the draft EIS.	20242-203374-04
Summit Carbon Solutions	Zoller, Jason	2024-03-28	Q. Do you agree with SHPO's suggestion that section 5.6.1.1 of the DEIS provides a detailed assessment of whether the Permittee's surveys conducted to date were completed to the guidelines and standards outlined in the SHPO's "Guidelines for Archaeological Projects in Minnesota" and the Secretary of the Interior's Standards for the Identification of Historic Properties? A. Yes. Summit would also propose adding the following language to section 5.6.1.1 of the DEIS: "All work was conducted in accordance with Minnesota State Historic Preservation Office (SHPO) and the Office the State Archaeologist (OSA) standards and the SHPO Manual for Archeological Projects in Minnesota (Anfinson 2005) and the State Archaeologist's Manual for Archaeological Projects in Minnesota (Anfinson 2011) and the Secretary of the Interior's Standards for the Identification of Historic Properties (48 CFR 44716)." These guidelines are cited and referenced not only in Summit's protocols, but also in Volume 1, Section 1.4; Volume 2, Section 1.5; Volume 3, Section 1.5; and Volume 4, Section 1.5.	Section 5.6 of the final EIS now indicates that the surveyor's survey method protocol was designed to follow state guidelines as outlined in the Minnesota State Historic Preservation Office Manual for Archaeological Projects in Minnesota (Anfinson 2005) and the State Archaeologist's Manual for Archaeological Projects in Minnesota (Anfinson 2011) and national guidelines as outlined in the Secretary of the Interior's Guidelines for Archaeology and Historic Preservation (48 CFR 44716). It also references that the survey reports follow the SHPO-reviewed and approved survey method protocol.	20243-204748-03
Summit Carbon Solutions	Zoller, Jason	2024-03-14	Q. Has Summit evaluated the potential construction-related impacts to groundwater along the Applicant's Preferred Route, RA-South? A. Yes. Summit does not expect that ground disturbance or excavation associated with installation of a 4-inch diameter pipeline will significantly affect groundwater resources. Ground disturbance associated with construction will be primarily limited to the upper 5-6 feet, which is above the water table of most regional aquifers. The primary pipeline construction activities that can affect groundwater include the clearing of vegetation (affecting groundwater recharge rates); soil mixing and compaction; trench excavation, the use of sheet piling to create a safe, stable open work area; dewatering of the trench; and hazardous material handling. However, Summit does not anticipate that extensive sheet piling use would be needed to construct the Project because of the small, 4-inch diameter pipe and the resulting narrow trench width. If needed, Summit's contractor would drive sheets to depths of 10 to 15 feet below the ground surface. This depth is above any confined groundwater aquifers in the area. Additionally, Summit will not use sheet piling in the beach ridge areas and would conduct exploratory borings anywhere sheet piling would be used. Q. Is it likely that similar risks to artesian aquifers are present along RA-North 5 and RA-Hybrid? A. Yes. As noted in the DEIS, "MDH reports that, based on well records in its County Well Index, artesian conditions are present in shallow confined aquifers within 1 mile of each route alternative." Q. Will Summit continue to coordinate with the Minnesota Department of Natural Resources regarding potential impacts to groundwater resources? A. Yes.	Section 5.7.8.2 describes that geotechnical investigations would be done to identify areas where breaching of a shallow confined aquifer could occur, and sheet piling would not be used. The applicant currently has an ongoing groundwater investigation underway to further inform construction practices and is continuing to consult with DNR. As part of its coordination with DNR, the applicant has agreed to use ground penetrating radar to study the depth of the confining layer through the entire beach ridge system area crossed by the pipeline to further define existing conditions and advise on construction methodology. Furthermore, EERA staff recommends that the applicant develop, in coordination with DNR, a plan for pipeline construction in areas crossing the beach ridge system area. The plan would include, at a minimum, measures to minimize the potential for breaching a shallow confined aquifer during trenching and contingency measures to mitigate the impacts of a breach, should one occur. This information has been added to Section 5.7.8.2.	20243-204356-03
Summit Carbon Solutions	Zoller, Jason	2024-03-14	Q. Has Summit evaluated the potential construction-related impacts to surface water along RA-South? A. Yes.	Thank you for your comment.	20243-204356-03

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			Q. Given the potential risks of inadvertent returns, why is Summit proposing crossing certain waterbodies using the horizontal directional drill (HDD) method? A. First, it is important to understand that HDDs are the best method to reduce overall risks to certain waterbodies, when compared to open cut crossing methods. Advantages of installation by HDD include: • Avoids direct impacts to the waterbody, the aquatic flora and fauna within the waterbody, and adjacent habitat located between the entry and exit of the HDD; • Faster installation, with less soil and ground disturbance; • Avoids the introduction of sediment into the waterbody, does not result in impacts to turbidity; • Reduces the potential of contamination of groundwater; • Installation of the pipeline is less influenced by the weather conditions of the site; and • Increased burial depth of the pipeline underneath the waterbody. Second, Summit's HDD contractor will prepare a detailed plan for each HDD crossing. This plan takes into account information about the crossing, such as geotechnical information, and identifies specific risk factors and mitigation methods that can be used to further reduce the risks of inadvertent returns. Third, prior to construction Summit's HDD contractor will develop an HDD Contingency Plan for each HDD crossing that will evaluate the potential for an inadvertent return or release of drilling fluid within wetlands, waterbodies, and areas immediately adjacent to wetlands and waterbodies, such as stream banks or steep slopes, where drilling fluid releases can quickly reach surface waters. The HDD Contingency Plan will contain protocol and best management practices for the containment, response, and clean-up in the event of an inadvertent release of drilling fluid.		
Summit Carbon Solutions	Zoller, Jason	2024-03-14	Q. Would the HDD crossing method be utilized for RA-North and RA-Hybrid? A. Yes, both RA-North and RA-Hybrid have crossings of certain waterbodies and roads that would be accomplished by the HDD crossing method. *See* DEIS Tables 5-46 and 5-47. Q. Why is Summit proposing to use open cut methods to cross certain waterbodies? A. If a delineated waterbody is dry and has no perceivable water flow, then Summit intends to use open cut methods. Additional detail regarding this method is in the Minnesota Environmental Construction Plan (Minnesota ECP). Open cut methods are employed in areas where no perceivable water flow is present or anticipated to be present from initial disturbance and final stabilization as an industry standard method for installation of pipe across dry waterbodies, and this method will comply with applicable permit regulations and conditions. Q. Would open cut crossings be utilized on RA-North and RA-Hybrid? A. Yes.	Sections 5.7.8.2 and 5.7.10.2 have been revised to indicate that the applicant would use the isolated dry-trench crossing method on delineated waterbodies with perceivable water flow during construction. The flowing open-cut crossing method would not be used for the project.	20243-204356-03
Summit Carbon Solutions	Zoller, Jason	2024-03-14	Q. Has Summit evaluated the potential construction-related impacts to wetlands? A. Yes. Summit will permit all impacts to wetlands as a result of construction with the USACE St. Paul District. Summit is seeking to permit wetland impacts with the St. Paul District under Section 404 of the Clean Water Act (CWA) through the use of the Utility Regional General Permit (RGP). Summit will comply with all permit requirements and conditions associated with the Utility RGP. Q. Would RA-South have significantly higher wetland impacts that the other alternatives? A. No. As stated in Summit's DEIS comments, the data in the DEIS overstates the expected impacts to wetlands crossed by RA-South. Table 5-3 in Section 5.4.4.18 notes that RA-South crosses 81.1 acres of Emergent Herbaceous Wetlands compared to 15.6 and 15.1 acres crossed by RA-North and RA-Hybrid, respectively. This data is based on USGS National Landcover Dataset, which is a very coarse data set for providing spatial reference and descriptive data for characteristics of the land surface such as thematic class (e.g., urban, agriculture, and forest), percent impervious surface, and percent tree canopy cover. This data is known not to be an accurate representative of the occurrence of wetlands within a landscape. Additionally, the acreage provided in Table 5-3 is for the entire route width, not just the project right-of-way. The total 81.1 acres of Emergent Herbaceous Wetlands is highly influenced by the high density of wetland pixels located within the portion of the RA-South corridor that has been increased in width near milepost 6.6 for future routing flexibility intended to avoid potential impacts. The majority of the wetland pixels in this specific area do not overlap the proposed Project right-of-way and would not be impacted by construction. The route widths analyzed by EERA for RA-North and RA-Hybrid do not include similar widened route width areas. When considering the actual width of the right-of-way expected for construction, RA-South would not have demonstrably greater wetland impacts than the other alternatives.	Section 5.4.10.3 has been updated to indicate that Summit proposes to adopt the EERA-recommended mitigation.	20243-204356-03

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Summit Carbon Solutions	Zoller, Jason	2024-03-14	Q. Dr. Dolph suggests that the No-Build or RA-North present the best alternatives for minimizing impacts to groundwater, surface water, wetlands, and soils (Dolph Direct). Do you agree? A. No. As stated in the DEIS, construction of the Project will have minimal, temporary impacts to these resources, and Summit will implement best management practices to further minimize potential impacts to these resources. As between the No-Build Alternative and RA-South, it will always be true that not building a linear project, like a pipeline, will have fewer construction-related impacts than building a project. However, in order to meet the urgent need to address climate change and reduce greenhouse gas emissions, investment in new infrastructure, with its related impacts, is necessary. As the DEIS notes, the Project will have a positive environmental benefit in reducing greenhouse gas emissions from the Green Plains Ethanol Plant. As between RA-South and RA-North or RA-Hybrid, the DEIS demonstrates that potential impacts are simply shifted to these locations. The potential impacts Dr. Dolph discusses are not unique to RA-South, and they are well-understood impacts that are regularly managed through permits issued by regulatory agencies and application of best management practices in construction activities throughout the state and region.	Thank you for your comment.	20243-204356-03
Summit Carbon Solutions	Zoller, Jason	2024-03-28	Q. Do you agree with Dr. Christy Dolph's opinion that Summit will cross water bodies with horizontal direction drills (HDD) in places where the soils are not amenable to HDD and rely only a contingency plan inadvertent drilling mud returns? A. No. Based on the geotechnical work completed to date, soils in the area are suitable for HDDs. The geotechnical studies provide necessary information for Summit to design the drills and fine tune the operation of the drills in order to minimize the potential for inadvertent release. Based on the results of the studies, the contractor will be able to fine tune the speed and pressure of the drill and also the depth at which it is designed. Additionally, the installation of a 4-inch diameter pipeline allows for a considerable amount of flexibility in the arc of the drill. Summit will complete a geotechnical evaluation of each HDD along the Project prior to the start of construction.	Thank you for your comment.	20243-204748-03
Summit Carbon Solutions	Zoller, Jason	2024-03-28	Q. Do you agree with Dr. Dolph's statement that once drilling fluid is spilled to subsurface environments or waterways, it is impossible to remove, and may have negative impacts on surface or subsurface water quality? A. No. Summit does not agree that spilled drilling fluid is impossible to remove. While it is true that temporary impacts could occur as a result of an inadvertent return, cleanup can be successful, and cleanup will minimize impacts to affected resources. The effectiveness of the cleanup really depends on the size of the release, the duration of the release, when the release is detected, and the location of the release (i.e., if the release is in a waterbody, then the flow or size of the waterbody can impact the cleanup). Summit's inadvertent return plan will help ensure that Summit and its contractors are prepared for a variety of potential scenarios and that they are able to act quickly to clean up the site if an inadvertent return should occur.	Section 5.7.8.2 addresses potential impacts on surface waters in the event of an inadvertent return, factors that can influence the effectiveness of a cleanup, and the applicant's contingency plan for the unintended release of drilling mud.	20243-204748-03
Summit Carbon Solutions	Zoller, Jason	2024-03-28	Q. Do you agree with SHPO's comment that a full evaluation of either alternative's potential to impact archaeological resources cannot be determined until the archaeological surveys of RA-North and RA-Hybrid route widths have been completed? A. Yes. However, Summit would like to note it is not typical to complete surveys on all route alternatives other than those proposed by Summit, since landowner permission is necessary to carry out these surveys. Summit plans to complete surveys on all parcels prior to construction on the parcel. Summit would also clarify that that surveys should be completed such that a "good faith effort to carry out appropriate identification efforts" can be agreed upon per 36 CFR 800.4. Q. Do you agree with SHPO's comment that it would be useful in the final EIS to have complete evaluations for all the archaeological sites within the route width for the three route alternatives evaluated? A. No. Again, it is not typical to complete evaluations of archeological sites on all proposed alternatives at the environmental review stage.	Thank you for your comment.	20243-204748-03
Summit Carbon Solutions		2024-02-13	Summit Carbon Solutions, LLC (Summit) appreciates this opportunity to provide comments on the Draft Environmental Impact Statement: Otter Tail to Wilkin Carbon Dioxide (CO_2) Pipeline Project (DEIS) published by the Minnesota Department of Commerce Energy Environmental Review and Analysis (EERA) staff on January 23, 2024. Overall, the DEIS provides a comprehensive evaluation and discussion of the potential benefits, impacts, and mitigation measures for the Otter Tail to Wilkin CO_2 Pipeline Project (Project) and alternatives being considered by the Minnesota Public Utilities Commission (Commission or MPUC). Importantly, the DEIS confirms the Project "would reduce [greenhouse gas emissions] in the atmosphere and contribute to reducing the effects of climate change"1 and that the potential impacts of construction and operation of the Project are generally anticipated to be minimal.2	Thank you for your comment.	20242-203374-03

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			These comments are focused on (1) Summit's assessment of whether the DEIS fully addresses the issues identified in the October 5, 2023 Final Scoping Decision (FSD), as well as the content required under Minn. R. 4410.2300; and (2) corrections, clarifications, and additions that EERA should consider in preparing the final EIS (FEIS) to ensure that the FEIS is complete and accurate and responsive to issues raised during the DEIS comment period. Various sections of the DEIS (e.g., Chapter 5, Section 8.5.3, and Chapter 11) contain recommendations from EERA staff, other agencies, and members of the public regarding mitigation measures the Commission may consider as part of a route permit for the Project. Summit will respond to those recommendations in its pre-filed direct testimony; the recommendations are not addressed in these comments. Summit has organized these DEIS comments first to identify information that should be added to the FEIS based on the FSD and then by chapter and appendix for ease in tracking the comments.		
Summit Carbon Solutions		2024-02-13	I. INFORMATION REQUIRED BY FINAL SCOPING DECISION The FSD states that the EIS should discuss potential impacts to vegetation, including oak trees.3 Summit was unable to locate this discussion in the DEIS. While the DEIS notes that very few trees would be impacted by construction of the Project,4 Summit was unable to identify a discussion of impacts to oak trees and recommends this content be added to the FEIS as specified in the FSD.	Section 5.2 and Section 5.7 have been revised to note that the percent cover of oak trees is very low for all route alternatives.	20242-203374-03
Summit Carbon Solutions		2024-02-13	Section 2.1 of the DEIS states that the larger Midwest Carbon Express Project will capture and transport CO_2 from 32 ethanol plants across 5 states to permitted underground sequestration facilities in North Dakota.5 Summit recently announced a strategic partnership with POET, LLC that will add 17 of POET's biorefining facilities in Iowa and South Dakota to Summit's planned pipeline network.6 While the addition of these facilities to the Midwest Carbon Express Project do not impact the analysis in the DEIS, EERA could consider mentioning the updated information in the FEIS.	This information on the expansion of the Midwest Carbon Express project has been added to Section 2.1 of the EIS.	20242-203374-03
Summit Carbon Solutions		2024-02-13	Valve Closure Time: Section 4.5 includes the following statement: "Therefore, in the time it would take for the valves to close in case of an emergency (25 minutes according to the applicant), the throughput volume would be equal to about 5 percent of the volume already in the 13.9-mile-long pipeline segment."7 The stated valve closure time is incorrect. A valve can be closed in as little as 17 seconds. As Summit stated in response to EERA Inquiry No. 5-34, for modeling purposes, the valve closure time for the Project was conservatively modeled as 10 minutes, which is generally the time measured from the beginning of the loss of containment to the time the valve fully closes and typically includes the time it takes to: detect the leak, decide to close the valve (human or logic), travel time to valve (human or signal), and close the valve. The modeled valve closure time is correctly listed as 10 minutes in Table 7 (page 12) of the Aerial and Thermal Dispersion Analysis, included as DEIS Appendix G. Summit requests that EERA correct the valve closure time reference in Section 4.5 in the FEIS.	Text in Section 4.5 on valve closure time has been corrected from 25 minutes to 10 minutes. Elsewhere in the EIS, including the rupture analysis, valve closure time is listed/calculated as 10 minutes. Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. The Emergency Response Plan included as Appendix N is a draft plan that is not outdated but would be revised as required by PHMSA, if the project is approved. Additionally, EERA staff recommended a special permit condition requiring the applicant to file its Emergency Response Plan that is filed with PHMSA with the Commission, and other special permit conditions as described in Section 8.5.3.	20242-203374-03
Summit Carbon Solutions		2024-02-13	Summit identified several clarifications and minor corrections to the content in DEIS Chapter 5, including: • Table 5-3 in Section 5.4.4.18 notes that RA-South crosses 81.1 acres of Emergent Herbaceous Wetlands compared to 15.6 and 15.1 acres crossed by RA-North and RA-Hybrid, respectively. The table and surrounding text should clarify that the data is based on USGS National Landcover Dataset, which is a very coarse data set for providing spatial reference and descriptive data for characteristics of the land surface such as thematic class (e.g., urban, agriculture, and forest), percent impervious surface, and percent tree canopy cover. This data is known not to be an accurate representative of the occurrence of wetlands within a landscape. Additionally, the acreage provided in Table 5-3 is for the entire route width, not just the project right- of-way.9 The total 81.1 acres of Emergent Herbaceous Wetlands is highly influenced by the high density of wetland pixels located within the portion of the RA-South corridor that has been increased in width near milepost 6.6 for future routing flexibility. The majority of the wetland pixels in this specific area do not overlap the proposed Project right-of-way and would not be impacted by construction. The route widths analyzed by EERA for RA-North and RA-Hybrid do not include similar widened route width areas.	Discrepancies between Table 5-4 and Table 5-54 result from different datasets and their associated resolutions. Table 5-4 uses NLCD data to analyze land cover and Table 5-54 uses NWI data to analyze wetlands. Table 5-40 has been edited to be consistent with discussions of impacts on wetlands in Section 5.7.9, Table 5-53, and Table 5-54. In addition, footnotes were added to Table 5-3 and Table 5-53 noting that the route width for RA-South is greater than for RA-North and RA-Hybrid.	20242-203374-03

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Summit Carbon Solutions		2024-02-13	• Sections 5.4.2.210 and 5.6.1.211 should clarify that tribal cultural resource surveys have been completed on 99.8 percent of RA-South.12 No sites of tribal significance were identified. Summit has prepared an Unanticipated Discoveries Plan (UDP)13 and will provide training on the UDP to all construction personnel.14	Text in Sections 5.4.2.2 and 5.6.1.2 has been revised to indicate that Tribal cultural resource surveys were completed for these portions of each alternative.	20242-203374-03
Summit Carbon Solutions		2024-02-13	• Section 5.7.1.2 includes several incorrect footnotes in Table 5-36.15 Footnote (b) should be corrected to read "CO_2e emission rates based on a conversion factor of 6.2901 pounds (lbs) of CO_2 per gallon of ethanol produced and assume a maximum production rate of 65 million gallons of ethanol per year. [CO_2e (lbs/gallon ethanol) = 3,785.41 cubic centimeters/gallon ethanol x 0.789 grams ethanol/cubic centimeter / (46.07 grams ethanol/44.01 grams CO_2) x 0.0022046 lbs CO_2/gram CO_2]."	Thank you for your comment. The footnote to Table 5-36 has been corrected.	20242-203374-03
Summit Carbon Solutions		2024-02-13	At the DEIS public meetings on February 6-8, 2024, commenters asked several questions regarding the Project's expected water use. As stated in the DEIS, Summit anticipates using approximately 125,000 gallons of water for the execution of horizontal direction drills (HDDs), hydrostatic testing, and dust control for the Project, of which 110,000 gallons would be used for pipeline hydrostatic testing.16 Summit is currently exploring options for appropriation of water, including duration of use, volume, and appropriation location(s). These could be private, municipal, or surface water sources. Once proposed/preferred and contingency sources and volumes are finalized, these details would be reviewed by the Minnesota Department of Natural Resources (MDNR). Summit would obtain coverage under an individual or general MDNR water appropriation permit(s) for any surface or groundwater appropriated for these activities. These permits would contain best management practices (BMPs) for water withdrawals. Water appropriation permits from the MDNR would inform the locations used, any seasonal restrictions to account for low-flow conditions, volume and measurement requirements, and BMPs to be used during appropriation activities.	Thank you for your comment.	20242-203374-03
Summit Carbon Solutions		2024-02-13	Minnesota law sets standards for non-depletion, reasonable use, and non-degradation of water resources in striving to prevent negative impacts.17 The MDNR, through its water appropriation permitting process, would ensure that water appropriations would not deplete or degrade the water source (e.g., the permit would specify maximum surface water withdrawal rates to protect aquatic life and allow for downstream uses). Summit would include a contingency plan as part of the appropriation permit application because it is challenging to predict how changes in total precipitation, large precipitation events, drought, increased temperatures, variable surface water flows and elevations, and longer growing seasons would impact proposed water resources. The contingency plan would include identification of potential alternate water supply sources and/or a statement that Summit agrees in advance to a suspension of withdrawals following DNR request, when necessary. Trench dewatering is also considered an appropriations activity regulated by MDNR and would be conducted according to permit requirements.	Information on contingency plan and appropriations for trench dewatering has been added to Section 5.7.8.2.	20242-203374-03
Summit Carbon Solutions		2024-02-13	Summit is evaluating the need to appropriate water for dewatering, dust control, and hydrostatic testing during construction of the capture facility. A specific water source has not been determined at this time; however, Summit plans to obtain water from either a local surface water source or groundwater well directly, or indirectly, from the Green Plains Ethanol Plant or the City of Fergus Falls.	This information has been added to Section 5.7.8.2.	20242-203374-03
Summit Carbon Solutions		2024-02-13	During operations, the CO_2 capture facility would have estimated water supply needs ranging from 8.2 gallons per minute (gpm) in winter months and 40.9 gpm in summer months, for an average water usage of approximately 13 million gallons per year. The "13 million gallon" total was calculated by using the estimate of 8.2 gpm for 182.5 days and the estimate of 40.9 gpm for 182.5 days (for a total of 365 days of use). The water is expected to be obtained from the Green Plains Otter Tail Ethanol Plant's onsite wells. Summit will coordinate water use permitting at the capture facility with the MDNR.	This information is provided in Section 5.7.8.2.	20242-203374-03
Summit Carbon Solutions		2024-02-13	Any water appropriation permit issued by MDNR would require annual water use reporting. The MDNR reported over 23.3 billion gallons of permitted water use in Otter Tail and Wilkin counties in 2022.18 Due to the volume of current permitted appropriations in the counties crossed by the Project, the relatively small volume likely needed by the Project in comparison, and the measures and conditions outlined above, environmental effects from the Project's water appropriation activities are expected to be minimal. Given the comments regarding water use at the DEIS meetings, Summit suggests including this additional information, which was also discussed in the Scoping Environmental Assessment Worksheet (Scoping EAW),19 in the FEIS.	Additional information has been added to Section 5.7.8.2 to address the volume of water that would be used by the project relative to available resources.	20242-203374-03
Summit Carbon Solutions		2024-02-13	Section 5.4.9.3 restates the Minnesota Department of Transportation (MnDOT) recommended mitigation measures at MnDOT right-of-way (ROW) crossings, including depth and casing requirements, restrictions on boring pit locations, avoiding intersecting other roads with MnDOT ROW, and setbacks for existing utilities and structures.20 Summit is committed to working with MnDOT for all MnDOT road crossings. However, Summit disagrees that casing is an appropriate mitigation measure and requests that the FEIS	The HDD and bore crossing methods are discussed in Section 2.4.8. Additional information has been added describing these two crossing methods. EERA notes that crossing methods at MnDOT ROW would be determined by MnDOT through a road crossing permit.	20242-203374-03

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			include a discussion of potential impacts related to requiring cased crossings. As Summit stated in response to EERA Inquiry No. 5-28, Summit is currently proposing to cross Minnesota TH 210 and US Highway 75 via horizontal directional drill (HDD). Summit does not recommend requiring the use of cased crossings at Minnesota TH 210 and US Highway 75. Requiring cased crossings at these locations will result in greater impacts to privately-owned land during and after construction, increased installation times, increased risk to pipeline integrity, and actually less depth of cover over the pipeline with the road ROWs. For example, in order to install the casing pipe with a minimum depth of cover of 10 feet below the lowest point within the road ROWs as recommended by MnDOT, bell holes approximately 15-20 feet deep by 10-20 feet wide by 20-40 feet long will need to be excavated on both sides of the roadways, on privately owned agricultural land. The bell holes are required to accommodate the equipment and installation of the casing pipe. The large volume of excavated soils will have to be stored onsite during construction. In addition to the bell hole excavations, tail ditches will have to be excavated on both sides to gradually slope the pipeline up from the casing depth to the normal pipeline depth of 4.5 feet. Due to MnDOT's recommendation to require the casing maintain a minimum of 10 feet of cover under the lowest point within the road ROW, the casings will be 12-16 feet deep at the edges of the road ROW. Larger construction workspace may be needed to accommodate excavation spoils and equipment during installation. In addition to the physical impacts, casing increases installation times. The steps described above will require longer installation time, increasing the impacts to private landowners. Casing pipe also increases risks to pipeline integrity. Casing pipe shields carrier pipe from the induced current cathodic protection system by eliminating contact between the carrier pipe and the electrolyte (soil). This means that the pipeline's cathodic protection system will not protect the pipe within the casing. Metallic shorts between the casing pipe and the carrier pipe are also common, especially within longer casings. This occurs when the casing pipe comes into contact with the carrier piping and can be caused by earth movement or settlement over time. This situation can lead to additional corrosion and stress on the carrier pipe. Due to railroad ROW abutting the road ROW for both Minnesota TH 210 and US Highway 75, the cased crossings will be approximately 250-270 feet long each. There would also be increased maintenance requirements associated with casings over the life of the pipeline in order to ensure integrity. Vent pipes, end seals, and centralizers may require maintenance (excavation required) to ensure integrity of the casing and carrier pipe throughout the life of the pipeline system.		
Summit Carbon Solutions		2024-02-13	Encasement of pipelines is an outdated technique that was utilized prior to the introduction of trenchless technologies. Modern pipeline design and corrosion guidelines such as ASME B 31.4 – Pipeline Transportation Systems for Liquids and Slurries and NACE RP0200 – Steel- Cased Pipeline Practices recommend avoiding pipeline casings. Finally, casing results in less depth of cover over the pipeline within the road ROWs. MnDOT is recommending requiring 10 feet of cover for the casing, which far exceeds the minimum requirements in the MnDOT Utility Accommodation and Coordination Manual (requires 5 feet of cover below the pavement and 3 feet of cover below the ditch).21 In summary, Summit's preliminary HDD designs for these crossings have been designed to provide a minimum depth of cover of 20 feet below the lowest points within the road ROWs, would result in less impact to private landowners, and would allow for the protection afforded by the cathodic protection system. Per the MnDOT Utility Accommodation and Coordination Manual Section VIII(D)(3)(c)(ii), pipelines placed by trenchless technologies may be approved on a case- by-case basis if certain criteria are met.22 Summit's preliminary HDD designs meet and exceed all the criteria laid out in the MnDOT Utility Accommodation and Coordination Manual. Summit intends to continue to work with MnDOT regarding the crossing methodology at these locations; however, Summit requests that the FEIS consider the increased impacts associated with MnDOT's requested casing mitigation measure.	The HDD and bore crossing methods are discussed in Section 2.4.8. Additional information has been added describing these two crossing methods. EERA notes that crossing methods at MnDOT ROW would be determined by MnDOT through a road crossing permit.	20242-203374-03
Summit Carbon Solutions		2024-02-13	The discussion of accidental releases found in Chapter 8 and Appendix G of the DEIS provides a conservative and thorough discussion of the potential impacts of an accidental release of CO_2 from the Project and addresses many of the questions that have been raised in public comments. Importantly, the independent evaluation of Summit's air dispersion model confirmed Summit's "methodology and results are valid,"23 and the independent modeling completed by Allied Solutions, while more conservative in some respects than Summit's analysis, was not materially different than Summit's modeling for the Project.24 Summit offers several suggestions to address what may be perceived as internal inconsistencies in the DEIS and provides additional context related to the potential impacts associated with an accidental CO_2 release.	Thank you for your comment.	20242-203374-03

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Summit Carbon Solutions		2024-02-13	Short Modeled Release Duration The independent air dispersion and computational fluid dynamics (CFD) modeling completed by Allied Solutions concluded that "regardless of the scenario, the time it takes for the 30,000-ppm concentration CO_2 release to dissipate is very short—less than 4 minutes. In fact, the total time of the entire event would be less than 7 minutes in a worst-case scenario."25 Summit agrees with the DEIS conclusion that even a reasonable worst-case release event would have a very short duration. However, several other discussions of the potential impacts of a CO_2 release suggest a longer duration and should be revised in the FEIS. For example: • DEIS at 8-15 states: "However, CO_2 in gas form dissipates within hours, so [road] closures resulting from nearby ruptures that do not damage infrastructure would be short-term, likely hours rather than days." (emphasis added). • DEIS at 8-19 states: "As a result, some individuals from amphibian species might eventually be overcome by a large, persistent CO_2 plume and would likely die or experience respiratory trauma and disorientation." (emphasis added). These statements should be revised to reflect the finding that the total expected duration of a reasonable worst-case release from the Project would be minutes, not hours or days.	Section 8.3.1.4 has been modified to state that dangerous concentrations of CO_2 would dissipate within minutes. Section 8.3.4 has been revised to remove the word "persistent."	20242-203374-03
Summit Carbon Solutions		2024-02-13	Effects of CO_2 on Humans Given the public interest in obtaining additional information regarding the potential impacts of a CO_2 release on human health, Summit believes the FEIS should provide several corrections and clarifications on the human health discussion currently included in the DEIS. First, the FEIS should correct the bold statement under the Section 8.2 heading on page 8-3 that states "[a] 2020 pipeline rupture in Mississippi caused 45 people to be hospitalized…" This statement is inaccurate. As correctly stated under Section 8.2.1.2, the Pipeline Hazardous Materials Safety Administration's (PHMSA) 2022 Failure Investigation Report found that "[n]o fatalities occurred, but 200 people were evacuated and 45 people sought medical treatment at local hospitals…"26 This statement accurately reflects PHMSA's findings, and the earlier statement regarding hospitalization should be revised.	The PHMSA 2022 Failure Investigation Report states numerous times that 45 people were "taken to the hospital," including in its "Key Points" on Page 2 of the report. The text in Section 8.2 and the Executive Summary has been revised to use that phrasing.	20242-203374-03
Summit Carbon Solutions		2024-02-13	Second, the DEIS anchors its discussion on potential human health effects of a CO_2 release on the National Institute for Occupational Safety and Health (NIOSH) Immediately Dangerous to Life and Health (IDLH) limit of 40,000 ppm for healthy people. Specifically, the DEIS utilizes this 40,000 ppm IDLH limit as an identified level of concern in its analysis.27 The DEIS Appendix G also characterizes 15,000, 30,000, or 40,000 ppm CO_2 as a "Toxic Level of Concern."28 While Summit, too, utilizes 15,000 and 40,000 ppm of CO_2 as levels evaluated in its modeling, the FEIS should include additional discussion regarding the conservative nature of these levels. A NIOSH IDLH limit is an air concentration at or below which healthy workers may be exposed for 30 minutes without risk of permanent harm to health or ability to escape. Accordingly, levels of 40,000 ppm or less are not "Toxic Level[s] of Concern." The weight of evidence from the available scientific literature on human effects do not show that CO_2 exposure at these levels causes toxic effects. For example, the DEIS cites a 2022 study conducted by van der Schrier, et al. (van der Schrier Study) in Section 8.3.4 where the DEIS discusses the potential impacts of CO_2 exposure on the natural environment.29 The FEIS should also include a discussion of the van der Schrier Study findings related to potential human health impacts. In this detailed and recent study, the study authors reported CO_2 exposures from 60,000 to 120,000 ppm (or 6% to 12% CO_2 atmosphere) to healthy male volunteers. The volunteers were exposed for up to one hour. Exposures to 100,000 and 120,000 ppm were stopped early due to subject irritability, anxiety, or loss of consciousness. However, all subjects completely recovered in all aspects within minutes of exposure cessation. The detailed effects reported for humans in the van der Schrier Study indicate a lack of toxic effect and the presence or continued ability to make escape-related decisions for exposures between 75,000 and 90,000 ppm in typical, healthy individuals. The FEIS should include a discussion of the van der Schrier Study in the human health effects section to provide a more robust discussion of the recent science supporting that inhaled CO_2 exposures of less than 100,000 ppm have been demonstrated to be non-toxic, further demonstrating that use of the NIOSH limit of 40,000 ppm for healthy people is extremely conservative. Based on the best available science, the term "toxic impact distance" used to indicate the distance at which CO_2 concentrations could reach 40,000 or 30,000 ppm should be revisited throughout the DEIS Chapter 8 and Appendix G.	By "toxic levels of concern," the EIS refers to levels of concern (LOC) from the toxic analysis that was performed for this project. The toxic analysis that CANARY provides is the analysis that determines given CO_2 concentrations and their associated impact distances. 30,000 ppm is the concentration that was selected as a LOC for the conservative reasons explained in Appendix G. A review of the science concerning CO_2 toxicity levels is outside the scope of the EIS, and the EIS continues to use CO_2 concentration levels defined by federal agencies in its discussion. The Executive Summary, Chapter 8, and Appendix G have been revised to remove references to "Toxic Level of Concern" or "toxic impact distances."	20242-203374-03
Summit Carbon Solutions		2024-02-13	Other Clarifications or Corrections The FEIS should correct the statement in the DEIS that there is an airport "within the toxic impact distance."30 The closest edge of the Fergus Falls Airport runway is approximately 1,750 feet from the Project and the primary buildings are nearly 3,200 feet away, well outside the distance identified as the furthest distance that CO_2 concentrations above 40,000 ppm may reach according to Allied Solutions' modeling. The DEIS later states a potential release would cause "no or minimal damage to the airport".31 Summit suggests	Thank you for your comment. Section 8.3.1.4 of the EIS has been revised to clarify the results of modeling concerning the proposed route near the Fergus Falls Municipal Airport-Einar Mickelson Field.	20242-203374-03

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			that the statement on page 8-14 be revised simply to state that potential impacts on the airport were evaluated, but not suggest that the airport is "within the toxic impact distance."		
Summit Carbon Solutions		2024-02-13	Assumed Soil and Product Temperature Summit also suggests that the FEIS provide further discussion and clarification regarding Allied Solutions' assumed product temperature of -20 degrees Fahrenheit.32 Summit assumed 30 degrees for the same factor in its modeling.33 The DEIS justifies the -20 degrees temperature assumption stating, "[d]ue to a measured soil temperature at burial depth being subzero and the existence of aboveground valve sets, this temperature should be nearly the same as the air temperature."34 It cites "NOAA. Soil Temperature Maps by Depth: History data in CSV" as the source for this justification.35 Summit was unable to confirm a -20 degrees soil temperature assumption in the cited source. To the contrary, according to the 10-year data from four USDA Natural Resources Conservation Service soil temperature probes in the region (Mandan #1, Glacial Ridge, Crescent Lake, and Eros Data Center), the minimum annual temperature at 40-inch depth ranged between 30-35 degrees Fahrenheit. With Summit's pipeline proposed depth of cover at 54- inches, it is expected that actual soil temperatures around the pipeline would be slightly above these levels. Once the product enters the pipeline, no additional energy is added and thus the product will begin cooling and ultimately equalizing with surrounding soil temperature. As discussed in the DEIS, colder ambient conditions result in a more conservative dispersion model, which is why both Summit as well as Allied Solutions utilized winter conditions. However, based on the discussion above, Summit believes a soil temperature and, in turn, product temperature of 30 degrees Fahrenheit is a better estimate of a "reasonable worst-case temperature."	Sections 8.3.1 and 8.3.4 have been revised to discuss the potential impacts of ice covering waters or wetlands at the point of a rupture. In general, if CO_2 released from the pipeline was trapped by ice, then the CO_2 would release more slowly into the atmosphere as it traveled laterally under the ice until it escaped through cracks or gaps in the ice, thereby decreasing the impact distance (the distance the CO_2 would travel through the air). The EIS modeled the worst-case scenario where the CO_2 is not trapped by ice. In the event of a pipeline rupture that caused CO_2 to be trapped by ice covering a waterbody, CO_2 could remain in contact with the water for more time, and the concentration of carbonic acid could increase. In other words, the water and aquatic species could experience a greater impact from the CO_2, but the atmosphere would experience less CO_2, and the risk to humans and other terrestrial species would be lower. As noted in Section 5.7.3.4 and Section 8.1, the applicant has committed to conducting a Phase I Geohazard Assessment to identify areas surrounding the pipeline that may be prone to large earth movement, as recommended by PHMSA in its June 2022 Advisory Bulletin, and EERA staff recommends that the results of the Phase I assessment, and any subsequent assessments, should be provided to the Commission.	20242-203374-03
Summit Carbon Solutions		2024-02-13	Given the stated objective of the independent modeling was to provide a more conservative worst-case representation of potential release impacts,36 Summit does not suggest revising the modeling presented in the FEIS to correct this temperature assumption, but rather the FEIS should discuss the source of this assumption and disclose the overly conservative nature of the assumption given historical soil temperatures in Minnesota, as documented by the USDA. In Summit's view, revising this assumption would not materially change the outcome of Allied Solutions' conservative modeling analysis. It is, however, important that the FEIS clarify and further explain use of this assumption so as not to cause confusion for individuals who have asked about the potential risk to the pipeline related to frost heave. Frost heave is not a significant risk to pipeline integrity because the pipe will be buried at a depth of at least 54 inches for this Project,37 well below the frost line.38 Without further clarification of the modeling temperature assumption in the FEIS, individuals concerned about the risk of frost heave may misinterpret this modeling assumption to suggest that, in fact, soil temperatures at the depth of the pipe could be subzero.	Sections 8.3.1 and 8.3.4 have been revised to discuss the potential impacts of ice covering waters or wetlands at the point of a rupture. In general, if CO_2 released from the pipeline was trapped by ice, then the CO_2 would release more slowly into the atmosphere as it traveled laterally under the ice until it escaped through cracks or gaps in the ice, thereby decreasing the impact distance (the distance the CO_2 would travel through the air). The EIS modeled the worst-case scenario where the CO_2 is not trapped by ice. In the event of a pipeline rupture that caused CO_2 to be trapped by ice covering a waterbody, CO_2 could remain in contact with the water for more time, and the concentration of carbonic acid could increase. In other words, the water and aquatic species could experience a greater impact from the CO_2, but the atmosphere would experience less CO_2, and the risk to humans and other terrestrial species would be lower. As noted in Section 5.7.3.4 and Section 8.1, the applicant has committed to conducting a Phase I Geohazard Assessment to identify areas surrounding the pipeline that may be prone to large earth movement, as recommended by PHMSA in its June 2022 Advisory Bulletin, and EERA staff recommends that the results of the Phase I assessment, and any subsequent assessments, should be provided to the Commission.	20242-203374-03
Summit Carbon Solutions		2024-02-13	Response to Public Comment on Modeling At the afternoon DEIS meeting in Fergus Falls, Minnesota, Craig Winters, a member of the public, asked whether the DEIS' air dispersion modeling evaluated what would occur if a CO_2 release happened while it was raining. Rain is not anticipated to have a major impact on CO_2 dispersion. Precipitation has the potential to strip CO_2 from the air through dissolution, although likely in very small quantities. The rain would only have tens of meters or hundreds of meters of CO_2 to fall through, with only seconds of interaction. Dissolution into raindrops would likely be limited. Puddles that form on the ground may initially have a slightly lower pH,	Thank you for your comment.	20242-203374-03

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			but would offgas to atmosphere, interact with the soils or organic matter on the surface, and dilute with additional rain, returning the pH rather quickly to typical levels. To respond to Mr. Winters' question, the FEIS could add this additional explanation regarding how CO_2 would likely disperse if it were raining at the time of a release.		
Summit Carbon Solutions		2024-02-13	Summit requests that EERA consider and incorporate these suggestions in the FEIS to ensure it (1) addresses all issues identified in the FDS; (2) is complete and accurate; and (3) responds to substantive comments raised during the DEIS comment period.	Thank you for your comment.	20242-203374-03
Union of Concerned Scientists	Moura, Maria	2024-02-23	Thank you for the opportunity to comment on the Draft Environmental Impact Statement (DEIS) on Otter Tail to Wilkin Carbon Dioxide Pipeline Project. On behalf of the Union of Concerned Scientists and our more than 5000 members and supporters in Minnesota we request that in order to protect the health and safety of adjacent communities, the approval process for the proposed pipeline and any other carbon dioxide (CO_2) pipeline should not move forward until the federal Pipeline and Hazardous Materials Safety Administration finalizes new rules governing carbon dioxide pipelines.	Thank you for your comment.	20243-204403-01
Union of Concerned Scientists	Moura, Maria	2024-02-23	Incentivized by the federal 45Q tax credit, pipeline companies have started proposing the rapid buildout of CO_2 pipelines. The Bipartisan Budget Act passed in 2018 extended and significantly increased the tax credit for CO_2 use and storage under Section 45Q of the Internal Revenue Code. Our main concern is that according to a 2022 study commissioned by the Pipeline Safety Trust, CO_2 pipelines pose significant safety and public health hazards which are not adequately addressed by current regulations.	Thank you for your comment. The draft EIS discusses PHMSA rules and regulations, and the pending rulemaking process it is undertaking for CO_2 pipelines, and acknowledges pending PHMSA changes to such regulations (see draft EIS, Chapter 3, Chapter 8, and Appendix G). PHMSA regulations (that is, their appropriateness) and related standards for CO_2 pipelines are outside the scope of the EIS (Appendix A).	20243-204403-01
Union of Concerned Scientists	Moura, Maria	2024-02-23	CO_2 pipelines are susceptible to ductile fractures, which can run along a significant length of the pipe, releasing large amounts of CO_2, and projecting segments of pipe and shrapnel. The likelihood of ruptures is aggravated by the fact that water, which is difficult to eliminate from CO_2 pipelines, contributes to the formation of corrosive carbonic acid.	Ductile fractures are addressed in Section 8.1.2. Measures to prevent fractures are detailed in Section 8.5.1.1.	20243-204403-01
Union of Concerned Scientists	Moura, Maria	2024-02-23	CO_2 is an asphyxiant that is heavier than air and accumulates close to the ground, where people can be exposed to it. It causes dizziness, severe muscle twitching and unconsciousness within a few minutes and even death at higher concentrations and longer exposure times. Because it is a colorless, odorless, nonreactive and inert gas, victims and first responders have no way of knowing they are exposed until it happens, which is often too late. Impacts happen too quickly so warning detectors are not necessarily effective. As an example, after the rupture in Satartia, Mississippi, on February 22, 2020, first responders were not able to understand why people were lying on the ground, shaking and unable to breathe, and more than 200 people were evacuated and at least 45 people were hospitalized.	Effects of inhaling CO_2 are described in Section 8.3.1.4. Section 8.2.1.2 discusses the Satartia accident in detail, including a table summarizing significant differences between the proposed project and the pipeline involved in the Satartia incident. As discussed in Section 8.2.1.2, the operator of the Delhi pipeline did not inform local first responders or citizens of the unique safety risks posed by the CO_2 pipeline. The applicant for this project has committed to educating and training both first responders and the public, as well as paying for equipment needed to safely and effectively respond to CO_2 ruptures, thereby removing many issues that resulted in hospitalizations during the Satartia rupture (Sections 8.5.1.3, 8.5.1.4, and 8.5.1.5). In addition, EERA staff recommended special permit conditions to avoid impacts of a potential CO_2 release, as described in Section 8.5.3, including information on the applicant's public information plan.	20243-204403-01
Union of Concerned Scientists	Moura, Maria	2024-02-23	Regulations for CO_2 pipelines exist at both the federal and state levels in the United States. At the federal level, CO_2 pipelines are regulated by the Pipeline and Hazardous Materials Safety Administration (PHMSA) under the Department of Transportation (DOT). However, these outdated regulations are unclear and do not sufficiently address the hazards associated with ruptures and other problems associated with CO_2 pipelines which affect communities and ecosystems, such as dangers to water bodies and aquifers, land degradation, and geologic hazards, to name just a few. In particular, the DEIS accepts Summit's assurances that it will "comply with federal emergency response requirements", but given how outdated and inadequate current federal regulations are, the DEIS should not accept these assurances.	Although the Commission cannot set safety standards for pipeline construction or operation, state or local units of government may, to the extent authorized by law, set land use requirements that indirectly contribute to pipeline safety by regulating the activities of third parties located in the pipeline's vicinity. The Commission's obligation is to identify a pipeline route consistent with the criteria found in statutes and the applicable administrative rules. Federal law, by contrast, exclusively prescribes pipeline safety requirements.	20243-204403-01
Union of Concerned Scientists	Moura, Maria	2024-02-23	There now about 5,300 miles of CO_2 pipelines in the U.S., and in the next few decades, that number could grow to more than 65,000 miles, according to an analysis prepared by researchers at Princeton University. Several states are moving forward with carbon sequestration projects. It should be noted that Summit's project extends well beyond the 28-mile pipeline being considered: Summit	Thank you for your comment. The draft EIS discusses PHMSA rules and regulations, and the pending rulemaking process it is undertaking for CO_2 pipelines, and acknowledges pending PHMSA changes to such	20243-204403-01

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			has public plans for a larger buildout in Minnesota and will be applying for permits for additional parts of the network. In addition, Summit should not be allowed to proceed on a segment of the network before a thorough cumulative impact review of the entire network is conducted, and granting a permit for one segment of the network will impede a thorough review of such impacts. It is key to wait for the Pipeline and Hazardous Materials Safety Administration to finalize new rules that are clear and effective and protect communities from the dangers of pipelines before any more CO_2 pipeline projects are approved.	regulations (see draft EIS, Chapter 3, Chapter 8, and Appendix G). PHMSA regulations (that is, their appropriateness) and related standards for CO_2 pipelines are outside the scope of the EIS (Appendix A). Section 3.2.2 has been updated to address the comment concerning cumulative impact review of the entire Midwest Carbon Express project.	
Upper Sioux Community	Jensvold, Kevin	2024-02-24	Appendix G provides some information about what the potential impact radius of a rupture might be, but overall the DEIS does not adequately address how the applicant will be able to guarantee the safety of those living along or near the project. The Pipeline and Hazardous Material Safety administration (PHMSA) has issued public statements that their regulations are not adequate to address the safety risks associated with CO_2 pipelines. CO_2 pipelines need special considerations because when a pipeline leaks or a rupture occurs it will release an asphyxiant that can suffocate people and prevent combustion-type vehicles from working. The equipment and training needs for Emergency response personnel to response to a pipeline incident needs to be thoroughly addressed and placed into practice prior to pipeline construction. All responders will need additional training and equipment to safely respond. This includes replacing all the gasoline/diesel vehicles with Electric Vehicles. In many rural areas the first responders/emergency response are often volunteers. Communities near the route of the pipeline should not have to bear the expense of specialized equipment needed for response to a new hazard brought to the area by a commercial entity.	Section 3.6 acknowledges that PHMSA is currently conducting rulemaking proceedings on proposed amendments to its pipeline safety rules, and the Commission states it would be prudent for EERA staff and the applicant to take that information into account, even if the updates have not been finalized. Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including that the applicant indicates it will train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes that the applicant indicates it will educate the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. The Emergency Response Plan included as Appendix N is a draft plan that would be revised as required by PHMSA, if the project is approved. Additionally, EERA staff recommended a special permit condition requiring the applicant to file its Emergency Response Plan that is filed with PHMSA with the Commission, and other special permit conditions as described in Section 8.5.3.	20243-204403-02
Upper Sioux Community	Jensvold, Kevin	2024-02-24	The Summit project aims to significantly impact our state's ethanol production industry. It would be impossible to clearly evaluate those potential impacts without looking at Summit's full Minnesota footprint and all the ethanol facilities contracted to connect to the pipeline. This type of project has the potential to induce further proliferation of carbon capture facilities across the state, as well as impact land use. And, ultimately, this DEIS is precedent-setting. It would be unwise to examine a 28.1-mile segment out of the context of the planned 240-mile Minnesota footprint. We strongly urge that the Commission re-evaluate and research further into the environmental impact of this new type of project by considering the impacts of the entire MN footprint of the Midwest Carbon Express pipeline including impacts to cultural and natural resources along the proposed route. Upper Sioux Community thanks the Commission for the opportunity to comment and for its consideration of our concerns.	Thank you for your comment. The Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-02
Upper Sioux Community	Kevin Jensvold	2024-02-24	The Summit CO_2 pipeline project's proposed route is within Dakota Homelands. Upper Sioux Community is directly associated to many areas of cultural importance and/or religious significance identified within the project area. The proposed route is located within an archaeologically dense area with a high volume of known cultural resources and/or significant sites. These resources and sites had, and continue to have, a significant cultural and spiritual role in the identity of Dakota practices and lifeways, we request that meaningful and diligent evaluation of project needs be carefully considered. Such sites and resources are irreplaceable.	Thank you for your comment.	20243-204403-02
Upper Sioux Community	Kevin Jensvold	2024-02-24	The Dakota Peoples have a strong spiritual connection to the lands and waters within the ancestral territories of the Dakota. Protection of natural and cultural resources is critically important not only now but for several generations. Therefore, projects that impact the Waters, Air, Lands, wildlife and plant life need a thorough assessment as not to contaminate or destroy the natural environment. Further projects involving relatively new technology are particularly concerning and should be thoroughly researched to avoid issues or consequences.	Thank you for your comment.	20243-204403-02
Upper Sioux Community	Kevin Jensvold	2024-02-24	The purpose of DEIS is to provide an overview of affected resources and discuss potential human and environmental impact and mitigation measures. We have concerns that the proper review hasn't been accomplished and have identified gaps in the impacts and mitigation measures. The following are the concerns regarding the impact to Cultural resources, waters, safety, land, climate change and greenhouse gas emissions, and cumulative impacts.	Thank you for your comment.	20243-204403-02

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Upper Sioux Community	Kevin Jensvold	2024-02-24	Tribes are tasked with evaluating impacts to known cultural resources and cultural sites without relevant case studies, scientific analysis, and precedent to guide informed determinations on CO_2 pipeline impacts. To consider for example subsurface artifacts, human remains or any organic material and how exposure and interaction to CO_2 would affect them, yet such studies are not available and even more detrimental are not being required in the EIS. The purpose of an EIS is to provide such studies and information. The Summit Carbon Solution pipeline route is a large-scale project, with many complex variables to consider when evaluating cultural resource impact, it is unreasonable for THPO s to review such considerations when key information is absent. The DEIS fails to address cumulative landscape impacts as well as exposure and interaction studies (as cited above).	Thank you for your comment. A study focused on the interaction of CO_2 and subsurface artifacts, human remains, or any organic material is outside the scope of the EIS (Appendix A). Potential impacts on cultural resources are discussed in Section 5.4.2. Cumulative potential effects are discussed in Chapter 10.	20243-204403-02
Upper Sioux Community	Kevin Jensvold	2024-02-24	The proposed project and the identified right-of-way will impact numerous streams, rivers, wetlands, aquifers and other waterbodies. This includes the Pelican River, the Otter Tail River, and the Bois de Sioux River, and up to 44.6 acres of wetlands. We are concerned that the DEIS did not take an in-depth look at how the proposed project will impact the health and abundance of these water resources. The DEIS describes the potential impact of construction activity within or near these waterbodies as being short-term and minimal. But we know from past experiences with other pipelines, like Line 3, that the pipeline construction can have long-term and widespread impacts on both surface water and groundwater resources. Additional questions that were mentioned in our comments on the scoping (attachment) included the need to identify the amount of water usage that is needed, what will be added to the water, and where will the water be discharged?	Section 5.7.8 and Section 5.7.9 describe the impacts of the project on water resources and wetlands. Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-02
Upper Sioux Community	Kevin Jensvold	2024-02-24	Additional questions that were mentioned in our comments on the scoping (attachment) included the need to identify the amount of water usage that is needed, what will be added to the water, and where will the water be discharged? Further, how will this project impact the medicinal and cultural plants, fish, macroinvertebrates, mammals, macrophytes, human health, surface water quality, wetlands/connected waterbodies, groundwater, etc.? What is the cumulative impact of the project over the course of the route? These are vital questions about this proposed project that have not been sufficiently investigated. In the past, Upper Sioux staff have reviewed the EIS documents of pipeline and renewal energy projects that addressed these types of questions with specific research and studies. It is not evident in the DEIS that these questions were addressed. Merely stating the project will have minimal impact is not adequate for the NEPA EIS process.	Section 2.4 discusses water discharge locations and processes, Section 3.7 discusses water use and discharge permits that would be acquired, Sections 5.4.4 and 5.7.8 discuss impacts on water and water usage, Section 5.7.7 addresses impacts on vegetation, Section 5.7.10 addresses impacts on wildlife and habitats, Section 5.7.9 addresses impacts on wetlands, Section 5.4 addresses impacts on human settlement, and section 5.4.8 specifically addresses health and safety. Native Minnesota plants and wildlife of significance to Tribes are discussed in Section 5.4.2. The project would temporarily impact the habitats of plants and wildlife of Tribal significance during construction until restoration of disturbed areas is complete. Additional studies on these topics are outside the scope of the EIS. Chapter 8 addresses effects on humans, health, wildlife, and the environment from an accidental release of CO_2. Chapter 10 describes the cumulative impacts of the project.	20243-204403-02
Upper Sioux Community	Kevin Jensvold	2024-02-24	The technology used to capture carbon can also require significant amounts of water. The DEIS states that the average annual water usage for the capture equipment will be 13 million gallons, and that much water will come from on-site wells at the ethanol facility. There is no information in the DEIS about how the additional water use from the ethanol plant will impact surrounding wells or other water resources. Also, the DEIS does not consider the water usage in context of the nearby Communities and the impacts from this new water demand on the current, existing water demands of the aquifers that serve as the source water for these Communities. This is particularly a concern as we have seen recent drought conditions the past few years	Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-02
Upper Sioux Community	Kevin Jensvold	2024-02-24	Consideration must also be given to the impact on surface and groundwater in the event of a pipeline leak or rupture. It is necessary to state what will be the response to minimize and remediate after such an event.	Potential impacts on water resources and wetlands and mitigation measures associated with a CO_2 release are described in Section 8.3.4.1 of the EIS.	20243-204403-02

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Upper Sioux Community	Kevin Jensvold	2024-02-24	We remain concerned about the potential risks to human and environmental health in the event of a leak or a rupture. High concentrations of CO_2 are hazardous and can sicken and asphyxiate humans and animals. The DEIS has also confirmed that vegetation and soil near a leak or rupture could be significantly impacted, from slowing plant growth to freezing soils and killing off vegetation, soil microbes, mycorrhizae, and soil animals.	Thank you for your comment.	20243-204403-02
Upper Sioux Community	Kevin Jensvold	2024-02-24	The impact of the proposed project to the land is not fully addressed and needs additional research. Studies on the long-term impacts of Line 3 pipeline on the land have shown that the environment does not always recover as promised after construction and other major disturbances, despite assurances from companies that impacts will be short-lived. The degradation and loss of habitats is noted as one of the main reasons native plants are lost. The sensitivity of native and medicinal plants to disruption that will occur during construction is a concern that needs to be studied further before the project occurs. Also the impact of a leak or rupture of the pipeline on sensitive plants needs to be defined and mitigation measures need to be proposed if this type of event happens.	The project's potential impacts on natural resources, including vegetation, wildlife, rare and unique species, surface waters, and groundwater, are discussed in various sections of Chapter 5. Potential impacts on Minnesota plants of significance to Tribes are discussed in Section 5.4.2. In Section 5.7, which discusses mitigation, the EIS states that the applicant will prepare a Vegetation Management Plan for post-construction revegetation and management. Potential impacts due to CO_2 releases on vegetation, wildlife, rare and unique species, surface waters, and groundwater are discussed in Chapter 8.	20243-204403-02
Upper Sioux Community	Kevin Jensvold	2024-02-24	Climate Change and Greenhouse Gas Emissions In the DEIS, it is assumed that the applicant will be able to capture and permanently sequester 100% of the CO_2 from the ethanol facility, but there is no evidence to support that assumption. Without the evidence to support 100% sequestration, it is not possible to know what the actual GHG emission reductions (if any) might be.	Text has been added to Section 2.1 describing the suitability of the Broom Creek Formation in North Dakota for CO_2 sequestration, as well as the monitoring and testing that would be done to verify that the CO_2 is contained in the storage reservoir.	20243-204403-02
Upper Sioux Community	Kevin Jensvold	2024-02-24	Further, it is not stated length of the life of this project. If a project is for 25 years or perhaps 50 years, does this simply move the issue of greenhouse gases down the road for the future generations to deal with? The purpose is to make ethanol a green fuel to sell more of it and make it a viable energy source.	Section 2.7 describes project decommissioning. If the ethanol plant continues to operate beyond the life of the proposed project, its CO_2 emissions would not be captured.	20243-204403-02
Upper Sioux Community	Kevin Jensvold	2024-02-24	Summit Carbon Solutions' full proposal is an extensive project with a 239.64-mile footprint in Minnesota, connecting multiple ethanol plants. It aims to impact the State's agricultural and ethanol industry. It is critical that the environmental concerns be addressed now as there may be more permit applications and environmental reviews of this type in the future. The DEIS does not consider the potential environmental and human impacts of the entire Minnesota portion of the applicant's CO_2 pipeline project. Because of this, we do not know the true cumulative impacts of this entire project on the water, soil, air, health, vegetation, and animals. The DEIS should look at all 240+ miles of pipeline the applicant has publicly proposed. The cumulative impacts of the carbon pipeline are more than listed in the DEIS. For example, the fresh gallons of drinking water currently used for ethanol production is around 3-3.5 billion gallons in the more efficient ethanol plants. In the year 2021 15 billion gallons of ethanol were reportedly produced. Multiply that number by 3 to get a total of 45 billion gallons of fresh drinking water used to produce the ethanol. Additionally, it is necessary to factor in the amount of natural gas used to manufacture ethanol. The current most efficient ethanol plant is using 37 883 btu's of natural gas to manufacture one gallon of ethanol about the equivalent to one cubic meter of natural gas now multiply those times 15 billion. This is an unlikely source of green energy with all the inputs of natural resources and safety concerns with ethanol carbon capture technology. This should also be for the whole "Midwest Carbon Express" pipeline project as the project described in the current DEIS is merely a pipeline to the North Dakota border with no known end connection point.	Thank you for your comment. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-02
Upper Sioux Community	Kevin Jensvold	2024-02-24	Based on the broad-reaching implications of this project, we respectfully request that the Commission appropriately broaden the scope of the DEIS to the Minnesota footprint of the "Midwest Carbon Express" project rather than studying the northern and southern portions of the pipeline in separate reviews. The "Midwest Carbon Express" is Summit's full proposed project- a pipeline across five states, connecting 30 ethanol plants to an underground storage location in North Dakota. In Minnesota, Summit plans to construct approximately 240 miles of pipeline; approximately 212 miles of that pipeline will connect six ethanol plants in southern Minnesota ("Southern Branch"). The project in the DEIS is only the smaller 28.1-mile branch in Otter Tail and Wilkin Counties, that will connect one ethanol plant to the pipeline network ("Northern Branch"). This proposal meets the Minnesota Environmental Policy Act's ("MEPA") definition of a "phased action," and the rules allow the Commission to include the entire Minnesota footprint. By reviewing the entire Midwest carbon express project in one environmental review would allow the Commission to fully understand and evaluate the impact the Carbon pipeline could have on land use conversion, the ethanol industry, environmental impacts, emergency response needs, and climate change.	Thank you for your comment. The Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-02

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	Ahlstrand, Heidi	2024-02-22	no pipeline	Thank you for your comment.	20243-204403-01
	Allie, Ginny (Kramer)	2024-02-21	Thank you for hosting three Public Meetings on the Otter Tail – Wilkin CO_2 Pipeline DEIS. As noted when I spoke at the Thursday Feb. 8, 2024 Online Meeting Webinar, I own land where the Midwest Carbon Express pipeline by Summit Carbon Solutions (SCS) is being proposed. This land is at Redwood County Secs. 27 and 34, Vesta Township. I have concerns that the Draft Environmental Impact Statement (DEIS) for this proposed pipeline does not fully address the magnitude of the impact to Minnesota's water supplies, electrical resources, farmers land damages, and the safety of Minnesota citizens.	Thank you for your comment. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-01
	Allie, Ginny (Kramer)	2024-02-21	The DEIS identified water usage needs per plant using the carbon capture pipeline in Ottertail County.1 With six plants currently identified by Summit for this proposed pipeline, the DEIS listing of water usage for one plant is misleading and needs to consider the impact of multiplying this water usage by at least 6 sites that are currently planned for this pipeline proposed through 13 counties in Minnesota. 2 The capture facility would require 8.2 gallons per minute in winter months and 40.9 gallons per minute in summer months, for an average water usage of about 13 million gallons per year (DEIS pg. 5-137). Total = 13 million gallons per year X 6 With Minnesota's continued drought conditions3 and some farmers/townships already getting water from Non Minnesota resources, the DEIS needs to consider the drainage on Minnesota water resources and impact to water supply when considering Minnesota's drought conditions. The applicant states that the anticipated lifetime of this project is 25 years. With a 25 year timeline, the DEIS needs to consider the loss of water supply over 25 years.1	Thank you for your comment. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS. Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-01
	Allie, Ginny (Kramer)	2024-02-21	CO_2 is a hazardous material in high concentrations · Although DEIS indicates CO_2 levels of immediate dangerous to life or health is 617 feet and expands to 910 for lower concentrations, the DEIS does not provide meaningful safety measures for a rupture but suggests "reasonable" measures as supplying residences within 1000 feet with indoor CO_2 detectors. However, as indicated in Appendix G, a full rupture would happen too quickly for early warning device such as an oxygen detector to be effective. Yet during Feb. 8 webinar discussion, the response to inquiries about warning systems was that it could be seen and heard implying that this would allow individuals time to get to safety with also no warning solution for persona who are deaf or blind. 6 · The DEIS does not address the risks to health for both first responders and victims in the event of a rupture. Nor does the DEIS address the impact on small communities who are staffed by volunteers to available personnel and special equipment, including non-internal combustion engines, to respond to a CO_2. 6	Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. The Emergency Response Plan included as Appendix N is a draft plan that is not outdated but would be revised as required by PHMSA, if the project is approved. Additionally, EERA staff recommended a special permit condition requiring the applicant to file its Emergency Response Plan that is filed with PHMSA with the Commission, and other special permit conditions as described in Section 8.5.3.	20243-204403-01
	Allie, Ginny (Kramer)	2024-02-21	· Although the DEIS indicates Summit will "comply with federal emergency response requirements", the Pipeline Hazardous Material Safety Administration (PHMSA) has stated that the current emergency response requirements are dangerously outdated.4 · The DEIS indicates that the PUC cannot set safety standards for the pipeline. Yet PHMSA notes in public letter to CO_2 pipeline companies including Summit, that local authorities can exercise their powers to regulate land use, including setback distances and that "nothing in the federal pipeline safety law impinges on these traditional prerogatives of local—or state—government."4	Although the Commission cannot set safety standards for pipeline construction or operation, state or local units of government may, to the extent authorized by law, set land use requirements that indirectly contribute to pipeline safety by regulating the activities of third parties located in the pipeline's vicinity. The Commission's obligation is to identify a pipeline route consistent with the criteria found in statutes and the applicable administrative rules. Federal law, by contrast, exclusively prescribes pipeline safety requirements.	20243-204403-01
	Allie, Ginny (Kramer)	2024-02-21	The DEIS sates project would use 38,501,733 kilowatt hours per year that would not require addition of power but fails to state how much electricity the ethanol refinery is currently using. The DEIS needs to provide explanation on how doubling of electrical usage will impact the Lake Region Electric Cooperative and the potential financial impact to the coops member-owners.	Section 5.4.9.1 has been updated with the electricity currently being used by the ethanol plant. Section 5.4.9.2 contains relevant information regarding how LREC would support the project. This section has been updated to indicate that the applicant is solely responsible for necessary	20243-204403-01

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				infrastructure upgrades (see Appendix I, Supplemental Information Inquiry 13 response and email from LREC).	
	Allie, Ginny (Kramer)	2024-02-21	The DEIS does not fully address the farmers financial impact from indefinite loss of crop yields and landowner liability with pipeline damage while farming land during and after the construction process. · Dan Henrikson, a neighbor to land I own in Redwood County, has documentation of continued loss of crop yields after 9 years in area where the soil was compacted during installation of high powerlines with no indication that this will change in the future and this does not factor in the additional crop yield risks that might be caused during removal of top soil needed for the pipeline installation. · During a 1/23/2023 presentation by Dan Henrikson, he also shared farmer liability risks with easements offered by with liability risk on the farmer and not on SCS.9 · "Based on the experience with Dakota Access, the fertility of cropland can be adversely impacted for several (or perhaps many) years." 2 During a 1/23/2023 presentation by Renville County farmer Bob Reubel (Olivia farmer), he shared how area of his land with pipeline decades later continues to have a decrease in crop yield between 30-35% yet SCS is only proposing to compensate farmers with Midwest Carbon Express pipeline easement for 3 years crop loss.8, 9 Thanks you for considering my concerns and request for additional ipact information as noted above.	As indicated by the definitions found on Page 5-1 of the draft EIS, "long-term impacts extend beyond the end of construction and are generally associated with operation of the project." Disturbance to soils and crops from construction can result in impacts that extend beyond the construction phase, and the text in the final EIS has been revised to indicate that impacts can be long term. Landowner easements are outside the scope of the EIS.	20243-204403-01
	Anderson, Janet	2024-02-22	In case of a rupture of a CO_2 pipeline, persons within a 617' radius are subject to conditions "immediately dangerous to life or health". This is euphemistic. Persons nearby lose consciousness within a minute. Persons within 910' will experience dizziness, drowsiness, severe muscle twitching, and unconsciousness within a few minutes. Emergencylive.com tells us Death from suffocation (asphyxia) proceeds in four stages: 1) Irritative or 'respiratory dyspnoea' stage: lasts from 30 to 60 seconds and is characterized by: tachypnoea (increased respiratory rate); tachycardia; arterial hypotension ('low blood pressure'); cyanosis (bluish skin); miosis (narrowing of the pupil diameter of the eye). 2) Convulsive or 'expiratory dyspnoea' stage: lasts about 1 minute and is characterized by: hypercapnia (too much CO_2 in the blood); severe dyspnoea (marked expiratory difficulty); arterial hypertension; high release of adrenaline into the circulation; tachycardia; obnubilation of consciousness; cerebral hypoxia; convulsions; reduced motor reflexes; sensory alteration; sphincter release (faeces and/or urine may be involuntarily released). 3) Apnoic or 'apparent death' stage: lasts about 1 minute and is characterized by: progressive bradypnoea (progressive reduction in the frequency of respiratory acts); miosis (pupil constriction); muscle relaxation; severe bradycardia (slow and weak heartbeat); deep coma. 4) Terminal or 'gasping' stage: lasts approximately 1 to 3 minutes and is characterized by: continued loss of consciousness; slow and irregular respiratory movements; severe cardiac arrhythmia; cardiac arrest; cessation of breathing; death. This means that people in the vicinity of a rupture may be dead in 3-1/2 to 6 minutes.	Thank you for your comment. Section 8.3.1.2 describes the risks associated with the inhalation of CO_2.	20243-204403-01
	Anderson, Janet	2024-02-22	Summit indicates that it will take 25 minutes for the system to shut off the relevant valves in the event of "abnormal operation," the DEIS does not mention any meaningful safety measures for a rupture. Appendix G's rupture report says, "a full rupture results in impact distances too quickly for an early warning device, such as an oxygen detector, to be effective."	Text in Section 4.5 on valve closure time has been corrected from 25 minutes to 10 minutes. Elsewhere in the EIS, including the rupture analysis, valve closure time is listed/calculated as 10 minutes. Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. The Emergency Response Plan included as Appendix N is a draft plan that is not outdated but would be revised as required by PHMSA, if the project is approved. Additionally, EERA staff recommended a special permit condition requiring the applicant to file its Emergency Response Plan that is filed with PHMSA with the Commission, and other special permit conditions as described in Section 8.5.3.	20243-204403-01

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	Anderson, Janet	2024-02-22	As CO_2 is colorless and odorless, both victims and first responders have no way of knowing what is causing the problems. In addition, first responders need special equipment, including vehicles that do not rely on combustion and special breathing equipment, to respond to a CO_2 disaster. The DEIS does not consider how EMS and health providers should prepare for a pipeline rupture or the burden of acquiring and maintaining the necessary special equipment and training with it.	Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. The Emergency Response Plan included as Appendix N is a draft plan that would be revised as required by PHMSA, if the project is approved. Additionally, EERA staff recommended that a special permit condition requiring the applicant to file its Emergency Response Plan that is filed with PHMSA with the Commission, and other special permit conditions as described in Section 8.5.3.	20243-204403-01
	Anderson, Janet	2024-02-22	Though the plan talks of multiple company personnel as playing roles in an emergency response, it ignores the fact that the applicant plans on having only one full-time employee at the capture facility. This pipeline should not be approved without a clear understanding of the risks to human health.	Thank you for your comment.	20243-204403-01
	Anderson, Jon	2024-02-22	My name is Jon Anderson, I am a 3rd generation retired farmer and reside on a 125 year old family farm in Martin Co. Mn. I have seen no proof of any reduction to C02 in the atmosphere which has been occurring for decades.	Thank you for your comment	20243-204403-01
	Anderson, Jon	2024-02-22	Rural residents and their small surrounding communities should not be asked to be subjected to these hazardous C02 pipelines and sequestration sites. C02 from ethanol plant production can be captured at point of production and utilized at the ethanol production facility there is no reason to endanger residents, communities, volunteer responders, livestock and water resources. This proposed pipeline with it's easements offer no beneficial advantage to the land owner, his neighbors, or local community but these rural residents will be left to live with the consequences.	Thank you for your comment.	20243-204403-01
	Anderson, Jon	2024-02-22	It's presence devalues the property and surrounding area value and adds risk to surrounding area. It will consume huge amounts of water from local sources all the while benefiting a fossil fuel industry that will continue to emit.	Impacts on property values are discussed in Section 5.4.7.2, and water use impacts are described in Section 5.7.8.2. Effects on water use in the event of a rupture is described in Section 8.3.4.1. Other impacts in the event of a rupture are described in Section 8.3.	20243-204403-01
	Anderson, Jon	2024-02-22	Carbon credit money would be better spent on new technology. Who will benefit from this proposed boondoggle? Not the rural resident, not the environment, then who? Huge amounts of spending and resources consumed all the while endangering rural communities and nothing to show for it.... very sad ...we can do much better than this. Thank you for listening.	Thank you for your comment. As stated in the final scoping decision, the appropriateness of federal and state policies regarding carbon capture and ethanol, including tax credits and other incentives, is outside the scope of the EIS.	20243-204403-01
	Andresen, Deborah	2024-02-23	We would all like to dream of something that could separate carbon from the air; but that would leave the co2 in high concentrations resulting in hazardous material. A rupture of a co2 pipeline leaves the victims drowsy to the point of unconscious with severe muscle twitching. Being an odorless, colorless gas, first responders are in danger and would need expensive special equipment to be safe.	Section 8.3 describes the effects on humans and the environment from an accidental release of CO_2. Section 8.4 describes the actions that would be taken in the event of an accidental release.	20243-204403-01
	Andresen, Deborah	2024-02-23	Pipeline construction can affect water crossings, wetlands, aquifers, and sensitive water bodies that support all kinds of wildlife: fish, reptiles, waterfowl, insects. This is precious.	Potential impacts of pipeline construction on water resources, wetlands, wildlife, and rare and unique resources are described in Sections 5.7.8, 5.7.9, 5.7.10, and 5.7.5.	20243-204403-01
	Andresen, Deborah	2024-02-23	MN has drought problems and the carbon capture process can double the water requirements of a facility and increase toxic wastewater discharge.	Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals	20243-204403-01

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				following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	
	Appel, Dylan	2024-04-23	Hello, my name is Dylan Appel. Resident and homeowner in Wabasso, MN located in the heart of Redwood County. I first learned of the CO_2 pipeline because of yard signs I saw while driving. Through reading, watching videos, talking with community members and being on zoom calls discussing the topic, I learned why the pipeline is being proposed, who's paying for it, how it functions, where it will run and the impacts and risks involved. The proposed pipeline route goes directly through Redwood County. My first and biggest concern is that of public safety. In February of 2020 near Satartia, Mississippi, there was a CO_2 pipeline rupture. The result was vehicles stalled out on highways, people having seizures, and a huge delay in emergency response all due to oxygen deprivation. Fortunately, there were no casualties, but there was over 45 people hospitalized.	Risks of a potential CO_2 release and potential impacts are described in Chapter 8 of the EIS. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-01
	Appel, Dylan	2024-04-23	A well-known problem in our small rural communities is the shortage of EMT's and fire fighters - to the degree that Minnesota launched a task force to help with this problem. We simply do not have the resources, training, or manpower to handle a pipeline rupture. Although Summit Carbon Solutions may have safety failsafe built in, everything manmade fails - and when it does, how many will be hospitalized? Will there be casualties?	Section 8.5.1.5 has been revised to address EMS staffing shortage problems.	20243-204403-01
	Appel, Dylan	2024-04-23	Summit "anticipates" they will consume approximately 13 million gallons of water per year for carbon capture. With years of drought in southwestern Minnesota our aquifers are tapped out and our small towns struggle to keep up with water demand. Recently I was speaking with a Wabasso City Councilman about the water problems we continue to face. He replied, "We're literally sucking sand". We have a very finite supply of fresh water that we need to conserve.	Additional information has been added to Section 5.7.8.2 to address the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-01
	Appel, Dylan	2024-04-23	The DEIS states that during operation the proposed project will require about 38,501,733 kilowatt hours per year, and that this amount is "not anticipated to require the addition of power generation capacity." With the Minnesota legislature mandating electricity production be 100% carbon free by 2040, year after year we see coal power plants being decommissioned. Minnesota would experience a devastating 55-hour blackout in late January if wind and solar output is the same as it was in the year 2020, and electricity demand was the same as 2021 according to an American Experiment study. Once again, we do not have the resources to support this pipeline.	Thank you for your comment.	20243-204403-01
	Appel, Dylan	2024-04-23	In conclusion, I feel this entire project is at the expense of the already marginalized American working class. SCS must provide meaningful solutions to the concerns listed above. Sources: https://files.americanexperiment.org/wp-content/uploads/2022/09/The-High-Cost-of-100-Percent-Carbon-Free-Electricity-by-2040-in-Minnesota.pdf https://www.cbsnews.com/minnesota/news/minnesota-launches-task-force-focused-on-problems-facingrural-ems/ https://www.npr.org/2023/05/21/1172679786/carbon-capture-carbon-dioxide-pipeline	Thank you for your comment.	20243-204403-01
	Appel, Shirley	2024-02-22	My name is Shirley Appel, resident and taxpayer of Redwood County. I learned about Summit's proposal to construct a CO_2 pipeline through our county from a neighbor. Since then, I have read about the proposal and have listened to presentations regarding concerns with the proposal. One of my many concerns with this project is the dangers associated with our water supply. One of Minnesota's greatest resources is our fresh water, using it for sustenance as well as for recreation. It is my understanding the proposed route for the pipeline includes wetlands, aquifers, and other water bodies. I feel Summit is vague on the impacts to our community's water supplies. This must be assessed in detail. With severe drought the past few years our water supplies have decreased substantially. Summit anticipates millions of gallons of water usage every year. It is crucial we conserve our fresh water for our drinking water supply.	Potential impacts on and mitigations for freshwater (groundwater and surface water) are discussed in Section 5.7.8. Potential impacts on and mitigations for wetlands are discussed in Section 5.7.9. Additionally, potential impacts on and mitigations for recreational resources, including water-based recreation, are discussed in Section 5.4.10.	20243-204403-01
	Appel, Shirley	2024-02-22	In the event of a leak or rupture more research needs to take place on the risks involved for our water supplies and what negative impacts it would present to fish, waterfowl, insects, birds and reptiles, and most importantly to our people. Another concern is	Risks of a potential CO_2 release and potential impacts are described in Chapter 8 of the EIS. Chapter 8 also describes the steps that would be	20243-204403-01

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			medical response in case of a rupture or leak. Our small towns do not have the manpower, equipment or financial resources needed for a timely and successful response.	taken in the event of an accidental release and the steps that would be taken to prevent an accidental release.	
	Baka, Ryan	2024-02-23	We all have a duty and responsibility to protect and care for our planet because of what it provides for us. I ask that the Public Utilities Commission and Department of Commerce take these issues into account in order to ensure that the Environmental Impact Statement (EIS) for the Otter Tail to Wilkin CO_2 Pipeline Project in Otter Tail and Wilkin Counties (Docket Number: 22-422) is a factual and thorough account of the project impacts. Minnesotans need a robust environmental review, and we need transparency, accountability, and regulatory oversight to ensure the greater public good and interests of communities impacted by these pipelines and all Minnesotans are respected and protected.	Thank you for your comment.	20243-204403-01
	Batalden, Ryan	2024-02-22	My name is Ryan Batalden. I live in Cottonwood County, MN. Summit wants to build a highly pressurized CO_2 pipeline, as close as they legally can, next to my house and farm site. I live and farm there with my wife and three young children. Summit has NO experience building or maintaining a pipeline of this type.	Thank you for your comment. Detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-01
	Batalden, Ryan	2024-02-22	Our local emergency services have NO equipment to deal with a CO_2 leak. Our local emergency services also have NO training to deal with a leak. The safety of my family and my community is FAR MORE important than the subsidized profits of a huge corporation that may well use that same CO_2 to frack for MORE fossil fuels! It is outlandish that this pipeline is even being considered. Thank you for your time,	Sections 8.4 and 8.5 describe the steps that would be taken in the event of an accidental release of CO_2, including the training and provisioning of equipment to local emergency responders. Additionally, the applicant's draft Emergency Response Plan is included in Appendix N of the EIS.	20243-204403-01
	Baumann, Roger	2024-02-22	The DEIS consistently fails to properly account for the real CO_2 emission and climate impacts of the project. Lifetime of Project: The applicant states that the anticipated lifetime of this project is 25 years. This means at the end of its life; the project could stop capturing the CO_2 from the ethanol plant. Unless the ethanol plant ceases operations at that point in time, it will continue to emit CO_2 unabated into the future.	See responses to more specific comments regarding CO_2 emissions and climate impacts below. Regarding the lifetime of the project, Section 2.7 describes project decommissioning. If the ethanol plant continues to operate beyond the life of the proposed project, its CO_2 emissions would not be captured.	20243-204403-01
	Baumann, Roger	2024-02-22	100% CO_2 Capture Rate: Summit states that the capture facility "is designed to capture 100% of the CO_2 produced by the ethanol plant." There is no carbon capture facility in the world, ethanol or otherwise, that captures carbon at a rate of 100%. This claim is not supported by any data/information or verified by a third party.	Section 2.1 has been revised to clarify that the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. The analyses in Section 5.7.1.3 and Chapter 6 have been revised to include capture rate scenarios of 100 percent, 70 percent, 40 percent, and 10 percent.	20243-204403-01
	Baumann, Roger	2024-02-22	Additionally, the DEIS should emphasize that any CO_2 capture is solely associated with emissions from the ethanol fermentation process and provides zero reductions on the significant emissions from the facility's electricity use. Added CO_2 from electricity use: Carbon capture technologies are highly energy intensive and will significantly increase the carbon emissions at the facility from electricity use. The DEIS uses the Midwest Reliability Organization West Region average to calculate these emissions, which is unnecessarily inaccurate given the availability of the actual emissions factor from Great River Energy.	Section 2.1 of the EIS has been revised to clarify that the captured CO_2 is produced by the ethanol plant as part of its fermentation process, the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. Section 6.3 describes energy efficiency and energy alternatives that could reduce emissions from the ethanol plant's electricity and process fuel use. Electricity emissions are included in Table 5-39. These numbers have been revised to reflect the electricity emission factor associated with LREC, which would provide electricity to the project. The revised electricity emission factor is 132.2 g CO_2e/MWh. This was calculated from LREC's energy resource mix, in which nearly half comes from clean energy sources. Because LREC has a lower emission factor than the Midwest Reliability West Region emission factor (684.35 g CO_2e/kWh), which was used in the draft EIS, calculated electricity emissions have decreased.	20243-204403-01

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	Baumann, Roger	2024-02-22	CO_2 Storage: The DEIS assumes 100% of captured CO_2 is being permanently stored underground. There is no guarantee that this will occur and no explanation of the monitoring and verification protocols that would ensure it.	Text has been added to Section 2.1 describing the suitability of the Broom Creek Formation in North Dakota for CO_2 sequestration, as well as the monitoring and testing that would be done to verify that the CO_2 is contained in the storage reservoir.	20243-204403-01
	Baumann, Roger	2024-02-22	Enhanced Oil Recovery: The DEIS fails to explain whether the applicant can sell any of its captured CO_2 to others for alternative uses instead of permanent sequestration and what the impacts of that would be. The DEIS incorrectly states that “Production of oil through EOR would not be dependent on the availability of CO_2 produced by the ethanol plant.” This claim is contradicted by countless public statements from public officials in North Dakota and oil industry representatives.	The text questioned by the commenter in Section 5.7.2.3 was prefaced with the following: "if all the CO_2 produced by the ethanol plant is sequestered as proposed, EOR would likely continue in North Dakota using other sources of CO_2, other gases, thermal methods, or chemical methods." Revisions are not necessary. However, Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for EOR.	20243-204403-01
	Berkholtz, Ric	2024-02-23	I have read about what CO_2 pipelines entail and I strongly feel that such infrastructure is not the answer to climate change mitigation. On the contrary, they pose serious risks to community health and safety. It does not benefit the residents of Minnesota—only the fossil fuel companies seeking to conduct Enhanced Oil Recovery. Furthermore, they pose a risk to animals and humans alike. CO_2 is an asphyxiant which is invisible and odorless, but toxic.	Thank you for your comment.	20243-204403-01
	Berkholtz, Ric	2024-02-23	CO_2 pipelines pose great a risk to land and water as well. Across the country, aquifers have been breached and compromised by pipeline projects. Aquifers are precious and key to maintaining groundwater health and providing clean drinking water for people and animals. The acidic nature of C02 would compromise both groundwater and surface water (lakes, streams, creeks, and rivers).	Section 5.7.8.2 addresses the potential impacts of an aquifer breach. Section 8.3.4.1 addresses the potential impacts of a CO_2 release on water resources.	20243-204403-01
	Berkholtz, Ric	2024-02-23	What we really need are real solutions to the climate crisis. Namely, the preservation of lowland forests, the planting of new and native trees, and the protection of peatlands; the electrification of buildings and vehicles; and the implementation of sustainable farming on either existing farms or new farms.	Thank you for your comment. Chapter 6 discusses the potential use of sustainable farming practices as an alternative to the project. Only climate smart agricultural practices, energy efficiency measures, and alternative energy sources emerged as viable alternative strategies.	20243-204403-01
	Briese, Allen & Susan	2024-02-23	COMMENTS ON PUC PROCESS This process has been a new one to us. We appreciated how Mr. Levi conducted the public hearings and treated all speakers and attendees with respect, along with the remaining state staffers. At the end of the hearings, both in May of 2023 and February of 2024, he took the time afterwards to walk around inviting questions from the attendees and engaged them to ask their questions. As expected, but still appreciated, Mr. Levi’s familiarization with the EIS and its appendages inspired a confidence level of the intensity and thoroughness of the completed study, in addition to a perusal of the material which revealed additional information was requested, supplied, and reviewed in compiling the EIS.	Thank you for your comment.	20243-204403-01
	Briese, Allen & Susan	2024-02-23	GENERAL COMMENTS Obviously landowners and interested parties are not trained in the areas required to review, regulate, construct and operate a pipeline of this magnitude and while we must rely on those experienced and trained to do so, we must also do our due diligence to insure the safety of those living in the area, impact on our environment, our little slice of Heaven on earth, and how it could affect the potential of our property’s future use, even if never explored, but not to restrict those choices we currently have. There is a projection that ethanol is phasing out and by the time this pipeline is operational, will be a moot issue and then if easements are signed, the pipeline could be subject to another project which would again need to be subject to review for permitting route by the PUC. Some of the comments relating to pipeline matters were summarized in earlier responses by the undersigned and part of the docket and are incorporated herein by reference, as well as responses from other landowners of similar safety matters.	Thank you for your comment.	20243-204403-01
	Briese, Allen & Susan	2024-02-23	PURPOSE We see this proposed pipeline to have little impact on the grand scheme of the world’s carbon emissions and so many outside things would need to change, such as private air travel, factory emissions. The current governmental administration in control supports tax dollars for subsidies and these projects. Another party in control might not. Landowners must rely on themselves to review the effects of this project and not on those that can set the rules and/or profit from the project for other gain. We have attended public meetings, listened to webinars, parts of PHMSA 2023 IA hearings, ND PUC hearings, conducted research, but again, the technical components to the design and structure etc of the pipeline are foreign.	Thank you for your comment.	20243-204403-01

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	Briese, Allen & Susan	2024-02-23	RESPONSE TO COMMENTERS This Respondent attended the February 7, 2024, presentation at 6 pm in Fergus Falls. The hearing was fairly well attended, with landowners from the anticipated RA South and RA North line within a three-mile radius of the beginning of the FF to Breckenridge line. Landowners along RA North and RA Hybrid were frustrated on notice of public hearing received just days prior to the hearing. Due to time constraints, this Respondent was unable to listen to any other hearings or podcasts during this short response time. Below are a few comments on the speakers outside of the Respondent. 1. Anthony Hicks. CEO of Green Plains Ethanol Plant. From an income-generating standpoint, he shared the economic benefits the entity. I suspect this would include the entity and private investors who do not necessarily live in the area or along the proposed routes. I refute his comments: a. Not considering the negatively on human life, vegetation or animals, but profits. b. How many additional employees who will live in the area will this add? Not enough in the grand scheme of the FF community to be considered a great positive effect. c. Additional noise factor and water ground source usage as a negative to those living nearby. d. Shared what projected and unproven economic benefits might be. e. What other options has the plant explored for CO_2 emissions reduction? f. What about the fuel emissions from the trucks bringing corn to and from the plant? As interesting as these biased comments were, the purpose of the hearing was to review and discuss the EIS, not the projected future P&L of the company and these comments to me did not seem relevant to the nature of the hearing. If Mr. Hicks did not focus his comments on safety.	Thank you for your comment.	20243-204403-01
	Briese, Allen & Susan	2024-02-23	Union Representatives. These comments were biased and not based on the EIS results, but on jobs, salaries and their opinion of economic benefits to communities and personal gain. Union staff will come in and, as represented at the hearing, they will be trained in this type of pipeline. They will most likely not be from the area and are not going to bring their families, buy a house, contribute to the community, send kids to school and pay local taxes. While there will be some influx of revenue, it will be short-lived and in the FF to Breckenridge route, it Is 28 miles, so shared temporary housing and only for what, maybe up to five months in the area. Future maintenance of the line will be serviced by out of the area staff who are trained in carbon pipelines passing through and maybe buying some food and gas with occasional hotel room. The financial impact on the Fergus Falls and Breckenridge community is a bogus point. Providing jobs and income for on the road construction staff and to those entity shareholders/owners make profit to us does not fall within the scope of the EIS and comments did not discuss safety concerns.	Thank you for your comment.	20243-204403-01
	Briese, Allen & Susan	2024-02-23	Dale Schmidt. Landowner. Read an article he said he just found as he was attending the meeting. There are so many articles a researcher can find and review with the pros and cons. It is good to do additional due diligence to dig deeper for meaningful pros or cons relating to the project. 4. Final Speaker. This gentleman represented that he worked in the industry. He had good points. However, it would be nice to know if his position would be the same if the proposed CO_2 line was asked to be constructed near or over his land.	Thank you for your comment.	20243-204403-01
	Briese, Allen & Susan	2024-02-23	COMMENTS ON EIS As represented previously, much of the logistics of building the pipeline by Summit Carbon (hereinafter SC) and projects and calculations, study within the PUC is foreign to the average layperson. SC's purpose is to build and operate the line for the profit of its private investors and for private gain. The PUC role is to ensure the safety of the pipeline on the 1) population; 2) environment; and 3) animal inhabitants as best can be determined from this projected line. The landowner's role is to protect the landowner's land investment and be adequately compensated if the landowner grants an easement. In some areas, it seems there is prejudice against landowners who happen to live in the path of the proposed pipeline that are not comfortable with it.	Thank you for your comment. The Commission cannot set safety standards (Minnesota Rule 7852.0200, Subp. 2); however, the environmental review process aids "in the selection of a pipeline route and to aid in the understanding of its impacts and how those impacts may be reduced or mitigated" (Minnesota Rule 7852.0200, Subp. 3).	20243-204403-01
	Briese, Allen & Susan	2024-02-23	RESPONDING TO THE EIS EXECUTIVE SUMMARY AND FULL DRAFT EIS January, 2024 1. Pipeline Diameter. ES-1. We are comfortable with the previously determined PSI and 4 to 6-inch diameter and note under Supplemental Information Inquiry #3, it has been determined that the effects of a 3-inch pipe to 6-inch pipe reported no significant differences. 2. Water Usage. Concerns how this will affect the area surrounding the ethanol plant re water usage. Not sure if annexing the property to the City of Fergus Falls and using city water reduces water tables or not. Maybe not even a point because I have no idea.	Thank you for your comment. Water use is discussed in Section 5.7.8.	20243-204403-01

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			Respondent just hears concerns of use of water to convert is concern. Does SC need to follow the intense permitting process a landowner does when installing and using irrigation. [Note, I noted this later on the DNR will provide permitting.] Dry years, coupled with water usage could be concerning to environment. ES-2		
	Briese, Allen & Susan	2024-02-23	3. Transparency. This has always been a challenge to obtain a clear and concise answer from SC and to see a pictorial of the exact location or more general location project areas, from the beginning after our original meeting with a SC representative. Initially, all SC shared when asked was a vague minute aerial map. Even in the EIS summary, ES-2, there is no map, one has to look to outside sources or try to find it on the PUC flashdrive or printed EIS. It was at the May, 2023, meeting as well. But finally, a copy that can be easily followed. Recorded easements are public data. Please incorporate the route maps into the text when describing the routes or reference where to find the maps. Also, it is a tad confusing in the full report where it refers routes as 1, 2 and 3. Maybe RA- North, AR 1, or something like that. 4. Alternatives. ES2. The: 1) no action; 2) three routes; and 3) alternative technologies were discussed. At this time, it could be the no action, pending alternative technologies might be the most attractive to the landowners and adjacent landowners that are impacted by this proposed CO_2 pipeline related to safety measures or a moratorium until the PHMSA has completed its findings [discussed later in this response]. This Respondent is wondering why the cost of the three routes is in the report. Why does that have a bearing on the EIS? Is not this project subsidized by the government, its members are entities that are privately owned, and uses taxpayer money, so if the investors do not make as much profit, that is the risk they take and which route is more expensive should not have any impact on any final route, if chosen.	Thank you for your comment. A map has been added to the Executive Summary, and maps are also provided in Chapter 4 and Chapter 5. Appendix B provides an overview map and detailed route maps for the three alternatives. In selecting a route for a pipeline routing permit, the Commission is required to consider the cost of the different routing options pursuant to Minnesota Rule 7852.1900, Subp. 3(E).	20243-204403-01
	Briese, Allen & Susan	2024-02-23	Human Settlement. ES-3 to ES-6. 1. Aesthetics. ES-3. EIS states more residents on the RA North line. Mr. Levi informs me that is “building sites”. And how many is “more”. When determining a route, a few households with fewer actual residents is more comparable than just a building site. Generally, closer to a city there are younger families and in the flats, fewer, elderly and may even be vacant. [Not confirmed] This appears to be a summary and not necessarily factual. See response to 6 below and 8.2.3 on page 7.	EERA agrees. Staff does not know how many residents live within a residence. Changes to the final EIS were made to clarify that EERA is referring to the number of residences as opposed to residents.	20243-204403-01
	Briese, Allen & Susan	2024-02-23	2. Cultural Resources. ES-3. Not understanding the reference to “Tribal culture”. Property is unique and the Briese tract contains much wildlife and offers an array of hunting opportunities that would be affected, in addition to recreational use. It would not be similar to a large even 100- acre flat field to the west. 3. Environmental Justice. ES-4. No comment.	EERA agrees. Section 5.4.2.2 has been revised to note that wildlife and their habitats could be impacted whether they hold Tribal cultural significance or not.	20243-204403-01
	Briese, Allen & Susan	2024-02-23	4. Land Use and Zoning. ES-4. While the impact of the proposed pipeline would be minimal to much of the land it would cover, which appears to be agricultural land that is farmed, it would be devasting to be near farmsteads and recreational land or potential future land that could be developed due to its safety concerns and usage restrictions. Any saavy landowner would want to keep options and use open for the landowner’s purposes and goals. A CO_2 pipeline would have a negative effect on specific and unique tracts of land. It would be extremely prejudicial to forcibly coerce a landowner to allow an unwanted pipeline and infringe upon that landowner’s constitutionally protected rights. 5. Noise. ES-4. Not entirely got the grasp of this section. But no comment. The immediate area by the plant is already subject to city, road, and airport noise factors.	Thank you for your comment.	20243-204403-01
	Briese, Allen & Susan	2024-02-23	6. Populated Areas. ES-4. This area is of concern. This concern was raised by this Respondent at the public hearing. The PUC has redefined populated to fit the scenario. Prejudicial to rural residents and farm residents who produce food. The PUC “Populated areas are defined for this analysis as incorporated areas or legal entities, and census designated places . . .” Further to state “There would be no impacts on populated areas because no populated areas are within 1,600 feet of the route width for any of the three route alternatives.” [emphasis added] So, then is one to understand this to mean residents not residing within a municipality, but are township, county and state residents can be considered to be at risk and collateral damage to a leak or ruptured pipeline? Dictionary definition: In a prior response, there was provided upwards of 100 country residents within a 4-mile radius of the plant, plus the City and developments along the Pelican River. This responder believes all lives are valuable.	Minnesota Rule 7852.1900, Supb. 3(A) requires the Commission to consider the impact of a pipeline to, among other considerations, the "existence and density of populated areas." Minnesota Rule 7852 provides no definition of "populated area." Section 5.4.6 has been revised to clarify the definition used in the EIS for populated areas and to note that the EIS describes potential impacts on the human environment, regardless of whether they would occur within defined populated areas. Section 5.4.5 and the detailed route maps in Appendix B have been updated to reflect the residences identified by the commenters.	20243-204403-01

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			In addition, on this pictorial below, there is omitted the residence site within that 1,600 feet for 2 of the properties – the shohouse and the 2 story house are residences but were identified in yellow instead of red on the routing map for RA South. Please update the map found on page 2 of 19 of the RA-South [Alt 3] map. See also response to 1 above and 8.2.3.		
	Briese, Allen & Susan	2024-02-23	7. Property Values. ES-4. This area is of concern. Respondent disagrees that property values once the pipeline is in place would not be affected by a CO_2 line nearby. But it really can only be projected and not factual at this point. Or maybe it would not be. Land values could be affected by the line. Not so much if farmland, but for the wooded, recreational, and hunting land. For land close to a town on a river the value could be diminished as any lotting or platting process would need to adhere to the underground line and could inhibit development opportunities, growth for the area and financially to any developer.	Thank you for your comment. Section 5.4.7 has been revised to indicate that impacts on a property's value during operation of the project are not expected to significantly affect a property's value.	20243-204403-01
	Briese, Allen & Susan	2024-02-23	8. Public Health and Safety. ES-5. As previously discussed, and this Respondent didn't have the chance before this submission was due to review, but of training to the plant and local area EMTs, etc. and SC providing the appropriate equipment. How the turn off valve works and SC and FFGP protocol. Somewhere it was asserted that SC could provide appropriate safety mask features, as updated, to area residents close to any line. This would be a necessity, even just for the comfort level of the landowner. 9. Public Services and Infrastructure. ES-5. See comment 8. No other comment. As with health insurance, one never knows the true extent of coverage until something happens.	Thank you for your comment.	20243-204403-01
	Briese, Allen & Susan	2024-02-23	10. Recreation. ES-5. This is discussed elsewhere in the comments herein. 11. Socioecomonics. ES-6. This paragraph represents "local labor will be used, increasing employment in the area". This has been unclear. Calculations from outside sources represent it would increase the current plant's employees by 2.5. SC assures landowners that laborers will be skilled, Unions are in favor of this project (and as presented at the February 7, FF hearing), who will come and go with increased local income similar to a tourism season. Reps checking the lines will be skilled and most likely travel from site to site along the line. Please explain what type of labor force this will create and how does it affect the environment per this study? In addition, what does the cost factor to construct each of the lines matter for the determination of placement of a line for environmental impact studies? If, as stated elsewhere in this EIS, the land values will be the same, how does this create a "generate property tax revenues" . . . . "during the first year of operations". What about the following years, how can this be predicted when fossil fuels under the current administration are being phased out?	Thank you for your comment. Section 5.4.11.2 discusses potential impacts associated with the labor force in more detail as well as potential impacts. About half of the anticipated 250 workers are expected to be local. Potential impacts on local economies are expected to be short term and minimal. Cost is a listed factor in Minnesota Rule 7852.1900, Subp. 3. Cost is just one of the many factors PUC must consider when making a decision on a pipeline routing permit. Tax revenues are assessed based on the value of the pipeline and capture facility and other commercial equipment, not the easement. The final EIS has been modified to clarify this point. The EIS does not speculate on future policy decisions related to fossil fuels.	20243-204403-01
	Briese, Allen & Susan	2024-02-23	12. Tribal Treaty Rights. ES-6. No Comment.	Thank you for your comment.	20243-204403-01
	Briese, Allen & Susan	2024-02-23	Economies. ES-6. 1. Agriculture. Loss of farmland and having to farm around the easement area could be problematic. The suggested damages, in addition to easement payment for 2 to 3 to 5 years, should be 10 years. 2. Industrial. No comment.	Thank you for your comment. Landowner agreements are outside the scope of the EIS.	20243-204403-01
	Briese, Allen & Susan	2024-02-23	3. Tourism. Other than as stated previously in these comments the loss of use by the landowner, no comment. Archaeological and Historic Resources. ES-7. 1. Archaeological Resources. No comment. 2. Historic Architectural Resources. No comment.	Thank you for your comment.	20243-204403-01
	Briese, Allen & Susan	2024-02-23	Natural Environment. ES-7. 1. Air Quality and Greenhouse Gas Emissions. No comment except that the number of semis to and from the plant current emitted into the air during transport. It does appear the EIS addresses. 2. Climate Change. ES-8. While considerable, this project is just a small footprint in the world's global warming and carbon emissions reduction. Foreign countries are building plants. The phrase "Drought conditions might require contingency water sources." That is	Thank you for your comment. Water use is discussed in Section 5.7.8.2. Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to	20243-204403-01

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			discerning. For example, in winters such as 2023-24, the water usage from the plant and lack of moisture in the ground be absorbed to compensate for no snow coverages, how do the experts answer how that affects landowners' water source and levels? 3. Geology and Topography. ES-8. No comment. Proper restoration per the easement agreement would need to be fulfilled by SC.	include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	
	Briese, Allen & Susan	2024-02-23	4. Public and Designated Lands. ES-8. No comment. 5. Rare and Unique Resources. ES-8. No Comment.	Thank you for your comment.	20243-204403-01
	Briese, Allen & Susan	2024-02-23	6. Soils. ES-8. Landowner would need to satisfy Landowner with restoration in any easement agreement. 7. Vegetation. ES-9. The farmland can be restored by proper coverage, but some studies indicate could take up to 10 years until disrupted soil reaches its before construction base. Woody vegetation would be of particular concern to landowners who reside near or in wooded areas, water, ground shrubs and grass and use the area for hunting and recreational purposes. What "disturbing less than 1 acre" to a proponent of the proposed pipeline is subjective and can be minimal; but in the eyes of a landowner in conflict with landowner's intent for the land use could be significant.	Thank you for your comment.	20243-204403-01
	Briese, Allen & Susan	2024-02-23	8. Water Resources. ES-9. This was good to read that permits will be granted in alignment with DNR regulations (per comments noted previously). But this is an area of concern to area landowners that there may not be enough water for all. What if the footprint of the converter is increased and it uses more water than expected or expands? Does water usage again need to be permitted? 9. Wetlands. ES-9. No comment. This is public land. 10. Wildlife and Their Habitats. ES-9. Natural habitat wildlife could be affected greatly in the event of a leak or rupture. It could take time for the wildlife to return and thus inhibit a hunting paradise to be tainted. Could construction during mating season for birds and mammals affect that? Would the additional noise and disruption during construction cause the deer to move to other, quieter areas? Would waterfowl not land in a construction zone? Probably. That would affect the landowners' hunting and nature watching enjoyment, although temporary until wildlife returns to the disrupted area.	8. Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has also been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2. 9. Thank you for your comment. 10. Section 5.7.10.2 discusses potential impacts on wildlife. This section acknowledges the concern that wildlife will be displaced during construction. Section 5.4.10.2 discusses potential impacts on hunting and fishing.	20243-204403-01
	Briese, Allen & Susan	2024-02-23	Chapter 8 Accidential Release of CO_2. Mr. Levi suggested Respondent review this in detail. While there is some new data to the Respondents, most of the information in this section has been previously hashed over, noted, and brought before SC and the PUC. Certainly, it is not Respondent's intention to discredit or minimize the groundwork SC staff, PUC, or others have put into this project, investigating, answering questions, designing the plans and speculations. Some of the sections in Appendix G are just too complicated for laypeople to understand, i.e. 5 and 6, appendix reports to disbursement and line sensitivity, etc., although 8 on page 7 of 9 relating to pipeline pressure was as previously represented and reassuring since the PSI on this line will be relatively low this Respondent is information than other lines. Respondent will take additional time to review this section. Some comments. "A large rupture of the pipeline is unlikely to occur". "Leakage is the main form . . ." Pg 8-1. 8.1.1.1 Leaks are lower hazard. 8.2.3 Public Safety, etc. reads: RA-North has 33 residences [emphasis added] . . . RA-Hybrid has 39 . . . RA-South has 34 residences . . . [Note in _____ that there are 2 additional residences to add in RA-South to make it 36] Under Human Settlement, Aesthetics in the summary it reads: "RA-North would have several more residents [emphasis added] . . . RA-South would have fewer residents . . . compared to RA-Hybrid." After the February 7 hearing, I did question Mr. Levi on this and he informed me the PUC could not count "residents" only "residences". I do not believe the two words are interchangeable and each has its own meaning. Just in the pictorial under 6 herein there are 24 residents in 6 residences. With the projected four-mile radius of the plant and line, there are as	Staff agrees that "resident" and "residence" are not interchangeable words. The final EIS has been revised for clarity.	20243-204403-01

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			mentioned previously the appx 100 residents, in addition to those living to the East and in the Fergus Falls city, with developments north and south along the Pelican River and Otter Tail River in what this summary defined as “populated” areas. It maybe has been found that the preferred route is more jagged than other routes and the premature pursuit of the easements along the RA-South has flaws. See 1 and 6 on page 4 and the map on page 5 herein. 8.3 Effects in event of rupture. The disclosure here is threatening, but this Respondent also compared it to a medical drug disclaimer we do often see in ads, where this entire list of everything and anything possible is disclosed. The question is then, “is one overthinking this risk?” I think the answer is maybe, but not having any potentially dangerous pipeline close to residences v. allowing one with the risk, albeit minimal, but still unknown, is a question to ponder for the landowner.		
	Briese, Allen & Susan	2024-02-23	APPENDIX REVIEW. Very brief and quick and lots of technical data provided by experts with knowledge. Appendix A. Final Scoping Decision. Respondent would like more time to review this. Appendix B. Detailed Route Maps. Great to have these available as printed. Appendix C. Aboveground Facility Drawings. Appendix D. Minnesota Environmental Construction Plan. Would like more time to review; but expect that any landowner entering into an easement agreement could negotiate some of these practices. Appendix E. Winter Construction Plan. Would like more review; but expect that any landowner entering into an easement agreement could negotiate some of these practices. Originally thought winter construction was not requested. Appendix G. Accidental Release Dispersion Reports and Summary of PHMSA Regulations. Mr. Levi suggested concerned landowners review this Appendix in detail. Comments follow. Appendix G provides detailed information on regulations and pipelines. It may be the MN PUC would issue a moratorium until the PHMSA rules and follow the stricter guidelines between the state and federal regulations? If the ND PUC or other state allow a line, shouldn’t the lines have the same regulations since the line is all connected? Again, this section, in addition to other sections, is very comprehensive and contains material and information foreign to the Respondent, as a lay person. Expressing concerns may be areas already addressed and proven either way as safe or unsafe. At the FF February 7 evening session, Mr. Levi took the time to show landowners these important areas and the illustrations of a rupture and projected analytical effects. Pg. 6 and 7. However, page 9 the data under Figure 2 description seems discerning in that there is no early warning of a rupture and dissipation time is fast. Our yards are not inner city types, we can have acres which could take longer than 3 minutes to get out of any leak or rupture dissipation area. See attached handout from PHMSA, dated May, 2023. Additional Data. Exhibit A. Appendix H. Sample Routing Permit.	Thank you for your comment. Should the project be constructed, safety and operation of the pipeline as it continues in North Dakota would be regulated in the same way by PHMSA, since regulations for operation are the same in all states. Siting this pipeline, however, is state-specific.	20243-204403-01
	Briese, Allen & Susan	2024-02-23	Appendix I. Supplemental Inquiries and Responses. Inquiry 1. Just noting thinking was odd public data noted as could be redacted. Inquiry 2. The comments throughout the EIS related to noise and that effect on the area was noted and something Respondent had not previously focused on and noted the hours of operation for construction. Inquiry 2.5. Vegetation preservation, permanent tree removal or planting remains concerning; but SC outside comments it works with landowners to minimize is good. Inquiry 2.6-12. Noted communication re waterbody matters and the project. Inquiry 3. Stated previously, good to know that a 3 or 6 inch pipeline makes little difference. Inquiry 3.4. Energy usage. Hopefully extra use will not affect landowners’ lines. Inquiry 4. 6&7. Does electricity and installation of a fan for LRCEA require placement on any landowner’s land or just within the area substation? Inquiry 4. 12. Assuming SC would make every effort for full cleanup. Inquiry 4. 18. Assuming if farm animals are affected, SC would compensate landowner? Or if vegetation is use for crop income? Inquiry 4. 35. When do the landowners get a chance for input and to know about the SC meeting with the OTC commissioners in Sept of 2023? Inquiry 4. 36. Why would odorant create concerns with pipeline? Respondent has not seen that it would be effective? SC is representing it would not be?	Thank you for your comment.	20243-204403-01

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			Inquiry 4. 40. It would seem transportation to and from the ethanol plants creates carbon emissions. Inquiry 5. Shows the Frost Heave Study and construction plan. Would assume experts prepared. Seems odd that the data is reacted w/o knowing the reasons. Inquiry 6. Contains a lot of technical information and pictorials. Inquiry 7. 5f. Addressing water usage and land use Inquiry 7. 6. Shouldn't the plant have an estimate on this?		
	Briese, Allen & Susan	2024-02-23	Inquiry 8.3. Reviewed this and appears SC working with the PHMSA regulations and exceeds 49 CFR 195.260(c): "(c) On each pipeline at locations along the pipeline system that will minimize or prevent safety risks, property damage, or environmental harm from accidental hazardous liquid or carbon dioxide discharges, ... those compliance deadline requirements would be economically, technically, or operationally infeasible." Inquiry 9. 4. The response to this inquiry appears to be complete and on the side of overcautious, perhaps a response due to the landowners' safety and state and federal agencies' safety concerns? Inquiry 10. Mr. Levi's January 19, 2024, EM to staff and SC was noted and addressed earlier in this response as to why construction cost matters for the EIS. Appendix J. Agency Correspondence. Appendix K. Environmental Justice Screen Report. Respondent not sure what this means, but looks like a lot of the technical data] Appendix L. Minnesota Unanticipated Discoveries Plan. Appendix M. Alternative Technologies Supplemental Information. Appendix N. Applicant's Draft Emergency Plan. This appears to be similar in nature to a previous draft response plan and is dated September 12, 2022. The outline contains the chain of command to make the assessment to send an ERT to the area which, unfortunately, in most cases, would be after the 3 to 7-minute immediate release. It is also noted that SC met with the OTC commissioners on September 15, 2023, to discuss the implementation of the plan. It is assumed the City of Fergus Falls and area rural town fire departments would have the means and education to address but a thought is that if vehicles stall and the emergency is down a mile driveway, how is that to be handled? Also, Respondent would anticipate this plan might be updated from time to time if the pipeline is construction and new information on operations and similar matters evolve. Again, safety masks provided and periodically updated by SC in the event of a leak or rupture would bring some comfort. A final notation and unable to pinpoint the location, but as of October 5, 2023, now the projected project date construction date is from March to July of 2025 with no winter construction. Imagine that is subject to change.	Thank you for your comment.	20243-204403-01
	Briese, Allen & Susan	2024-02-23	SUMMARY Landowners and adjacent landowners along the three proposed pipeline routes have safety concerns for any CO_2 pipeline close to residences or over landowners' property. There are also individuals and entities of the position there are no or minimal safety concerns. See Exhibit B. This process of the EIS has been about this in Minnesota for Wilkin and Otter Tail Counties, but also keeping a close eye on this process are landowners residing in eight additional southwestern Minnesota counties who could be affected by CO_2 pipeline construction and abutting states as well. While the MN PUC looks at Minnesota law, it must also recognize the fact there are concerns from landowners and entities in the additional states the Midwest Carbon Project is anticipated to run through. Thank you to the time and talents of those conducting and reporting on this study. Respectfully submitted: Allen and Susan Briese (COMMENTOR INCLUDED 10 ADDITIONAL PAGES OF ATTACHMENTS)	Thank you for your comment.	20243-204403-01
	Brodt, Kelsey	2024-02-22	The applicant states that the anticipated lifetime of this project is 25 years. This means at the end of its life, the project could stop capturing the CO_2 from the ethanol plant. Unless the ethanol plant will also cease operations at that point in time, it will continue to emit CO_2 unabated into the future.	Section 2.7 describes project decommissioning. If the ethanol plant continues to operate beyond the life of the proposed project, its CO_2 emissions would not be captured.	20243-204403-01
	Brodt, Kelsey	2024-02-22	The DEIS fails to explain whether the applicant can sell any of its captured CO_2 to others for alternative uses instead of permanent sequestration and what the impacts of that would be. The DEIS incorrectly states that "Production of oil through EOR would not be dependent on the availability of CO_2 produced by the ethanol plant." This claim is contradicted by countless public statements from	The text questioned by the commenter in Section 5.7.2.3 was prefaced with the following: "if all the CO_2 produced by the ethanol plant is sequestered as proposed, EOR would likely continue in North Dakota	20243-204403-01

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			public officials in North Dakota and oil industry representatives. This is not a true solution. An ounce of prevention is worth a pound of cure. Have them spend their money in better ways to help stop climate change.	using other sources of CO_2, other gases, thermal methods, or chemical methods." Revisions are not necessary. However, Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for EOR.	
	Buresch, Michael	2024-04-23	I am a farmer, landowner, land renter and resident of Jackson County, MN. I am part of a larger operation that with a footprint across the middle of the county. We have declined allowing participating in Summit Carbon Solutions CO_2 pipeline project on land that we own. We have rented land that some of our landlords have granted rights to be included in the project depending upon the route. Whatever happens I and my family will be affected by this pipeline. Although Summit is only asking for a permit for 28 miles of pipeline, they publicly have announced plans connecting the majority of ethanol plants in West Central and Southern Minnesota, shouldn't this EIS be addressing the entire project?	Thank you for your comment. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-01
	Buresch, Michael	2024-04-23	Public Health and Safety Risks CO_2 pipelines operate at very high pressure (much higher than a natural gas pipeline). CO_2 is also an asphyxiant that is colorless, odorless, and heavier than air. Those exposed to high concentrations of CO_2 may experience fainting, incapacitation, asphyxiation, respiratory and cognitive damage, cryogenic burns, and even death. The rupture at Satartia, MS proved these dangers are real not conjecture.	Thank you for your comment.	20243-204403-01
	Buresch, Michael	2024-04-23	Pipeline ruptures: If a rupture occurs, the result could be a rapid, uncontrolled release of CO_2 over a large swath of land. There is little to no independent expert modeling examining the consequences and area of impact of a CO_2 pipeline rupture. What are safe setback distances from homes, businesses, farms and livestock facilities? What will happen in the case of a pipeline leak – above ground, underground, or underwater? How far will the CO_2 disperse, and what will its effects be? How will the impacts of a rupture be modeled and proven so that public safety will not be compromised? Can we as citizens depend on the validity of dispersion models paid for by Summit? How will Summit monitor pipeline performance to determine if a leak is occurring. How quickly can the line be shut down in the case of a failure? How far apart will shut offs be placed to contain the amount of CO_2 leaked? Will these valves be controlled remotely, or must an operator manually close them?	Chapter 8 describes the impacts of a potential rupture. Section 8.3.1.3 describes the independent dispersion modeling performed by an independent contractor, and results of that modeling are presented in Appendix G. Section 2.3.2.1 describes the mainline valves. Section 8.5 provides additional mitigation measures to protect against an accidental release and to limit impacts if one should occur.	20243-204403-01
	Buresch, Michael	2024-04-23	First responders and health professionals: CO_2 pipelines pose unique problems for first responders and health care providers. Because CO_2 is colorless and odorless, both victims and first responders have no way of knowing what is causing the health problems. In addition, first responders require special equipment, including non-internal combustion engines, to respond to a CO_2 disaster. What kind of burden will this put on local EMS and health providers in the case of an accident, large leak or rupture? How will they be prepared to respond, given their unique needs?	Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. Additionally, EERA staff recommended a special permit condition requiring the applicant to file its Emergency Response Plan that is filed with PHMSA with the Commission, and other special permit conditions as described in Section 8.5.3.	20243-204403-01
	Buresch, Michael	2024-04-23	Air pollution: Industrial sources like ethanol plants with carbon capture can still emit toxic, healthdamaging air pollution (e.g., volatile organic compounds, particulate matter, etc.). The air pollutants emitted by these facilities can affect lung and heart function, imply a higher risk of respiratory disease and cancer, and increase smog, which can affect air visibility, damage plant life, and be deadly to humans.	Thank you for your comment. Emissions from the capture facility are shown in Table 5-38 and are further discussed in the text following that table. Emissions from the ethanol plant are covered in the Title V Permit for the plant.	20243-204403-01
	Buresch, Michael	2024-04-23	In addition to CO_2 from Ethanol Plants what other CO_2 producers with their own unique pollutant compounds could be added into this network and what would these compounds have on pipe corrosion, valves and other physical components of this pipeline system that will impact public safety?	The project pipeline would carry CO_2 captured from the ethanol plant. Corrosion monitoring and protection are addressed in Chapter 2.	20243-204403-01
	Buresch, Michael	2024-04-23	Regulatory gaps: Federal regulations governing this new and risky technology are limited and under review. For example, the federal rules don't currently require CO_2 pipelines, which can rupture, to be a safe distance from sensitive sites. PHMSA is now in the process of creating specific CO_2 pipeline rules.	Although the Commission cannot set safety standards for pipeline construction or operation, state or local units of government may, to the extent authorized by law, set land use requirements that indirectly contribute to pipeline safety by regulating the activities of third parties located in the pipeline's vicinity. The Commission's obligation is to identify a pipeline route consistent with the criteria found in statutes	20243-204403-01

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			How can the PUC ensure the safe routing and construction of this pipeline in the absence of credible guidance on critical issues like this? Do the citizens of Minnesota want a CO_2 pipeline that does not conform to the new rules once they are finalized? Permitting and allowing this pipeline under the existing rules will only endanger the public.	and the applicable administrative rules. Federal law, by contrast, exclusively prescribes pipeline safety requirements. Section 3.4 of the EIS has been revised with this information. PHMSA regulations (that is, their appropriateness) and related standards for CO_2 pipelines are outside the scope of the EIS. Section 3.6 acknowledges that PHMSA is currently conducting rulemaking proceedings on proposed amendments to its pipeline safety rules, and that the Commission states that it would be prudent for EERA staff and the applicant to take that information into account, even if the updates have not been finalized. Appendix G of the EIS further summarizes the extensive and detailed PHMSA CO_2 pipeline regulations applicable to the construction, operation, and maintenance of such pipelines, and the status of pending PHMSA changes to such. EERA staff has been following PHMSA CO_2 pipeline rulemaking proceedings before and since issuance of the draft EIS. As of July 5, 2024, PHMSA has not published the Notice of Proposed Rulemaking that will describe the scope of new and amended regulations, and changes to existing rules and regulations are not known. Therefore, as ordered by the Commission, it is not possible for the EIS to include "a discussion of mitigation strategies and measures to ensure public safety including, but not limited to, measures consistent with the proposed and final federal rules to the extent available" (Commission. September 26, 2023. Order Approving Scope of Environmental Review and Denying Stay. eDockets No. 20239-199149-01). To the extent applicable, Section 3.6 and Appendix G of the EIS have been updated with the above information. Thank you for your comment. To EERA staff's understanding, the Commission must make a decision on a route permit for the project that is consistent with Minnesota statutes and rules. The applicant has stated its proposed CO_2 pipeline would be designed, constructed, and operated to meet PHMSA regulations, including any operational changes to PHMSA regulations that may occur in the future.	
	Buresch, Michael	2024-04-23	Pipeline risks to land, water, and natural resources One of the things that Minnesota takes immense pride in is our natural heritage. Beyond the damage done during the construction phase of the project, what happens to the land, water, air, and all living creatures that depend on a vibrant ecosystem for survival?	Thank you for your comment.	20243-204403-01
	Buresch, Michael	2024-04-23	Dangers to water and waterbodies: The proposed route for Summit's pipeline network includes many water crossings, wetlands, aquifers, and other sensitive water bodies. More research and analysis are needed to understand how CO_2 disperses in water and what risks a CO_2 pipeline leak or rupture poses to Minnesota's precious waters and the fish, amphibians, reptiles, waterfowl, birds, and insects that rely on it to survive.	Potential impacts of a pipeline rupture on water resources and wildlife are addressed in Section 8.3.4. Stand-alone studies concerning impacts on water resources, wildlife, and wildlife habitat are outside the scope of the EIS.	20243-204403-01
	Buresch, Michael	2024-04-23	Water use: Carbon Capture and Sequestration (CCS) can also double water requirements and increase toxic wastewater discharge. There must be a careful and case-specific assessment of how the installation and operation of carbon capture equipment will impact and exacerbate existing water use and pollution sources.	Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-01

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	Buresch, Michael	2024-04-23	Land degradation: This project is going to cut through roads, ditches, tile lines, and prime farmland—are we supposed to take it on faith that this will be "back to normal" in two or three years? Other pipeline projects in the Midwest are still suffering yield reduction and damage to land years after project completion and "restoration". My conclusion from farming areas where heavy construction has occurred is that damage to the land is permanent and that the affected areas will not return to profitable production. Pipeline operators should be held liable for crop damage for as long as the damage occurs via damage clauses in their easements. The current language in this draft is more of a promise beyond initial construction.	Thank you for your comment. As indicated by the definitions found on Page 5-1 of the draft EIS, "long-term impacts extend beyond the end of construction and are generally associated with operation of the project." Disturbance to soils and crops from construction can result in impacts that extend beyond the construction phase, and the text in the final EIS has been revised to indicate that impacts can be long term. Landowner agreements with the applicant are outside the scope of the EIS.	20243-204403-01
	Buresch, Michael	2024-04-23	Geohazards: The geotechnical assessment in the Environmental Assessment Worksheet (EAW) is cursory and inadequate. A CO_2 pipeline in Satartia, MS, experienced a dangerous rupture because the ground it was in collapsed after some heavy rain. This could and should have been anticipated by the company if they had properly studied the region for geohazards and other geological risks. Minnesota shouldn't make the same mistake.	Section 8.3.1.3 discusses the Satartia accident, including a table summarizing significant differences between the proposed project and the pipeline involved in the Satartia incident.	20243-204403-01
	Buresch, Michael	2024-04-23	Economic Benefits? Summit and its supporters are making big promises about the benefits to Minnesota's rural communities—in employment, tax income, and economic growth—but provide very little credible evidence to back up these promises. Independent academics from the University of Iowa have pointed out that these claims overestimate the benefits and ignore the costs to rural communities, local governments, and the surrounding environment. • How many and what kind of jobs will this project really bring to local communities? Large projects like this usually bring skilled workers from outside the area and from out of state leaving mostly crumbs for the local economy beyond the restaurants, lodging and trailer parks. • What are the hidden costs—like the burdens on local government or community resources? Local governments are spending hours gathering information for Summit's design efforts. Outside workers bring outside social problems as well. • Summit makes vague claims that local farmers will see huge revenue gains by getting access to lowcarbon fuel markets. Can those claims be backed up with real numbers? As a corn producer I will believe these claims when I see better market prices. • How will this project really impact the local tax base? Hard numbers are hard to guarantee, for example the Wind Energy Revenues for Jackson County are less than projected as the transmission capacity available to Jackson County Producers is less than in the past. Will Summit reduce or cut off some plants because others, closer to the destination increase their production or cut better deals reducing the value of a line or lines?	Thank you for your comment.	20243-204403-01
	Buresch, Michael	2024-04-23	Who will be liable if there's an accident with the pipeline or construction causes damage to the natural environment, farmland, or built structures?	Summit has stated that it would be responsible for 100 percent of costs in case of an accident. Sections 2.6 and 8.4 have been updated to clarify.	20243-204403-01
	Buresch, Michael	2024-04-23	CO_2 Pipeline easements are granted in perpetuity in Minnesota, shouldn't these easements have a finite life, like the life of the line, perhaps 50 years, at which time the pipeline operator will have to renegotiate or decommission the line? Is there a published plan describing how the line will be decommissioned at the end of its life? Abandoning it without filling the pipe with a medium like bentonite clay eventually allows potentially harmful ground water movement.	Section 2.7 describes project decommissioning. This section was revised to describe the financial assurances to be provided by the applicant for costs associated with decommissioning. Landowner agreements are outside the scope of the EIS.	20243-204403-01
	Bute, Marnie	2024-02-22	As a land owners in Wilkins county, my husband and I I oppose the construction of the carbon dioxide pipeline in northern Minnesota. This project raises significant environmental concerns, including the risk of leaks and potential harm to local ecosystems.	Thank you for your comment.	20243-204403-01
	Bute, Marnie	2024-02-22	We must prioritize sustainable solutions that protect our environment and communities for future generations. Have they thought about stop producing ethanol? This whole nightmare would go away. Government subsidies ethanol and now they subsidize carbon dioxide capture. Once that funding goes away this will also go away. We have so many other challenges, seems this one has not been thought through. Can't even get a good answer about the storage of the gas and what Cannon will happen to it. Once the funding is no longer there and who would be responsible. There's just way too much to unpack here and not enough answers . #NoToCO_2Pipeline #ProtectOurEnvironment	As stated in the final scoping decision, the appropriateness of federal and state policies regarding carbon capture and ethanol, including tax credits and other incentives, is outside the scope of the EIS.	20243-204403-01

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	Butler, Misty	2024-02-22	My name is Misty Butler. I live in rural Lac qui Parle county in Minnesota. I own some land and a pond out here, that we use recreationally. We invite friends and family to camp and swim in the pond from late spring to early fall and get great enjoyment from it. I care deeply about preserving the health of that pond and spend many hours a year maintaining it. As a result issues concerning water and water health are close to my heart and continually pique my interest. The proposed route for Summit's pipeline network includes many water crossings, wetlands, aquifers, and other sensitive water bodies. More research and analysis are needed to understand how CO_2 disperses in water and what risks a CO_2 pipeline leak or rupture poses to Minnesota's precious waters and the fish, amphibians, reptiles, waterfowl, birds, and insects that rely on it to survive.	Potential impacts of a pipeline rupture on water resources and wildlife are addressed in Section 8.3.4. Stand-alone studies concerning impacts on water resources, wildlife, and wildlife habitat are outside the scope of the EIS.	20243-204403-01
	Butler, Misty	2024-02-22	As I have watched our pond throughout recent years, I have noticed and been concerned about water levels and what the results of climate change and droughts. It has been very concerning to me to watch the water table drop throughout the year and it continues to be of concern. Much of southern Minnesota is suffering from the consequences of drought and overcommitment of our fresh drinking water supplies. The DEIS fails to discuss the impacts of an increase in water use on local water supply. The carbon capture process can double water requirements at a facility and increase toxic wastewater discharge. The DEIS states that Summit "anticipates" an average water use for the operation of the carbon capture equipment of 13 million gallons per year, which is concerningly ambiguous. There must be a careful and casespecific assessment done of how the installation and operation of carbon capture will impact current drought conditions and exacerbate existing pollution sources. Moreover, Summit has not finalized its water appropriation sources or volumes needed for construction, so it is impossible to know the full impacts of those appropriations on water resources. Why should Minnesota risk our fresh drinking water supply and commit to an infrastructure when the proposing company has not been transparent with its true demands for water resources?	Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-01
	Carter, Kathy	2024-02-23	I am a landowner in northern Iowa (Floyd County), directly affected by the proposed Summit pipeline. A lot of us were taken very much by surprise in late 2021 when we received mailings that stated "we're going to put a pipeline through your property". Since then, we've learned a LOT. Way too much to go into detail here, but one of the main things is that, as a company, Summit excels at evading and spinning and being dishonest and non-transparent. We have a long list of instances that support that. Now, the company is failing to pay counties for inspection services that have been contracted.	Thank you for your comment.	20242-203795-01
	Carter, Kathy	2024-02-23	As for the environmental impact itself, let me tell you this: I have a narrow piece of ground they want to cross, and the ground contains both flood plain and a steep rise covered with mature oak , walnut, and pine trees. Summit claims they can bore under it all "without any surface disruption" and no damage to my 80+ year old oak trees. Yet, another landowner with a property very similar to mine, with just a narrow stream running through it, has been told that they will clear cut the band of trees bordering that stream. I have seen other instances where they have told landowners they will cut a strip; indeed, all the easement contract language indicates that, like natural gas lines, etc, all brush & trees would be cut and the easement must remain clear. This is in direct contradiction to Summit's claim that they will not damage my timber. Do I believe a thing Summit claims? Not after listening to them, reading hundreds of articles, and being a part of the Iowa Utilities Board permit hearing -- not on your life. Do NOT ALLOW SUMMIT TO PROCEED.	Thank you for your comment.	20242-203795-01
	Childers, Amy	2024-02-23	My name is Amy Childers. I am a resident of the Fergus Falls area. I have lived and worked here 17 years. I am an environmental scientist. I am concerned about the amount and quality of research done on the impact of this proposed pipeline to the Otter Tail River ecosystem and landscape. More analysis is needed on the impacts to the rivers and landscape. Also more research is needed into the effects on the groundwater resources of the area from construction to operation.	Thank you for your comment. Stand-alone studies concerning water resources are outside the scope of the EIS.	20243-204403-01
	Childers, Amy	2024-02-23	More information needs to be provided about the capture rate and actual efficiency of the process versus the ecological impacts to the area's natural resources. Much more research is needed into the efficiencies of the CO_2 capture process and environmental impacts.	Section 2.1 has been revised to clarify that the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. A stand-alone study concerning carbon capture technology is outside the scope of the EIS.	20243-204403-01
	Christensen, Linda	2024-02-14	We moved to OTTER Tail COUNTY after retiring because of all the lakes and wetlands. We are very concerned about this Co2 pipeline. One possible line could be under Otter Tail river!!! According to DEIS a rupture would not impact our fish and wildlife. HOW DO THEY KNOW THIS?????? Have they proved it elsewhere?	The Otter Tail River would be crossed via HDD. Potential impacts of a pipeline rupture on water resources and aquatic resources are addressed in Section 8.3.4.	20243-204403-01

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	Christensen, Linda	2024-02-14	From what I have read they also have said if this project is decommissioned they will not take responsibility for care of the pipes. Who will? Also what about the extra electricity. I have been told that it will double what the ethanol plant is now using. Who will pay for that??	Section 2.7 describes the decommissioning process. This section was revised to describe the financial assurances to be provided by the applicant for costs associated with decommissioning. Section 5.4.9 describes electricity use for the existing ethanol plant and the proposed project.	20243-204403-01
	Christensen, Ronald	2024-02-14	I am a retired truck driver spending my time fishing in summer and winter. It sounds to me that this pipeline could possibly ruin my retirement along with the lakes and wetlands that I enjoy. I am very concerned that rivers are in several of the pipelines. What happens if there is a rupture? What happens to the wild life?	The project's impacts on water resources are addressed in Section 5.7.8, and impacts on wildlife are addressed in Section 5.7.10. Chapter 8 addresses the potential for a pipeline rupture and associated impacts.	20243-204403-01
	Christensen, Ronald	2024-02-14	Their claim of 100% capture?? This is not supported by any data or information or third party. CO_2 is a hazardous material in high concentrations. The DEIS consistently underplays the known and unknown risks of transporting CO_2 in pipes with high pressure. I really believe that this is a very dangerous plan to all of us just to make Summit wealthy.	Thank you for your comment. The analyses in Section 5.7.1.3 and Chapter 6 have been revised to include capture rate scenarios of 100 percent, 70 percent, 40 percent, and 10 percent.	20243-204403-01
	Christenson, Brooke	2024-02-23	Hi my name is Brooke and I believe CO_2 pipelines are still destructive and not a good solution to carbon emissions.	Thank you for your comment.	20243-204403-01
	Christenson, Jaci	2024-02-22	I am a full-time volunteer working for clean water, sustainable climate and upholding treaty rights. With 60% of Minnesota's iconic water impaired to the point that it is no longer safe to consume fish from and/or drink water from and/or swim in, it is past time that we address the current impacts and permit no more harm to our waters/wetlands.	Thank you for your comment.	20243-204403-01
	Christenson, Jaci	2024-02-22	Minnesota's recent experience with Line 3/93 tar sands pipeline construction demonstrates the serious harms that it causes on water resources, as well as a tendency by state agencies to underaccount for those impacts. I volunteer with Waadookawaad Amikwag, the multi-cultural community group of volunteers that is monitoring construction damages from Line 3/93 and have seen the damage firsthand in 60 field visits. Through thermal imaging and on the ground, field work we discovered aquifer breaches, frac outs, wetland destruction, threats to wild rice, remediation damages and dewatering and aquifer drawdown--all from construction. The Line 3 Environmental Impact Statement (EIS) and Enbridge were misleading/incorrect as to the impacts. Equally disturbing is the fact that all of these impacts were predicted/forewarned by scientists and Indigenous people but abhorrently ignored by Enbridge, Public Utilities Commission, the state agencies, Governor Walz and legislators. We would be remiss to ignore what we learned from L3/93 in evaluating CO_2 pipelines. If we take these seriously into account, the conclusion is clear--no more pipelines through Minnesota's wetlands.	Thank you for your comment.	20243-204403-01
	Christenson, Jaci	2024-02-22	Dangers to water and water bodies: The proposed route for Summit's pipeline network includes many water crossings, wetlands, aquifers, and other sensitive water bodies. More research and analysis are needed to understand how CO_2 disperses in water and what risks a CO_2 pipeline leak or rupture poses to Minnesota's precious waters and the fish, amphibians, reptiles, waterfowl, birds, and insects that rely on it to survive.	Potential impacts of a pipeline rupture on water resources and wildlife are addressed in Section 8.3.4. Stand-alone studies concerning impacts on water resources, wildlife, and wildlife habitat are outside the scope of the EIS.	20243-204403-01
	Christenson, Jaci	2024-02-22	Water use: Much of southern Minnesota is suffering from the consequences of drought and overcommitment of our fresh drinking water supplies. The DEIS fails to discuss the impacts of an increase in water use on local water supply. The carbon capture process can double water requirements at a facility and increase toxic wastewater discharge. The DEIS states that Summit "anticipates" an average water use for the operation of the carbon capture equipment of 13 million gallons per year, which is concerningly ambiguous. There must be a careful and casespecific assessment done of how the installation and operation of carbon capture will impact current drought conditions and exacerbate existing pollution sources. Moreover, Summit has not finalized its water appropriation sources or volumes needed for construction, so it is impossible to know the full impact of those appropriations on water resources. Looking at Line 3/93 we saw that after construction began Enbridge asked for (and received) a 10-fold increase in their dewatering permit. Why should Minnesota risk our fresh drinking water supply and commit to an infrastructure when the proposing company (Enbridge, Summit or any other applicant) is not transparent with its true demands for water resources?	Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has also been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-01
	Christenson, Jaci	2024-02-22	Aquifer Damage: Summit's preferred route, RA-South, crosses a surficial beach ridge aquifer in Otter Tail County. The DNR has said that the area is "prone to significant groundwater discharge," and the applicant's initial groundwater investigation confirmed that "artesian groundwater conditions are present" along that beach ridge system. In early feedback on the DEIS, the DNR noted that "Project construction has the potential to intersect shallow confined groundwater potentially causing a breach in a confined aquifer	Section 5.7.8.2 acknowledges that damage to aquifers is a serious problem and indicates that an uncontrolled flow of water from a shallow confined aquifer could have a significant, long-term impact on groundwater. Section 5.7.8.2 also describes geotechnical investigations	20243-204403-01

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			and that “breaching shallow confined aquifers could have significant long-term impacts to groundwater resources.” This, along with our state’s first-hand knowledge of how damaging pipelines can be, requires that the DEIS take potential damage to aquifers more seriously. Waadookawaad Amikwag has documented the impacts to wetland ecosystems from aquifer breaches. Water samples collected upstream and downstream of the breached aquifer (and analyzed at an accredited lab) verify the hydrological changes and altered natural composition of the wetland. Enbridge was excused from meaningful geological/hydrological investigation and as a result we have 4 verified aquifer breaches and Waadookawaad Amikwag is investigating more.	that would be done to identify areas where breaching of a shallow confined aquifer could occur, and sheet piling would not be used. The applicant currently has an ongoing groundwater investigation underway to further inform construction practices and is continuing to consult with DNR. As part of its coordination with DNR, the applicant has agreed to use ground penetrating radar to study the depth of the confining layer through the entire beach ridge system area crossed by the pipeline to further define existing conditions and advise on construction methodology. Furthermore, EERA staff recommends that the applicant develop, in coordination with DNR, a plan for pipeline construction in areas crossing the beach ridge system area. The plan would include, at a minimum, measures to minimize the potential for breaching a shallow confined aquifer during trenching and contingency measures to mitigate the impacts of a breach, should one occur. This information has been added to Section 5.7.8.2.	
	Christenson, Jaci	2024-02-22	HDD Drilling: The DEIS also states that “drilling mud mixed with additives that are not on the MDH-approved additive list and/or do not meet [drinking water quality certification standards] would be disposed of as solid waste at an approved facility, or the applicant would obtain a land application permit from MPCA.” The DEIS does not discuss the risks of applying drilling mud, especially with additives not approved by MDH, to the land. The DEIS says that “drilling fluids and additives for the HDD would be non-toxic to the aquatic environment and humans,” however, even supposedly “non-toxic” drilling fluid is chemical waste that has been found to be harmful to plant and animal species. Summit’s preferred route and alternative route, RA-Hybrid, would both cross three rivers (Pelican River, Otter Tail River, and Bois de Sioux River) via the HDD mention. Enbridge and the L3/93 EIS minimized the rate of Horizontal Directional Drilling (HDD) failure and frac out of drilling mud, when in actuality frac outs occurred in 67% of the water crossings. In the Line 3/93 HDD crossing of East Savanna River, there were 6 frac outs--clearly a terrible place to put a pipeline.	As described in Section 5.7.8.2, an additive approved by MDH or meeting NSF International/ANSI Standard 60, Drinking Water Treatment Chemicals – Health Effects, might need to be mixed with the drilling mud for viscosity or lubricating reasons and to reduce the potential for an inadvertent release or failed HDD. The specific additive used would depend on the conditions at the crossing location and would be determined by the HDD contractor. The EIS discloses the potential for an inadvertent release of drilling mud and describes potential impacts in Chapter 5. Land application of drilling mud and potential impacts are addressed in Section 5.7.6.2.	20243-204403-01
	Christenson, Jaci	2024-02-22	Wetlands: In Table 5-40 on p. 5-98 of the DEIS it states that “the loss of wetlands would be less than 0.01 acre.” However, Table 5-4 on p. 5-24 says that for Summit’s preferred route, operation impacts are expected to be 3.3 acres, and construction impacts are expected to be 4.7 acres. And Table 5-52 on p. 5-143 suggests that the total construction impact on wetlands for RA-South is 2.7 acres. Which is it?? And let's start treating wetlands and water as the incredible resource that it is.	Discrepancies between Table 5-4 and Table 5-54 result from different datasets and their associated resolutions. Table 5-4 uses NLCD data to analyze land cover and Table 5-54 uses NWI data to analyze wetlands. Table 5-40 has been edited to be consistent with discussions of impacts on wetlands in Section 5.7.9 and Table 5-53 and Table 5-54.	20243-204403-01
	Collins, Kathryn Flaig	2024-02-19	I am writing in opposition to construction of the proposed Summit Carbon Recapture Pipeline in Redwood County. As a citizen with land in the area near the pipeline, I am concerned about the safety of this project. The pipeline is projected to go across or near land with multiple waterways, including the Redwood River, Coalmine Creek (which crosses my land), and the Cottonwood River. The pipeline would use technology that has not been proven to be effective and safe. A pipeline leak would not only create hazards through the air but could pollute waterways and make the water acidic. An accidentental release of carbon dioxide under hight pressure into the air or water would be detrimental to human, animal and plant life in the area.	Thank you for your comment. The commenter references an area in Redwood County. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS. Risks of a potential CO_2 release and potential impacts on humans and aquatic environments are described in Chapter 8 of the EIS.	20243-204403-01
	Collins, Kathryn Flaig	2024-02-19	Although the building of the pipeline would create a short term boost to the economy, its main benefit would be to ethanol producers and oil companies. According to ethanol promotional literature, companies plan to use the carbon credits gained to make additional ethanol, thus creating more carbon pollution. There are safer ways to remove CO_2 from the atmosphere. Planting trees and/or planting carbon removing plants between row crop plants would be much safer ways to remove excess carbon dioxide.	The EIS analyzes the proposed project, including alternatives that lower the CI score of the ethanol produced at the ethanol plant. An alternative that does not include ethanol production was not studied in the EIS because it would not meet the purpose of the project.	20243-204403-01
	Collins, Kathryn Flaig	2024-02-19	Please do not risk environmental devastation in Redwood County for the benefit of short term economic gains of a few companies and their shareholders. Those most likely to gain from the pipeline are those who wish to continue polluting the atmosphere of our planet through the production of additional ethanol and/or promotion of continued use of petroleum products. The citizens of Minnesota and Redwood County, in particular, deserve better. Vote no to the construction of Summit’s Carbon Recapture Pipeline. Thank you for your attention to this matter.	Thank you for your comment. The commenter references an area in Redwood County. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-01

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	Coppin, Loni	2024-02-23	With so much air and water pollution today, and the climate crisis that is having more major impacts than ever, I am concerned that this Draft Environmental Impact Statement does not go far enough.	Thank you for your comment.	20243-204403-01
	Coppin, Loni	2024-02-23	My first concern about possible hazardous impacts has to do with the construction of the pipeline itself. Not enough attention is being given to pipeline construction, and this has resulted in recent aquifer breaches. Also, any breach of oil in a pipeline is going to be very harmful to agricultural land, to other ecosystems and its non-human inhabitants, and to the water. We cannot afford to have more land and water compromised because of pipeline breaches.	Section 5.7.8.2 acknowledges that damage to aquifers is a serious problem and indicates that an uncontrolled flow of water from a shallow confined aquifer could have a significant long-term impact on groundwater. Section 5.7.8.2 also describes geotechnical investigations that would be done to identify areas where breaching of a shallow confined aquifer could occur, and sheet piling would not be used. The applicant currently has an ongoing groundwater investigation underway to further inform construction practices and is continuing to consult with DNR. As part of its coordination with DNR, the applicant has agreed to use ground penetrating radar to study the depth of the confining layer through the entire beach ridge system area crossed by the pipeline to further define existing conditions and advise on construction methodology. Furthermore, EERA staff recommends that the applicant develop, in coordination with DNR, a plan for pipeline construction in areas crossing the beach ridge system area. The plan would include, at a minimum, measures to minimize the potential for breaching a shallow confined aquifer during trenching and contingency measures to mitigate the impacts of a breach, should one occur. This information has been added to Section 5.7.8.2.	20243-204403-01
	Coppin, Loni	2024-02-23	Another concern has to do with CO_2 emissions. It seems to me that not enough analysis has been done to fully understand the level of harmful CO_2 emissions to both victims and rescue workers should there be a breach in a pipeline.	Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. The Emergency Response Plan included as Appendix N is a draft plan that would be revised as required by PHMSA, if the project is approved. Additionally, EERA staff recommended a special permit condition requiring the applicant to file its Emergency Response Plan that is filed with PHMSA with the Commission, and other special permit conditions as described in Section 8.5.3.	20243-204403-01
	Coppin, Loni	2024-02-23	At this time on Earth, we must do everything we possibly can to safeguard the air, water, and land. That means we must stop building those projects that can cause more harm than good. Attempting to find carbon capture solutions that have not been proven so far to be as viable as they claim does not give us the right to continue with "business as usual."	Thank you for your comment.	20243-204403-01
	Daly, Mike	2024-02-23	I, Mike Daly, am a retired engineer who lives in the Wolf Carbon Capture pipeline corridor that is proposed for Eastern Iowa. What Summit pipeline accomplishes in the Midwest will set precedence for what Wolf and subsequent pipelines encounter. That is why I am concerned about the DEIS for the Otter tail to Wilkin County statement. I have been studying the Carbon capture technology and pipeline build out for the last 3 years. It seems that many government officials rely on what they think is the expertise of the pipeline companies like Summit. This is a new technology, and the pipeline companies exhibit a bold and rash persona of expertise concerning the Carbon Capture technology. One way to verify what they boast of as factual is to demand extensive testing and unbiased research. As I read through Summits documentation and the DEIS, I notice statements that seem factual but may be only half-truth and misleading.	Thank you for your comment.	20243-204403-01

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	Daly, Mike	2024-02-23	This pipeline should not be approved without a clear understanding of the risks to human health and meaningful measures to ensure the safety of people and animals in the area. The DEIS does not mention any meaningful safety measures for a rupture and instead suggests that it is “reasonable” for Summit to simply supply indoor CO_2 detectors for residences within 1,000 feet of the project. The DEIS does not consider the burdens this will put on local EMS and health providers in the case of a pipeline rupture or accident or an assessment of how they should be prepared to respond given the unique needs. The DEIS includes Summit’s September 2022 Emergency Response Plan (Appendix N). This plan is not only outdated but also unclear as to how local EMS and first responders will interact with the applicant in the event of a leak or rupture.	Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. The Emergency Response Plan included as Appendix N is a draft plan that is not outdated but would be revised as required by PHMSA, if the project is approved. Additionally, EERA staff recommended a special permit condition requiring the applicant to file its Emergency Response Plan that is filed with PHMSA with the Commission, and other special permit conditions as described in Section 8.5.3.	20243-204403-01
	Daly, Mike	2024-02-23	The DEIS states that the PUC “cannot set safety standards” for Summit’s proposed pipeline. PHMSA has expressly said in public that state and local authorities can exercise their powers to regulate land use—including setback distances. The PUC must consider where the pipeline is placed and what is the safest option for Minnesotans, which means the PUC can and should determine what routing, setback, and depth requirements are necessary to adequately protect Minnesotans.	Although the Commission cannot set safety standards for pipeline construction or operation, state or local units of government may, to the extent authorized by law, set land use requirements that indirectly contribute to pipeline safety by regulating the activities of third parties located in the pipeline’s vicinity. The Commission’s obligation is to identify a pipeline route consistent with the criteria found in statutes and the applicable administrative rules. Federal law, by contrast, exclusively prescribes pipeline safety requirements. Section 3.4 of the EIS has been revised with this information.	20243-204403-01
	Daly, Mike	2024-02-23	This project is going to cut through roads, ditches, tile lines, and prime farmland. The pipeline projects in the Midwest have caused yield reduction and damage to land years after project completion and “restoration”.	Thank you for your comment. As indicated by the definitions found on Page 5-1 of the draft EIS, “long-term impacts extend beyond the end of construction and are generally associated with operation of the project.” Disturbance to soils and crops from construction can result in impacts that extend beyond the construction phase, and the text in the final EIS has been revised to indicate that impacts can be long term.	20243-204403-01
	Daly, Mike	2024-02-23	The DEIS concludes a leak of CO_2 “would slow plant growth” and that the rupture of the pipeline would instantly freeze the surrounding soil and “instantly kill all herbaceous ground vegetation” but provides no measures to avoid these impacts, nor does it discuss the long-term impacts of such damage on the soils and vegetation.	Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. EERA staff recommended special permit conditions to avoid impacts of a potential CO_2 release, as described in Section 8.5.3. Section 8.3.4.3 has been revised to include language regarding potential long-term effects of freezing on soils and vegetation.	20243-204403-01
	Daly, Mike	2024-02-23	The DEIS acknowledges that “soil compaction would be unavoidable. that even if soils were decompacted, “some compacted soils could remain.” Soil compaction can have serious consequences in terms of water infiltration and drainage and should not be dismissed as an insignificant impact.	Section 5.7.8.2 indicates that groundwater recharge could be impacted by soil compaction. Section 5.7.6 explains that the applicant would comply with required permits and implement its Minnesota ECP and Minnesota APP, which would minimize impacts on soils. The text in Section 5.7.6 has been revised to indicate that while most impacts on soils during construction would be minimal and temporary, some impacts could be long term..	20243-204403-01

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	Daly, Mike	2024-02-23	The DEIS fails to discuss the impacts of an increase in water use on local water supply. The carbon capture process can double water requirements at a facility and increase toxic wastewater discharge. The DEIS states that Summit "anticipates" an average water use for the operation of the carbon capture equipment of 13 million gallons per year, which is disconcertingly ambiguous. Why should Minnesota risk fresh drinking water supply and commit to an infrastructure when the proposing company has not been transparent with its true demands for water resources?	Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-01
	Daly, Mike	2024-02-23	In early feedback on the DEIS, the DNR noted that "Project construction has the potential to intersect shallow confined groundwater potentially causing a breach in a confined aquifer and that "breaching shallow confined aquifers could have significant long-term impacts to groundwater resources." This, along with our state's first-hand knowledge of how damaging pipelines can be, requires that the DEIS take potential damage to aquifers more seriously.	Section 5.7.8.2 acknowledges that damage to aquifers is a serious problem and indicates that an uncontrolled flow of water from a shallow confined aquifer could have a significant long-term impact on groundwater. Section 5.7.8.2 also describes geotechnical investigations that would be done to identify areas where breaching of a shallow confined aquifer could occur, and sheet piling would not be used. The applicant currently has an ongoing groundwater investigation underway to further inform construction practices and is continuing to consult with DNR. As part of its coordination with DNR, the applicant has agreed to use ground penetrating radar to study the depth of the confining layer through the entire beach ridge system area crossed by the pipeline to further define existing conditions and advise on construction methodology. Furthermore, EERA staff recommends that the applicant develop, in coordination with DNR, a plan for pipeline construction in areas crossing the beach ridge system area. The plan would include, at a minimum, measures to minimize the potential for breaching a shallow confined aquifer during trenching and contingency measures to mitigate the impacts of a breach, should one occur. This information has been added to Section 5.7.8.2.	20243-204403-01
	Daly, Mike	2024-02-23	According to the DEIS, CO_2 leaks would not affect mammals, birds, reptiles, amphibians, and insects and would be unlikely to impact fish and freshwater mussels. The DEIS reaches this conclusion without providing any reasoning or supporting evidence. Though the DEIS does note some harm may come to animals in the event of a rupture, it relies heavily on the assumption that animals will simply move out of the rupture area to avoid the release. The reason for this assumption is not provided and is contradicted by information in the rupture report in Appendix G which suggests the impacts of a rupture would be nearly immediate.	CO_2 is a widespread, naturally occurring gas and is the primary byproduct of respiration—the conversion of sugars to usable energy. Minor leaks of CO_2 from operation of the proposed pipeline would not elevate ambient CO_2 to a level that is detrimental to local vegetation or wildlife. Potential impacts on wildlife from a CO_2 rupture could result first from the physical force of a rupture and secondarily from localized short-term high levels of CO_2 prior to dispersal and extreme cold temperatures associated with the depressurization of the CO_2 from a supercritical state to a gas. Chapter 8 of the EIS acknowledges that wildlife in the immediate vicinity of a rupture might be killed or injured by this force; however, it is expected that most mobile wildlife species would follow their natural instincts and would attempt to escape the direct effect of a rupture. Chapter 8 of the EIS also acknowledges that less-mobile species in the immediate vicinity of the point of a rupture would be less likely to escape the impacts and might be killed or injured. The data presented in Appendix G describes models of dispersal patterns in the immediate vicinity of a rupture. These models support the statements in Chapter 8 that wildlife in the immediate vicinity of a	20243-204403-01

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				rupture might be exposed to high levels of CO_2, which could be toxic for species unable to leave the area of the release.	
	Daly, Mike	2024-02-23	Summit states that the capture facility "is designed to capture 100% of the CO_2 produced by the ethanol plant." There is no carbon capture facility in the world, ethanol or otherwise, that captures carbon at a rate of 100%. This claim is not supported by any data/information or verified by a third party.	Section 2.1 has been revised to clarify that the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities.	20243-204403-01
	Daly, Mike	2024-02-23	Additionally, the DEIS should emphasize that any CO_2 capture is solely associated with emissions from the ethanol fermentation process and provides zero reductions on the significant emissions from the facility's electricity use. Carbon capture technologies are highly energy intensive and will significantly increase the carbon emissions at the facility from electricity use. The DEIS uses the Midwest Reliability Organization West Region average to calculate these emissions, which is unnecessarily inaccurate given the availability of the actual emissions factor from Great River Energy.	Section 2.1 of the EIS has been revised to clarify that the captured CO_2 is produced by the ethanol plant as part of its fermentation process, the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. Section 6.3 describes energy efficiency and energy alternatives that could reduce emissions from the ethanol plant's electricity and process fuel use. Electricity emissions are included in Table 5-39. These numbers have been revised to reflect the electricity emission factor associated with LREC, which would provide electricity to the project. The revised electricity emission factor is 132.2 g CO_2e/MWh. Because LREC has a lower emission factor than the Midwest Reliability West Region emission factor (684.35 g CO_2e/kWh), which was used in the draft EIS, calculated electricity emissions have decreased.	20243-204403-01
	Daly, Mike	2024-02-23	The DEIS assumes 100% of captured CO_2 is being permanently stored underground. There is no guarantee that this will occur and no explanation of the monitoring and verification protocols that would ensure it. The DEIS fails to explain whether the applicant can sell any of its captured CO_2 to others for alternative uses instead of permanent sequestration and what the impacts of that would be. The DEIS incorrectly states that "Production of oil through EOR would not be dependent on the availability of CO_2 produced by the ethanol plant." This claim is contradicted by countless public statements from public officials in North Dakota and oil industry representatives.	The text questioned by the commenter in Section 5.7.2.3 was prefaced with the following: "if all the CO_2 produced by the ethanol plant is sequestered as proposed, EOR would likely continue in North Dakota using other sources of CO_2, other gases, thermal methods, or chemical methods." Revisions are not necessary. However, Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for EOR. Text has been added to Section 2.1 describing the suitability of the Broom Creek Formation in North Dakota for CO_2 sequestration, as well as the monitoring and testing that would be done to verify that the CO_2 is contained in the storage reservoir.	20243-204403-01
	Daly, Mike	2024-02-23	The DEIS states that during operation the proposed project will require about 38,501,733 kilowatt hours per year, and that this amount is "not anticipated to require the addition of power generation capacity." However, the DEIS fails to clearly state how much electricity the ethanol refinery is currently using. For that information, the public must look in Appendix I. The DEIS does not explain how this doubling of the electricity use at the ethanol refinery will impact overall electricity for Lake Region Electric Cooperative. Who is paying for that electricity? Summit or the ethanol facility? And if the latter, will those cost increases be passed on to producers or other member-owners?	Section 5.4.9.2 contains relevant information regarding how LREC would support the project. This section has been updated to indicate that the applicant is solely responsible for necessary infrastructure upgrades (see Appendix I, Supplemental Information Inquiry 13 response and email from LREC).	20243-204403-01
	Daly, Mike	2024-02-23	In addition to the direct impacts of the 28 miles of pipeline included in Summit's application, the DEIS does not account for the indirect and cumulative impacts of Summit's entire project in Minnesota. This is despite Summit's clear and public plans for a much larger buildout in Minnesota and recent statements that they will be applying for permits for additional parts of the network imminently. Allowing Summit to artificially segment permitting requests for multiple concurrent projects on one pipeline will prevent a thorough review of the cumulative impacts and potential environmental and climate damages of the project.	Thank you for your comment. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-01
	Daly, Mike	2024-02-23	Neither Minnesota's state agencies nor Summit has any experience building, operating, or overseeing CO_2 pipelines or carbon capture projects. The claims in the DEIS that this pipeline will have "minimal impact" across the board are unsupported by the existing evidence about carbon pipelines and pipeline construction generally. We need a careful analysis and credible assessment of how this project could affect our homes, lands, waters, and communities.	Thank you for your comment.	20243-204403-01

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	Darst, Wendy	2024-02-23	Hello- Carbon capture is an unproven process- and we know this process will enhance fossil fuel use through "Enhanced Oil Recovery" rather than moving us away from deadly technologies, while endangering land and communities across the Midwest.	Thank you for your comment.	20243-204403-01
	DeGier, Kenneth	2024-02-22	Before we start digging, we need to ask the question, do we really need to take out CO_2 from the air? The answer is no. We are at some of the lowest concentrations of CO_2 in the earth's atmosphere ever recorded. Why do we need to dig up and put pipes in God's earth that are not necessary? Putting in the pipeline will add more CO_2 in the atmosphere not justifying the putting in the pipeline. The squeeze is not worth the juice.	Thank you for your comment.	20243-204403-01
	DeGross, Lydia	2024-02-23	My name is Lydia DeGross. I'm 18 years old and I live in South Minneapolis. I am worried about the impact climate change will have on my future, animals, and those who are most vulnerable to its effects. I know pipelines have a history of leaks that cause significant damage to the surrounding environment, so I expect a robust environmental impact assessment.	Thank you for your comment.	20243-204403-01
	DeGross, Lydia	2024-02-23	I believe the DEIS for this pipeline is insufficient. Neither Minnesota's state agencies nor Summit has any experience building, operating, or overseeing CO_2 pipelines or carbon capture projects. The DEIS does not account for the indirect and cumulative impacts of Summit's entire project in Minnesota.	Thank you for your comment. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-01
	DeGross, Lydia	2024-02-23	The claims in the DEIS that this pipeline will have "minimal impact" and that CO_2 leaks would be unlikely to impact mammals, birds, reptiles, amphibians, insects, fish, and freshwater mussels, are unsupported by evidence. The DEIS fails to mention any negative impacts from construction on the ecosystem.	Chapter 5 discusses general project impacts on fish and wildlife. Chapter 8 provides a detailed, referenced discussion of the potential impacts on fish and wildlife posed by CO_2 leaks and a CO_2 pipeline rupture.	20243-204403-01
	DeGross, Lydia	2024-02-23	There is inconsistency in the reported impact on wetlands. In Table 5-40 on p. 5-98 of the DEIS, it states that "the loss of wetlands would be less than 0.01 acre." However, Table 5-4 on p. 5-24 says that for Summit's preferred route, operation impacts are expected to be 3.3 acres, and construction impacts are expected to be 4.7 acres. Table 5-52 on p. 5-143 suggests that the total construction impact on wetlands for RA-South is 2.7 acres.	Discrepancies between Table 5-4 and Table 5-54 result from different datasets and their associated resolutions. Table 5-4 uses NLCD data to analyze land cover and Table 5-54 uses NWI data to analyze wetlands. Table 5-40 has been edited to be consistent with discussions of impacts on wetlands in Section 5.7.9 and Table 5-53 and Table 5-54.	20243-204403-01
	DeGross, Lydia	2024-02-23	Summit states that the capture facility "is designed to capture 100% of the CO_2 produced by the ethanol plant." There is no carbon capture facility in the world, ethanol or otherwise, that captures carbon at a rate of 100%. This claim is not supported by any data/information or verified by a third party.	Section 2.1 has been revised to clarify that the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. Section 2.1 has been revised to clarify that the captured CO_2 is produced by the ethanol plant as part of its fermentation process, the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. Section 6.3 describes energy efficiency and energy alternatives that could reduce emissions from the ethanol plant's electricity and process fuel use.	20243-204403-01
	DeGross, Lydia	2024-02-23	This project poses a threat to public safety and health, agriculture, ecosystems, and water. CO_2 is dangerous at high concentrations and those in the rupture impact zone are at risk. The DEIS does not mention any meaningful safety measures for a rupture and instead suggests that it is "reasonable" for Summit to simply supply indoor CO_2 detectors for residences within 1,000 feet of the project. According to the PHMSA, the current emergency response requirements for this project are dangerously outdated. The PUC must determine what routing, setback, and depth requirements are necessary to adequately protect Minnesotans.	The draft EIS discusses PHMSA rules, regulations, and the pending rulemaking process PHMSA is undertaking for CO_2 pipelines and acknowledges pending PHMSA changes to such regulations (see draft EIS, Chapter 3, Chapter 8, and Appendix G). PHMSA regulations (that is, their appropriateness) and related standards for CO_2 pipelines are outside the scope of the EIS (Appendix A). Although the Commission cannot set safety standards for pipeline construction or operation, state or local units of government may, to the extent authorized by law, set land use requirements that indirectly contribute to pipeline safety by regulating the activities of third parties located in the pipeline's vicinity. The Commission's obligation is to	20243-204403-01

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				identify a pipeline route consistent with the criteria found in statutes and the applicable administrative rules. Federal law, by contrast, exclusively prescribes pipeline safety requirements. Section 3.4 of the EIS has been revised with this information.	
	DeGross, Lydia	2024-02-23	This pipeline will cause yield reduction and damage to prime farmland, yet the DEIS fails to identify any measures the applicant should take to avoid these damages or repair them. Summit's preferred route for this pipeline would impact significantly more acres of prime farmland across both the construction footprint and the operation footprint of the proposed project than the proposed alternatives.	While the applicant's preferred route, RA-South, was calculated to have the highest percent of prime farmland within the footprint (0.3 percent and 0.6 percent higher than RA-North for operation and construction footprint, respectively), the total acres of prime farmland in both construction and operation footprint for RA-South is greater than the total acres for RA-North and less than the total acres for RA-Hybrid. Additionally, impacts and mitigation to prime farmland and soils are discussed in sections 5.5.1.3 and 5.7.6.3.	20243-204403-01
	DeGross, Lydia	2024-02-23	A leak would kill plants, yet the DEIS provides no measures to avoid these impacts, nor does it discuss the long-term impacts of such damage on the soils and vegetation.	Impacts on vegetation are discussed in Section 8.3.4.3. Section 8.5 describes the steps that would be taken to help prevent an accidental release.	20243-204403-01
	DeGross, Lydia	2024-02-23	More research and analysis are needed to understand how CO_2 disperses in water and what risks a CO_2 pipeline leak or rupture poses to Minnesota's precious waters and the fish, amphibians, reptiles, waterfowl, birds, and insects that rely on it to survive. Project construction has the potential to cause a breach in a confined aquifer which could have significant long-term impacts on aquifers.	Potential impacts of a pipeline rupture on water resources and wildlife are addressed in Section 8.3.4. Stand-alone studies concerning impacts on water resources, wildlife, and wildlife habitat are outside the scope of the EIS.	20243-204403-01
	DeGross, Lydia	2024-02-23	The proposed route for Summit's pipeline network includes many water crossings, wetlands, aquifers, and other sensitive water bodies while going through prime farmland and ecosystems. Given pipelines' high potential to leak or rupture this project puts animals, the environment, and people's health in danger.	Impacts on water resources are discussed in Section 8.3.4.1. Section 8.5 describes the steps that would be taken to help prevent an accidental release.	20243-204403-01
	DeGross, Lydia	2024-02-23	Additionally, carbon capture technologies are highly energy intensive and will significantly increase the carbon emissions at the facility from electricity use. Given our current climate and biodiversity crisis, we need a careful analysis and credible assessment of how this project could affect our homes, lands, waters, and communities. This will require more research and evidence to back up all claims.	Electricity use is described in Section 5.4.9.	20243-204403-01
	Dircks, Lisa	2024-04-23	NO to CO_2 Pipelines!!! Private Companies taking land for personal gain is Wrong !! All these Companies want is the money grab in the Inflation Reduction Act. They don't care about the danger these Pipelines have or land they will ruin. I am in Iowa trying to stop these and we need to STOP them everywhere!!!	Thank you for your comment.	20243-204403-01
	Dornfeld, Tess	2024-02-23	As a fourth generation Minnesotan, I'm very concerned about the impacts and risks that this proposal, and the larger project it is clearly part and parcel of, pose to our water resources in particular, as well as important farmland, rural communities, and emergency responders. The DEIS needs to thoroughly account both for the recent and ongoing drought conditions in the state, and future projections. We know these conditions are only going to get more extreme and unpredictable. A guess at 20 million gallons of water every year is a huge commitment and needs to be analyzed carefully for the lifetime of the project. The risks to water resources in the construction process are also not addressed sufficiently, especially given our recent experience in the state of aquifer breaches from pipeline construction. Obviously past permitting processes have not been robust enough and groundwater and aquifer damage needs to be treated seriously from the start.	Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-01
	Dyce, Darwin	2024-02-22	What follows are just a few of my concerns regarding Draft Environmental Impact Statement (DEIS) for the Otter Tail to Wilkin CO_2 Pipeline Project. Summit's application misleads and skirts around vital information pertaining to environmental and human impact of the CO_2 Pipeline, because such considerations interfere with their profit margin. I urge the PUC to look seriously at the human and environmental concerns that arise with the CO_2 Pipeline. We all know that such a pipeline can and will break. I have many friends who are First Responders and would arrive on the scene to protect the public when such breaks occur. Adequate information to provide basic protections to First Responders does not exist in this plan. A pipeline rupture releases CO_2 that is both colorless and odorless. First Responders do not have the necessary equipment to deal with a pipeline break, nor is there a plan for communities to obtain additional funding to acquire such equipment. Although	Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. The	20243-204403-01

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			the plan speaks to multiple company personnel as playing roles in an emergency response, it ignores the fact that it has only one full-time employee at the capture facility. First responders deserve more information and equipment to respond to such an event. Their lives and the lives of others are at stake.	Emergency Response Plan included as Appendix N is a draft plan that would be revised as required by PHMSA, if the project is approved. Additionally, EERA staff recommended a special permit condition requiring the applicant to file its Emergency Response Plan that is filed with PHMSA with the Commission, and other special permit conditions as described in Section 8.5.3.	
	Dyce, Darwin	2024-02-22	The application speaks to 28 miles of pipeline, yet the DEIS conveniently ignores the indirect and cumulative impacts of the entire project, a project that clearly is intended to expand. Segment permitting for multiple projects prevents a thorough review of the cumulative impacts and potential environmental and climate damages of the project.	Thank you for your comment. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-01
	Dyce, Darwin	2024-02-22	It is also apparent that Summit will likely have no responsibility to monitor or maintain once the pipeline is decommissioned.	Section 2.7 describes project decommissioning. This section was revised to describe the financial assurances to be provided by the applicant for costs associated with decommissioning.	20243-204403-01
	Dyce, Darwin	2024-02-22	We are increasingly dependent upon ever decreasing sources of clean water. Native Americans are correct in pointing out Mni Wiconi (Water is life). The DEIS fails to discuss the impacts of an increase of water use on an already dwindling supply. The carbon capture process can double water requirements at a facility, in addition it will increase toxic wastewater discharge. Summit has not been transparent about water related issues. It has not finalized its water appropriation sources or volumes needed for construction. It is not in the best interests of Minnesotans to allow fresh drinking water to be put at risk.	Impacts on water resources are discussed in section 5.7.8. Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-01
	Dyce, Darwin	2024-02-22	Our state has first-hand knowledge of how damaging fractured pipelines can be. The DEIS must consider more seriously the damage that can occur to aquifers. Breaching shallow aquifers has long term groundwater impacts. In addition, it is unwise to ignore the impact of harmful drilling fluid on plants and animals. Summit's preferred route crosses 3 rivers magnifying risk. The DEIS ignores far too many risks to critical habitats and wetlands. As I said these are just a few of my concerns. Looking out for present and future generations is your charge, I urge you not to give a green light to this project.	Groundwater impacts and mitigation are addressed in Section 5.7.8.2. Land application of drilling mud and potential impacts are addressed in Section 5.7.6.2.	20243-204403-01
	Erickson, Stephen	2024-02-23	We do not need more pipelines!	Thank you for your comment.	20243-204403-01
	Fischer, Simona	2024-02-12	I am an architect and sustainability expert with projects around the state of Minnesota, and I know how difficult it is to track the impact of buildings and infrastructure projects. I am concerned that the DEIS has issued an oversimplified statement that falsely minimizes the potential impact of a CO_2 pipeline in two areas The application inaccurately claims that the capture facility "is designed to capture 100% of the CO_2 produced by the ethanol plant." There is no carbon capture facility in the world, ethanol or otherwise, that captures carbon at a rate of 100%. This claim is not supported by data or verified by a third party.	Section 2.1 has been revised to clarify that the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. The analyses in Section 5.7.1.3 and Chapter 6 have been revised to include capture rate scenarios for 100 percent, 70 percent, 40 percent, and 10 percent.	20243-204403-01
	Fischer, Simona	2024-02-12	Also, carbon capture technologies are energy intensive due to electricity use. The DEIS calculation is oversimplified and omits actual emissions factors that are from Great River Energy.	Electricity emissions are included in Table 5-39. These numbers have been revised to reflect the electricity emission factor associated with LREC, which would provide electricity to the project. The revised electricity emission factor is 132.2 g CO_2e/MWh. This was calculated from LREC's energy resource mix in which nearly half comes from clean energy sources. Because LREC has a lower emission factor than the Midwest Reliability West Region emission factor (684.35 g CO_2e/kWh),	20243-204403-01

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				which was used in the draft EIS, calculated electricity emissions have decreased.	
	Fischer, Simona	2024-02-12	The DEIS also fails to discuss the impacts of an increase in water use on local water supply to surrounding communities. The carbon capture process can double water requirements at a facility and increase toxic wastewater discharge.	Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-01
	Fischer, Simona	2024-02-12	The proposed route for Summit's pipeline network also includes water crossings, wetlands, aquifers, and other sensitive water bodies. More research and analysis are needed to understand how CO_2 disperses in water and what risks a CO_2 pipeline leak or rupture poses to Minnesota's waters and the wildlife ecosystems that will be affected.	Potential impacts of a pipeline rupture on water resources and wildlife are addressed in Section 8.3.4. Stand-alone studies concerning impacts on water resources, wildlife, and wildlife habitat are outside the scope of the EIS.	20243-204403-01
	Fischer, Simona	2024-02-12	Minnesotans deserve a comprehensive, science-based review of impacts of any proposed pipeline, and frankly, there are dozens of better climate solutions out there that are better than fast-tracking a poorly conceived pipeline project without proper vetting.	Thank you for your comment.	20243-204403-01
	Flaig, Patricia & Jean	2024-02-19	As part owners of farmland in Redwood County, we are writing to voice our opposition to the pressurized pipeline proposal put forth by Summit Carbon Solutions. The reasons for opposition center around its impact on the environment as well as climate. 1) While capturing carbon dioxide might seem like a positive step, using it to help or promote other businesses to produce more carbon dioxide such as the fracking in North Dakota results in a net zero gain in the struggle to improve air quality and in the fight to reduce negative effects on climate. It does not appear to address the issue of simply reducing the amount of carbon dioxide released into the air.	Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for EOR.	20243-204403-01
	Flaig, Patricia & Jean	2024-02-19	2) Approval of this proposal would promote more ethanol production and subsequently more carbon dioxide. It takes a great deal of energy to produce ethanol, so this "green solution" is not really a solution.	Thank you for your comment.	20243-204403-01
	Flaig, Patricia & Jean	2024-02-19	3) Transporting captured carbon dioxide in a pressurized pipeline through prime farmland and essential rivers, streams and aquifers creates a huge potential for an ecological disaster. a. Even a small leak into the ground could destroy vegetation. This begs the question of how long would it take to restore this production land, and what do farmers and those who rely on farmers do while waiting for safe restoration to occur. b. It is our understanding that when carbon dioxide is dissolved in water, it creates an acidic liquid which when leaked into waterways would deplete the oxygen and subsequently kill all plant and animal life. These waterways are a part of a larger watershed so the potential harm would not necessarily be localized. c. An explosion of a pressurized pipeline could endanger all those living in the area. d. An ecological or environmental disaster usually takes specialized teams and equipment to contend and contain the situation. Rural areas and surrounding small farming communities do not have those resources nor the financial wherewithal to acquire them on short notice.	Chapter 8 describes the risk of a CO_2 release and potential impacts.	20243-204403-01
	Flaig, Patricia & Jean	2024-02-19	4) The use of taxpayers money via tax credits needs to be refocused. Tax credits should be given to companies who reduce their emissions and not those who simply shift them around. Also, farmers should be included. Tax monies could be used to educate farmers about carbon farming and incentives given to those who incorporate it into their overall operation. Farmers and communities could be given financial help to create and maintain more green spaces in and around their farms and communities. As the saying goes, "it takes a whole village," or in this case, it takes a whole county or state to make sure life on this planet is sustainable. We can not ignore the Common Good, that which is good for all. The people of Redwood County and the state of Minnesota deserve that. This proposal needs to be rejected.	As stated in the final scoping decision, the appropriateness of federal and state policies, including tax credits and other incentives, regarding carbon capture and ethanol is outside the scope of the EIS.	20243-204403-01

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			Respectfully submitted, Patricia Flaig Riley Jean Flaig Crummett		
	Fossen, Heath	2024-02-22	I am a current landowner and will soon be a resident of Wilkin County, just a few hundred feet from this pipeline. I have concerns about the water usage needed for this project, not just the Ottertail/Wilkin leg, but the entire line slated for southern MN as well. Much of southern Minnesota is suffering from the consequences of drought and over-commitment of our fresh drinking water supplies. The DEIS fails to discuss the impacts of an increase in water use on local water supply. The carbon capture process can double water requirements at a facility and increase toxic wastewater discharge. The DEIS states that Summit "anticipates" an average water use for the operation of the carbon capture equipment of 13 million gallons per year, which is concerningly ambiguous. There must be a careful and case-specific assessment done of how the installation and operation of carbon capture will impact current drought conditions and exacerbate existing pollution sources. My family's rural homestead relies on a private well for drinking water, I am concerned that the water needed for this project will deplete/contaminate the drinking water in my area. Will I be forced to drill a deeper well (who pays for that?) or worse yet- have to purchase bottled water for my family to survive?	Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has also been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-01
	Fossen, Heath	2024-02-22	It also seems there hasn't been much research done on the excessive amount of electricity needed to run the carbon capture operation. Electrical grids across the US are notorious taxed on a daily basis. The DEIS states that during operation the proposed project will require about 38,501,733 kilowatt hours per year, and that this amount is "not anticipated to require the addition of power generation capacity." However, the DEIS fails to clearly state how much electricity the ethanol refinery is currently using. For that information, the public must look in Appendix I. The DEIS does not explain how this doubling of the electricity use at the ethanol refinery will impact overall electricity for Lake Region Electric Cooperative. Who is paying for that electricity? Summit or the ethanol facility? And if the latter, will those cost increases be passed on to producers or other member-owners? If twice as much carbon is emitted during the capture process, perhaps this isn't the most efficient method to pursue.	Section 5.4.9.1 has been updated with the electricity currently being used by the ethanol plant. Section 5.4.9.2 contains relevant information regarding how LREC would support the project. This section has been updated to indicate that the applicant is solely responsible for necessary infrastructure upgrades (see Appendix I, Supplemental Information Inquiry 13 response and email from LREC).	20243-204403-01
	Fossen, Heath	2024-02-22	In addition to the direct impacts of the 28 miles of pipeline included in Summit's application, the DEIS does not account for the indirect and cumulative impacts of Summit's entire project in Minnesota. This is despite Summit's clear and public plans for a much larger buildout in Minnesota and recent statements that they will be applying for permits for additional parts of the network imminently. Allowing Summit to artificially segment permitting requests for multiple concurrent projects on one pipeline will prevent a thorough review of the cumulative impacts and potential environmental and climate damages of the project.	Thank you for your comment. The full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-01
	Fossen, Heath	2024-02-22	Please do not allow Minnesota to be the guinea pig for a project of this magnitude. There are other, more sustainable methods of carbon capture that require far less degradation of land and depletion of fresh water.	Thank you for your comment.	20243-204403-01
	Fossen, Heidi	2024-02-22	Hello - I am a landowner, past and (soon to be) future resident of Wilkin County, my farmland has been cited by Summit as a possible route for the carbon pipeline project and over the past couple of years Summit has approached my family several times trying to get us to sign their easements in a rude and almost forcible manner. The proposed route is also a few hundred feet from my elderly mother's farmstead where she has lived for the past 50 years, this land and farmstead has been in my family for almost 100 years now. I grew up here and will take over this farm and land when my mother becomes too old. Hopefully my children will take it over for me when I become too old.	Thank you for your comment.	20243-204403-01
	Fossen, Heidi	2024-02-22	I appreciate the research the Dept of Commerce did for this project and am very concerned about climate change and do think we should be taking measures now to fight climate change. However, I don't believe this pipeline project exhibits a responsible solution to the climate change crisis. To be clear, I am a proponent of carbon capture and think that it will be needed in order to fight this crisis but there are other methods of carbon capture that do not involve degrading precious farmland and using billions of gallons of freshwater [that we do not have]. Many new studies at research schools all over the world (like the University of Wisconsin and University of Minnesota) have come up with safer, cheaper and more ecofriendly carbon capture solutions involving plants such as switchgrass and other native plants. It is possible to capture carbon without degrading hundreds of miles of farmland and wasting billions of gallons of precious, non-renewable, fresh water.	Thank you for your comment. An alternative that does not include ethanol production was not studied in the EIS because it would not meet the purpose of the project.	20243-204403-01

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	Fossen, Heidi	2024-02-22	Throughout this process, we have been getting conflicting figures (from Summit and the PUC) on how much fresh water is going to be needed to build this pipeline and operate it for the next 20+ years. As you know, this area (and most of the Midwest) has been in various levels of drought for the past several years with no sign of a turnaround. Is it really in the best interest of the state to allow an outside company to drain our aquifers, leaving our rural communities without adequate drinking water and water for irrigational needs related to livestock and crop production? Please go back and take another look at the short- and long-term water calculations needed for this pipeline and reassess if Summit's consumption of this valuable, community resource is going to be worth it for Minnesotans in the long run. Please consider the entire buildout of this project- not just the 28 miles in Ottertail and Wilkin counties. Regardless of how much carbon is in the air, we all die without adequate drinking water and food to eat.	Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has also been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-01
	Fossen, Heidi	2024-02-22	I am also concerned about a potential rupture/leak. It is unclear if/when the pipeline will be tested for leaks, and if leaks can even be detected. If there is a large-scale rupture, the EMS team in tiny Breckenridge MN is not equipped to respond to such a disaster; people, plants and animals can die. This tiny community is not prepared or equipped to mitigate a leak or accident of any kind regarding carbon gas. Also, we've recently been notified from our insurance company that there are "a lot of red flags that could lead to a gap in coverage as it relates to liability for damages and/or bodily injury related to this pipeline". I think we also need solid clarification on who is responsible for all the scenarios surrounding a rupture/accident that happens on privately held land. I know safety is the utmost concern for this project by all involved, but let's be real-with a project of this magnitude (the first ever of its kind worldwide), there WILL be mistakes/leaks/accidents/injuries- there ALWAYS are. And in the end, it is always the rural communities that are left scarred and picking up the pieces, not the corporation that was responsible for the mess in the first place. All I ask is that we take a hard look at environmental disasters that have happened in the past and learn from the way those were handled between corporate America and local residents.	As detailed in Section 2.3.2.2, the applicant would install a pipeline internal inspection tool to monitor pipeline integrity. The applicant would monitor the system from a control center and assess conditions to ensure the pipeline is operating within established parameters (see Section 2.6.1). The applicant would also run a real-time model of the pipeline system, and if conditions of the model do not match the conditions of the pipeline, alerts would notify controllers to potential leaks. Section 8.4 describes the steps that would be taken in case of a rupture, and Section 8.5 describes the steps that would be taken to prevent an accident and reduce impacts if a leak or rupture occurred. Section 5.4.7.2 has been revised to address the availability and cost of property insurance, and to note that the applicant has agreed to indemnify landowners for any losses resulting from the applicant's use of the easements.	20243-204403-01
	Fossen, Heidi	2024-02-22	For the past several generations, my family and the families of these small communities have been responsible stewards of farmland and water resources in the Red River Valley, please do not sell out to an out of state company that is looking to make a quick buck on current tax incentives, rape our land and deplete our fresh water supply. This project does not benefit Minnesotans or the environment and there is other, more ecofriendly options for carbon capture available that should be considered.	Thank you for your comment. An alternative that does not include ethanol production was not studied in the EIS because it would not meet the purpose of the project.	20243-204403-01
	Furshong, Peg	2024-02-22	My name is Peg Furshong, and I am a landowner in the proposed 242-mile footprint of this proposed CO_2 project for the state of Minnesota. As a mother, farmer and Minnesota taxpayer, I am opposed to being a 'pilot' project for this this extraction industry to make millions of dollars while putting rural Minnesotans at risk. After reading the EIS – it seems to be a template for other projects not relevant to this specific project in Minnesota. Much of the DEIS cites "best practices" in general without detailing them and their application in Minnesota. There are significant promises made by Summit Carbon Solutions without substance and details on how these promises will be addressed or implemented. Below I have indicated concerns and would like the PUC to further investigate concerns shared by many before proceeding with this routing application.	See the responses to specific comment topics below.	20243-204403-01
	Furshong, Peg	2024-02-22	With reference to: CO_2 Rupture Impact Zone: According to the analysis in the DEIS, the potential impact radius for levels of CO_2 that would be "immediately dangerous to life or health" is 617 feet. This expands to 910 feet for lower concentrations that cause dizziness, drowsiness, severe muscle twitching, and unconsciousness within a few minutes. Although Summit indicates that it will take 25 minutes for the system to shut off the relevant valves in the event of "abnormal operation," the DEIS does not mention any meaningful safety measures for a rupture and instead suggests that it is "reasonable" for Summit to simply supply indoor CO_2 detectors for residences within 1,000 feet of the project. But the rupture report in Appendix G states that "a full rupture results in impact distances too quickly for an early warning device, such as an oxygen detector, to be effective." This pipeline should not be approved without a clear understanding of the risks to human health and meaningful measures to ensure the safety of people and animals in the area. This proposed pipeline is planned to be at the foot of our farm driveway which would be 100 yards from our house and less than 16 feet from our pasture where we graze our cattle. Are we expendable? According to the Iowa Utility Board	Text in Section 4.5 on valve closure time has been corrected from 25 minutes to 10 minutes. Elsewhere in the EIS, including the rupture analysis, valve closure time is listed/calculated as 10 minutes. Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. The Emergency Response Plan included as Appendix N is a draft plan that is not	20243-204403-01

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			hearings – it would cost rural communities approximately $9,600 per EMS responder for the equipment necessary to respond to a CO_2 incident. MN Rural EMS departments budgets already struggle – the other key element is that responders need to be in electric vehicles and as far as I know, not one rural EMS department in MN has electric vehicles. The other solution that Summit has mentioned at public meetings was to have regional response teams – well, by the time we wait for a 'crew' to be dispatched to a rural incident, the damage would be done. Back in February of 2020, a rupture in rural Mississippi resulted in 45 people being transported to area hospitals. Think about this footprint – what area hospitals would have ER rooms for 45 people? You would be taking people to St. Cloud, Fargo, and Sioux Falls. Those 45 people may not have died from the rupture but years later, they are still suffering from the side effects of exposure to the CO_2.	outdated but would be revised as required by PHMSA, if the project is approved. Additionally, EERA staff recommended a special permit condition requiring the applicant to file its Emergency Response Plan that is filed with PHMSA with the Commission, and other special permit conditions as described in Section 8.5.3.	
	Furshong, Peg	2024-02-22	Compliance with PHMSA Rules: The DEIS accepts Summit's assurances that it will "comply with federal emergency response requirements," but as noted in a Pipeline Safety Trust report and by the Pipeline Hazardous Material Safety Administration (PHMSA) itself, the current emergency response requirements are dangerously outdated. As a state entity, the MN Public Utilities Commission should be putting Minnesotan's wellbeing and safety over out-of-state, for-profit businesses interests. We should be your priority, not Summit Carbon Solutions and their investors. This is a "first of its kind" project that has NEVER been proven at this scale. Currently, there is no such pipeline in the upper Midwest – by approving this proposed project you will be creating a new pipeline corridor that will impact Minnesota's Natural Heritage for generations. You need to error on the side of caution and public interest. Setbacks: The DEIS states that the PUC "cannot set safety standards" for Summit's proposed pipeline. PHMSA has expressly said in public letters to CO_2 pipeline companies like Summit that state and local authorities can exercise their powers to regulate land use—including setback distances—and that "nothing in the federal pipeline safety law impinges on these traditional prerogatives of local—or state—government." The PUC must consider where the pipeline is placed and what is the safest option for Minnesotans, which means the PUC can and should determine what routing, setback, and depth requirements are necessary to adequately protect Minnesotans. We are asking you to protect rural communities – this segment of the proposed project will begin in the Fergus Falls community – a densely populated community that will risk and endanger lives.	Although the Commission cannot set safety standards for pipeline construction or operation, state or local units of government may, to the extent authorized by law, set land use requirements that indirectly contribute to pipeline safety by regulating the activities of third parties located in the pipeline's vicinity. The Commission's obligation is to identify a pipeline route consistent with the criteria found in statutes and the applicable administrative rules. Federal law, by contrast, exclusively prescribes pipeline safety requirements.	20243-204403-01
	Furshong, Peg	2024-02-22	Geologic Hazards: The DEIS does not address whether the applicant has conducted geologic hazard surveys pursuant to the PHMSA Bulletin here: https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2022-06/2022-11791.pdf	Geologic hazards are addressed in Sections 5.7.3 and 5.7.6. Text regarding geohazard assessments that would comply with the recommendations in PHMSA Advisory Bulletin 2022-01 has been added to both sections.	20243-204403-01
	Furshong, Peg	2024-02-22	Dangers to water and waterbodies: The proposed route for Summit's pipeline network includes many water crossings, wetlands, aquifers, and other sensitive water bodies. More research and analysis are needed to understand how CO_2 disperses in water and what risks a CO_2 pipeline leak or rupture poses to Minnesota's precious waters and the fish, amphibians, reptiles, waterfowl, birds, and insects that rely on it to survive.	Potential impacts of a pipeline rupture on water resources and wildlife are addressed in Section 8.3.4. Stand-alone studies concerning impacts on water resources, wildlife, and wildlife habitat are outside the scope of the EIS.	20243-204403-01
	Furshong, Peg	2024-02-22	There has been no modeling of a rupture in a moving waterway. Being that the company who did the EIS is from Texas – do we trust their judgement when it comes to concerns and conditions we face in the northern climates. What happens when there is a leak or rupture under an icecap? How is a rupture handled during the winter months? While I have limited capacity and am not a scientist or engineer – I can deduct that the impacts would likely be much different during the winter than the summer. Look at this winter for example – we have water pipes in a variety of communities rupturing when we have a warm/cold cycle that happens with the erratic temperatures from January through April. How will that freeze/thaw cycle impact this infrastructure? If we have a rupture during the colder weather – with that impact the time people will be exposed to dangerous levels of CO_2?	Sections 8.3.1 and 8.3.4 have been revised to discuss the potential impacts of ice covering waters or wetlands at the point of a rupture. In general, if CO_2 released from the pipeline was trapped by ice, then the CO_2 would release more slowly into the atmosphere as it traveled laterally under the ice until it escaped through cracks or gaps in the ice, thereby decreasing the impact distance (the distance the CO_2 would travel through the air). The EIS modeled the worst-case scenario where the CO_2 is not trapped by ice. In the event of a pipeline rupture that caused CO_2 to be trapped by ice covering a waterbody, CO_2 could remain in contact with the water for more time and the concentration of carbonic acid could increase. In other words, the water and aquatic species could experience a greater impact from the CO_2, but the atmosphere would experience less CO_2, and the risk to humans and other terrestrial species would be lower. As noted in Section 5.7.3.4 and Section 8.1, the applicant has committed to conducting a Phase I Geohazard Assessment to identify areas surrounding the pipeline that may be prone to large earth movement, as	20243-204403-01

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				recommended by PHMSA in its June 2022 Advisory Bulletin, and EERA staff recommends that the results of the Phase I assessment, and any subsequent assessments, should be provided to the Commission.	
	Furshong, Peg	2024-02-22	Water use: Much of southern Minnesota is suffering from the consequences of drought and over-commitment of our fresh drinking water supplies. The DEIS fails to discuss the impacts of an increase in water use on local water supply. The carbon capture process can double water requirements at a facility and increase toxic wastewater discharge. The DEIS states that Summit "anticipates" an average water use for the operation of the carbon capture equipment of 13 million gallons per year, which is concerningly ambiguous. There must be a careful and casespecific assessment done of how the installation and operation of carbon capture will impact current drought conditions and exacerbate existing pollution sources. Moreover, Summit has not finalized its water appropriation sources or volumes needed for construction, so it is impossible to know the full impact of those appropriations on water resources. Why should Minnesota risk our fresh drinking water supply and commit to an infrastructure when the proposing company has not been transparent with its true demands for water resources? I have attended several in person meetings where Summit Carbon Solutions has given various answers to questions around how much water is going to be needed to run the carbon capture equipment. They have not been transparent in their application or the proceedings leading up to this process. They have also been approaching local utilities asking for water – it is my understanding based on volume needed, they are required to go through the MN DNR water appropriations process. If so, it seems like they are already trying to circumvent regulatory processes. The best answer we have been given is that the carbon capture process with double the water demands that an ethanol plant already uses. Currently it takes 3 to 3.5 gallons of water to produce 1 gallon of ethanol. Add carbon capture to the mix and it now becomes 6 to 7 gallons of water per one gallon of ethanol. That now becomes 12 to 13 million gallons of water per year per proposed plant in Minnesota (currently at 6 plants in 10 counties) Does Minnesota really have that much fresh drinking water to give to a private – for profit – company over the next twenty years. It seems highly unlikely that we will have that kind of water with climate and drought conditions. This is not sustainable – what research has been done to ensure that our aquifers will not be depleted by this extractionist industry?	Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has also been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-01
	Furshong, Peg	2024-02-22	Aquifer Damage: Summit's preferred route, RA-South, crosses a surficial beach ridge aquifer in Otter Tail County. The DNR has said that the area is "prone to significant groundwater discharge," and the applicant's initial groundwater investigation confirmed that "artesian groundwater conditions are present" along that beach ridge system. In early feedback on the DEIS, the DNR noted that "Project construction has the potential to intersect shallow confined groundwater potentially causing a breach in a confined aquifer and that "breaching shallow confined aquifers could have significant long-term impacts to groundwater resources." This, along with our state's first-hand knowledge of how damaging pipelines can be, requires that the DEIS take potential damage to aquifers more seriously. What baseline studies are being done to ensure that extractionist companies are not putting our natural heritage (water) at risk?!	Section 5.7.8.2 acknowledges that damage to aquifers is a serious problem and indicates that an uncontrolled flow of water from a shallow confined aquifer could have a significant long-term impact on groundwater. Section 5.7.8.2 also describes geotechnical investigations that would be done to identify areas where breaching of a shallow confined aquifer could occur, and sheet piling would not be used. The applicant currently has an ongoing groundwater investigation underway to further inform construction practices and is continuing to consult with DNR. As part of its coordination with DNR, the applicant has agreed to use ground penetrating radar to study the depth of the confining layer through the entire beach ridge system area crossed by the pipeline to further define existing conditions and advise on construction methodology. Furthermore, EERA staff recommends that the applicant develop, in coordination with DNR, a plan for pipeline construction in areas crossing the beach ridge system area. The plan would include, at a minimum, measures to minimize the potential for breaching a shallow confined aquifer during trenching and contingency measures to mitigate the impacts of a breach, should one occur. This information has been added to Section 5.7.8.2.	20243-204403-01
	Furshong, Peg	2024-02-22	HDD Drilling: The DEIS also states that "drilling mud mixed with additives that are not on the MDH-approved additive list and/or do not meet [drinking water quality certification standards] would be disposed of as solid waste at an approved facility, or the applicant would obtain a land application permit from MPCA." The DEIS does not discuss the risks of applying drilling mud, especially with additives not approved by MDH, to the land. The DEIS says that "drilling fluids and additives for the HDD would be non-toxic to the aquatic environment and humans," however, even supposedly "non-toxic" drilling fluid is chemical waste that has been found to be harmful to plant and animal species. Summit's	As described in Section 5.7.8.2, an additive approved by MDH or meeting NSF International/ANSI Standard 60, Drinking Water Treatment Chemicals – Health Effects, might need to be mixed with the drilling mud for viscosity or lubricating reasons and to reduce the potential for an inadvertent release or failed HDD. The specific additive used would depend on the conditions at the crossing location and would be determined by the HDD contractor. The EIS discloses the potential for an	20243-204403-01

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			preferred route and alternative route, RA-Hybrid, would both cross three rivers (Pelican River, Otter Tail River, and Bois de Sioux River) via the HDD mention.	inadvertent release of drilling mud and describes potential impacts in Chapter 5. Land application of drilling mud and potential impacts are addressed in Section 5.7.6.2.	
	Furshong, Peg	2024-02-22	Wetlands: In Table 5-40 on p. 5-98 of the DEIS it states that "the loss of wetlands would be less than 0.01 acre." However, Table 5-4 on p. 5-24 says that for Summit's preferred route, operation impacts are expected to be 3.3 acres, and construction impacts are expected to be 4.7 acres. And Table 5-52 on p. 5-143 suggests that the total construction impact on wetlands for RA-South is 2.7 acres. Which is it??	Discrepancies between Table 5-4 and Table 5-54 result from different datasets and their associated resolutions. Table 5-4 uses NLCD data to analyze land cover, and Table 5-54 uses NWI data to analyze wetlands. Table 5-40 has been edited to be consistent with discussions of impacts on wetlands in Section 5.7.9 and Table 5-53 and Table 5-54.	20243-204403-01
	Furshong, Peg	2024-02-22	Impacts of a Leak or Rupture on Animals: According to the DEIS, CO_2 leaks would not affect mammals, birds, reptiles, amphibians, and insects and would be unlikely to impact fish and freshwater mussels. The DEIS reaches this conclusion without providing any reasoning or supporting evidence. Though the DEIS does note some harm may come to animals in the event of a rupture, it relies heavily on the assumption that animals will simply move out of the rupture area to avoid the release. The reason for this assumption is not provided and is contradicted by information in the rupture report in Appendix G which suggests the impacts of a rupture would be nearly immediate. The Otter Tail is home to a river ecology that supports freshwater mussels – they often spend their entire lifetime (decades) within a 15' area - they will not simply 'get out of the way'. Critical Habitats: Summit's preferred route would cross over or near several waterfowl protection areas, including the Orwell 9 Unit and Ridgeway WPA in Otter Tail County. The DEIS notes that some of these areas will be avoided during construction but fails to consider the impacts to these features in the event of a leak or rupture.	CO_2 is a widespread, naturally occurring gas and is the primary byproduct of respiration—the conversion of sugars to usable energy. Minor leaks of CO_2 from operation of the proposed pipeline would not elevate ambient CO_2 to a level that is detrimental to local vegetation or wildlife. Potential impacts on wildlife from a CO_2 rupture could result first from the physical force of a rupture and secondarily from localized, short-term high levels of CO_2 prior to dispersal and extreme cold temperatures associated with the depressurization of the CO_2 from a supercritical state to a gas. Chapter 8 of the EIS acknowledges that wildlife in the immediate vicinity of a rupture might be killed or injured by this force; however, it is expected that most mobile wildlife species would follow their natural instincts and would attempt to escape the direct effect of a rupture. Chapter 8 of the EIS also acknowledges that less-mobile species in the immediate vicinity of the point of a rupture would be less likely to escape the impacts and might be killed or injured. The data presented in Appendix G describes models of dispersal patterns in the immediate vicinity of a rupture. These models support the statements in Chapter 8 that wildlife in the immediate vicinity of a rupture might be exposed to high levels of CO_2, which could be toxic for species unable to leave the area of the release.	20243-204403-01
	Furshong, Peg	2024-02-22	Enhanced Oil Recovery: The DEIS fails to explain whether the applicant can sell any of its captured CO_2 to others for alternative uses instead of permanent sequestration and what the impacts of that would be. The DEIS incorrectly states that "Production of oil through EOR would not be dependent on the availability of CO_2 produced by the ethanol plant." This claim is contradicted by countless public statements from public officials in North Dakota and oil industry representatives. Early on during the public meetings Summit officials publicly said that their CO_2 would not be used for EOR and now they no longer make those statements. In fact, they have gone out of their way to say that once they deliver the CO_2 to ND, they have no control over what happens. (They will just collect their money from the 45Q and be on their way.) The fact is, once the 45Q program sunsets – there are no protections in place that keep the CO_2 in the ground.	The text questioned by the commenter in Section 5.7.2.3 was prefaced with the following: "if all the CO_2 produced by the ethanol plant is sequestered as proposed, EOR would likely continue in North Dakota using other sources of CO_2, other gases, thermal methods, or chemical methods." Revisions are not necessary. However, Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for EOR.	20243-204403-01
	Furshong, Peg	2024-02-22	Environmental Justice Communities: The DEIS acknowledges that the project will directly intersect a defined environmental justice community but does not account for the burden of the potential health and safety impacts of a leak or a rupture, not to mention any negative impacts from construction on the ecosystem. The DEIS also fails to assess the cumulative impacts of this project in relation to existing pollution or health disparities in the area.	Chapter 8 has been revised to include a new section (8.3.1.2) describing effects on environmental justice populations in the event of an accidental release of CO_2.	20243-204403-01
	Furshong, Peg	2024-02-22	Complete Network Impacts: In addition to the direct impacts of the 28 miles of pipeline included in Summit's application, the DEIS does not account for the indirect and cumulative impacts of Summit's entire project in Minnesota. This is despite Summit's clear and public plans for a much larger buildout in Minnesota and recent statements that they will be applying for permits for additional parts of the network imminently. Allowing Summit to artificially segment permitting requests for multiple concurrent projects on one pipeline will prevent a thorough review of the cumulative impacts and potential environmental and climate damages of the project. It doesn't take much to figure out the only reason that Summit Carbon Solutions (SCS) only applied for the 28.5 segment in MN was because currently SCS has been unsuccessful in getting their infrastructure and sequestering permits in Iowa, South Dakota and North	Thank you for your comment. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-01

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			Dakota. It is disappointing that we are wasting taxpayer dollars (not only at the state level but on the local level – countless hours of time on the backs of taxpayers) on this project when it is a pipeline to nowhere. It is also telling that states who have several pipelines and have been in the pipeline permitting business for many years are concerned about this project and the risks involved.		
	Gardner, Annah	2024-02-22	The DEIS fails to provide a thorough assessment of this project's impacts. A lot of information and analysis is missing, including: - The DEIS does not discuss the risks of applying drilling mud, especially with additives not approved by MDH, to the land. - The DEIS fails to discuss the impacts of an increase in water use on local water supply.	Land application of drilling mud and potential impacts are addressed in Section 5.7.6.2. Water use and impacts are addressed in Section 5.7.8.2. Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-01
	Gardner, Annah	2024-02-22	there is not a detailed and case-specific assessment done of how the installation and operation of carbon capture will impact current drought conditions and exacerbate existing pollution sources. - Summit has not finalized its water appropriation sources or volumes needed for construction, so it is impossible to know the full impacts of those appropriations on water resources.	As stated in Section 5.7.8.2, water supply appropriations would be regulated by DNR-issued permits that would have conditions to minimize impacts on groundwater resources. DNR would review permit applications and would not issue a permit if the amount of water to be withdrawn would adversely affect the aquifer or other users. Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-01
	Gardner, Annah	2024-02-22	According to the DEIS, CO_2 leaks would not affect mammals, birds, reptiles, amphibians, and insects and would be unlikely to impact fish and freshwater mussels. The DEIS reaches this conclusion without providing any reasoning or supporting evidence.	CO_2 is a widespread, naturally occurring gas and is the primary byproduct of respiration—the conversion of sugars to usable energy. Minor leaks of CO_2 from operation of the proposed pipeline would not elevate ambient CO_2 to a level that is detrimental to local wildlife. This is discussed in Section 8.3.4.2 of the final EIS.	20243-204403-01
	Gardner, Annah	2024-02-22	Summit states that the capture facility "is designed to capture 100% of the CO_2 produced by the ethanol plant." There is no carbon capture facility in the world, ethanol or otherwise, that captures carbon at a rate of 100%. This claim is not supported by any data/information or verified by a third party.	Section 2.1 has been revised to clarify that the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. The analyses in Section 5.7.1.3 and Chapter 6 have been revised to include capture rate scenarios for 100 percent, 70 percent, 40 percent, and 10 percent.	20243-204403-01
	Gardner, Annah	2024-02-22	The DEIS assumes 100% of captured CO_2 is being permanently stored underground. There is no guarantee that this will occur and no explanation of the monitoring and verification protocols that would ensure it. - The DEIS fails to explain whether the applicant can sell any of its captured CO_2 to others for alternative uses instead of permanent sequestration and what the impacts of that would be.	Text has been added to Section 2.1 describing the suitability of the Broom Creek Formation in North Dakota for CO_2 sequestration, as well as the monitoring and testing that would be done to verify that the CO_2 is contained in the storage reservoir.	20243-204403-01

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				Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for EOR.	
	Gardner, Annah	2024-02-22	The DEIS also fails to assess the cumulative impacts of this project in relation to existing pollution or health disparities in the area. - In addition to the direct impacts of the 28 miles of pipeline included in Summit's application, the DEIS does not account for the indirect and cumulative impacts of Summit's entire project in Minnesota.	Thank you for your comment. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-01
	Gardner, Annah	2024-02-22	There is not a detailed discussion of decommissioning, so the public and state agencies cannot know what human and environmental impacts the plan will have into the future.	Section 2.7 describes project decommissioning. This section was revised to describe the financial assurances to be provided by the applicant for costs associated with decommissioning.	20243-204403-01
	Gooch, Van	2024-02-22	I am Dr. Van Gooch, Professor emeretus oy little effect on the problemf the University of Minnesota -Morris. I am also a member of the Citizens for a Sustainable f Future-Alexandria. We are very concerned about the environment and the reduction of carbon dioxide emission. On the surface the CO_2 Pipeline Project has a good sound to it. In reality, as we have looked at it it detail, the plan is a disaster. The company proposing this pipeline has no background that qualifies them for this project. It seem that they see a "money tree" and they are going for it.	Thank you for your comment.	20243-204403-01
	Gooch, Van	2024-02-22	The high pressure of the pipeline is a danger.Carbon dioxide is in the air all of the time. But a CO_2 pipeline burst is very dangerous for humans as it reacts with water too form carbonic acid. People have died from areas where high CO_2 has been released. The pipeline burst in water again forms into carbonic acid and again is a disputer for our valued aquatic environments.	Risks of a potential CO_2 release and potential impacts on humans and aquatic environments are described in Chapter 8 of the EIS.	20243-204403-01
	Gooch, Van	2024-02-22	Most importantly it is a huge amount of money that has very little affect on the problem There are so many other ways this money could be used to mitigate the climate change problem,I ask that the Public Utilities Commission and Department of Commerce seriously considers not approving this proposal. It is mostly useless and high in potential for danger to the public and tothe environment. Environmental groups, such as ours, highly oppose this project as a potential administrative failure.	Thank you for your comment. As stated in the final scoping decision, the appropriateness of federal and state policies regarding carbon capture and ethanol, including tax credits and other incentives, is outside the scope of the EIS.	20243-204403-01
	Goose, Leanna	2024-02-09	Hello my name is Leanna Goose. I live in northern Minnesota. I would advise the Public Utilities commission to not allow CO_2 pipelines to be put anywhere in Minnesota. These are not solutions to climate change they only prolong the current overuse of fossil fuels and allow companies to continue to pollute. They are dangerous and not needed. What is needed is pressure on polluters to stop the carbon emissions. We are beginning to see the disastrous effects of climate change today and we need true solutions. C02 pipelines are a false solution.	Thank you for your comment.	20243-204403-01
	Goyette, Chuck	2024-02-23	Andrew I live in Red Lake Falls Mn. Area. I am very much opposed to a co 2 pipeline Mother Nature does not need further threats ,damage to waterways lakes ,rivers wetlands No!!!	Thank you for your comment.	20243-204403-01
	Graney, Edith	2024-02-22	My name is Edith Graney. I was born and raised in Minnesota and care about the land and the people who live here. The Summit Carbon Capture pipeline is not a good idea for Minnesota. Rural areas don't have extensive emergency response capabilities. The rupture of a high-pressure pipeline would overwhelm the local services.	Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. The Emergency Response Plan included as Appendix N is a draft plan that would be revised as required by PHMSA, if the project is approved. Additionally, EERA staff recommended a special permit condition requiring the applicant to file its Emergency Response Plan that is filed with PHMSA with the Commission, and other special permit conditions as described in Section 8.5.3.	20243-204403-01
	Graney, Edith	2024-02-22	The water usage for this project is unclear regarding initial need and ongoing water needs for the carbon capture and compression operation. The present DEIS is for only part of the planned extensive pipeline network that Summit has planned. We need an accurate assessment of the entire project, not a piece-by-piece approval process.	Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added	20243-204403-01

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				to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	
	Gurian-Sherman, Doug	2024-04-18	My name is Doug Gurian-Sherman, and the following comments concern the proposed CO_2 pipeline routing permit in Otter Tail and Wilkins Counties in Minnesota. I am a resident of Minneapolis, MN. I attest that these comments are true and accurate to the best of my knowledge. Where I mention the DEIS, it is only to provide specific examples to illustrate broader points regarding the routing permit application. I submit this testimony as provided by Judge Moseng's first and second pre-hearing orders from June and September 2023 respectively. These include section 6 of the June 2023 order, which allows for non-party testimony according to MN rule 1405.0800. I am an agricultural scientist, with a doctorate degree in plant pathology from the University of California, Berkeley. I conducted post-doctoral research for the U.S. Department of Agriculture, acted as a risk assessment scientist for the U.S. Environmental Protection Agency on pesticides and biotechnology, was an advisor for the U.S. Food and Drug Administration on food biotechnology, and was a senior scientist for several science-based environmental non-profit organizations. I have also authored scientific publications on agriculture and climate change. I therefore have expertise on agricultural sciences and practices relevant to the potential environmental risks and benefits of the pipeline, including climate change. My CV is attached at the end of my comments.	Thank you for your comment.	20244-205651-01
	Gurian-Sherman, Doug	2024-04-18	My testimony evaluates the potential for the proposed pipeline to cause harm directly and indirectly to the environment of the area and to nearby communities. In this context it is important to consider the proposed pipeline and the ethanol plant it would serve as part of the larger industrial agriculture industry of the region and the state. The production of corn for the plant is part of the row crop industry of the state and region, and the influence of the pipeline on that local, regional and international industry and its impacts on the environment and communities is therefore directly relevant to the permit process. My testimony evaluates agricultural aspects of the proposed pipeline. I do not consider the operation of the ethanol plant, such as possibly supplying energy to the plant by renewable sources such as solar or wind.	Thank you for your comment.	20244-205651-01
	Gurian-Sherman, Doug	2024-04-18	Although the proposal for the permit claims that its approval would result in a net benefit for the climate and environment, a broader perspective of the relevant science leads to conclusion that significant net harm is the more likely outcome. Therefore, I conclude that the best course for the environment and the local communities would be to reject the permit, or a no action alternative.	Thank you for your comment.	20244-205651-01
	Gurian-Sherman, Doug	2024-04-18	My conclusion that net harm is a more likely outcome relies on analysis of actual changes in corn and related crop cultivation in the area caused in part by the success of the corn ethanol industry over the past 15 years, which is fostered by renewable fuel standards (RFS) that provide incentives and subsidies. These subsidies are scheduled to continue for many years. Additionally, the low carbon fuel standards (LCFS) that the pipeline is intended to access would provide further incentives for the cultivation of additional corn for ethanol. The incentives of the RFS and other related trends have resulted in the past 15 years in substantial expansion of corn into previously uncultivated areas in MN near the proposed pipeline. This results in large release of CO_2 and increases in the CI of ethanol corn, as well as other large environmental impacts. The intention of the RFS and LCRS incentives is to support and expand the corn ethanol industry. Therefore, although predictions always have associated uncertainty, the most likely outcome if the pipeline is approved, based on the actual recent history in the region as well as an intended purpose of the RFS and LCFS, is the continuing expansion of corn for ethanol production. Corn cultivation for ethanol or other purposes such as livestock feed causes great environmental harm. Broadly speaking, it is important for the context of this pipeline proposal to recognize the immensity of harms from industrial agriculture such as the production of corn for ethanol. Agriculture is the largest human use of land and fresh water, it is the largest source of the major water pollutants nitrogen and phosphorus, is responsible for up to a third of climate change and is one of the top causes of the global biodiversity crisis1,2,3 We cannot reach climate goals, even with the elimination of fossil fuels, without substantially reducing the climate impacts of agriculture.	Thank you for your comment.	20244-205651-01

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			4 Agriculture is responsible for about 25% of Minnesota's climate emissions, which is close to that of transportation and power generation. Known harms that may be exacerbated from the pipeline project in the region from corn grown for ethanol include contamination of drinking water wells and other supplies, lowering of water tables through irrigation affecting multiple ecosystem functions and recreation (and hence economies like tourism). They also include harm to biodiversity from land use change, fertilizer and sediment in surface water, and pesticide pollution, in addition to negative climate impacts. Industrial corn production is among the largest contributors to these harms. A related concern is whether in conjunction with the pipeline, the LCFS would provide enough incentives to meaningfully reduce the environmental impacts of ethanol corn cultivation. If so, would those improvements offset expansion of corn or related row crops into currently uncultivated areas? I argue that while some improvements may occur, they are at best equivocal, minor, and would not offset the greater harm from expanded production of corn into currently uncultivated areas. There are also trends in corn production that are making it more harmful to the environment by measures other than climate change, calling into question claims that it will become more sustainable overall under the LCFS, which does not incentivize reduction of non-climate risks. 1 Roesch-McNally, G.E. et al. 2017. Barriers to implementing climate resilient agricultural strategies: The case of crop diversification in the U.S. Corn Belt. Glob. Environ. Change. 48: 206-215. https://doi.org/10.1016/j.gloenvcha.2017.12.002 2 Rockström, J. et al. 2020. Planet-proofing the global food system. Nature Food. https://cgspace.cgiar.org/server/api/core/bitstreams/c90a1b58-4e81-48e1-a172-0a5ad294665f/content . Note that although this reference is a global perspective, it very much applies on the local and regional scales in MN. 3 Diaz et al. 2019. Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. IPBES. Bonn, Germany: IPBES Secretariat. At: https://www.mari-odu.org/academics/2018su_Leadership/commons/library/Summary%20for%20Policymakers%20IPBES%20Global%2 4 Dooley, K. et a. 2018. Missing pathways to 1.5 oC: The role of the land sector in ambitious climate action. Climate Land Ambition and Rights Alliance. Available at: https://static1.squarespace.com/static/610ffde0dd5c39015edc6873/t/65524d91dc73dc2fbf4a68ae/1699892631263/Missing+Pathways+FULL+Report.pdf.0Assessment.pdf		
	Gurian-Sherman, Doug	2024-04-18	Additionally, for any hope of the expressed climate goals of the project to be accomplished, the carbon from the plant must be permanently sequestered in the ground and not increase other sources of fossil CO_2. However, there is no assurance that carbon dioxide from this ethanol plant could not be diverted for extraction of additional fossil fuels. This must be fully evaluated under MN Rule 7852.1900, subpart 3, section I. as a cumulative potential effect related to anticipated future pipeline construction. If used for fossil fuel extraction, the pipeline CO_2 would produce the exact opposite effect of one of the main purposes and social justifications of the project. This is especially troubling in the context of this project because most captured CO_2 is currently used for fossil fuel extraction, and fossil fuel production areas that might use carbon dioxide for this purpose occur in the general region of the pipeline.	Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for EOR.	20244-205651-01
	Gurian-Sherman, Doug	2024-04-18	Another important consideration is whether the project would be good for the local economy. There would be temporary pipeline jobs and some possible small stimulation of the local economy as well as local taxes. However, sociological literature has documented over several decades that industrial agriculture's net effects on local socioeconomic wellbeing are more likely to be negative. In addition, temporary labor from elsewhere is often associated with local exploitation, for example trafficking of disappearance of native women.5,6 This is a consistent problem with pipeline projects and must not be ignored. For all these reasons the pipeline permit should be rejected. 5 Minnesota Public Radio and Associated Press. 2021. Six men, including two Line 3 workers, arrested in human trafficking sting. At: https://www.mprnews.org/story/2021/07/03/six-men-including-two-line-3-workers-arrested-in-human-trafficking-sting 6 Cohen, L. 2023. The role pf environmental law in addressing the violent effects of resource extraction on native women. Harvard Law J. at: https://journals.law.harvard.edu/elr/wpcontent/uploads/sites/79/2023/04/HELR-Vol.-47.1-Cohen.pdf	Section 5.4.8.2 has been revised to note the potential for violence associated with the presence of temporary workers. The applicant's commitment to educating all employees and contractors about prevention of human trafficking has been added to Section 5.4.8.3. In addition, Section 5.4.8.3 has been revised to add an EERA staff recommendation for a special permit condition requiring the applicant to provide its Human Trafficking Prevention Training for Commission review 30 days prior to submittal of the Plan and Profile.	20244-205651-01
	Gurian-Sherman, Doug	2024-04-18	Carbon Intensity Land Use The carbon intensity (CI) of corn ethanol according to Scully et al 2021 is 52.1-78.3g CO_2eq/MJ.7 By comparison, gasoline's CI is 93-101g CO_2eq/MJ. However, land use changes can alter the CI of ethanol corn and elevate it to above that of gasoline. The National Wildlife Foundation and U.S. Department of Energy note that this can raise corn ethanol levels to 24% above that of gasoline. In fact, it is likely that the CI of corn ethanol used for this project would be as great or greater than that of gasoline if the project succeeds as	Section 6.1.3 has been revised to discuss the debate between Lark et al. and GREET model authors.	20244-205651-01

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			intended. Likely changes in land use, especially expansion of corn for ethanol into currently uncultivated ("natural") areas in the region are important in the context of both direct and indirect environmental impacts. Specifically, conversion of previously uncultivated land, for example grasslands-prairie, forest, or wetlands, to row crops such as corn, results in release into the atmosphere of huge amounts of stored carbon from soil or standing tree biomass. These are major reservoirs of carbon which have very large climate impacts. The release of this CO_2 occurs over a period of decades from soil or wetlands once converted to annual row crops like corn. Therefore, possible land use changes related to corn ethanol production have large implications for the CI of the corn ethanol plant for a long time. These considerations are relevant under MN Rule 7852.1900, subpart 3, sections B. and I. concerning environmental and cumulative effects respectively. If the intended purpose of the pipeline to make the plant more profitable or economically successful are achieved, that will provide incentive to expand ethanol production within the existing plant or others if markets support it. Although expanding electric car markets may eventually work against this, use of ethanol in the medium term and possible use in other classes of vehicles or aircraft and continuing renewable fuel standards (RFS) nationally and in Minnesota would support increasing ethanol use for years to come. Conversion of large amounts of uncultivated land in the region to corn and other row crops over the past 15 years has been demonstrated by research by Lark et al. (2015).8 One of the major national hotspots for this conversion has been in northwestern and northcentral Minnesota as well as eastern and central North and South Dakota, that is, in the vicinity of the proposed pipeline.9 My rough estimation based on Lark et al. (2015) is that this amounts to up to several hundred thousand acres in MN over this time. Much of this conversion has been for corn, and over half does not involve conversion of Conservation Reserve Program land back into crop production. This research was consistent with several other research papers concerning the upper Midwest and covered the period between 2008-2012 and 2008-2016 respectively, that is, after renewable fuel standard policy changes in 2007 that were intended to discourage such conversion of uncultivated land to biofuel crops. These authors also note that in 2014 new provisions in the Farm Bill included insurance penalties for converting uncultivated grasslands to crops. However, conversion of forested lands was not covered by this policy. And importantly much of the converted land in the area near the proposed pipeline in Minnesota was forested rather than grassland (as is more common farther west). Research covering 2008-2016 further implicated corn ethanol subsidies under the 2007 revisions of the RFS for raising the price of corn and indirectly other field crops such as soybeans and wheat.10 Soybeans, along with corn are two of the main crops being grown in newly cultivated soil in the MN regions of the proposed pipeline. These scientists found that when newly cultivated domestic land was included in the determination of CI for corn, it was no less than gasoline but more likely at least 24% greater. It is important to note that this large impact on CI from newly cultivated areas would occur even if additional measures for growing crops sustainably were used due to incentives from LCFS (which is mostly unlikely, as discussed below). Due to the relative magnitudes of the effects, even if widely enacted such measures would not entirely offset the emissions of CO_2 from conversion of uncultivated lands to corn or related crops. Additionally, as discussed below, the agricultural measures to further reduce CI have not been shown to reliably sequester more carbon in soil in the most thorough and recent science research. Soil carbon sequestration is the primary means of reducing CI for several of these conservation practices. It is important to note that some other previous studies have included the potential for land use change to increase CI, but those focused mostly on international regions and underestimated domestic sources. So, the findings of Lark et al. (2022) supplant that earlier research.11 Additionally, these trends in newly cultivated corn acres increased fertilizer use by 3-8% and increased measures of water quality degradation by 3-5%. Increases in fertilizer use are contrary to claims that greatly reduced fertilizer use is likely under LCFS incentives and would reduce CI. Such actual increases in nitrogen fertilizer use would, to the contrary, increase the CI of corn grown for ethanol production by increasing production of the potent greenhouse gas (GHG) nitrous oxide.12 One way that increased corn production may occur without expanded acreage is by higher productivity (yield) per unit of land, and this has been important for several decades over the mid to late twentieth century and is still a factor. But clearly the actual expansion of cultivated land in the past several decades shows that yield gains alone are not sufficient to prevent expansion of cropland. Importantly, there is no good research evidence that new technologies such as GMOs or gene editing will change this trend significantly.13,14 Furthermore, one of the primary ways to increase yield has been to increase nitrogen fertilizer use. Even where the RFS result in expansion of corn on currently cultivated land rather than uncultivated land for expanded ethanol production, that would still likely result in a corresponding increase of previously uncultivated land used for corn or related row crops. This would occur by displacement of corn or other crops grown for other purposes onto currently uncultivated land, especially		

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			livestock feed, since demand trends for those other purposes is generally increasing. In other words, the total corn and other field crops acreage for all purposes needs to be considered, because they collectively determine land use and are linked economically. Therefore, both direct and indirect drivers of conversion of uncultivated land to corn production (and other row crops), with its very high negative climate and other environmental impacts, should be expected if the pipeline succeeds as intended. Expanded demand for corn for ethanol, which is most likely to be supplied from the local region, when possible, would therefore directly and indirectly put pressure on expanding corn acreage into uncultivated nearby land. Although increasing corn production is only one possibility, it is a reasonable one and therefore must be evaluated as part of any reasonable EIS. Given that expansion of corn into previously uncultivated lands has been the case over the past 15 years, the burden for showing that this trend would not be exacerbated by the pipeline must be convincingly demonstrated. However, based on my analysis, this has not been done and the pipeline permit should be rejected. *7 Scully, M.J. et al. 2021. Carbon intensity of corn ethanol in the United States: state of the science. Environ. Res. Lett. 16(4), 043001. At: https://iopscience.iop.org/article/10.1088/1748-9326/abde08/pdf.* *8 Lark, T.J. et al. 2015. Cropland expansion outpaces agricultural and biofuel policies in the United States. Environ. Res. Lett. doi:10.1088/1748-9326/10/4/044003* *9 Lark, T.J. et al. 2022. Environmental outcomes of the US Renewable Fuel Standard. PNAS. https://doi.org/10.1073/pnas.2101084119* *10 Lark, T.J. et al. 2022. ibid* *11 Lark, T.J. et al. 2022. ibid* *12 Lark, T.J. et al. 2022. ibid* *13 Gurian-Sherman, D. 2009. Failure to yield: Evaluating the performance of genetically engineered crops. Union of Concerned Scientists, Cambridge, MA. Available at: https://www.ucsusa.org/sites/default/files/2019-10/failure-to-yield.pdf* *14 Khaipho-Burch, M. et al. 2023. Scale up trials to validate modified crops' benefits. Nature. 621: 470-473*		
	Gurian-Sherman, Doug	2024-04-18	Improved Agricultural Practices for Climate and the Environment Several sustainable agricultural practices are touted as likely to be adopted or much more widely adopted by farmers growing corn for ethanol. Some of the more widely touted and discussed practices are no-till, growing cover crops, and reducing nitrogen (N) fertilizer use. As discussed below, to the contrary there is reliable data that shows that very few corn acres in MN use these either no-till or cover crops. And there are reasons why this is not likely to change much in the foreseeable future. Importantly, for both cover crops and no-till, the recent and best data contradict claims that they increase the sequestration of CO_2 in the soil, which if it occurred would benefit climate and reduce the CI of ethanol corn. A substantial reduction in N fertilizer use is also questionable and may also not have the intended effect of reducing GHGs or at least not to the extent claimed.	Thank you for your comment.	20244-205651-01
	Gurian-Sherman, Doug	2024-04-18	This is important because, as shown above, the pipeline and carbon sequestration proposed by the applicants is not assured if the CO_2 is used for recovery of petroleum that would not otherwise be produced, as is often the case. And if the project succeeds and thereby provides economic incentive for expansion, it is likely to occur in significant part through conversion of currently uncultivated land, with its great environmental and climate impacts. These impacts mean that the project is more likely to cause substantial negative climate and other environmental impacts than positive ones.	Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for EOR. To analyze impacts of the proposed project (Chapter 5), the EIS assumes the current level of ethanol production is maintained. Chapter 6 analyzes two alternative technologies—a suite of agricultural practices and a suite of energy use and efficiency changes—and assumes the current level of ethanol production is maintained with no land use change associated with expanded crop conversion from forestland, wetlands, or grazing lands. All cropland analyses assume historical persistence of conventional management pre-1980s for the region supplying feedstock to the ethanol plant. Emissions associated with introducing another variable (increase or decrease in ethanol production) would needlessly complicate the analysis of these alternative technologies. The final EIS has been revised to discuss the land use change debate between Lark et al. and GREET model authors.	20244-205651-01

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	Gurian-Sherman, Doug	2024-04-18	Therefore, it is important to ask whether additional environmentally desirable farming practices may occur in conjunction with corn ethanol production associated with the pipeline, and whether if adopted they would reduce CI. As discussed below, these outcomes are unlikely except to a limited extent, which will therefore more likely result in increased net environmental and climate harm when cultivation of currently uncultivated land is accounted for. It is unlikely that favored sustainable agriculture practices will be adopted to a substantial degree, or that they will improve the climate and environmental footprint of corn ethanol significantly. Nitrogen fertilizer use may be reduced somewhat. Nitrogen (N) fertilizer use is important for GHG (greenhouse gas) production in agriculture because some of it is converted in the soil by microbes to the very potent GHG nitrous oxide. In general, the less N fertilizer used the less nitrous oxide produced. But several factors in addition to the availability of precision farming resources determine how much N fertilizer is used. As noted above, expansion of corn acres for ethanol production in recent years led to increases in nitrogen fertilizer use, not reductions.15 Furthermore, implementation of several practices to reduce nitrogen contamination to water supplies by reducing use in sandy soils in Wisconsin, similar to many soils in the MN region that includes the pipeline, still resulted in contamination of groundwater with dangerous levels of nitrates.16 With pressure to maximize corn yields which requires adequate fertilizer levels, and greater likelihood of losses of nitrogen below corn root zones in sandy soil, it is even more difficult to substantially reduce nitrogen use in practice.17 Profit margins per unit of corn production are usually small, and even negative in many years. This pushes the industry to focus heavily on increasing production, farm size, and production efficiency rather than activities that reduce environmental harm.18 Precision farming in the form of reduced nitrogen fertilizer use may have some positive effects but this has not been substantial so far, possibly because of the related costs of the technology, such as field mapping and the cost of GPS services and specialized equipment. In addition, time and resource allocations often work against separating fertilizer applications over the growing season and especially at times of greatest crop growth and uptake. Another contrary factor can be that even though higher amounts of fertilizer application is less efficient in terms of crop growth response and yield, when fertilizer prices are low relative to crop prices, there may still be incentive to apply more. This may be doubly problematic because the lower corn uptake efficiencies at higher application rates usually result in exponentially greater release of the potent GHG nitrous oxide from the soil. Large reductions in N, even where possible in some fields in some years, is not generalizable. As discussed above, this is difficult to accomplish and even when some reductions are achieved, they may have limited impact. It is also contradicted, as noted above, by recent data for such corn which showed increases rather than decreases in N fertilizer use.19 Small or moderate reductions in N would also be advantageous, but proportionally less than larger ones. *15 Lark, T.J. et al. 2022. ibid* *16 Kraft, G.J and W. Stites. 2003. Nitrate impacts on groundwater from irrigated-vegetable systems in a humid north-central U.S. sand plain. Agro. Eco. Environ. 100: 63-74. doi:10.1016/S0167-8809(03)00172-5* *17 When water is available, nitrogen fertilizer is quickly converted to nitrate by soil microbes. Nitrate is very water soluble and passes through sandy soil, below corn roots, much more quickly than in less sandy soils.* *18 Roesch-McNally, G.E. et al. 2017. Ibid* *19 Lark et al 2022. ibid*	The EIS analyzes the two alternative technologies ordered by the Commission. The Commission cannot select either of these alternative technologies as an action alternative; however, the information provided will inform the Commission's decision to issue a pipeline routing permit. Minnesota Rule 4410.2300(H) indicates that an EIS shall include "a thorough but succinct discussion of potentially significant adverse or beneficial effects generated" by the proposed project and each major alternative with "[l]ess important material … summarized, consolidated, or simply referenced." Factors to be considered include "the impact and the relevance of the information to a reasoned choice among alternatives" and "the relationship between the cost of data and analyses and the relevance and importance of the information." As a result, the draft EIS provided a range of agricultural practices and a range of implementation rates from zero percent to 75 percent. The commenter suggests that the EIS include a feasibility study concerning these agricultural practices. Such an analysis is not commensurate with the importance of the impact and the relevance of the information to a reasoned choice among pipeline routing alternatives. As such, the EIS provides a range of implementation rates from zero percent to 75 percent to account for the uncertainty associated with implementation. Section 6.2.3. has been revised to include endnotes referencing the suggested studies discussing the challenges and opportunities associated with implementing alternative agricultural practices. Further, the EIS summarizes challenges farmers might face implementing these practices in Section 6.2.3.4.	20244-205651-01
	Gurian-Sherman, Doug	2024-04-18	Additionally, large reductions in fertilizer use, such as proposed in the DEIS to reduce CI, could have negative consequences for soil carbon storage, touted as a means of reducing CI in corn grown for ethanol. Research has shown that increases in soil carbon sequestration, or conversely loss of soil carbon into the atmosphere as CO_2, is related to both carbon sources such as crop residues or composts and amounts of other vital nutrients and especially nitrogen as a limiting resource.20,21,22 The soil microbes that convert soil carbon to CO_2 or to more stable soil carbon, require sufficient amounts of all of these nutrients. The research has found that when too little nitrogen is available, soil microbes do not build soil carbon reserves even when otherwise sufficient carbon is available. Also, the recommended amounts of nitrogen fertilizer from agronomists that are typically used in determining N fertilizer application rates including possible reductions, take only the crop needs into account, but not the amounts needed by soil microbes responsible for soil carbon levels. So, if nitrogen fertilizer amounts are substantially reduced to just meet crop requirements, such as for LCFS, it may work against the stated goals of increasing soil carbon sequestration by supplying too little for soil microbes. As noted in the cited	The EIS analyzes the two alternative technologies ordered by the Commission. The Commission cannot select either of these alternative technologies as an action alternative; however, the information provided will inform the Commission's decision to issue a pipeline routing permit. Minnesota Rule 4410.2300(H) indicates that an EIS shall include "a thorough but succinct discussion of potentially significant adverse or beneficial effects generated" by the proposed project and each major alternative with "[l]ess important material … summarized, consolidated, or simply referenced." Factors to be considered include "the impact and the relevance of the information to a reasoned choice among alternatives" and "the relationship between the cost of data and	20244-205651-01

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			references, more research is needed to understand these issues more fully, but certainly they show that claims about substantial reductions in N fertilizer in ethanol corn are at best premature. Much of the land for corn cultivation in north central and northwestern MN contains sandy soils that originated as glacial outwash. These soils hold less moisture and often require higher levels of fertilization because more fertilizer may be carried below the root zone by precipitation or irrigation compared to other soils.23 This makes it more difficult to reduce the amount of fertilizer applied and means that more of it and more applied pesticides are likely to leach into groundwater, increasing harm. These conditions must be addressed in any adequate EIS. *20 Chaplot, V. and P. Smith. 2023a. Cover crops do not increase soil organic carbon stocks as much as has been claimed: What is the way forward? Glob. Change. Biol. DOI: 10.1111/gcb.16917* *21 Chaplot, V. and P. Smith. 2023b. Cropping leads to loss of soil organic matter: How can we prevent it? Pedosphere, 33: 8–10. https://doi.org/10.1016/j.pedsph.2022.06.002* *22 Zeng, W. et al. 2023. Nitrogen deficiency accelerates soil organic carbon decomposition in temperate degraded grasslands. Sci. Total Environ. 881, 163424.* *23 Wright, J. 1990. Irrigation water management considerations for sandy soils in Minnesota. Minnesota Extension Service, University of Minnesota. Accessed April 7, 2024 https://conservancy.umn.edu/bitstream/handle/11299/207558/MN2500_AGFO_3875.pdf?sequence=1*	analyses and the relevance and importance of the information." As a result, the draft EIS provided a range of agricultural practices and a range of implementation rates from zero percent to 75 percent. One of these alternative agricultural practices discussed in the EIS was reducing synthetic nitrogen-based fertilizers. The commenter suggests that the EIS include an independent study of nitrogen fertilizer application rates and the resultant impacts on GHG emissions, soil microbes, and soil carbon sequestration rates. Such an analysis is not commensurate with the importance of the impact and the relevance of the information to a reasoned choice among pipeline routing alternatives. Section 6.2.3. has been revised to include endnotes referencing the suggested studies discussing the challenges and opportunities associated with implementing alternative agricultural practices. Section 6.2.3.1 discusses the challenges associated with the different modelling software tools.	
	Gurian-Sherman, Doug	2024-04-18	Additionally, these soils are also more susceptible to drought and irrigation of them in MN typically relies on surficial (shallow) aquifers that are susceptible to being depleted and thereby harming area water supplies for both residents and biodiversity and reducing resupply of deeper aquifers. The increasing irrigation in Minnesota from multiple crops including corn has already harmed water access by residents and others in the region of the proposed pipeline, including indigenous communities.24,25 In addition to increased irrigation on sandy soils, climate change is also leading to increased irrigation across the upper Midwest generally. This also occurs on existing corn ethanol cropland, causing harm to residential water supplies and harming the environment. Recent research suggests that corn for ethanol may be a driver of trends since the late 1990s of increasing irrigation of corn in central Minnesota that could contribute to supplying the ethanol plant.26 *24 Xie, Y. and T.J. Lark. 2021. Mapping annual irrigation from Landsat imagery and environmental variables across the conterminous United States. Remote Sensing Environ. https://doi.org/10.1016/j.rse.2021.112445* *25 Searsey, D. and D. Rojanasakul. 2023. Big farms and flawless fries are gulping water in the land of 10,000 lakes. New York Times. https://www.nytimes.com/interactive/2023/09/03/climate/minnesota-drought-potatoes.htm* *26 Xie and Lark. 2021. ibid*	Thank you for your comment.	20244-205651-01
	Gurian-Sherman, Doug	2024-04-18	In other corn growing areas in Minnesota which are also susceptible to infiltration of agricultural chemicals into aquifers, toxic insecticides sulfoxaflor and neonicotinoids have been found in groundwater originating from corn and soybean fields.27 They are also widely and commonly found in surface waters from the agricultural origins.28 These insecticides are applied to close to 100% of seed corn, with approximately 95% of it never entering the plant but rather ending up in soil and water.29 They are also very water soluble and persistent, which facilitates them entering groundwater and surface water compared to many other pesticides. Their extreme toxicity to beneficial organisms including pollinating bees, makes them especially harmful at very low concentrations. They are also a substantial threat to many other organisms from aquatic invertebrates to birds, including threatened and endangered species, especially because they have become nearly ubiquitous in recent years, more so than previous insecticides used on corn. 30,31,32 Expansion of corn for ethanol due to success of the proposed pipeline is likely to exacerbate these harms. *27 Thompson, D.A. et al. 2021. Prevalence of neonicotinoids and sulfoxaflor in alluvial aquifers in a high corn and soybean producing region of the Midwestern United States. Sci. Total. Environ. https://doi.org/10.1016/j.scitotenv.2021.146762* *28 Thompson et al. 2021. Ibid.* *29 Gurian-Sherman, D. 2017. Alternatives to neonicotinoid-coated corn seed: Agroecological methods are better for farmers and the environment. Center for Food Safety, Washington, DC. Available at: https://www.centerforfoodsafety.org/files/alternatives-to-neonics_v9_23186.pdf* *30 US EPA. 2023. Imidacloprid, Thiamethoxam and Clothianidin: Draft Predictions of Likelihood of Jeopardy and Adverse Modification for Federally Listed Endangered and Threatened Species and Designated Critical Habitats. At: https://www.epa.gov/system/files/documents/2023-05/ESA-JAM-Analysis.pdf* *31 Douglas, M. et al. 2020. County-level analysis reveals a rapidly shifting landscape of insecticide hazard to honey bees (Apis*	Impacts of pesticide use to support ethanol production are discussed in Section 7.2.2.2.	20244-205651-01

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			mellifera) on US farmland. Sci. Reports. https://doi.org/10.1038/s41598-019-57225-w *32 DiBartolomeis, M. et al. 2019. An assessment of acute insecticide toxicity loading (AITL) of chemical pesticides used on agricultural land in the United States. PLoS ONE 14(8): e0220029. https://doi.org/10.1371/journal.pone.0220029*		
	Gurian-Sherman, Doug	2024-04-18	Other agricultural conservation practices have been suggested as possibly being used with ethanol corn. One such practice is no-till or reduced tillage (or conservation tillage). Reduced tillage is among the most accepted conservation practices for industrial agriculture. This is in part because it fits relatively well with the overall trend toward reduced labor requirements for industrial corn production because it relies heavily on herbicide use rather than more labor-intensive tillage to control weeds. This is especially true for genetically engineered herbicide-resistant corn of the past three decades because the herbicides can be applied directly to the crop without harming it (although this use is threatened by herbicide resistant weeds). Soils remain cooler without tillage which can delay germination and seedling emergence and this can be a disincentive in northern climates with already short growing seasons. But in part to address the perceived greater vulnerability to pests due to delayed seedling emergence, virtually all corn seed is now pre-treated by pesticide/seed companies with fungicides and neonicotinoid insecticides.33 Both patented genetically engineered seed and pesticide seed treatments, which have occurred over the past 20-30 years, are part of the trends toward biologically and ecologically simplified and environmentally harmful agriculture which is increasingly more capital and less labor intensive. Corn seed today is several times more expensive to farmers than it was a generation ago. All of these trends lock-in today's huge corn farms into these practices through loans and the sunk costs of machinery, farm structures, costly chemical and seed technologies, and corporate research agendas which lock-out more diversified and environmentally sound practices. 34,35,36 This makes it increasingly difficult to employ most ecologically sound farming practices, which by definition rely on increased biological complexity and diversity like rotating three or four different crops and growing cover crops rather than the common corn monoculture or simple corn-soybean rotation that is overwhelming common for corn in the Midwest. Greater crop diversity and other ecological practices are somewhat more labor intensive and require more adaptable, rather than increasingly highly specialized, machinery. This biological complexity that is antithetical to today's industrial corn ethanol farms is neccessary to achieve the best environmental and climate outcomes. For example, long crop rotations, and including cover crops, can reduce the need for pesticides and N fertilizers by over 90% and have multiple benefits for the climate.37,38 33 Gurian-Sherman, D. 2017. Ibid. 34 Roesch-McNally, G.E. et al. 2017. ibid 35 Vanloqueren, G and P.V. Baret. 2009. How agricultural research systems shape a technological regime that develops genetic engineering but locks out agroecological innovations. Res. Policy. :10.1016/j.respol.2009.02.008 36 Clapp, J. 2021. The problem with growing corporate concentration and power in the global food system. Nature Food. https://doi.org/10.1038/s43016-021-00297-7 37 Davis, A.S. et al. 2012. Increasing Cropping System Diversity Balances Productivity, Profitability and Environmental Health. PLoS ONE https://doi.org/10.1371/journal.pone.0047149 38 Hunt, N.D. et al. 2020. Fossil Energy Use, Climate Change Impacts, and Air Quality-Related Human Health Damages of Conventional and Diversified Cropping Systems in Iowa, USA. Environ. Sci. Technol. 54:11002−11014	The EIS analyzes the two alternative technologies ordered by the Commission. The Commission cannot select either of these alternative technologies as an action alternative; however, the information provided will inform the Commission's decision to issue a pipeline routing permit. Minnesota Rule 4410.2300(H) indicates that an EIS shall include "a thorough but succinct discussion of potentially significant adverse or beneficial effects generated" by the proposed project and each major alternative with "[l]ess important material … summarized, consolidated, or simply referenced." Factors to be considered include "the impact and the relevance of the information to a reasoned choice among alternatives" and "the relationship between the cost of data and analyses and the relevance and importance of the information." As a result, the draft EIS provided a range of agricultural practices and a range of implementation rates from zero percent to 75 percent. The commenter suggests that the EIS include a feasibility study concerning these agricultural practices. Such an analysis is not commensurate with the importance of the impact and the relevance of the information to a reasoned choice among pipeline routing alternatives. As such, the EIS provides a range of implementation rates from zero percent to 75 percent to account for the uncertainty associated with implementation. Section 6.2.3. has been revised to include endnotes referencing the suggested studies discussing the challenges and opportunities associated with implementing alternative agricultural practices. Further, the EIS summarizes challenges farmers might face implementing these practices in Section 6.2.3.4.	20244-205651-01
	Gurian-Sherman, Doug	2024-04-18	Instead, the only farming practices that are likely to be adopted widely by corn ethanol farmers without substantial subsidies and other policies as incentives are those that will fit well with the current efficiency and production paradigms. Cover crops, which are important for the environment and soil quality generally fit much less well into this paradigm than conservation tillage, which can include no-till. This is because of the cost of the seed and the additional labor for sowing it, as well as timing issues in northern regions and the lower cover crop biomass that often results, and perceptions concerning reduced yield of corn. This is supported by the fact that despite the USDA advocating for cover crop use over the past 15 years or so they were grown on only about 5% of row crop acres in the U.S. in 2012.39 And while there have been some small increases in cover crop acreage in the Midwest, there has been less in MN compared to more southerly states.40 There was no substantial change in cover crop acreage between 2012 and 2017, with most parts of the state using cover crops on less than 3% of acres, and few areas with more than 6% coverage. Research has shown some yield losses in corn associated with cover crop cultivation (other research has refuted such yield loss). And although this may vary	As stated in the EIS, an "accessible and reproducible evaluation of alternative agricultural practices applicable to west central Minnesota was necessary." The COMET-Farm tool was chosen because it was produced by a government agency (USDA) and is publicly available at no cost, allowing for duplication of results by interested persons. Section 6.2.3. has been revised to include endnotes referencing the suggested studies discussing the challenges and opportunities associated with implementing alternative agricultural practices. Section 6.2.3.1 discusses the challenges associated with the different modelling software tools.	20244-205651-01

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			considerably with the types of cover crop and management practices, it has been difficult to persuade farmers to adopt them. In Minnesota, the short growing season makes it more difficult to establish cover crops. If the pipeline alone would reduce the accepted CI below what is needed to receive credits from LCFS programs such as California's, it is unclear that there would be sufficient additional incentive for many corn ethanol farmers to adopt cover crops. Certainly, this cannot be accepted without much more substantial evidentiary support. The single practice that is relatively amenable to corn ethanol growers, conservation tillage or to a much lesser extent no-till, is not likely to increase soil carbon sequestration, which would otherwise reduce the CI of corn ethanol. This is contrary to the claims of many supporters of corn ethanol. The outputs from agriculture climate models such as the COMET model provided in the DEIS Appendix M show substantial removal of CO_2 and reduction of the CI associated with management practices of no-till and cover crops (clover), presumably through soil carbon sequestration (Appendix M is not explicit about this). But as explained below, recent science contradicts such soil carbon sequestration. *39 Dunn et al. 2016. Perceptions and use of cover crops among early adopters: Findings from a national survey. J. Soil Water Conserv. 79(1): 29-40.* *40 Deines, J.M. et al. 2022. Recent cover crop adoption is associated with small maize and soybean yield losses in the United States. Glob Change Biol. 29:794–807. DOI: 10.1111/gcb.16489*		
	Gurian-Sherman, Doug	2024-04-18	Many research papers, beginning with Baker (U of MN) in 2007, challenged the then prevalent idea that no-till increased carbon sequestration in row crops.41 Baker found, in a review of many previous research papers, that the apparent increases in soil carbon attributed to no-till was likely an artifact of the measurement methods used in conducting most research. Due to cost and time constraints and standardization, most research sampled soil only to depths between about 5 and 30 centimeters (cm). However, for annual row crops most of the crop residues, roots and root exudates that contribute to soil carbon storage occur close to the soil surface, specifically in the top 30 cm or so. Therefore, most carbon was concentrated in these upper levels in no-till, while deeper soil horizons where no-till contributed little were typically not measured. High measured carbon amounts from nearer the surface for no-till were improperly assumed to apply to the entire depth of the soil profile. When Baker analyzed the minority of research papers that included deeper soils levels, he found that there was no statistically supportable evidence of higher soil carbon sequestration for no-till. Subsequently, many research papers, even by respected soil scientists who previously supported the hypothesis of increasing soil carbon sequestration for no-till, confirmed Baker's findings by around the mid-2010s that no-till cannot be relied upon to increase soil carbon sequestration. 42,43,44 It may be that government entities anxious to find climate solutions, especially those that are most readily acceptable to large industrial agricultural interests that dominate Midwestern farming, were overly eager to accept no-till as a climate solution, and less inclined to reconsider it. A second problem with no-till is that some weeds, especially aggressive annuals like several amaranth species, have been developing resistance to the most effective herbicides due to their overuse on GMO corn and soybeans which are the large majority of these crops in the U.S. Therefore, it is harder to forego tillage indefinitely and many farmers that practice no-till or conservation tillage revert to heavier tillage periodically, which can significantly reverse many of the benefits of no-till (such as reducing soil erosion). *41 Baker, J.M. et al. 2007. Tillage and soil carbon sequestration—What do we really know? Agricul. Eco. Environ. 118:1–5* *42 Blanco-Canqui, H and R. Lal. 2008. No-Tillage and Soil-Profile Carbon Sequestration: An On-Farm Assessment. Soil Sci. Soc. Am. J. 72: 693-701* *43 Powlson, D.S. et al. 2014. Limited potential of no-till agriculture for climate change mitigation. Nature Climate Change. DOI: 10.1038/NCLIMATE2292* *44 Ogle, S.M. et al. 2019. Climate and Soil Characteristics Determine Where No-Till Management Can Store Carbon in Soils and Mitigate Greenhouse Gas Emissions. Sci. Rpts. https://doi.org/10.1038/s41598-019-47861-7*	Section 6.2.3. has been revised to include endnotes referencing the suggested studies discussing the challenges and opportunities associated with implementing alternative agricultural practices.	20244-205651-01
	Gurian-Sherman, Doug	2024-04-18	Other practices cited as increasing soil carbon sequestration are unlikely to be widely adopted by industrial corn farmers. Cover crops are one such practice that is widely agreed to have multiple environmental benefits. But as with no-till, recent analysis has called into question the ability of cover crops to reliably increase soil carbon sequestration.45 This analysis notes several of the same problems as were found previously with no-till research including shallow soil assays and not accounting for differences in soil density, as well poor experimental design in many cases. Of the few studies reviewed that were adequate, there was no trend toward increased soil carbon sequestration. It should be noted that there are many different cover crop species and how they are grown and managed may also	Section 6.2.3. has been revised to include endnotes referencing the suggested studies discussing the challenges and opportunities associated with implementing alternative agricultural practices.	20244-205651-01

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			affect sequestration. But as of the present, the claim's that adoption of cover crops will increase soil carbon sequestration is not scientifically supportable. It should also be noted that soil carbon sequestration aside, cover crops provide several other important benefits such as reducing soil erosion, improving soil quality, increasing water infiltration, providing habitat for beneficial organisms and so on. But as noted above, cover crop seed is an additional expense, and typically cover crops are not harvested and sold in industrial cropping systems. They may be grazed in more diverse farming systems and the value of grazing livestock thereby increased, while the livestock supply manure to the soil. But this kind of diversity is not generally compatible with industrial agriculture specialization such as corn for ethanol. Some cover crops may be harvested, but this may compromise their possible contribution to soil carbon. All these considerations discourage the use of cover crops by industrial corn producers. And in fact, as noted above, the percentage of corn acres using cover crops in MN is tiny. It certainly should not be accepted that they will be more widely adopted given the history of their use unless and until it can be shown in actual reliable and appropriate research. *45 Chaplot, V. and P. Smith. 2023a. Cover crops do not increase soil organic carbon stocks as much as has been claimed: What is the way forward? Glob. Change Biol. DOI: 10.1111/gcb.16917*		
	Gurian-Sherman, Doug	2024-04-18	Finally, estimations of the CI for corn grown for the ethanol plant must be evaluated carefully. For example, where the permit application suggests that the CI for this corn may be lower than national averages, the details of how this is determined must be carefully addressed because as noted above, some of these methods use older research and highly contested or refuted conclusions. In addition to examples discussed above, another way that models may underestimate CI involves indirect nitrous oxide emissions. Indirect emissions are those that occur from nitrogen originating from farms but that has moved beyond them, such as from streams that acquire nitrogen from field runoff or leaching. Research in Minnesota determined that values commonly used in agricultural climate models may underestimate nitrous oxide emissions by 40% overall in the corn belt, and indirect emission from stream receiving nitrogen from crop fields by 3 – 9-fold.46 These concerns suggest that the current CI value of the corn supplied to the ethanol plant may be considerably higher than claimed. *46 Turner, P.A. et al. 2015. Indirect nitrous oxide emissions from streams within the U.S. corn belt scale with stream order. PNAS. 112(32):9839-9843 www.pnas.org/cgi/doi/10.1073/pnas.1503598112*	The CI Score metric used in the draft EIS reflects the net emissions of the full life cycle analysis according to the United States Department of Energy Argonne National Laboratory's GREET model, and results are current as of the release date of the draft EIS. Argonne has developed this full fuel-cycle model to estimate energy use and emissions from transportation fuel/vehicle technology systems. The model includes detailed information on corn farming and chemical manufacturing. The model and its documents are posted at http://greet.anl.gov. Argonne's annual releases of the latest R&D GREET are comprehensive in order to inform the life cycle analysis technical community and elicit stakeholder feedback. Not all pathways and data in R&D GREET are appropriate for use in circumstances where a high level of quantitative certainty or precision is required. Inclusion of a pathway or module in R&D GREET does not necessarily represent U.S. Government concurrence for any specific use, but instead is intended to gather technical feedback and advance the science of life-cycle analysis. The current (2023) estimated Argonne GREET CI scores of the Otter Tail facilities align with the most up-to-date studies analyzing the CI of corn ethanol. Section 6.2.3. has been revised to include endnotes referencing the suggested studies discussing the challenges and opportunities associated with implementing alternative agricultural practices. Section 6.2.3.1 discusses some modeling platforms available to estimate various GHG emissions associated with agricultural systems. One of the alternative agricultural practices discussed in the EIS included reducing synthetic nitrogen-based fertilizers. Such an analysis is not commensurate with the importance of the impact and the relevance of the information to a reasoned choice among pipeline routing alternatives, as the discussion in Chapter 6 includes nitrogen emissions.	20244-205651-01
	Gurian-Sherman, Doug	2024-04-18	To summarize, the general trends involved with growing corn for ethanol production favors large farms with simplified agroecosystems that generally are antithetical to practices that increase soil carbon sequestration or that are better for the environment. There is some opportunity to use precision agricultural methods to reduce N fertilizer inputs, which could reduce nitrous oxide emissions to some extent, but large reductions are unlikely and not credible without adequate research support. And as noted, large reductions may result in lower soil carbon sequestration or even further reduction of soil carbon stores. I.e. increased release of CO_2 from soil may occur which would increase CI unless counterbalanced by reduced nitrous oxide. This balance is currently not known. The most likely practice to be adopted by ethanol corn farmers is no-till or conservation tillage, but those practices do not reliably increase soil	Thank you for your comment.	20244-205651-01

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			carbon sequestration and rely on heavy use of harmful herbicides in industrial agriculture. Additionally, reversion to tillage reverses several of the benefits, which is widely recognized as the permanence problem for soil carbon sequestration. Furthermore, recent changes in industrially farmed corn in the region show that by several measures, corn farming is becoming more harmful to the environment. These include the almost ubiquitous uses or neonicotinoid insecticide seed treatments where previously only about 30% of corn acres were treated with insecticides.47 Similarly, harmful irrigation has been increasing in the region in recent years. This suggests that in some ways, and perhaps overall, the impact on the environment of ethanol corn, even on already cultivated acres, may become more harmful rather than less. *47 Gurian-Sherman, D. 2017. Ibid. The volume of neonicotinoids used to treat seeds is lower than the previously sprayed or soil applied insecticides. However, in terms of the extent of harm to the environment, area treated and intrinsic toxicity are more important, and neonicotinoids are likely more harmful overall than previous corn insecticide use for those reasons.*		
	Gurian-Sherman, Doug	2024-04-18	Socioeconomic Impact The trend in the production of corn and similar industrial crops is for larger and larger farms, where technology has been increasingly substituted for labor. To the extent that this supplants dangerous or debilitating work it is beneficial provided these benefits are equitably distributed. However, technology has mostly gone well beyond what is needed to reduce undesirable forms of labor in row crops. These benefits can be achieved without the massive concentration and industrialization of corn farming that has continued for many decades, especially since the mid-20th century. Mostly, the increasing dependance on external purchased and expensive inputs like fertilizers, pesticides, patented seed, and larger and more specialized machinery has supplanted much of the previous local income for labor that would be circulated to provide a local economic multiplier effect. Instead, much of the profit from farming now goes to distant parts of the supply chain of those inputs. This technological substitution, driven by small margins in corn profits due to frequent overproduction and extreme concentration in grain aggregator corporations and a technology treadmill that pushes farmers to adopt new expensive technologies, has contributed to the hollowing out of local economies. Now most of the local economic value in many rural areas no longer comes from agriculture. The combined effects of these trends have been found repeatedly through rural sociological research to result in socioeconomic harm for rural areas dominated by industrial agriculture such as corn ethanol.48 To the extent that this pipeline is successful and contributes to this trend, the greater the likely harm. Without evaluating these well documented effects, the claim of probable socioeconomic benefit is superficial and not adequately supported. *48 Lobao, L. and C.W. Stofferahn. 2007. The community effects of industrialized farming: Social science research and challenges to corporate farming laws. Ag. Human Values. DOI 10.1007/s10460-007-9107-8*	Thank you for your comment. Text has been added to Section 5.5.1.2 acknowledging that if the project were to contribute to the current trend of larger, more technologically advanced farms, the local farm workforce could be adversely impacted.	20244-205651-01
	Gurian-Sherman, Doug	2024-04-18	Summary and Conclusions The DEIS fails for several reasons to accurately evaluate the environmental impacts of the proposed carbon pipeline, and especially its climate and broader environmental impacts related to the cultivation of corn. It likely substantially underestimates the reasonable possibility that land use for corn, or indirectly other row crops like soybeans influenced by ethanol corn, will continue to expand further into nearby uncultivated land, releasing substantial amounts of CO_2 into the atmosphere for many years due to success of the pipeline. It would thereby result in much higher CI of the corn ethanol plant (or other plants).	Section 6.1.3 has been revised to discuss the scientific debate about emissions associated with land use change between Lark et. al. and GREET model authors.	20244-205651-01
	Gurian-Sherman, Doug	2024-04-18	There is also no assurance that CO_2 from the pipeline would not be used for the extraction of fossil fuels that would not otherwise be produced, as is a large percentage of currently captured CO_2 emissions. This would be in direct contradiction to the climate goals of the project and the state of Minnesota.	Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for EOR.	20244-205651-01
	Gurian-Sherman, Doug	2024-04-18	It is also unlikely that significantly more sustainable practices will be adopted by corn ethanol farmers and that those practices would reduce CI. As an aside, it would make much more sense for the State of Minnesota to shift such subsidies from corn ethanol to renewable electricity production (mainly wind, solar, and storage) and distribution which have much greater positive climate impacts even under the most favorable scenarios for corn ethanol. It would also make much more sense to substantially increase subsidies for moving farming toward more agroecologically diverse systems that have great environmental benefits, and to legislate policies that prevent cultivation on previously uncultivated land. All of these would have actual and substantial benefits for the environment and climate. To the extent that subsidies and policies for corn ethanol detract from those better investments, they can be rightfully labeled as detrimental.	An alternative that does not include ethanol production was not studied in the EIS because it would not meet the purpose of the project.	20244-205651-01

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			The permit application appears to rely on outdated values for the climate benefits of practices like no-till and cover crops. This is not necessarily surprising because, as noted by Chaplot and Smith (2023a), there has been premature acceptance of these practices as beneficial for soil carbon sequestration when subsequent more careful analysis has shown that they are likely in error. This premature acceptance has shown up in government policy already, perhaps for political reasons, as noted by these authors, in the U.S. Build Back Better (infrastructure) legislation and in national legislation in France. Large reductions of N fertilizer use to further reduce CI are also highly questionable as described above. Similarly, in terms of improving the environment more generally, the adoption of practices that are most likely to occur with corn for ethanol, such as some reduction in fertilizer use or adoption of conservation tillage, will have only minimal environmental benefit overall for issues of climate, water quality, and especially biodiversity. They would be overwhelmed by the negative consequences of conversion of currently uncultivated land to corn ethanol or related production. There are also recent trends such as increasing irrigation of corn in the region, including on existing corn acres, that have negative environmental and social consequences that have not been properly considered so far. In terms of the socioeconomic impact, temporary jobs and a small number of permanent jobs that may be gained building the pipeline and small increases in the tax base do not consider broader socioeconomic impacts. Well-documented historic records of negative socioeconomic impacts of increasing agricultural industrialization on rural economies and communities, including harm to native women, must be evaluated and part of the EIS. In summary, the permit must be rejected as such and remanded to the agency with instructions to do a proper EIS. In addition, the best course for the climate, the environment and the community would be a “no action” option. Chaplot, V. and P. Smith. 2023a. Cover crops do not increase soil organic carbon stocks as much as has been claimed: What is the way forward? Glob. Change. Biol. DOI: 10.1111/gcb.16917		
	Gustafson, Marcia	2024-02-23	My name is Marcia Gustafson, and I live in Mankato. I am deeply concerned about the DEIS for the Otter Tail Wilkin CO_2 Pipeline Project because it does not adequately take into account that water is essential to life. The proposed route for Summit’s pipeline network includes many water crossings, wetlands, aquifers, and other sensitive water bodies. Such a route has different potential impacts for each kind of water body involved. The DEIS does not fully address these various impacts, or in the case of wetlands has contradictory information on how many acres could be affected (see Tables 5-40 on p. 5-58; 5-4 on p. 5-24; and 5-52 on p. 143). We cannot be cavalier about our aquifers, wetlands, and rivers that can be damaged during construction or by breaches in the pipeline itself and can cause irreparable harm. Unfortunately, Minnesota has an example of this kind of damage with the Enbridge Line 3/93 where breaches have and are occurring, and Enbridge is not able to properly undo the damage, which is putting drinking water at risk in some communities. Today, February 23, 2024, I heard Cathy Wurzer on MPR interviewing former Governor Arne Carlson, who is 89 years old and sounds sharp as a tack. Near the end of the interview, Cathy asked him what a current concern of his was, and he responded with Minnesota waters. He thought that our waters are in danger. We have already polluted or damaged too many of our water resources and are not taking appropriate steps to safeguard those remaining into the future. So, I will end where I began by repeating "water is essential to life." This DEIS does not provide an adequate account of project impacts on water resources.	Thank you for your comment. Discrepancies between Table 5-4 and Table 5-54 result from different datasets and their associated resolutions. Table 5-4 uses NLCD data to analyze land cover, and Table 5-54 uses NWI data to analyze wetlands. Table 5-40 has been edited to be consistent with discussions of impacts on wetlands in Section 5.7.9 and Table 5-53 and Table 5-54.	20243-204403-01
	Henriksen, Dan	2024-02-14	To whom it may concern, I, Dan Henriksen own and farm in Redwood County, Mn and I have great concerns about the Ottertail to Wilkin branch of SCS CO_2 pipeline that in the future is proposed to cross our farms in Redwood County. The water needed for carbon capture is a huge concern for me as all living organisms need water to survive! Wells are drying up and rivers and streams are low. We cannot afford to give up the water needed for this private, for-profit company, to sequester such a minuscule amount of CO_2, that if all activities and processes needed to sequester are factored in, that more CO_2 will be emitted than stored!	Additional detail has been added to Section 5.7.8.2 to address the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-01
	Henriksen, Dan	2024-02-14	If SCS is allowed to proceed with this project, thousands of drainage tile lines and tile systems will be crossed. Appendix E, 6.23 title states tile repair after pipeline installation. Nowhere in the paragraphs do I see anything about tile repair, only future tile installations. It also requires a "qualified tile technician" to submit a plan for future tile. Many tile systems are installed by farmers with their own equipment. Who would be a qualified tile technician in that case, and who would pay the extra costs incurred to get Summit the plans needed by this clause? In appendix E, paragraph 1, it states that any mitigation plans spelled out in the easement would take	Section 2.4.6 states that any drain tiles damaged during pipeline construction would be repaired before backfilling the trench. Section 6.7 of the applicant's APP (Appendix E) specifies the procedures and timelines for repair of drain tiles disturbed during construction. The APP notes that tile disturbed or damaged by pipeline construction would be	20243-204403-01

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			precedence over the EIS. The easement given to me to consider for signing states many times states that Summit will repair to a REASONABLE condition, be it tile repair or bringing the land back to farmable condition. What does reasonable mean?? In appendix E,6.3 it states that in frozen conditions a ripper can be used to scarify the topsoil to aid in removal. How would the operator in this case be able to determine topsoil depth? If he goes too deep, mixing top and subsoil will occur and cause even more permanent damage to the land!	repaired to its original or better condition, and that permanent repairs would be completed within 21 days after the pipeline is installed in accordance with the applicant's Minnesota ECP (Appendix D). Section 5.5.1.3 has been revised to include a reference to this mitigation measure. Agreements negotiated between the applicant and the landowner are outside the scope of this EIS. Regarding topsoil segregation under frozen conditions, as stated in Section 2 of the APP, agricultural inspectors would provide construction personnel with field training on specific topics (e.g., protocols for topsoil stripping), observe construction activities on agricultural land on a continual basis, and be responsible for verifying compliance with the APP.	
	Henriksen, Dan	2024-02-14	Appendix F 2.8.2 states that in frost conditions that Summit has the right to modify the plans. What does this mean? Also, several parts of the DEIS it states that a County Inspector will oversee the project. It appears that in the DEIS the Ct will be an employee of Summit. It seems that fair and impartial judgement could become skewed easily with this arrangement. I have many other concerns, but too numerous to mention in this writing.	Section 2.8.2 of the Winter Construction Plan states, “Trench topsoil will be segregated as practicable but modified dependent on depth of frost, thickness of topsoil, and the trenching method used.” Prior to this statement, the Winter Construction Plan states that “Where frozen blocks have been cut, excavation equipment (e.g., a backhoe or excavator) will be used to remove the large frozen blocks and to place them adjacent to the trench.” The sentence in question indicates that, depending on conditions, the ability to segregate topsoil would require flexibility in methodology. Segregation of topsoil in winter with a shallow frost depth would occur differently than with a deep freeze in more saturated soil conditions where soil may need to be cut in blocks. Workers may still be able to segregate soils with little to no frost layer in separate piles by topsoil and subsoil, but segregation may not occur in the same manner when soil must be stored in blocks. Per the sample routing permit, the Agricultural Monitor and County Inspector would be designated by the County, if appointed.	20243-204403-01
	Henriksen, Dan	2024-02-14	I ask that the Public Utilities Commission and Dept of Commerce take these issues seriously and that the Ottertail to Wilkin CO_2 Pipeline Project in Ottertail to Wilkin counties (Docket Number: 22-242) is a factual and thorough account of the project impacts. Minnesotans need a robust review, and neither Minnesota's state agencies or Summit has any experience building, overseeing or operating CO_2 pipelines or carbon capture projects. We need a careful analysis and credible assessment of how this project could affect our homes, lands, waters and communities.	Thank you for your comment.	20243-204403-01
	Henriksen, Jolene	2024-02-15	To whom it may concern, I am Jolene Henriksen and my family owns land and farms in Redwood County Mn. We are greatly concerned about the Ottertail to Wilkin DEIS as our farms are in the pathway of the southern portion of the Summit pipeline. Dangers to water and waterbodies: The proposed route for Summit’s pipeline network includes many water crossings, wetlands, aquifers, and other sensitive water bodies. More research and analysis are needed to understand how CO_2 disperses in water and what risks a CO_2 pipeline leak or rupture poses to Minnesota’s precious waters and the fish, amphibians, reptiles, waterfowl, birds, and insects that rely on it to survive.	Potential impacts of a pipeline rupture on water resources and wildlife are addressed in Section 8.3.4.	20243-204403-01
	Henriksen, Jolene	2024-02-15	Water use: Much of southern Minnesota is suffering from the consequences of drought and over-commitment of our fresh drinking water supplies. The DEIS fails to discuss the impacts of an increase in water use on local water supply. The carbon capture process can double water requirements at a facility and increase toxic wastewater discharge. The DEIS states that Summit “anticipates” an average water use for the operation of the carbon capture equipment of 13 million gallons per year, which is concerningly ambiguous. There must be a careful and case-specific assessment done of how the installation and operation of carbon capture will impact current drought conditions and exacerbate existing pollution sources. Moreover, Summit has not finalized its water appropriation sources or volumes needed for construction, so it is impossible to know the full impacts of those appropriations on water resources. Why should	Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals	20243-204403-01

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			Minnesota risk our fresh drinking water supply and commit to an infrastructure when the proposing company has not been transparent with its true demands for water resources?	following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	
	Henriksen, Jolene	2024-02-15	Aquifer Damage: Summit's preferred route, RA-South, crosses a surficial beach ridge aquifer in Otter Tail County. The DNR has said that the area is "prone to significant groundwater discharge," and the applicant's initial groundwater investigation confirmed that "artesian groundwater conditions are present" along that beach ridge system. In early feedback on the DEIS, the DNR noted that "Project construction has the potential to intersect shallow confined groundwater potentially causing a breach in a confined aquifer and that "breaching shallow confined aquifers could have significant long-term impacts to groundwater resources." This, along with our state's first-hand knowledge of how damaging pipelines can be, requires that the DEIS take potential damage to aquifers more seriously.	Section 5.7.8.2 acknowledges that damage to aquifers is a serious problem and indicates that an uncontrolled flow of water from a shallow confined aquifer could have a significant long-term impact on groundwater. Section 5.7.8.2 also describes geotechnical investigations that would be done to identify areas where breaching of a shallow confined aquifer could occur, and sheet piling would not be used. The applicant currently has an ongoing groundwater investigation underway to further inform construction practices and is continuing to consult with DNR. As part of its coordination with DNR, the applicant has agreed to use ground penetrating radar to study the depth of the confining layer through the entire beach ridge system area crossed by the pipeline to further define existing conditions and advise on construction methodology. Furthermore, EERA staff recommends that the applicant develop, in coordination with DNR, a plan for pipeline construction in areas crossing the beach ridge system area. The plan would include, at a minimum, measures to minimize the potential for breaching a shallow confined aquifer during trenching and contingency measures to mitigate the impacts of a breach, should one occur. This information has been added to Section 5.7.8.2.	20243-204403-01
	Henriksen, Jolene	2024-02-15	HDD Drilling the DEIS also states that "drilling mud mixed with additives that are not on the MDH-approved additive list and/or do not meet [drinking water quality certification standards] would be disposed of as solid waste at an approved facility, or the applicant would obtain a land application permit from MPCA." The DEIS does not discuss the risks of applying drilling mud, especially with additives not approved by MDH, to the land. The DEIS says that "drilling fluids and additives for the HDD would be non-toxic to the aquatic environment and humans," however, even supposedly "non-toxic" drilling fluid is chemical waste that has been found to be harmful to plant and animal species. Summit's preferred route and alternative route, RA-Hybrid, would both cross three rivers (Pelican River, Otter Tail River, and Bois de Sioux River) via the HDD mention.	As described in Section 5.7.8.2, an additive approved by MDH or meeting NSF International/ANSI Standard 60, Drinking Water Treatment Chemicals – Health Effects, might need to be mixed with the drilling mud for viscosity or lubricating reasons and to reduce the potential for an inadvertent release or failed HDD. The specific additive used would depend on the conditions at the crossing location and would be determined by the HDD contractor. The EIS discloses the potential for an inadvertent release of drilling mud and describes potential impacts in Chapter 5. Land application of drilling mud and potential impacts are addressed in Section 5.7.6.2.	20243-204403-01
	Henriksen, Jolene	2024-02-15	Wetlands: In Table 5-40 on p. 5-98 of the DEIS it states that "the loss of wetlands would be less than 0.01 acre." However, Table 5-4 on p. 5-24 says that for Summit's preferred route, operation impacts are expected to be 3.3 acres, and construction impacts are expected to be 4.7 acres. And Table 5-52 on p. 5-143 suggests that the total construction impact on wetlands for RA-South is 2.7 acres. Which is it??	Discrepancies between Table 5-4 and Table 5-54 result from different datasets and their associated resolutions. Table 5-4 uses NLCD data to analyze land cover, and Table 5-54 uses NWI data to analyze wetlands. Table 5-40 has been edited to be consistent with discussions of impacts on wetlands in Section 5.7.9 and Table 5-53 and Table 5-54.	20243-204403-01
	Henriksen, Jolene	2024-02-15	Impacts of a Leak or Rupture on Animals: According to the DEIS, CO_2 leaks would not affect mammals, birds, reptiles, amphibians, and insects and would be unlikely to impact fish and freshwater mussels. The DEIS reaches this conclusion without providing any reasoning or supporting evidence. Though the DEIS does note some harm may come to animals in the event of a rupture, it relies heavily on the assumption that animals will simply move out of the rupture area to avoid the release. The reason for this assumption is not provided and is contradicted by information in the rupture report in Appendix G which suggests the impacts of a rupture would be nearly immediate. Critical Habitats: Summit's preferred route would cross over or near several waterfowl protection areas, including the Orwell 9 Unit and Ridgeway WPA in Otter Tail County. The DEIS notes that some of these areas will be avoided during construction but fails to consider the impacts to these features in the event of a leak or rupture. The DEIS discounts the direct and long-term impacts of pipeline construction on land and soil integrity in spite of the significant evidence of likely harm.	CO_2 is a widespread, naturally occurring gas and is the primary byproduct of respiration—the conversion of sugars to usable energy. Minor leaks of CO_2 from operation of the proposed pipeline would not elevate ambient CO_2 to a level that is detrimental to local vegetation or wildlife. Potential impacts on wildlife from a CO_2 rupture could result first from the physical force of a rupture and secondarily from localized short-term high levels of CO_2 prior to dispersal and extreme cold temperatures associated with the depressurization of the CO_2 from a supercritical state to a gas. Chapter 8 of the EIS acknowledges that wildlife in the immediate vicinity of a rupture might be killed or injured by this force; however, it is expected that most mobile wildlife species	20243-204403-01

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				would follow their natural instincts and attempt to escape the direct effect of a rupture. Chapter 8 of the EIS also acknowledges that less-mobile species in the immediate vicinity of the point of a rupture would be less likely to escape the impacts and might be killed or injured. The data presented in Appendix G describes models of dispersal patterns in the immediate vicinity of a rupture. These models support the statements in Chapter 8 that wildlife in the immediate vicinity of a rupture might be exposed to high levels of CO_2, which could be toxic for species unable to leave the area of the release.	
	Henriksen, Jolene	2024-02-15	Land degradation: This project is going to cut through roads, ditches, tile lines, and prime farmland. There is a growing body of anecdotal evidence and peer-reviewed research that shows that pipeline projects in the Midwest have caused yield reduction and damage to land years after project completion and "restoration". The DEIS does acknowledge that the reduced productivity from construction "typically would extend for 2 to 3 years, but could take up to 5 years, depending on impacts on soils from the construction disturbance," but fails to identify any measures the applicant should take to avoid these damages or repair them. Prime Farmland and Farmland of Statewide Importance: All three routes would impact both Prime Farmland and Farmland of Statewide Importance, but Summit's preferred route would impact significantly more acres of both across both the construction footprint and the operation footprint of the proposed project than the proposed alternatives.	Measures that the applicant would take to minimize impacts on soils and agricultural land are described in the Minnesota ECP in Appendix D and Minnesota APP in Appendix E. Text in Chapter 5 has been revised to indicate that impacts on crop production would be long term due to changes in soils from construction disturbance.	20243-204403-01
	Henriksen, Jolene	2024-02-15	Impact of Leaks or Ruptures on Vegetation: The DEIS concludes a leak of CO_2 "would slow plant growth" and that the rupture of the pipeline would instantly freeze the surrounding soil and "instantly kill all herbaceous ground vegetation" but provides no measures to avoid these impacts, nor does it discuss the long-term impacts of such damage on the soils and vegetation. Instead, the DEIS states without proof that "local soil microbes, mycorrhizae, and soil animals such as worms, arachnids, and insects…would re-colonize after the area is restored."	Chapter 2 discusses engineering and design elements incorporated into the project to reduce the likelihood of pipeline leaks or failure. Chapter 8 discusses potential impacts on vegetation and wildlife from slow leaks of CO_2 and from a larger rupture. In the event of a pipeline rupture and large release, impacts on vegetation and soils would be highly localized to the area above the rupture. Re-colonization of the impact area would result from ecological succession processes that are well documented in areas that have experienced disturbance events of a similar source, duration, and effect on other projects of a similar scale.	20243-204403-01
	Henriksen, Jolene	2024-02-15	Soil Compaction: The DEIS acknowledges that "soil compaction would be unavoidable in unpaved areas of equipment and vehicle operation" and that even if soils were DE compacted, "some compacted soils could remain." Soil compaction can have serious consequences in terms of water infiltration and drainage and should not be dismissed as an insignificant impact.	The commenter is referring to Section 9.1.1, which discuss unavoidable impacts during construction. Section 5.7 discusses soil compaction in greater detail. Section 5.7.6 has been revised to indicate that, while most impacts on soils during construction would be minimal and temporary, some impacts could be longer term.	20243-204403-01
	Henriksen, Jolene	2024-02-15	Geologic Hazards: The DEIS does not address whether the applicant has conducted geologic hazard surveys pursuant to the PHMSA Bulletin here: https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2022-06/2022-11791.pdf Risks to water and natural resources	Geologic hazards are addressed in Sections 5.7.3 and 5.7.6. Text regarding geohazard assessments that would comply with the recommendations in PHMSA Advisory Bulletin 2022-01 has been added to both sections.	20243-204403-01
	Henriksen, Samuel	2024-02-15	To whom it may concern, I am Samuel Henriksen and am a landowner and farm with my family in Redwood County MN. I am concerned with the Summit pipeline as the southern route passes through our land. The DEIS consistently fails to properly account for the real CO_2 emission and climate impacts of the project. Lifetime of Project: The applicant states that the anticipated lifetime of this project is 25 years. This means at the end of its life, the project could stop capturing the CO_2 from the ethanol plant. Unless the ethanol plant will also cease operations at that point in time, it will continue to emit CO_2 unabated into the future.	Section 2.7 describes project decommissioning. If the ethanol plant continues to operate beyond the life of the proposed project, its CO_2 emissions would not be captured.	20243-204403-01
	Henriksen, Samuel	2024-02-15	100% CO_2 Capture Rate?: Summit states that the capture facility "is designed to capture 100% of the CO_2 produced by the ethanol plant." There is no carbon capture facility in the world, ethanol or otherwise, that captures carbon at a rate of 100%. This claim is not supported by any data/information or verified by a third party.	Section 2.1 has been revised to clarify that the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. The analyses in Section 5.7.1.3 and Chapter 6 have been	20243-204403-01

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				revised to include capture rate scenarios of 100 percent, 70 percent, 40 percent, and 10 percent.	
	Henriksen, Samuel	2024-02-15	Additionally, the DEIS should emphasize that any CO_2 capture is solely associated with emissions from the ethanol fermentation process and provides zero reductions on the significant emissions from the facility's electricity use	Section 2.1 has been revised to clarify that the captured CO_2 is produced by the ethanol plant as part of its fermentation process, the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. Section 6.3 describes energy efficiency and energy alternatives that could reduce emissions from the ethanol plant's electricity and process fuel use.	20243-204403-01
	Henriksen, Samuel	2024-02-15	Added CO_2 from electricity use: Carbon capture technologies are highly energy intensive and will significantly increase the carbon emissions at the facility from electricity use. The DEIS uses the Midwest Reliability Organization West Region average to calculate these emissions, which is unnecessarily inaccurate given the availability of the actual emissions factor from Great River Energy. CO_2 Storage: The DEIS assumes 100% of captured CO_2 is being permanently stored underground. There is no guarantee that this will occur and no explanation of the monitoring and verification protocols that would ensure it.	Electricity emissions are included in Table 5-39. These numbers have been revised to reflect the electricity emission factor associated with LREC, which would provide electricity to the project. The revised electricity emission factor is 132.2 g CO_2e/MWh. This was calculated from LREC's energy resource mix in which nearly half comes from clean energy sources. Because LREC has a lower emission factor than the Midwest Reliability West Region emission factor (684.35 g CO_2e/kWh), which was used in the draft EIS, calculated electricity emissions have decreased. Section 2.1 has been revised to clarify that the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. The analyses in Section 5.7.1.3 and Chapter 6 have been revised to include capture rate scenarios of 100 percent, 70 percent, 40 percent, and 10 percent.	20243-204403-01
	Henriksen, Samuel	2024-02-15	Enhanced Oil Recovery: The DEIS fails to explain whether the applicant can sell any of its captured CO_2 to others for alternative uses instead of permanent sequestration and what the impacts of that would be. The DEIS incorrectly states that "Production of oil through EOR would not be dependent on the availability of CO_2 produced by the ethanol plant." This claim is contradicted by countless public statements from public officials in North Dakota and oil industry representatives.	The text questioned by the commenter in Section 5.7.2.3 was prefaced with the following: "if all the CO_2 produced by the ethanol plant is sequestered as proposed, EOR would likely continue in North Dakota using other sources of CO_2, other gases, thermal methods, or chemical methods." Revisions are not necessary. However, Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for EOR.	20243-204403-01
	Henriksen, Samuel	2024-02-15	The DEIS discounts the direct and long-term impacts of pipeline construction on land and soil integrity in spite of the significant evidence of likely harm.	Impacts on soils are addressed in Section 5.7.6, as are measures that would be implemented to minimize impacts. Most impacts would occur during construction. The text in Section 5.7.6 has been revised to indicate that some impacts on soils could be long term. Impacts on soils related to operation of the pipeline would be negligible.	20243-204403-01
	Henriksen, Samuel	2024-02-15	Land degradation: This project is going to cut through roads, ditches, tile lines, and prime farmland. There is a growing body of anecdotal evidence and peer-reviewed research that shows that pipeline projects in the Midwest have caused yield reduction and damage to land years after project completion and "restoration". The DEIS does acknowledge that the reduced productivity from construction "typically would extend for 2 to 3 years, but could take up to 5 years, depending on impacts on soils from the construction disturbance," but fails to identify any measures the applicant should take to avoid these damages or repair them. Prime Farmland and Farmland of Statewide Importance: All three routes would impact both Prime Farmland and Farmland of Statewide Importance, but Summit's preferred route would impact significantly more acres of both across both the construction footprint and the operation footprint of the proposed project than the proposed alternatives.	Measures that the applicant would take to minimize impacts on soils and agricultural land are described in the Minnesota ECP in Appendix D and Minnesota APP in Appendix E. Text in Chapter 5 has been revised to indicate that impacts on crop production would be long term due to changes in soils from construction disturbance.	20243-204403-01

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	Henriksen, Samuel	2024-02-15	Impact of Leaks or Ruptures on Vegetation: The DEIS concludes a leak of CO_2 "would slow plant growth" and that the rupture of the pipeline would instantly freeze the surrounding soil and "instantly kill all herbaceous ground vegetation" but provides no measures to avoid these impacts, nor does it discuss the long-term impacts of such damage on the soils and vegetation. Instead, the DEIS states without proof that "local soil microbes, mycorrhizae, and soil animals such as worms, arachnids, and insects…would re-colonize after the area is restored."	Chapter 2 of the draft EIS discusses engineering and design elements incorporated into the project to reduce the likelihood of pipeline leaks or failure. Chapter 8 discusses potential impacts on vegetation and wildlife from slow leaks of CO_2 and from a larger rupture. In the event of a pipeline rupture and large release, impacts on vegetation and soils would be highly localized to the area above the rupture. Re-colonization of the impact area would result from ecological succession processes that are well documented in areas that have experienced disturbance events of a similar source, duration, and effect on other projects of a similar scale.	20243-204403-01
	Henriksen, Samuel	2024-02-15	Soil Compaction: The DEIS acknowledges that "soil compaction would be unavoidable in unpaved areas of equipment and vehicle operation" and that even if soils were decompacted, "some compacted soils could remain." Soil compaction can have serious consequences in terms of water infiltration and drainage and should not be dismissed as an insignificant impact.	Section 5.7.8.2 indicates that groundwater recharge could be impacted by soil compaction. Section 5.7.6 explains that the applicant would comply with required permits and implement its Minnesota ECP and Minnesota APP, which would minimize impacts on soils. The text in Section 5.7.6 has been revised to indicate that, while most impacts on soils during construction would be minimal and temporary, some impacts could be long term.	20243-204403-01
	Henriksen, Samuel	2024-02-15	Geologic Hazards: The DEIS does not address whether the applicant has conducted geologic hazard surveys pursuant to the PHMSA Bulletin here: https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2022-06/2022-11791.pdf	Geologic hazards are addressed in Sections 5.7.3 and 5.7.6. Text regarding geohazard assessments that would comply with the recommendations in PHMSA Advisory Bulletin 2022-01 has been added to both sections.	20243-204403-01
	Henriksen, Samuel	2024-02-15	Minnesota's recent experience with pipeline construction demonstrates the serious harms that it causes on water resources as well as a tendency by state agencies to under-account for those impacts. Dangers to water and waterbodies: The proposed route for Summit's pipeline network includes many water crossings, wetlands, aquifers, and other sensitive water bodies. More research and analysis are needed to understand how CO_2 disperses in water and what risks a CO_2 pipeline leak or rupture poses to Minnesota's precious waters and the fish, amphibians, reptiles, waterfowl, birds, and insects that rely on it to survive.	Potential impacts of a pipeline rupture on water resources and wildlife are addressed in Section 8.3.4. Stand-alone studies concerning impacts on water resources, wildlife, and wildlife habitat are outside the scope of the EIS.	20243-204403-01
	Henriksen, Samuel	2024-02-15	Water use: Much of southern Minnesota is suffering from the consequences of drought and over-commitment of our fresh drinking water supplies. The DEIS fails to discuss the impacts of an increase in water use on local water supply. The carbon capture process can double water requirements at a facility and increase toxic wastewater discharge. The DEIS states that Summit "anticipates" an average water use for the operation of the carbon capture equipment of 13 million gallons per year, which is concerningly ambiguous. There must be a careful and case-specific assessment done of how the installation and operation of carbon capture will impact current drought conditions and exacerbate existing pollution sources. Moreover, Summit has not finalized its water appropriation sources or volumes needed for construction, so it is impossible to know the full impacts of those appropriations on water resources. Why should Minnesota risk our fresh drinking water supply and commit to an infrastructure when the proposing company has not been transparent with its true demands for water resources?	Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-01
	Henriksen, Samuel	2024-02-15	Aquifer Damage: Summit's preferred route, RA-South, crosses a surficial beach ridge aquifer in Otter Tail County. The DNR has said that the area is "prone to significant groundwater discharge," and the applicant's initial groundwater investigation confirmed that "artesian groundwater conditions are present" along that beach ridge system. In early feedback on the DEIS, the DNR noted that "Project construction has the potential to intersect shallow confined groundwater potentially causing a breach in a confined aquifer and that "breaching shallow confined aquifers could have significant long-term impacts to groundwater resources." This, along with our state's first-hand knowledge of how damaging pipelines can be, requires that the DEIS take potential damage to aquifers more seriously.	Section 5.7.8.2 acknowledges that damage to aquifers is a serious problem and indicates that an uncontrolled flow of water from a shallow confined aquifer could have a significant long-term impact on groundwater. Section 5.7.8.2 also describes geotechnical investigations that would be done to identify areas where breaching of a shallow confined aquifer could occur, and sheet piling would not be used. The applicant currently has an ongoing groundwater investigation underway to further inform construction practices and is continuing to consult with DNR. As part of its coordination with DNR, the applicant has agreed to use ground penetrating radar to study the depth of the	20243-204403-01

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				confining layer through the entire beach ridge system area crossed by the pipeline to further define existing conditions and advise on construction methodology. Furthermore, EERA staff recommends that the applicant develop, in coordination with DNR, a plan for pipeline construction in areas crossing the beach ridge system area. The plan would include, at a minimum, measures to minimize the potential for breaching a shallow confined aquifer during trenching and contingency measures to mitigate the impacts of a breach, should one occur. This information has been added to Section 5.7.8.2.	
	Henriksen, Samuel	2024-02-15	HDD Drilling The DEIS also states that "drilling mud mixed with additives that are not on the MDH-approved additive list and/or do not meet [drinking water quality certification standards] would be disposed of as solid waste at an approved facility, or the applicant would obtain a land application permit from MPCA." The DEIS does not discuss the risks of applying drilling mud, especially with additives not approved by MDH, to the land. The DEIS says that "drilling fluids and additives for the HDD would be non-toxic to the aquatic environment and humans," however, even supposedly "non-toxic" drilling fluid is chemical waste that has been found to be harmful to plant and animal species. Summit's preferred route and alternative route, RA-Hybrid, would both cross three rivers (Pelican River, Otter Tail River, and Bois de Sioux River) via the HDD mention.	As described in Section 5.7.8.2, an additive approved by MDH or meeting NSF International/ANSI Standard 60, Drinking Water Treatment Chemicals – Health Effects, might need to be mixed with the drilling mud for viscosity or lubricating reasons and to reduce the potential for an inadvertent release or failed HDD. The specific additive used would depend on the conditions at the crossing location and would be determined by the HDD contractor. The EIS discloses the potential for an inadvertent release of drilling mud and describes potential impacts in Chapter 5. Land application of drilling mud and potential impacts are addressed in Section 5.7.6.2.	20243-204403-01
	Henriksen, Samuel	2024-02-15	Impacts of a Leak or Rupture on Animals: According to the DEIS, CO_2 leaks would not affect mammals, birds, reptiles, amphibians, and insects and would be unlikely to impact fish and freshwater mussels. The DEIS reaches this conclusion without providing any reasoning or supporting evidence. Though the DEIS does note some harm may come to animals in the event of a rupture, it relies heavily on the assumption that animals will simply move out of the rupture area to avoid the release. The reason for this assumption is not provided and is contradicted by information in the rupture report in Appendix G which suggests the impacts of a rupture would be nearly immediate. Critical Habitats: Summit's preferred route would cross over or near several waterfowl protection areas, including the Orwell 9 Unit and Ridgeway WPA in Otter Tail County. The DEIS notes that some of these areas will be avoided during construction but fails to consider the impacts to these features in the event of a leak or rupture.	CO_2 is a widespread, naturally occurring gas and is the primary byproduct of respiration—the conversion of sugars to usable energy. Minor leaks of CO_2 from operation of the proposed pipeline would not elevate ambient CO_2 to a level that is detrimental to local vegetation or wildlife. Potential impacts on wildlife from a CO_2 rupture could result first from the physical force of a rupture and secondarily from localized, short-term high levels of CO_2 prior to dispersal and extreme cold temperatures associated with the depressurization of the CO_2 from a supercritical state to a gas. Chapter 8 of the EIS acknowledges that wildlife in the immediate vicinity of a rupture might be killed or injured by this force; however, it is expected that most mobile wildlife species would follow their natural instincts and attempt to escape the direct effect of a rupture. Chapter 8 of the EIS also acknowledges that less-mobile species in the immediate vicinity of the point of a rupture would be less likely to escape the impacts and might be killed or injured. The data presented in Appendix G describes models of dispersal patterns in the immediate vicinity of a rupture. These models support the statements in Chapter 8 that wildlife in the immediate vicinity of a rupture might be exposed to high levels of CO_2, which could be toxic for species unable to leave the area of the release. Operation of the proposed pipeline would include integrated systems for detecting leakages, as well as protocols for addressing leaks promptly. Minor leaks of CO_2 from operation of the proposed pipeline would not elevate ambient CO_2 to a level that is detrimental to waterfowl and other wildlife within the Orwell 9 Unit or Ridgeway WPAs. As the comment notes, the pipeline route would avoid these areas. As a result, there would be negligible risk of impacts on these areas due to a pipeline rupture. This is because the potential impacts of a pipeline rupture would be highly localized and outside of the WPA boundaries.	20243-204403-01

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	Henriksen, Samuel	2024-02-15	Wetlands: In Table 5-40 on p. 5-98 of the DEIS it states that “the loss of wetlands would be less than 0.01 acre.” However, Table 5-4 on p. 5-24 says that for Summit’s preferred route, operation impacts are expected to be 3.3 acres, and construction impacts are expected to be 4.7 acres. And Table 5-52 on p. 5-143 suggests that the total construction impact on wetlands for RA-South is 2.7 acres. Which is it??	Discrepancies between Table 5-4 and Table 5-54 result from different datasets and their associated resolutions. Table 5-4 uses NLCD data to analyze land cover, and Table 5-54 uses NWI data to analyze wetlands. Table 5-40 has been edited to be consistent with discussions of impacts on wetlands in Section 5.7.9 and Table 5-53 and Table 5-54.	20243-204403-01
	Honnold, Rikki	2024-02-23	Hey, I don't think we need another pipeline. I know this is old hat but somehow you all keep digging more pipelines for no good reason. I hope you consider this as you look to your legacy and for your children. I hope you can honestly sleep at night when you tell your kids that you thought this was necessary, despite all of the environmental reasons why people have already told you this isn't needed. Really, please, think about it.	Thank you for your comment.	20243-204403-01
	Huemann, Emily	2024-02-23	Hi, I’m Emily, a born and raised Minnesotan who cares about our natural resources and communities. I’m deeply concerned about the local and global impacts of this project. I’m particularly concerned about land degradation, and the impact report needs to fully represent these risks. Healthy land and healthy soil is a lifeline for farmers and for our whole world. I’m also concerned about the risks this project poses to clean water and healthy wetlands.	Chapter 5 addresses impacts of the project, including impacts on land use, soils, agriculture, water resources, and wetlands.	20243-204403-01
	Irlbeck, Brandon	2024-02-13	Please stop this project. This whole thing is complete nonsense. I farm and would be directly affected with this project crossing my farm.	Thank you for your comment.	20243-204403-01
	Irlbeck, Joel	2024-02-14	We are land owners that would be impacted by the pipeline and are very concerned about all of effects that would result in its wake. All of the damage done to our land and danger to our communities from leaks and water quality. We are against it and do not want it on our property!	Risks of a potential CO_2 release and potential impacts are described in Chapter 8. Section 5.7.8 addresses water resources.	20243-204403-01
	Iverson, Ed	2024-02-22	Dear members of the Minnesota Public Utilities Commission, I am writing this as a very concerned citizen of Cottonwood County, Minnesota. I have farmed full time for 28 years in Cottonwood, Redwood, and Murray Counties. I have several concerns and thought I'd share some of them. 1. Setbacks: With a four-inch pipeline under 2,200 psi I would imagine that there would be a huge volume of CO_2 released into the atmosphere. I asked a Summit Representative if he knew how much CO_2 would be released, his answer was "I don't know." To be fair I'm sure somebody knows, they maybe just don't want us to know. I don't know how far the pipeline would need to be away from a residence to make it safe, but I would hope to see the word "miles" after the number rather than feet! In my opinion we need to look at the absolute worst-case scenario and plan for it to be worse. On January 9th, 2024, there was an earthquake reported near Crandon Wisconsin. Can a pipeline under 2,200 psi handle that? How will frost heaves affect the pipeline? From what I've heard, this pipeline will run through farmland at about a 3' depth, under normal circumstances, that is above the frostline. I have a lot of drainage tiles that are about 3' deep, who is going to want to work on tile repairs where this CO_2 pipeline runs?	Chapter 8 and Appendix G detail the potential outcomes of a CO_2 rupture, including impact distances and release volume. As described in Section 2.4.5, the pipeline would have a minimum cover depth of 54 inches, or 4.5 feet. Frost heave is addressed in Sections 5.7.6.2 and 8.1.	20243-204403-01
	Iverson, Ed	2024-02-22	2. Water Usage. The amount of water that this process will take is a staggering number. I think I can safely say "We don't have enough!" Weather cycles change all the time, but these last few years have been very dry. Do we really want to put another huge drain in our aquifer? At some point, we are going to lose the ability to recharge our water supply. We can't allow a company to come in, drop an 1,100' well, and tell everyone else "Sorry, we didn't see this coming."	Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-01
	Iverson, Ed	2024-02-22	3. Easements. From what I have read in the EIS report, this looks to be a long-term mess, for a short-term solution. The design life is only 25 years?? Do I dare ask why the easements are forever? What could be pumped across our state in the future.... next to our homes....next to whatever is most precious to us? This might be a good place to use our "worst case scenario" ideas. I don't want to stand in the way of	Thank you for your comment. Landowner agreements are outside the scope of the EIS. Section 2.7 describes project decommissioning. This section was revised to describe the financial assurances to be provided by the applicant for costs associated with decommissioning.	20243-204403-01

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			progress, but I sure don't want progress to run me over...or in this case asphyxiate me. I was reading about the decommissioning plan. This plan looks like a direct path to water and or air pollution to me.		
	Iverson, Kathryn	2024-02-22	I do not support the Otter Tail to Wilkin CO_2 pipeline project. I am a lifetime resident of Minnesota and am a grandmother. I have had the opportunity to live my life in Minnesota without concerns about horrendous water pollution, and this project would totally destroy our surface and aquifer water systems.	Thank you for your comment.	20243-204403-01
	Iverson, Kathryn	2024-02-22	Dangers to water and waterbodies: The proposed route for Summit's pipeline network includes many water crossings, wetlands, aquifers, and other sensitive water bodies. More research and analysis are needed to understand how CO_2 disperses in water and what risks a CO_2 pipeline leak or rupture poses to Minnesota's precious waters and the fish, amphibians, reptiles, waterfowl, birds, and insects that rely on it to survive.	Potential impacts of a pipeline rupture on water resources and wildlife are addressed in Section 8.3.4. Stand-alone studies concerning impacts on water resources, wildlife, and wildlife habitat are outside the scope of the EIS.	20243-204403-01
	Iverson, Kathryn	2024-02-22	Water use: Much of southern Minnesota is suffering from the consequences of drought and overcommitment of our fresh drinking water supplies. The DEIS fails to discuss the impacts of an increase in water use on local water supply. The carbon capture process can double water requirements at a facility and increase toxic wastewater discharge. The DEIS states that Summit "anticipates" an average water use for the operation of the carbon capture equipment of 13 million gallons per year, which is concerningly ambiguous. There must be a careful and case specific assessment done of how the installation and operation of carbon capture will impact current drought conditions and exacerbate existing pollution sources. Moreover, Summit has not finalized its water appropriation sources or volumes needed for construction, so it is impossible to know the full impacts of those appropriations on water resources. Why should Minnesota risk our fresh drinking water supply and commit to an infrastructure when the proposing company has not been transparent with its true demands for water resources?	Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has also been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-01
	Iverson, Kathryn	2024-02-22	Aquifer Damage: Summit's preferred route, RA-South, crosses a surficial beach ridge aquifer in Otter Tail County. The DNR has said that the area is "prone to significant groundwater discharge," and the applicant's initial groundwater investigation confirmed that "artesian groundwater conditions are present" along that beach ridge system. In early feedback on the DEIS, the DNR noted that "Project construction has the potential to intersect shallow confined groundwater potentially causing a breach in a confined aquifer and that "breaching shallow confined aquifers could have significant long-term impacts to groundwater resources." This, along with our state's first-hand knowledge of how damaging pipelines can be, requires that the DEIS take potential damage to aquifers more seriously.	Section 5.7.8.2 acknowledges that damage to aquifers is a serious problem and indicates that an uncontrolled flow of water from a shallow confined aquifer could have a significant long-term impact on groundwater. Section 5.7.8.2 also describes geotechnical investigations that would be done to identify areas where breaching of a shallow confined aquifer could occur, and sheet piling would not be used. The applicant currently has an ongoing groundwater investigation underway to further inform construction practices and is continuing to consult with DNR. As part of its coordination with DNR, the applicant has agreed to use ground penetrating radar to study the depth of the confining layer through the entire beach ridge system area crossed by the pipeline to further define existing conditions and advise on construction methodology. Furthermore, EERA staff recommends that the applicant develop, in coordination with DNR, a plan for pipeline construction in areas crossing the beach ridge system area. The plan would include, at a minimum, measures to minimize the potential for breaching a shallow confined aquifer during trenching and contingency measures to mitigate the impacts of a breach, should one occur. This information has been added to Section 5.7.8.2.	20243-204403-01
	Iverson, Kathryn	2024-02-22	HDD Drilling: The DEIS also states that "drilling mud mixed with additives that are not on the MDH-approved additive list and/or do not meet [drinking water quality certification standards] would be disposed of as solid waste at an approved facility, or the applicant would obtain a land application permit from MPCA." The DEIS does not discuss the risks of applying drilling mud, especially with additives not approved by MDH, to the land. The DEIS says that "drilling fluids and additives for the HDD would be non-toxic to the aquatic environment and humans," however, even supposedly "non-toxic" drilling fluid is chemical waste that has been found to be harmful to plant and animal species. Summit's preferred route and alternative route, RA-Hybrid, would both cross three rivers (Pelican River, Otter Tail River, and Bois de Sioux River) via the HDD mention.	As described in Section 5.7.8.2, an additive approved by MDH or meeting NSF International/ANSI Standard 60, Drinking Water Treatment Chemicals – Health Effects, might need to be mixed with the drilling mud for viscosity or lubricating reasons and to reduce the potential for an inadvertent release or failed HDD. The specific additive used would depend on the conditions at the crossing location and would be determined by the HDD contractor. The EIS discloses the potential for an inadvertent release of drilling mud and describes potential impacts in	20243-204403-01

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				Chapter 5. Land application of drilling mud and potential impacts are addressed in Section 5.7.6.2.	
	Iverson, Kathryn	2024-02-22	Wetlands: In Table 5-40 on p. 5-98 of the DEIS it states that "the loss of wetlands would be less than 0.01 acre." However, Table 5-4 on p. 5-24 says that for Summit's preferred route, operation impacts are expected to be 3.3 acres, and construction impacts are expected to be 4.7 acres. And Table 5-52 on p. 5-143 suggests that the total construction impact on wetlands for RA-South is 2.7 acres. Which is it??	CO_2 is a widespread, naturally occurring gas and is the primary byproduct of respiration—the conversion of sugars to usable energy. Minor leaks of CO_2 from operation of the proposed pipeline would not elevate ambient CO_2 to a level that is detrimental to local vegetation or wildlife. Potential impacts on wildlife from a CO_2 rupture could result first from the physical force of a rupture and secondarily from localized short-term high levels of CO_2 prior to dispersal and extreme cold temperatures associated with the depressurization of the CO_2 from a supercritical state to a gas. Chapter 8 of the EIS acknowledges that wildlife in the immediate vicinity of a rupture might be killed or injured by this force; however, it is expected that most, but not all, individuals of mobile wildlife species would follow their natural instincts and attempt to escape the direct effect of a rupture. Chapter 8 of the EIS also acknowledges that less-mobile species in the immediate vicinity of the point of a rupture would be less likely to escape the impacts and might be killed or injured. The data presented in Appendix G describes models of dispersal patterns in the immediate vicinity of a rupture. These models support the statements in Chapter 8 that wildlife in the immediate vicinity of a rupture might be exposed to high levels of CO_2, which could be toxic for species unable to leave the area of the release. Operation of the proposed pipeline would include integrated systems for detecting leakages, as well as protocols for addressing leaks promptly. Minor leaks of CO_2 from operation of the proposed pipeline would not elevate ambient CO_2 to a level that is detrimental to waterfowl and other wildlife within the Orwell 9 Unit or Ridgeway WPAs. These WPAs are not crossed by any of the RAs. As a result, the potential effects of a rupture on those WPAs would be diminished by the distance between any potential point of release and the WPA boundary. The potential impacts of a pipeline rupture would be highly localized and outside of these WPA boundaries.	20243-204403-01
	Iverson, Kathryn	2024-02-22	Impacts of a Leak or Rupture on Animals: According to the DEIS, CO_2 leaks would not affect mammals, birds, reptiles, amphibians, and insects and would be unlikely to impact fish and freshwater mussels. The DEIS reaches this conclusion without providing any reasoning or supporting evidence. Though the DEIS does note some harm may come to animals in the event of a rupture, it relies heavily on the assumption that animals will simply move out of the rupture area to avoid the release. The reason for this assumption is not provided and is contradicted by information in the rupture report in Appendix G which suggests the impacts of a rupture would be nearly immediate. Critical Habitats: Summit's preferred route would cross over or near several waterfowl protection areas, including the Orwell 9 Unit and Ridgeway WPA in Otter Tail County. The DEIS notes that some of these areas will be avoided during construction but fails to consider the impacts to these features in the event of a leak or rupture.	CO_2 is a widespread, naturally occurring gas and is the primary byproduct of respiration—the conversion of sugars to usable energy. Minor leaks of CO_2 from operation of the proposed pipeline would not elevate ambient CO_2 to a level that is detrimental to local vegetation or wildlife. Potential impacts on wildlife from a CO_2 rupture could result first from the physical force of a rupture and secondarily from localized short-term high levels of CO_2 prior to dispersal and extreme cold temperatures associated with the depressurization of the CO_2 from a supercritical state to a gas. Chapter 8 of the EIS acknowledges that wildlife in the immediate vicinity of a rupture might be killed or injured by this force; however, it is expected that most, but not all, individuals of mobile wildlife species would follow their natural instincts and attempt to escape the direct effect of a rupture. Chapter 8 of the EIS also acknowledges that less-mobile species in the immediate vicinity of the point of a rupture would be less likely to escape the impacts and might be killed or injured. The data presented in Appendix G describes models	20243-204403-01

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				of dispersal patterns in the immediate vicinity of a rupture. These models support the statements in Chapter 8 that wildlife in the immediate vicinity of a rupture might be exposed to high levels of CO_2, which could be toxic for species unable to leave the area of the release. Operation of the proposed pipeline would include integrated systems for detecting leakages, as well as protocols for addressing leaks promptly. The route width of the proposed pipeline abuts, but does not cross, the Orwell 9 Unit or Ridgeway WPAs. Minor leaks of CO_2 from operation of the proposed pipeline would not elevate ambient CO_2 to a level that is detrimental to waterfowl and other wildlife within the Orwell 9 Unit or Ridgeway WPAs. As a result, the potential effects of a rupture on those WPAs would be diminished by the distance between any potential point of release and the WPA boundary. The potential impacts of a pipeline rupture would be highly localized and outside of these WPA boundaries.	
	Jennen, Gary	2024-02-26	This pipeline has a proposed route that runs close to where I live. In fact is runs next to where several of my neighbors live. If you are interested in how I feel about that, I refer you to the published articles about the pipeline rupture in Sataria, Mississippi. This rupture was supposedly caused by saturated soil. In my area we have very dry cycles and extremely wet cycles. In addition, we have extreme fluctuations of temperature. We also have had several dirt work operations that could compromise the pipeline.	Saturated soils alone do not pose a risk to pipelines. Under the right conditions, saturated soils combined with steep slopes can lead to slope failure (landslide), which can damage pipelines. The project would cross relatively flat topography with low landslide risk. The pipeline would be underground and would not be exposed to extreme fluctuations of temperature. The pipeline location would be marked, and anyone planning to excavate is required by state law to clear the location for underground utilities prior to beginning work.	20243-204403-02
	Jennen, Gary	2024-02-26	The safeguards that are mandated to stop a release of gas in a populated area seem totally inadequate in the event of a rupture. How many thousands of feet of pipeline would be emptied upon us in the event of a rupture? How often are valves required?	Federal code requires that valves be installed on each side of one or more adjacent water crossings that are more than 100 feet wide from high water mark to high water mark. Valves are also required at intervals no more than 15 miles apart if protecting a high consequence area (HCA) as defined in CFR § 195.450, and no more than 20 miles apart if not protecting an HCA. There is one potential HCA on the proposed southern route by the Fergus Falls Airport. The valves that protect the potential HCA are spaced at 4.8 miles. The longest distance of pipeline between valves is 13.9 miles and the shortest distance of pipeline between valves is 1.6 miles. Appendix G includes assumptions regarding potential release scenarios.	20243-204403-02
	Jennen, Gary	2024-02-26	As you can see, I am very opposed to this pipeline especially in my back yard. Don't expect any easements from me. CO_2 has been referred to as the gas of life. Many scientists have discounted the ability of CO_2 to cause climate change. There are many other forces that influence global temperatures more than CO_2. How many millions of tax dollars are being wasted trying to promote the construction of pipelines across the country?	Thank you for your comment.	20243-204403-02
	Jennen, Gary	2024-02-26	Traveling from the twin cities to where I live in West Otter Tail County, I see a sign that states "Carbon Capture is Safe". I have no problem with the safety of the carbon capture process. What I do have a problem with is the transport of CO_2 in critical fluid phase which is very dangerous. Also when this project is sequestered underground, it creases a very dangerous hazard depending on future events.	Thank you for your comment.	20243-204403-02
	Jennen, Gary	2024-02-26	Why are we doing this? Why is the government heavily subsidizing this scheme? Just look at the entities promoting this. There are people hoping to glean millions of tax dollars from the promotion of this enterprise. There are entities promoting this looking for a cheap (government subsidized) source of CO_2 for industrial purposes. This is a whole pipeline building industry put into operation at enormous tax payer expense to basically chase a ghost. Where I live mainly corn and soybeans are raised which would thrive on much higher CO_2 levels than we have now.	Thank you for your comment.	20243-204403-02

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	Jennen, Kay	2024-02-21	I am writing because I live less than two miles downwind from the proposed pipeline. I am very concerned about possible environmental hazards to humans and animals that live near or could come into close proximity to the pipeline.	Thank you for your comment.	20243-204403-01
	Jennen, Kay	2024-02-21	This pipeline would be part of the world's largest of its kind and so warrants closer scrutiny before being built Intensive study is critical concerning even the validity of the need for a carbon-dioxide transfer pipeline.	Thank you for your comment.	20243-204403-01
	Jennen, Kay	2024-02-21	The scientific community has differing opinions on the effects of carbondioxide on the climate. A recent study titled " how much has the Sun influenced Northern Hemisphere temperature trends? An ongoing debate," published in the international scientific journal Research in Astronomy and Astrophysics by exports over a dozen international experts show conclusively that depending on the data sets used, it is entirely possible that most or all of the warming has nothing to do with man. Thank you for your consideration.	Thank you for your comment.	20243-204403-01
	Jensen, Pan	2024-02-14	My name is Pam Jensen and I live near Lamberton in Redwood County, MN. My husband and I own 19 acres adjacent to Summit's proposed CO_2 pipeline route. Even though we live in Southern MN we care what happens to the land, water and residents all across MN. I'd like to point out several parts of the DEIS that you should consider revising. Pg. 9 – The project would provide a Net Benefit to GHG emissions because the CO_2 sequestered from ongoing annual operations would outweigh construction and operation emissions. I don't think this considers the immense fuel cost of manufacturing the pipeline/materials, transporting the pipeline to the construction sites and the monitoring costs (every 2 wks. by vehicle, or as we were told by a Summit rep at an informational mtg–aerial fly-overs every 2 wks.!) Sequestering CO_2 hasn't been proven as a successful method for reducing CO_2 emissions. The small amount of CO_2 emissions that ethanol plants actually emit is a drop in the bucket compared to emissions from other sources. Is it worth damaging land, using up water and creating a safety risk to residents? Pg. 10 –Climate Change - The project would have a net beneficial effect on climate change as it would capture and store CO_2 emissions from the ethanol plant. This should not be included as a reason to grant a permit because it hasn't been proven that it will have any real effect on climate change. Previous/current CO_2 pipeline projects haven't met expectations.	Section 2.1 has been revised to clarify that the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. The analyses in Section 5.7.1.3 and Chapter 6 have been revised to include capture rate scenarios of 100 percent, 70 percent, 40 percent, and 10 percent. Section 6.3 describes energy efficiency and energy alternatives that could reduce emissions from the ethanol plant's electricity and process fuel use. Section 5.7.2 has been revised to note that the project would contribute to a net beneficial effect on climate change as it would capture and store CO_2 emissions from the ethanol plant.	20243-204403-01
	Jensen, Pan	2024-02-14	Drought conditions might require a contingency water source. Minnesota and surrounding states are currently in drought conditions. The construction and operational phases will require twice as much water as the ethanol plants currently use. Farmers in our area are having to drill new wells already and they're having difficulty finding water.	Additional information has been added to Section 5.7.8.2 to address the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-01
	Jensen, Pan	2024-02-14	Pg. 42 – 2.6 – The applicant indicates that the project would meet or exceed State and Federal Safety Regulations and, at a minimum would be operated and maintained in accordance with PHMSA's regulations in 49 CFR Part 195. How can this be included since the updated PHMSA regulations haven't even been implemented yet? The current pipeline safety regulations are outdated and don't apply to Hazardous CO_2 Pipelines. Summit is trying to get their permits quickly before the updated regulations are in place so that the rules won't apply to them. Who/How will Summit Carbon Solutions be held accountable to follow regulations? I read an article about the damage left behind from a gas pipeline. The company (SPIRE) disputes any damage claims. Government regulators failed to hold the company accountable. An affected farmer said, "The rules and regulations are there, but that's just for looks." I'm concerned that the same type of thing will happen with Summit Carbon Solutions.	Thank you for your comment. PHMSA regulations (that is, their appropriateness) and related standards for CO_2 pipelines are outside the scope of the EIS (Appendix A). The EIS discusses current PHMSA regulations that apply to the project (Chapter 3 and Appendix G). The applicant has stated its proposed CO_2 pipeline would be designed, constructed, and operated to meet PHMSA regulations, including any operational changes to PHMSA regulations that may occur in the future.	20243-204403-01
	Jensen, Pan	2024-02-14	Pg. 43 - 2.6.2 - Abnormal Operations - First responders require special equipment, including non-internal combustion engines, to respond to a CO_2 disaster. The DEIS does not consider the burdens this will put on local EMS and health providers in the case of a pipeline rupture or accident or an assessment of how they should be prepared to respond given the unique needs. *A warning system needs to be included to inform residents in the surrounding area (up to 4 miles?) of any leak or rupture.	Section 8.3 describes the effect on humans and the environment of an accidental release of CO_2. As noted in Section 8.5, the applicant has committed to provide CO_2 air monitoring equipment to first responders and to pay all costs associated with CO_2 response training and air monitoring equipment.	20243-204403-01

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			The PUC should take into consideration the negative impacts that the CO_2 pipeline would have on people's safety and well-being, land, wildlife and water resources. It's very important to protect our state's resources and the health and safety of the residents that live here.		
	Jeppesen, Kim	2024-02-23	I am a lifelong Minnesotan who grew up in southwestern Minnesota. After graduating from college, I lived and worked in the metro for eighteen years before taking a position in SW Minnesota. I have enjoyed living in rural Cottonwood County on the family farm, which I now own with my husband. We love our farm property's natural beauty and environment, including the lands along Dutch Charley Creek that bisects the farm. I spent the last part of my career with the Minnesota Department of Health and was involved with Emergency preparedness for man-made or natural biological events. I understand that living in rural Cottonwood County, unlike in the urban core, emergency response will be local volunteers until professionally trained teams can be deployed. Since CO_2 pipelines operate at very high pressure (much higher than a natural gas pipeline), any type of breach can be catastrophic since, without warning, this colorless, odorless, heavier-than-air cloud of asphyxiant gas can bring death to all mammalian life downwind of the leak. Humans exposed to high concentrations of CO_2 may die before they are even aware of the danger. As a rural Minnesota resident, I find the potential risk to my health and safety of the rural residents of the proposed CO_2 pipeline that Summit Carbon Solutions is presenting for construction across our rural community.	Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. The Emergency Response Plan included as Appendix N is a draft plan that would be revised as required by PHMSA, if the project is approved. Additionally, EERA staff recommended special permit conditions as described in Section 8.5.3.	20243-204403-01
	Jeppesen, Kim	2024-02-23	I am also concerned about the enormous quantities of groundwater that will be needed to test and capture the CO_2. I rely on a private well for drinking water, so I am very concerned about impacts on the water supply, whether from private wells or rural water systems' wells. Another concern is the potential damage to vital cropland, which is of finite supply. In the past, pipelines have been demonstrated to cause long-lasting damage to cropland, with crop yield reductions lasting decades.	Additional information has been added to Section 5.7.8.2 to address the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2. As indicated by the definitions found on Page 5-1 of the draft EIS, "long-term impacts extend beyond the end of construction and are generally associated with operation of the project." Disturbance to soils and crops from construction can result in impacts that extend beyond the construction phase, and the text in the final EIS has been revised to indicate that impacts can be long term.	20243-204403-01
	Jeppesen, Kim	2024-02-23	As a rural Minnesota farm property resident, I am VERY concerned about the health, life, and safety risks this unnecessary pipeline poses to residents, first responders, farm animals, and wildlife. CO_2 is a hazardous material in high concentrations. The DEIS consistently underplays the known and unknown risks of transporting large amounts of CO_2 at high pressures through a pipeline. • CO_2 Rupture Impact Zone: According to the analysis in the DEIS, the potential impact radius for levels of CO_2 that would be "immediately dangerous to life or health" is 617 feet. This expands to 910 feet for lower concentrations that cause dizziness, drowsiness, severe muscle twitching, and unconsciousness within a few minutes. Although Summit indicates that it will take 25 minutes for the system to shut off the relevant valves in the event of "abnormal operation," the DEIS does not mention any meaningful safety measures for a rupture and instead suggests that it is "reasonable" for Summit to simply supply indoor CO_2 detectors for residences within 1,000 feet of the project. But the rupture report in Appendix G states that "a full rupture results in impact distances too quickly for an early warning device, such as an oxygen detector, to be effective." This pipeline should not be approved without a clear understanding of the risks to human health and meaningful measures to ensure the safety of people and animals in the area.	Section 8.3 describes the effect on humans and the environment of an accidental release of CO_2. As noted in Section 8.5, the applicant has committed to provide CO_2 air monitoring equipment to first responders and to pay all costs associated with CO_2 response training and air monitoring equipment. Section 8.5.3 describes steps that would be taken to reduce the risk and impacts of a potential rupture.	20243-204403-01
	Jeppesen, Kim	2024-02-23	• First responders and health professionals: CO_2 pipelines pose unique problems for first responders and health care providers. Because CO_2 is colorless and odorless, both victims and first responders have no way of knowing what is causing the health problems. In addition, first responders require special equipment, including non-internal combustion engines, to respond to a CO_2 disaster. The DEIS does not consider the burdens this will put on local EMS and health providers in the case of a pipeline rupture or accident or an assessment of how they should be prepared to respond given the unique needs. The DEIS includes Summit's September 2022	Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public	20243-204403-01

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			Emergency Response Plan (Appendix N). This plan is not only outdated but also unclear as to how local EMS and first responders will interact with the applicant in the event of a leak or rupture. Though the plan talks of multiple company personnel as playing roles in an emergency response, it ignores the fact that the applicant only plans on having one full-time employee at the capture facility. Local first responders deserve more clarity about how they will be expected to respond to an emergency situation and what the applicant will do to ensure they are adequately equipped and informed for such an event.	on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. The Emergency Response Plan included as Appendix N is a draft plan that is not outdated but would be revised as required by PHMSA, if the project is approved. Additionally, EERA staff recommended a special permit condition requiring the applicant to file its Emergency Response Plan that is filed with PHMSA with the Commission, and other special permit conditions as described in Section 8.5.3.	
	Jeppesen, Kim	2024-02-23	• Compliance with PHMSA Rules: The DEIS accepts Summit's assurances that it will "comply with federal emergency response requirements," but as noted in a Pipeline Safety Trust report and by the Pipeline Hazardous Material Safety Administration (PHMSA) itself, the current emergency response requirements are dangerously outdated.	Thank you for your comment. PHMSA regulations (that is, their appropriateness) and related standards for CO_2 pipelines are outside the scope of the EIS (Appendix A). Additionally, the applicant has stated its proposed CO_2 pipeline would be designed, constructed, and operated to meet PHMSA regulations, including any operational changes to PHMSA regulations that may occur in the future. To the extent applicable and in response to this and similar comments, Section 3.6 and Appendix G of the EIS have been updated to include this information.	20243-204403-01
	Jeppesen, Kim	2024-02-23	• Setbacks: The DEIS states that the PUC "cannot set safety standards" for Summit's proposed pipeline. PHMSA has expressly said in public letters to CO_2 pipeline companies like Summit that state and local authorities can exercise their powers to regulate land use—including setback distances—and that "nothing in the federal pipeline safety law impinges on these traditional prerogatives of local—or state—government." The PUC must consider where the pipeline is placed and what is the safest option for Minnesotans, which means the PUC can and should determine what routing, setback, and depth requirements are necessary to adequately protect Minnesotans. Minnesota's recent experience with pipeline construction demonstrates the serious harms that it causes on water resources as well as a tendency by state agencies to under-account for those impacts.	Although the Commission cannot set safety standards for pipeline construction or operation, state or local units of government may, to the extent authorized by law, set land use requirements that indirectly contribute to pipeline safety by regulating the activities of third parties located in the pipeline's vicinity. The Commission's obligation is to identify a pipeline route consistent with the criteria found in statutes and the applicable administrative rules. Federal law, by contrast, exclusively prescribes pipeline safety requirements.	20243-204403-01
	Jeppesen, Kim	2024-02-23	• Dangers to water and waterbodies: The proposed route for Summit's pipeline network includes many water crossings, wetlands, aquifers, and other sensitive water bodies. More research and analysis are needed to understand how CO_2 disperses in water and what risks a CO_2 pipeline leak or rupture poses to Minnesota's precious waters and the fish, amphibians, reptiles, waterfowl, birds, and insects that rely on it to survive.	Potential impacts of a pipeline rupture on water resources and wildlife are addressed in Section 8.3.4. Stand-alone studies concerning impacts on water resources, wildlife, and wildlife habitat are outside the scope of the EIS.	20243-204403-01
	Jeppesen, Kim	2024-02-23	• Water use: Much of southern Minnesota is suffering from the consequences of drought and overcommitment of our fresh drinking water supplies. The DEIS fails to discuss the impacts of an increase in water use on local water supply. The carbon capture process can double water requirements at a facility and increase toxic wastewater discharge. The DEIS states that Summit "anticipates" an average water use for the operation of the carbon capture equipment of 13 million gallons per year, which is concerningly ambiguous. There must be a careful and case-specific assessment done of how the installation and operation of carbon capture will impact current drought conditions and exacerbate existing pollution sources. Moreover, Summit has not finalized its water appropriation sources or volumes needed for construction, so it is impossible to know the full impacts of those appropriations on water resources. Why should Minnesota risk our fresh drinking water supply and commit to an infrastructure when the proposing company has not been transparent about its actual water resource demands?	Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-01
	Jeppesen, Kim	2024-02-23	• Aquifer Damage: Summit's preferred route, RA-South, crosses a surficial beach ridge aquifer in Otter Tail County. The DNR has said that the area is "prone to significant groundwater discharge," the applicant's initial groundwater investigation confirmed that "artesian groundwater conditions are present" along that beach ridge system. In early feedback on the DEIS, the DNR noted that "Project construction has the potential to intersect shallow confined groundwater potentially causing a breach in a confined aquifer and that "breaching shallow confined aquifers could have significant long-term impacts to groundwater resources." This, along with our state's first-hand knowledge of how damaging pipelines can be, requires that the DEIS take potential damage to aquifers more seriously.	Section 5.7.8.2 acknowledges that damage to aquifers is a serious problem and indicates that an uncontrolled flow of water from a shallow confined aquifer could have a significant long-term impact on groundwater. Section 5.7.8.2 also describes geotechnical investigations that would be done to identify areas where breaching of a shallow confined aquifer could occur, and sheet piling would not be used. The applicant currently has an ongoing groundwater investigation underway to further inform construction practices and is continuing to consult with DNR. As part of its coordination with DNR, the applicant has	20243-204403-01

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				agreed to use ground penetrating radar to study the depth of the confining layer through the entire beach ridge system area crossed by the pipeline to further define existing conditions and advise on construction methodology. Furthermore, EERA staff recommends that the applicant develop, in coordination with DNR, a plan for pipeline construction in areas crossing the beach ridge system area. The plan would include, at a minimum, measures to minimize the potential for breaching a shallow confined aquifer during trenching and contingency measures to mitigate the impacts of a breach, should one occur. This information has been added to Section 5.7.8.2.	
	Jeppesen, Kim	2024-02-23	• HDD Drilling: The DEIS also states that "drilling mud mixed with additives that are not on the MDH approved additive list and/or do not meet [drinking water quality certification standards] would be disposed of as solid waste at an approved facility, or the applicant would obtain a land application permit from MPCA." The DEIS does not discuss the risks of applying drilling mud to the land, especially with additives not approved by MDH. The DEIS says that "drilling fluids and additives for the HDD would be non-toxic to the aquatic environment and humans;" however, even supposedly "non-toxic" drilling fluid is chemical waste that is harmful to plant and animal species. Summit's preferred and alternative routes, RA-Hybrid, would cross three rivers (Pelican River, Otter Tail River, and Bois de Sioux River) via the HDD mention.	As described in Section 5.7.8.2, an additive approved by MDH or meeting NSF International/ANSI Standard 60, Drinking Water Treatment Chemicals – Health Effects, might need to be mixed with the drilling mud for viscosity or lubricating reasons and to reduce the potential for an inadvertent release or failed HDD. The specific additive used would depend on the conditions at the crossing location and would be determined by the HDD contractor. The EIS discloses the potential for an inadvertent release of drilling mud and describes potential impacts in Chapter 5. Land application of drilling mud and potential impacts are addressed in Section 5.7.6.2.	20243-204403-01
	Jeppesen, Kim	2024-02-23	• Wetlands: Table 5-40 on p. 5-98 of the DEIS states that "the loss of wetlands would be less than 0.01 acre." However, Table 5-4 on p. 5-24 says that for Summit's preferred route, operation impacts are expected to be 3.3 acres, and construction impacts are expected to be 4.7 acres. Table 5-52 on p. 5-143 suggests that the total construction impact on wetlands for RA-South is 2.7 acres. Which is it??	Discrepancies between Table 5-4 and Table 5-54 result from different datasets and their associated resolutions. Table 5-4 uses NLCD data to analyze land cover, and Table 5-54 uses NWI data to analyze wetlands. Table 5-40 has been edited to be consistent with discussions of impacts on wetlands in Section 5.7.9 and Table 5-53 and Table 5-54.	20243-204403-01
	Jeppesen, Kim	2024-02-23	• Impacts of a Leak or Rupture on Animals: According to the DEIS, CO_2 leaks would not affect mammals, birds, reptiles, amphibians, and insects and would unlikely impact fish and freshwater mussels. The DEIS reaches this conclusion without providing any reasoning or supporting evidence. Though the DEIS does note some harm may come to animals in the event of a rupture, it relies heavily on the assumption that animals will move out of the rupture area to avoid the release. The reason for this assumption is not provided. This is contradicted by information in the rupture report in Appendix G, which suggests the impacts of a rupture would be nearly immediate.	CO_2 is a widespread, naturally occurring gas and is the primary byproduct of respiration—the conversion of sugars to usable energy. Minor leaks of CO_2 from operation of the proposed pipeline would not elevate ambient CO_2 to a level that is detrimental to local vegetation or wildlife. Potential impacts on wildlife from a CO_2 rupture could result first from the physical force of a rupture and secondarily from localized short-term high levels of CO_2 prior to dispersal and extreme cold temperatures associated with the depressurization of the CO_2 from a supercritical state to a gas. Chapter 8 of the EIS acknowledges that wildlife in the immediate vicinity of a rupture might be killed or injured by this force; however, it is expected that most mobile wildlife species would follow their natural instincts and attempt to escape the direct effect of a rupture. Chapter 8 of the EIS also acknowledges that less-mobile species in the immediate vicinity of the point of a rupture would be less likely to escape the impacts and might be killed or injured. The data presented in Appendix G describes models of dispersal patterns in the immediate vicinity of a rupture. These models support the statements in Chapter 8 that wildlife in the immediate vicinity of a rupture might be exposed to high levels of CO_2, which could be toxic for species unable to leave the area of the release.	20243-204403-01

Agency or Org	Name	Date	Comment	Response	eDocket Document ID
	Jeppesen, Kim	2024-02-23	• Critical Habitats: Summit's preferred route would cross over or near several waterfowl protection areas, including the Orwell 9 Unit and Ridgeway WPA in Otter Tail County. The DEIS notes that some of these areas will be avoided during construction but fails to consider the impacts of these features in the event of a leak or rupture. The DEIS consistently fails to properly account for the project's actual CO_2 emission and climate impacts.	Operation of the proposed pipeline would include integrated systems for detecting leaks, as well as protocols for addressing leaks promptly. Minor leaks of CO_2 from operation of the proposed pipeline would not elevate ambient CO_2 to a level that is detrimental to waterfowl and other wildlife within the Orwell 9 Unit or Ridgeway WPAs. As the comment notes, the pipeline route would avoid these areas. As a result, there would be negligible risk of impacts on these areas due to a pipeline rupture. The potential impacts of a pipeline rupture would be highly localized and outside of the WPA boundaries.	20243-204403-01
	Jeppesen, Kim	2024-02-23	• Lifetime of Project: The applicant states that the anticipated lifetime of this project is 25 years. This means at the end of its life; the project could stop capturing the CO_2 from the ethanol plant. Unless the ethanol plant will also cease operations at that point in time, it will continue to emit CO_2 unabated into the future.	Section 2.7 describes project decommissioning. If the ethanol plant continues to operate beyond the life of the proposed project, its CO_2 emissions would not be captured.	20243-204403-01
	Jeppesen, Kim	2024-02-23	• 100% CO_2 Capture Rate: Summit states that the capture facility "is designed to capture 100% of the CO_2 produced by the ethanol plant." No carbon capture facility in the world, ethanol or otherwise, captures carbon at a rate of 100%. This claim is not supported by any data/information or verified by a third party. Additionally, the DEIS should emphasize that any CO_2 capture is solely associated with emissions from the ethanol fermentation process and provides zero reductions on the significant emissions from the facility's electricity use	Section 2.1 has been revised to clarify that the captured CO_2 is produced by the ethanol plant as part of its fermentation process, the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. Section 6.3 describes energy efficiency and energy alternatives that could reduce emissions from the ethanol plant's electricity and process fuel use.	20243-204403-01
	Jeppesen, Kim	2024-02-23	• Added CO_2 from electricity use: Carbon capture technologies are highly energy intensive and will significantly increase the carbon emissions at the facility from electricity use. The DEIS uses the Midwest Reliability Organization West Region average to calculate these emissions, which is unnecessarily inaccurate given the availability of the actual emissions factor from Great River Energy.	Electricity emissions are included in Table 5-39. These numbers have been revised to reflect the electricity emission factor associated with LREC, which would provide electricity to the project. The revised electricity emission factor is 132.2 gCO_2e/MWh. Because LREC has a lower emission factor than the Midwest Reliability West Region emission factor (684.35 g CO_2e/kWh), which was used in the draft EIS, calculated electricity emissions have decreased.	20243-204403-01
	Jeppesen, Kim	2024-02-23	• CO_2 Storage: The DEIS assumes that 100% of captured CO_2 is permanently underground. There is no guarantee that this will occur and no explanation of the monitoring and verification protocols to ensure it.	Text has been added to Section 2.1 describing the suitability of the Broom Creek Formation in North Dakota for CO_2 sequestration, as well as the monitoring and testing that would be done to verify that the CO_2 is contained in the storage reservoir.	20243-204403-01
	Jeppesen, Kim	2024-02-23	• Enhanced Oil Recovery: The DEIS fails to explain whether the applicant can sell any of its captured CO_2 to others for alternative uses instead of permanent sequestration and what the impacts of that would be. The DEIS incorrectly states, "Oil production through EOR would not depend on the availability of CO_2 produced by the ethanol plant." Countless public statements from public officials in North Dakota and oil industry representatives contradict this claim.	The text questioned by the commenter in Section 5.7.2.3 was prefaced with the following: "if all the CO_2 produced by the ethanol plant is sequestered as proposed, EOR would likely continue in North Dakota using other sources of CO_2, other gases, thermal methods, or chemical methods." Revisions are not necessary. However, Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for EOR.	20243-204403-01
	Jeppesen, Kim	2024-02-23	Thank you for taking my concerns and comments into thoughtful consideration.	Thank you for your comment.	20243-204403-01
	Jones, Barbara	2024-02-22	I am a resident of Ely MN concerned about our climate. In principle capturing CO_2 and sequestering it sounds like a smart thing to do, but in practice it is misleading and dangerous. Almost all the captured CO_2 goes to enhanced oil recovery from failing oil and gas wells. Capturing CO_2 from coal or gas power plants is expensive and unproven technology. Transport of CO_2 through pipelines is DANGEROUS.	Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for EOR. The proposed project would not capture CO_2 from a coal or gas power plant. Chapter 8 describes the potential for an unanticipated release of CO_2 from the capture facility or pipeline, the	20243-204403-01

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				potential for adverse human and environmental impacts of an unanticipated release of CO_2, and describes prevention, preparedness, and response measures that could prevent or reduce the impacts of a release.	
	Jones, Barbara	2024-02-22	A break in an oil pipeline makes a bad mess and can be a local environmental disaster, but a break in a CO_2 pipeline KILLS people, animals, and birds. CO_2 is an asphyxiant which displaces the air we breathe. You cannot escape in your car or truck because an internal combustion engine also needs oxygen. First responders cannot help those impacted if they have no transportation.	Risks of a potential CO_2 release and potential impacts are described in Chapter 8 of the EIS. Chapter 8 also describes the steps that would be taken in the event of an accidental release and the steps that would be taken to prevent an accidental release.	20243-204403-01
	Jones, Barbara	2024-02-22	It is much preferable to leave the fossil fuels in the ground than to dig them up just to use their energy to put them back again. It is better to use the acreage now used to grow corn to make ethanol for agri-solar projects. The space between solar panels can be used to grow food. The panels generate many times more energy than can ever be retrieved from corn ethanol since solar panels are up to 100 times more efficient than photosynthesis.	The EIS analyzes the proposed project, including alternatives that lower the CI score of the ethanol produced at the ethanol plant. An alternative that does not include ethanol production was not studied in the EIS because it would not meet the purpose of the project.	20243-204403-01
	Knaeble, Barnadette	2024-02-23	I am writing in reference to Docket No 22-42, Otter Tail to Wilkin Carbon Dioxide Pipeline Project. I am a medical professional residing in Minnesota. I oppose this pipeline project in its entirety for many reasons. I will speak to two of them. 1. Land and water degrading pipelines always damage ecosystems far more than any DEIS addresses. Where in the document is thereany data on projected cost to the environment and therefore cultural communities from other pipelines? Once again Industry writes the DEIS and feels free to forecast minimal degradation. It is full of industry spin. Example: Take a look at the results of HDD drilling Enbridge used to lay Line 3/39? Frack outs of drilling mud, invasive species spread, clear cutting shrubs and trees, soil erosion and water body disruption are all visible along the Line 3/93 corridor. Please go take a look.What agencies are monitoring that damage and reporting it to the public? Did that destruction inform this DEIS?	Thank you for your comment. Chapter 5 discusses the potential environmental impacts of construction and operation of the project. Multiple sections in Chapter 5 describe potential environmental impacts associated with HDD.	20243-204403-01
	Knaeble, Barnadette	2024-02-23	Instead of acknowledging the potential ecological damage, Summit Carbon Solutions Construction "would use horizontal direction drill (HDD) and boring techniques at road crossings to limit impacts on local traffic" This quote is from the Environmental Justice section of the DEIS. What type of environmental justice does this address? None.	Thank you for your comment.	20243-204403-01
	Knaeble, Barnadette	2024-02-23	2. Moving compressed CO_2 is extremely dangerous. The DEIS does not mention any meaningful safety measures for a rupture and instead suggests that it is ? reasonable? for Summit to simply supply indoor CO_2 detectors for residences within 1,000 feet of the project. But the rupture report in Appendix G states that ?a full rupture results in impact distances too quickly for an early warning device, such as an oxygen detector, to be effective.?	Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. The Emergency Response Plan included as Appendix N is a draft plan that would be revised as required by PHMSA, if the project is approved. Additionally, EERA staff recommended a special permit condition requiring the applicant to file its Emergency Response Plan that is filed with PHMSA with the Commission, and other special permit conditions as described in Section 8.5.3.	20243-204403-01
	Knaeble, Barnadette	2024-02-23	This pipeline should not be approved without a clear understanding of the risks to human health and meaningful measures to ensure the safety of people and animals in the area. I urge denial of permits to the Otter Tail to Wilkin Carbon Dioxide Pipeline Project.	Thank you for your comment.	20243-204403-01
	Kopel, Carol	2024-02-23	My name is Carol Kopel. I live in Tyler, MN in SW Minnesota. My husband and I are landowners near Lamberton, MN in Redwood County. We have been following the proposed Summit pipeline news, because we have been contacted about signing an easement for the proposed southern route of the pipeline. Our farmland is directly north of the ethanol plant in Lamberton. I am commenting on the EIS for the OtterTail to Wilkin because I feel the decisions made for that proposed project will ultimately determine decisions for the proposed southern route that Summit has planned. I am concerned about the potential impacts this pipeline would have on people along the proposed pipeline routes, but also to people adjacent to the routes.	See responses to specific comment topics below.	20243-204403-01

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	Kopel, Carol	2024-02-23	Safety is of the utmost importance. CO_2 is a hazardous material in high concentrations. The DEIS consistently underplays the known and unknown risks of transporting large amounts of CO_2 at high pressures through a pipeline. The proposed pipeline will run close to many small communities and farms. In the event of a rupture. Summit indicates that it will take 25 minutes for the system to shut off the relevant valves in the event of "abnormal operation," the DEIS does not mention any meaningful safety measures for a rupture and instead suggests that it is "reasonable" for Summit to simply supply indoor CO_2 detectors for residences within 1,000 feet of the project. But the rupture report in Appendix G states that "a full rupture results in impact distances too quickly for an early warning device, such as an oxygen detector, to be effective." This pipeline should not be approved without a clear understanding of the risks to human health and meaningful measures to ensure the safety of people and animals in the area.	Text in Section 4.5 on valve closure time has been corrected from 25 minutes to 10 minutes. Elsewhere in the EIS, including the rupture analysis, valve closure time is listed/calculated as 10 minutes. Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. The Emergency Response Plan included as Appendix N is a draft plan that is not outdated but would be revised as required by PHMSA, if the project is approved. Additionally, EERA staff recommended a special permit condition requiring the applicant to file its Emergency Response Plan that is filed with PHMSA with the Commission, and other special permit conditions as described in Section 8.5.3.	20243-204403-01
	Kopel, Carol	2024-02-23	Impact to the farmland this proposed pipeline would affect is also of concern to me. The DEIS discounts the direct and long-term impacts of pipeline construction on land and soil integrity in spite of the significant evidence of likely harm. Land degradation: This project is going to cut through roads, ditches, tile lines, and prime farmland. There is a growing body of anecdotal evidence and peer-reviewed research that shows that pipeline projects in the Midwest have caused yield reduction and damage to land years after project completion and "restoration". The DEIS does acknowledge that the reduced productivity from construction "typically would extend for 2 to 3 years, but could take up to 5 years, depending on impacts on soils from the construction disturbance," but fails to identify any measures the applicant should take to avoid these damages or repair them.	As indicated by the definitions found on Page 5-1 of the draft EIS, "long-term impacts extend beyond the end of construction and are generally associated with operation of the project." Disturbance to soils and crops from construction can result in impacts that extend beyond the construction phase, and the text in the final EIS has been revised to indicate that impacts can be long term.	20243-204403-01
	Kopel, Carol	2024-02-23	Another concern is the impact on our water sources. Water use: Much of southern Minnesota is suffering from the consequences of drought and over-commitment of our fresh drinking water supplies. The DEIS fails to discuss the impacts of an increase in water use on local water supply. The carbon capture process can double water requirements at a facility and increase toxic wastewater discharge. The DEIS states that Summit "anticipates" an average water use for the operation of the carbon capture equipment of 13 million gallons per year, which is concerningly ambiguous. There must be a careful and case-specific assessment done of how the installation and operation of carbon capture will impact current drought conditions and exacerbate existing pollution sources. Moreover, Summit has not finalized its water appropriation sources or volumes needed for construction, so it is impossible to know the full impact of those appropriations on water resources. Why should Minnesota risk our fresh drinking water supply and commit to an infrastructure when the proposing company has not been transparent with its true demands for water resources?	Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-01
	Kopel, Carol	2024-02-23	Wetlands: In Table 5-40 on p. 5-98 of the DEIS it states that "the loss of wetlands would be less than 0.01 acre." However, Table 5-4 on p. 5-24 says that for Summit's preferred route, operation impacts are expected to be 3.3 acres, and construction impacts are expected to be 4.7 acres. And Table 5-52 on p. 5-143 suggests that the total construction impact on wetlands for RA-South is 2.7 acres. Which is it?? Wetlands: In Table 5-40 on p. 5-98 of the DEIS it states that "the loss of wetlands would be less than 0.01 acre." However, Table 5-4 on p. 5-24 says that for Summit's preferred route, operation impacts are expected to be 3.3 acres, and construction impacts are expected to be 4.7 acres. And Table 5-52 on p. 5-143 suggests that the total construction impact on wetlands for RA-South is 2.7 acres. Which is it??	Discrepancies between Table 5-4 and Table 5-54 result from different datasets and their associated resolutions. Table 5-4 uses NLCD data to analyze land cover, and Table 5-54 uses NWI data to analyze wetlands. Table 5-40 has been edited to be consistent with discussions of impacts on wetlands in Section 5.7.9 and Table 5-53 and Table 5-54.	20243-204403-01
	Kopel, Carol	2024-02-23	Complete Network Impacts: Summit has applied for permits for the 28 miles of pipeline for the OtterTail to Wilkin project. As a landowner in Redwood County, we have been contacted to sign easements as well as many individuals along the proposed southern route, so we assume this project will eventually affect our area. In Summit's application, the DEIS does not account for the indirect and cumulative impacts of Summit's entire project in Minnesota. This is despite Summit's clear and public plans for a much larger buildout in Minnesota. This allows Summit to artificially segment permitting requests for multiple concurrent projects on one pipeline and will prevent a thorough review of the cumulative impacts and potential environmental and climate damages of the project.	Thank you for your comment. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-01

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	Kopel, Carol	2024-02-23	Decommissioning: Summit appears to indicate that once the pipeline is decommissioned, it will no longer monitor or maintain the pipeline. This is despite the DEIS acknowledging that pipeline segments left in place "would degrade over time and could serve as potential conduits for groundwater or cause minor subsidence when they collapse." There is no information about who would be responsible for any damage caused by the deteriorating pipeline [see pg. 2-15 of the DEIS]. The DEIS references the Decommissioning Plan, but it is not included as an Appendix to the DEIS, nor was it included as an Appendix to the EAW. Without a detailed discussion of decommissioning, the public and state agencies cannot know what human and environmental impacts the plan will have into the future.	Section 2.7 describes project decommissioning. This section was revised to describe the financial assurances to be provided by the applicant for costs associated with decommissioning.	20243-204403-01
	Kramer, Anthony	2024-02-22	My name is Anthony Kramer. My wife Julie and I live, own and operate farmland in Redwood County, Mn where the proposed CO_2 pipeline would cross very close to our home. I have several concerns regarding this proposed pipeline, not the least of which are health in safety concerns. While I very much appreciate our small volunteer fire departments, they not only lack the adequate equipment and training to respond to a leak or rupture but with many unmanned volunteer departments in rural Minnesota would be unable to respond quick enough to ensure the health and safety of those close to the pipeline.	Sections 8.4 and 8.5 describe the steps that would be taken in the event of an accidental release of CO_2, including the training and provisioning of equipment to local emergency responders. Additionally, the applicant's draft Emergency Response Plan is included in Appendix N of the EIS.	20243-204403-01
	Kramer, Anthony	2024-02-22	also am concerned how a leak could potentially contaminate our ground water and or get into the aquifers contaminating our wells. Carbonic acid is formed when carbon dioxide reacts with water.	Section 8.3.4.1 describes the effects of a CO_2 leak on water resources. Any CO_2 leakage from the pipeline would be insufficient to measurably alter water quality in either shallow or deep aquifers. Any formation of carbonic acid from reaction between CO_2 and water would be insufficient to contaminate groundwater and would be buffered and neutralized by the local soils/geology.	20243-204403-01
	Kramer, Anthony	2024-02-22	Summit also has said they plan on installing the pipeline at a depth of 6 feet which they believe would be below the frost line and therefore would not be damaged from frost heaves. I do not believe a depth of 6 feet without snow cover would be deep enough on extremely cold winters. "How much does a frost heave move? "The expansion of soil from the formation of ice lenses varies over a wide range, but vertical movements of 4 to 8 in. are not unusual and as much as 24 in. has been reported. Heaving pressures also vary over quite wide limits and depend mainly on the type of soil and its moisture content."	Information regarding frost depth has been added to Section 5.7.6.1. EERA staff have been unable to find published data to support comments that the pipeline would be shallower than the frost depth, and no commenter has provided such data. Additional text regarding the potential for frost heave has been added to Section 5.7.6.2.	20243-204403-01
	Kramer, Anthony	2024-02-22	I do not feel we have adequate water supply that will be used by the ethanol plants during the process to turn the CO_2 into a liquid that would be pumped up to North Dakota. Water already comes via a pipeline to Southwest Minnesota from the Missouri River watershed. I would suspect the same can be said in Iowa. Even some of the small ethanol plants have admitted they will use around 50,000 gallons of water a day. Do we want to be using our valuable groundwater supplies for this project? Will it jeopardize our water supply? What effect could that have on our waterways we use to transport grain and fertilizer on dry years? We have already experienced years where the depth of the Mississippi River is not adequate to transport goods.	Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-01
	Kramer, Anthony	2024-02-22	I am concerned of the potential damage done to thousands of drainage tile lines which will be crossed installing this pipeline. Not only do I believe they will not know when they cross every drainage tile line I feel it is very unlikely every repaired tile line will be properly repaired. Some of the damage may not be realized until several years later. How quickly will Summit come to repair the damage? Will any drainage tile contractors and installers want to work anywhere near the pipeline after it is installed? Will they be allowed to?	Section 2.4.6 states that any drain tiles damaged during pipeline construction would be repaired before backfilling the trench. Section 6.7 of the applicant's APP (Appendix E) specifies the procedures and timelines for repair of drain tiles disturbed during construction. The APP notes that tile disturbed or damaged by pipeline construction would be repaired to its original or better condition, and that permanent repairs would be completed within 21 days after the pipeline is installed in accordance with the applicant's Minnesota ECP (Appendix D). Section 5.5.1.3 has been revised to include a reference to this mitigation measure.	20243-204403-01

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	Kramer, Anthony	2024-02-22	Another question I ask is how much CO_2 will be released as Summit constructs the pipeline, processes CO_2 into a liquid form, and monitors the pipeline daily with CO_2 emitting vehicles and airplanes. I believe further studies are needed to see what if any net gain we will actually see of CO_2 captured in this venture.	Section 2.1 has been revised to clarify that the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. The analyses in Section 5.7.1.3 and Chapter 6 have been revised to include capture rate scenarios of 100 percent, 70 percent, 40 percent, and 10 percent.	20243-204403-01
	Kramer, Terese	2024-02-22	Dear Mr. Levi, As a fourth-generation landowner in Redwood County, my seven siblings and I hold a deep connection to the land, considering ourselves stewards entrusted with its care. However, our 130+ year old family farm faces an imminent threat: a planned CO_2 pipeline intends to cut across 240 acres of the family farm. My objections to the pipeline are rooted in environmental concerns and health and safety matters. The pipeline's impact remains shrouded in uncertainty, including unknown water requirements, the loss of tillable land, the potential for ruptures and the life-threatening consequences such ruptures may pose. As a guardian of this land, I stand resolute in my opposition. This Draft Environmental Impact Study (DEIS) is a crucial step in raising these fundamental issues regarding C02 pipelines and Minnesota land. My major concerns with the DEIS are focused on the risks to water & land resources as well as public health and safety.	Thank you for your comment.	20243-204403-01
	Kramer, Terese	2024-02-22	Water and natural resource risk Minnesota's recent experience with non-C02 pipeline construction demonstrates the serious harms that it causes on water resources as well as a tendency by state agencies to underestimate those impacts. Dangers to water and water bodies: The proposed route for Summit Carbon Solutions ("Summit")'s pipeline network includes many water crossings, wetlands, aquifers, and other sensitive water bodies. More research and analysis are needed to understand how CO_2 disperses in water and what risks a CO_2 pipeline leak or rupture poses to Minnesota's waters and the fish, amphibians, reptiles, waterfowl, birds, and insects as well as Minnesota's residents, that rely on it to survive.	An independent study that analyzes how CO_2 disperses in water is outside the scope of the EIS and would not aid the Commission's decision on a route permit as all alternatives cross waterbodies. Potential impacts of a pipeline rupture on water resources and wildlife are addressed in Section 8.3.4.	20243-204403-01
	Kramer, Terese	2024-02-22	Water use: Much of southern Minnesota is suffering from the consequences of drought and over-commitment of our fresh drinking water supplies. The DEIS fails to discuss the impacts of an increase in water use on local water supply. The carbon capture process can double water requirements at a facility and increase toxic wastewater discharge. The DEIS states that Summit "anticipates" an average water use for the operation of the carbon capture equipment of 13 million gallons per year, which is disturbingly ambiguous. There must be a careful and case-specific assessment done of how the installation and operation of carbon capture will impact current drought conditions and exacerbate existing pollution sources. Moreover, Summit has not finalized its water appropriation sources or the volume of water needed for construction, so it is impossible to know the full impacts of those appropriations on water resources. Why should Minnesota risk our fresh drinking water supply and commit to an infrastructure when Summit has not been transparent with its true demands for water resources?	Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-01
	Kramer, Terese	2024-02-22	Aquifer Damage: Summit's preferred route, RA-South, crosses a surficial beach ridge aquifer in Otter Tail County. The DNR has said that the area is "prone to significant groundwater discharge," and the applicant's initial groundwater investigation confirmed that "artesian groundwater conditions are present" along that beach ridge system. In early feedback on the DEIS, the DNR noted that "Project construction has the potential to intersect shallow confined groundwater potentially causing a breach in a confined aquifer and that "breaching shallow confined aquifers could have significant long-term impacts to groundwater resources." This, along with our state's first-hand knowledge of how damaging pipelines can be, requires that the DEIS take potential damage to aquifers more seriously.	Section 5.7.8.2 acknowledges that damage to aquifers is a serious problem and indicates that an uncontrolled flow of water from a shallow confined aquifer could have a significant long-term impact on groundwater. Section 5.7.8.2 also describes geotechnical investigations that would be done to identify areas where breaching of a shallow confined aquifer could occur, and sheet piling would not be used. The applicant currently has an ongoing groundwater investigation underway to further inform construction practices and is continuing to consult with DNR. As part of its coordination with DNR, the applicant has agreed to use ground penetrating radar to study the depth of the confining layer through the entire beach ridge system area crossed by the pipeline to further define existing conditions and advise on construction methodology. Furthermore, EERA staff recommends that the applicant develop, in coordination with DNR, a plan for pipeline	20243-204403-01

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				construction in areas crossing the beach ridge system area. The plan would include, at a minimum, measures to minimize the potential for breaching a shallow confined aquifer during trenching and contingency measures to mitigate the impacts of a breach, should one occur. This information has been added to Section 5.7.8.2.	
	Kramer, Terese	2024-02-22	HDD Drilling: The DEIS also states that "drilling mud mixed with additives that are not on the MDH-approved additive list and/or do not meet [drinking water quality certification standards] would be disposed of as solid waste at an approved facility, or the applicant would obtain a land application permit from MPCA." The DEIS does not discuss the risks of applying drilling mud, especially with additives not approved by MDH, to the land. The DEIS says that "drilling fluids and additives for the HDD would be non-toxic to the aquatic environment and humans," however, even supposedly "non-toxic" drilling fluid is chemical waste that has been found to be harmful to plant and animal species. Summit's preferred route and alternative route, RA-Hybrid, would cross three rivers (Pelican River, Otter Tail River, and Bois de Sioux River) via the HDD mention.	As described in Section 5.7.8.2, an additive approved by MDH or meeting NSF International/ANSI Standard 60, Drinking Water Treatment Chemicals – Health Effects, might need to be mixed with the drilling mud for viscosity or lubricating reasons and to reduce the potential for an inadvertent release or failed HDD. The specific additive used would depend on the conditions at the crossing location and would be determined by the HDD contractor. The EIS discloses the potential for an inadvertent release of drilling mud and describes potential impacts in Chapter 5. Land application of drilling mud and potential impacts are addressed in Section 5.7.6.2.	20243-204403-01
	Kramer, Terese	2024-02-22	Wetlands: Table 5-40 on p. 5-98 of the DEIS states that "the loss of wetlands would be less than 0.01 acre." However, Table 5-4 on p. 5-24 says that for Summit's preferred route, operation impacts are expected to be 3.3 acres, and construction impacts are expected to be 4.7 acres. And Table 5-52 on p. 5-143 suggests that the total construction impact on wetlands for RA-South is 2.7 acres. Clarification is required.	Discrepancies between Table 5-4 and Table 5-54 result from different datasets and their associated resolutions. Table 5-4 uses NLCD data to analyze land cover and Table 5-54 uses NWI data to analyze wetlands. Table 5-40 has been edited to be consistent with discussions of impacts on wetlands in Section 5.7.9 and Table 5-53 and Table 5-54.	20243-204403-01
	Kramer, Terese	2024-02-22	Critical Habitats: Summit's preferred route would cross over or near several waterfowl protection areas, including the Orwell 9 Unit and Ridgeway WPA in Otter Tail County. The DEIS notes that some of these areas will be avoided during construction but fails to consider the impacts to these features in the event of a pipeline leak or rupture.	Operation of the proposed pipeline would include integrated systems for detecting leakages, as well as protocols for addressing leaks promptly. Minor leaks of CO_2 from operation of the proposed pipeline would not elevate ambient CO_2 to a level that is detrimental to waterfowl and other wildlife within the Orwell 9 Unit or Ridgeway WPAs. As the comment notes, the pipeline route would avoid these areas. As a result, there would be negligible risk of impacts on these areas due to a pipeline rupture.	20243-204403-01
	Kramer, Terese	2024-02-22	Agriculture and Land Impact The DEIS discounts the direct and long-term impacts of pipeline construction on land and soil integrity in spite of the significant evidence of likely harm. Land degradation: Summit plans to cut through roads, ditches, tile lines, and prime farmland including my family's farmland. Under cumulative effects or impact theory – it is suggested that multiple activities on the environment may have an additive, synergistic or antagonistic effect on one another and with natural processes. It is my understanding that the emergence of cumulative effects in environmental regulations began in the 1970s and has since been increasingly seen as a consideration in environmental impact assessments and land management. Because of this cumulative effects consideration and Summit's stated plans to expand in southern Minnesota (Highwater Ethanol plant in Lamberton, MN is already a committed plant), I believe all of this DEIS will be used to govern environmental issues throughout Minnesota. There is a growing body of anecdotal evidence and peer-reviewed research that shows that pipeline projects in the Midwest have caused yield reduction and damage to land years after project completion and "restoration". The DEIS does acknowledge that the reduced productivity from construction "typically would extend for 2 to 3 years, but could take up to 5 years, depending on impacts on soils from the construction disturbance," but fails to identify any measures the applicant should take to avoid these damages or repair them.Prime Farmland and Farmland of Statewide Importance: All three of the proposed routes would impact both Prime Farmland and Farmland of Statewide Importance, but Summit's preferred route would impact significantly more acres of both across both the construction footprint and the operation footprint of the proposed project than the proposed alternatives.	Measures that the applicant would take to minimize impacts on soils and agricultural land are described in the Minnesota ECP in Appendix D and Minnesota APP in Appendix E. Text in Chapter 5 has been revised to indicate that impacts on crop production would be long term due to impacts on soils from construction disturbance. Impacts on prime farmland and farmland of statewide importance are shown in Table 5-21 for each alternative. RA-Hybrid would impact the most acres of prime farmland. The amount of farmland of statewide importance that would be impacted by construction is relatively small for all three routes, ranging from 17.8 acres for RA-South to 15.7 acres for RA-Hybrid.	20243-204403-01

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	Kramer, Terese	2024-02-22	Impact of Leaks or Ruptures on Vegetation: The DEIS concludes a leak of CO_2 "would slow plant growth" and that the rupture of the pipeline would instantly freeze the surrounding soil and "instantly kill all herbaceous ground vegetation" but provides no measures to avoid these impacts, nor does it discuss the long-term impacts of such damage on the soils and vegetation. Instead, the DEIS states, without proof, that "local soil microbes, mycorrhizae, and soil animals such as worms, arachnids, and insects…would re-colonize after the area is restored."	Chapter 2 of the draft EIS discusses engineering and design elements incorporated into the project to reduce the likelihood of pipeline leaks or failure. Chapter 8 discusses potential impacts on vegetation and wildlife from slow leaks of CO_2 and from a larger rupture. In the event of a pipeline rupture and large release, impacts on vegetation and soils would be highly localized to the area above the rupture. Re-colonization of the impact area would result from ecological succession processes that are well documented in areas that have experienced disturbance events of similar source, duration, and effect on other projects of a similar scale.	20243-204403-01
	Kramer, Terese	2024-02-22	Soil Compaction: The DEIS acknowledges that "soil compaction would be unavoidable in unpaved areas of equipment and vehicle operation" and that even if soils were decompacted, "some compacted soils could remain." Soil compaction can have serious consequences in terms of water infiltration and drainage and should not be dismissed as an insignificant impact.	Section 5.7.8.2 indicates that groundwater recharge could be impacted by soil compaction. Section 5.7.6 explains that the applicant would comply with required permits and implement its Minnesota ECP and Minnesota APP, which would minimize impacts on soils. The text in Section 5.7.6 has been revised to indicate that, while most impacts on soils during construction would be minimal and temporary, some impacts could be long term.	20243-204403-01
	Kramer, Terese	2024-02-22	Geologic Hazards: The DEIS does not address whether the applicant has conducted geologic hazard surveys pursuant to the PHMSA Bulletin: https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2022-06/2022-11791.pdf	Geologic hazards are addressed in Sections 5.7.3 and 5.7.6. Text regarding geohazard assessments that would comply with the recommendations in PHMSA Advisory Bulletin 2022-01 has been added to both sections.	20243-204403-01
	Kramer, Terese	2024-02-22	In my view, the DEIS consistently underplays the known and unknown risks of transporting large amounts of CO_2 at high pressures through a pipeline. CO_2 Rupture Impact Zone: · According to the analysis in the DEIS, the potential impact radius for levels of CO_2 that would be "immediately dangerous to life or health" is 617 feet. This expands to 910 feet for lower concentrations that cause dizziness, drowsiness, severe muscle twitching, and unconsciousness within a few minutes. Although Summit indicates that it will take 25 minutes for the system to shut off the relevant valves in the event of "abnormal operation,"the DEIS does not mention any meaningful safety measures for a rupture and instead suggests that it is "reasonable" for Summit to simply supply indoor CO_2 detectors for residences within 1,000 feet of the project. · But the rupture report in Appendix G states that "a full rupture results in impact distances too quickly for an early warning device, such as an oxygen detector, to be effective." Impacts of a Leak or Rupture on Animals: According to the DEIS, CO_2 leaks would not affect mammals, birds, reptiles, amphibians, and insects and would be unlikely to impact fish and freshwater mussels. The DEIS reaches this conclusion without providing any reasoning or supporting evidence. Though the DEIS does note some harm may come to animals in the event of a rupture, it relies heavily on the assumption that animals will simply move out of the rupture area to avoid the release. The reason for this assumption is not provided and is contradicted by information in the rupture report in Appendix G which suggests the impacts of a rupture would be nearly immediate. · Bottom line: This pipeline should not be approved without a clear understanding of the risks to human health and meaningful measures to ensure the safety of people and animals in pipeline area.	Text in Section 4.5 on valve closure time has been corrected from 25 minutes to 10 minutes. Elsewhere in the EIS, including the rupture analysis, valve closure time is listed/calculated as 10 minutes. Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. The Emergency Response Plan included as Appendix N is a draft plan that is not outdated but would be revised as required by PHMSA, if the project is approved. Additionally, EERA staff recommended a special permit condition requiring the applicant to file its Emergency Response Plan that is filed with PHMSA with the Commission, and other special permit conditions as described in Section 8.5.3. CO_2 is a widespread, naturally occurring gas and is the primary byproduct of respiration (the conversion of sugars to usable energy). Minor leaks of CO_2 from operation of the proposed pipeline would not elevate ambient CO_2 to a level that is detrimental to these organisms. Potential impacts on wildlife from a CO_2 rupture could result first from the physical force of a rupture and secondarily from localized short-term high levels of CO_2 prior to dispersal and extreme cold temperatures associated with the depressurization of the CO_2 from a supercritical state to a gas. Chapter 8 of the EIS acknowledges that wildlife in the immediate vicinity of a rupture might be killed or injured by this force; however, it is expected that most mobile wildlife species would follow	20243-204403-01

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				their natural instincts and attempt to escape the direct effect of a rupture. Chapter 8 of the EIS also acknowledges that less-mobile species in the immediate vicinity of the point of a rupture would be less likely to escape the impacts and might be killed or injured. The data presented in Appendix G describes models of dispersal patterns in the immediate vicinity of a rupture. These models support the statements in Chapter 8 that wildlife in the immediate vicinity of a rupture might be exposed to high levels of CO_2, which could be toxic for species unable to leave the area of the release.	
	Kramer, Terese	2024-02-22	First responders and health professionals: · CO_2 pipelines pose unique problems for first responders and health care providers. Because CO_2 is colorless and odorless, both victims and first responders have no way of knowing what is causing the health problems. · In addition, first responders require special equipment, including non-internal combustion engines, to respond to a CO_2 disaster. · The DEIS does not consider the burdens this will put on local EMS and health providers in the case of a pipeline rupture or accident or an assessment of how they should be prepared to respond given the unique needs. The DEIS includes Summit's September 2022 Emergency Response Plan (Appendix N). This plan is not only outdated but also unclear as to how local EMS and first responder will interact with the applicant in the event of a leak or rupture. Though the plan talks of multiple company personnel as playing roles in an emergency response, it ignores the fact that the applicant only plans on having one full-time employee at the capture facility. Local first responders deserve more clarity about how they will be expected to respond to an emergency situation and what the applicant will do to ensure they are adequately equipped and informed for such an event.	Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. The Emergency Response Plan included as Appendix N is a draft plan that is not outdated but would be revised as required by PHMSA, if the project is approved. Additionally, EERA staff recommended that a special permit condition requiring the applicant to file its Emergency Response Plan that is filed with PHMSA with the Commission, and other special permit conditions as described in Section 8.5.3.	20243-204403-01
	Kramer, Terese	2024-02-22	Compliance with PHMSA Rules: The DEIS accepts Summit's assurances that it will "comply with federal emergency response requirements," but as noted in a Pipeline Safety Trust report and by the Pipeline Hazardous Material Safety Administration (PHMSA) itself, the current emergency response requirements are dangerously outdated. According to the DEIS, the Minnesota Public Utilities Commission (PUC) faces a critical decision regarding Summit's proposed CO_2 pipeline. Safety Standards and Local Authority: · The DEIS acknowledges that the PUC cannot directly set safety standards for the pipeline. · However, the Pipeline and Hazardous Materials Safety Administration (PHMSA) has clarified that state and local authorities retain the power to regulate land use, including setback distances. · PHMSA emphasizes that federal pipeline safety law does not infringe on local or state prerogatives in this regard. PUC's Responsibility: The DEIS should clarify the role and authority of the PUC to carefully consider the pipeline's placement and safety implications, and make clear that it has the authority to determine: · Routing: The optimal path for the pipeline. · Setback Requirements: How far the pipeline should be from sensitive areas (e.g., homes, schools). · Depth specifications: the optimal depth to ensure adequate protection for humans, animals and the environment.	Although the Commission cannot set safety standards for pipeline construction or operation, state or local units of government may, to the extent authorized by law, set land use requirements that indirectly contribute to pipeline safety by regulating the activities of third parties located in the pipeline's vicinity. The Commission's obligation is to identify a pipeline route consistent with the criteria found in statutes and the applicable administrative rules. Federal law, by contrast, exclusively prescribes pipeline safety requirements. Section 3 .4 of the EIS has been revised with this information.	20243-204403-01
	Kramer, Terese	2024-02-22	In addition to the concerns and issues stated above, I am alarmed that the DEIS falls short in accurately assessing its true C02 emissions and climate impact over its lifetime. Key concerns: · Project longevity: The DEIS assumes a 25-year lifespan, but fails to address the continued CO_2 emissions from the ethanol plant after capture stops. This presents a significant unaccounted-for impact.	Section 2.7 describes project decommissioning. If the ethanol plant continues to operate beyond the life of the proposed project, its CO_2 emissions would not be captured.	20243-204403-01
	Kramer, Terese	2024-02-22	· Unrealistic capture claims: The claim of 100% CO_2 capture from the ethanol plant lacks supporting data, independent verification, and transparency. No existing carbon capture facility achieves this rate.	Section 2.1 has been revised to clarify that the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and commenters have questioned the feasibility of this capture rate given the performance of existing capture	20243-204403-01

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				facilities. The analyses in Section 5.7.1.3 and Chapter 6 have been revised to include capture rate scenarios of 100 percent, 70 percent, 40 percent, and 10 percent.	
	Kramer, Terese	2024-02-22	· Electricity usage ignored: The DEIS overlooks the increased emissions from electricity needed for carbon capture. Using regional averages instead of the specific, higher emission factor from the local utility (Great River Energy) underestimates the true impact.	Electricity emissions are included in Table 5-39. These numbers have been revised to reflect the electricity emission factor associated with LREC, which would provide electricity to the project. The revised electricity emission factor is 132.2 gCO_2e/MWh. This was calculated from LREC's energy resource mix in which nearly half comes from clean energy sources. Because LREC has a lower emission factor than the Midwest Reliability West Region emission factor (684.35 g CO_2e/kWh), which was used in the draft EIS, calculated electricity emissions have decreased.	20243-204403-01
	Kramer, Terese	2024-02-22	· Uncertain storage: The assumption of 100% permanent underground storage for captured CO_2 lacks guarantees and details on monitoring and verification protocols.	Text has been added to Section 2.1 describing the suitability of the Broom Creek Formation in North Dakota for CO_2 sequestration, as well as the monitoring and testing that would be done to verify that the CO_2 is contained in the storage reservoir.	20243-204403-01
	Kramer, Terese	2024-02-22	· EOR ambiguity: The DEIS offers no clarity on whether captured CO_2 could be sold for alternative uses (besides permanent storage) and the associated consequences. Additionally, the claim that oil production isn't dependent on the project's CO_2 contradicts public statements from North Dakota officials and industry representatives. In conclusion, the DEIS must be amended and improved to comprehensively and accurately reflect the project's actual and long-term CO_2 emissions and climate impact.	Section 5.7.2.3 stated: "if all the CO_2 produced by the ethanol plant is sequestered as proposed, EOR would likely continue in North Dakota using other sources of CO_2, other gases, thermal methods, or chemical methods." Revisions are not necessary. However, Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for EOR.	20243-204403-01
	Kramer, Terese	2024-02-22	Summary of concerns regarding the proposed CO_2 pipeline project and need to be adequately addressed in the DEIS: Environmental impacts: · Water: Potential for contamination through leaks, disruption of aquifers, and increased water usage. · Land: Loss of productive farmland, soil compaction, and disruption of critical habitats. · Vegetation: Damage to plants from leaks and ruptures, limited understanding of long-term impacts. Health and safety risks: · Leak and rupture: Large impact zone with potential for serious harm to humans and animals. Unclear response plan and inadequate safety measures. · First responders: Lack of training and equipment for CO_2 emergencies. · Outdated regulations: Concerns about the adequacy of current safety standards. Additional concerns: · Limited scope of DEIS: Failure to properly assess long-term emissions, uncertainties surrounding CO_2 storage, and lack of transparency on capture efficiency. · Route selection: PUC should have the authority to determine the optimal path, setbacks, and depth of the pipeline. Conclusion: The DEIS requires significant improvement to address these critical concerns before the project can be considered safe and responsible.	See responses to the detailed comments above.	20243-204403-01
	Lagaard, Scott	2024-02-22	The CO_2 pipeline is a great concern of mine, for several reasons: 1) The rules for CO_2 pipelines are not yet finalized. This must happen first, BEFORE construction begins. 2) This project will extend the life of fossil fuels - used as justification for more ETOH production, which use a food to make fuel, and fracking to get more oil from the ground.	Thank you for your comments. PHMSA regulations (that is, their appropriateness) and related standards for CO_2 pipelines are outside the scope of the EIS (Appendix A). Section 3.6 acknowledges that PHMSA is currently conducting rulemaking proceedings on proposed amendments to its pipeline safety rules. Section 3.6 also notes that the Commission has indicated that it would be prudent for EERA staff and the applicant to take any updated mitigation strategies or safety guidelines into account, even if the updates have not been finalized. Appendix G of the EIS further summarizes the extensive and detailed PHMSA CO_2 pipeline	20243-204403-01

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				regulations applicable to the construction, operation, and maintenance of such pipelines, and the status of pending PHMSA changes to such. EERA staff has been following PHMSA CO_2 pipeline rulemaking proceedings before and since issuance of the draft EIS. As of July 5, 2024, PHMSA has not published the Notice of Proposed Rulemaking that will describe the scope of new and amended regulations; thus, there are currently no changes to existing PHMSA rules and regulations. Accordingly, discussion in the EIS of "mitigation strategies and measures to ensure public safety including, but not limited to, measures consistent with the proposed and final federal rules to the extent available" is based on existing PHMSA rules and regulations (Commission. September 26, 2023. Order Approving Scope of Environmental Review and Denying Stay. eDockets No. 20239-199149-01). To the extent applicable, Section 3.6 and Appendix G of the EIS have been updated with the above information.	
	Lagaard, Scott	2024-02-22	3) The pipeline is not safe. The CO_2 makes acid with even the most tiny moisture, which is unavoidable, and can weaken the metal. 4) When the pipe ruptures (as has already happened in the U.S.), pressurized CO_2 jets out, making a cloud of asphyxiating gas, heavier than air, that kills people and animals. Vehicles cannot start or run in this cloud, inhibiting escape or rescue. At the very least, O2 masks and cylinders should be mandated, to be delivered and deployed in each home or building for every person - and extras for visitors - for each possible habitable structure within one mile on either side of the entire pipeline.	Thank you for your comment.	20243-204403-01
	Lagaard, Scott	2024-02-22	5) There is no proof that CO_2 can be retained perpetually in storage, and projects of this type so far have a very poor success rate. Hold construction AT LEAST until all questions are researched and proven by university scientists.	Text has been added to Section 2.1 describing the suitability of the Broom Creek Formation in North Dakota for CO_2 sequestration, as well as the monitoring and testing that would be done to verify that the CO_2 is contained in the storage reservoir.	20243-204403-01
	Leussler, Marcy	2024-02-23	The DEIS consistently fails to properly account for the real CO_2 emission and climate impacts of the project. Lifetime of Project: The applicant states that the anticipated lifetime of this project is 25 years. This means at the end of its life, the project could stop capturing the CO_2 from the ethanol plant.	Thank you for your comment. If the ethanol plant continues to operate beyond the life of the proposed project, its CO_2 emissions would not be captured.	20243-204403-01
	Leussler, Marcy	2024-02-23	Unless the ethanol plant will also cease operations at that point in time, it will continue to emit CO_2 unabated into the future. 100% CO_2 Capture Rate: Summit states that the capture facility "is designed to capture 100% of the CO_2 produced by the ethanol plant." There is no carbon capture facility in the world, ethanol or otherwise, that captures carbon at a rate of 100%. This claim is not supported by any data/information or verified by a third party. Additionally, the DEIS should emphasize that any CO_2 capture is solely associated with emissions from the ethanol fermentation process and provides zero reductions on the significant emissions from the facility's electricity use.	Section 2.1 has been revised to clarify that the captured CO_2 is produced by the ethanol plant as part of its fermentation process, the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. Section 6.3 describes energy efficiency and energy alternatives that could reduce emissions from the ethanol plant's electricity and process fuel use.	20243-204403-01
	Lind, Kat	2024-02-18	re: Docket no 22-422 draft EIS comment period: Dear State, Public Utilities Commissioner & Dept. of Commerce, Based on Minnesota Rules and the formal practice and execution of the State's Environmental Review / Protection Act, this draft EIS appears inadequate. It may be fair to involve the EQB and EQB Board due to the project involving complex issues with multijurisdictional effects [Minn.R.4410.2800]. More needs to be disclosed and considered with this "project" in relation to connected actions of the project. What is currently disclosed fails to present the project as a whole. It is in the best interest of the State to be a leader in establishing safe, sound, and practicable decisions that influence Minnesotan environment, resources, and its people. The draft EIS shall be prepared consistent with parts 4410.0200 thru 4410.6500. For the Final EIS, please consider and add additional required information:	Thank you for your comment. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-01

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	Lind, Kat	2024-02-18	4410.0200, subp. 65 - it appears that this EIS was 'scoped' limitedly and more so in line with permitting which goes against Minn. Rules as, "Project" means a governmental action, the results of which would cause physical manipulation of the environment, directly or indirectly. The determination of whether a project requires environmental documents shall be made by reference to the physical activity to be undertaken and not to the governmental process of approving the project.	Thank you for your comment. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-01
	Lind, Kat	2024-02-18	4410.0200, subp. 9c - this segment of pipeline presented in this draft EIS is not operational in and of itself, the carbon sequestration location/s is part of this pipeline project as its intent and destination. Greater amounts of detail and solid-science information about the carbon sequestration location/activities should be publicly disclosed and discussed in a wholistic and meaningful way as, Connected actions. Two projects are "connected actions" if a responsible governmental unit determines they are related in any of the following ways: A. one project would directly induce the other; B. one project is a prerequisite for the other and the prerequisite project is not justified by itself; or C. neither project is justified by itself.	Thank you for your comment. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS. Text has been added to Section 2.1 describing the suitability of the Broom Creek Formation in North Dakota for CO_2 sequestration, as well as the monitoring and testing that would be done to verify that the CO_2 is contained in the storage reservoir.	20243-204403-01
	Lind, Kat	2024-02-18	4410.0200, subp 11 and 11a - because of the connected actions associated with this pipeline route [e.g., long-term carbon sequestration in geologic substrate] the cumulative effects contexts of the project as currently disclosed are substantially inadequate. "Cumulative impact" means the impact on the environment that results from incremental effects of the project in addition to other past, present, and reasonably foreseeable future projects regardless of what person undertakes the other projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time. "Cumulative potential effects" means the effect on the environment that results from the incremental effects of a project in addition to other projects in the environmentally relevant area that might reasonably be expected to affect the same environmental resources, including future projects actually planned or for which a basis of expectation has been laid, regardless of what person undertakes the other projects or what jurisdictions have authority over the projects. Significant cumulative potential effects can result from individually minor projects taking place over a period of time. In analyzing the contributions of past projects to cumulative potential effects, it is sufficient to consider the current aggregate effects of past actions. It is not required to list or analyze the impacts of individual past actions, unless such information is necessary to describe the cumulative potential effects. In determining if a basis of expectation has been laid for a project, an RGU must determine whether a project is reasonably likely to occur and, if so, whether sufficiently detailed information is available about the project to contribute to the understanding of cumulative potential effects. In making these determinations, the RGU must consider: whether any applications for permits have been filed with any units of government; whether detailed plans and specifications have been prepared for the project; whether future development is indicated by adopted comprehensive plans or zoning or other ordinances; whether future development is indicated by historic or forecasted trends; and any other factors determined to be relevant by the RGU.	Thank you for your comment. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-01
	Lind, Kat	2024-02-18	Controversy - the project is controversial in North Dakota, which is the destination location with sequestration storage; North Dakota denied this project approvals. This project also has pipeline in neighboring states where the project is controversial. The State / the Dept. needs to be a leader in environmental protection by considering the objective, wholistic view of projects, its impacts, including what could be controversial, esp. when involving decisions associated with connected actions of our permitting/project across state boundaries. MN, its resources and people need to feel secure and safe into our future; making blind narrow-focused 'decisions' is not in the best interest of the state when these actions are controversial elsewhere. Why would the State permit a pipeline with destination and connected actions across state borders, when the destination of this pipeline that requires a pipeline permit, has been denied? What about the portion of the project that is anticipated in southern/south-central MN (Section 2.1 / Figure 2.1)? What is that connected action? Status? Timeline? Details?	Thank you for your comment. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS. The applicant has indicated that, should a permit for the North Dakota portion of the Midwest Carbon Express project not be issued, it will not construct the Otter Tail to Wilkin portion of the project.	20243-204403-01
	Lind, Kat	2024-02-18	Due to the potential for significant environmental effects associated with the connected actions (e.g., pipeline, carbon sequestration in geological substrate across state borders, others?), it is reasonable to include that the project [including the carbon sequestration and other pipeline routes outside of MN] are controversial. The project on whole is controversial and it is not discussed in this EIS those controversial sticking points have not been disclosed. This is concerning in that there is not full public disclosure and the scope of the State Dept. is narrow on that for what is being permitted in one portion of the state. Is there another portion of pipeline potentially in the southern portion of the state? Minding, some public news feeds has this "project" spanning a larger distance and impact in southern/south-central MN. The "project" also has pipeline and destinations in Iowa, Nebraska, South Dakota, and North Dakota with the carbon sequestration storage site north of Bismark, North Dakota. Here is an example of where the public can find a full map of "the project"	Thank you for your comment. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS. The Midwest Carbon Express project is discussed in Section 2.1 of the EIS. A map showing the proposed Midwest Carbon Express project in North Dakota, South Dakota, Nebraska, Minnesota, and Iowa is shown on Page 2-2. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-01

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			https://www.desmoinesregister.com/story/money/business/2023/08/31/iowa-basedsummit-wins-bid-for-carbon-pipeline-environmental-review-inminnesota/70731887007/ https://iowacapitaldispatch.com/2023/08/04/north-dakota-denies-summit-carbon-apipeline-permit/ It appears that this project is 'getting political' and as a concerned citizen in MN, it is suggested that this EIS document reflects objectively, the project as a whole, and its full span of effects of all components of "the project". The whole picture is not presented in this EIS. This is concerning for the overall health and well-being of our State (its citizens and environment); Minnesota should be showing we're a leader especially when dealing with contentious/controversial environmental activities, esp. when we're building out connected actions to controversial activities across state lines. These connections are not made or disclosed in this draft EIS with its narrow scope of pipeline in MN.		
	Lind, Kat	2024-02-18	It feels wild to note, but the State, the PUC/Dept., and its project EIS should consider things associated with the proposed carbon sequestration storage site including things like long-term effects, potential for migration, effects of migration, or other time oriented effects or geological-oriented effects of storing the carbon in the geologic substrate. Is there potential for earthquakes, land shifts/sinkholes, implications with the Yellowstone Caldera, etc./others? What are the unforeseen consequences or carbon storage in this manner? What are the alternatives? What is the payoff of doing this environmental activity that has long-term effects [of connected actions, not addressed in this EIS] in relation to invisible/intangible carbon credits? Is it worth it?	Text has been added to Section 2.1 describing the suitability of the Broom Creek Formation in North Dakota for CO_2 sequestration, as well as the monitoring and testing that would be done to verify that the CO_2 is contained in the storage reservoir.	20243-204403-01
	Lind, Kat	2024-02-18	It is overly sweeping [arbitrary and capricious] to state, "The project would have a net beneficial effect on climate change as it would capture and store CO_2 emissions from the ethanol plant." (Exec Summary, pg. 8) Where is the proof of this? What in the global climate change systems and cycles will be transitioned off of its current course? It's highly unlikely this project actually has a "net beneficial effect on [global] climate change". The statement is said without addressing the storage of CO_2 in the draft EIS and how the effects of that weigh in the balance of storing the carbon in this infrastructure-heavy project. What if the geologic storage in North Dakota fails? What kind of effect would this have? Furthermore the roll of food, starvation, increasing population, agriculture, soil health, water usage and pollution from conventional ag practices, human health, poverty, and food for fuel are not being disclosed and considered in balanced proportions. Corn is a very nutrient and water intensive crop. It strips topsoil of nutrients, there's often plowing involved resulting in water quality issues. There's a whole universe of impacts related to growing corn then using that as fuel which is not being considered here. Are there other potential plant based fuel sources? All these thing directly effect Minnesota, our resiliency and wellbeing now and into the future. Furthermore, the draft EIS does not cover the carbon sequestration storage, its location, actions, and short and long-term impacts of that. This is concerning the State of MN would make a limited view pipeline approval on a controversial and multijurisdictional project and not cover the pipeline destination to a newer technology of geologic carbon sequestration. Please validate that this statement is true with factual evidence and provide vetted proof in the final EIS or make decision-based action moving forward.... like taking a pause or moratorium on geologic carbon sequestration related projects including any of the pipelines that would be leading to it until more is known for certain. It is concerning this environmental review has been handled with such narrow (seemingly, permitting oriented view) scope of what the project, its controversy, and long-term connected actions are involved.	Section 5.7.2 has been revised to note that the project would contribute to a net beneficial effect on climate change as it would capture and store CO_2 emissions from the ethanol plant. Text has been added to Section 2.1 describing the suitability of the Broom Creek Formation in North Dakota for CO_2 sequestration, as well as the monitoring and testing that would be done to verify that the CO_2 is contained in the storage reservoir.	20243-204403-01
	Lind, Kat	2024-02-18	I do apologize for missing the comment period for the Scoping EAW. It is concerning this environmental review has proceeded with such narrow and seemingly permitting oriented view when there is controversy over the project across state boundaries and associated with the long-term connected actions of long-term geologic storage of CO_2. Kind request for the State, the PUC/Dept. to consider the comments provided in this letter and the potential for significant environmental effects of the full project, including the sequestration site that serves this MN pipeline alignment, the larger connection of pipelines associated with the project [cross-state infrastructure under the same project] and that these connected actions and wholistic breadth of "the project" be explored and publicly disclosed in the Final EIS and future decisions associated with this project. Regards, Concerned MN citizen.	Thank you for your comment. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-01
	Ludington, Mary	2024-02-23	The DEIS consistently fails to properly account for the real CO_2 emission and climate impacts of the project. Lifetime of Project: The applicant states that the anticipated lifetime of this project is 25 years. This means at the end of its life; the project could stop capturing the CO_2 from the ethanol plant. Unless the ethanol plant ceases operations at that point in time, it will continue to emit CO_2 unabated into the future.	Thank you for your comment. Section 2.7 describes project decommissioning. If the ethanol plant continues to operate beyond the life of the proposed project, its CO_2 emissions would not be captured.	20243-204403-01

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	Ludington, Mary	2024-02-23	100% CO_2 Capture Rate: Summit states that the capture facility "is designed to capture 100% of the CO_2 produced by the ethanol plant." There is no carbon capture facility in the world, ethanol or otherwise, that captures carbon at a rate of 100%. This claim is not supported by any data/information or verified by a third party. Additionally, the DEIS should emphasize that any CO_2 capture is solely associated with emissions from the ethanol fermentation process and provides zero reductions on the significant emissions from the facility's electricity use	Section 2.1 has been revised to clarify that the captured CO_2 is produced by the ethanol plant as part of its fermentation process, the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. Section 6.3 describes energy efficiency and energy alternatives that could reduce emissions from the ethanol plant's electricity and process fuel use.	20243-204403-01
	Ludington, Mary	2024-02-23	Added CO_2 from electricity use: Carbon capture technologies are highly energy intensive and will significantly increase the carbon emissions at the facility from electricity use. The DEIS uses the Midwest Reliability Organization West Region average to calculate these emissions, which is unnecessarily inaccurate given the availability of the actual emissions factor from Great River Energy.	Electricity emissions are included in Table 5-39. These numbers have been revised to reflect the electricity emission factor associated with LREC, which would provide electricity to the project. The revised electricity emission factor is 132.2 gCO_2e/MWh. Because LREC has a lower emission factor than the Midwest Reliability West Region emission factor (684.35 g CO_2e/kWh), which was used in the draft EIS, calculated electricity emissions have decreased.	20243-204403-01
	Ludington, Mary	2024-02-23	CO_2 Storage: The DEIS assumes 100% of captured CO_2 is being permanently stored underground. There is no guarantee that this will occur and no explanation of the monitoring and verification protocols that would ensure it. Enhanced Oil Recovery: The DEIS fails to explain whether the applicant can sell any of its captured CO_2 to others for alternative uses instead of permanent sequestration and what the impacts of that would be. The DEIS incorrectly states that "Production of oil through EOR would not be dependent on the availability of CO_2 produced by the ethanol plant." This claim is contradicted by countless public statements from public officials in North Dakota and oil industry representatives.	The text questioned by the commenter in Section 5.7.2.3 was prefaced with the following: "if all the CO_2 produced by the ethanol plant is sequestered as proposed, EOR would likely continue in North Dakota using other sources of CO_2, other gases, thermal methods, or chemical methods." Revisions are not necessary. However, Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for EOR.	20243-204403-01
	Lutz, Dale R.	2024-02-13	This key goal, as stated on page 1-1 of the Draft EIS, is to: "reduce the carbon-intensity score of ethanol produced at the Green Plains ethanol plant and enhance its marketability in low-carbon fuel standard markets." The Minnesota legislature is currently setting state fuel carbon-intensity targets with the input of the February 1, 2024, report from their Clean Transportation Standard (CTS) Work Group. The ignored alternative technology is described on page 179 of the Addendum to this 2023-2024 Clean Transportation Standard Work Group Report, which is copied below. ... There are several existing technological approaches for converting CO_2 and hydrogen (H2) to ethanol (or other alcohols). An industrial reverse water-gas shift reactor can convert most of the (CO_2 + H2) to (CO + H2O), yielding a mixture called synthesis gas or syngas. The syngas can then be converted to ethanol, as demonstrated by LanzaTech, for example. The company Twelve uses a CO_2 electrolyze to split the CO_2 into CO (for syngas) and O2. When the CO is combined with "green hydrogen", the resulting syngas will then be further processed into jet fuel, in their recently announced E-Jet® plant at Moses Lake, Washington.	Thank you for your comment. Ethanol gasification would fundamentally alter the ethanol plant—its construction and operation, staff, business continuity, supply chain, and co-products. This would yield far reaching economic and social impacts. Therefore, conversion of the ethanol plant from a dry milling corn grain feedstock process to gasification does not meet the project's purpose. As such, this alternative technology is considered outside the scope of the EIS.	20243-204403-01
	Lutz, Dale R.	2024-02-13	concerns about potential pipeline ruptures or aquifer breaches, make me very concerned that resistance to pipeline construction will delay CO_2 emission reduction efforts longer than we can afford. The construction funds would be better spent to build the localized CO_2 capture and conversion infrastructure described above, rather than pipelines. The proposed Summit Carbon Solutions pipeline ends near the Bakken oil field in North Dakota. While the project may claim to sequester the CO_2 in saline aquifers, I strongly suspect that at some point, perhaps after the tax credits expire, the pipeline CO_2 will be used for enhanced oil recovery to produce more fossil fuel, making our climate crisis worse.	Thank you for your comment. Section 5.7.2.3 addresses the potential for the captured CO_2 to be used for EOR.	20243-204403-01
	Mackenzie, Colin	2024-02-21	The ethanol industry contributes billions of dollars to Minnesota's GDP and ensures that farmers have a consistent market for their corn. Ensuring that our state and our farmers continue to benefit from the ethanol industry is paramount, and Summit's carbon capture project will do just that. Not only will it protect an already existing industry, but it will create both short-term and permanent local jobs. Furthermore, when the pipeline is operational, Summit will pay additional property taxes to support local priorities in communities across the state. This project promises to bring economic benefits to our state, and for that reason, I am happy to support Summit Carbon Solutions and hope the Minnesota PUC will issue the company a permit.	Thank you for your comment.	20243-204403-01

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	Manning Christie	2024-04-23	To MN Department of Commerce, I'm writing to state my deep concern about the Draft EIS for the Otter Tail to Wilkin CO_2 pipeline project. I am a resident of Minnesota, and a social scientist who studies the impacts of environmental degradation on mental health. This pipeline project is worrying for many reasons: The DEIS was not adequate. It's climate numbers that don't add up, it did not give enough attention to pipeline construction risks such as aquifer breaches and it does not seriously enough consider the health or safety impacts a pipeline rupture would have on the community.	Thank you for your comment.	20243-204403-01
	Mathiowetz, Wade	2024-02-09	I am seriously concerned about the proposed Summit Carbon Solutions CO_2 pipeline set to traverse through 13 Minnesota Counties. The DEIS does not acknowledge meaningful safety measures for a rupture, instead suggests Summit supply CO_2 detectors for residents within 1000 feet. I feel there needs to be a healthier safety protocol. A rupture that occurs, and 25 minutes goes by, before valves are closed, an extreme amount of CO_2 has released is very frightening, as emergency personal will have extra burden, immobilized vehicles from loss of oxygen. Mostly all of local EMS in rural Minnesota is under equipped and inexperienced with CO_2. More cost to the EMS for CO_2 related incidences, as the local EMS are ill supplied with funds.	Text in Section 4.5 on valve closure time has been corrected from 25 minutes to 10 minutes. Elsewhere in the EIS, including the rupture analysis, valve closure time is listed/calculated as 10 minutes. Potential impacts associated with a CO_2 release are described in Chapter 8 of the EIS. Emergency response is also discussed in Chapter 8. Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. The Emergency Response Plan included as Appendix N is a draft plan that is not outdated but would be revised as required by PHMSA, if the project is approved. Additionally, EERA staff recommended a special permit condition requiring the applicant to file its Emergency Response Plan that is filed with PHMSA with the Commission, and other special permit conditions as described in Section 8.5.3.	20243-204403-01
	Mathiowetz, Wade	2024-02-09	CO_2 capture at ethanal plants require double the amount of water from what is required already to operate. This will impose grim consequences on aquafers, as southern Minnesota has gone through 3 years of drought. This will deplete already constrained aquafers. The residents will lose their drinking water supply.	Additional information has been added to Section 5.7.8.2 to address the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-01
	Mathiowetz, Wade	2024-02-09	Summit states the capture facility is designed to capture 100% CO_2 produced from ethanal plants. There is no carbon capture facility in the world that would capture 100% CO_2. This claim does not have any info or verified by a third party. Furthermore, this entire project will not capture enough CO_2 to offset what it will produce. This is not going to benefit the public people at all, it will just create economic hardship and safety hazards. If you drink water, you are involved. This statement involves all Minnesotans. I cannot express the need to let all Minnesotans know all the facts about this proposed Summits Carbon pipeline.	Section 2.1 has been revised to clarify that the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. The analyses in Section 5.7.1.3 and Chapter 6 have been revised to include capture rate scenarios for 100 percent, 70 percent, 40 percent, and 10 percent.	20243-204403-01
	Mehmel, Gretchen	2024-02-23	I am commenting on the Ottertail to Wilken Co2 pipeline project's draft EIS. My primary concern is the section on rare, threatened, and endangered species. That entire section is so general it becomes meaningless. More specifics regarding species actually present along the corridor of disturbance needs to be added which should include a survey of the area during the same time of year in which the disturbance would occur.	Section 5.7.5 discusses rare and unique species, including lists of all federal and state-listed species known to be potentially present within each of the route alternatives. Presence of and potential impacts on these species, as well as eagles and migratory bird species, are also discussed. Mitigation proposed by the applicant and stipulated by DNR includes pre-construction surveys of the selected route for listed species	20243-204403-01

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			A more robust discussion of possible threats to those species habitats should also be included. Both direct and indirect impacts should be evaluated for each threatened, endangered, and special concern species along the route. Thank you for taking these comments.	prior to construction. Nesting bird surveys would also be conducted to ensure that the Project is in compliance with the MBTA.	
	Menzel, Mike	2024-02-22	I am a physician and cofounder of health professionals for a healthy climate. There are many reasons why this pipeline should not go forward, and I am submitting one of them. The DEIS consistently fails to properly account for the real CO_2 emission and climate impacts of the project. Lifetime of Project: The applicant states that the anticipated lifetime of this project is 25 years. This means at the end of its life; the project could stop capturing the CO_2 from the ethanol plant. Unless the ethanol plant ceases operations at that point in time, it will continue to emit CO_2 unabated into the future.	Thank you for your comment. Section 2.7 describes project decommissioning. If the ethanol plant continues to operate beyond the life of the proposed project, its CO_2 emissions would not be captured.	20243-204403-01
	Menzel, Mike	2024-02-22	100% CO_2 Capture Rate: Summit states that the capture facility "is designed to capture 100% of the CO_2 produced by the ethanol plant." There is no carbon capture facility in the world, ethanol or otherwise, that captures carbon at a rate of 100%. This claim is not supported by any data/information or verified by a third party. Additionally, the DEIS should emphasize that any CO_2 capture is solely associated with emissions from the ethanol fermentation process and provides zero reductions on the significant emissions from the facility's electricity use.	Section 2.1 has been revised to clarify that the captured CO_2 is produced by the ethanol plant as part of its fermentation process and the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent. The analyses in Section 5.7.1.3 and Chapter 6 have been revised to include capture rate scenarios of 100 percent, 70 percent, 40 percent, and 10 percent. Section 6.3 describes energy efficiency and energy alternatives that could reduce emissions from the ethanol plant's electricity and process fuel use.	20243-204403-01
	Menzel, Mike	2024-02-22	Added CO_2 from electricity use: Carbon capture technologies are highly energy intensive and will significantly increase the carbon emissions at the facility from electricity use. The DEIS uses the Midwest Reliability Organization West Region average to calculate these emissions, which is unnecessarily inaccurate given the availability of the actual emissions factor from Great River Energy.	Electricity emissions are included in Table 5-39. These numbers have been revised to reflect the electricity emission factor associated with LREC, which would provide electricity to the project. The revised electricity emission factor is 132.2 gCO_2e/MWh. This was calculated from LREC's energy resource mix in which nearly half comes from clean energy sources. Because LREC has a lower emission factor than the Midwest Reliability West Region emission factor (684.35 g CO_2e/kWh), which was used in the draft EIS, calculated electricity emissions have decreased.	20243-204403-01
	Menzel, Mike	2024-02-22	CO_2 Storage: The DEIS assumes 100% of captured CO_2 is being permanently stored underground. There is no guarantee that this will occur and no explanation of the monitoring and verification protocols that would ensure it.	Section 2.1 has been revised to clarify that the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. The analyses in Section 5.7.1.3 and Chapter 6 have been revised to include capture rate scenarios of 100 percent, 70 percent, 40 percent, and 10 percent.	20243-204403-01
	Menzel, Mike	2024-02-22	Enhanced Oil Recovery: The DEIS fails to explain whether the applicant can sell any of its captured CO_2 to others for alternative uses instead of permanent sequestration and what the impacts of that would be. The DEIS incorrectly states that "Production of oil through EOR would not be dependent on the availability of CO_2 produced by the ethanol plant." This claim is contradicted by countless public statements from public officials in North Dakota and oil industry representatives.	The text questioned by the commenter in Section 5.7.2.3 was prefaced with the following: "if all the CO_2 produced by the ethanol plant is sequestered as proposed, EOR would likely continue in North Dakota using other sources of CO_2, other gases, thermal methods, or chemical methods." Revisions are not necessary. However, Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for EOR.	20243-204403-01
	Miersch, Janell	2024-02-22	I have read that these types of pipelines fail and are not as stable as purported. I think this is a poor "solution" and should be abandoned.	Thank you for your comment.	20243-204403-01
	Miller, Janet	2024-04-23	My name is Janet Miller, and I am a resident of Iowa, a state that shares concerns with Minnesota regarding the operations of Summit Carbon Solutions and their proposed CO_2 pipeline and Carbon Capture project. While I may not reside in Minnesota, the decisions made by the Minnesota Public Utilities Commission regarding this project have significant implications for me and my community. As	Thank you for your comment.	20243-204403-01

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			an Iowan, I am deeply concerned about the potential environmental, economic, and social impacts of the CO_2 pipeline that extend beyond state borders. The environmental consequences of the project, such as air and water quality, land use, and climate change mitigation efforts, are issues that resonate with me as a resident of the region.		
	Miller, Janet	2024-04-23	Further, the economic repercussions of the project, including job creation, energy costs, and market dynamics, could have ripple effects on neighboring states like Iowa. Understanding how this project may influence the regional economy is a valid concern that I share with many others in the area.	Thank you for your comment. A full, independent, regional, economic analysis is outside the scope of this EIS.	20243-204403-01
	Miller, Janet	2024-04-23	I am also mindful of the community well-being aspects of the project, such as safety concerns, land use conflicts, and impacts on local communities. Ensuring the protection and well-being of communities in the region, regardless of state boundaries, is a shared responsibility that I take seriously.	Thank you for your comment.	20243-204403-01
	Miller, Janet	2024-04-23	I urge the authorities to consider the interconnected nature of these issues and conduct a thorough and transparent Environmental Impact Statement that addresses the concerns of residents in both Minnesota and Iowa. It is crucial that the interests of all individuals affected by these pipelines are taken into account in the decision-making process. Thank you for considering my perspective and concerns on this critical issue that impacts our shared region.	Thank you for your comment.	20243-204403-01
	Montgomery, JI	2024-04-23	I oppose any pipelines as this will cause more harm to our communities and our children health I am truly upset and concerned about this CO_2 pipeline project this will cause more health problems to all living near this project it will cause countless cancers to all.	Thank you for your comment.	20243-204403-01
	Moss, Paul	2024-02-12	I am particularly concerned with the water related impacts of the proposed pipeline project. Minnesota's recent experience with pipeline construction demonstrates the serious harms that it causes on water resources as well as a tendency by state agencies to under-account for those impacts. Risks include: Dangers to water and waterbodies: The proposed route for Summit's pipeline network includes many water crossings, wetlands, aquifers, and other sensitive water bodies. More research and analysis are needed to understand how CO_2 disperses in water and what risks a CO_2 pipeline leak or rupture poses to Minnesota's precious waters and the fish, amphibians, reptiles, waterfowl, birds, and insects that rely on it to survive.	Potential impacts on surface water and aquatic resources from a possible CO_2 release are addressed in Section 8.3. Stand-alone studies concerning impacts on water resources, wildlife, and wildlife habitat are outside the scope of the EIS.	20243-204403-01
	Moss, Paul	2024-02-12	Water use: Much of southern Minnesota is suffering from the consequences of drought and over-commitment of our fresh drinking water supplies. The DEIS fails to discuss the impacts of an increase in water use on local water supply. The carbon capture process can double water requirements at a facility and increase toxic wastewater discharge. The DEIS states that Summit "anticipates" an average water use for the operation of the carbon capture equipment of 13 million gallons per year, which is concerningly ambiguous. There must be a careful and case-specific assessment done of how the installation and operation of carbon capture will impact current drought conditions and exacerbate existing pollution sources. Moreover, Summit has not finalized its water appropriation sources or volumes needed for construction, so it is impossible to know the full impacts of those appropriations on water resources. Why should Minnesota risk our fresh drinking water supply and commit to an infrastructure when the proposing company has not been transparent with its true demands for water resources?	Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-01
	Moss, Paul	2024-02-12	Aquifer Damage: Summit's preferred route, RA-South, crosses a surficial beach ridge aquifer in Otter Tail County. The DNR has said that the area is "prone to significant groundwater discharge," and the applicant's initial groundwater investigation confirmed that "artesian groundwater conditions are present" along that beach ridge system. In early feedback on the DEIS, the DNR noted that "Project construction has the potential to intersect shallow confined groundwater potentially causing a breach in a confined aquifer and that "breaching shallow confined aquifers could have significant long-term impacts to groundwater resources." This, along with our state's first-hand knowledge of how damaging pipelines can be, requires that the DEIS take potential damage to aquifers more seriously.	Section 5.7.8.2 acknowledges that damage to aquifers is a serious problem and indicates that an uncontrolled flow of water from a shallow confined aquifer could have a significant long-term impact on groundwater. Section 5.7.8.2 also describes geotechnical investigations that would be done to identify areas where breaching of a shallow confined aquifer could occur, and sheet piling would not be used. The applicant currently has an ongoing groundwater investigation underway to further inform construction practices and is continuing to consult with DNR. As part of its coordination with DNR, the applicant has agreed to use ground penetrating radar to study the depth of the confining layer through the entire beach ridge system area crossed by the pipeline to further define existing conditions and advise on	20243-204403-01

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				construction methodology. Furthermore, EERA staff recommends that the applicant develop, in coordination with DNR, a plan for pipeline construction in areas crossing the beach ridge system area. The plan would include, at a minimum, measures to minimize the potential for breaching a shallow confined aquifer during trenching and contingency measures to mitigate the impacts of a breach, should one occur. This information has been added to Section 5.7.8.2.	
	Moss, Paul	2024-02-12	HDD Drilling: The DEIS also states that "drilling mud mixed with additives that are not on the MDH-approved additive list and/or do not meet [drinking water quality certification standards] would be disposed of as solid waste at an approved facility, or the applicant would obtain a land application permit from MPCA." The DEIS does not discuss the risks of applying drilling mud, especially with additives not approved by MDH, to the land. The DEIS says that "drilling fluids and additives for the HDD would be non-toxic to the aquatic environment and humans," however, even supposedly "non-toxic" drilling fluid is chemical waste that has been found to be harmful to plant and animal species. Summit's preferred route and alternative route, RA-Hybrid, would both cross three rivers (Pelican River, Otter Tail River, and Bois de Sioux River) via the HDD mention.	As described in Section 5.7.8.2, an additive approved by MDH or meeting NSF International/ANSI Standard 60, Drinking Water Treatment Chemicals – Health Effects, might need to be mixed with the drilling mud for viscosity or lubricating reasons and to reduce the potential for an inadvertent release or failed HDD. The specific additive used would depend on the conditions at the crossing location and would be determined by the HDD contractor. The EIS discloses the potential for an inadvertent release of drilling mud and describes potential impacts in Chapter 5. Land application of drilling mud and potential impacts are addressed in Section 5.7.6.2.	20243-204403-01
	Moss, Paul	2024-02-12	Wetlands: In Table 5-40 on p. 5-98 of the DEIS it states that "the loss of wetlands would be less than 0.01 acre." However, Table 5-4 on p. 5-24 says that for Summit's preferred route, operation impacts are expected to be 3.3 acres, and construction impacts are expected to be 4.7 acres. And Table 5-52 on p. 5-143 suggests that the total construction impact on wetlands for RA-South is 2.7 acres. Which is it??	Discrepancies between Table 5-4 and Table 5-54 result from different datasets and their associated resolutions. Table 5-4 uses NLCD data to analyze land cover, and Table 5-54 uses NWI data to analyze wetlands. Table 5-40 has been edited to be consistent with discussions of impacts on wetlands in Section 5.7.9 and Table 5-53 and Table 5-54.	20243-204403-01
	Moss, Paul	2024-02-12	Impacts of a Leak or Rupture on Animals: According to the DEIS, CO_2 leaks would not affect mammals, birds, reptiles, amphibians, and insects and would be unlikely to impact fish and freshwater mussels. The DEIS reaches this conclusion without providing any reasoning or supporting evidence. Though the DEIS does note some harm may come to animals in the event of a rupture, it relies heavily on the assumption that animals will simply move out of the rupture area to avoid the release. The reason for this assumption is not provided and is contradicted by information in the rupture report in Appendix G which suggests the impacts of a rupture would be nearly immediate. Critical Habitats: Summit's preferred route would cross over or near several waterfowl protection areas, including the Orwell 9 Unit and Ridgeway WPA in Otter Tail County. The DEIS notes that some of these areas will be avoided during construction but fails to consider the impacts to these features in the event of a leak or rupture.	CO_2 is a widespread, naturally occurring gas and is the primary byproduct of respiration—the conversion of sugars to usable energy. Minor leaks of CO_2 from operation of the proposed pipeline would not elevate ambient CO_2 to a level that is detrimental to local vegetation or wildlife. Potential impacts on wildlife from a CO_2 rupture could result first from the physical force of a rupture and secondarily from localized short-term high levels of CO_2 prior to dispersal and extreme cold temperatures associated with the depressurization of the CO_2 from a supercritical state to a gas. Chapter 8 of the EIS acknowledges that wildlife in the immediate vicinity of a rupture might be killed or injured by this force; however, it is expected that most mobile wildlife species would follow their natural instincts and attempt to escape the direct effect of a rupture. Chapter 8 of the EIS also acknowledges that less-mobile species in the immediate vicinity of the point of a rupture would be less likely to escape the impacts and might be killed or injured. The data presented in Appendix G describes models of dispersal patterns in the immediate vicinity of a rupture. These models support the statements in Chapter 8 that wildlife in the immediate vicinity of a rupture might be exposed to high levels of CO_2, which could be toxic for species unable to leave the area of the release.	20243-204403-01
	Multiple	Multiple	I ask that the Public Utilities Commission and Department of Commerce take these issues into account in order to ensure that the Environmental Impact Statement (EIS) for the Otter Tail to Wilkin CO_2 Pipeline Project in Otter Tail and Wilkin Counties (Docket Number: 22-422) is a factual and thorough account of the project impacts. Minnesotans need a robust environmental review, and we need transparency, accountability, and regulatory oversight to ensure the greater public good and interests of communities impacted by these pipelines and all Minnesotans are respected and protected.	Thank you for your comment.	Multiple

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	Nauerth III, John	2024-02-22	Good afternoon, my name is John Nauerth III, I live in Jackson County, Mn., I am 82 years old (don't know how that happened!) and have done dirt work and drainage for many years, fixed lots of drain tiles. Looking at the DEIS for Otter tail, to Wilken CO_2 pipeline, I do not feel comfortable with Summit mediation of soil property's, Enbridge petroleum suffered a huge spill in Kansas, upon investigation by NTSB, cause was determined the soil settled under the line causing a welded joint to crack apart. The good thing is the line was not a CO_2 line with 1800 lbs. pressure transporting an odorless asphyxiant product. Any time soil is moved, shrinkage becomes a problem especially during dry weather conditions. I just don't want to see our citizens exposed to this danger.	Potential impacts associated with expansion and shrinkage of soils are described in Section 5.7.6.2.	20243-204403-01
	Nauerth III, John	2024-02-22	Bloomburg financials reports Poet has agreed to ship CO_2 from 17 of their plants using Summit pipeline making the total of 51 ethanol plants in this project, water usage will be problematic, Summit has not properly addressed this water issue. in the Otter Tail DEIS.	Thank you for your comment. Detailed analysis of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-01
	Norrgard, Lois	2024-02-23	I have lived in Minnesota my entire life, presently in Bloomington. For over 35 years now I have participated in numerous comment periods, commenting to our state agencies about numerous issues regarding new polluting industries and how our public lands, air and water are being industrialized. Air pollutants, water pollution, dumping chemicals into our soil - all have been historically overlooked by MN regulatory agencies year after year, decade after decade. We are in a state of decline, reaching major tipping points. I request all state agency staff who are in the positions of rubber stamping the permits that come across your desks review and understand this, (which now has an “official” name “Shifting Baselines Syndrome”): https://oceana.org/blog/daniel-pauly-and-george-monbiot-conversation-about-shifting-baselines-syndrome/ I am extremely frustrated with the lack of oversight and regulation from Minnesota’s governmental agencies. I am so tired of the Regulatory Capture of our state agencies - agencies that we citizens are supposed to count on to protect our health and environment! Enough is enough! For decades, under pressure from polluting industries–including mining, coal, corporate agriculture–and now pipelines, the citizens of Minnesota have watched the deterioration of our wild places, waters, air, and soils – and importantly our own public health. From nitrates in our drinking water to PFAS to methane and the increasing climate crisis disrupting our seasons and weather patterns it is far past time those in our state agencies who rubber-stamp every permit that crosses their desks start to take notice.	Thank you for your comment.	20243-204403-01
	Norrgard, Lois	2024-02-23	In this new threat – CO_2 pipelines - I am asking that true impacts to our environment be taken seriously. The DEIS consistently fails to properly account for the real CO_2 emission and climate impacts of the project. This must be addressed. Carbon capture and storage is another industry green-washing that really is not – and should not be – considered a “climate solution.” • 100% CO_2 Capture Rate: Summit states that the capture facility “is designed to capture 100% of the CO_2 produced by the ethanol plant.” There is no carbon capture facility in the world, ethanol or otherwise, that captures carbon at a rate of 100%. This claim is not supported by any data/information or verified by a third party. Additionally, the DEIS should emphasize that any CO_2 capture is solely associated with emissions from the ethanol fermentation process and provides zero reductions on the significant emissions from the facility’s electricity use	Section 2.1 has been revised to clarify that the captured CO_2 is produced by the ethanol plant as part of its fermentation process, the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. Section 6.3 describes energy efficiency and energy alternatives that could reduce emissions from the ethanol plant's electricity and process fuel use.	20243-204403-01
	Norrgard, Lois	2024-02-23	• Added CO_2 from electricity use: Carbon capture technologies are highly energy intensive and will significantly increase the carbon emissions at the facility. The DEIS uses the Midwest Reliability Organization West Region average to calculate these emissions, which is unnecessarily inaccurate given the availability of the actual emissions factor from Great River Energy.	Electricity emissions are included in Table 5-39. These numbers have been revised to reflect the electricity emission factor associated with LREC, which would provide electricity to the project. The revised electricity emission factor is 132.2 gCO_2e/MWh. Because LREC has a lower emission factor than the Midwest Reliability West Region emission factor (684.35 g CO_2e/kWh), which was used in the draft EIS, calculated electricity emissions have decreased.	20243-204403-01
	Norrgard, Lois	2024-02-23	• CO_2 Storage: The DEIS assumes 100% of captured CO_2 is being permanently stored underground. There is no guarantee that this will occur and no explanation of the monitoring and verification protocols that would ensure it.	Text has been added to Section 2.1 describing the suitability of the Broom Creek Formation in North Dakota for CO_2 sequestration, as well as the monitoring and testing that would be done to verify that the CO_2 is contained in the storage reservoir.	20243-204403-01
	Norrgard, Lois	2024-02-23	• Enhanced Oil Recovery: The greatest threat and true intended goal of Summit - The DEIS fails to explain whether the applicant can sell any of its captured CO_2 to others for alternative uses instead of permanent sequestration and what the impacts of that would be. The DEIS incorrectly states that “Production of oil through EOR would not be dependent on the availability of CO_2 produced by the ethanol plant.” This claim is contradicted by countless public statements from public officials in North Dakota and oil industry representatives.	Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for EOR.	20243-204403-01

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	Norrgard, Lois	2024-02-23	Minnesota's recent experience with pipeline construction demonstrates the serious harms that it causes on water resources as well as a tendency by state agencies to under-account for those impacts. • Dangers to water and waterbodies: The proposed route for Summit's pipeline network includes many water crossings, wetlands, aquifers, and other sensitive water bodies. More research and analysis are needed to understand how CO_2 disperses in water and what risks a CO_2 pipeline leak or rupture poses to Minnesota's precious waters and the fish, amphibians, reptiles, waterfowl, birds, and insects that rely on it to survive.	Potential impacts of a pipeline rupture on water resources and wildlife are addressed in Section 8.3.4. Stand-alone studies concerning impacts on water resources, wildlife, and wildlife habitat are outside the scope of the EIS.	20243-204403-01
	Norrgard, Lois	2024-02-23	• Water use and Minnesota's drought conditions! Much of southern Minnesota is suffering from the consequences of drought and over-commitment of our fresh drinking water supplies. The DEIS fails to discuss the impacts of an increase in water use on local water supply. The carbon capture process can double water requirements at a facility and increase toxic wastewater discharge. The DEIS states that Summit "anticipates" an average water use for the operation of the carbon capture equipment of 13 million gallons per year, which is concerningly ambiguous. There must be a careful and case-specific assessment done of how the installation and operation of carbon capture will impact current drought conditions and exacerbate existing pollution sources. Moreover, Summit has not finalized its water appropriation sources or volumes needed for construction, so it is impossible to know the full impact of those appropriations on water resources. Why should Minnesota risk our fresh drinking water supply and commit to an infrastructure when the proposing company has not been transparent with its true demands for water resources? Again, I request our state agencies see through industry green washing.	Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-01
	Norrgard, Lois	2024-02-23	Aquifer Damage: Summit's preferred route, RA-South, crosses a surficial beach ridge aquifer in Otter Tail County. The DNR has said that the area is "prone to significant groundwater discharge," and the applicant's initial groundwater investigation confirmed that "artesian groundwater conditions are present" along that beach ridge system. In early feedback on the DEIS, the DNR noted that "Project construction has the potential to intersect shallow confined groundwater potentially causing a breach in a confined aquifer and that "breaching shallow confined aquifers could have significant long-term impacts to groundwater resources." This, along with our state's first-hand knowledge of how damaging pipelines can be, requires that the DEIS take potential damage to aquifers extremely seriously.	Section 5.7.8.2 acknowledges that damage to aquifers is a serious problem and indicates that an uncontrolled flow of water from a shallow confined aquifer could have a significant long-term impact on groundwater. Section 5.7.8.2 also describes geotechnical investigations that would be done to identify areas where breaching of a shallow confined aquifer could occur, and sheet piling would not be used. The applicant currently has an ongoing groundwater investigation underway to further inform construction practices and is continuing to consult with DNR. As part of its coordination with DNR, the applicant has agreed to use ground penetrating radar to study the depth of the confining layer through the entire beach ridge system area crossed by the pipeline to further define existing conditions and advise on construction methodology. Furthermore, EERA staff recommends that the applicant develop, in coordination with DNR, a plan for pipeline construction in areas crossing the beach ridge system area. The plan would include, at a minimum, measures to minimize the potential for breaching a shallow confined aquifer during trenching and contingency measures to mitigate the impacts of a breach, should one occur. This information has been added to Section 5.7.8.2.	20243-204403-01
	Norrgard, Lois	2024-02-23	• HDD Drilling: The DEIS also states that "drilling mud mixed with additives that are not on the MDH-approved additive list and/or do not meet [drinking water quality certification standards] would be disposed of as solid waste at an approved facility, or the applicant would obtain a land application permit from MPCA." The DEIS does not discuss the risks of applying drilling mud, especially with additives not approved by MDH, to the land. The DEIS says that "drilling fluids and additives for the HDD would be non-toxic to the aquatic environment and humans," however, even supposedly "non-toxic" drilling fluid is chemical waste that has been found to be harmful to plant and animal species. Summit's preferred route and alternative route, RA-Hybrid, would both cross three rivers (Pelican River, Otter Tail River, and Bois de Sioux River) via the HDD mention. Even for a "lay-person" public citizen it is clear that creating these drilling fluids and additives – then discharging into our lands (and waters) is adding a toxic load to our plant and animal species.	As described in Section 5.7.8.2, an additive approved by MDH or meeting NSF International/ANSI Standard 60, Drinking Water Treatment Chemicals – Health Effects, might need to be mixed with the drilling mud for viscosity or lubricating reasons and to reduce the potential for an inadvertent release or failed HDD. The specific additive used would depend on the conditions at the crossing location and would be determined by the HDD contractor. The EIS discloses the potential for an inadvertent release of drilling mud and describes potential impacts in Chapter 5. Land application of drilling mud and potential impacts are addressed in Section 5.7.6.2.	20243-204403-01

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	Norrgard, Lois	2024-02-23	• Impacts of a Leak or Rupture on Animals: According to the DEIS, CO_2 leaks would not affect mammals, birds, reptiles, amphibians, and insects and would be unlikely to impact fish and freshwater mussels. The DEIS reaches this conclusion without providing any reasoning or supporting evidence. Though the DEIS does note some harm may come to animals in the event of a rupture, it relies heavily on the assumption that animals will simply move out of the rupture area to avoid the release. THIS IS ABSURD! The reason for this assumption is not provided and is contradicted by information in the rupture report in Appendix G which suggests the impacts of a rupture would be nearly immediate. • Critical Habitats: Summit's preferred route would cross over or near several waterfowl protection areas, including the Orwell 9 Unit and Ridgeway WPA in Otter Tail County. The DEIS notes that some of these areas will be avoided during construction but fails to consider the impacts to these features in the event of a leak or rupture.	CO_2 is a widespread, naturally occurring gas and is the primary byproduct of respiration—the conversion of sugars to usable energy. Minor leaks of CO_2 from operation of the proposed pipeline would not elevate ambient CO_2 to a level that is detrimental to local vegetation or wildlife. Potential impacts on wildlife from a CO_2 rupture could result first from the physical force of a rupture and secondarily from localized short-term high levels of CO_2 prior to dispersal and extreme cold temperatures associated with the depressurization of the CO_2 from a supercritical state to a gas. Chapter 8 of the EIS acknowledges that wildlife in the immediate vicinity of a rupture might be killed or injured by this force; however, it is expected that most mobile wildlife species would follow their natural instincts and attempt to escape the direct effect of a rupture. Chapter 8 of the EIS also acknowledges that less-mobile species in the immediate vicinity of the point of a rupture would be less likely to escape the impacts and might be killed or injured. The data presented in Appendix G describes models of dispersal patterns in the immediate vicinity of a rupture. These models support the statements in Chapter 8 that wildlife in the immediate vicinity of a rupture might be exposed to high levels of CO_2, which could be toxic for species unable to leave the area of the release. Operation of the proposed pipeline would include integrated systems for detecting leakages, as well as protocols for addressing leaks promptly. Minor leaks of CO_2 from operation of the proposed pipeline would not elevate ambient CO_2 to a level that is detrimental to waterfowl and other wildlife within the Orwell 9 Unit or Ridgeway WPAs. As the comment notes, the pipeline route would avoid these areas. As a result, there would be negligible risk of impacts on these areas due to a pipeline rupture, because the potential impacts of a pipeline rupture would be highly localized and outside of the WPA boundaries.	20243-204403-01
	Norrgard, Lois	2024-02-23	Cumulative Impacts must be clearly evaluated – it is arbitrary and capricious to do otherwise. • Complete Network Impacts: In addition to the direct impacts of the 28 miles of pipeline included in Summit's application, the DEIS does not account for the indirect and cumulative impacts of Summit's entire project in Minnesota. This is despite Summit's clear and public plans for a much larger buildout in Minnesota and recent statements that they will be applying for permits for additional parts of the network imminently. Allowing Summit to artificially segment permitting requests for multiple concurrent projects on one pipeline will prevent a thorough review of the cumulative impacts and potential environmental and climate damages of the project.	Thank you for your comment. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-01
	Norrgard, Lois	2024-02-23	In conclusion: As I have laid out in my introduction there is great frustration in Minnesota with the actions of our state agencies – I am just one of multitudes – I hope that the DOC is listening. There are many excellent, experienced and knowledgeable people commenting on this DEIS. I am asking that you give greater credence to those that are doing this from the place of fear, concern, care for our environment, etc. than those that are economically benefitting from this new (false climate solution) industrialization of Minnesota.	Thank you for your comment.	20243-204403-01
	Olness, Rita Flaig	2024-02-20	I am writing in opposition to the construction of the proposed Summit Carbon Recapture Pipeline in Redwood County. As a current landowner of a piece of property which has been in our family for over 150 years and is in the area near the proposed pipeline, I have concerns regarding this proposed project including the safety, gains, and long-term effects of the project.	Thank you for your comment. The commenter references an area in Redwood County. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-01
	Olness, Rita Flaig	2024-02-20	First, there are short-term and long-term safety concerns. The pipeline is projected to go near land that has multiple water sources including the Redwood River, Coalmine Creek (which crosses my land) and the Cottonwood River.	Thank you for your comment. The commenter references an area in Redwood County. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-01

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	Olness, Rita Flaig	2024-02-20	The pipeline would use technology that has not been proven to be totally safe and effective. A leak (from corrosion, improper installation, or land shifting) anywhere and at any time along the line at a minimum would be detrimental and hazardous to the residents in the area and generate additional costs for multiple players, including landowners and residents. In a worst-case leakage scenario, the health and lives of individuals would be at risk. A long-term or major leak could actually release more carbon in the air from the pressurized pipeline; thus, not alleviating the issue. It would also impact the land and waterways, changing the ph balance.	Risks of a potential CO_2 release and potential impacts are described in Chapter 8 of the EIS.	20243-204403-01
	Olness, Rita Flaig	2024-02-20	This project crosses prime farmland and waterways which we need to be protecting in the best possible way, not opening them up for potential damage.	Potential impacts on and mitigations for prime farmland are discussed in section 5.5. Potential impacts on and mitigations for water resources and wetlands are discussed in sections 5.7.8 and 5.7.9.	20243-204403-01
	Olness, Rita Flaig	2024-02-20	Second, the gains of the project are questionable. Although proponents tout economic gains for the project, the main benefit would be to ethanol producers and oil companies who then in turn propose to use the carbon credits to create more carbon pollution. Economic gains to farmers and adjacent landowners would be limited. The carbon capture process generates high energy, thus affecting the overall net gain. This process does not create any less dependence on fossil fuel; in fact, it may produce more dependence depending on the implementation of the process. There are safer ways to remove CO_2 from the atmosphere such as planting trees and/or planting carbon removing plants between row crop plants just to name a few. We need to explore more of these in the breadbasket area of the country.	The EIS analyzes the proposed project, including alternatives that lower the CI score of the ethanol produced at the ethanol plant. An alternative that does not include ethanol production was not studied in the EIS because it would not meet the purpose of the project. As stated in the final scoping decision, the appropriateness of federal and state policies regarding carbon capture and ethanol, including tax credits and other incentives, is also outside the scope of the EIS.	20243-204403-01
	Olness, Rita Flaig	2024-02-20	Third, the long-term effects of the project are not proven and are uncertain. Instead of solving a climate problem, we may be adding to it. It's too uncertain. With added regulations, costs, and the number of players involved, this process would be difficult to reverse if deemed ineffective or unsustainable. I understand that society's slow response in addressing carbon emissions has created a sense of urgency to handle the concern in the fastest way possible; however, please do not rush to implement a solution that gives economic gain to a few but ultimately jeopardizes the precious land and water resources as well as the health and welfare of citizens of Redwood County and surrounding areas. We will not have gained in that process. In simpler terms, we cannot "sweep the dirt under the rug," but rather look for ways to eliminate the dirt in the first place.	Thank you for your comment.	20243-204403-01
	Olness, Rita Flaig	2024-02-20	We have a duty to future generations to act judiciously and wisely now. The short-term and long-term potential hazards, inability to reduce long term dependence on fossil fuels, and uncertainty of the long-term environmental impact from the transfer and storage of the pressurized carbon dioxide are all imperative reasons for voting "no "to the Summit Carbon Recapture project in Redwood County. Thank you for your time and consideration. Rita Flaig Olness Redwood County Landowner	Thank you for your comment.	20243-204403-01
	OMeara, Colleen & Joe	2024-02-11	We ask that the Public Utilities Commission and Department of Commerce take these issues into account in order to ensure that the Environmental Impact Statement (EIS) for the Otter Tail to Wilkin CO_2 Pipeline Project in Otter Tail and Wilkin Counties (Docket Number: 22-422) is a factual and thorough account of the project impacts. Minnesotans need a robust environmental review, and we need transparency, accountability, and regulatory oversight to ensure the greater public good and interests of communities impacted by these pipelines and all Minnesotans are respected and protected.	Thank you for your comment.	20243-204403-01
	Ostrove, Joan	2024-02-23	I am a resident of Saint Paul who is very concerned about the climate crisis. I'm writing to offer a few comments about the Draft Environmental Impact Statement for the Summit Carbon Solutions' proposed CO_2 pipeline and carbon capture project. I am concerned that the claims in the DEIS that this pipeline will have a "minimal impact" across the board are unsupported by existing evidence about carbon pipelines and pipeline construction (and I note that neither Minnesota's state agencies nor Summit has any experience building, operating, or overseeing CO_2 pipelines or carbon capture projects). Among many issues/concerns, the DEIS does not sufficiently address the known and unknown risks of transporting large amounts of CO_2 at high pressures through a pipeline. It is vague on the actual impacts on the community (even as it acknowledges that the project will directly intersect a defined environmental justice community).	Thank you for your comment. Chapter 8 of the EIS describes risks of an unplanned release of CO_2 from the project. Chapter 8 has been revised to include a new section (8.3.1.2) describing effects on environmental justice populations in the event of an accidental release of CO_2. Environmental justice is also analyzed in Section 5.4.3, and the analysis concludes that impacts from construction and operation of the project would not result in disproportionate adverse impacts for Environmental Justice areas of concern within the ROI.	20242-203795-01
	Ostrove, Joan	2024-02-23	And the DEIS says that Summit "anticipates" an average water use for the operation of the carbon capture equipment of 13 million gallons per year, which is problematically ambiguous. There must be a careful and case-specific assessment done of how the installation and operation of carbon capture will impact current drought conditions and exacerbate existing pollution sources.	Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to	20242-203795-01

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				include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	
	Otsea, Bob and Betty	2024-02-22	My name is Betty Otsea; my husband Robert (Bob) Otsea and I live in Eden Prairie, Minnesota. We own farmland in Redwood County Minnesota that has been in our family since the late 1800's. This land has been rented to the same family for 50 years or more -- people who also care about the future of the land. We are all concerned that a project like this with unverifiable benefits and risks will permanently damage the qualify and usefulness of our land. Although we don't live in Otter Tail County where this tiny project is seeking approval, action taken on Docket #22-422 will influence the much larger project planned to go through our property in Redwood County and a larger area of the state. Neighboring states will also look to our actions on this pipeline issue. This Project will impact large amounts of agricultural land in this country to a great extent. The damage to the land will affect future generations. Yet the capture of carbon from ethanol plants may soon become a mote item because the shift of energy usage from fossil fuels to electric power seems to be the direction our nation is taking. In addition to the direction of the automotive industry, Minnesota Governor Walz has signed HF7/SF4 which mandates Minnesota utilities transition to carbon free energy by 2040.	Thank you for your comment.	20243-204403-01
	Otsea, Bob and Betty	2024-02-22	Although lucrative for Summit Carbon, this unprecedented project of carbon capture and storage would come at high cost of the American taxpayers with questionable benefits that are only limited and short-term. And what about our water resources, our aquifers? The construction and then the regular pipeline operation requires a tremendous amount of water.	Thank you for your comment. The appropriateness of federal and state policies regarding carbon capture and ethanol, including tax credits and other incentives, is outside the scope of the EIS. Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has also been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-01
	Otsea, Bob and Betty	2024-02-22	DECOMMISSIONING — What happens when the pipeline fails or is no longer useful? Who finances the REMOVAL of the pipeline? Of course, even if it were removed, the irreparable damage to the land has been done.	Section 2.7 describes project decommissioning. This section was revised to describe the financial assurances to be provided by the applicant for costs associated with decommissioning.	20243-204403-01
	Overby, Gary	2024-02-23	We don't need more pipelines; we need to manage our resources as if they were actually limited.	Thank you for your comment.	20243-204403-01
	Overland, Carol	2024-02-23	I'm filing these comments as an individual, and not on behalf of any client. I'm concerned about this proposed CO_2 pipeline as Minnesota and Iowa have been selected as guinea pigs in an area without regulatory or operational experience. CO_2 capture and a pipeline, only to the plant gate, was proposed for the Mesaba Project, but it was nothing more than a stab at tossing out the words "CO_2 capture" for traction in that boondoggle of a project. Despite that, participants in that docket did learn much about CO_2 capture, particularly about feasibility, efficiency loss, and cost.	Thank you for your comment.	20242-203790-01
	Overland, Carol	2024-02-23	CONSTRUCTION AND LAYDOWN YARDS The EIS states, "The applicant is not proposing to use any construction or staging yards for the project." EIS, p. 2-3. This is absurd. Where will the materials be stored and staged? On trucks at some other location, with "on-time" delivery? That's simply not workable. The EIS must address the need for and impacts of storage and laydown yards, and the cost of such easements, which, even if temporary, and be significant. Return of these areas to prior condition must also be addressed.	Section 2.2 has been updated to describe the applicant's plans for contractor yards.	20242-203790-01

Agency or Org	Name	Date	Comment	Response	eDocket Document ID
	Overland, Carol	2024-02-23	NOISE & NOISE STANDARDS – MINN. R. 7030.0040 The EIS in inadequate in addressing impacts of noise, noise of construction, noise of operation, and noise of potential ruptures. For example, the EIS shows the cumulative numbers of "sensitive receptors" in the chart label, but the description is "Number of Residences and Businesses," and which is NOT the number of "noise sensitive receptors." *(included photo of Figure 5-6)* This is misleading. The chart should be changed to show the "Number of Noise Sensitive Receptors" by taking the average number of people in a household and multiplying by the numbers shown in the X axis. The edge of the right-of-way numbers should also be displayed on Y axis, labeled as "250 – Edge of RoW" so that it can be easily determined the impacts on those outside of Rigt of Way." From this chart, assuming there are additional impacts for those within 250 foot of centerline on each side of the RoW, it appears that there are more than 15 residences and businesses (and how many residenTS? Workers?). This is a serious flaw in the noise impact analysis. The EIS is inadequate as it does not address numbers of individual "receptors" in residences and businesses, and thus grossly understates impacts. The EIS also states, "The ROI for noise is the local vicinity (area within 1,600 feet of the route width)." The terminology is unclear – is that 1,600 feet of the centerline, or 1,600 feet on each side of the centerline, or 1,600 feet of the Right of Way edge? With the ROI extending so far beyond the Right of Way, the EIS must also address the impacts beyond the Right-of-Way to 1,600 feet. Noise does have a cumulative impact, and the EIS must address this. Instead, the EIS states: " Noise from the operation of the capture facility is not expected to result in a perceptible increase in the sound levels experienced at NSRs near the capture facility and would not be distinguishable from the noise already produced at the ethanol plant. Operation of the pipeline facilities would not have a noticeable impact on ambient sound levels." P. 5-28. Cumulative impact of noise has been an issue in wind projects, and EERA staff and Summit attorney who has worked on wind projects should be well aware.	Section 5.4.5 has been updated to clarify the definitions of noise receptors. Noise standards are not based on the presence of an individual; rather, standards are based on noise area classifications, which are land use designations. As defined in Section 2.2 and Section 5.1.2, the route width is 500 feet centered on the centerline with exceptions where more width would be needed for construction. The route width for RA-South is wider in some areas, as described in Section2.2. The route width is illustrated on the detailed route maps in Appendix B. Chapter 5 considers the impact of noise from the capture facility coupled with the ethanol plant. Cumulative impacts are discussed in Chapter 10.	20242-203790-01
	Overland, Carol	2024-02-23	The EIS is incorrect and inadequate in that it minimizes noise. There is no disclosure of ambient noise testing, and understatement of noise levels by discussing when changes in noise levels are noticeable," but 5.4.5.1 does NOT state the fact that a 3 dB(A) increase in noise is a DOUBLING of sound pressure levels. This is a material diminishment of noise impacts. The EIS should state the various potential dB(A) of blowdown, and in the event of a rupture, the noise level of "sonic speed." See e.g. 5-35; 8-2.	Thank you for your comment. Humans perceive sound pressure on a logarithmic basis, not a linear basis. For example, a 10-dB difference, which is perceived as a doubling in loudness, is a difference of a factor of 10 in actual sound pressure, while a 20-dB difference, which is perceived as a quadrupling, would be a 100x change to the sound pressure.	20242-203790-01
	Overland, Carol	2024-02-23	Another example of the inadequacy of the EIS is found after Table 5.5 on p. 5-29, which states: *(Photo of text that reads: "Noise associated with heavy equipment can range between 80 and 90 dBA at full power 50 feet from the source. Heavy equipment generally runs at full power up to 50 percent of the time. Point source sounds decrease by 6 dBA at each doubling of distance; therefore, a 90 dBA sound at 50 feet is perceived as a 72 dBA sound at 400 feet and a 60 dBA sound at 1,600 feet.)* Following the table showing Minnesota Noise Standards, this paragraph should note that 90, 72, and 60 dBA are all above nighttime noise standards in a residential area. This is why the charts showing residents affected must be corrected, and show anticipated daytime and nighttime expected noise levels at various distances, RoW edge and beyond within the ROI.	This paragraph provides an example of how the sound pressure level changes over distance. It is not tied to a specific impact. Therefore, stating such a noise violates state noise standards is not necessary. The charts discussed in the comment are intended to show noise receptors within 1,600 feet of the route width; as such, they do not need to be corrected.	20242-203790-01
	Overland, Carol	2024-02-23	The EIS is inadequate as it does not address that with winter construction noise travels further due to hardpacked snow and frozen ground, a ground factor of 0.0, and that noise will not lessen as fast as it would with summertime ground cover of grasses and trees.	Construction impacts are expected to occur outside of winter conditions, as described in Section 2.9. of the EIS. As noted in Section 5.4.5.3, "The sample routing permit (Appendix H) includes the following mitigation for noise: the Permittee shall comply with noise standards established under Minnesota Rules 7030.0100 to 7030.0080, at all times at all appropriate locations during operation of the facility. Construction and maintenance activities shall be limited to daytime working hours to the extent practicable to ensure nighttime noise level standards will not be exceeded." Additionally, the sample routing permit states that "the Permittee shall comply with all applicable state rules and statutes. The Permittee shall obtain all required permits for the project and comply with the conditions of those permits unless those permits conflict with or are preempted by federal or state permits and regulations."	20242-203790-01

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	Overland, Carol	2024-02-23	The EIS is inadequate because Tables 5.6, 5.7. and 5.8 do not list modeled (projected) noise for each of the residences shown.	Thank you for your comment. Noise modeling studies at each receptor are outside the scope of the EIS.	20242-203790-01
	Overland, Carol	2024-02-23	The EIS is inadequate as it allows for mitigation based on landowner assertion rather than applicant compliance with noise standards – see EIS, p. 5-35: The applicant has stated that it would coordinate with nearby landowners prior to starting HDDs and determine the need for noise mitigation and noise monitoring based on feedback received from landowners during construction.	As noted in Section 5.4.5.3, "The sample routing permit (Appendix H) includes the following mitigation for noise: the Permittee shall comply with noise standards established under Minnesota Rules 7030.0100 to 7030.0080, at all times at all appropriate locations during operation of the facility. Construction and maintenance activities shall be limited to daytime working hours to the extent practicable to ensure nighttime noise level standards will not be exceeded." Additionally, the sample routing permit states that "the Permittee shall comply with all applicable state rules and statutes. The Permittee shall obtain all required permits for the project and comply with the conditions of those permits unless those permits conflict with or are preempted by federal or state permits and regulations."	20242-203790-01
	Overland, Carol	2024-02-23	Increased Use of Coal Generated Electricity The CO_2 capture and transport process will increase electricity use at the ethanol plants. If the idea is to capture CO_2 to lessen CO_2 in atmosphere, the increased use of fossil fuel to power the operation must be balanced with the level of CO_2 captured and transported. *(Included photo of Figure 6-6 from the DEIS)* EIS is missing much information. When working on the Mesaba Project (PUC Dockets E-6472/GS-06-668; E-6472/M-05-1933), I learned that CO_2 capture was expected to be less than 1/3 of CO_2 generated from that project, generally the achievable rate of capture, and that roughly 1/3 capture would result in a marked decrease in plant efficiency. Capture of more than that is very difficult to do technically, and is very costly. I do not see information on various measures of CO_2 capture and efficiency of that process in the EIS. The percentages of CO_2 that can be, are feasible to be, captured is determinative of whether this project should be permitted – if there's nominal CO_2 capture, and a major efficiency loss, what's the point of all this cost and impact? The EIS must disclose and analyze the following information: •Annual total tons of CO_2 produced at each ethanol plant proposed to be connected to this project. •Annual percentage of CO_2 captured from each plant. •Annual tons of CO_2 captured from each plant. •Ethanol plant efficiency loss expected with carbon capture for each plant. •Cost of loss of efficiency for each plant. •Quantification of production to compensate for loss of efficiency. •MW load for capture of CO_2 at each plant. •MW parasitic load for pressurization into pipeline. •Transmission and transformer upgrades required at each plant. •Total MW parasitic load (itemized by location of pressurization facility) for pressurization from collection source to point of delivery. •MW of energy losses for each plant's ethanol production and CO_2 capture processes.	Section 2.1 has been revised to clarify that the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. The analyses in Section 5.7.1.3 and Chapter 6 have been revised to include capture rate scenarios of 100 percent, 70 percent, 40 percent, and 10 percent. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20242-203790-01
	Overland, Carol	2024-02-23	The EIS is inadequate because it does not address the potential harms to those many residents, businesses, and workers within the ROI. The EIS is inadequate because it does not address the increased cost of insurance for those households, farms, and businesses living with in the 1,600 ROI.	Section 5.4.8 and Chapter 8 discuss public health and safety concerns. Staff cannot predict the cost of insurance costs for individual parcels; however, should insurance rates increase, these increases could be mitigated though negotiated easement agreements. These agreements are outside the scope of the EIS. Section 5.4.7.2 has been revised to address the availability and cost of property insurance.	20242-203790-01
	Overland, Carol	2024-02-23	The EIS is inadequate as the operational psi is unclear. There is a range, but the likelihood of leak or rupture can be dependent on psi. The EIS should clearly state whether the operational is expected to be 1,320, and why, if the design is for 2,183 psi, and under what occasions the psi could be greater than the expected operational psi. See p. 4-4.	EERA staff agrees that the likelihood of leak or rupture can be dependent on pressure; therefore, the impact at the maximum (design) pressure was modeled. Chapter 4 discusses alternatives to the proposed pipeline, including different diameters. A 6-inch-diameter pipeline would operate	20242-203790-01

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				at a different pressure than the proposed 4-inch-diameter pipeline. The proposed pipeline design pressure is for 2,183 psi, which includes a safety factor. The 1,320 psi referenced in Chapter 4 is for the 6-inch-diameter alternative. EERA staff concluded that an alternative pipeline diameter would not result in a significant environmental benefit over the proposed project, and diameters smaller than 4 inches would pose challenges for pipeline inspection. Therefore, this alternative is not analyzed further in the EIS. The EIS is not inadequate as the psi for the proposed project is described in Chapter 2.	
	Overland, Carol	2024-02-23	The EIS is misleading, inadequate, as it refers to leaks and ruptures as “accidents,” which are too common to be “accidents.” Language should be changed and these should be labeled as incidents, or specifically labeled as leaks, ruptures, etc. The EIS states that: However, for CO_2 pipelines, between 2010 and 2021, 66 CO_2 pipeline accidents were reported to PHMSA. Of these 66 accidents, 56 were leaks, 2 were ruptures, and 8 were classified as “other.”8 The analysis showed that leaks are the leading form of accident and rupture is the most uncommon form of accident for CO_2 pipelines. EIS p. 8-1. Acknowledgement of 66 “accidents,” including 56 leaks, of which 2 were ruptures and 8 “other,” means that some leaks, ruptures and “other” can be expected, and are not reasonably characterized as “accidents.” Please correct that linguistic mischaracterization.	Accident is not a term developed for this EIS, but is instead terminology defined and used by PHMSA. PHMSA defines "accident" as a failure occurring in liquid pipeline systems for which the pipeline operator must make a report to the Office of Pipeline Safety (https://primis.phmsa.dot.gov/comm/glossary/index.htm#Accident). Leaks and ruptures are classified as types of accidents by PHMSA.	20242-203790-01
	Overland, Carol	2024-02-23	The EIS is deficient because the noise expected in a leak or rupture is not addressed.	Section 8.3.1.5 describes anticipated noise during a leak or rupture.	20242-203790-01
	Overland, Carol	2024-02-23	The EIS is inadequate as there is no wind rose provided. There should be a simple wind rose for the two ethanol plants, at the very least, and if the wind rose is different for other areas of this project, to include that. Commerce filed wind roses for sites across Minnesota decades ago that could be updated now.	Emissions from the ethanol plant are covered in the Title V Permit for the ethanol plant. The nearest automated weather observation station to the ethanol plant is located at the Fergus Falls Municipal Airport (46.28439, -96.15669). The wind rose has been added to Section 5.7.1.2. Other wind roses were evaluated in the vicinity of the project and found similar wind patterns. The wind rose was created using Iowa Environmental Mesonet (https://mesonet.agron.iastate.edu/sites/site.php?station=FFM&network=MN_ASOS).	20242-203790-01
	Overland, Carol	2024-02-23	The EIS is deficient because the word “evacuate” is not in the plan, and there is no characterization of the area to be evacuated in various scenarios of leak and rupture. The evacuation zone should be clarified, and be set at distances identified in dispersion modeling with additional distance for safety beyond the potential “toxic impact” distance of 910 feet. *(Includes a photo of text from the DEIS that reads: The dispersion modeling conducted by Allied calculated the maximum distance at which CO_2 concentrations from a pipeline rupture could reach toxic levels. The toxic impact distance at which CO_2 concentrations could reach 40,000 ppm (the immediately dangerous to life and health level) at -22°F and a humidity level of 74.3 percent was calculated at 617 feet, as shown in Table 4 in the Aerial and Thermal Dispersion Report (AD Report) in Appendix G. The toxic impact distance at which CO_2 concentrations could reach 30,000 ppm (the National Institute for Occupational Safety and Health Short Term Exposure Limit, which is the maximum time-weighted average concentration to which a person could be exposed over a 15-minute period without injury) would be 701 feet. The toxic impact distance at which CO_2 concentrations could reach 15,000 ppm would be 910 feet.)*	As stated in the EIS, the term "evacuation" is not used because the effects of a pipeline rupture would be brief and dissipate quickly. Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. EERA staff recommended special permit conditions to avoid impacts of a potential CO_2 release, including information on a public education plan, as described in Section 8.5.3.	20242-203790-01
	Overland, Carol	2024-02-23	RECOMMENDED SPECIAL CONDITIONS AND EDITS Special conditions are necessary IF this project is permitted. Regarding those recommended by staff, here are comments and edits are in track changes: EERA staff believes that applicant-provided indoor CO_2 detectors for residences within 1,600 feet of the project is a reasonable mitigation measure. This distance was chosen based on the most impactful scenario as described in Appendix G ROI (and it depends	Thank you for your comment. Staff agrees that special conditions are only required if a permit is issued for a project. EERA is neutral concerning the proposed edits and will retain its original recommendations, except that staff concurs with the idea of defining "neighboring landowners." Staff believes this distance should be, at minimum, 1,000 feet, and the text in Section 8.5.3 has been modified.	20242-203790-01

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			on how that is defined, conservatively the greatest distance should be used. Is that 1,600 feet of ROI 1,600 feet of centerline? 1,600 feet of Right of Way? 1,600 feet centered on centerline – 800 feet on either side? . EERA staff believes that a special permit condition requiring the applicant to file its Emergency Response Plan that is filed with PHMSA with the Commission is reasonable, and should be filed with the Commission via eDockets prior to any permit approval and open for public comment. EERA staff believes that a special permit condition requiring the applicant to provide an accidental release plan, developed in coordination with local emergency responders, for Commission review 30 days prior to submittal of the Plan and Profile is reasonable. The accidental release plan could include the specific equipment, training, and reimbursement that could be provided to emergency managers. The plan could also list the names of the emergency responders and a provision to update contact information as needed. The plan could discuss the feasibility of a "reverse 911" notice that goes out to landowners' telephones in the event of an emergency shutdown or rupture. The release plan could identify how the applicant would pay for costs of any repair to public infrastructure or private property (including crops and livestock) that might occur during an accidental release. The plan must be filed with the Commission via eDockets and a link and phone number be included in mailing to all landowners, residents, farms, businesses within one-half mile of the centerline. EERA staff believes a special permit condition requiring the applicant to identify locations of fracture arrestors and any locations of thicker-walled pipe on the Plan and Profile filed with the Commission is reasonable. EERA staff believes a special permit condition requiring the applicant to provide its public education plan for Commission review 30 days prior to submittal of the Plan and Profile is reasonable. The public education plan could include specific safety information for neighboring landowners within one-half mile (one mile?), including what to do in case of a rupture.		
	Overland, Carol	2024-02-23	WHERE'S THE COST/BENEFIT ANALYSIS? The EIS is inadequate because there is no cost/benefit analysis for this project. Perhaps I've missed it in my quick skim, but ??? It should be front and center, addressing the claimed "benefits" in light of costs, mindful that costs are more than just the literal costs of physical pieces of the project, construction, labor, etc., and include those more difficult but quantifiable environmental, socio-economic, and human costs. This project is the test run for the larger part of Summit Carbon Solutions CO_2 pipeline dreams. It's very important to get this right and to look at all aspects of this project. Further, state and federal CO_2 policy is NOT need.	Impacts on resources, both negative and positive, are addressed in Chapter 5. Impacts on the natural environment are discussed in section 5.7, impacts on human settlement overall are discussed in section 5.4, and socioeconomics are addressed specifically in section 5.4.11. Financial costs of the project are discussed in section 2.8. A certificate of need is not required for the project.	20242-203790-01
	Pabst, Roger	2024-02-22	I am concerned about the cost of the proposed CO_2 pipeline by Summit. First we all know structures fail with time. Also who will bared the cost to support and train all the EMS personal to react to a issue with the pipeline??	Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. The Emergency Response Plan included as Appendix N is a draft plan that would be revised as required by PHMSA, if the project is approved. Additionally, EERA staff recommended that a special permit condition requiring the applicant to file its Emergency Response Plan that is filed with PHMSA with the Commission, and other special permit conditions as described in Section 8.5.3.	20243-204403-01
	Pabst, Roger	2024-02-22	How many years will Summit pay for damaged land production? Who insures the pipeline if issues arise? Who owns the easement and what else can be put in that area??	Thank you for your comment. Landowner agreements are outside the scope of the EIS. Section 5.4.7.2 has been revised to address the availability and cost of property insurance.	20243-204403-01
	Pabst, Roger	2024-02-22	How much extra water will it use and where will it come form--the same aquifers our farm wells are using?? Who provides us with water if our wells go dry?? Where will the extra electricity come from--we were just told during a recent cold spell to cut our usage due to shortages???	Impacts on water resources are discussed in section 5.7.8. Impacts on public services and infrastructure, including electricity, are discussed in section 5.4.9.	20243-204403-01

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	Pabst, Roger	2024-02-22	When the pipeline is decommissioned in 25 years what happens to it and what about the CO_2 at that point? Let's not do things without answers to issues that might arise!!!!	Section 2.7 describes decommissioning of the project. This section was revised to describe the financial assurances to be provided by the applicant for costs associated with decommissioning.	20243-204403-01
	Pearson, Andy	2024-04-23	I am writing to comment on the DEIS for the Otter Tail Wilkin CO_2 Pipeline. The DEIS needs improvement. The climate section in particular needs to have some of its premises reexamined, including the assumption of a 100% CO_2 capture rate and 100% permanent storage underground as well as excluding consideration of Enhanced Oil Recovery as a potential use for the captured CO_2.	Section 2.1 has been revised to clarify that the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and that commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for EOR.	20243-204403-01
	Pearson, Andy	2024-04-23	In addition, recent pipeline experience in MN has shown that aquifer damage from construction can be common and widespread. This damage needs to be taken more seriously by the DEIS.	Section 5.7.8.2 addresses potential impacts on groundwater, including aquifers.	20243-204403-01
	Petersen, Irene and Paul	2024-02-18	Thank you Andrew and to your team for being attentive to our recent Environmental Impact Statement (EIS) comments and your diligence to this task of ensuring the final EIS is complete and accurate. Paul, my husband, and I are lifetime residents of Minnesota (MN), a generational family who farm, and stewards of the land as we hold tight to safe soil and water practices in the best interest of the future of MN and her people. Therefore, in regards to the Green Plains Ethanol Plant, which is located near the city of Fergus Falls, and Summit Carbon Solutions LLC proposed construction of a pipeline for the purpose of carbon dioxide (CO_2) transport to the MN - North Dakota (ND) border and geologic sequestration, we are requesting an extended research and implementation of biologic sequestration of the CO_2 near and at the Fergus Falls Green Plains ethanol plant.	Thank you for your comment and request to extend research efforts to understand the impacts of biological sequestration of the CO_2 near and at the Fergus Falls Green Plains ethanol plant. While the proposed Midwest Carbon Express project is considered geologic sequestration, specifically biomass (BECCS) technology, the EIS is an analysis of the project to assist the Commission with making a pipeline routing permit decision. A study of carbon capture technology is outside the scope of the EIS. The biological sequestration of carbon through alternative agricultural strategies is discussed in Section 6.2.3.	20243-204403-01
	Petersen, Irene and Paul	2024-02-18	The United States Global Change Research Program and the MN Board of Water and Soil Resources state that conservation practices, such as, deciduous tree planting, prescribed grazing, cover crops, wetland management, etc., remove CO_2 from the atmosphere and sequester the CO_2 in stable forms as biomass and soil organic carbon. The biologic sequestration of CO_2 are proving to be safe and effective. The Fergus Falls Green Plains Ethanol Plant produced 55 million gallons of ethanol in 2022 . (https://gpreinc.com). In 2023, " A typical 50 million-gallon-per-year ethanol plant releases 14 tons of CO_2, a natural by-product of fermentation." (https://energypost.eu/using-wind-power-with-ethanol-production-to-turn-the-co2-by-product-into-efuels/#:~:text=A%20typical%2050%20million%2Dgallon,natural%20by%2Dproduct%20of%20). In 2021, the United States Department of Agriculture (USDA) reported, " In one year, a mature live tree can absorb more than 48 pounds of carbon dioxide, which is permanently stored in its fibers until the tree or wood experiences a physical event that releases it into the atmosphere, like fire or decomposition." (https://www.fs.usda.gov/features/trees-are-climate-change-carbon-storage-heroes) In a very, very simplified scenario, it is estimated 42 mature trees are needed to sequester one ton of CO_2.Therefore, on or near a site like Fergus Falls a plot of approximately 642 trees would be needed to help sequester the CO_2 emissions. Implementing a CO_2 biologic sequestration plan is very doable and practical. We have learned that CO_2 transport and geologic sequestration employs highly engineered knowledge and practices which constantly undergo federal and state regulated processes of monitoring, reporting, and verification. Obviously, in this complex technical system, there are a number of things that can go wrong due to human/ technical/ mechanical errors. The federal 2022 Inflation Reduction Act has created a " gold rush" mindset to capture CO_2.	A study of carbon capture technology is outside the scope of the EIS. Moreover, an alternative that does not include ethanol production was not studied in the EIS because it would not meet the purpose of the project. The EIS is an analysis of the proposed project to assist the Commission with making a pipeline routing permit decision; as such, relevance of the information to a reasoned choice among alternatives. A study of the alternatives referenced by the commenter would not aid in the Commission's decision. The biological sequestration of carbon through alternative agricultural strategies is discussed in Section 6.2.3.	20243-204403-01
	Petersen, Irene and Paul	2024-02-18	In 2022, the US Department of Energy Research found, " ethanol is likely at least 24 percent more carbon-intensive than gasoline due to emissions resulting from land use changes to grow corn, along with processing and combustion." This has driven more research for alternative energy sources beyond biofuel. There is a pursuit for advanced research in MN, the United States, and the world, to reduce petroleum consumption and CO_2 emissions. Therefore, if a routing permit is granted to Summit Carbon Solutions LLC to construct a pipeline and transport CO_2 from the Fergus Falls Green Plains Ethanol Plant to the MN - ND border, the decision will not reflect critical and prudent future planning on the part of the MN Department of Commerce and the MN Public Utilities Commission that serve the people of MN as trusted public resources. In summary, the established scientific research of the biologic sequestration of CO_2 should be on the forefront in this decision making. Biologic capture and sequestration of CO_2 increases the safety and secures a healthy ecosystem that includes but not limited to	Where the research remains inconclusive on the average CI score for corn ethanol in the United States due to modeled emissions associated with land use change, the EIS has been revised to incorporate updated uncertainties and contradicting research sources to better represent the state of the science today. Section 6.1.3 has been revised to discuss the debate between Lark et. al. and GREET model authors on this topic. Section 2.1 has been revised to clarify that the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and that commenters have questioned the	20243-204403-01

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			surface water, aquifers, wildlife, land and livestock owners, and communities. Thank you again for your time and consideration in this critical decision that will carry a long-term consequential effect.	feasibility of this capture rate given the performance of existing capture facilities. The analyses in Section 5.7.1.3 and Chapter 6 have been revised to include capture rate scenarios of 100 percent, 70 percent, 40 percent, and 10 percent.	
	Peterson, Paul	2024-02-22	Thank you for taking the time to read my concerns and comments regarding the Summit Carbon Solutions (SCS) proposed pipeline in Otter Tail County (OTC) and the Environmental Impact Statement (EIS). I understand that the MN Department of Natural Resources (DNR) will not permit the SCS pipeline to cross any public wildlife production, wildlife refuge, and property. The concerns voiced by the MN DNR about placing the CO_2 pipeline are not being disputed. These public lands are protected and deemed untouchable, therefore , I would appreciate the same standards applied to private property and land owners.It raises the question why and what makes the MN DNR property exempt from this proposed CO_2 pipeline pathway that will transport hazardous materials and the same concerns are not applied to private property owners.	Thank you for your comment.	20243-204403-01
	Peterson, Paul	2024-02-22	My concern also includes safety and the unknown environmental impacts.This region has one of the largest aquifer in our country and the proposed pipeline crosses this area. In case of an accidental CO_2 leak or rupture, what research guarantees that the ground water and aquatic life will not be adversely affected . Research has shown the technology of fracking oil has caused contamination of ground water. Should we not be concerned about this possibility happening with CO_2?	Impacts on groundwater in event of a rupture or leak are described in Section 8.3.4.1. Impacts on aquatic life in the event of rupture or leak are described in a subheading within Section 8.3.4.2.	20243-204403-01
	Peterson, Paul	2024-02-22	The goal is to reduce CO_2 atmosphere emissions I question how much CO_2 will be produced and released with the production of materials used to construct this pipeline, the process to convert the CO_2 to a supercritical fluid, and the construction site where the CO_2 will be sequestered, and any future plan that will reuse the sequestered CO_2. I support alternative proven methods which require the ethanol facilities to implement planting trees- the "natural air scrubbers". As you know, trees convert CO_2 to oxygen. Depending on each ethanol facility CO_2 emissions, implement an environmental plan that each facility plants a sufficient number of trees, shrubs, and plants, with an additional 10 to 20 percent to reach their CO_2 net neutral target. Without the federal government subsidizing the SCS CO_2 pipeline, this project would not be the money grab from this company, "which is a multibillion- dollar private investment with support from a wide-range of investors including John Deere, Continental Resources, and ethanol plant partners " at the expense of MN landowners and residents. Thank you again for giving your attention to my concerns and comments. Paul Petersen	An alternative that does not include ethanol production was not studied in the EIS because it would not meet the purpose of the project. As stated in the final scoping decision, the appropriateness of federal and state policies regarding carbon capture and ethanol is also outside the scope of the EIS. This includes tax credits and other incentives.	20243-204403-01
	Petrich, Steve	2024-02-09	I urge you to carefully consider the impact any decisions or actions regarding this issue will have. My name is Steve Petrich and I am a retired physical science teacher, farmer and landowner in the path of this proposed CO_2 pipeline project by Summit Carbon Solutions (CSC). There are a variety of issues that are of great concern. EMS Response: The DEIS accepts Summit's assurances that it will "comply with federal emergency response requirements," but as noted in a Pipeline Safety Trust report and by the Pipeline Hazardous Material Safety Administration (PHMSA) itself, the current emergency response requirements are dangerously outdated. PHMSA is in the process of updating their procedures and as a landowner, I want to be sure that the PUC does not "Grandfather" SCS under older, dangerously outdated requirements. Setbacks: The DEIS states that the PUC "cannot set safety standards" for Summit's proposed pipeline. PHMSA has expressly said in public letters to CO_2 pipeline companies like Summit that state and local authorities can exercise their powers to regulate land use—including setback distances—and that "nothing in the federal pipeline safety law impinges on these traditional prerogatives of local—or state—government." The PUC must consider where the pipeline is placed and what is the safest option for Minnesotans, which means the PUC can and should determine what routing, setback, and depth requirements are necessary to adequately protect Minnesotans. In the event of a rupture, the impact zone would be well over a mile, more depending on weather, season, geography etc – this infrastructure poses serious risks to humans.	Although the Commission cannot set safety standards for pipeline construction or operation, state or local units of government may, to the extent authorized by law, set land use requirements that indirectly contribute to pipeline safety by regulating the activities of third parties located in the pipeline's vicinity. The Commission's obligation is to identify a pipeline route consistent with the criteria found in statutes and the applicable administrative rules. Federal law, by contrast, exclusively prescribes pipeline safety requirements.	20243-204403-01
	Petrich, Steve	2024-02-09	According to the DEIS, CO_2 leaks would not affect mammals, birds, reptiles, amphibians, and insects and would be unlikely to impact fish and freshwater mussels. The DEIS reaches this conclusion without providing any reasoning or supporting evidence. Though the DEIS does note some harm may come to animals in the event of a rupture, it relies heavily on the assumption that animals will simply move out of the rupture area to avoid the release. The reason for this assumption is not provided and is contradicted by information in the rupture report in Appendix G which suggests the impacts of a rupture would be nearly immediate.	CO_2 is a widespread, naturally occurring gas and is the primary byproduct of respiration—the conversion of sugars to usable energy. Minor leaks of CO_2 from operation of the proposed pipeline would not elevate ambient CO_2 to a level that is detrimental to local vegetation or wildlife. Potential impacts on wildlife from a CO_2 rupture could result first from the physical force of a rupture and secondarily from localized short-term high levels of CO_2 prior to dispersal and extreme cold temperatures associated with the depressurization of the CO_2 from a supercritical state to a gas. Chapter 8 of the EIS acknowledges that	20243-204403-01

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				wildlife in the immediate vicinity of a rupture might be killed or injured by this force; however, it is expected that most mobile wildlife species would follow their natural instincts and attempt to escape the direct effect of a rupture. Chapter 8 of the EIS also acknowledges that less-mobile species in the immediate vicinity of the point of a rupture would be less likely to escape the impacts and might be killed or injured. The data presented in Appendix G describes models of dispersal patterns in the immediate vicinity of a rupture. These models support the statements in Chapter 8 that wildlife in the immediate vicinity of a rupture might be exposed to high levels of CO_2, which could be toxic for species unable to leave the area of the release.	
	Petrich, Steve	2024-02-09	Often time with the construction phase water is release with contaminates and without notice – how can we assure this is not going to damage the ecology of the river? This has happened in Minnesota with other projects when horizontal drilling has occurred and when the company tests the infrastructure with hydrostatic testing. How can the PUC ensure that this will not happen and in the event it does, the public will immediately be notified?	Minnesota law requires that people notify MPCA (through the Minnesota Duty Officer) immediately when more than 5 gallons of petroleum or any amount of any substance under their control is released into the environment that could cause pollution of waters of the state. The sample routing permit states that “the Permittee shall comply with all applicable state rules and statutes." As described in Section 2.4.7, no chemicals or other contaminants would be added to hydrostatic test water, and the applicant would discharge the test water in accordance with MPCA discharge permits. Drilling mud used for HDDs consists primarily of bentonite, a type of clay. If additives are used in the drilling mud, they would be approved by MDH or meet NSF International/ANSI Standard 60, Drinking Water Treatment Chemicals – Health Effects. The applicant would implement its HDD contingency plan, which would include measures to reduce the risk for an inadvertent return as well as monitoring. Containment, response, and clean-up equipment would be available at both sides of an HDD crossing location prior to beginning the HDD to assure a timely response in the event of an inadvertent release.	20243-204403-01
	Petrich, Steve	2024-02-09	In addition to the direct impacts of the 28 miles of pipeline included in Summit’s application, the DEIS does not account for the indirect and cumulative impacts of Summit’s entire project in Minnesota. This is despite Summit’s clear and public plans for a much larger buildout in Minnesota and recent statements that they will be applying for permits for additional parts of the network imminently. Allowing Summit to artificially segment permitting requests for multiple concurrent projects on one pipeline will prevent a thorough review of the cumulative impacts and potential environmental and climate damages of the project. How can the PUC ignore the fact that this company has purchased easements in 10 counties and has been advertising that this project will cover 240 miles in Minnesota and only look at a 28-mile stretch? This seems like a waste of taxpayer dollars and when SCS applies for the other parts of the route, will the PUC site precedent? – I certainly hope not because the full route was not taken into consideration!	Thank you for your comment. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-01
	Petrich, Steve	2024-02-09	As a taxpayer and landowner in the pathway of this proposed project, the PUC needs to put Minnesota landowners over out of state corporate interests who are only after carbon tax credits and 45Q dollars and could care less about the long-term impacts this pilot project will have on our land, water and rural communities.	Thank you for your comment.	20243-204403-01
	Piekavski, Charles and Carol	2024-02-21	We are landowners and retired farmers living along County Road 11 in Carlisle Township, Oter Tail County, Minnesota. We are very unhappy the route chosen for the CO_2 pipeline. We are also unhappy to have this pipeline near anyone. It is dangerous and very unhealthy for all of us if this should have a leak or burst. One of your representatives at the public meeting in Fergus Falls said if we hear anything sounding like a tornado, we would have three minutes to get indoors. Then we could “have a cup of coffee” and all would be clear to go back outside. For one thing, if we are outside, there is no way to get to the house to safety in three minutes. I guess that tells the story for the rest of our time.	Thank you for your comment. Informal conversations are outside of the public record, and we disagree with how the conversation is characterized in this comment.	20243-204403-02

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	Piekavski, Charles and Carol	2024-02-21	If this pipeline is deemed unsafe for the wildlife, what about humans! We have a man-made dam and slough made possible from the efforts of Ducks Unlimited, U.S. Fish and Wildlife, and other agencies that has proven valuable for wildlife. We enjoy hearing and watching the many pheasants, deer and birds of all kinds that live there. This area should not be included if other wildlife areas are exempt.	Based on examination of aerial photography, the constructed dam and slough appear to be at least 500 feet to 800 feet from the RA-North and RA-Hybrid route alternatives, and much further from the RA-South route alternative. Based on these distances, the potential impact on the property from the construction and operation of the project would be negligible.	20243-204403-02
	Piekavski, Charles and Carol	2024-02-21	We live very close to the proposed site. It should be taken into consideration the heavy semis going in and out of our yard plus the many semis on county road 11 going to the ethanol plant or CHS loaded with corn or soybeans. We have dozens of trucks daily, and during harvest there are even more. We feel the weight of these trucks would cause damage to the pipeline in due time. We have a very high water table and the soil is soft and not as solid as it should be to handle the weight.	As indicated in Chapter 2, the applicant indicates that the project would meet or exceed state and federal safety requirements and, at a minimum, would be operated and maintained in accordance with PHMSA's regulations in 49 CFR Part 195. The pipeline would be constructed of high-strength carbon steel pipe that meets the American Petroleum Institute (API) 5L Pipe Specification.	20243-204403-02
	Piekavski, Charles and Carol	2024-02-21	Please reconsider this pipeline and take people's comments seriously. Why is this even necessary? You will never get permission to cross any of our land!	Thank you for your comment.	20243-204403-02
	Popowski, Christine	2024-02-22	CO_2 is a hazardous material in high concentrations. The DEIS consistently underplays the known and unknown risks of transporting large amounts of CO_2 at high pressures through a pipeline.	Risks of a potential CO_2 release and potential impacts are described in Chapter 8 of the EIS.	20243-204403-01
	Popowski, Christine	2024-02-22	CO_2 Rupture Impact Zone: According to the analysis in the DEIS, the potential impact radius for levels of CO_2 that would be "immediately dangerous to life or health" is 617 feet. This expands to 910 feet for lower concentrations that cause dizziness, drowsiness, severe muscle twitching, and unconsciousness within a few minutes. Although Summit indicates that it will take 25 minutes for the system to shut off the relevant valves in the event of "abnormal operation," the DEIS does not mention any meaningful safety measures for a rupture and instead suggests that it is "reasonable" for Summit to simply supply indoor CO_2 detectors for residences within 1,000 feet of the project. But the rupture report in Appendix G states that "a full rupture results in impact distances too quickly for an early warning device, such as an oxygen detector, to be effective." This pipeline should not be approved without a clear understanding of the risks to human health and meaningful measures to ensure the safety of people and animals in the area.	Text in Section 4.5 on valve closure time has been corrected from 25 minutes to 10 minutes. Elsewhere in the EIS, including the rupture analysis, valve closure time is listed/calculated as 10 minutes. Section 8.5.3 has been revised to note that, while acknowledging that the Commission does not set pipeline safety standards, EERA staff believes it reasonable for the applicant to voluntarily accept a special permit condition requiring the installation of check valves or pressure sensing valves that automatically close when pipeline decompression occurs. These valves could then close more quickly and reduce the impacts of a potential rupture.	20243-204403-01
	Popowski, Christine	2024-02-22	First responders and health professionals: CO_2 pipelines pose unique problems for first responders and health care providers. Because CO_2 is colorless and odorless, both victims and first responders have no way of knowing what is causing the health problems. In addition, first responders require special equipment, including non-internal combustion engines, to respond to a CO_2 disaster. The DEIS does not consider the burdens this will put on local EMS and health providers in the case of a pipeline rupture or accident or an assessment of how they should be prepared to respond given the unique needs. The DEIS includes Summit's September 2022 Emergency Response Plan (Appendix N). This plan is not only outdated but also unclear as to how local EMS and first responders will interact with the applicant in the event of a leak or rupture. Though the plan talks of multiple company personnel as playing roles in emergency response, it ignores the fact that the applicant only plans on having one full-time employee at the capture facility. Local first responders deserve more clarity about how they will be expected to respond to an emergency and what the applicant will do to ensure they are adequately equipped and informed for such an event.	Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. The Emergency Response Plan included as Appendix N is a draft plan that is not outdated but would be revised as required by PHMSA, if the project is approved.	20243-204403-01
	Popowski, Christine	2024-02-22	Compliance with PHMSA Rules: The DEIS accepts Summit's assurances that it will "comply with federal emergency response requirements," but as noted in a Pipeline Safety Trust report and by the Pipeline Hazardous Material Safety Administration (PHMSA) itself, the current emergency response requirements are dangerously outdated. Setbacks: The DEIS states that the PUC "cannot set safety standards" for Summit's proposed pipeline. PHMSA has expressly said in public letters to CO_2 pipeline companies like Summit that state and local authorities can exercise their powers to regulate land use—including setback distances—and that "nothing in the federal pipeline safety law impinges on these traditional prerogatives of local—or state—government." The PUC must consider where the pipeline is placed and what is the safest option for Minnesotans, which	Although the Commission cannot set safety standards for pipeline construction or operation, state or local units of government may, to the extent authorized by law, set land use requirements that indirectly contribute to pipeline safety by regulating the activities of third parties located in the pipeline's vicinity. The Commission's obligation is to identify a pipeline route consistent with the criteria found in statutes and the applicable administrative rules. Federal law, by contrast, exclusively prescribes pipeline safety requirements.	20243-204403-01

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			means the PUC can and should determine what routing, setback, and depth requirements are necessary to adequately protect Minnesotans.		
	Raether, Kathy	2024-02-12	The meeting on Feb. 7th was very informative. We enjoyed talking to Andrew learning more about this project. I object to the northern route, the one straight west of the ethenol plant for two reasons. Number one because there are more people to get easements from and number two - there are at least a dozen homes close to the pipeline if there was a leak it could affect all their homes. Also, when you would get to North Dakota, you would be close to the Sugar Beet Plant. Thank you	Thank you for your comment.	20243-204403-01
	Reisenweber, Doretta	2024-02-22	Hello, I am now a citizen of Duluth, MN, but have lived in the eastern Dakotas and watched with concern Summit's CO_2 risky pipeline proposal. These pipelines lack a fail-safe history and have no business being placed anywhere. As much as the world needs to capture carbon, please learn the facts and don't swallow the myths we'd all like to believe, as I did until I learned differently.	Thank you for your comment.	20243-204403-01
	Reisenweber, Doretta	2024-02-22	The PUC needs to decide first, IF the pipeline could even be safely placed and routed, yet the DEIS notes a considerable handicapping of the PUC when it says the PUC " cannot set safety standards " for Summit's proposed CO_2 line. What? That is backwards when the company writing the DEIS tells the government agency charged with regulating and protecting the environment and public, what it may and may not do. The reality is that the PHMSA has written publicly to CO_2 companies like Summit that "nothing in the federal pipeline safety law impinges on coal or state government. The PUC needs to decide IF the pipeline can be safely placed and routed. If not, then it is the duty of the agencies involved to reject the pipeline company's plan. Thank you for making the time to read the public's comments. It restores my faith in democracy to believe the people can still be heard and listened to.	Although the Commission cannot set safety standards for pipeline construction or operation, state or local units of government may, to the extent authorized by law, set land use requirements that indirectly contribute to pipeline safety by regulating the activities of third parties located in the pipeline's vicinity. The Commission's obligation is to identify a pipeline route consistent with the criteria found in statutes and the applicable administrative rules. Federal law, by contrast, exclusively prescribes pipeline safety requirements. Section 3.4 of the EIS has been revised with this information.	20243-204403-01
	Reisenweber, Doretta	2024-02-22	Greetings from Duluth, Mn, Having lived half my years in the eastern Dakotas, the CO_2 lines proposed to run from Iowa and Nebraska up through the Dakotas and meandering into Minnesota, caused me no undue concernfor the land, the water, the people and animals.	Thank you for your comment.	20243-204403-01
	Reisenweber, Doretta	2024-02-22	A look at the decades long failures of the fossil fuel industry's PR plan and tax-funded boondoggle was concerning enough, but I was stunned to learn of the dire health and safety issues in the not unlikely event of a rupture. For example, 25 minutes are needed to shut off the valves of this pipeline carrying toxic, odorless, disabling gas. I see no safety measures such as CO_2 detectors at the valves or elsewhere along the pipeline. Instead Summit claims it will provide folks living within 1,000 feet of the line indoor CO1 detectors. By the time this toxic gas reaches the homes, it will be too late for folks working outdoors, for animals, for children playing in the yard.... Appendix G clearly acknowledges that "a full rupture results in impact distances too quickly for an early warning device, such as an oxygen detector." The DEIS just pointed out a major health and safety problem.	Text in Section 4.5 on valve closure time has been corrected from 25 minutes to 10 minutes. Elsewhere in the EIS, including the rupture analysis, valve closure time is listed/calculated as 10 minutes. Section 8.5.3 has been revised to note that, while acknowledging that the Commission does not set pipeline safety standards, EERA staff believes it reasonable for the applicant to voluntarily accept a special permit condition requiring the installation of check valves or pressure sensing valves that automatically close when pipeline decompression occurs. These valves could then close more quickly and reduce the impacts of a potential rupture.	20243-204403-01
	Reisenweber, Doretta	2024-02-22	Please do not approve this pipeline with such considerable health and safety risks not only to folks living along the line, but that of the pipeline workers themselves and to the first responders. Given that Summit plans only one full-time worker at the capture facility, the DOC and PUC need to insist that Summit provide clear instructions on the measure first responders must take in a pipeline emergency and how the company (Summit) will make sure the first responders are well-equipped and well-informed when such an emergency arises. Please insist that Summit's line workers be as well- equipped and informed, too.	Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. The Emergency Response Plan included as Appendix N is a draft plan that would be revised as required by PHMSA, if the project is approved. The Emergency Response Plan includes steps that workers would take in the event of an incident. Additionally, EERA staff recommended a special permit condition requiring the applicant to file its Emergency Response Plan that is filed with PHMSA with the Commission, and other special permit conditions as described in Section 8.5.3.	20243-204403-01

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	Reisenweber, Doretta	2024-02-22	My name is Doretta (Dorie) Reisenweber. I have lived in Duluth for over 15 years and been much concerned with water issues especially the failing Enbridge Line 3/93 and risky copper/nickel mining proposals which would threaten the waters of northeastern Minnesota, namely the Boundary Waters and, even more importantly, Lake Superior which contains one tenth of the world's fresh water supply, in this time when one fourth of the world's people do not have access to safe drinking water.... In a time when over half of Minnesota does not have safe water. This is not fly-over country. No governing nor advisory body dare risk contaminating our precious water no matter the cost/benefit ratio. No price can be put on clean water.	Thank you for your comment.	20243-204403-01
	Reisenweber, Doretta	2024-02-22	Missing from the scope of the DEIS are ramifications to northeastern Minnesota' where CO_2 might be stored. Yes, that's right. In February of 2022, the DOE announced it was backing Rio Tinto's team to explore carbon storage at the proposed Talon (Rio Tinto major partner) nickel mine near Tamarack. All that to the tune of $6.2 Million taxpayer dollars. Any contamination from the Talon mine were it to be permitted, would drain into the St. Croix and Mississippi Rivers affecting the drinking water of millions of people in addition to impacting the rich wild rice in area lakes and streams. What would prevent CO_2 stored there from such leaking? Of course, that has not been addressed. It has not actually been proposed., but it sure has been put out there to consider. Fines would not suffice to restore any negative impact. Speaking of fines. An $18 Million fine was leaved against global bad actor Rio Tinto recently. Fines are just part of big business. Fines don't stop bad actors. How might Rio Tinto with its notoriously bad reputation be connected to Summit? If so, the DOC or PUC must look beyond the CO_2 pipeline's pipedream promises toward hard proof and examples of such storage processes ever working for a sustainable length of time in water-rich environments. Fractures in the bedrock of northeastern Minnesota should preclude the consideration of CO_2 storage. Of course, that has not been addressed in the DEIS nor would it be in the EIS, as it has only been suggested, not officially proposed, Nonetheless, in my experience, what big money wants, big money usually gets. While I recognize the world needs solutions to carbon dioxide emissions, we must not let those needs and unproven storage methods usurp clean water north of Fergus Falls, or Tamarack, or anywhere else in the entire world. Please bear in mind the ramifications of the proposed OtterTail to Wilkin Counties CO_2 Pipeline Project which could affect water well beyond its proposed route. Say no to this project, before the inch becomes a mile. The camel is already nosing around the edges of the tent. Thank you for listening and looking ahead.	Thank you for your comment. An alternative that does not transport CO_2 into North Dakota as proposed by the applicant is outside the scope of the EIS.	20243-204403-01
	Roehl, Jonathan	2024-04-23	I feel the pipeline will create more pollution and use more energy than it is trying to solve.	Thank you for your comment.	20243-204403-01
	Rohlik, Gary	2024-02-13	I am Gary Rohlik I live in Vesta township and own and farm land where the co2 pipeline is purposed to go. I am very concerned what this pipeline could do to our roads during installation and how it will make our land go down in value and how it will affect our yields forever.	Road crossings are addressed in Section 5.4.9.2, property values are addressed in Section 5.4.7, and impacts on crop production are addressed in Section 5.5.1.	20243-204403-01
	Rohlik, Gary	2024-02-13	And if the pipeline would ever rupture how it would contaminate our water and air and how many people would be killed or injured before it is repaired.	Risks of a potential CO_2 release and potential impacts are described in Chapter 8 of the EIS.	20243-204403-01
	Rohlik, Gary	2024-02-13	I am also very worried about the amount of water that is going to be used to cool the co2 to be able to put it in the pipeline that we will run short on water.	Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has also been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-01
	Rohlik, Monica	2024-02-22	I live in Vesta township and am concerned how a Co2 pipeline would affect our water and air quality. And also what it would do to the value of our land and what construction would do to our roads. With the extra amount of water that would need to be used that we would run short on water also. I don't think it is worth risking so many human lives that could be lost in case of a rupture of a Co2 pipeline.	Thank you for your comment.	20243-204403-01

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	Ross, Jean	2024-02-09	I'm Jean Ross and I live in Minneapolis. I fought the Line 3 "reconstruction" from the beginning to the end because I didn't think Enbridge cared about preserving our pristine woods and waterways in their pursuit of profit. Minnesota's experience with the Line 3 / 93 pipeline construction demonstrates the serious harms that these types of projects cause to water resources and then state agencies don't hold them accountable for those harms.	Thank you for your comment.	20243-204403-01
	Ross, Jean	2024-02-09	The proposed route for Summit's pipeline network will pose dangers to the many water crossings, wetlands, aquifers, and other sensitive water bodies along the route. More research and analysis are needed to understand how a CO_2 pipeline leak or rupture will impact Minnesota's precious waters and the fish, amphibians, reptiles, waterfowl, birds, and insects that rely on it.	Potential impacts on water resources are described in Section 5.7.8 and potential impacts on wildlife resources and their habitat are described in Section 5.7.10. Potential impacts of a CO_2 release on water and wildlife resources are discussed in Section 8.3.4. Stand-alone studies concerning impacts on water resources, wildlife, and wildlife habitat are outside the scope of the EIS.	20243-204403-01
	Ross, Jean	2024-02-09	Much of southern Minnesota is suffering from a drought. The DEIS fails to discuss the impacts of an increase in water use on local water supply. The carbon capture process can double water requirements at a facility and increase toxic wastewater discharge. The DEIS states that Summit "anticipates" an average water use for the operation of the carbon capture equipment of 13 million gallons per year. There must be a careful, case-specific assessment done of how the installation and operation of carbon capture will exacerbate drought conditions and existing pollution sources. Summit has not been transparent with its true demands for water resources so it is impossible to know the full impacts. Why should Minnesota risk our fresh drinking water supply and commit to an infrastructure when the proposing company has not been transparent?	Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-01
	Ross, Jean	2024-02-09	The DEIS says that "drilling fluids and additives for the HDD would be non-toxic to the aquatic environment and humans," however, even supposedly "non-toxic" drilling fluid is chemical waste that has been found to be harmful to plant and animal species. The DEIS also states that "drilling mud mixed with additives that are not on the MDH-approved additive list and/or do not meet drinking water quality certification standards would be disposed of as solid waste at an approved facility, or the applicant would obtain a land application permit from MPCA." The DEIS does not discuss the risks of applying drilling mud, especially with additives not approved by MDH, to the land.	As described in Section 5.7.8.2, an additive approved by MDH or meeting NSF International/ANSI Standard 60, Drinking Water Treatment Chemicals – Health Effects, might need to be mixed with the drilling mud for viscosity or lubricating reasons and to reduce the potential for an inadvertent release or failed HDD. The specific additive used would depend on the conditions at the crossing location and would be determined by the HDD contractor. The EIS discloses the potential for an inadvertent release of drilling mud and describes potential impacts in Chapter 5. Land application of drilling mud and potential impacts are addressed in Section 5.7.6.2.	20243-204403-01
	Rozek, Ellen	2024-02-22	As a person in her mid-thirties who has spent her whole life under the looming shadow of climate change, I have serious concerns about the long-term efficacy of this project and the risks it poses to the clean water supply all Minnesotans depend on.	Thank you for your comment.	20243-204403-01
	Rozek, Ellen	2024-02-22	For one thing, the DEIS consistently fails to properly account for the real CO_2 emission and climate impacts of the project. Summit states that the capture facility "is designed to capture 100% of the CO_2 produced by the ethanol plant." However, there is no carbon capture facility in the world, ethanol or otherwise, that captures carbon at a rate of 100%. Summit's claim is not supported by any data/information or verified by a third party, which renders it baseless.	Section 2.1 has been revised to clarify that the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. The analyses in Section 5.7.1.3 and Chapter 6 have been revised to include capture rate scenarios of 100 percent, 70 percent, 40 percent, and 10 percent.	20243-204403-01
	Rozek, Ellen	2024-02-22	Carbon capture technologies are also highly energy intensive and will significantly increase the carbon emissions at the facility from electricity use. The DEIS uses the Midwest Reliability Organization West Region average to calculate these emissions, which is unnecessarily inaccurate given the availability of the actual emissions factor from Great River Energy.	Electricity emissions are included in Table 5-39. These numbers have been revised to reflect the electricity emission factor associated with LREC, which would provide electricity to the project. The revised electricity emission factor is 132.2 gCO_2e/MWh. This was calculated from LREC's energy resource mix in which nearly half comes from clean energy sources. Because LREC has a lower emission factor than the Midwest Reliability West Region emission factor (684.35 gCO_2e/kWh),	20243-204403-01

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				which was used in the draft EIS, calculated electricity emissions have decreased.	
	Rozek, Ellen	2024-02-22	Finally, the applicant states that the anticipated lifetime of this project is 25 years. This means at the end of its life; the project could stop capturing the CO_2 from the ethanol plant. Unless the ethanol plant ceases operations at that point in time, it will continue to emit CO_2 unabated into the future. Given the urgent need to limit the amount of CO_2 pollution in order to prevent a complete climate collapse, the high likelihood of ongoing CO_2 pollution is a serious concern.	Section 2.7 describes project decommissioning. If the ethanol plant continues to operate beyond the life of the proposed project, its CO_2 emissions would not be captured.	20243-204403-01
	Rozek, Ellen	2024-02-22	Since the proposed route for Summit's pipeline network includes many water crossings, wetlands, aquifers, and other sensitive water bodies, it is imperative that the risk this pipeline poses to the surrounding water supply be comprehensively understood. More research and analysis are needed to understand how CO_2 disperses in water and what risks a CO_2 pipeline leak or rupture poses to Minnesota's precious waters and the fish, amphibians, reptiles, waterfowl, birds, and insects that rely on it to survive.	Potential impacts of a pipeline rupture on water resources and wildlife are addressed in Section 8.3.4. Stand-alone studies concerning impacts on water resources, wildlife, and wildlife habitat are outside the scope of the EIS.	20243-204403-01
	Rozek, Ellen	2024-02-22	And because much of southern Minnesota is suffering from the consequences of drought and over-commitment of our fresh drinking water supplies, there must be a careful and case-specific assessment done of how the installation and operation of carbon capture will impact current drought conditions and exacerbate existing pollution sources. Moreover, Summit has not finalized its water appropriation sources or volumes needed for construction, so it is impossible to know the full impacts of those appropriations on water resources. Why should Minnesota risk our fresh drinking water supply and commit to an infrastructure when the proposing company has not been transparent with its true demands for water resources?	Additional information has been added to Section 5.7.8.2 to address the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-01
	Rufer, Stephen	2024-02-22	I am hopeful that the project gets approval as soon as possible. I believe it is a great step toward slowing/stopping climate change. I have no personal stake in the project except to improve our environment.	Thank you for your comment.	20243-204403-01
	Salfer, Jim	2024-02-23	I am asking that you look at this project very closely, the decition will effect other counties also. Please pay close attention to water usage, safety and future maintenance. Thanks	Thank you for your comment.	20243-204403-01
	Samargia, Jerry	2024-02-21	Summit Carbon Solutions' proposed carbon capture project is an important part of our state's and our nation's climate agenda. Not only will it capture millions of tons of CO_2, but it also supports the low-carbon fuel market, which is an important initiative also aimed at lowering our country's carbon footprint. In addition to lowering emissions in Minnesota, the project will create good-paying jobs while preserving the ethanol industry, an important part of our state's economy. This project brings us closer to meeting our country's and our state's emissions goals and brings strong economic benefits to rural Minnesota. For those reasons, I urge the Public Utilities Commission to grant Summit Carbon Solutions a permit.	Thank you for your comment.	20243-204403-01
	Schaefer, Lee	2024-02-23	I am the Reverend Doctor Lee Schaefer. I am concerned with the impact this new oil pipeline will have on the environment. The potential for an oil leak or causing water to escape into the surrounding soil thus exacerbating our already diminished water resources due to the drought we are experiencing caused in part by climate change.	This EIS is for a CO_2 pipeline, not an oil pipeline; therefore, there is no potential for an oil leak or other related incidents occurring as a result of this project. Potential impacts of a CO_2 leak are discussed in Section 8.3.	20242-203795-01
	Schaefer, Lee	2024-02-23	Going forward this project has not taken sufficiently into account the continued disruption of the environment due to the continued reliance on fossil fuels. Thank you for your consideration to stop this hazard to humanity both now and in the future! Rev. Dr. Lee Schaefer	Thank you for your comment.	20242-203795-01
	Schmalle, Verlynn	2024-02-23	The EIS for this project "does not account for land use change." Nor does it even reference in the footnotes the premier study on GHG life cycle emissions published by the National Academy of Sciences led by Tyler Lark which found that ethanol from corn is likely to increase GHG emissions by at least 24% due to the impacts of land use changes. This is a fatal error. To meaningfully address CO_2 emissions, the State needs to protect and preserve at least 5 million acres just to reverse the damage caused by the overextension of row crops over the last 30 years. Since 1990, row crops have expanded over 4.2 million acres at the expense of cover crops (-3.4 million acres), CRP (-0.7 million acres), grasslands and pasture (- 0.9 million acres) per USDA reporting.	Section 6.1.3 has been revised to discuss the debate between Lark et. al. and GREET model authors.	20242-203808-01

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			This expansion has destroyed important GHG sinks such as peatlands and tall grass prairies as row crops have expanded from the traditional corn belt in southern Minnesota to more vulnerable ground in the west and north. In 2010, the Legislature directed the MPCA to develop a rule to protect fish and aquatic life in Minnesota from nitrogen and nitrites. The MPCA spent the money studying the issue but declined to propose any rules to the legislature. No rule, no responsibility.		
	Schmalle, Verlynn	2024-02-23	In 2013, Governor Dayton and Commissioner Stine developed a strategic plan for nutrient reduction with goals of a 20% reduction in nitrogen loads in the Mississippi by 2025 and a long-term goal of a 45% reduction as part of the hypoxia task force. No part of the plan has been meaningfully implemented. In 2019, Governor Walz issued executive order 19-35 establishing the Governor's Council on Biofuels. Despite the language in the order to include environmental and conservation interests, environmental interests were not represented. The Council was composed of Minnesota Corn Growers, the ethanol industry, the biodiesel industry, service stations, the petroleum industry, and the appointed staff from state agencies. Executive Order 19-35 granted the Council extraordinary authority to define policy for the Department of Agriculture, Department of Transportation, Department of Commerce, and the MPCA. This pipeline is just another example of the regulatory capture resulting from Executive Order 19.35.	Section 6.2.3.1 discusses some modeling platforms available to estimate various GHG emissions associated with agricultural systems. One of the alternative agricultural practices discussed in the EIS included reducing synthetic nitrogen-based fertilizers. A rigorous study of nitrogen application rates and their impact on emissions and soil sequestration rates is outside the scope of the EIS.	20242-203808-01
	Schmalle, Verlynn	2024-02-23	Combined, the lack of regulation and the unchecked promotion of ethanol from corn has resulted in devastating adverse impacts on the state's air, water, and native species. Consequently, the MPCA reported a 4% increase in GHG emissions from agriculture from 2005 to 2020 (excludes Forest land use) and a 62% increase in nitrogen loads in the Mississippi at Red Wing in 2018. The current load on the State's "working lands" is not sustainable and does not provide a path to the state's greenhouse gas or nitrate reduction targets. There are four reasons for the failure to make meaningful reductions in GHG emissions from agriculture and nitrogen loads in both our state's groundwater and surface waters. 1) Agriculture pollution reduction programs are spread across multiple agencies – MPCA, DNR, BWSR, DOH, DOA, where they are small items and lower priority. 2) Programs have been almost entirely voluntary. 3) Federal and state promotion of row crops provide an overwhelming financial incentive not to participate. 4) Lastly, there has been a lack of executive leadership. To correct, we need to reverse these items: 1) We need Executive leadership. We need the Governor to prioritize GHG reduction, soil health, and nitrate reduction as a necessary goal and to designate an agency to lead and coordinate in the effort. 2) We need the state to begin to move away from the promotion of row crops in general and begin weaning the state off ethanol from corn in particular. The state needs to acknowledge the science that ethanol from corn is a net GHG contributor and does not provide a path for the state to achieve GHG emissions reductions goals. 3) We need to provide a bigger economic incentive to participate in GHG emission reduction, soil health, and nitrate reduction programs in agriculture and move beyond voluntary compliance where it is necessary to achieve the state's stated goals. 4) We need a comprehensive plan with specific programs across all agencies to assure meaningful action is made toward our GHG and nitrate reduction goals. The current Climate Action Framework (CAF) is not that plan.	Thank you for your comment.	20242-203808-01
	Schmalle, Verlynn	2024-02-23	I strongly encourage the PUC, the Governor, and the MPCA to stop advancing the false science that ethanol from corn is a sustainable biofuel and stop covering up the devastating impact on the air, water, and native species that Executive Order 19-35 has had on our state. It should start with the rejection of the Otter Tail to Wilkin Carbon Dioxide Pipeline. Thank you for the opportunity to comment on this important matter.	Thank you for your comment.	20242-203808-01
	Schmalle, Verlynn	2024-02-27	Attached are supporting documents that you may find useful in your write-up to the Commissioners and in your final EIS. I hope you find them useful. Attachments include: Environmental outcomes of the US Renewable Fuel Standard (Lark et al., 2022), USDA Crop Acres 1990-2020, MPCA Ag GHG ex Land Use, 5-Year Progress Report on Minnesota's Nutrient Reduction Strategy (2020), MPCA Aquatic Life Rule, Executive Order 19-35, Report in fulfillment of Executive Order 19-35 establishing the Governor's Council on Biofuels (2020), EPA Letter, Plowing away the prairie, at a price (Marcotty, 2012)	Thank you for your comment.	20243-204403-02

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	Schmidt, Dale	2024-02-26	Summit Carbon Solutions of the State of Minnesota would follow and read Summit Carbon Solutions actions already, pushing, pushing eminent domain powers in Iowa, which would force unwilling landowners to sell them access to their property for the pipeline, which is unconstitutional in the aspect should be a waring along that it should be denied here. My family has lived and owned this farm since 1887 and has no intention of compromising that safety or beauty that is present. At the information meeting, May 3, 2023, and February 7, 2024, in Fergus Falls, Summit Carbon Solutions, said they were a private owned company that was mentioned in the meeting that they could not use eminent domain, so if I was to decline access, I really shouldn't have to work about my family's safety of a pipeline being built or constructed on my property. I am in the process of building a building structure along Highway 116 close to within the 40 foot setback required by Otter Tail County highway department. It will be built on either there or on County Highway 11 on property that is owned by either myself or spouse.	Thank you for your comment. As indicated in Section 3.5, the applicant cannot exercise the power of eminent domain for the project.	20243-204403-02
	Schmidt, Jerry	2024-02-26	I have sold my farmstad on 240th St Fergus Falls and am moving to 24575 CO Hwy 11 soon. One of the proposed routes goes through my property. I do not want a pipeline on my property or even close if I have my say. Summit Carbon Solutions say its safe. But have read it is not. They have pushed for eminit domain of which is uncontitiutional. A foreign owned company backing projects like this should be stopped.	Thank you for your comment. Section 8.3 addresses effects on human health from an accidental release of CO_2. As indicated in Section 3.5, the applicant cannot exercise the power of eminent domain for the project.	20243-204403-02
	Schmidt, Sharlene	2024-02-26	I have attached a portion of an article that I ran across that explains my beliefs and/or position and agree 100% of this. As in the article our 135 plus years property in the family just gets taken away from us, WRONG! We are entitled to have our rights. We currently have bids to construct a building which will be in regulation with Otter Tail County, set back allowances. This stiuctional will be constructed along Highway 116 or County Highway 11, on property that myself of my spouse own. *[Attached is an article titled "There is not compromise on private property rights" by Amanda Radke]*	Thank you for your comment. As indicated in Section 3.5, the applicant cannot exercise the power of eminent domain for the project.	20243-204403-02
	Schuler, Kathleen	2024-02-22	I am a retired public health professional who is working for a healthy climate for all. I am opposed to putting more pipelines in the ground. We are seeing the adverse effects from the Line 3 project, which has experienced aquifer breaches and frac outs. The proposed summit pipeline has the same potential for harm to our waters, our land and our local economies.	Thank you for your comment.	20243-204403-01
	Schuler, Kathleen	2024-02-22	CO_2 is a hazardous material in high concentrations. The DEIS consistently underplays the known and unknown risks of transporting large amounts of CO_2 at high pressures through a pipeline. The DEIS does not consider the burdens this will put on local EMS and health providers in the case of a pipeline rupture or accident or an assessment of how they should be prepared to respond given the unique needs.	Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. The Emergency Response Plan included as Appendix N is a draft plan that would be revised as required by PHMSA, if the project is approved. Additionally, EERA staff recommended a special permit condition requiring the applicant to file its Emergency Response Plan that is filed with PHMSA with the Commission, and other special permit conditions as described in Section 8.5.3.	20243-204403-01
	Schuler, Kathleen	2024-02-22	The DEIS fails to properly account for the real CO_2 emission and climate impacts of the project. The estimated rate of capture is highly unlikely, and the project will likely result in increasing carbon emissions from electricity. in addition, there is no guarantee of permanent CO_2 storage, and it is highly likely that most of the CO_2 will be used for EOR, thus negating this project as a potential climate solution.	Section 2.1 has been revised to clarify that the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. The analyses in Section 5.7.1.3 and Chapter 6 have been revised to include capture rate scenarios of 100 percent, 70 percent, 40 percent, and 10 percent. Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for EOR.	20243-204403-01
	Schutz, Elizabeth	2024-02-23	My name is Elizabeth Schutz and I oppose this project. We have to stop believing in the "magical" solutions like carbon capture that promise us an easy way out of the climate crisis. We have to do the hard work of moving beyond things like ethanol and oil - that means saying goodbye to their money and empty promises. This really shouldn't be hard - companies could be positioning themselves	Thank you for your comment.	20243-204403-01

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			to capitalize on legitimately clean technology, they're just refusing to do so because they've invested so heavily into existing systems. They have blinders on. These companies are run by people who don't ever think about long term solutions or how their decisions impact people who are not like them.		
	Schutz, Elizabeth	2024-02-23	The DEIS consistently fails to properly account for the real CO_2 emission and climate impacts of the project and the long term impact of carbon storage. Who's to say this company won't be gone in 25 years? Leaving the people who live here to clean up their messes? This has happened hundreds of times in the past - regular citizens left holding the bag once corporate entities have spoiled water, soil, and air with their toxic activities.	Section 2.7 describes decommissioning of the project. This section was revised to describe the financial assurances to be provided by the applicant for costs associated with decommissioning.	20243-204403-01
	Schutz, Elizabeth	2024-02-23	Please do not put regular people and the planet at further risk. We need to invest in clean energy solutions that actually work; not some oil executive's creative way to greenwash his company's pollution. Do not approve this project. Have some courage and call BS on this.	Thank you for your comment.	20243-204403-01
	Shayne, Al	2024-02-23	for nature, wildlife and the surrounding communities, the impact will be sensational, devastating, deleterious...the only #$@%ing "minimal impact" will manifest from the corporate industrial complex, and their benefactors and co-conspirators determined to promote a toxic agenda, a toxic wasteland of no benefit, collectively counterintuitive...	Thank you for your comment.	20243-204403-01
	Slama, Kay	2024-02-14	Dear Environmental Review Manager Andrew Levi, I urge you to carefully consider the impact any decisions or actions regarding this issue will have. there are loads of problems with carbon pipelines The North Dakota Public Service Commission denied Summit's siting permit application for underground sequestration, citing many issues that the company had not addressed adequately. Until ND allows the pipeline, the MN Public Utilities Commission should pause its permitting for the pipeline, since there's no place for the CO_2 to go. Unfortunately, on August 31, the PUC refused to make that reasonable decision, and we need to let them know that was unwise for Minnesota.	Thank you for your comment.	20243-204403-01
	Slama, Kay	2024-02-14	What about human safety? CO_2 is an asphyxiant-it keeps our lungs from getting oxygen when we breathe. CO_2 pipelines must be pressurized at three times the rate of a natural gas pipeline (1,200-2,800 psi). Ruptures can occur for a number of reasons. One cause of ruptures can be shifting ground, whether from flooding or the ground sinking as water is used for irrigation. According to the Pipeline Safety Trust, many chemical impurities can get into the line. Any water molecules in the pipeline react with CO_2 to form corrosive carbonic acid.	Risks of a potential CO_2 release and potential impacts are described in Chapter 8. As noted in Chapter 2, the capture facility would include dehydration equipment to remove water from the CO_2. The text in Section 5.7.2 has been expanded to clarify that the pipeline would be buried underground with sufficient cover to protect it from flooding.	20243-204403-01
	Slama, Kay	2024-02-14	Ruptures have occurred in carbon pipelines, causing human and animal deaths. Carbon is heavier than air, and its unpredictable flow depends on terrain and changing weather. Without wind, it may just find low spots and sit there for a long time. NPR and other media reported on a pipeline rupture in Mississippi that caused 45 people to be hospitalized. It kept cars and emergency vehicles from working because combustion engines need oxygen. Emergency responders need breathing apparatuses that cost more than $6,000 apiece, so they have to call in a specialized hazardous materials team, and our closest team is in St. Cloud. The planned carbon pipeline routes run close to homes, towns, and schools, so the CO_2 plumes could reach them. PMHSA, the agency responsible for CO_2 pipeline standards, is reviewing them in light of the dangers. These are more reasons construction of carbon pipelines should pause while safety is being worked out.	Thank you for your comment. Risks of a potential CO_2 release and potential impacts are described in Chapter 8 of the EIS, including the incident in Satartia, Mississippi. As noted in Section 8.5, the applicant has committed to provide CO_2 air monitoring equipment to first responders and to pay all costs associated with CO_2 response training and air monitoring equipment.	20243-204403-01
	Slama, Kay	2024-02-14	Land issues need to be considered with carbon pipelines. Installation compacts a wide swath of soil that is almost impossible to loosen so roots can get into it. The pipelines heat land near 90 degrees, and both resulting evaporation and heat make it harder for plants to grow. Restoring soil health and productivity is a long-term struggle both current farmers and future generations will have to bear.	Impacts on soils and mitigation (including for soil compaction) are addressed in Section 5.7.6, and impacts on crops are addressed in Section 5.5.1 and 5.7.7. As indicated by the definitions found on Page 5-1 of the draft EIS, "long-term impacts extend beyond the end of construction and are generally associated with operation of the project." Disturbance to soils and crops from construction can result in impacts that extend beyond the construction phase, and the text in the final EIS has been revised to indicate that impacts can be long term.	20243-204403-01
	Slama, Kay	2024-02-14	There are many stories about Summit bullying landowners and using misinformation to obtain easements across farm property. Easement payments to farmers last 3 years, but the easements are permanent, so landowners are vulnerable to other uses after the 20-25-year life of the pipeline. Pipelines tend to be abandoned in place after they are no longer useable, so they remain a permanent hazard on the property and its underground water flow. Iowa is considering using eminent domain to run CO_2 pipelines through farmers' lands without their consent. Under the Fifth Amendment, eminent domain must be for a "public use," which traditionally meant projects like roads or bridges, not the enrichment of private corporations.	As indicated in Section 3.5, the applicant cannot exercise the power of eminent domain for the project. Landowner agreements with the applicant are outside the scope of the EIS.	20243-204403-01

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	Slama, Kay	2024-02-14	In the big picture, pipelines encourage growing huge amounts of corn in the US, nearly half of which is used to produce ethanol. This discourages growing alternate crops that may be better for our land, need less fertilizer and irrigation, and send less pollution down our rivers and into our lakes.	Thank you for your comment.	20243-204403-01
	Slama, Kay	2024-02-14	Next are water issues. The buried carbon pipelines cross rivers and wetlands underground, which can puncture aquifers during construction, as we saw with the Enbridge Line 3 pipeline in northern MN.	Section 5.7.8.2 acknowledges that damage to aquifers is a serious problem and indicates that an uncontrolled flow of water from a shallow confined aquifer could have a significant long-term impact on groundwater. Section 5.7.8.2 also describes geotechnical investigations that would be done to identify areas where breaching of a shallow confined aquifer could occur, and sheet piling would not be used. The applicant currently has an ongoing groundwater investigation underway to further inform construction practices and is continuing to consult with DNR. As part of its coordination with DNR, the applicant has agreed to use ground penetrating radar to study the depth of the confining layer through the entire beach ridge system area crossed by the pipeline to further define existing conditions and advise on construction methodology. Furthermore, EERA staff recommends that the applicant develop, in coordination with DNR, a plan for pipeline construction in areas crossing the beach ridge system area. The plan would include, at a minimum, measures to minimize the potential for breaching a shallow confined aquifer during trenching and contingency measures to mitigate the impacts of a breach, should one occur. This information has been added to Section 5.7.8.2.	20243-204403-01
	Slama, Kay	2024-02-14	In addition to water used for testing during construction, the pipelines will require 13,000,000 gallons/per facility using the pipeline per year (from Summit's response to inquiry on water usage during Minnesota PUC 5/4/2023 scoping meeting). This constitutes a risk of drawing down our lake and river levels and aquifers.	Additional information has been added to Section 5.7.8.2 to address the volume of water that would be used by the project relative to available resources. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	
	Slama, Kay	2024-02-14	Energy issues: Much energy is needed to mine materials for carbon pipelines, which must be much thicker than any other kind to contain so much pressure. Much fuel is required to put the pipelines in the ground. Energy sources process the gases and condense CO_2 at its sources, as well as run the pumps and bury the carbon. There is evidence that making ethanol out of corn is a life-cycle process that may use more CO_2 than it saves. We have alternative land-use programs that encourage natural plants which sequester CO_2, as well as encourage more wildlife and pollute less. On top of that, a ND official admitted that pipeline CO_2 will be used to compress fossil fuels out of the ground, a process known as fracking, which will put more CO_2 in our atmosphere and cause more of the climate change effects we've been seeing so much lately.	The embodied carbon of CO_2 pipelines, which includes the emissions associated with the sourcing raw materials, manufacture, and construction, was not discussed in the draft EIS. Such level of analysis is not commensurate with a reasoned choice among alternatives. The EPA's life cycle analysis for the Renewable Fuel Standard (RFS) includes emissions related to feedstock farming production and transportation, fuel production and distribution, and the end use of the finished fuel. This includes energy and material inputs used for handling, processing, and storing the feedstocks, co-products, intermediate products, and resulting fuel. The GHG emissions are calculated using emissions factors for all of the process energy (e.g., natural gas, coal) and electricity used for fuel production operations. These factors include the upstream emissions associated with extraction, transport, and distribution of the energy, and are generally determined on an average basis (e.g., grid average electricity in the United States). The upstream emissions associated with significant material inputs used to produce the renewable fuel, such as methanol for biodiesel production, are also included. The EPA's assessment of fuel production does not include	20243-204403-01

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				activities that are clearly unrelated to the fuel lifecycle (e.g., offset projects) or emissions associated with physical and organizational infrastructure (e.g., facility construction, employees commuting to the facility). Most studies, including this one, include only primary energy inputs in their estimates. Secondary inputs, such as energy required to build ethanol facilities, farm vehicles, and transportation equipment, are extremely difficult to quantify. Moreover, secondary inputs related to the ethanol plant would account for very little energy on a per gallon basis. This is because the energy embodied in fixed inputs, such as the cement used to build the plant, would have to be distributed over total production (including coproducts) during the lifetime of the plant. The life cycle phases of the ethanol being studied in the EIS focus on opportunities at the agriculture stage, as well as at the production stage, to lower the total CI score of the ethanol produced at the ethanol plant. The analyses in Section 5.7.1.3 and Chapter 6 have been revised to include capture rate scenarios of 100 percent, 70 percent, 40 percent, and 10 percent. Section 6.1.3. describes the ethanol fuel life cycle analysis used to determine CI score and low-carbon fuel standard regulatory framework. Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for EOR.	
	Slama, Kay	2024-02-14	So what can we do? We need to think ahead for our climate and our agriculture. We should be spending our “public” money on helping farms move away from growing so much corn. Help farmers feed people rather than make carbon-intensive ethanol, and help them diversify. We need to create markets in MN for their crops. It will take regular input to our lawmakers and state agencies to help them act with this future in mind. We need to do all we can to address the excess carbon that is warming our planet and causing global climate change. Carbon sequestration may indeed be one of the solutions, but not by crisscrossing our land with potentially unsafe pipelines that will threaten our land and waters and almost certainly lead to fracking for more fossil fuels. We need to focus on making our climate better, not worse.	Thank you for your comment. The appropriateness of federal and state policies regarding carbon capture and ethanol is outside the scope of the EIS.	20243-204403-01
	Stamp, Amanda	2024-02-23	As a Minnesota resident with family and friends impacted by multiple carbon dioxide (“CO_2”) pipeline proposals throughout the region, I am submitting the following comments regarding the draft environmental impact statement (“DEIS”) for the application for a Minnesota pipeline route permit (“Route Permit Application” or “Application”) submitted by Summit Carbon Solutions, LLC (“SCS” or “Applicant”). To begin, I don’t think sufficient time was given to the public to review the DEIS. Notification was made on January 23, 2024 with public informational meetings held on February 6, 7 and 8. Given the DEIS was prepared over many months, I don’t think giving the public less than 2 weeks to prepare to ask questions and just a month to review it for comments was sufficient.	Minnesota Rule discusses review periods. Minnesota Rule 4410.2600, Subp. 8 requires that the information meeting must not be less than 15 days after publication of the EIS. Supb. 9 contemplates a comment period extending 10 days beyond the informational meeting.	20243-204403-02
	Stamp, Amanda	2024-02-23	Environmental Impact Statement Preparation Team - I participated in the online public meeting related to the DEIS. I was alarmed by the speaker from Allied Solutions, Inc. (“Allied”) which is noted in the DEIS to be a subcontractor on behalf of the Energy Environmental Review and Analysis (“EERA”). The representative from Allied credentialed himself as someone who works with CO_2 pipelines throughout the United States. Without further disclosure as to Allied’s credentials and the selection process, how can the public know Allied is in fact impartial if its business is based on the need for CO_2 pipelines? The DEIS should clarify the credentials of the contractors relied upon, the companies assessed for hiring, disclose the contract terms and fee arrangements, and disclose why EERA determined a selected contractor is in fact qualified AND impartial. Additionally, the DEIS lists System Insight Engineering, LLC as a preparer, but this business is not referred to in the report making it unclear what external assistance was provided. Further, the HDR, Inc. preparers include a copy editor which indicates a report was provided. Why is that report not attached in its original form as evidence of what was considered in the DEIS?	Chapter 12 has been updated to include the qualifications of the preparers of the EIS, including Allied and System Insight. The role of the copy editor was to correct grammar errors, improve text consistency, and generally improve the readability of the draft EIS for the public. No separate report was generated by this process.	20243-204403-02

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	Stamp, Amanda	2024-02-23	Water Resources - The DEIS water resource summary concludes the Department of Natural Resources (“DNR”) would regulate water supply appropriations, however, considering water usage is one of the most important issues that impacts all Minnesotans, the DEIS should not be deemed complete without consideration. The report includes generalities and no conclusion or analysis to water issues, and the issues noted are concerning given the recent weather in our state. For example, Table 5-40 concludes at underwater resources, “Minimal use of water and discharge of water is planned.” However, the report ignores water usage so there is no basis to include a statement of “minimal use”. Further, under the project design category it states “Drought could affect the project’s ability to appropriate water.” Considering parts of Minnesota are already in a drought, and I am now watering my trees to prevent them from dying, yes, water usage, allocation and the viability of this project is important even if there is a jurisdictional question related to the assessment of water. Further, “Contingency water sources would be required by permits should water not be available due to drought conditions.” It should be stated whether this location is in a drought already or close to being a drought. Isn’t the purpose of the DEIS to make these determinations for the general public rather than leaving open ended questions with significant consequences? Lastly, page 7-10 states it could take 100 to tens of thousands of years to recharge an underground reserve and that underground reserves of freshwater are limited. If we are allowing a private enterprise to use, without charge, a natural resource of the state that could take tens of thousands of years to recharge, would that not merit a complete, robust and publicly disclosed analysis? A complete analysis of the water usage, availability and impact to the general public must be included in the final DEIS. Further, considering the entire footrint of the project is much larger than this permit application component, the overall water usage should be considered prior to finalizing a DEIS.	Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	20243-204403-02
	Stamp, Amanda	2024-02-23	CO_2 Release Impacts - Page ES-10 denotes a difference between leaks and ruptures and the provided context focuses on leaks. However, there is no consideration given as to the pressure within the pipe (approximately 2,000 psi), which in this case is much higher than other pipelines. As such, it is my understanding any opening in the pipeline likely would result in a rupture given the high pressure. The basis for this discussion is PHMSA data which is weighted towards other pipeline types which are under much less pressure. The report should clarify the basis for the PHMSA data and whether it is actually comparable to the specifications of the pipeline being proposed.	According to PHMSA Pipeline Flagged Incident Files, from 2010 through April of 2024, 136 incidents were recorded on pipelines carrying hazardous liquids (which includes CO_2) with a pressure of over 2,000 psi, across the US. Of those 136 incidents, 116 incidents were leaks, 2 incidents were ruptures, and the remaining 18 incidents were classified as "other." Based on the PHMSA Pipeline Flagged Incident Files, pressures greater than 2,000 psi did not result in more ruptures than leaks. Section 8.2.2 has been revised to include this information.	20243-204403-02
	Stamp, Amanda	2024-02-23	Region of Influence - The Table 5-1 Region of Influence for public health and safety is listed as Otter Tail and Wilkin Counties. However, later in Section 5.4.6, Populated Areas, it states the ROI is the local vicinity which was previously defined as 1,600 feet plus the 250 feet of route width. These 2 data points seem conflicting. The DEIS should disclose how the ROI was determined and why that was concluded to be sufficient. The dispersion modeling summary on page ES-10 states mild respiratory stimulation was calculated at 910 feet, and I presume this is based on the “conservative assumptions” that are not disclosed.	Public health and safety as discussed in Section 5.4.8 analyzes the effects that construction and operation accidents would have on public health services. Since the area of Minnesota that would be crossed by the project is rural, the ROI for public health and safety is defined as Otter Tail and Wilkin Counties to include the nearest hospitals and the range of first responders available to provide emergency response if needed during construction or operation of the project. The conservative assumptions mentioned in the Executive Summary are defined and discussed in Section 8.3.1.2 and Appendix G.	20243-204403-02
	Stamp, Amanda	2024-02-23	For avoidance of doubt, the DEIS should also confirm whether or not the city of Fergus Falls is deemed a high consequence area per PHMSA guidelines. While the ROI used is assistive, it would make most sense to include an assessment using PHMSA rules on whether the close proximity of the capture facility to the populated city of Fergus Falls has further impacts to populated areas. I don’t see how the Minnesota DEIS would be accurate without clearly linking how the proposed siting by SCS aligns with the criteria used by PHMSA to conclude there are no impacts to the health and human safety of populations. Additionally, page 8-14 indicates the Fergus Falls Municipal Airport could be within the toxic impact distance. If this is a PHMSA high consequence area, that designation should be stated clearly and the impacts discussed within this DEIS.	Fergus Falls is a high-consequence area. However, the impact distance (at the 30,000 ppm concentration) would intersect unused fields, but not intersect any of the buildings where people would congregate. Section 8.3.1 has been revised to clarify.	20243-204403-02
	Stamp, Amanda	2024-02-23	Lastly, while the DEIS states the Public Utility Commission (“PUC”) can’t set safety standards, PHMSA has stated publicly that “nothing in the federal pipeline safety law impinges on these traditional prerogatives of local - or state - government.” The PUC should consider whether the pipeline is placed in the most logical location, including safety.	Although the Commission cannot set safety standards for pipeline construction or operation, state or local units of government may, to the extent authorized by law, set land use requirements that indirectly contribute to pipeline safety by regulating the activities of third parties located in the pipeline’s vicinity. The Commission’s obligation is to	20243-204403-02

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				identify a pipeline route consistent with the criteria found in statutes and the applicable administrative rules. Federal law, by contrast, exclusively prescribes pipeline safety requirements. Chapter 3.4 of the EIS has been revised with this information.	
	Stamp, Amanda	2024-02-23	PHMSA Data on Accidents Involving Liquid Pipelines - Section 8.2.2 discusses the criteria of what is deemed an “accident” per PHMSA guidelines. Of note is “personal injury necessitating hospitalization” which differs from personal injury necessitating medical attention. This distinction under-reports the actual accidents and injuries from pipelines. As such, these data points should be qualified in the report to more accurately portray the risks. For example, page 8-3 states, accurately, the CO_2 pipeline rupture in Satartia, Mississippi caused 45 people to be hospitalized and 200 to be evacuated. However, this mass injury event won’t be reported under PHMSA rules denoting how catastrophic the impacts were. Additionally, citation 31 infers PHMSA has declared pipelines to be the safest mode of transportation for carbon dioxide. However, my assessmet of this citation is that there is no conclusion from PHMSA that pipeline transportation for carbon dioxide is indeed safer than other modes of transportation. Given the dangerous attributes of CO_2, in order to make this conclusion there would need to be a scientific assessment of how the CO_2 in a truck or railcar is indeed less safe than having a 20 mile pipeline section of highly pressurized CO_2 escape upon an unknowing person who can’t see or smell it. Where is the science supporting this assertion? As already noted, PHMSA’s subpar standards for determining an “accident” means the widely marketed viewpoint of safety is not what a normal person would deem to be an accident. If someone must seek medical attention, I would consider that an accident.	It is outside the scope of this EIS to redefine the term "accident" since it is a PHMSA term and definition, as noted in this comment. As cited in Section 8.2.2, (General Pipeline FAQs): Question 2 on the PHMSA FAQ page defines pipelines carrying liquefied gases, such as carbon dioxide, as liquid petroleum pipelines. Question 6 states: "The nation's more than 2.6 million miles of pipelines safely deliver trillions of cubic feet of natural gas and hundreds of billions of ton/miles of liquid petroleum products each year. They are essential: the volumes of energy products they move are well beyond the capacity of other forms of transportation. It would take a constant line of tanker trucks, about 750 per day, loading up and moving out every two minutes, 24 hours a day, seven days a week, to move the volume of even a modest pipeline. The railroad-equivalent of this single pipeline would be a train of 225, 28,000 gallon tank cars. *Pipeline systems are the safest means to move these products.*" (Note that due to new citations being added during the review and revisions to the EIS, this citation is no longer Citation 31).	20243-204403-02
	Stamp, Amanda	2024-02-23	In addition, the DEIS doesn’t consider that PHMSA is currently undergoing a rule making process for CO_2 pipelines which is being undertaken because there is an acknowledgement after the Satartia, Mississippi disaster there is a lack of science and regulations regarding these pipelines. To know PHMSA is currently improving its rules but not requiring compliance, nor acknowledging the impacts in the DEIS, is disappointing. Why is EERA not proposing a permit condition or recommendations requiring compliance with PHMSA’s forthcoming rules? Alternatively, how is the DEIS comfortable with the forthcoming rules and what analysis is provided that informs the DEIS is adequate given its silence on that matter? The DEIS should be qualified to denote further safety considerations as well as conclude on the impact of the forthcoming PHMSA regulations.	Thank you for your comment. The draft EIS discusses PHMSA rules and regulations, and the pending rulemaking process it is undertaking for CO_2 pipelines, and acknowledges pending PHMSA changes to such regulations (see draft EIS, Chapter 3, Chapter 8, and Appendix G). However, PHMSA regulations (that is, their appropriateness) and related standards for CO_2 pipelines are outside the scope of the EIS (Appendix A). PHMSA regulations apply to the project and the applicant is required to comply with these regulations; thus, EERA staff believes there is no need to propose a special permit condition or compliance recommendation. Although the Commission cannot set safety standards for pipeline construction or operation, state or local units of government may, to the extent authorized by law, set land use requirements that indirectly contribute to pipeline safety by regulating the activities of third parties located in the pipeline’s vicinity. The Commission’s obligation is to identify a pipeline route consistent with the criteria found in statutes and the applicable administrative rules. Federal law, by contrast, exclusively prescribes pipeline safety requirements. Section 3.4 of the EIS has been revised with this information. The applicant has stated its proposed CO_2 pipeline would be designed, constructed, and operated to meet current PHMSA regulations, including any operational changes to PHMSA regulations that may occur in the future. To the extent applicable and in response to this and similar comments, Section 3.6 and Appendix G of the EIS have been updated to include this information.	20243-204403-02

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	Stamp, Amanda	2024-02-23	Greenhouse Gas ("GHG") Emissions - The DEIS should be modified to differentiate, in detail, whether the CO_2 discussed is biogenic or fossil fuel created. The DEIS doesn't distinguish between the sources nor the environmental impacts of either. Further, the data presented is not clear as to its meaning. o start, the DEIS should define its meaning of greenhouse gas. The United States Environmental Protection Agency ("EPA") doesn't include biogenic CO_2 in its greenhouse gas reporting as it isn't considered a greenhouse gas emission. Given the EPA does not believe biogenic CO_2 is a greenhouse gas, I don't know how the state of Minnesota can determine this project decreases greenhouse gas emissions. Page 5-93 states the project provides a "net benefit to GHG emissions", but based upon EPA guidelines, no greenhouse gas emissions are actually being captured by this project.	The project would capture and sequester the biogenic CO_2 produced by the ethanol fermentation process at the ethanol plant. The analysis in Section 5.7.1 includes both air pollutant and GHG emissions from fossil fuel sources that would be used during construction and operation. Text has been added to the beginning of Section 5.7.1 to clarify.	20243-204403-02
	Stamp, Amanda	2024-02-23	The discussion of the emissions from the ethanol facility focuses on the CO_2 from the fermentation process, or the biogenic CO_2. There is no discussion about the fossil fuel emissions from the natural gas used which undoubtedly are the emissions which are causing climate change. For example, Table 5-36 and its footnotes focus on the CO_2 conversion from corn. The report doesn't appear to expressly acknowledge the fossil fuels generated are not being captured nor whether they plan to be captured in the future. The process to capture biogenic CO_2 varies from the process required to capture fossil fuel CO_2. Without the permit application and the DEIS being clear on which components of the emissions are being captured and transported, nothing in the DEIS can be deemed accurate. The varying emissions to be captured require distinct processes and chemicals, and the DEIS analysis and application can not be silent on this distinction as the accuracy of the entire analysis is dependent upon the distinction.	AQ and GHG emissions from the capture facility are addressed in Table 5-38 and compared to the air permit thresholds. This includes potential natural gas usage for space heating. The ethanol plant is under a Title V Permit, which regulates the allowable emissions from the plant. This project will not alter the production of ethanol from the plant. The analyses in Section 5.7.1.3 and Chapter 6 have been revised to include capture rate scenarios for 100 percent, 70 percent, 40 percent, and 10 percent.	20243-204403-02
	Stamp, Amanda	2024-02-23	Enhanced Oil Recovery ("EOR") - The DEIS states this project does not plan or propose to use the CO_2 to recover oil which obviously defeats the stated purpose of this project, and while the DEIS acknowledges it can not speculate on EOR use, it provides no analysis or assurances the issue is appropriately considered. For example, it is well documented government officials in the state of North Dakota publicly state the future of the Bakken oil reserves is in EOR. The DEIS page 5-101 states, "If all the CO_2 produced by the ethanol plant is sequestered as proposed, EOR would likely continue in North Dakota using other sources of CO_2, other gasses, thermal methods, or chemical methods. Production of oil through EOR would not be dependent on the availability of CO_2 produced by the ethanol plant." The issue in this conclusion is "the ethanol plant", because this proposal is a small component of a much larger and integrated project to aggregate significant volumes of CO_2 and pipe it to an area of known oil reserves which require EOR. Given this point, none of the EOR discussion is actually valid in the broader context of what is happening and the broader assessment the state of Minnesota is being asked to consider. Had SCS been required to treat the multiple Minnesota pipelines of its project as one total project, this entire discussion in the DEIS would be different. Alternatively, the broader footprint should be considered to determine if the overall purpose, goals and merits of this project, even if one facility is in Minnesota, achieves the same analysis in the DEIS.	Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for EOR.	20243-204403-02
	Stamp, Amanda	2024-02-23	In addition, the DEIS does not apply speculation versus facts equally. Ethanol production can't be predicted, as stated on page 7-1, "It might fluctuate up and down." There is an attempt to explain alternatives which root heavily in speculation, but the DEIS can be silent on EOR as it is speculative. However, more importantly, the DEIS ignores the fact the purported business plan is reliant on Federal tax credits that expire, and this is a fact. This is not speculative. Given the business plan, as disclosed, has revenue that will expire much sooner than the useful, operating or design life of the project, then the underpinnings of the project must be examined. How is this a viable business plan? To review this DEIS without that consideration, particularly as to the financial viability of the project and the obvious secondary revenue stream of enhanced oil recovery in North Dakota, the sequestration area, would be a grave disservice to Minnesotans. If the value of this project can't prove there is revenue that is not speculative after the expiration of Federal tax credits, then it must be assumed the CO_2 will be sold for EOR in which case the DEIS is missing a complete analysis of the impacts. Imagine if the state of Minnesota permits this project only to have the CO_2 potentially be used in EOR in 15 years; can you imagine what the public perception of this process would be at that point?	Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for EOR.	20243-204403-02
	Stamp, Amanda	2024-02-23	Corn Usage - The DEIS should include consideration of how much ethanol by product is consumed by animals and would otherwise be consumed without an ethanol plant. The amount of corn processed by ethanol producers doesn't translate directly into lost consumption. Further, there is no consideration given to the economics of this proposed project, plus the rest of its footprint, relative to corn prices and impacts to animal producers and food prices. News reports state the sustainable aviation fuel market (which ethanol plants desire to create) could require 60additional ethanol plants in the midwest, and I can not understand how that much corn and water can possibly be grown or allocated without severe societal and economic impacts.	Potential socioeconomic impacts concerning corn crop prices, animal producers, and food prices are addressed in Section 7.2.2.1.	20243-204403-02

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	Stamp, Amanda	2024-02-23	Odorant - DEIS page 8-25 states an odorant can't be included because it would require multiple injection facilities and would introduce additional logistic and design changes needed for the safe storage and overland transport of odorant. While the DEIS states safety standards can't be set, I would ask whether the applicant truly can't odorize this pipeline, and if unwilling or unable whether the siting makes any sense at all. The DEIS should focus more on this point rather than passing the buck to PHMSA.	As indicated in the EIS, CO_2 is odorless at low concentrations but has a sharp, acidic odor at very high concentrations, such as would occur in the event of a rupture. EERA staff evaluated the addition of an odorant, as described in Section 8.5.2. Adding an odorant would fall under safety standards. The Commission cannot set safety standards for pipeline construction or operation. The Commission's obligation is to identify a pipeline route consistent with the criteria found in statutes and the applicable administrative rules. Federal law, by contrast, exclusively prescribes pipeline safety requirements.	20243-204403-02
	Stamp, Amanda	2024-02-23	I'd like to remind the PUC and other government agencies that just because something can be done, doesn't mean it should be done. The citizens of Minnesota are relying on government watch dogs to ensure the safety of our people and our resources regardless of what private businesses, non-government organizations and others think would advance commerce, labor and tax rolls. The size and novelty of this high pressure CO_2 pipeline with multiple on-takers is truly a new proposal which has not been done before. It is important the State of Minnesota fully considers all aspects of the proposal without prejudice as there are people in rural Minnesota counting on you all to get this right. Thank you for your consideration.	Thank you for your comment.	20243-204403-02
	Steitz, Jim	2024-02-23	Carbon capture and storage is a technological mirage that the industry has dangled before legislators and regulators for decades, promising at an indeterminate future date to clean their carbon mess, while continuing to flood our atmosphere with carbon. Any scientifically literate government official should understand that the creation of carbon dioxide is an innate, inexorable aspect of releasing energy from fossil carbon, and that industry lobbyists who promise to capture their carbon are preying on either the scientific illiteracy or knowing cynicism of government officials. Do not issue pipeline permits to perpetuate the charade that burning carbon will one day be compatible with human survival.	Thank you for your comment.	20243-204403-01
	Steva, Keith	2024-02-22	Hi, my name is Keith Steva. I live in Beatty Township, St. Louis County MN. I have a technical education in engineering and have been studying carbon capture proposals of various types for years. The "solutions" I have seen appear to be false solutions to greenhouse gas emission and CO_2 release. In fact, I'd be so bold to say these seem like public scams to convince people that continued burning of fossil fuels and indirectly consuming fossil fuel for farm equipment and related support industries including the big consumer of fossil fuel, nitrogen-based fertilizer for agriculture is ok because we are going to "capture" the CO_2. This is a very high-risk venture and likely to fail financially and certainly fail environmentally. The developers will take the money and leave the problems to the citizens of Minnesota. Clean water and NO BURNING or use of fossil fuels should be the goal. Not a shell game to deceive the public. The environmental costs are enormous, and risks are not controlled. This is a very bad project. I am adamantly against the pipeline.	Thank you for your comment.	20243-204403-01
	Strand, Jeffrey	2024-02-23	Comments from Jeffrey Strand, rural resident and farmland property owner in Highwater Township, Cottonwood County, MN. I am concerned about proposed CO_2 "Carbon" Pipelines Otter Tail to Wilkin project because this IS of statewide concern and of great concern as well to rural residents in Southern and Southwest Minnesota. After living in Minneapolis and having a second home on the farm these past 21 years, we are now permanent farm home residents in another proposed project area. CO_2 Pipelines are destructive and can wreck soil structure, disrupt drain tile systems, along with other serious and long-term impacts on productivity of agricultural lands. Large-scale and multi-state CO_2 pipeline networks are being proposed by out-of-state corporations from various industrial facilities, but largely benefit the companies, investors and billionaires to reap windfalls from 45Q tax credits (26 USC S 45Q - Credit for carbon oxide sequestration). The economic and environmental burdens, however, are shifted to surrounding rural communities, farmers and taxpayers. There is NO actual cost-benefit for CO_2 carbon capture pipelines is unproven as an effective way to reduce greenhouse gas emissions to combat global climate change. The proposed CO_2 pipeline for 11 rural Minnesota counties is an unproved pilot project. Rural communities that rely upon mostly volunteer EMS services are NOT equipped to effectively respond to ruptures or leaks, thus putting rural residents at risk. The proposed CO_2 pipeline setbacks do NOT adequately protect rural communities. The heavy use of groundwater resources by the CO_2 pipelines puts scarce rural water resources at risk. Creation of carbonic acid in processes related to the project presents a toxic and corrosive threat to the environment.	See responses to detailed comments on each topic below.	20243-204403-01

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	Strand, Jeffrey	2024-02-23	CO_2 is a hazardous material in high concentrations. The DEIS consistently underplays the known and unknown risks of transporting large amounts of CO_2 at high pressures through a pipeline.	Chapter 8 describes the properties of CO_2 and the impacts of a potential rupture.	20243-204403-01
	Strand, Jeffrey	2024-02-23	CO_2 Rupture Impact Zone: According to the analysis in the DEIS, the potential impact radius for levels of CO_2 that would be "immediately dangerous to life or health" is 617 feet. This expands to 910 feet for lower concentrations that cause dizziness, drowsiness, severe muscle twitching, and unconsciousness within a few minutes. Although Summit indicates that it will take 25 minutes for the system to shut off the relevant valves in the event of "abnormal operation," the DEIS does not mention any meaningful safety measures for a rupture and instead suggests that it is "reasonable" for Summit to simply supply indoor CO_2 detectors for residences within 1,000 feet of the project. But the rupture report in Appendix G states that "a full rupture results in impact distances too quickly for an early warning device, such as an oxygen detector, to be effective." This pipeline should not be approved without a clear understanding of the risks to human health and meaningful measures to ensure the safety of people and animals in the area.	Text in Section 4.5 on valve closure time has been corrected from 25 minutes to 10 minutes. Elsewhere in the EIS, including the rupture analysis, valve closure time is listed/calculated as 10 minutes. Section 8.3.1 has been revised to note that, while acknowledging that the Commission does not set pipeline safety standards, EERA staff believes a special permit condition requiring the applicant to consider installing check valves or pressure sensing valves that automatically close when pipeline decompression occurs is reasonable. These valves could then close more quickly and reduce the impacts of a potential rupture.	20243-204403-01
	Strand, Jeffrey	2024-02-23	First responders and health professionals: CO_2 pipelines pose unique problems for first responders and health care providers. Because CO_2 is colorless and odorless, both victims and first responders have no way of knowing what is causing the health problems. In addition, first responders require special equipment, including non-internal combustion engines, to respond to a CO_2 disaster. The DEIS does not consider the burdens this will put on local EMS and health providers in the case of a pipeline rupture or accident or an assessment of how they should be prepared to respond given the unique needs. The DEIS includes Summit's September 2022 Emergency Response Plan (Appendix N). This plan is not only outdated but also unclear as to how local EMS and first responders will interact with the applicant in the event of a leak or rupture. Though the plan talks of multiple company personnel as playing roles in an emergency response, it ignores the fact that the applicant only plans on having one full-time employee at the capture facility. Local first responders deserve more clarity about how they will be expected to respond to an emergency situation and what the applicant will do to ensure they are adequately equipped and informed for such an event.	Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. The Emergency Response Plan included as Appendix N is a draft plan that is not outdated but would be revised as required by PHMSA, if the project is approved. Additionally, EERA staff recommended a special permit condition requiring the applicant to file its Emergency Response Plan that is filed with PHMSA with the Commission, and other special permit conditions as described in Section 8.5.3.	20243-204403-01
	Strand, Jeffrey	2024-02-23	Compliance with PHMSA Rules: The DEIS accepts Summit's assurances that it will "comply with federal emergency response requirements," but as noted in a Pipeline Safety Trust report and by the Pipeline Hazardous Material Safety Administration (PHMSA) itself, the current emergency response requirements are dangerously outdated.	Thank you for your comment. The draft EIS discusses PHMSA rules and regulations, and the pending rulemaking process it is undertaking for CO_2 pipelines, and acknowledges pending PHMSA changes to such regulations (see draft EIS, Chapter 3, Chapter 8, and Appendix G). PHMSA regulations (that is, their appropriateness) and related standards for CO_2 pipelines are outside the scope of the EIS (Appendix A). PHMSA regulations apply to the project, and the applicant is required to comply with these regulations; thus, EERA staff do not believe there is a need to propose a special permit condition or compliance recommendation. Although the Commission cannot set safety standards for pipeline construction or operation, state or local units of government may, to the extent authorized by law, set land use requirements that indirectly contribute to pipeline safety by regulating the activities of third parties located in the pipeline's vicinity. The Commission's obligation is to identify a pipeline route consistent with the criteria found in statutes and the applicable administrative rules. Federal law, by contrast, exclusively prescribes pipeline safety requirements. Section 3.4 of the EIS has been revised with this information. Additionally, the Applicant has stated its proposed CO_2 pipeline would be designed, constructed, and operated to meet current PHMSA regulations, including any operational changes to PHMSA regulations that may occur in the future. To the extent applicable, and in response to	20243-204403-01

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				this and similar comments, Section 3.6 and Appendix G of the EIS have been updated with this information.	
	Strand, Jeffrey	2024-02-23	Setbacks: The DEIS states that the PUC "cannot set safety standards" for Summit's proposed pipeline. PHMSA has expressly said in public letters to CO_2 pipeline companies like Summit that state and local authorities can exercise their powers to regulate land use—including setback distances—and that "nothing in the federal pipeline safety law impinges on these traditional prerogatives of local—or state—government." The PUC must consider where the pipeline is placed and what is the safest option for Minnesotans, which means the PUC can and should determine what routing, setback, and depth requirements are necessary to adequately protect Minnesotans. Minnesota's recent experience with pipeline construction demonstrates the serious harms that it causes on water resources as well as a tendency by state agencies to under-account for those impacts.	Although the Commission cannot set safety standards for pipeline construction or operation, state or local units of government may, to the extent authorized by law, set land use requirements that indirectly contribute to pipeline safety by regulating the activities of third parties located in the pipeline's vicinity. The Commission's obligation is to identify a pipeline route consistent with the criteria found in statutes and the applicable administrative rules. Federal law, by contrast, exclusively prescribes pipeline safety requirements.	20243-204403-01
	Strand, Jeffrey	2024-02-23	Dangers to water and waterbodies: The proposed route for Summit's pipeline network includes many water crossings, wetlands, aquifers, and other sensitive water bodies. More research and analysis are needed to understand how CO_2 disperses in water and what risks a CO_2 pipeline leak or rupture poses to Minnesota's precious waters and the fish, amphibians, reptiles, waterfowl, birds, and insects that rely on it to survive.	Potential impacts of a pipeline rupture on water resources and wildlife are addressed in Section 8.3.4. Stand-alone studies concerning impacts on water resources, wildlife, and wildlife habitat are outside the scope of the EIS.	20243-204403-01
	Strand, Jeffrey	2024-02-23	Water use: Much of southern Minnesota is suffering from the consequences of drought and over-commitment of our fresh drinking water supplies. The DEIS fails to discuss the impacts of an increase in water use on local water supply. The carbon capture process can double water requirements at a facility and increase toxic wastewater discharge. The DEIS states that Summit "anticipates" an average water use for the operation of the carbon capture equipment of 13 million gallons per year, which is concerningly ambiguous. There must be a careful and case-specific assessment done of how the installation and operation of carbon capture will impact current drought conditions and exacerbate existing pollution sources. Moreover, Summit has not finalized its water appropriation sources or volumes needed for construction, so it is impossible to know the full impacts of those appropriations on water resources. Why should Minnesota risk our fresh drinking water supply and commit to an infrastructure when the proposing company has not been transparent with its true demands for water resources?	Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2. As stated in Section 5.7.8, water supply appropriations would be regulated by DNR-issued permits that would have conditions to minimize impacts on groundwater resources. DNR would review permit applications and would not issue a permit if the amount of water to be withdrawn would adversely affect the aquifer or other users.	20243-204403-01
	Strand, Jeffrey	2024-02-23	Aquifer Damage: Summit's preferred route, RA-South, crosses a surficial beach ridge aquifer in Otter Tail County. The DNR has said that the area is "prone to significant groundwater discharge," and the applicant's initial groundwater investigation confirmed that "artesian groundwater conditions are present" along that beach ridge system. In early feedback on the DEIS, the DNR noted that "Project construction has the potential to intersect shallow confined groundwater potentially causing a breach in a confined aquifer and that "breaching shallow confined aquifers could have significant long-term impacts to groundwater resources." This, along with our state's first-hand knowledge of how damaging pipelines can be, requires that the DEIS take potential damage to aquifers more seriously.	Section 5.7.8.2 acknowledges that damage to aquifers is a serious problem and indicates that an uncontrolled flow of water from a shallow confined aquifer could have a significant, long-term impact on groundwater. Section 5.7.8.2 also describes geotechnical investigations that would be done to identify areas where breaching of a shallow confined aquifer could occur, and sheet piling would not be used. The applicant currently has an ongoing groundwater investigation underway to further inform construction practices and is continuing to consult with DNR. As part of its coordination with DNR, the applicant has agreed to use ground penetrating radar to study the depth of the confining layer through the entire beach ridge system area crossed by the pipeline to further define existing conditions and advise on construction methodology. Furthermore, EERA staff recommends that the applicant develop, in coordination with DNR, a plan for pipeline construction in areas crossing the beach ridge system area. The plan would include, at a minimum, measures to minimize the potential for breaching a shallow confined aquifer during trenching and contingency	20243-204403-01

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				measures to mitigate the impacts of a breach, should one occur. This information has been added to Section 5.7.8.2.	
	Strand, Jeffrey	2024-02-23	HDD Drilling: The DEIS also states that "drilling mud mixed with additives that are not on the MDH-approved additive list and/or do not meet [drinking water quality certification standards] would be disposed of as solid waste at an approved facility, or the applicant would obtain a land application permit from MPCA." The DEIS does not discuss the risks of applying drilling mud, especially with additives not approved by MDH, to the land. The DEIS says that "drilling fluids and additives for the HDD would be non-toxic to the aquatic environment and humans," however, even supposedly "non-toxic" drilling fluid is chemical waste that has been found to be harmful to plant and animal species. Summit's preferred route and alternative route, RA-Hybrid, would both cross three rivers (Pelican River, Otter Tail River, and Bois de Sioux River) via the HDD mention.	As described in Section 5.7.8.2, an additive approved by MDH or meeting NSF International/ANSI Standard 60, Drinking Water Treatment Chemicals – Health Effects, might need to be mixed with the drilling mud for viscosity or lubricating reasons and to reduce the potential for an inadvertent release or failed HDD. The specific additive used would depend on the conditions at the crossing location and would be determined by the HDD contractor. The EIS discloses the potential for an inadvertent release of drilling mud and describes potential impacts in Chapter 5. Land application of drilling mud and potential impacts are addressed in Section 5.7.6.2.	20243-204403-01
	Strand, Jeffrey	2024-02-23	Wetlands: In Table 5-40 on p. 5-98 of the DEIS it states that "the loss of wetlands would be less than 0.01 acre." However, Table 5-4 on p. 5-24 says that for Summit's preferred route, operation impacts are expected to be 3.3 acres, and construction impacts are expected to be 4.7 acres. And Table 5-52 on p. 5-143 suggests that the total construction impact on wetlands for RA-South is 2.7 acres.	Discrepancies between Table 5-4 and Table 5-54 result from different datasets and their associated resolutions. Table 5-4 uses NLCD data to analyze land cover, and Table 5-54 uses NWI data to analyze wetlands. Table 5-40 has been edited to be consistent with discussions of impacts on wetlands in Section 5.7.9 and Table 5-53 and Table 5-54.	20243-204403-01
	Strand, Jeffrey	2024-02-23	Impacts of a Leak or Rupture on Animals: According to the DEIS, CO_2 leaks would not affect mammals, birds, reptiles, amphibians, and insects and would be unlikely to impact fish and freshwater mussels. The DEIS reaches this conclusion without providing any reasoning or supporting evidence. Though the DEIS does note some harm may come to animals in the event of a rupture, it relies heavily on the assumption that animals will simply move out of the rupture area to avoid the release. The reason for this assumption is not provided and is contradicted by information in the rupture report in Appendix G which suggests the impacts of a rupture would be nearly immediate. Critical Habitats: Summit's preferred route would cross over or near several waterfowl protection areas, including the Orwell 9 Unit and Ridgeway WPA in Otter Tail County. The DEIS notes that some of these areas will be avoided during construction but fails to consider the impacts to these features in the event of a leak or rupture.	CO_2 is a widespread, naturally occurring gas and is the primary byproduct of respiration—the conversion of sugars to usable energy. Minor leaks of CO_2 from operation of the proposed pipeline would not elevate ambient CO_2 to a level that is detrimental to local vegetation or wildlife. Potential impacts on wildlife from a CO_2 rupture could result first from the physical force of a rupture and secondarily from localized short-term high levels of CO_2 prior to dispersal and extreme cold temperatures associated with the depressurization of the CO_2 from a supercritical state to a gas. Chapter 8 of the EIS acknowledges that wildlife in the immediate vicinity of a rupture might be killed or injured by this force; however, it is expected that most mobile wildlife species would follow their natural instincts and attempt to escape the direct effect of a rupture. Chapter 8 of the EIS also acknowledges that less-mobile species in the immediate vicinity of the point of a rupture would be less likely to escape the impacts and might be killed or injured. The data presented in Appendix G describes models of dispersal patterns in the immediate vicinity of a rupture. These models support the statements in Chapter 8 that wildlife in the immediate vicinity of a rupture might be exposed to high levels of CO_2, which could be toxic for species unable to leave the area of the release.	20243-204403-01
	Strand, Jeffrey	2024-02-23	The DEIS consistently fails to properly account for the real CO_2 emission and climate impacts of the project.	Thank you for your comment.	20243-204403-01
	Strand, Jeffrey	2024-02-23	Lifetime of Project: The applicant states that the anticipated lifetime of this project is 25 years. This means at the end of its life; the project could stop capturing the CO_2 from the ethanol plant. Unless the ethanol plant will also cease operations at that point in time, it will continue to emit CO_2 unabated into the future.	Section 2.7 describes decommissioning of the project. If the ethanol plant continues to operate beyond the life of the proposed project, its CO_2 emissions would not be captured.	20243-204403-01
	Strand, Jeffrey	2024-02-23	100% CO_2 Capture Rate: Summit states that the capture facility "is designed to capture 100% of the CO_2 produced by the ethanol plant." There is no carbon capture facility in the world, ethanol or otherwise, that captures carbon at a rate of 100%. This claim is not supported by any data/information or verified by a third party.	Section 2.1 has been revised to clarify that the captured CO_2 is produced by the ethanol plant as part of its fermentation process, the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and commenters have	20243-204403-01

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			Additionally, the DEIS should emphasize that any CO_2 capture is solely associated with emissions from the ethanol fermentation process and provides zero reductions on the significant emissions from the facility's electricity use.	questioned the feasibility of this capture rate given the performance of existing capture facilities. Section 6.3 describes energy efficiency and energy alternatives that could reduce emissions from the ethanol plant's electricity and process fuel use.	
	Strand, Jeffrey	2024-02-23	Added CO_2 from electricity use: Carbon capture technologies are highly energy intensive and will significantly increase the carbon emissions at the facility from electricity use. The DEIS uses the Midwest Reliability Organization West Region average to calculate these emissions, which is unnecessarily inaccurate given the availability of the actual emissions factor from Great River Energy.	Electricity emissions are included in Table 5-39. These numbers have been revised to reflect the electricity emission factor associated with LREC, which would provide electricity to the project. The revised electricity emission factor is 132.2 gCO_2e/MWh. This was calculated from LREC's energy resource mix in which nearly half comes from clean energy sources. Because LREC has a lower emission factor than the Midwest Reliability West Region emission factor (684.35 gCO_2e/kWh), which was used in the draft EIS, calculated electricity emissions have decreased.	20243-204403-01
	Strand, Jeffrey	2024-02-23	CO_2 Storage: The DEIS assumes 100% of captured CO_2 is being permanently stored underground. There is no guarantee that this will occur and no explanation of the monitoring and verification protocols that would ensure it.	Text has been added to Section 2.1 describing the suitability of the Broom Creek Formation in North Dakota for CO_2 sequestration, as well as the monitoring and testing that would be done to verify that the CO_2 is contained in the storage reservoir.	20243-204403-01
	Strand, Jeffrey	2024-02-23	Enhanced Oil Recovery: The DEIS fails to explain whether the applicant can sell any of its captured CO_2 to others for alternative uses instead of permanent sequestration and what the impacts of that would be. The DEIS incorrectly states that "Production of oil through EOR would not be dependent on the availability of CO_2 produced by the ethanol plant." This claim is contradicted by countless public statements from public officials in North Dakota and oil industry representatives.	The text questioned by the commenter in Section 5.7.2.3 was prefaced with the following: "if all the CO_2 produced by the ethanol plant is sequestered as proposed, EOR would likely continue in North Dakota using other sources of CO_2, other gases, thermal methods, or chemical methods." Revisions are not necessary. However, Section 5.7.2.3 was revised to reference additional information regarding the possibility that the captured CO_2 transported by the project could be used for EOR.	20243-204403-01
	Strand, Jeffrey	2024-02-23	Environmental Justice Communities: The DEIS acknowledges that the project will directly intersect a defined environmental justice community but does not account for the burden of the potential health and safety impacts of a leak or a rupture, not to mention any negative impacts from construction on the ecosystem. The DEIS also fails to assess the cumulative impacts of this project in relation to existing pollution or health disparities in the area.	Chapter 8 has been revised to include a new Section (8.3.1.2) describing effects on environmental justice populations in the event of an accidental release of CO_2.	20243-204403-01
	Strand, Jeffrey	2024-02-23	The DEIS states that during operation the proposed project will require about 38,501,733 kilowatt hours per year, and that this amount is "not anticipated to require the addition of power generation capacity." However, the DEIS fails to clearly state how much electricity the ethanol refinery is currently using. For that information, the public must look in Appendix I. The DEIS does not explain how this doubling of the electricity use at the ethanol refinery will impact overall electricity for Lake Region Electric Cooperative. Who is paying for that electricity? Summit or the ethanol facility? And if the latter, will those cost increases be passed on to producers or other member-owners?	Section 5.4.9.2 contains relevant information regarding how LREC would support the project. This section has been updated to indicate that the applicant is solely responsible for necessary infrastructure upgrades (see Appendix I, Supplemental Information Inquiry 13 response and email from LREC).	20243-204403-01
	Strand, Jeffrey	2024-02-23	Complete Network Impacts: In addition to the direct impacts of the 28 miles of pipeline included in Summit's application, the DEIS does not account for the indirect and cumulative impacts of Summit's entire project in Minnesota. This is despite Summit's clear and public plans for a much larger buildout in Minnesota and recent statements that they will be applying for permits for additional parts of the network imminently. Allowing Summit to artificially segment permitting requests for multiple concurrent projects on one pipeline will prevent a thorough review of the cumulative impacts and potential environmental and climate damages of the project.	Thank you for your comment. A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-01
	Strand, Jeffrey	2024-02-23	Decommissioning: Summit appears to indicate that once the pipeline is decommissioned, it will no longer monitor or maintain the pipeline. This is despite the DEIS acknowledging that pipeline segments left in place "would degrade over time and could serve as potential conduits for groundwater or cause minor subsidence when they collapse." There is no information about who would be responsible for any damage caused by the deteriorating pipeline [see pg. 2-15 of the DEIS]. The DEIS references the Decommissioning Plan, but it is not included as an Appendix to the DEIS, nor was it included as an Appendix to the EAW. Without a detailed discussion of decommissioning, the public and state agencies cannot know what human and environmental impacts the plan will have into the future.	Section 2.7 describes decommissioning of the project. This section was revised to describe the financial assurances to be provided by the applicant for costs associated with decommissioning.	20243-204403-01

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	Strand, Jeffrey	2024-02-23	In conclusion, we opposed construction of CO_2 pipelines in Minnesota Rural and Farming Communities, including the Otter Tail Wilkin project as well as other planned elements across the state of Minnesota.	Thank you for your comment.	20243-204403-01
	Striegel, Gerald	2024-02-23	I challenge the DEIS's assessment which concludes that the Summit Carbon Solutions proposal delivers a net benefit of emissions reduction. I am hopeful that an accurate and all-encompassing evaluation of this proposal will follow.	Thank you for your comment.	20243-204403-01
	Striegel, Gerald	2024-02-23	It is important to view the proposed pipeline network and possible injection site as part of a much larger system. An evaluation must consider: ● ethanol plants; ● acreage of corn crop destined for ethanol production; ● fertilizers and/or manure needed to sustain a corn crop while continuously depleting soil; ● petrochemical plants supplying the fertilizers; ● concentrated animal feeding operations (CAFOs) supplying the manure; ● water needed for crop production; ● water required for the ethanol plant process; ● water needed for the carbon capture process; ● water required for CAFOs; ● water contamination resulting from field runoff and CAFOs; ● water contamination generated by the processes; ● continued addition of and consolidation of farming acreage to enhance efficiency, and last but not least; ● energy to drive each leg of this process along—each leg with its own emissions.	A detailed study of the full Midwest Carbon Express project is outside the scope of the EIS.	20243-204403-01
	Striegel, Gerald	2024-02-23	We can see from this list that ethanol is not a sustainable energy solution. Why, then, does ethanol production continue to be greenwashed and blanketed with subsidies? Summit Carbon Solutions suggests that we do not have enough to burn and that this fuel is cleaner. Neither is true, and the industry is chasing an enormous government handout. While this DEIS is being considered, the EPA has approved an even higher ethanol blend, furthering the harm caused. We continue to expand fossil fuel infrastructure and its use to the point of threatening our very existence. As a citizen and a tax payer, I urge the Department of Commerce to truly consider these points in their evaluation.	Thank you for your comment. The appropriateness of federal and state policies regarding carbon capture and ethanol is outside the scope of the EIS.	20243-204403-01
	Theship-Rosales, Alex	2024-02-22	Thank you for taking a minute to read my perspective. Please consider children, youth, adults, and elders 1,000 years from now - will this pipeline be a long-term blessing or curse for them? Water, land, air, and all God has created must be honored and protected for the sake of future generations.	Thank you for your comment.	20243-204403-01
	Thorne, Erika	2024-02-23	I've lived in Minneapolis and St. Paul since 1978. I've witnessed decades of environmental degradation by "public" utilities (including but not limited to Minnegasco, Northern States Power & their successors), aided & abetted by MN lawmakers and bureaucrats. So I applaud the MN PUC deciding to require an Environmental Impact Statement about the proposed Otter Tail CO_2 Pipeline. Thank you!	Thank you for your comment.	20243-204403-01
	Thorne, Erika	2024-02-23	However, this draft is not adequate. My biggest concerns with it are: A) Neither Minnesota's state agencies nor Summit has any experience building, operating, or overseeing CO_2 pipelines. B) The so-called carbon capture aspects of the pipeline are, if you'll excuse my pun, PIPE DREAMS! So are your claims in the DEIS that this pipeline will have "minimal impact" across the board. Such claims are unsupported by the existing evidence about carbon pipelines and pipeline construction generally.	Thank you for your comment.	20243-204403-01
	Thorne, Erika	2024-02-23	Finally, I wish to point out that Minnesota and surrounding states have already been ravaged by pipeline construction. We know they damage the immediate surroundings and directly contradict commonly held goals for climate recovery. We in civil society have demonstrated, in person and through correspondence, our displeasure with each of these pipelines. Your decision to require an EIS at least recognizes that. Yet we need you to produce an Impact Statement that plainly names the high risk today and in our families', futures posed by this CO_2 pipeline. We're counting on you.	Thank you for your comment.	20243-204403-01
	Tjepkema, Jim	2024-02-12	My name is Jim Tjepkema. I am a retired person living in Minneapolis. I have a PhD in Agriculture from Purdue University and worked as an agricultural consultant on sustainable agriculture before retiring. I am currently a volunteer at MN350 supporting their work on climate change. It is well known that we must greatly reduce our use of fossil fuels to prevent very destructive changes in our climate that are already under way. Almost all of the ethanol produced by ethanol plants is mixed with gasoline that is burn in vehicles. Instead of investing in capturing CO_2 from ethanol plants , such as the one involved in the project under consideration here, and sending the captured CO_2 through pipelines, we should plan on shutting down these plants in the near future. We should do everything we can to stop burning ethanol and gasoline in vehicles. If we don't do this we will be failing to take an important step toward stopping the advance of very destructive changes in our environment. Putting money into capturing CO_2 from ethanol plants and sending it through pipelines is a waste of money which is needed to fund other projects such as promoting more use of electric vehicles.	Reducing gasoline and ethanol usage would not meet the purpose of the project as defined in the EIS; therefore, it is outside the scope of the EIS.	20243-204403-01

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	Tjepkema, Jim	2024-02-12	A large portion of the corn that is grown in Minnesota and other states is used to make ethanol. This not a good use of agricultural land. We need a reduction in the amount of corn grown to diversify crop production. It will easier to do more cover cropping and follow other practices that increase the sequestering of carbon in the soil under a diversified cropping system where the amount of corn grown is reduced. Increasing the carbon content of agricultural soils is one of the leading ways climate scientists have brought forward for reducing greenhouse gases that cause climate change. Extreme weather, including droughts and floods, due to climate change are already reducing the production of food to feed the world. We should not be using land that could be used to produce food to produce corn used for ethanol production. Due to our failure to deal as quickly as was and is needed to stop the advance of climate change, there will be an increase in droughts and floods that cause even greater reduction in food production. This is not just my opinion. This is what we are being told by climate scientist. We need to start using the land where corn is being grow to use for ethanol production for food production and not use it for growing corn to produce ethanol to burn in vehicles.	Using corn for food instead of ethanol would not meet the purpose of the project; therefore, it is outside the scope of the EIS.	20243-204403-01
	Tokheim, Lucy	2024-04-23	My husband and I have run a business in rural Lac qui Parle County near Dawson for over 50 years. Companies have no credible research that CO carbon Capture pipelines have minimal risk of negative environmental impact. In fact, there is a history of destructive pipeline impact and we trust that the state of Minnesota will organize a thorough assessment of possible risks to public health, and degradation to land, water, animals and to vulnerable ecosystems. I am not convinced that Ethanol itself has been an effective climate protection, and the Carbon Capture Pipeline appears to benefit only investors in these energy intensive and potentially destructive storage systems. In sum, we don't need this. We need more protection from the impact of chemicals and over farming our fragile prairie environments, and the CO 2 pipelines are the wrong direction.	Thank you for your comment.	20243-204403-01
	Ulrich, Wendy	2024-02-23	I am Wendy Ulrich residing in the Twin Cities. I'm extremely concerned about climate change and the rapid evidence of it that has been predicted, happening now in Minnesota. I want to see RIGHT STEPS taken to address it rather than those that hoodwink citizens showing negligible if any positive effects while financially benefiting others and harming MN's natural environment.	Thank you for your comment.	20243-204403-01
	Ulrich, Wendy	2024-02-23	My comments on the DEIS: First, it does not emphasize that the CO_2 captured is only from the fermentation process in the ethanol plant. This capturing doesn't reduce emissions from the facility's electricity use. This is a highly intensive energy use technology. The statistics used in the DEIS to calculate this CO_2 emission from the plant's power source are not taken from better data, that from Great River Energy.	As stated in the beginning of the Operations section on Page 5-91 of Section 5.7.1.3, the CO_2 captured is specifically stated to only come from the fermentation process. The CI score developed in Chapter 6 takes into account the energy used for ethanol production. Section 6.3 describes energy efficiency and energy alternatives that could reduce emissions from the ethanol plant's electricity and process fuel use. Electricity emissions are included in Table 5-39 and have been revised to 5,032 MT CO_2e/year using the carbon intensity from LREC, which provides electricity to the ethanol plant. Because LREC has a lower carbon intensity than the MROW average emission factor used in the draft EIS, the electricity emissions have decreased.	20243-204403-01
	Ulrich, Wendy	2024-02-23	There is no guarantee in the DEIS that all CO_2 captured will be permanently stored underground., no monitoring. Is it possible it could be sold to use in fracking e.g., creating ugly landscapes at those sites to produce yet more oil to fuel climate crisis?	Text has been added to Section 2.1 describing the suitability of the Broom Creek Formation in North Dakota for CO_2 sequestration, as well as the monitoring and testing that would be done to verify that the CO_2 is contained in the storage reservoir. Section 5.7.2.3 addresses the possibility that the captured CO_2 transported by the project could be used for EOR.	20243-204403-01
	Ulrich, Wendy	2024-02-23	In exchange for the dubious limits of good will to our environment by the ethanol plants (and possibly the fossil fuels industry behind them), concern blossoms in many directions for risks to southern Minnesota's water and natural resources. Two specific areas are #1, the impact of a pipeline leak on many types of water bodies, including aquifers. The DEIS needs to show more research in understanding the risks to our waters and the animal life that live in or on them to survive. The second specific area to mention here, one the DEIS doesn't address, is the effect of increased water use by pipeline construction on the local supply following recent drought years. More serious attention is needed in the DEIS to the potential to breach aquifers. Shallow confined ones are known in Summit's preferred route according to the DNR.	Potential impacts of a CO_2 release on water resources and wildlife are addressed in Section 8.3.4. Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement	20243-204403-01

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				that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	
	van der Leeue, Tracy	2024-02-23	Thank you for your work in serving our state. As a resident of Minnesota who was born here I am writing to express my deep reservations and concerns with the Otter Tail Wilkin CO_2 Pipeline Project and ask that the PUC take in to account the flaws in the reasoning for the pipeline's need as a climate solution, the extremely high risks for negative impacts in both the construction and operational phases to what are increasingly precious habitats and resources, and prioritize their protection as the highest order.	Thank you for your comment.	20243-204403-01
	van der Leeue, Tracy	2024-02-23	We are rich in water, forests and viably vibrant ecosystems that have far more permanent economic and planetary value that benefits us Minnesotans directly. This is in contrast to the carbon capture strategy and CO_2 that will pass through our borders with only small temporary benefits during the construction phase but permanent risks to our increasingly valuable environmental resources.	Thank you for your comment.	20243-204403-01
	Van Hee, Bob	2024-02-23	I'm going to make this short: I'm swamped with deadlines. I'm TOTALLY against ANY CO_2 project--anywhere! This is an attempted takeover by Corps, such as BLACK ROCK, Banking Systems, Big Corps such as JD and others- to control the Food Supply, Quality Farmland, etc. This is Part of the Federal Gov't's "Green Reset"! Other Companies. such as: are Valero Energy Corp, Navigator, Summit Carbon Solutions, etc. Caron Dioxide is NEEDED for the Process of Photosynthesis !! Instead of burning corn and sending CO_2 thousands of miles away, use crops for food!! What a Great Concept The future of power lies in Nuclear Fusion, NOT shoveling your dinner into the gas tank!! I have much more information available, but do not have the time at this moment to work on this, this afternoon. You can call me this afternoon -- leave a message----questions and your phone # You have my permission to share this with anybody! This is simply a WAR with the Wealthy Oligarchs for Power/Control! do NOT back off!!	Thank you for your comment.	20243-204403-01
	Vogel, Anita	2024-04-22	I hail from southwestern Minnesota, reaching out once more to express my deep-seated apprehensions regarding the Midwest Carbon Express. I implore you to empathize with our plight. As I compose this message, my gaze falls upon the serene waters of the Cottonwood River. Just down the road, bald eagles grace us with their majestic presence, nesting in the very vicinity where the pipeline is slated to traverse. Each species plays a vital role in the delicate balance of our ecosystem. Its construction would not only jeopardize the habitats of these creatures but also imperil the very fabric of our community. We cannot stand idly by as the essence of our home is threatened by shortsighted endeavors and false promises. Our region is bestowed with countless natural wonders, each a testament to the divine hand of creation. Yet, the looming specter of this pipeline threatens to mar and despoil these precious gifts irreparably. The very fabric of our community recoils at the notion of its construction, for we know that its presence will bring naught but harm and devastation. We stand united in our resolve, resolute in our stance against this encroachment upon our land and our way of life. Our voices ring out in unison, pleading for preservation, for the safeguarding of our cherished environment. The Midwest Carbon Express finds no welcome here, for it represents not progress, but regression—a regression towards the degradation of our natural heritage and so many dangers to all (humans, plants, animals, etc.) I beseech you, heed our fervent plea and recognize the gravity of our concerns. Stand with us in defense of our land, our wildlife, and our collective future. Together, let us forge a path towards sustainability and stewardship, ensuring that generations yet unborn may inherit a world unspoiled by the folly of short-sighted pursuits.	Thank you for your comment.	20244-205834-01
	Vogel, Anita	2024-04-22	Please see the attached letter and take some consideration. I know you have a lot on your plate but so do we…our lives… (Attached is an article titled: "'Wake-up call': pipeline leak exposes carbon capture safety gaps, advocates say." by The Guardian from Apr. 18 2024, reporting on the recent Exxon Delhi pipeline leak near Sulphur, Louisiana that occured on Apr. 3, 2024)	Thank you for your comment. A new section (8.2.1.3) has been added to Chapter 8 that contains information on the recent CO_2 pipeline leak near Sulphur, Louisiana.	20244-205834-01
	Vogel, Anita	2024-02-22	Thank you sincerely for affording the public the opportunity to provide feedback on the Draft Environmental Impact Statement (DEIS) for the upper branch of Minnesota. As a lifelong resident deeply rooted in Lamberton, MN, alongside my husband and four young children, I feel compelled to express my profound concerns regarding the proposed Midwest Carbon Express project. Living in close proximity to both the proposed pipeline route and our farmland (Summit Carbon Solutions (SCS) has contacted for easement) along	Thank you for your comment.	20243-204403-01

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			the Cottonwood River, the potential impacts of this project weigh heavily on my mind. However, beyond mere proximity, it is the manner in which this project has been presented and the potential consequences that greatly trouble me.		
	Vogel, Anita	2024-02-22	It has become more of a personal matter to me as I firmly believe that my vulnerable parents were taken advantage of in their time of need to secure an easement. My mother, who was the primary caregiver for my late father who was afflicted with dementia, found herself in an incredibly stressful situation. During that time, the SCS agent was relentlessly pursuing her signature (as well as my siblings) for an easement agreement, my father suffered a stroke, resulting in two ambulance rides, two emergency room visits, and a hospital admission and nursing home admission. Despite this turmoil, my mother signed the easement agreement on the very morning my father was discharged from the nursing home. It's clear to me that my mother was under immense duress during that time, overwhelmed by the challenges she was facing. Fortunately, SCS required more than just her signature for the two parcels they were after, sparing us from further exploitation. However, I am acutely aware that not everyone is as fortunate as our family was in this situation. Firstly, I am deeply troubled by the conduct of SCS, particularly their lack of transparency and seemingly targeted outreach efforts. It is disheartening to witness a disregard for the broader community's involvement, with meetings seemingly designed to cater only to select landowners. By failing to adequately inform the public, especially regarding safety concerns, SCS has deprived community members of the opportunity to engage meaningfully in the decision-making process.	Thank you for your comment. Landowner agreements are outside the scope of the EIS.	20243-204403-01
	Vogel, Anita	2024-02-22	Upon reviewing the DEIS, I am struck by the prevalence of conditional language throughout the document. Phrases such as "if" and "could" create a sense of ambiguity and fail to acknowledge the inevitability of certain risks associated with the project. It is imperative that we acknowledge the reality that pipeline ruptures are not a matter of "if" but rather "when," as evidenced by the insufficiently studied impacts highlighted in the DEIS.	The EIS uses conditional language because it is not known if the project will be approved. Additionally, staff cannot predict future events--a potential impact could occur or could not. Staff indicates what is anticipated to be most probable. For example, Chapter 8 indicates a rupture of the pipeline is possible but is unlikely based on safety records maintained by PHMSA. In 2022, there were a total of three incidents (two classified as leaks and one as “other”) reported on 5,385 miles of CO_2 pipeline, or 0.00056 incidents per mile of CO_2 pipeline in the United States.	20243-204403-01
	Vogel, Anita	2024-02-22	Moreover, the reliance on technology, such as MVL systems and CO_2 detectors for only those who only apparently warrant the need, to mitigate potential risks is deeply concerning. Depending solely on a control center's notification in the event of a rupture is a false sense of security, potentially endangering lives. The thought of a child being harmed due to such negligence is heartbreaking. Placing the safety of our families and communities in the hands of such systems, particularly in the harsh conditions of a Minnesota winter where the weather is unpredictable and when a rupture happens and those in the question who are outside of the “circle” are not notified but the wind shifts and it is too late for them, is a risk too great to bear. The thought of lives being endangered due to a false sense of security is simply unacceptable.	Thank you for your comment.	20243-204403-01
	Vogel, Anita	2024-02-22	In the section 8.3.4, The limited research on CO_2 leakage into near-surface environments, particularly from pipelines, underscores a concerning lack of understanding regarding the potential risks involved. While it's acknowledged that low concentrations of CO_2 usually have minimal effects, the consequences of high concentrations WILL be catastrophic, leading to asphyxiation and death. The density of CO_2 relative to air means that when a significant release occurs, it will form a dense cloud or fog that settles into lower-lying areas, depriving EVERY BEING of oxygen. In our community, we reside in a lower lying area, a fact shared by many of our neighbors and friends who also dwell along the proposed pipeline route. It begs the question: do our lives, or the lives of anyone/anything situated along this trajectory, hold no significance?	Thank you for your comment.	20243-204403-01
	Vogel, Anita	2024-02-22	Such an event would undoubtedly have profound and varied impacts on natural resources, affecting not only individual life forms but ENTIRE ecosystems. This poses a grave threat to biodiversity and ecological stability. As advocates for the sanctity of all life, it is imperative that we recognize the potential harm posed by pipelines carrying CO_2. Every living being, from the smallest insect to the largest mammal, deserves protection from such risks!	Thank you for your comment.	20243-204403-01
	Vogel, Anita	2024-02-22	Moreover, the uncertainty surrounding the long-term effects of slow, persistent leakage further emphasizes the need for caution and thorough investigation before proceeding with such projects. As stewards of the environment, we cannot afford to gamble with the well-being of our planet and its inhabitants.	Risks of a potential CO_2 release and potential impacts are described in Chapter 8 of the EIS.	20243-204403-01

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	Vogel, Anita	2024-02-22	In conclusion, the potential dangers associated with CO_2 pipelines cannot be ignored. It is our moral obligation to prioritize the protection of all lives and ecosystems, advocating for sustainable alternatives that do not jeopardize the health and safety of present and future generations. All lives matter, and we must act accordingly to safeguard them.	Thank you for your comment.	20243-204403-01
	Vogel, Anita	2024-02-22	Section 8.3.2.1 Agriculture: The potential consequences of an accidental CO_2 release on agricultural economies cannot be overstated. While some studies tout the benefits of elevated CO_2 levels on crop yields, the flip side presents a grim reality. Increased CO_2 concentrations in the soil spell disaster for root water absorption, chlorophyll levels, starch content, and overall biomass. Consider the chilling aftermath of a rupture: vegetation and soil in the immediate vicinity are ravaged, with roots frozen, soil pH plummeting, and vital soil microbes annihilated. economic fallout is immediate and devastating, with frozen crops leading to immediate losses and acidic soil rendering future cultivation a Herculean task. And let's not forget about the innocent victims caught in the crossfire. Livestock, much like humans, would suffer dire physiological effects, succumbing to a concentrated gas plume if they're unlucky enough to be in the wrong place at the wrong time. The loss of livestock isn't just a tragedy—it's an economic catastrophe!	Impacts of a potential CO_2 release on agriculture economies are discussed in Section 8.3.2.1. As described in Section 8.5.3, EERA staff recommends as a special permit condition that the applicant provide information on how it would pay for costs of any repair to public infrastructure or private property (including crops and livestock) that could occur during an accidental release	20243-204403-01
	Vogel, Anita	2024-02-22	So, when authorities "recommend" an accidental release plan to cover potential damages, it's not just a bureaucratic formality—it's a vital lifeline for those whose lives and livelihoods hang in the balance, ensuring that those responsible are held fully accountable for the catastrophic aftermath.	Thank you for your comment.	20243-204403-01
	Vogel, Anita	2024-02-22	I implore you to consider the profound impact of this project on the lives and well-being of countless individuals and communities. It is imperative that we prioritize thorough research, transparency, and the safety of all stakeholders involved. The decisions made today WILL resonate for generations to come, and it is our responsibility to ensure that they are made with the utmost care and consideration for the welfare of all.	Thank you for your comment.	20243-204403-01
	W, Tim	2024-02-13	Land owner from Lamberton area u all can shove this pipeline up your ass so far you'll be able to use it for a tail light in laymen's terms I don't want no people trespass on my fuckn land for no reason Ever u have been warned!!	Thank you for your comment.	20243-204403-01
	Walkup, John	2024-02-17	As a farmer agricultural producer, who would have one and a half miles of land adjacent to the proposed pipeline south route, I believe the two alternate technologies of (1) a suite of agricultural practices to be implemented by farmer producers, and (2) a suite of energy use and efficiency changes to be implemented by the ethanol plant, would be by far the right way to go. I think it makes very little sense to take CO_2 gas, which is non-toxic by itself and used by growing crops, plants, and trees to make oxygen, and compress it into a hazardous liquid that would be put in a hundreds of miles long pipeline that could potentially have the possibility to rupture. The environmental effects of that to people and landscape along the route could be huge. I also don't think the long term effects or results of pumping this CO_2 into the ground in North Dakota has been fully addressed or will be known for years to come. Thank you for your consideration, John Walkup	Thank you for your comment. As noted in Chapter 6, the Commission cannot select any of these alternative technologies as an alternative; however, the information provided will inform the Commission's decision to issue a pipeline routing permit. The impacts of CO_2 sequestration are outside the scope of the EIS.	20243-204403-01
	Ward, Jamison	2024-02-23	My name is Jamison, and I'm a University of MN college student who has grown up in MN all my life and greatly values our state's natural and cultural resources. I'm writing to express my concerns about the Draft Environmental Impact Statement (DEIS) on the safety of Summit Carbon Solutions' proposed CO_2 pipeline.	Thank you for your comment.	20243-204403-01
	Ward, Jamison	2024-02-23	As an Earth Sciences student and aspiring geochemist, I can testify that CO_2 is a hazardous material in high concentrations. The DEIS consistently underplays the known and unknown risks of transporting large amounts of CO_2 at high pressures through a pipeline. According to the analysis in the DEIS, the potential impact radius for levels of CO_2 that would be "immediately dangerous to life or health" is 617 feet. This expands to 910 feet for lower concentrations that cause dizziness, drowsiness, severe muscle twitching, and unconsciousness within a few minutes. Although Summit indicates that it will take 25 minutes for the system to shut off the relevant valves in the event of "abnormal operation," the DEIS does not mention any meaningful safety measures for a rupture and instead suggests that it is "reasonable" for Summit to simply supply indoor CO_2 detectors for residences within 1,000 feet of the project. However, the rupture report in Appendix G states that "a full rupture results in impact distances too quickly for an early warning device, such as an oxygen detector, to be effective." This pipeline should not be approved without a clear understanding of the risks to human health and meaningful measures to ensure the safety of people and animals in the area.	Text in Section 4.5 on valve closure time has been corrected from 25 minutes to 10 minutes. Elsewhere in the EIS, including the rupture analysis, valve closure time is listed/calculated as 10 minutes. Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. The Emergency Response Plan included as Appendix N is a draft plan that is not outdated but would be revised as required by PHMSA, if the project is approved. Additionally, EERA staff recommended a special permit condition requiring the applicant to file its Emergency Response Plan	20243-204403-01

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				that is filed with PHMSA with the Commission, and other special permit conditions as described in Section 8.5.3.	
	Ward, Jamison	2024-02-23	Additionally, as a student who has studied hydrogeology, I am well aware that Minnesota's recent experience with pipeline construction demonstrates the serious harm that the process incurs on water resources as well as a tendency by state agencies to under-account for those impacts. Summit's preferred route, RA-South, crosses a surficial beach ridge aquifer in Otter Tail County. The DNR has said that the area is "prone to significant groundwater discharge," and the applicant's initial groundwater investigation confirmed that "artesian groundwater conditions are present" along that beach ridge system. In early feedback on the DEIS, the DNR noted that "Project construction has the potential to intersect shallow confined groundwater potentially causing a breach in a confined aquifer and that "breaching shallow confined aquifers could have significant long-term impacts to groundwater resources." This, along with our state's first-hand knowledge of how damaging pipelines can be, requires that the DEIS take potential damage to aquifers more seriously.	Section 5.7.8.2 acknowledges that damage to aquifers is a serious problem and indicates that an uncontrolled flow of water from a shallow confined aquifer could have a significant long-term impact on groundwater. Section 5.7.8.2 also describes geotechnical investigations that would be done to identify areas where breaching of a shallow confined aquifer could occur, and sheet piling would not be used. The applicant currently has an ongoing groundwater investigation underway to further inform construction practices and is continuing to consult with DNR. As part of its coordination with DNR, the applicant has agreed to use ground penetrating radar to study the depth of the confining layer through the entire beach ridge system area crossed by the pipeline to further define existing conditions and advise on construction methodology. Furthermore, EERA staff recommends that the applicant develop, in coordination with DNR, a plan for pipeline construction in areas crossing the beach ridge system area. The plan would include, at a minimum, measures to minimize the potential for breaching a shallow confined aquifer during trenching and contingency measures to mitigate the impacts of a breach, should one occur. This information has been added to Section 5.7.8.2.	20243-204403-01
	Ward, Jamison	2024-02-23	Finally, the DEIS consistently fails to properly account for the real CO_2 emission and climate impacts of the project. Summit states that the capture facility "is designed to capture 100% of the CO_2 produced by the ethanol plant." There is no carbon capture facility in the world, ethanol or otherwise, that captures carbon at a rate of 100%. This claim is not supported by any data/information or verified by a third party. Additionally, the DEIS should emphasize that any CO_2 capture is solely associated with emissions from the ethanol fermentation process and provides zero reductions on the significant emissions from the facility's electricity use. Furthermore, the DEIS assumes 100% of captured CO_2 is being permanently stored underground. There is no guarantee that this will occur and no explanation of the monitoring and verification protocols that would ensure it. I urge a critical review of this project's climate impacts to protect the health of future generations of Minnesotans such as myself.	Section 2.1 has been revised to clarify that the captured CO_2 is produced by the ethanol plant as part of its fermentation process, the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. Text has been added to Section 2.1 describing the suitability of the Broom Creek Formation in North Dakota for CO_2 sequestration, as well as the monitoring and testing that would be done to verify that the CO_2 is contained in the storage reservoir. Section 6.3 describes energy efficiency and energy alternatives that could reduce emissions from the ethanol plant's electricity and process fuel use.	20243-204403-01
	Ward, Jamison	2024-02-23	Furthermore, the DEIS assumes 100% of captured CO_2 is being permanently stored underground. There is no guarantee that this will occur and no explanation of the monitoring and verification protocols that would ensure it. I urge a critical review of this project's climate impacts to protect the health of future generations of Minnesotans such as myself.	Text has been added to Section 2.1 describing the suitability of the Broom Creek Formation in North Dakota for CO_2 sequestration, as well as the monitoring and testing that would be done to verify that the CO_2 is contained in the storage reservoir.	20243-204403-01
	Webb, Sherri	2024-02-23	My name is Sherri Webb and I live in Iowa. Our Grandma's land (in our family for over 124 years) is being threatened by Summit's scam. This is NOT a green project and should be denied since it IS a huge waste of taxpayer dollars. We are NOT covered by liability insurance – CO_2 is considered a pollutant. A rupture on our land would be not only devastating but would bankrupt us. WHO are we supposed to be doing business with? The only answer I heard from Summit's Jimmy Powell was "private investors". "PRIVATE"! The COO doesn't know? We know John Deere, South Korea, Saudi Arabia, and China are also involved.	Thank you for your comment.	20243-204403-01
	Webb, Sherri	2024-02-23	SOIL EROSION is a term that every farmer knows and fears. Soil is a natural resource that may look endless and healthy, but it is a fragile product that has taken thousands of years to form. Soil is not simply dirt, but a combination of living organisms (microbes), nutrients, rock, and other minerals that are an outer layer over the bedrock of the planet. And it's a busy environment, providing habitat for plants and animals while helping regulate the flow of water and temperature. Topsoil contains the essential nutrients for crops and erosion decreases soil fertility and that can, and will, negatively affect crop yields. Soils could potentially sequester enough greenhouse gas emissions in a year to equal about 5 percent of all annual human made GHG emissions. "North America showed the	Thank you for your comment. Impacts on soil, including erosion, are discussed in Section 5.7.6.	20243-204403-01

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			highest potential for total carbon storage, globally, with between 0.17 and 0.35 Pg C (0.60 to 1.22 t/ha) sequestered annually." Zomer, R.J., Bossio, D.A., Sommer, R. et al. Global Sequestration Potential of Increased Organic Carbon in Cropland Soils. Sci Rep 7, 15554 (2017). https://doi.org/10.1038/s41598-017-15794-8 "When the Iowa prairie was first plowed, the settlers found 14 to 16 inches of topsoil. But by 2000, the average thickness was only 6 to 8 inches, and the remaining topsoil had lost 30 to 50 percent of its organic matter. In 1982, the average rate of erosion on cultivated land in Iowa was so high that the erosion map of the United States showed a jarring purple bulls-eye centered on Iowa and northern Missouri. By 2017, the rate had improved considerably, but Iowa still stood out as a vivid orange on the map – it had lost 150 million tons of soil that year…. What's more, the erosion of our topsoil affects not only those of us living in Iowa, but also populations and ecosystems downstream from our state. Nitrate from runoff and phosphorus attached to the sediment produced by soil erosion are the main culprits contributing to the expansion of the Dead Zone in the Gulf of Mexico that is greatly damaging the ecosystem and the shrimp industry." (Iowa's Remarkable Soils: the story of our most vital resource and how we can save it. Woida, Kathleen - University of Iowa Press – 2021 – quoted with author's permission) Summit's contribution to soil erosion in Iowa will be a hefty one and I have no doubt that Minnesota's soil will also suffer. (The addition of POET plants have not been considered in the following figures since Summit has not released that information.) Nearly 8000 acres!! 7982.86 acres – cultivated crops. A total of 8777.32 acres that includes hay/pasture, wetland, open areas, grasslands, deciduous forest, and others. Once the bulldozers have finished, this land will be ripped apart and the erosion will be inevitable. If you look at the economics of soil erosion, as stated by Farm Progress, the average soil loss rate is 5.8 tons per acre per year. When you're losing soil, you're losing yield – to the tune of about 15 bushels per acre per year of lost potential. 46,400 tons per year soil loss with 8000 acres. Stan Buman, head of Land O' Lakes Sustain program stated in 2017, "Under the best case scenario, soil can only rebuild at a rate of 0.24 tons per acre per year." https://wcc.efs.iowa.gov/cs/idcplg?IdcService=GET_FILE&allowInterrupt=1&RevisionSelectionMethod=latest&dDocName=2082371&noSaveAs=1 - 2.1 land use https://www.farmprogress.com/soil-health/economics-of-soil-loss Summit "promises" to restore the land. Summit CANNOT restore no-till land. In fact, Summit openly admits that land will be "restored as nearly as possible" – in other words, they won't be able to restore the land. Summit states, "Approximately 94% of the proposed route is in agricultural lands, a common and generally preferred area for infrastructure." Over 8000 acres will be left in poor condition and erosion will be the end and continuing result. https://wcc.efs.iowa.gov/cs/idcplg?IdcService=GET_FILE&allowInterrupt=1&RevisionSelectionMethod=latest&dDocName=2082373&noSaveAs=1 5.8 tons/acre, on the average, would be lost every year. Areas with slopes, highly erodible soils, tilled land would lose more than that. 57 billion metric tons of Midwestern topsoil has eroded over the last 160 years. Crowell, Rachel. Science News APRIL 12, 2022 "'Black Gold' - Iowa's rich, nutrient-dense topsoil has provided for generations of farmers, but it's slowly losing its nutrients. Researchers at Iowa State University say Iowa has lost half of its soil richness, due in part to farming practices. Bradley Miller, an agronomist at Iowa State University, says the soil has changed since settlers came and converted the prairie into farmland. 'Since that time, we have been draining the soil as well as tilling it. And so now that, so it's a little drier, a little more exposed to oxygen to that tillage practice, that is actually burning off some of that organic matter,' Miller said. That tilling is one of the main reasons for the loss of nutrients. 'If the soil is intact, it's a little bit protected from the air. And when you till it, you are flipping it overexposing it more to the air and the more exposed to the air, the oxygen in the air actually allows for that organic matter to decompose more and be released into the air,' Miller said. This summer's (2023) drought is expected to impact crop yields, but Miller says it's not the same with soil health. 'This summer we had less rainfall, but overall we've seen an increase in the intensity of rainfall events. And so that sets us up for more erosion,' Miller said." Hendricks, Connor; Omaha WOW TV, 9/13/23		
	Webb, Sherri	2024-02-23	The more research I do, the more I believe that the proposed hazardous waste supercritical CO_2 pipelines are a HUGE mistake and Iowa and Minnesota will pay the price for it. The fact that almost 80% of Iowans believe that using eminent domain, for a private company for private gain, is wrong should be a red flag. There will be no turning back if this is granted – the landowners will pay the biggest price, but land values will deteriorate, and the threat of eminent domain being used for any boondoggle project will prove to be a Pandora's Box. The CCS is rapidly becoming an obsolete technology and the huge amounts of water and electricity that is needed does not reflect "green" practices, unless lining their pockets with our taxpayer dollars in tax credits is considered a "climate change" technique. There are numerous reports that CCS is NOT working.	Thank you for your comment. As indicated in Section 3.5, the applicant cannot exercise the power of eminent domain for the project.	20243-204403-01

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	Webb, Sherri	2024-02-23	“But environmentalists are skeptical of funding a technology they say is too expensive and rarely works, as many high-profile carbon capture projects shutter or run into snags. Just this month, reports found that two carbon capture facilities in Canada were underperforming — one power plant was capturing just half the carbon it had advertised, while a facility supposed to be creating clean hydrogen was actually emitting the equivalent of 1.2 million cars. ‘We've got 10 years to solve the climate crisis and we need to spend our money wisely," said John Noël, senior climate campaigner at Greenpeace. "Putting it in things that we know work makes more sense than funding something that's been promised for 20 years and still is ending up in failed projects.’" https://www.cbsnews.com/news/carbon-capture-technology-billions-congressional-funding/?fbclid=IwAR0pMTvCXJKM71W0RZClsgeZrAQ_BlYg245mDln385NFRRSHXQY1whw4R-I https://www.globalwitness.org/en/campaigns/fossil-gas/shell-hydrogen-true-emissions/ https://www.eenews.net/articles/ccs-red-flag-worlds-sole-coal-project-hits-snag/ https://www.cnbc.com/2022/01/24/shell-ccs-facility-in-canada-emits-more-than-it-captures-study-says.html?fbclid=IwAR0UT4VN-NS_LIMYYQryazA4bq_-IjiZP0Bi9F6VK9NGNx_KIzEZeL5fafU https://www.globalenergyworld.com/news/traditional-energy/2021/07/19/chevron-concedes-ccs-failures-at-gorgon-seeks-deal-with-wa-regulators	Section 2.1 has been revised to clarify that the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and that commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities. The analyses in Section 5.7.1.3 and Chapter 6 have been revised to include capture rate scenarios of 100 percent, 70 percent, 40 percent, and 10 percent.	20243-204403-01
	Webb, Sherri	2024-02-23	Iowa State University -- Soil erosion is a major environmental issue because it can lead to water pollution. But did you know that soil erosion also can seriously impair crop productivity? Most agriculture activities, especially on sloping landscapes, increase the potential for soil erosion. When soil erosion is severe, soil erodes faster than it can be renewed. For most areas of Iowa, the loss of 1 inch per acre of topsoil represents approximately 167 tons per acre and approximately 30 years is required to develop 1 inch of soil with properties of typical topsoil. Therefore, most Iowa soils (those with deep rooting potential, formed in permeable parent materials with favorable soil characteristics) can experience soil removal rates of 2 to 5 tons per acre per year. Even limited soil erosion can be harmful to productivity in other soils. Soils with little rooting depth potential, slowly permeable subsoils, and fragile soils structure, or those that are shallow to bedrock or coarse sands and gravels, definitely are adversely affected by erosion. No amount of management can compensate for the lack of suitable soil material. Al-Kaisi, Mahdi, Hanna, Mark, Miller, Gerald & Tidman, Michael. Soil erosion: effect on soil productivity. Integrated Crop Management News page 163 of the IC-488(20) -- August 19, 2002 issue. https://dr.lib.iastate.edu/server/api/core/bitstreams/fd848c67-d0cb-414e-8c77-7759ce5001ed/content	Thank you for your comment.	20243-204403-01
	Webb, Sherri	2024-02-23	They continue to hide and lie about the safety issues. They refuse to look at more than one "worst case scenario" and it's amazing that they claim a rupture or explosion will only affect a small area - 500+ feet. The Satartia, MS residents would disagree with that. This is not an "if" it will happen. This is a when and where it will happen. PHMSA is issued this updated advisory bulletin to remind owners and operators of gas and hazardous liquid pipelines, including supercritical carbon dioxide pipelines, of the potential for damage to those pipeline facilities caused by earth movement in variable, steep, and rugged terrain and terrain with varied or changing subsurface geological conditions. Additionally, changing weather patterns due to climate change, including increased rainfall and higher temperatures, may impact soil stability in areas that have historically been stable. These phenomena can pose a threat to the integrity of pipeline facilities if those threats are not identified and mitigated. Owners and operators should consider monitoring geological and environmental conditions, including changing weather patterns, in proximity to their facilities. PHMSA is aware of recent earth movement and other geological-related incidents and accidents and safety-related conditions throughout the country. Some of the more notable events, including those discussed in a prior advisory bulletin (ADB-2019-02; 84 FR 18919, 05/02/2019) are briefly described below: • On March 11, 2022, a 22-inch hazardous liquid pipeline spilled 3,900 barrels of crude oil adjacent to the Cahokia Creek approximately 15 miles east of St. Louis, Missouri. Preliminary information indicates land movement may have contributed to this failure. The National Transportation Safety Board (NTSB) investigation into the cause continues as of the date of this notice. • On May 30, 2021, a hazardous liquid pipeline spilled 640 barrels of gasoline in Greens Bayou affecting high consequence areas near Houston, Texas. The operator's reported cause indicated earth movement/progressive ground movement over time on a bayou bank. • On February 19, 2021, 22,318 one thousand cubic feet [1] (Mcf) of natural gas was released from a Type A gathering pipeline system in Belmont, Ohio. A third-party subject matter expert determined the proximate cause of this incident was land movement, or slip, that exerted force on the pipe causing a circumferential crack in an area where evidence of stress corrosion cracking and general corrosion were found. • On December 23, 2020, 4,450 Mcf natural gas was released from a gas distribution main line in the City of Newport News, Virginia.	The text in Section 5.7.2 has been expanded to clarify that the pipeline would be buried underground with sufficient cover to protect it from flooding. The minimum depth of cover would be 54 inches, extended to 60 inches at waterbody crossings, and the depth would be greater at the waterbody crossings installed via HDD. All perennial streams would be crossed by HDD or bore, as shown in Tables 5-48 through 5-50. Other streams that would be crossed are intermittent or ephemeral streams, many of which are drainage ditches, and they would not be at significant risk of flooding-related problems like scour. Text has been added to Section 5.7.3.4 describing geohazard assessments for the project designed to comply with PHMSA Advisory Bulletin 2022-01. As noted in Section 5.7.3.4 and Section 8.1, the applicant has committed to conducting a Phase I Geohazard Assessment to identify areas surrounding the pipeline that may be prone to large earth movement, as recommended by PHMSA in its June 2022 Advisory Bulletin, and EERA staff recommends that the results of the Phase I assessment, and any subsequent assessments, should be provided to the Commission.	20243-204403-01

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			The operator report indicated that the apparent cause was pipe stress created by ground settlement which caused misalignment of a flange resulting in a pinhole leak on gasket. • On November 19, 2020, a pipeline spilled 17.50 barrels of crude oil east of I-5 in Kern, California during routine start-up. A metallurgical analysis determined the root cause to be related to external factors (i.e., historical land movement, terrain, and cyclic weather patterns around this pipeline segment). There is a history of land movement in the area, all of which contributed to unintentional bending of the pipeline causing the circumferential cracking found at the leak site. • On October 4, 2020, an intrastate gas transmission pipeline in Goodrich, Texas released 118,724 Mcf of natural gas below the Trinity River. While no definitive root cause was determined, the operator used the geological, meteorological, site-gathered information and historical data in its computer modeling and identified earth movement of the soil surrounding the pipe as the most plausible cause of the rupture. Circumferential stress corrosion cracking may have been a contributing factor to the failure. • On May 19, 2020, 447 Mcf was released from a gas distribution main pipeline in Edenville Township, Michigan due to heavy rain fall. An investigation confirmed a 4-inch steel pipeline was severed when significant flooding in the area caused a road washout/scouring. • On May 4, 2020, a 30-inch natural gas pipeline ruptured and ignited near Hillsboro, Kentucky. Preliminary information indicates land movement may have contributed to this failure. The NTSB investigation into the cause continues as of the date of this notice. • On February 22, 2020, a carbon dioxide pipeline failed approximately one mile southeast of Satartia, Mississippi, releasing approximately 30,000 barrels of liquid carbon dioxide that immediately began to vaporize at atmospheric conditions. The pipeline failed on a steep embankment which had subsided adjacent to a local highway. Heavy rains are believed to have triggered a landslide, which created axial strain on the pipeline and resulted in a full circumferential girth weld failure. • On January 29, 2019, a pipeline ruptured near the town of Lumberport in Harrison County, West Virginia. The rupture was located at a girth weld of an elbow on the 12-inch interstate pipeline. The root cause investigation concluded that a landslide about 150 yards from the rupture moved the pipeline approximately 10 feet from its original location causing excessive stress on the pipe resulting in the rupture. • On January 21, 2019, a 30-inch natural gas pipeline ruptured and ignited near Summerfield, Ohio. A metallurgical analysis indicates a girth weld failed due to ductile overload from a longitudinal tensile or bending force, likely from land movement. • On June 7, 2018, a 36-inch pipeline ruptured in a rural, mountainous area near Moundsville, West Virginia, resulting in the release of approximately 165,000 Mcf of natural gas. According to a metallurgical analysis, the rupture was caused by earth movement on the right-of-way due to a single overload event. Overloading of the pipeline likely resulted from a series of lateral displacements with accompanying bending. • On April 30, 2018, an 8-inch intrastate pipeline failed in a remote mountainous region of Marshall County, West Virginia resulting in the release of 2,658 barrels of propane. The failure was caused by lateral movement of the pipeline due to earth movement along the right-of-way. • On January 31, 2018, a 24-inch interstate pipeline ruptured near the city of Summerfield, Ohio releasing approximately 23,500 Mcf of natural gas in a rural forested area. A root cause analysis concluded that the girth weld failure was caused by axial stress due to movement of the pipe that exceeded the cross-sectional tensile strength of the net section weld zone surrounding the crack initiation location. • On January 9, 2018, a 22-inch transmission pipeline failed in Montecito, California. The incident resulted in a fire and explosion and the release of an estimated 12,000 Mcf of natural gas. Heavy rains and localized flooding contributed to the pipe failure. • On December 5, 2016, approximately 14,400 barrels of crude oil were spilled into an unnamed tributary to Ash Coulee Creek, Ash Coulee Creek itself, the Little Missouri River, and their adjoining shorelines in Billings County, North Dakota. The metallurgical and root cause failure analysis indicated the failure was caused by compressive and bending forces due to a landslide impacting the pipeline. The landslide was the result of excessive moisture within the hillside creating unstable soil conditions. • On October 21, 2016, a pipeline release of over 1,238 barrels of gasoline spilled into the Loyalsock Creek in Lycoming County, Pennsylvania. The release was caused by extreme localized flooding and soil erosion." Pipeline Safety: Potential for Damage to Pipeline Facilities Caused by Earth Movement and Other Geological Hazards Federal Register / Vol. 87, No. 106 / Thursday, June 2, 2022 / Notices p 33756-33759 DEPARTMENT OF TRANSPORTATION Pipeline and Hazardous Materials Safety Administration [Docket No. PHMSA–2022–0063]		
	Webb, Sherri	2024-02-23	On June 9th I wrote/filed an objection with the IUB regarding the lack of knowledge about the water that Summit would need.	The applicant indicates it has not requested 13 water well permits (see Supplemental Information Inquiry #13 in Appendix I). Water use impacts, mitigations, and permit requirements are discussed in section 5.7.8.	20243-204403-01

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			Subsequently we found that 13 permit applications had been requested. Summit Carbon Solutions (SCS) cleverly hid their little individual LLCs using SCS in their request. If they are so proud of their work, why are they trying to hide this from the DNR? These 13 requests total an estimated 478,296,000 gallons/year – without POET plants. IF ethanol plants grow by 25%, as reported by Bruce Rastetter at the American Alliance event on 8/14/23, then an additional 119,574,000 gallons may be needed. Nearly 598,000,000 gallons of water/year!!! Ethanol plants already use 3.5 gallons of water to produce 1 gallon of ethanol. 4.5 billion gallons of ethanol will be produced in Iowa in 2023. 15.75 billion gallons of water used!! I am assuming that Summit is not aware that Iowa and Minnesota are in year 4 of a drought. An Iowa State scientist mentioned that those figures are probably an underestimate of what will actually be needed. There are rural wells drying up, rural water refusing new customers, and serious issues with aquifer levels. How much water are they asking from Minnesota?		
	Webb, Sherri	2024-02-23	Summit is NOT a utility and is NOT a public service. The CO_2 pipeline companies are NOT utilities, they are private companies and will make billions of dollars in tax credits every year – private gain.	Thank you for your comment.	20243-204403-01
	Wenisch, Gregory	2024-02-13	I am a landowner in SW Mn. This would be a big step back from an environment standpoint. Why would we build thousands of miles of pipeline when ethanol will be extinct in 10 years? Self interest groups have no interest….but their own. Invest these subsidies elsewhere instead of throwing it away.	Thank you for your comment.	20243-204403-01
	Wenisch, Teresa	2024-02-13	I have 20 grandchildren & so far 5 great grandchildren. I won't be around to experience all the devastating effects from all the pollution we have created thru our careless treatment of our environment. I remember when my 7 children were at home & loved to take long showers, I told them not to waste water as some day you may wish you had some of that clean fresh water. Now we have to drill hundreds of feet into the ground to find good clean water. We pipe water for hundreds of miles to different farms & cities so they can have clean water. Please, no more underground or above ground emissions that will cause our future generations to suffer from all our mistakes.	Thank you for your comment.	20243-204403-01
	Wills, Aurelia	2024-02-23	My name is Aurelia Wills. I have lived in Minnesota for 33 years. I am concerned about the degraded environment and concerned about how the proposed Summit Carbon Solutions Pipeline Otter Tail to Wilkin will further that degradation. I am concerned that the recently released EIS is inadequate and downplays the dangers of a carbon pipeline. CO_2 is a hazardous material in high concentrations. The DEIS consistently underplays the known and unknown risks of transporting large amounts of CO_2 at high pressures through a pipeline. I am concerned about the hazards and burdens to rural residents near the pipeline and to local first responders. An adequate DEIS would take these risks and dangers, both known and unknown, extremely seriously.	Sections 8.5.1.3 and 8.5.1.5 describe potential mitigation in case of a pipeline rupture, including the applicant's commitment to train and coordinate with first responders and provide them with equipment to safely respond to any ruptures or leaks that may occur. Section 8.5.1.4 also describes the applicant's commitment to education for the public on potential safety risks of a CO_2 rupture or leak, prevention of third-party damage to the pipeline, and other safety topics. The Emergency Response Plan included as Appendix N is a draft plan that is not outdated but would be revised as required by PHMSA, if the project is approved. Additionally, EERA staff recommended a special permit condition requiring the applicant to file its Emergency Response Plan that is filed with PHMSA with the Commission, and other special permit conditions as described in Section 8.5.3	20243-204403-01
	Wills, Aurelia	2024-02-23	I am concerned about breaches, with unknown consequences, of Minnesota aquifers. As we have seen with the Line 3 pipeline, breaches happen. Given climate change and unregulated farming practices, the water situation in Minnesota is in critical condition. Moreover, the Summit pipeline would use enormous, vaguely specified, amounts of water, and increase toxic discharge. The situation is too serious for dangers relating to aquifers and water usage to be blown off and minimized in a DEIS.	Section 5.7.8.2 acknowledges that damage to aquifers is a serious problem and indicates that an uncontrolled flow of water from a shallow confined aquifer could have a significant long-term impact on groundwater. Section 5.7.8.2 also describes geotechnical investigations that would be done to identify areas where breaching of a shallow confined aquifer could occur, and sheet piling would not be used. The applicant currently has an ongoing groundwater investigation underway to further inform construction practices and is continuing to consult with DNR. As part of its coordination with DNR, the applicant has agreed to use ground penetrating radar to study the depth of the confining layer through the entire beach ridge system area crossed by the pipeline to further define existing conditions and advise on	20243-204403-01

Agency or Org	Name	Date	Comment	Response	eDocket Document ID
				construction methodology. This information has been added to Section 5.7.8.2. Furthermore, as described in Section 5.7.8.2, EERA staff recommends that the applicant develop, in coordination with DNR, a plan for pipeline construction in areas crossing the beach ridge system area. The plan would include, at a minimum, measures to minimize the potential for breaching a shallow confined aquifer during trenching and contingency measures to mitigate the impacts of a breach, should one occur. Additional information has been added to Section 5.7.8.2 to address wastewater discharge from the capture facility and the volume of water that would be used by the project relative to available resources. Information on the Minnesota Statewide Drought Plan has been added to Section 5.7.8.2. In addition, the applicant has recently committed to include a contingency plan as part of its appropriation permit application to identify potential alternate water supply sources and/or a statement that the applicant agrees in advance to a suspension of withdrawals following a DNR request, when necessary. This information has also been added to Section 5.7.8.2.	
	Wills, Aurelia	2024-02-23	Finally, a CO_2 pipeline is a false, industry-friendly solution. We are in the midst of a climate crisis that is accelerating. As a society, we have to lower our carbon output. I want government officials to look for solutions that actually help society work toward this difficult goal, rather than getting behind expensive, damaging "solutions" such as the CO_2 pipeline that simply allow the oil industry to carry on. Please have a conscience.	Thank you for your comment.	20243-204403-01
	Workman, Lisa	2024-02-23	As the President of the Fergus Falls Chamber of Commerce, I am happy to support Summit Carbon Solutions' proposed pipeline in Fergus Falls, Minnesota. The construction and operation of Summit's proposed pipeline will stimulate our local economy. As heard at the public meetings in February, Summit plans to hire local workers during both the construction and operational phases of the project. These workers will in turn spend a portion of their incomes at other local businesses in our community. Once the pipeline is operational, economic benefits will continue to pour into Otter Tail County via property taxes, which will be paid by Summit. This new tax revenue can be used to improve infrastructure and fund projects in Otter Tail County. The proposed pipeline will also support the Green Plains ethanol plant and its employees in Fergus Falls. By capturing the emissions from the ethanol plant, Summit will open the low-carbon fuel market for Green Plains' ethanol, ensuring the plant and its employees are secure for decades to come. Summit's proposed pipeline will bring millions of dollars of economic revenue to the Fergus Falls area. I urge the Public Utilities Commission to approve application and I look forward to the pipeline becoming operational in Fergus Falls.	Thank you for your comment.	20243-204403-01
	Wulling, T	2024-02-24	I am opposed to the Otter Tail Wilkin CO_2 pipeline (docket 22-422). Carbon capture and sequestration (CCS) results in the continued use of fossil fuels at a time when meeting climate goals require drastically cutting back on fossil fuels. Carbon capture would involve CO_2 pipelines. So, CO_2 pipelines should not be built. Therefore, I ask the Commissioners to not approve the CO_2 pipeline before the Commission.	Thank you for your comment.	20242-203846-01
	Wyse, Margo	2024-02-12	WHEN WILL HUMANS EVER LEARN!!!!	Thank you for your comment.	20243-204403-01
	Wyse, Margo	2024-02-22	When will you idiots EVER learn....pipelines ALWAYS leak!!!!!	Risks of a potential CO_2 release and potential impacts are described in Chapter 8 of the EIS.	20243-204403-01

Agency or Org	Name	Date	Comment	Response	eDocket Document ID
	Yaggie, Charles	2024-02-13	The WEB Ex drew my attention to the large amount of water needed for both the ethanol side and the CO_2 recovery side of this project. I assume that water recycling ponds will be used. Any idea as to how much this will save in total amount of water needed? Assuming that the EIS is established, any idea when the pipeline construction will begin? Thank you.	Water recycling ponds are not proposed for the capture facility. The water would be circulated through a cooling tower. Information has been added to Section 5.7.8.2 regarding this process. Information on the project schedule is provided in Section 2.9 and has been added to the Executive Summary.	20243-204403-01
	Zaudtke, Mary	2024-02-23	My name is Mary Zaudtke and I am very concerned with this approach being suggested as a solution for climate change We should be looking to reduce our fossil fuel emissions not storing them.	Thank you for your comment.	20243-204403-01
	Zaudtke, Mary	2024-02-23	We know how storage goes. It is time limited and then what? Our water, soil and air gets polluted. From what I understand there are plans for a network of this storage. You tell me who wants this on their land? Our money would be better spent on geothermal infrastructure to heat and cool our buildings and electric vehicles that don't require gasoline. This approach is a Band-Aid that will waste our time and energy from working on real solutions and frankly we don't have time for it.	An alternative that does not include ethanol production was not studied in the EIS because it would not meet the purpose of the project. Text has been added to Section 2.1 describing the suitability of the Broom Creek Formation in North Dakota for CO_2 sequestration, as well as the monitoring and testing that would be done to verify that the CO_2 is contained in the storage reservoir.	20243-204403-01
	Zilverberg, Laura	2024-02-23	I'm very concerned about ensuring that solutions to the climate crisis here in MN are solutions grounded in science and that they avoid damage to our local communities and ecosystems. Carbon capture, while likely to be important in our drawdown scenario, is right now a technology still in its infancy and MN's agencies don't have experience with CO_2 pipelines or carbon capture projects. Based on past pipeline construction it seems unlikely that this project will have "minimal impact." I have numerous concerns about the proposed project's safety, impacts to communities/land and our water and natural resources.	Impacts on communities, public safety, land, water and natural resources are addressed in Chapter 5. Sections 8.4 and 8.5 describe the steps that would be taken in the event of an accidental release of CO_2 and to prevent an accidental release. Additionally, the applicant's draft Emergency Response Plan is included in Appendix N of the EIS.	20242-203795-01
	Zilverberg, Laura	2024-02-24	But I'm especially concerned about the false promise of the pipeline. The DEIS hasn't accurately accounted for the real CO_2 emissions and climate impacts of the project. A few key concerns:	GHG emissions are quantified in Section 5.7.1.3, while Section 5.7.2.2 addresses interactions between the project and climate trends.	20242-203795-01
	Zilverberg, Laura	2024-02-25	The anticipated lifetime of the project is only 25 years. At the end of its life, there will be no more C02 capture from the ethanol plan.	Section 2.7 describes decommissioning of the project. If the ethanol plant continues to operate beyond the life of the proposed project, its CO_2 emissions would not be captured.	20242-203795-01
	Zilverberg, Laura	2024-02-26	It is unlikely that this facility will truly be able to capture 100% of emitted CO_2. No carbon capture technology is achieving that rate (or even close to that rate) and that claim is not supported by any third-party data.	Section 2.1 has been revised to clarify that the amount of CO_2 that would be captured annually was determined by the applicant based on a capture rate of 100 percent, and that commenters have questioned the feasibility of this capture rate given the performance of existing capture facilities.	20242-203795-01
	Zilverberg, Laura	2024-02-27	This technology is likely to be highly energy intensive and will increase carbon emissions from added electricity use.	Electricity emissions are included in Table 5-39. These numbers have been revised to reflect the electricity emission factor associated with LREC, which would provide electricity to the project. The revised electricity emission factor is 132.2 gCO_2e/MWh. This was calculated from LREC's energy resource mix in which nearly half comes from clean energy sources. Because LREC has a lower emission factor than the Midwest Reliability West Region emission factor (684.35 gCO_2e/kWh), which was used in the draft EIS, calculated electricity emissions have decreased.	20242-203795-01
	Zilverberg, Laura	2024-02-28	The DEIS assumes captured C02 will be stored permanently underground, but there is no guarantee or protocols to ensure that. The climate crisis is here. It is already impacting Minnesota, our winters and our wilderness. And we need real solutions that reduce emissions rather than smoke and mirrors that promise continued emissions with no impact.	Text has been added to Section 2.1 describing the suitability of the Broom Creek Formation in North Dakota for CO_2 sequestration, as well as the monitoring and testing that would be done to verify that the CO_2 is contained in the storage reservoir.	20242-203795-01

Agency or Org	Name	Date	Comment	Response	eDocket Document ID
	Zollner, Allen	2024-02-26	I am a landowner in Redwood County and I am opposed to the pipeline that is proposed. Docket # (22-422). It will be an environmental hazard using taxpayer money to benefit a few. Vote it down.	Thank you for your comment.	20243-204403-02

Appendix O

Comments on the Draft EIS and Responses

Attachment 2
DNR Conservation Planning Reports

Conservation Planning Report: SCS_CO2 Pipeline_RA-Hybrid

This document is intended for planning purposes only for the area of interest defined by the user. The report identifies ecologically significant areas documented within the defined area of interest plus any additional search distance indicated below. These ecologically significant areas can be viewed in the Explore Tab of the Minnesota Conservation Explorer. Please visit MN Geospatial Commons for downloadable GIS data.

This document does not meet the criteria for a Natural Heritage Review. If a Natural Heritage Review is needed, please define an Area of Interest in the Explore Tab and click on the Natural Heritage Review option.

This document does not include known occurrences of state-listed or federally listed species.

MBS Sites of Biodiversity Significance

Search distance = 330 feet

Minnesota Biological Survey (MBS) Sites of Biodiversity Significance are areas with varying levels of native biodiversity that may contain high quality native plant communities, rare plants, rare animals, and/or animal aggregations. A Biodiversity Significance Rank is assigned on the basis of the number of rare species, the quality of the native plant communities, size of the site, and context within the landscape. MBS Sites are ranked Outstanding, High, or Moderate. Areas ranked as Below were found to be disturbed and are retained in the layer as negative data. These areas do not meet the minimum biodiversity threshold for statewide significance but may have conservation value at the local level as habitat for native plants and animals, corridors for animal movements, buffers surrounding higher quality natural areas, or as areas with high potential for restoration of native habitat. The DNR recommends avoidance of MBS Sites of Biodiversity Significance ranked High or Outstanding.

Wetlands within MBS Sites of Outstanding or High Biodiversity Significance may be considered Rare Natural Communities under the Wetland Conservation Act. For technical guidance on Rare Natural Communities, please visit WCA Program Guidance and Information.

For more information please visit MBS Sites of Biodiversity Significance.

The following MBS Sites of Biodiversity Significance are within the search area:

MBS Site Name	Biodiversity Significance	Status
Everts 21	Moderate	final
FOXHOME PRAIRIE	High	final

DNR Native Plant Communities

Search distance = 330 feet

A native plant community is a group of native plants that interact with each other and with their environment in ways not greatly altered by modern human activity or by introduced organisms. These groups of native plant species form recognizable units, such as oak savannas, pine forests, or marshes, that tend to repeat over space and time. Native plant communities are classified and described by considering vegetation, hydrology, landforms, soils, and natural disturbance regimes.

DNR Native Plant Community types and subtypes are given a Conservation Status Rank that reflects the relative rarity and endangerment of the community type in Minnesota. Conservation Status Ranks range from S1 (critically imperiled) to S5 (secure, common, widespread, and abundant). Native plant communities with a Conservation Status Rank of S1 through S3 are considered rare in the state. The DNR recommends avoidance of rare native plant communities.

Wetland native plant communities with a conservation status rank of S1 through S3 may also be considered Rare Natural Communities under the Wetland Conservation Act. For technical guidance on Rare Natural Communities, please visit WCA Program Guidance and Information.

DNR Native Plant Communities may be given a Condition Rank that reflects the degree of ecological integrity of a specific occurrence of a native plant community. The Condition Rank is based on species composition, vegetation structure, ecological processes and functions, level of human disturbance, presence of exotic species, and other factors. Condition Ranks range from A-rank (excellent ecological integrity) to D-rank (poor ecological integrity. A Condition Rank of NR means Not Ranked and a Condition Rank of MULTI mean multiple ranks are present because the record is a native plant community complex.

For more information please visit Minnesota's Native Plant Communities.

The following DNR Native Plant Communities are within the search area:

MBS Site Name	NPC Code	Native Plant Community Classification	Conservation Status Rank	Number of Communities
Everts 21	WPn53c	Wet Prairie (Northern)	S3	2
FOXHOME PRAIRIE	PWL_CX	Prairie Wetland Complex	(S1, S2, S3)	1
Not Within MBS Site	PWL_CX	Prairie Wetland Complex	(S1, S2, S3)	1

Calcareous Fens

Search distance = 5 miles

A calcareous fen is a rare and distinctive peat-accumulating wetland that is legally protected in Minnesota under the Wetland Conservation Act (*Minnesota Statutes*, section 103G.223). Many of the unique characteristics of calcareous fens result from the upwelling of groundwater through calcareous substrates. Because of this dependence on groundwater hydrology, calcareous fens can be affected by nearby activities or even those several miles away. For more information regarding calcareous fens, please see the Calcareous Fen Fact Sheet or review the List of Known Calcareous Fens.

SEARCH RESULTS: No features were found within the search area.

DNR Old Growth Stands

Search distance = 330 feet

Old-growth forests are natural forests that have developed over a long period of time, generally at least 120 years, without experiencing severe, stand-replacing disturbances such as fires, windstorms, or logging. Old-growth forests are a unique, nearly vanished piece of Minnesota's history and ecology; less than 4% of Minnesota's old-growth forests remain. The DNR recommends avoidance of all DNR Old Growth Stands. The following DNR Old Growth Stands have been documented within the search area.

SEARCH RESULTS: No features were found within the search area.

MN Prairie Conservation Plan

Search distance = 330 feet

The Minnesota Prairie Conservation Plan, a twenty-five year strategy for accelerating prairie conservation in the state, identifies Core Areas, Corridors, and Corridor Complexes as areas to focus conservation efforts. The Plan's strategies include protection, enhancement, and restoration of grassland and wetland habitat. To meet the Plan's goals, approaches within Core Areas will need to include restoration and approaches within Corridors will need to include conservation of grassland habitat which can provide stepping stones between larger Core Areas.

The following MN Prairie Conservation Plan Designations are within the search area:

- Corridor: Agassiz Beach Ridges
- Corridor: Alexandria Moraine
- Corridor Complex: Foxhome Prairie

Important Bird Areas

Search distance = 1 mile

Important Bird Areas, identified by Audubon Minnesota in partnership with the DNR, are part of an international conservation effort aimed at conserving globally important bird habitats. They are voluntary and non-regulatory, but the designation demonstrates the significant ecological value of the area.

SEARCH RESULTS: No features were found within the search area.

Lakes of Biological Significance

Search distance = 330 feet

Lakes of Biological Significance are high quality lakes as determined by the aquatic plant, fish, bird, or amphibian communities present within the lake. To be included in this layer, a lake only needs to meet the criteria for one of these four community types. The lake is assigned a biological significance of Outstanding, High, or Moderate based on the community with the highest quality.

SEARCH RESULTS: No features were found within the search area.

USFWS Habitat Conservation Plans

A Habitat Conservation Plan (HCP) is a mechanism for compliance with the federal Endangered Species Act for a given set of activities and protected species. An HCP is required by the U.S. Fish and Wildlife Service (USFWS) as part of an application for an incidental take permit (ITP). The ITP allows the permit holder to proceed with activities covered in the HCP that could result in the unintentional take of federally listed species.

Lakes States Forest Management Bat Habitat Conservation Plan (Bat HCP): (search distance = 0; within area of interest only) This HCP was created to provide flexibility to the Minnesota Department of Natural Resources (DNR) to manage forests while addressing federal Endangered Species Act (ESA) regulations related to federally threatened and endangered bat species. The Bat HCP covers three bat species within Minnesota: northern long-eared bat, little brown bat, and tricolored bat. This report is intended to help non-federal, non-DNR landowners evaluate their potential eligibility for the Landowner Enrollment Program of the Bat HCP (For DNR-administered land, DNR staff should refer to the Bat HCP Implementation Policy).

Landowner Enrollment Program – DNR's incidental take permit may be extended through the Landowner Enrollment Program (LEP) to eligible non-federal landowners who conduct forest management activities. Landowners may be eligible to enroll in the LEP if they are a county land administrator, own more than 10,000 acres, or own land that overlaps a Bat HCP feature. The results below indicate if the defined area of interest overlaps a Bat HCP feature. For more information on how to enroll in the LEP, please visit the Landowner Enrollment Program (LEP).

SEARCH RESULTS: No Bat HCP features were found within the area of interest. Landowners are only eligible to apply for the Landowner Enrollment Program if they are a county land administrator or they own more than 10,000 acres.

USFWS Regulatory Layers

To ensure compliance with federal law, conduct a federal regulatory review using the U.S. Fish and Wildlife Service's (USFWS) online Information for Planning and Consultation (IPaC) tool. This report is not a substitution for a Section 7 review.

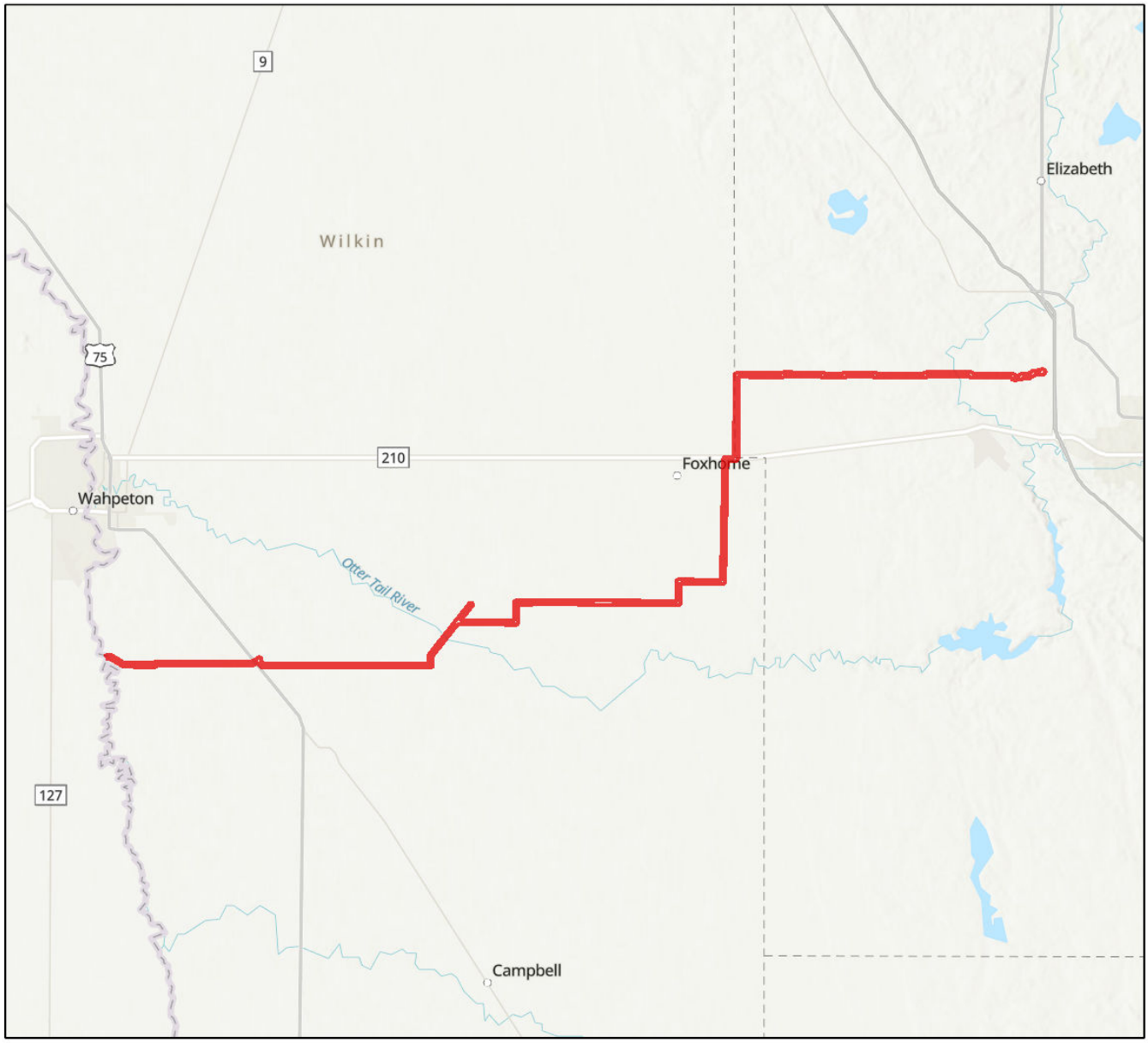
For informational purposes only, this tool currently checks the following USFWS Regulatory Layers:

Rusty Patched Bumblebee High Potential Zones: (*search distance = 0; within area of interest only*) The rusty patched bumble bee (*Bombus affinis*), federally listed as endangered, is likely to be present in suitable habitat within the high potential zones. From April through October this species uses underground nests in upland grasslands, shrublands, and forest edges, and forages where nectar and pollen are available. From October through April the species overwinters under tree litter in upland forests and woodlands. The rusty patched bumble bee may be impacted by a variety of land management activities including, but not limited to, prescribed fire, tree-removal, haying, grazing, herbicide use, pesticide use, land-clearing, soil disturbance or compaction, or use of non-native bees. The USFWS RPBB guidance provides guidance on avoiding impacts to rusty patched bumble bee and a key for determining if actions are likely to affect the species; the determination key can be found in the appendix. Please visit the USFWS Rusty Patched Bumble Bee Map for the most current locations of High Potential Zones.

SEARCH RESULTS: No features were found within the search area.

SCS_CO2 Pipeline_RA-Hybrid

Conservation Planning Map



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Area of Interest

Size (acres): 1,795.43

County(s): Otter Tail, Wilkin

Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS
Esri, CGIAR, USGS
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Search distance = 330 feet

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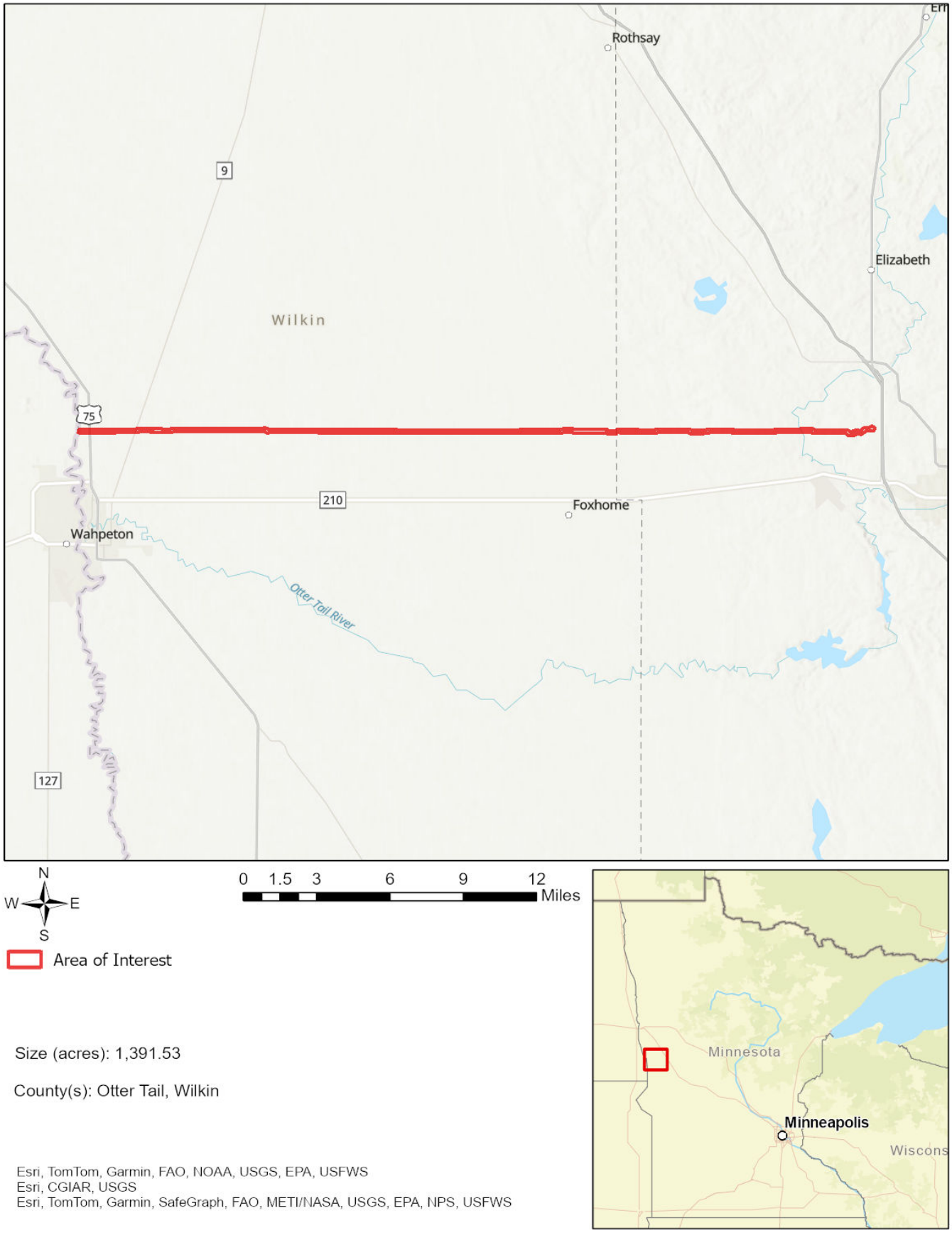
SCS_CO2 Pipeline_RA-North

Conservation Planning Map



Size (acres): 1,391.53

County(s): Otter Tail, Wilkin

Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS
Esri, CGIAR, USGS
Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS

Appendix O

Comments on the Draft EIS and Responses

Attachment 3
Response to Information Request

CURE INFORMATION REQUEST NO. 2
TO DEPARTMENT OF COMMERCE ENERGY,
ENVIRONMENT REVIEW AND ANALYSIS UNIT

In the Matter of the Application of Summit Carbon Solutions, LLC, for a Routing Permit for the Otter Tail to Wilkin Carbon Dioxide Pipeline Project	Docket No.: IP-7093/PPL-22-422 OAH Docket No.: 22-2500-38948

Request Date:	February 15, 2024	Response Due:	February 28, 2024
Requested By:	Hudson Kingston & Sarah Mooradian 117 South 1st Street Montevideo, MN 56265 320-269-2984 hudson@curemn.org *Attorneys for CURE*	Requested From:	Minnesota Department of Commerce

1. Please provide a detailed summary of the qualifications of Daniel Prascher and any other modeler(s) who conducted the modeling described in Appendix G and wrote the accompanying report.

Mr. Prascher and Dr. Ward conducted the modeling. Ms. Hart provided technical writing support. The enclosed attachment details the credentials of Mr. Prascher, Dr. Ward, and Ms. Hart.

2. Has Daniel Prascher conducted aerial and thermal dispersion analyses and/or Computational Fluid Dynamics (CFD) analyses on any other carbon dioxide pipelines? If yes, please provide a list with the names of those pipelines.

Yes, Mr. Prascher has conducted the analyses mentioned above for several operators in the continental United States. Please see the enclosed attachment for additional details. A list of specific pipelines cannot be provided because that work is governed by nondisclosure agreements.

3. Regarding the CFD model referenced in Appendix G, what were the boundary conditions? (e.g., was an atmospheric boundary layer profile used or a flat/uniform wind velocity? Was there thermal radiation? How was the CO_2 introduced (phase)? How were the winter conditions (snow) taken into account?).

Mr. Prascher and Dr. Ward modeled boundary conditions at the surface, which included a boundary layer in the moving air against the stationary ground. The upwind boundary layer (atmospheric boundary layer) was defined as a fully developed profile and all other boundaries were open.

Thermal radiation was not included in the model because the temperatures involved in the worst-case scenario being modeled were extremely cold – both the temperature of the product upon release and the ambient temperature. Since both were extremely cold, it greatly reduced the need for thermal radiation modeling. By not including thermal radiation modeling, the model is more conservative because thermal radiation would warm up the CO2 release faster – reducing the impact distance.

The phase of the CO2 was defined as a gas at atmospheric pressure as the lowest possible gas phase temperature at 1 atm. Winter conditions were modeled through the selection of air and ground temperatures reflective of the worst-case scenario (See the aerial dispersion report, Appendix B, for a discussion on how the worst-case scenario was determined.)

4. Regarding the CFD model, how large was the solution domain compared to the area of interest?

For the terrain model, it was the size of the digital elevation model (DEM) – 365 meters crosswind by 556 meters downwind) with a 100-meter height. The windbreak models were 400-meter square with a height of 100 m.

5. Regarding the CFD model, what was the ruptured pipe geometry, and was it created to match the scenario analyzed by the CANARY software?

Two circular boundaries were used for the upstream and downstream pipeline rupture geometry. The internal diameter of the pipeline was used for both rupture geometries used for the CO2 insertion flow. This would match a full pipeline break and flow from each side of the ruptured pipeline for a guillotine break.

6. Regarding the CFD model, what was the justification for using such a simplified model (Darcy's Law approach) to account for the windbreaks?

Darcy's law is appropriate for modeling low-velocity flows or media with low permeability and porosity. It's also suitable for small pressure drops and low velocities, all of which apply to this application. Darcy's law is often used for flow through structure-restricted voids, including porous filters, capillary beds in biological tissue, and other places where a distributed structure occupies a significant fraction of the free-flow volume.

7. Regarding the CFD model, were any steps taken to ensure this simplified model and the values for the porous media used were accurate and appropriate for modeling trees?

Yes, please refer to the references in the Allied CFD report.

8. Regarding the modeled terrain and geometry in the CFD, what was upstream of the pipe rupture? Please provide images or diagrams to illustrate the scenarios.

To the extent this question is asking "What was the modeled terrain *upwind* of the pipe rupture," Mr. Prascher and Dr. Ward modeled no terrain upwind of the pipeline rupture so as not to obstruct wind flow to the CO2 being carried downwind. This ensured that the model produced a potential worst-case scenario.

9. Regarding the CFD model, how were the fluids modeled (laminar or turbulent flow regimes)?

Mr. Prascher and Dr. Ward modeled everything assuming a laminar flow. The CO2 leaving the pipeline had relatively low Reynold's numbers, meaning that it was not fully turbulent. Regardless, they

modeled everything in a laminar flow to create a worst-case scenario. This approach is more conservative than the actual case because laminar flows create the greatest impact distances.

10. Regarding the CFD model, how was the flow regime determined for the wind and the CO_2 rupture?

The flow regime was determined by calculating the maximum Reynolds number of mixture of air and CO2 and comparing to the published value for the transition from laminar to turbulent regimes for external flow.

11. Regarding the CFD model, how was the multicomponent mixture of CO_2 and air modeled?

Local volume fractions of mixture of CO2 and air were used to calculate the volumetric properties at each node.

12. Regarding the CFD model, what turbulence model was used if the fluid flow was treated as turbulent?

N/A

13. Regarding the CFD model, were phase change, variable material properties, and buoyancy (natural convection) included in the analysis? If yes, how were they implemented?

No, Mr. Prascher and Dr. Ward did not model a phase change. Mr. Prascher and Dr. Ward assumed that the all the CO2 in the pipeline became gaseous, which is more conservative than what happens in reality. This simplifies the modeling process. At the same time, the downwind results are not affected because they set the release CO2 mass to be the same as the mass released in the CANARY model.

Yes, Mr. Prascher and Dr. Ward did model the variable material properties – they modeled the properties with both temperature and gas volume fraction dependent functions.

Likewise, they also modeled buoyancy as a volume force created by the difference in densities.

14. Regarding the CFD model, was there a grid/mesh/cells study performed to ensure it was sufficient to model the scenario and get accurate results?

Yes, a discretization study was conducted as part of the model creation to determine the maximum mesh size that would provide converged results. This study was done manually using COMSOL settings.

15. Regarding the CFD model, was a time-step sensitivity study used to ensure the relevant physical phenomena were modeled accurately?

No. The implicit solver in COMSOL used a backwards differentiation formula that was free to choose an appropriate time step based on the local error estimation in the previous solution step. In effect, this approach allows the software to optimize the time-steps automatically to increase accuracy of the model on the fly – in CFD modeling, different time-steps are appropriate at different points in each

model. Mr. Prascher and Dr. Ward preferred this approach over trying to determine a "one size fits all" time-step via a time-step sensitivity study.

16. Regarding the CFD model, what were the convergence criteria used for determining if the simulation was acceptable?

Velocity, pressure, temperature, and CO2 concentration were solved with an absolute tolerance of less than 10^{-4} m/s, Pa, K, and mol/m^3 respectively.

17. Was any validation or verification of the CFD model performed? Please provide records of the verification and validation.

Yes, Mr. Prascher and Dr. Ward validated the CFD model (Scenario 2 in the CFD report) against the CANARY model (Scenario 1 in the CFD report). Using two different modeling software applications with completely different computational approaches they applied them to the same scenario[1] and validated the CFD model against the CANARY model on a macro level—comparing the final result of one model to the final result of another model—which accounts for any and all variations in data, assumptions, and modeling between the two approaches. As is shown in the CFD report, the results of Scenarios 1 and 2 are very close, which validates that both approaches are reasonable and appropriate. If the results of Scenarios 1 and 2 would not have been reasonably close, neither model would have been validated and a different validation approach would have become necessary.

Furthermore, CANARY is the accepted industry standard for aerial dispersion modeling. Thereby providing a reasonable standard by which to compare and validate the CFD model in Scenario 2.

[1] Since the terrain modeled in Scenario 2 is so flat, the CANARY model in Scenario 1, which cannot account for terrain, can reasonably be compared to Scenario 2.

Appendix O

Comments on the Draft EIS and Responses

Attachment 4
Transcripts of Public Meetings

DEIS MEETING - 22-422

BRECKENRIDGE - FEBRUARY six, 2024 - 6:00 P.M.

BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

AND DEPARTMENT OF COMMERCE

In the Matter of the Application of Summit Carbon Solutions, LLC, for a Routing Permit for the Otter Tail to Wilkin Carbon Dioxide Pipeline Project in Otter Tail and Wilkin Counties, Minnesota

MPUC DOCKET NO. IP-7093/PPL-22-422

Breckenridge High School
710 13th Street North
Breckenridge, Minnesota

February six, 2024

COURT REPORTER: Janet Shaddix Elling, RPR

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MR. ANDREW LEVI: Good evening, everyone. Let's go ahead and get started.

My name is Andrew, I work with the Minnesota Department of Commerce. We're here in Breckenridge for the Draft Environmental Impact Statement meetings for the Otter Tail to Wilkin Carbon Dioxide Pipeline Project proposed by Summit Carbon Solutions.

There's a PowerPoint, but the projector is not working, so a couple things we'll just chat about. We'll do some introductions very quickly, very quickly talk about the proposed project, the state permitting process and Draft Environmental Impact Statement, or EIS, itself. And then we'll open it up to your questions and comments.

So before I get started, I do want to thank you for being here this evening. Your comments and thoughts on the Draft EIS make for a better Final EIS, and we really appreciate your feedback.

Again, I'm Andrew with the Minnesota Department of Commerce. We were tasked -- the Energy Environmental Review and Analysis Unit, we were tasked with writing the EIS. With me is Jessica, she is in the back, she greeted you at the

door.

Also here from HDR, they are our consultant on this project, is Joe, Will and Pat. They're here to help answer any questions that I need help with. Let's face it, there will be some.

And then Dan from Allied Solutions. Dan did the rupture modeling for the EIS.

From Summit Carbon Solutions, Scott O'Konek is here, along with Alex and Jason and Christy and Britta.

And most importantly, Janet, our court reporter, is here. Janet is transcribing what we're saying and she'll get your comments spoken here tonight into the record.

So, again, this is the Summit Carbon Pipeline Project, Otter Tail to Wilkin. The Applicant proposes to construct and operate approximately 28.1 miles of four-inch carbon steel pipeline and associated facilities, which are mainline valves, a cathodic protection system, and access roads that would transport captured CO2 from the Green Plains Ethanol Plant to just south of here, and on to North Dakota as part of the Midwest Carbon Express Project.

The project is designed to capture

approximately .19 million metric tons of CO2 annually generated at the ethanol plant and transported to North Dakota.

A pipeline routing permit is required from the Public Utilities Commission because it meets the definition of a pipeline in Minnesota statute. Basically, it's designed to operate at a pressure of more than 275 pounds per square inch gauge and carry a gas. Various other approvals would be required if the Applicant is granted a route permit, such as commonly referred to as downstream permits. Examples include like a license to cross state lands and waters from the DNR, or a permit from MnDOT to cross state highways, state roads, et cetera.

The state permitting process so far, we were out here I believe in May and had scoping meetings. And then we disappeared for a while and worked on a Draft Environmental Impact Statement that is now done.

What we're doing now is the comment period on the Draft EIS, which will be followed by a Final EIS that will be issued. There will be a comment period on the adequacy of that Final EIS, and after that there will be a public hearing and

comment period that will be sometime in May. We'll be back out here, most of us I think will all be here, except an Administrative Law Judge will be sitting in this chair running the meeting.

That's the meeting where we take the information, you take the information that's in the Environmental Impact Statement and tell the judge what it means.

What we're trying to do with the EIS is gather facts and, you know, at the public hearing is when you get to tell the judge what you believe those facts mean.

After the public hearing, there will be a Commission decision on the adequacy of the EIS, and then the judge, the Administrative Law Judge will issue a report and recommendation as to what they think should be done, what the Commission should do, and then the Commission will make a final decision on the route permit.

Sorry, that makes a lot more sense when there's a slide on the screen.

So the EIS, it's in the back, there's three copies you can look at in the back. It's also available electronically.

It's all about informed decision-making.

Just a comment. We're trying to develop a common set of facts that everyone can use to comment on the project. The EIS doesn't advocate, it's an information document.

It was prepared based on several documents. The Applicant's application, along with the scoping and environmental assessment worksheet. Then we were here, you all provided scoping comments. We incorporated those scoping comments into a scoping decision. And that was essentially, then, the table of contents of the EIS.

Information was provided by tribes and state agencies on the preliminary Draft EIS, and different tools were used to prepare a EIS. And then, also, of course, it couldn't have been done without the work of HDR and Allied Solutions.

There's a lot of information in the EIS. It talks a little bit about the proposed project, the regulatory requirements, the environmental setting. It studies three alternative routes. It studies alternative technologies to the project itself. Alternative agricultural practices and energy efficiency practices at the ethanol plant itself. It discusses normal operation of the pipeline and associated facilities as well as what

would happen if there was an accidental release of CO2.

The EIS describes potential impacts and tries to put them into context and characterize those impacts as minimal, moderate, or significant. It also discusses mitigation measures.

Again, the EIS is available electronically on our website. And there's a flash drive on the table in the back if you'd like to take home a copy tonight. The print copy of it is available in the local Breckenridge and Fergus Falls libraries. Print copies are available for review in the back here tonight, and there's summaries available for you to take home, it's the Executive Summary, and that's printed off for you to take home.

So that's really all I had. We'll just move on to your questions and comments on the Draft EIS.

I think the comments that are most useful at this time for us is we're trying to move from a draft document to a final document, or what needs to be -- what needs to be clarified. What needs to be clarified in the EIS. What didn't you understand, what is missing. Is there something that we didn't

talk about that we said we would talk about in the scoping decision.

And is there anything that needs to be added so that the Final EIS is more complete and more accurate. Maybe there's something we could discuss a little bit more that would be helpful. Comments on the Draft EIS, any comments we receive will be included as an appendix in the final and we will respond to substantive comments in the final and make changes as necessary.

And basically kind of the think about that as if you provide some information that convinces us, that changes our mind, and basically kind of convinces us that, yeah, this should be changed, then, yeah, our mind is changed and we can go ahead and make those types of changes to the Final EIS.

So a substantive comment then is a comment on a specific section. This is what we see, this is the concern and this would fix it. And we'll take a look at those and we'll get to see, you know, how that gets incorporated in the final.

So verbal comments can be -- are accepted at the draft just tonight, just when we have the court reporter here to take down the transcript so

we catch what you're saying for sure.

Other than that, you can submit comments in writing. There's a comment form on the table in the back that outlines different ways you can do that. But basically you can do it, you can email me, you can send me a letter, or there's an online commenting tool that you can use. It's a fillable form and it just pops up and you fill it out, fill the form out, and you can attach PDFs or anything you might want to attach to it.

You can comment any way you like. If you don't like speaking in front of folks, you don't have to just to submit a comment. You can submit your comments in writing. We end up reviewing them all in writing anyway, so they're all pretty equal with regards to their format because they all get read. So whatever is most comfortable for you, please comment that way.

The comment period closes on February 23rd, so please do get your comments in on or before the 23rd.

So that's all I really have tonight. We'll open it up to your questions and comments.

If you could please state and spell your name for Janet when you come up to the podium. If

you could -- yeah, I think that that's all we really have.

You can of course comment on anything you'd like. I just want to remind you that in May there will be an Administrative Law Judge here and that's the person who is writing the report that recommends what to do about the project. You can certainly do that tonight, but our response to that will just be comment noted because that's all we can do right now. We're just trying to develop, you know, a Final EIS. You can of course comment on anything you'd like. Again, those questions are, you know, what needs to be clarified, what is missing and what needs to be added so that the Final EIS is more complete and accurate.

And that's all I have. No one signed up to speak.

Does anyone have any questions?

Yes, sir.

MR. DALE ANDERSON: I have a few.

MR. ANDREW LEVI: Can you come up to the microphone, please, so Janet can hear you?

MR. DALE ANDERSON: My name is Dale Anderson. The first name is D-A-L-E, last name, A-N-D-E-R-S-O-N.

Some of the questions I got.

It's going to be a steel pipeline. Now, am I under the impression that the CO2 gas is like a freezing agent when it hits the air?

MR. ANDREW LEVI: Yes. Well, if there is a -- are you speaking just in terms of a rupture?

MR. DALE ANDERSON: Right.

MR. ANDREW LEVI: Yeah. So if the pipeline ruptures, the release -- and Dan can come up and give you more of the specifics, but, yes, it's cold, very cold.

MR. DALE ANDERSON: Okay. The next question is what type of -- the pipes itself, they come in so many lengths, but the connections are what? I take it they're going to be welded.

MR. ANDREW LEVI: Yes.

MR. DALE ANDERSON: Okay. So that would be like a hydro seam, in hydro you can only weld the pipes together, so they can't be braced, they're only welded; is that correct?

MR. ANDREW LEVI: I can't comment on that, but I know these will be welded.

MR. DALE ANDERSON: Also, when the pipe is in the ground, is there some way of doing it so that they do not move as far as the freezing and

thawing so the pipes don't rupture?

MR. ANDREW LEVI: We took a look at that in the EIS and basically what we concluded was that the pipe would be deep enough for that freezing and thawing, that lifting.

MR. DALE ANDERSON: It should be below six feet.

MR. ANDREW LEVI: It will be 54 inches to the top. The top of the pipe.

MR. DALE ANDERSON: And then around the pipes there will be some kind of sand base so there's no aggregate to rub on that pipe?

MR. ANDREW LEVI: Scott, do you want to expand on if you're using padding or not?

MR. SCOTT O'KONEK: Sure. So the pipe itself has a protective coating that's around it. That, you know, will protect it from chips and cracks and dings and dents. The entire coating, it is an epoxy coating that goes over the entire pipe and actually gets checked. Generally, that is called jeeping. So to make sure that's a continuous filled piece of pipe, so when you actually weld that, you know, that comes epoxied from the factory, but they check to find that it is complete. And then the welds themselves get filled, too, before

they actually set down. And then, you know, there's aggregate sizes that, you know, cannot go back into the trench, that's correct.

MR. DALE ANDERSON: And then when it does cross the Otter Tail River, the river varies at depth and it becomes safe for that also so that the river is above that pipe?

MR. SCOTT O'KONEK: Can you repeat that?

MR. DALE ANDERSON: Okay. When it crosses the Otter Tail River to the North Dakota side, then the elevation will change probably, however deep that river elevation is?

MR. SCOTT O'KONEK: Yes. So, I mean, there's an engineered design to make sure that, I mean, I don't have the exact number, but we are many, many feet below the river there. And actually it's a bore that actually goes through there. And it keeps it at that level the entire time. So the entrance and the exit will be part of an engineering draft, but also with the depth, and then we'll actually use HDD drilling to put it from one side to the other.

MR. DALE ANDERSON: Okay. That concludes my questions. Thanks.

MR. ANDREW LEVI: Thank you.

Dan, would you want to come up real quick and expand a little bit more to the temperature question with regards to what happens if there's a rupture?

MR. DAN PRASCHER: My name is Dan Prascher. That's D-A-N, P-R-A-S-C-H-E-R.

Okay. Yeah. So it stays at a temperature that is -- this is kind of embarrassing. Okay. So it stays at a temperature that's consistent with the ground and stays in liquid form. And, yes, if there's a rapid decompression, then as it flashes to gas, it releases -- it becomes very cold. Similar to if you had one of those canisters that cleans out your keyboard, pressed air, same deal, you're triggering it, air is coming out, it's decompressing it so the can gets cold. Same deal.

MR. ANDREW LEVI: Yes, sir. Come on up.

MR. DALE SCHNEIDER: Yeah. I got a couple of questions here.

MR. ANDREW LEVI: Sir, could you state and spell your name for Janet?

MR. DALE SCHNEIDER: Sure. Dale Schneider, D-A-L-E, S-C-H-N-E-I-D-E-R.

Okay. I see here in the summary you got some routing here. What is the north, RA north,

this is 23 miles long. And it says here parallels roadways from the ethanol plant straight west to the North Dakota border just north of Breckenridge.

Okay. What roads are those and where does it come into Breckenridge? Where up north? North ain't a good place for this shit. Is it a -- what do you call it? Bringing it into a facility and then ship back out of there, a holding point?

MR. ANDREW LEVI: No. What happens is the pipe will -- the pipe will continue into North Dakota. The sequestration facilities are west of Bismarck. So this document covers the Minnesota portion of that, of this project.

MR. DALE SCHNEIDER: Okay.

MR. ANDREW LEVI: But once it hits the river, there will be another HDD, another directional drill, as Scott described it earlier. And that --

MR. DALE SCHNEIDER: How far below the riverbed is that?

MR. ANDREW LEVI: Again, Scott said it would vary based on geotechnical work. I think we found at minimum it's 20?

MS. PAT TERHAAR: Yeah, the minimum depth would be 20, but likely it would be deeper than

that. It could be 30, 40, 50, it just depends on the geology. And I don't think they're done with their geotechnical studies yet for those.

MR. DALE SCHNEIDER: What is geotechnical? What is the difference there that makes a difference in height as it's buried?

MR. ANDREW LEVI: Scott, if you want to expand on it.

MR. SCOTT O'KONEK: A lot of it has to do with what types of rocks and geological layers are in there, you know. What, you know, we want to be below the bedrock, we want to be in an area that you can actually efficiently and effectively run a drill without having collapses. And we also want to make sure there's enough protection that we won't have a frac-out or a blowout when that drilling is happening, you know.

So that's what I mean, too, you know, we'll talk about minimum depths of 20 feet, or whatever the case may be, but when you're talking about these different routes, that you have to realize, too, that whatever route it would be would get an engineered design prior to an approval of before that drill will take place.

MR. DALE SCHNEIDER: Yeah, but it would

be nice to know where it is up north of Breckenridge, you know. But a 23-mile line means that another one here of 29.1 miles, you know, the hybrid --

MR. ANDREW LEVI: Sir, there's some real big maps just outside the room that have -- that have all of those routes detailed on an aerial with the roads and you can see exactly where they are.

MR. DALE SCHNEIDER: I didn't see them when I come up.

MR. ANDREW LEVI: Sorry, they're there.

MR. DALE SCHNEIDER: I have another question here. I thought it was said that that pipeline was going to be 54 inches below grade. So that's not even below the frost. And that frost does some hellacious things, you know. So why isn't it deeper than that if it is going to be coming through here?

MR. ANDREW LEVI: It's proposed to be that deep, that's the depth --

MR. DALE SCHNEIDER: So it's just proposed?

MR. ANDREW LEVI: Yeah. That's the best that the company proposes to bury the tube. That's also what's required, the minimum depth of cover in

Minnesota statute through agricultural areas.

MR. DALE SCHNEIDER: So we're supposed to be out there with that.

And another question, what is this schedule pipe business? Schedule 40, schedule 80, schedule 120? Or are we just putting plastic in the ground? What's the deal with it?

MR. SCOTT O'KONEK: It's actually a carbon high grade steel pipe, American made. It actually has a wall thickness of 1.89 -- .189 inches.

MR. DALE SCHNEIDER: .189.

MR. SCOTT O'KONEK: So if you look at the idea of the pipe, they say that the inside diameter is the four-inch and the outside diameter is four and a half inches, okay. So what you're looking at is about that difference around the pipe.

MR. DALE SCHNEIDER: So it's not any more than schedule 40 pipe through the countryside?

MR. SCOTT O'KONEK: Yes, it is designed and tested for this purpose.

MR. DALE SCHNEIDER: Yeah. It's designed and tested, but you're putting it 54 inches in the ground where it will be subject to the frost and freezing. And it will be, you know, Mother Nature

does some hellacious things, I know that. So how safe is it? What's the deal with that stuff? It's lighter than air, correct? So the seven-inch is the low pockets?

MR. ANDREW LEVI: Yeah. Heavier than that, I guess.

MR. DALE SCHNEIDER: Heavier than that.

MR. ANDREW LEVI: Yes.

MR. DALE SCHNEIDER: Okay. So what about going across the pastures where we got cattle and stuff out there? To take a water hole, where is it going to settle down to in the watering hole? So the cattle come down there and take a drink and, bam. And I know that stuff puts you down.

So that's my thoughts on it. Everybody should be thinking about things like that.

I got another question, by the way. What is this going to be used for after all these storage areas, is it going to be stuck in the ground and left there so it can get into the water aquifers and everything? What's it for? What are you collecting it for? I know to get it out of the atmosphere, but I don't think it's going -- and partly for the ethanol, but what's it going to be used for once it's collected? Just to put it in a hole in the

ground?

MR. ANDREW LEVI: Yeah, it will be permanently sequestered.

MR. DALE SCHNEIDER: So there's no use for it afterwards?

MR. ANDREW LEVI: No, I don't believe so.

MR. DALE SCHNEIDER: So there's a possibility of getting into water aquifers and everything else around the countryside.

MR. ANDREW LEVI: Scott, do you --

MR. SCOTT O'KONEK: No. The way that this works -- I know what you're thinking, what you're talking to. And, you know, I'd like to touch on a bunch of the safety aspects, the maintenance, and, you know, this thing gets a smart pig, it's a tool.

I'm going to start here, where we make sure there is no shifting. We send a tool there that actually can read the thickness of the location dings or dents. So if there was any other shifting or third-party damage that didn't get reported, anything, these tools can pick that up. And that'll be properly responded to.

And as far as sequestration, in permit sequestration, what that does is this is far, far

underground in North Dakota. And what there is is there's actually a salt water reservoir, is kind of what it is, and it's more of what everybody thinks of as a void, but it's like a core or a sponge space a mile underground, a half a mile, whatever. And when the CO2 goes in there over time and mixes with that salt water, it solidifies and calcifies over time, too. So I don't know the exact time frame on it. It depends on the amount of volume that's down there, too, and it solidifies and calcifies in the ground.

MR. DALE SCHNEIDER: What's the time frame?

MR. SCOTT O'KONEK: I don't know the time frame on that.

MR. DALE SCHNEIDER: So it's got a whole lot of time to get out into the aquifers and through the ground.

What about going down holes?

MR. SCOTT O'KONEK: We actually have monitoring wells around there, too. We have them right now because we had to prove what was down there. And with those monitoring wells, we're always watching that movement and that down there to make sure it's not doing anything it's not supposed

to.

MR. DALE SCHNEIDER: So what about putting it down the hole?

MR. SCOTT O'KONEK: So the pressures are going to be kind of what we're at right now, what the pipeline is operating at. Because the pump itself, it's all rated for that 2,185. So that pressure would be the max operating pressure that it goes down there, and then when it diffuses, basically, or defers into that saltwater tavern, it will be at ground pressure at that point. And I'm not sure what it is, it can be up to 4,000 psi in the ground at that point.

MR. DALE SCHNEIDER: In the ground?

MR. SCOTT O'KONEK: Yes.

MR. DALE SCHNEIDER: So if you have a blowout, where does it go?

MR. SCOTT O'KONEK: It's already at that 4,000 psi.

MR. DALE SCHNEIDER: Will it be coming back up? You got that much pressure, there's a lot of things that --

MR. SCOTT O'KONEK: So the important thing here, too, is the layers above that, the layers above this sequestration zone, too, there's a

layer called the cap rock and it's a very hard layer of rock that we had to prove was there. That way you know safe storage can happen. So penetrating that, that layers of rock, would be, you know, unlikely.

MR. DALE SCHNEIDER: Um-hmm. When possible. Okay. Yeah, okay.

I don't like it. Just so everybody knows what the heck is going on with it.

MR. ANDREW LEVI: Thank you.

Are there -- I'm sure there's more questions.

MS. SHARON LEINEN: Sharon Leinen, L-E-I-N-E-N.

I have a lot of issues with this whole project, but tonight I want to talk about the water usage.

Now, I've read a lot of reports about this project that nowhere has the water usage coincided and I always get a different number. So it seems like nobody really knows how much water this whole thing is going to take. And with most of the country in a drought right now, is this really wise to be using water for this? Is the end result going to be worth the loss of dripping water?

Also, the water will be coming out of aquifers. I live in the country and have a well, I don't want to have to drill a new well when the aquifer goes down. The city of Breckenridge has wells, I don't think they'd be too happy to have to drill new wells as the aquifer goes down.

I know there's constant projects being developed that would also capture carbon. The University of Wisconsin is on the cutting edge of that. And they are a lot less invasive than this project. It wouldn't involve laying pipelines, they capture the carbon right at the source.

I -- I just think this whole project is -- it's kind of strange. I mean, digging all this pipeline, all this expense, when it probably could be done another way. And by the time this pipeline is in the ground, if it goes in, is it going to be obsolete? Is there going to be some other method of capturing this carbon at that point that we don't even use the pipeline?

There's just new technology coming out every day and I have to wonder about that. I just don't think the tradeoff in the water is going to be worth the benefits we're getting back because once the water is gone, it's gone.

So, I don't know, I don't know why I can't find the amount of water that this is going to take. I don't know.

MR. SCOTT O'KONEK: So this is in there. So in our application, for our permit application, which is, you know, part of this docket that currently is there, the water number is actually in there. We've actually had it there the entire time.

MS. SHARON LEINEN: Every report I read it's a different amount of water.

MR. SCOTT O'KONEK: That number never changed in that document since we put it in there. What you might be referring to is you're looking further than the Fergus Falls plant and you're probably looking at other plants that are potentially on this project. Because every plant is different sized and would take a different amount. But the amount that we've actually stated in our permit application has not changed since the day we submitted it.

MR. ANDREW LEVI: That number is in the EIS, too. The Applicant estimates that the entire facility would require about eight gallons per minute in the winter and about 41 gallons per minute in the summer. And it would be on average about 13

million gallons a year.

MS. SHARON LEINEN: That's a lot of water.

MR. ANDREW LEVI: Yeah, that's a lot of water.

MS. SHARON LEINEN: Yeah, it's a lot.

So, I mean, this is our water we're talking about. Are we going to have drinking water or are we going to give it up to sequester this carbon? The tradeoff doesn't seem like it's worth it. And I worry about the water supply because everybody is running out of water and once it's gone, it's gone.

MR. ANDREW LEVI: And water is one of those things, when we talked about the downstream permits, it's the DNR that appropriates the water. So the Applicant would, you know, if they are issued a permit and do construct the project, they would need a water appropriation from DNR for use of groundwater.

MS. SHARON LEINEN: Well, I mean, it doesn't matter if you get the permit or not, you're still using the water.

MR. ANDREW LEVI: Yeah, I guess. Yeah. Yeah, that's true. And DNR looks at it holistically

and so there is a check there. But, yes, you're correct, you're still using water, it would still be using water.

MS. SHARON LEINEN: And I wonder also why you're still moving forward with this when North Dakota and South Dakota have rejected the permits and put a stop to it. So why are you continuing on with this when you have no place to go if you get the pipeline in the ground?

MR. SCOTT O'KONEK: So Dave or Alex? You guys. We are in the other states and that statement in general is not true. Every state is in a different position or a different spot in the permitting.

MS. SHARON LEINEN: Yes, but you don't have the permits.

MR. SCOTT O'KONEK: Iowa, we're waiting on a permit, which we're thinking would be the first quarter here at some point. South Dakota, we're in a different spot with county engagement and line routing in there, preparing to submit in South Dakota. And actually tomorrow we get to hear a ruling on one of the first steps that's going to reboot our hearing process in North Dakota on preemption. So we expect some movement in North

Dakota here. And I would say, you know, in the near future, I don't have a time frame on that, but the permits are actually still moving forward in all the states.

MS. SHARON LEINEN: But you don't have them.

MR. SCOTT O'KONEK: No, no. Just like here, we're working through the state process. Every state has their own process and that's what we're working through, is each individual process like we have here tonight in Minnesota.

MS. SHARON LEINEN: I know Summit is going to make a lot of money, tax incentives, the federal program. I pay federal taxes, I don't like my tax money going for something like this that I don't approve of.

Thank you.

MR. ANDREW LEVI: Thank you.

If I could just quick comment on the permitting in other states. Yes, you're right, they don't have the other permits from a state's perspective. It's a state process and an application came to us and we're required to, you know, to review it. I think that, you know, you're right, if they are issued a permit and they end up

not getting a permit in North Dakota, I don't think they'd use it because there's nothing to connect to. But just as a permit already in North Dakota wouldn't impact this Commission's decisions-making. It kind of flips the other way, too, in that it's a Minnesota-specific decision and what happens in North Dakota happens in North Dakota.

Does anyone else who hasn't asked a question want to ask one? I just want to give folks that opportunity.

MR. DALE SCHNEIDER: I just got one question.

MR. ANDREW LEVI: Sure. Come on up and ask.

MR. DALE SCHNEIDER: Okay. Dale Schneider back at the podium again.

And I got an email from a buddy that said the article came from his insurance company and they said with this pipeline product going across his land that he was not going to get any insurance, they would no longer insure him. So, you know, it's something -- I don't have the land, but it's just something that people want to check on, you know, what's going on with that. I just want to bring that up.

MR. ANDREW LEVI: Thank you.

Yeah, sure.

MR. JAMES VISSERS: My name is James, last name Vissers, V-I-S-S-E-R-S.

And I have a question about some of the safety equipment you were just talking about. Is it monitored kind of around the clock? How often are those safety checks occurring?

MR. SCOTT O'KONEK: So a great question. I love talking about safety because that's what we need to do here, because if we can't prove the safety, we're not going to get a permit. So thank you for the question.

So this pipeline is monitored 24/7/365 by a trained team of people that are qualified to operate and to monitor a normal operating system, to operate a system that may see an abnormal operating condition. We will even have a redundant -- right now I have a control center in Ames, Iowa, but we'll have a redundant one somewhere else simply for the fact of what if Mother Nature throws a tornado at Ames, right, so you have a backup, a fail-safe.

This pipeline is monitoring measurement temperature pressure 365. Even if we have a model, a hydraulic model running side by side saying this

is normal operating parameters, and as long as they're both acting the same and not stepping out of bounds, that's normal operation. If something steps out, instantly the system will let somebody know.

What is the action taken, right, is it an alert to an operator or an automatic shutdown. It all depends on what you're coming at, but there is many aspects of the monitoring of the pipeline systems, stations, compressors, valve sites, all that stuff is happening all the time realtime.

MR. JAMES VISSERS: And what are some of the response times if a leak was detected, or a rupture?

MR. SCOTT O'KONEK: You know, they did a good job in the Draft EIS here talking about that stuff. The reality is, I think what got put in there was 20 minutes, if I'm not mistaken. The reality of what we had in there was ten minutes. But what that encounters is the time it takes for somebody to make a phone call and react on it, but the valve closure or shut down actually happens in seconds.

MR. JAMES VISSERS: And I suppose to take it a little further, if there are damages from like a leak or rupture and you speak about

accountability, who would be covering the costs of the cleanup?

MR. SCOTT O'KONEK: Yep. Summit Carbon Solutions, 100 percent, the total costs are on them.

MR. JAMES VISSERS: Thank you.

MR. ANDREW LEVI: I see you coming from the back.

MR. VANCE WIERTZEMA: My name is Vance, V-A-N-C-E, Wiertzema, W-I-E-R-T-Z-E-M-A.

With permitting, you said you don't have the permits with North Dakota and South Dakota quite yet, correct?

MR. ANDREW LEVI: They don't, no.

MR. VANCE WIERTZEMA: Okay. What if you don't get the permits, like the previous question was asked, are you going to start on the Minnesota side if you don't have nowhere to go, or you can't start it?

MR. ANDREW LEVI: I don't suspect they would.

MR. SCOTT O'KONEK: What's that?

MR. ANDREW LEVI: If you didn't get a permit in North Dakota, but here.

MR. SCOTT O'KONEK: No, because we would not have sequestration at that point either, so

there would be no building.

MR. VANCE WIERTZEMA: Do you have like an estimated cost of what this will cost from Otter Tail to the Breckenridge?

MR. SCOTT O'KONEK: Yeah, actually. In the Draft EIS, I don't have the number off the top of my head because it has costs for all three lines, the northern route, the hybrid, and the southern route. And the cost to build all of them are in there. If you give me a second I'll pull it up here. I don't want to mistake anything. I have the numbers in my head, but I don't want to misspeak.

MR. VANCE WIERTZEMA: Okay. If you don't get the permits, is there a possibility that you guys could use eminent domain?

MR. SCOTT O'KONEK: No. No, eminent domain in Minnesota for CO2 is not listed as one of the things that fall underneath eminent domain.

MR. VANCE WIERTZEMA: How about North or South Dakota?

MR. SCOTT O'KONEK: It is within statute of the other states, but not in Minnesota.

MR. VANCE WIERTZEMA: So you can force this and just put the pipeline through?

MR. SCOTT O'KONEK: You have to go

through a state process that, you know, nobody wants to use that in the end. There's a process for filing and moving forward and how things go, but, you know, I really can't speak to that.

MR. ANDREW LEVI: Before your next question, the capture facility would cost about 30 million bucks and the pipeline itself would cost about $37 million.

MR. VANCE WIERTZEMA: Wow. That's a lot of taxpayer money.

MR. SCOTT O'KONEK: That money actually to build this thing is actually self-funded. There's a 45 cube tax credit on the back side, but actually to build all of this infrastructure is actually all done in private, private money.

MR. VANCE WIERTZEMA: Private money from who?

MR. SCOTT O'KONEK: Well, many different investors, ethanol investors, John Deere. If you go to our website, and please do, the list is all there. You know, there's a lot of them.

MR. VANCE WIERTZEMA: Is there funding from the USDA?

MR. SCOTT O'KONEK: Not that I'm aware of, no.

MR. VANCE WIERTZEMA: Do you have a study showing that the CO2 is a real problem around here from the ethanol plants, like by Fergus and Hankinson, is there a study showing, oh, man, it's so high it's off the charts?

MR. SCOTT O'KONEK: I can't say right here, but if you go look when and what the EPA is saying about greenhouse gases, I mean, there's a lot of material out there on that.

MR. VANCE WIERTZEMA: Yeah. I personally do not believe in that. Our good Lord is the one that makes climate change.

Thank you.

MR. SCOTT O'KONEK: Thank you.

MR. ANDREW LEVI: Thank you.

Sarah. And then, Sarah, only if you're comfortable, could you take your mask off?

MS. SARAH MOORADIAN: Absolutely. That would be hard to hear, absolutely.

Hi. I'm Sarah Mooradian, S-A-R-A H, M-O-O-R-A-D-I-A-N.

UNIDENTIFIED: We can't hear you.

MS. SARAH MOORADIAN: All right. How is that? Any better? I can try to speak up, too.

So just kind of going back to the

question a couple before about safety, I wanted to ask, just reading first from page 4-5 in the DEIS, so it says about halfway down the page, therefore in the time it would take for the valves to close in case of an emergency (25 minutes according to the Applicant).

So I'm just kind of wondering, you know, you said the Department put that in incorrectly, and it says here the Applicant put it in. So what's the actual time for the valves to close? Why is there discrepancy?

MR. SCOTT O'KONEK: I can take you to the spot where you can find it. It's actually in there. It's in Exhibit G -- Appendix G, if you go in there it talks about the dispersion inputs and all that kind of stuff. So it actually talks in there of that time frame.

MS. SARAH MOORADIAN: So what is the 25 referring to here?

MR. SCOTT O'KONEK: I don't know. You'd have to ask who created it.

MR. ANDREW LEVI: What page?

MS. PAT TERHAAR: 4-5, it's about halfway down.

MR. ANDREW LEVI: I think that that 25

minutes is wrong and we need to fix it, I think is what that is. I'm sure that's the only mistake you'll find, though.

MS. SARAH MOORADIAN: I wanted to be sure.

Thank you very much.

MR. ANDREW LEVI: I'm glad you found it.

MS. SARAH MOORADIAN: I just wanted to be sure. Thank you very much.

MR. ANDREW LEVI: Does anyone else have any questions?

MS. CHRISTY BRUSVEN: Andrew, to follow up on Scott's comment about Appendix G -- I have to get the table number, maybe I should have gone to the page. So it's Appendix G, Table 7, on page 12 of 19. It notes ten minutes for valve closure, and we'll have that in our DEIS comments as well.

MR. SCOTT O'KONEK: In reality the cycle time is 17 seconds.

MR. ANDREW LEVI: Yeah. And the ten minutes is what we used in the dispersion modeling. So, yeah, Sarah, I think that 25 minutes is just a mistake, an oversight.

Yes, sir. Come on up.

MR. DALE SCHNEIDER: I do have another

question. As it goes on -- Dale Schneider again.

So what are the corrosion factors of CO2? How hard are they? Are they like crude oil, are they like, you know, what is -- what's in it that corrode that pipe?

MR. SCOTT O'KONEK: Do you want to hear from me?

MR. DALE SCHNEIDER: Whoever has authority.

MR. SCOTT O'KONEK: So CO2 in carbon steel, the toxicity is nil, nothing.

MR. DALE SCHNEIDER: Okay. So -- but there is some, how much is it? What is it?

MR. DAN PRASCHER: You're talking about the corrosion?

MR. DALE SCHNEIDER: Yes, sir.

MR. DAN PRASCHER: Dan Prascher.

When CO2 combines with water it can become carbonic acid. And that can corrode the inside of the pipeline. The way that pipelines typically, and please, any time you want to jump in here, because I know you know this, too. Yeah.

The way that pipeline operators control that sort of thing is they have to be extremely diligent about taking all of the water out of the

system, that's the same if you're talking about crude oil, some other sort of liquid that's being transported, or CO2. You know, a corrosion tech who's been doing that sort of thing, that's corrosion mitigation 101, which they down out all the water.

MR. DALE SCHNEIDER: Um-hmm. So if it doesn't all get taken out of there, some residual is left in there and it can come out with carbonic acid?

MR. DAN PRASCHER: You can say that with any pipeline, but sure.

MR. DALE SCHNEIDER: The reason I'm asking, is I worked in the North Scope for several years. And BP had to blow all of that out of there. And I hauled some of those pipes away from the wash station and there was nothing left of it.

And running a pig down there, the pig wasn't going down that line because it didn't meet the full diameter of that line.

So then it had a magnum oil spill up there. So, I mean, it's only as good as the people operating it, you know. And, you know, I'm not saying that they won't be diligent, but you never know what kind of corners you're going to cut.

I'm just saying this for everybody to hear because I've been involved with it. You know, the aftermath of it. And I'd hate to see that CO2 coming across this country. That's probably the worst place north of Breckenridge, because the northwest wind, you know, how far does it disperse in the wind before it's gone, before it's dispersed to a livable amount?

MR. DAN PRASCHER: It doesn't take far for it to disperse. The thing that's interesting about CO2, is the very thing that's propelling the wind is also the thing that's dispersing, mixing it. The more it gets mixed, the more the CO2 concentration drops. It becomes safe actually very quickly.

And this is a very small line. Very, very small, four inches. And the less product that you have to potentially, you know, in the very remote chance that you do have a rupture, you have less quantity to start with and so it disperses much faster. And kind of what we haven't really been talking about today is all of the safety stuff that every company has to put into this. And especially Summit. You know, that's their bread and butter. Because it may sound kind of hokey, but it's true

that the one thing that we can all agree on is we all benefit if the product stays in the pipe. It benefits them, it benefits all of us.

MR. DALE SCHNEIDER: Yeah. But how are these things all monitored, you know, electronically?

MR. SCOTT O'KONEK: So the DEIS actually -- you know, the cool part is a lot of these questions are in the DEIS. You know, they actually have answered a lot of these, too. So, I mean, really it is monitored with the best connectivity, you know, is that fiber, is that satellite, is that solar, is that cellular, is that redundant, which one is the main, which is the redundant backup? But it's constantly, all of the temperature pressure, temperature pressure and measurement instruments are constantly realtime feeding back into our control center, so it has a live stream feed of what's going on, and the stations and valve sites and everything can be operated and initiated from that control center, too.

MR. DALE SCHNEIDER: And this is all -- this is all recorded when it comes back to your station?

MR. SCOTT O'KONEK: Recorded?

MR. DALE SCHNEIDER: Yeah.

MR. SCOTT O'KONEK: Absolutely. So if PHMSA wanted to come in, to Dan's point, too, like the regulation on this is not like what we decide, right? It's being decided what we regulate, what we did. PHMSA gets to put their foot in the door whenever they want, whatever way they want.

The way I can actually, like, put it into the best common way for everybody to realize is let's look at it, let's think of it on the OSHA side. You know how OSHA likes to implant themselves wherever they want, whenever they want, for whatever they want, and you have to give everything you have on-the-spot, basically, or have a, you know, that's what PHMSA does, too. They might be at our pipe mills watching our pipe being made, okay. They have shown up to me filling a pipeline in Wyoming, right.

They came in, they're checking my documents to make sure all those documents -- cause actually a lot of those documents we had already submitted to them, they wanted to make sure they're the same ones that are there.

The other thing they'll do is they'll pull a guy off and start interviewing him over here

and see what his answers are. And these are just small examples. But they get to choose when, where, and how they insert themselves all the time. The only thing I can guarantee you, is they will. I just don't know when or what they're going to ask about.

MR. ANDREW LEVI: Scott, can you remind everybody what PHMSA is?

MR. SCOTT O'KONEK: Pipeline Hazardous Safety --

MR. DAN PRASCHER: Pipeline Hazardous Material and Safety Administration.

MR. SCOTT O'KONEK: I know it, too, I just can't say it.

Thank you for that question.

MR. BUTCH JIRAK: Butch Jirak, B-U-T-C-H, J-I-R-A-K.

You stated that the water, 13 million a year?

MR. ANDREW LEVI: On average, yes, I believe that's right.

MR. BUTCH JIRAK: Just to get perspective of what's going there, if you divide that by 365, and 24, and divide that by 60, somebody else can do the math, but I got 25 gallons a minute.

MR. ANDREW LEVI: It varies by time of year. Nine gallons per minute in the winter and I'd say 40 in the summer.

MR. BUTCH JIRAK: You said that was the usage of the water. That was the usage going through the line. You made a comment earlier, that that was winter time, the water usage. Because 13 million, divided backwards, upside, comes out to 25 gallons a minute, hypothetically.

MR. ANDREW LEVI: Sure.

MR. BUTCH JIRAK: Sure. Anyway, that was an educated --

MR. SCOTT O'KONEK: Yeah, it's eight to ten gallons a minute.

MR. BUTCH JIRAK: Eight to ten gallons a minute.

MR. SCOTT O'KONEK: Eight to ten on Table 42 in the EIS.

MR. BUTCH JIRAK: All right. So then if you do the math, it isn't 13 million gallons?

MR. SCOTT O'KONEK: I would have to -- what we have here annually is that number right there, correct? So it's 20.9 million gallons a year, daily is 11,800. You know, and we are using, and when we say this, too, we're using our largest

numbers we can, you know, we're trying to make sure we have the highest volume possibility.

MR. BUTCH JIRAK: Right.

MR. SCOTT O'KONEK: You have to remember, too, these numbers don't account for shutdowns, changeovers.

MR. BUTCH JIRAK: Yeah, on a good day it's running and it's a good enough answer.

Okay. Thank you.

MR. SCOTT O'KONEK: Thank you.

MR. ANDREW LEVI: Thanks. And we'll double check that paragraph versus that table.

MS. SHARON LEINEN: Sharon Leinen again.

Okay. I take issue with the fact that no one is very concerned about this. If there's a rupture, you say the wind is going to disperse it.

There's a video online about a rupture, I believe it was in Missouri a few years ago, and animals and people within a three-mile radius of that rupture were either killed or severely injured. Nobody in the closest town knew how to deal with the CO2 because nobody had any experience with it. They weren't equipped, they didn't know how, they didn't have the equipment to deal with it.

Are you willing to train people, say, in

Breckenridge, or supply them with the equipment they would need if there's ever an emergency? Because there's going to be a rupture or a leak somewhere, I don't care how safe it is and how many protocols you have in place, it's going to break at some point or another.

MR. SCOTT O'KONEK: So I want to back up a little bit. I think you're talking about Satartia, Mississippi.

MS. SHARON LEINEN: Yes.

MR. SCOTT O'KONEK: You may be right, but this DEIS covers it very well. And I do want to tell you, no animals were injured in this, or people, you know, no animals at all, and you just said many were killed and that's not true. But anyways --

MS. SHARON LEINEN: They had it all in the video.

MR. SCOTT O'KONEK: But, I mean, I don't know who made this video you're talking about, but if you actually go to PHMSA, the regulating body, and read the DEIS in Chapter 8, I believe it talks about exactly what you're discussing.

But, anyways, back to your other question. Absolutely, we are working with emergency

responders, county commissioners, to do training, to keep training up. We actually have to do this regularly, annually, at least, you know, where we actually run scenarios. We'll run, say, if this happens at this location, how do we respond to it?

If first responders reach out to us, you know, we have a lot of turnover and it's hard to find enough people to fill all these boots, you know. If they reached out to us with a bunch of new people, we'll be training again. We're out there, that's what we do.

Actually, our public outreach never stops. It has to continue on forever and ever. But I do hope and ask you to actually read the Satartia, Mississippi report.

MS. SHARON LEINEN: I have a friend who is an EMT here in town and if I ask him if there's been any training for this, what is he going to tell me?

MR. SCOTT O'KONEK: So at this point, before this would ever go in, emergency managers have been talked to, reached out to, to say, hey, this is what we got going, this is what we're doing, there will be a follow-up later when we know where we're at, what you need and where you need it. And

how we should do training, they're going to tell us a lot of it, this is what we need to cover, how, what, and where they want to do it. And we in operations, that will be done, even if we had done it today, and we don't even know today if we're permitting the northern route, the hybrid, or the southern route.

MS. SHARON LEINEN: So who is paying for the equipment?

MR. SCOTT O'KONEK: We do.

MS. SHARON LEINEN: Is that in writing?

MR. SCOTT O'KONEK: No, it's actually public. If you go look, it's been sworn in testimony in all of the states that we have permitting going on. So it's sworn testimony at this time.

MS. SHARON LEINEN: So if I go look, I'll find it?

MR. SCOTT O'KONEK: If you have a lot of time to listen to all the videos, you can find it. Except South Dakota, we didn't get that far.

MS. SHARON LEINEN: Okay. I'm going to check.

MR. ANDREW LEVI: Ma'am, the state, we recommended a -- a consideration, anyway, of a

special permit condition requiring the Applicant to provide a copy of that accidental release plan developed in coordination with local emergency responders to the Commission to review, should they get a permit. And, you know, listed a few things that we thought could be discussed in there, including specific equipment, training, or reimbursement that could be provided to emergency managers.

So the state is very -- we're thinking about the same thing you're thinking about and we're recommending -- well, we believe that a plan that discusses that information be, you know, would be a good idea to provide that as a condition so that is in writing, like what you're talking about.

MR. DAVE DAUM: If I could just add to that?

MR. ANDREW LEVI: Can you come up? And state your name, and spell it, too.

MR. DAVE DAUM: Yep. Dave Daum, D-A-V-E, D-A-U, M as in Mary.

I would also state that PHMSA does require us to provide training to emergency responders annually, not to exceed 15 months, as well as develop an emergency response plan in every

area that we operate. So those are requirements that we have to follow.

MR. ANDREW LEVI: Does anyone else have any questions?

It's 7:10. Do folks want to take a break for five-ten minutes, stretch your legs, look at the maps? And we can reconvene at 7:20, if you want to stick around, or if not, thanks for coming. But maybe that'll get some more questions rolling.

I see one person nodding their head so we're going to go with that. So, yeah, let's just take a break for ten minutes and come back at 7:20 and we can see if there's any more questions.

The Applicant provided some refreshments there in the back, and there's also those maps, the detailed maps in the back.

MR. DALE SCHNEIDER: Yeah. I'll take a look.

(Break taken from 7:08 to 7:23.)

MR. ANDREW LEVI: Okay. Does anyone -- does anyone have any additional comment or question?

Come on up, sir.

MR. DALE ANDERSON: This is Dale Anderson again.

By looking at the map out there, exactly

how far south does it actually come to, the pipeline? Is there a township it goes through or anything like that? Or -- well, is it western? It doesn't really say.

MR. ANDREW LEVI: I believe that's listed in here.

Scott, do you know off the top of your head?

MR. SCOTT O'KONEK: I don't know off the top of my head. Sorry about that. I don't know them off the top of my head, but they're listed in the permit application and the Draft EIS.

MR. DALE ANDERSON: So the general public -- so is the general public going to see where they go through or are we going to be Horsey Puckett and not know where they're going?

MR. SCOTT O'KONEK: No, that map is publicly available.

MR. DALE ANDERSON: Okay. And I got a question as far as static electricity, is that going to effect it?

MR. DAN PRASCHER: The pipeline?

MR. DALE ANDERSON: Yes. No doubt, it goes into the ground.

MR. SCOTT O'KONEK: I don't know any

effect that static electricity would have on this. You know, I'm just assuming that you're probably referring to like oil and gas and stuff like that as an igniter and things of that nature, maybe?

MR. DALE ANDERSON: Well, anything that is metal is going to travel to the weakest spot and that's where it's going to go.

MR. SCOTT O'KONEK: So in listening to, like, we have a system -- cathodic protection system. Alex, do you want to give the whole generic overlay of how it works?

But basically we put a DC charge on the pipe all the time, it's a constant charge on the pipeline and then it is actually being delivered to an annual bed instead of actually corroding or eating away on the pipeline. So this always has a charge on it.

So with the static electricity side, if you're looking at it as a charge, the CO2 is not combustible or ignitable. So if you're looking at the soil and gas side, it's not comparative.

MR. DALE ANDERSON: So how far are the check valves between each one that you can monitor? Is it a mile, two miles or so?

MR. SCOTT O'KONEK: No, on this it's all

less than 12 miles throughout -- 13 miles, yeah, all less than 13 miles from Fergus Falls to the border.

MR. DALE ANDERSON: But those valves are close, right, automatically, unless there's an interruption in the line, then, right?

MR. SCOTT O'KONEK: One more time.

MR. DALE ANDERSON: Interruption on the line, if those valves are close, is that going to affect the back pressure on it?

MR. SCOTT O'KONEK: No. Actually, it is all designed to handle that. And this design and this capacity, even if you would slam these shut, there wouldn't be any hammer issue like probably what you're used to in your oil and gas background. But we could slam these valves shut and it wouldn't even over pressurize the pipeline.

I do have those townships, if you want. It's Foxholm, Sunnyside, and Breckenridge. It's in the project description on the third paragraph -- section. There we go.

MR. DALE ANDERSON: Okay. Thank you.

MR. SCOTT O'KONEK: Thank you. Thank you for coming out tonight.

MR. ANDREW LEVI: Anyone else have a question or comment? I'm not seeing any hands.

Thank you very much for coming out tonight.

I want to remind you of February 23rd, the comment period closes on February 23rd. Please do comment by that date. If you comment once and decide you want to comment again, please do comment as many times as you'd like.

If you have any questions along the way, please feel free to get in contact with me and I can help answer those questions or direct you to who can.

So, again, thank you very much for being here and get home safe.

(Matter concluded at 7:30 p.m.)

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DEIS MEETING - 22-422

FERGUS FALLS - FEBRUARY 7, 2024 - 1:00 P.M.

BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION AND DEPARTMENT OF COMMERCE

In the Matter of the Application of Summit Carbon Solutions, LLC, for a Routing Permit for the Otter Tail to Wilkin Carbon Dioxide Pipeline Project in Otter Tail and Wilkin Counties, Minnesota

MPUC DOCKET NO. IP-7093/PPL-22-422

Fergus Falls, Minnesota

1:00 P.M.

February 7, 2024

COURT REPORTER: Janet Shaddix Elling, RPR

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MR. ANDREW LEVI: Good afternoon, everyone. Thanks for joining us.

My name is Andrew, I work with the Minnesota Department of Commerce.

We are here in Fergus Falls at 1:00 in the afternoon to discuss the Otter Tail to Wilkin Carbon Dioxide Project Draft Environmental Impact Statement.

There's a few things that I'd like to touch on real quickly before we open up the meeting to your questions and comments.

The first is introductions. There's a lot of folks here today.

With me, Jessica, she was at the front table, she also works with us at the Minnesota Department of Commerce Energy Environmental Review and Analysis Unit. Our group is the group that drafted the Environmental Impact Statement.

Craig from the Public Utilities Commission is here.

HDR, the consultant, they helped put together the EIS. Joe and Pat and Will are here to help answer any questions.

And Dan, up here with me, is from Allied Solutions. Dan did the rupture study, the

dispersion modeling, that's in Appendix G of the Draft EIS.

Summit Carbon Solutions is here, Scott, Alex, and Jason. As well as Christy and Britta.

And the most important person here today is Janet. She's our court reporter. She is getting everything into the record and ensuring that your comments and questions get in front of the Public Utilities Commission.

So the Applicant proposes to construct and operate approximately a 28.1 mile four-inch diameter carbon steel pipeline and associated facilities, including line valves, a capture facility, and access roads, a cathodic protection system, that would transport captured CO2 from Green Plains Ethanol Plant to a permanent sequestration facility in North Dakota.

So this project is regulated by the state of Minnesota and so it ends, from a permitting standpoint, the project ends at the border, but it would pick up with a pipeline in North Dakota and travel to a sequestration area west of Bismarck.

A pipeline routing permit is required from the Public Utilities Commission because this project would be signed to operate at pressure

greater than 275 pounds per square inch and carry gas. Various other approvals might be required for the project. If the Commission issues a route permit, this might be a road crossing permit, for example, from MnDOT.

Also, the company does not have the power of eminent domain, so while it's not a permit, it is -- it would be required that they have approval for that, the easement that they need to construct the pipeline.

Just a little bit about the process, the state process so far.

The Applicant submitted a route permit application and a Scoping Environmental Assessment Worksheet was prepared. That Environmental Assessment Worksheet is on the back table. It was last night, it is not there now, but it will be by the time we're done talking.

Scoping meetings were held here in May. We met in Breckenridge and here in this room. And also at a virtual meeting. And then the scoping decision came out, and that scoping decision outlined the table of contents that were to be discussed in the study, in the Environmental Impact Statement, and the Draft EIS was issued. So

everything on this page, on this slide, rather, has been completed so far.

And this is the process that's left.

Today we're at the public meetings with a comment period associated with the Draft EIS. The Draft EIS will be issued as final, so what we're after for these meetings and this comment period -- this comment period is what can be improved upon in the draft, is there anything missing, so that is the purpose of these meetings here today.

Once that's done, we will finalize the EIS, and then there will be a comment period on the accuracy of the EIS.

After that, we'll be back out here again, I'm sure in Breckenridge on a Tuesday night and in Fergus, here in the same place, in the afternoon and evening for the project and we'll have a public hearing. So we'll all be here, except the hearing will be administered by an Administrative Law Judge. And the Administrative Law Judge will issue a report and recommendation to the Commission on whether or not to issue a route permit for the project. And if so, where should it go.

The Draft EIS studies three route alternatives, so the report and recommendation would

recommend the route to choose, should the recommendation be to issue a permit for the project.

After that report is issued, the Commission then will make a final decision on whether or not to issue a route permit and that should happen sometime in August, I think.

So today we're here to talk about the Draft EIS. We can talk a little bit about what it is. There's three copies on the back table that you can review and take a look at. The purpose of -- so, oh, there's sirens in the background.

MS. CHRISTY BRUSVEN: It's 1:00.

MR. ANDREW LEVI: This Draft DEIS is for informed decision-making. We want to provide as much information as we can to the Public Utilities Commission so they can make an informed decision. It is hopefully a common set of facts that everyone can use to wrap their head around the project and provide comments to the Commission. The EIS does not advocate, it informs, and that is the purpose of the EIS.

The EIS took some time to prepare, several months. It is based on the Applicant's route permit application, as well as the scoping EAW. And it is also based on public comments that

we received during the scoping meetings when we were here in May.

It also is based on additional information provided by the Applicant. And all that additional information that they provided is in the appendix in the back of the EIS.

We had information, we had feedback from tribes and agencies on the preliminary Draft EIS. We used GIS to prepare a lot of the maps and figures and acreage calculations, and we also used the services of HDR as a consultant, and Allied Solutions as a sub-consultant for the preparation of the EIS.

The document covers a lot of information. It's about 350 pages long, plus the appendices. It's always hard for us in length, you know, if it's too short then it's too short and not enough information, and when it's too long, there's too much information and we can't work our way through that. I understand that.

I encourage you, there's an executive summary that's available for a handout today, it's on the back table. This is pretty short and you can read through this and if there's any topic that catches your attention, you can certainly find that

in the table of contents and read it in more detail for that.

But it discusses the proposed project, the regulatory setting, the environmental setting. It talks about three routes around the maps on the side of the room. It discusses alternative technologies. So are there farming practices or actions that could be taken at the ethanol plant that could reduce the carbon intensity score or the ethanol produced. And, yes, there are. It also turns out that in combination, those two options, it's better than individually, and it turns out that if you did carbon capture on top of those two things, that's the best scenario in terms of reducing the carbon intensity score at the ethanol plant.

It also talks about potential impacts and mitigation measures both for normal operations and then also for an accidental release. And Dan is going to just summarize the results of that after this.

Let's do that right now.

MR. DAN PRASCHER: Hi. I'm sorry. It's Dan Prascher, D-A-N, P-R-A-S-C-H-E-R.

So Andrew asked me to kind of summarize

what was in Appendix G, in that gigantic thing that the ethanol plant is based through that. But, you know, if you have trouble sleeping tonight and you need something, it's free, so it'll put you right to sleep.

But I did help HDR write this part of it and Andrew asked me to summarize what is in G. And what G talks about is all of the types of regulations that Summit has to abide by, all gas operations have to abide by.

It has eight subchapters and it starts at construction -- starts at actually manufacturing the pipe itself, as regulations for that, for design, for construction, and how you test it before it goes into operation.

All of the people involved in that have to be qualified and requalified every one to five years, depending on how complex their jobs are. Anybody who touches or can effect the integrity of the pipeline have to be qualified. They also are part of a antidrug and alcohol misuse program. So they not only have to qualify, they have to be not under the influence of anything if they do. They are more stringent on any drug test you can take.

And in addition to that, there's gigantic

requirements for operating, and a subset. There's many parts to that controlling the pipeline, talking to the public, educating them, providing damage control that might occur through the pipeline. And then something called an integrity management plan, which is extremely rigorous.

And the Applicant, Summit, understands that if they are going to get in the business of this, that an organization called PHMSA, which is a subdepartment of the Department of Transportation, is going to regulate it and they have the power to shut them down. They have power to fine them millions of dollars. They have power to make them do whatever they feel is correct and to make sure they're being safe about how they operate and they know that. And so they're going to do everything they can to avoid all of that.

I'm sure if you were in that position, you would, too. I was an operator at one time and we wanted to make our audits with PHMSA go very smoothly.

In addition to that, the state, as I understand it, is also going to have something to do above that before they give them the right to construct. And Summit understands that.

So that's not a brief summary, but there's quite a few sections to it. And then in compliance with that, Summit has to do an air dispersion, they are required to understand that and be able to present how a rupture or a leak could affect people in the environment around it. So they did that, they submitted it to the state. I checked what they did, I ran my own independent study, double checked it, and they're doing everything that they should be doing and thinking about things that I would think about.

And I've been in oil and gas, I've done pipeline integrity for almost 20 years now, plus, and so it's not a trust thing, it's just to verify, right. And so I looked into that. The results of that was yes, that the things that they chose and how they did the analysis seemed appropriate.

We did go farther just to make sure. We did what's called a computational fluid magnanimous analysis. It used a multiphysics engine so that we can model in realtime how a release would roll across terrain. And we all have windbreaks in this area, that's always the marks, right, is that is it stopping the wind and the wind is doing the dispersion, so we wanted to model that, too, and we

did. And in short it shows that if you're in a south of wind you're going to stop these kinds of dispersions really well. Really, really well.

And then also, just to be thorough, we took a look at the sensitivity analysis and said okay, well, what kinds of things are going impact a release, a potential release. And, you know, we discovered that the data shows that wind speed and pressure, pipeline pressure are the two biggest things.

And something to note about that. The higher the wind, the less the dispersion. It's a little bit not -- it's not intuitive, because if everything that pushes it, if it pushes it too fast, it actually causes a mix with the surrounding atmosphere, when it causes the mix, it lowers the concentration of the carbon dioxide in the air and disperses faster. So, low, slow speeds, very calm, very nondeterminant flow, that's what produces the worst case scenario. And in Appendix G, if you feel inclined to look at that, it shows all of this.

And assumptions I've made, we try to take in all the reasonable things into account. The last thing that anybody wants is to see something like that and say, hey, this thing went worse than that.

So we want to make sure everyone understands this. And that is a small pipeline. But anyway.

Sorry if that wasn't very good.

MR. ANDREW LEVI: I'm impressed to know that, so don't worry about it.

So the EIS is available. There's printed copies in the back if you want to take a look at those during the meeting today. There's electronic copies, they're available on our website. Which is actually on the handout, that's on the comment form, you can get it there. It's also available on the eDockets application. I don't recommend getting it there, but you can get it there, if you like.

There's also flash drives available to take home. They're on the desk, you're welcome to take one. They look like a credit card, but it's a USB flash drive and you can bring that home and the entire EIS is on that.

And they're also available in print at the Breckenridge and Fergus Falls libraries and, as I said, the summary is also available, the executive summary is also available in print at the front table.

That's all that we really have in the way of a presentation.

Now I'll move to your questions and comments at this point. And talk about quickly what comments are most useful to us right now, as we're preparing, as we move to preparing the Draft EIS into a Final EIS.

We're looking for your points of view on what needs to be clarified. Is there something in there that is confusing that could be simpler and could be easier to understand? Is there anything that's missing? There's a scoping decision issued for the project, is there anything that we said we were going to talk about that we missed? You know, let us know. And is there anything that needs to be added so that the Final EIS is just more complete and more accurate? What information would you like to see?

So we'll use the comments on the Draft EIS, we'll respond to substantive comments, and we'll also make changes based on those substantive comments as appropriate. So, you know, substantive comment is more along the lines of, you know, here's this paragraph, or section, or whatever, it might be in the Draft EIS, this is what I'm seeing is a concern and these are the things and this is why. And so that's kind of what we're looking for. We're

looking if you can tell us what's wrong and provide some information as to why and if you convince us we'll be more than happy to change it.

Comments, you know, along the lines of, you know, well, you know, we don't agree with this, but if you don't tell us why, then we don't really have anything to go on. So we kind of need that whole story of comments so we can react and decide if we need to change the EIS.

So, like I said, we'll take a look at those comments and submit a final as appropriate of the provisions, and that should happen I think in April when that comes out.

So, again, you know, commenting tonight is to focus on those things that we talked about. And whatever you would like to comment on today, verbal comments are only accepted here at the public meetings, we have Janet available to record those.

You can also submit comments in other ways, if it's something you'd like to do. You certainly don't have to. You can provide comments, written comments on this comment form. That's why it's there. You can fold it and throw a stamp on there and mail it in. You can also use the address for your own envelope.

We have an online commenting tool on our website, and you click on it and it brings up a fillable form and you can attach a PDF and attachments there and provide your comments that way. You can also send me an email directly.

The important thing is that these comments are received before the comment period closes, which is February 23rd.

So commenting today, we need to have one speaker at a time. Janet can't keep track of two people talking at once and she will certainly stop us if that happens.

So just a reminder that, yes, we need one speaker at a time. I'll call on you -- there's one speaker who signed up and then we'll go to a show of hands. But when it is your turn to speak, if you can come up to the microphone and state and spell your name for Janet.

And then if you could direct your comments to the questions pertaining to the content of the Draft EIS, or comment on anything you like today.

I just want to remind you that there will be an Administrative Law Judge here in a few months, in May, and it will be the Administrative Law Judge

that makes the recommendation and drafts a report and recommendation on whether or not to issue a route permit. Questions, like, comments and questions concerning that today, of course, are fine, but our response to that will be comment noted. It is the Administrative Law Judge in May that will actually do something with those comments.

So, again, I believe that's all I have.

If Nathan would like to come up. Nathan Runke.

MR. NATHAN RUNKE: My name is Nathan Runke, N-A-T-H-A-N, R-U-N-K-E.

I'm with the International Union of Operating Engineers Local 49. Local 49 is a construction labor union in Minnesota and the Dakotas representing about 15,000 members, or 15,000 operators, mechanics, and stationary engineers. Our members have extensive experience in constructing and maintaining pipeline in Minnesota. Use of pipelines has been consistently shown to be the safest, most cost-effective means of transporting liquids, gases, and slurries.

As Minnesota seeks to reduce its greenhouse gas emissions, carbon capture and storage technology has increasingly become more important

and in ongoing efforts. Carbon dioxide pipelines are needed components, and it is critical that we are constructing pipelines for people in Minnesota who wish to reduce carbon emissions.

Our members and their families live, work, and recreate across Minnesota and the Dakotas. Like all Minnesotans, we value the safety of workers and members of the public, as well as protection of natural resources. As such, we advocate that pipelines in Minnesota should meet high safety and environmental protection standards, and should be built by well-trained local construction professionals and experienced contractors.

Pipelines can deliver economic benefits to workers, but only if the project is committed to using local labor. Our union has had extensive conversations with Summit over the past few years and we believe they are committed to ensuring that this pipeline is built safely and it is an advantage to Minnesota local workers and communities.

It is our belief that the Draft EIS is complete and accurate and adequately captures the benefits and impacts of the project.

Thanks for your time.

MR. ANDREW LEVI: Thank you.

Nathan, you are the only one who signed up to speak.

Does anyone else want to come up?

Yeah.

MS. PATRICIA MABEY: Hi. I'm Patricia Mabey, P-A-T-R-I-C-I-A, M-A-B-E-Y. I have a frog in my throat.

I'm a 563 laborer. I've been doing this for 23 and a half years. I've done building and trades and building pipelines. And by keeping it local, I'm from Fergus Falls, so I'm local, I've got family that still lives here and works here and we farm here, too. And by putting this in, it's going to keep everything up to date, it's going to keep it in the ground. We want to stay competitive. We need to help farmers and reduce the carbon emissions, and that's a good way to do this for this project.

The report by Northstar Policy Action states that local workers contribute five times more to the community than the outside workers. I do believe in employing local versus out of state. In addition to helping local economies, this project will provide opportunities for local community members to get into a career.

Before I came into the trades, I worked in a factory for seven-fifty an hour. Now I make way more than that, and I was able to provide a good economy for my family. And if the local members here could do the same for their families, it would be a win all around.

Sorry, I'm a little nervous.

It's not just about labor. We build pipelines using modern equipment and engineering technology so the product stays in the pipe.

I've worked in Minnesota, I've worked in North Dakota. And it's got to stay local. And the union trades is what's going to build it safe.

Thank you for your time.

MR. ANDREW LEVI: Thank you.

Who wants to come up next?

Yes, sir.

MR. CRAIG WINTERS: Craig Winters, C-R-A-I-G, W-I-N-T-E-R-S.

This pipeline has, since we're only dealing with Minnesota, as I understand, unless things have changed. North Dakota and South Dakota has denied permits to build this pipeline. I hope this pipeline is not going to be a pipeline to nowhere that is just going to be built just because

it can be built, but nothing will be done in that to serve its purpose.

MR. ANDREW LEVI: Do you want to address that question, Scott?

MR. SCOTT O'KONEK: This Minnesota portion of the project would not be constructed without North Dakota and South Dakota permits. So, you know, it would be, you know, we need everything to complete the project. There would be no construction if there is no permits there.

MR. ANDREW LEVI: Anyone else have a comment or question?

MR. KEVIN PRANIS: Kevin Pranis, P-R-A-N-I-S. I've met her before once or twice.

So I'll start by thanking the EERA staff, you know, and the Commission, for the excellent Draft Environmental Impact Statement. They have comprehensively looked at all of the different effects.

I think people have a lot of questions about this pipeline. This is not new in the United States, but they are not certainly used to the extent of the gas pipeline that we are more familiar with.

And I think, you know, we heard maybe

them talk about the skills that our folks from the operating chairs, I could say, I work with laborers that build pipelines of all types, and the construction techniques are very consistent. I'm sure we have to keep the product under pressure, and fluid dynamics, and less so with particular substances and the like.

The carbon dioxide is toxic, but we have too much in one place and that's a problem. You know, we take it very seriously, the need to construct a pipeline properly, engineer it properly, site it properly, to minimize those risks and to make sure we understand how to deal with it with less impact if there were a release.

Summit's willingness to prioritize local workers and labor ensure a high quality project and also maximizing the benefits and policy action and review and found incremental of, like, $73 million worth of benefits for using local workers in Minnesota, as well as the southern Minnesota segments and then North Dakota it's more like $93 million in incremental benefits just for using local workers, right, and relying on state workers.

And so I appreciate that commitment and can say I agree, I think the EIS does a good job of

talking about these local and not local workers. I would say that typically 50 percent is local workers as a minimum for these projects, and the contractors bring fewer people from elsewhere, but our contract requires at least 50 percent be available to the local work force.

So thanks.

MR. ANDREW LEVI: Thank you.

Nobody is jumping up.

Does anybody else have anything right now?

Let's take a ten-minute break and look at the maps and just chat amongst ourselves and see if that spurs any additional comments or questions. We can come back at 1:45 and reconvene and hopefully we'll have some more questions and comments then.

So let's meet back here in about ten minutes.

(Break taken from 1:35 to 1:51.)

MR. ANDREW LEVI: All right. Let's go back on the record.

Does anyone have any questions or comments?

Yes, sir, come on up.

MR. CRAIG WINTERS: Craig Winters.

I would like to comment on the modeling that was done. Now, you tested it with wind rates and so forth. Has the modeling been tested dealing with, if a rupture occurs during a rain storm, and all the CO2 would not get dispersed, it probably actually would get dissolved in rain water and then get into the groundwater and stuff. Has that been addressed as far as the modeling?

MR. DAN PRASCHER: It hasn't.

MR. CRAIG WINTERS: Okay. And then another question is kind of maybe not directly to the EIS, but if it goes out to where it's being sequestered, is the sequestering being done where there is going to be no damage in North Dakota dealing with the aquifers that are located there?

MR. ALEX LANGE: Alex Lange, L-A-N-G-E.

Yeah, so sequestration falls under the North Dakota Industrial Commission for the permitting side of things. But some of the things we do look at is formations that we're injecting into, and we pull fluid samples and validate that. Although it can't be used for drinking water. So that's a process we go through as part of the NDIC permitting process, validating that it would be drinking water.

MR. CRAIG WINTERS: So can you verify that that won't be affecting any of the aquifers of the residents of North Dakota?

MR. ALEX LANGE: That's correct. There's multiple layers of rock formations, so there are a lot of layers higher up elevation-wise than where we're at for our injection rates.

MR. CRAIG WINTERS: Okay. Thank you.

MR. ANDREW LEVI: Thank you.

Can you hear me? Is this better? Can you hear me better in the back? Okay, good.

Does anyone else have a question or comment?

All right. Well, it doesn't appear so.

I just want to remind everyone that the comment period closes February 23rd. If you have any questions in the meantime, feel free to get in touch with me.

My contact information is on the handout here, it's also on the EIS.

We're meeting tonight at 6:00, feel free to come back, and there's also a virtual meeting tomorrow night so feel free to join, if you'd like.

And with that, thank you very much for your time and thanks for being here today.

(Matter concluded at 1:54 p.m.)

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DEIS MEETING - 22-422

FERGUS FALLS - FEBRUARY 7, 2024 - 6:00 P.M.

BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION AND DEPARTMENT OF COMMERCE

In the Matter of the Application of Summit Carbon Solutions, LLC, for a Routing Permit for the Otter Tail to Wilkin Carbon Dioxide Pipeline Project in Otter Tail and Wilkin Counties, Minnesota

MPUC DOCKET NO. IP-7093/PPL-22-422

Fergus Falls, Minnesota

6:00 P.M.

February 7, 2024

COURT REPORTER: Janet Shaddix Elling, RPR

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MR. ANDREW LEVI: Good evening, everyone. Thanks for joining us tonight.

My name is Andrew, I work with the Minnesota Department of Commerce.

And we're here in Fergus Falls at 6:00 to discuss the Otter Tail to Wilkin Carbon Dioxide Pipeline Project proposed by Summit Carbon Solutions.

We'll start tonight with some brief introductions. We'll talk about the proposed project. We'll talk about the state permitting process, where we've been and where we're going, and discuss the Environmental Impact Statement and then get to your comments and questions.

So, again, my name is Andrew, I work with the Energy Environmental Review and Analysis Unit within the Department of Commerce. We prepared the Environmental Impact Statement for the project.

With me today is Jessica, she was at the table.

Also with us today is HDR, they are a consultant. Joe, Pat, and Will here are in the front to help answer any questions you might have.

Also with me is Dan from Allied Solutions. Dan helped us with dispersion modeling

and what might happen if there's an accidental release.

Summit Carbon Solutions is here, they are the Applicants here. Scott, Alex, and Jason are here to answer any questions, along with Christy.

And, most importantly, Janet is here, she is our court reporter and she's getting everything down for the record so the comments do get to the Commission.

So I'm sure everyone is aware, but the Applicant proposes to construct and operate an approximate 28 miles of four-inch diameter carbon steel pipeline and associated facilities, access roads, valves, the carbon capture facility itself, to capture CO2 from Green Plains Ethanol Plant and transport it to North Dakota for permanent sequestration.

Pipeline routing permits in the Minnesota Public Utilities Commission is required of this project because it meets the definition of what is required to operate at pressure above 275 pounds per square inch and carry a gas. Various other permits would be required if the company is issued a route permit from the Commission, such as a crossing permit from the Minnesota Department of

Transportation, local road authorities to cross roads, a license to cross state lands and waters from DNR for river crossings. And while this isn't a permit, say, because the company does not have the power of eminent domain, they would need landowner permission, they need an easement from landowners to cross their property.

So this slide just talks about what we've done so far. The Applicant submitted a route permit application, which we are then required to review. We submitted -- prepared a Scoping Environmental Assessment Worksheet and held scoping meetings. We were here in May and received scoping comments. And those comments were used to develop the scope for the Environmental Impact Statement, especially the table of contents. That scoping decision was issued and then we prepared the Draft EIS, which was published last month.

So there is still plenty of process left. We're right now in the middle of a comment period on the Draft EIS. The purpose of this comment period is you told us what you wanted to see in the Draft EIS and now we want to know how we did. Is there anything that needs to be improved upon, expanded upon, and that is what we're doing here with this

comment period.

After that comment period is closed, we'll issue a Final EIS and then there will be another comment period on the adequacy of the EIS. Does the EIS adequately address the scoping decision? Does the scoping decision say what was going to be in the document? Is it adequately covered?

After that, there will be a public hearing and comment period so that will be here in Breckenridge and Fergus Falls again. That would be in May. We will all be here, except the meeting will be run by an Administrative Law Judge from the Minnesota Office of Administrative Hearings.

And the Administrative Law Judge will prepare a report and recommendation to the Public Utilities Commission on issuance of a route permit. So that comment period in May is the comment period of, you know, telling the Judge, should we issue a permit, should we not issue a permit, you know, kind of what to do with the facts that the EIS plays out.

And after the Administrative Law Judge report comes out, the Public Utilities Commission will make a decision on whether to issue a route permit and that should happen sometime in August or

early September.

So there's a Draft EIS. Kind of what is it? You know, it's an information document. The whole point of the EIS is to help decision-makers make informed decisions and also to inform the public and interested parties about the potential impacts. It doesn't advocate, it's just trying to develop a common set of facts that everyone can use to wrap their head around the project.

The Administrative Law Judge is here in May and that's when you can tell the Administrative Law Judge what those facts mean, the information in the EIS says this and this is what we think you should do about it.

This is just a little bit about how it was prepared. It's based on, you know, of course, the application submitted by the Applicant and the scoping EAW that was prepared and your scoping comments. Those were all used to develop the table of contents for the document. As we worked through and started addressing those issues, we had to ask for additional information from the Applicant. All of that additional information, questions and answers, they are provided as an appendix in the back of the EIS, so that information is there.

We shared the preliminary -- at the request of the Public Utilities Commission, we shared the preliminary draft of the document with tribes and state agencies and received feedback from several of them.

And we also, of course, HDR helped prepare it with their team across the country, and Allied Solutions helped with the CFE modeling and dispersion modeling.

So the EIS covers a lot of different things. It's long. It's 300 and some odd pages. We told you we were going to take a hard look and we did. It talks about the proposed project, the regulatory framework. It talks about different alternatives that were studied. It compares three route alternatives against each other. It discusses alternative technologies.

So part of the purpose of the project from the state is to help lower the carbon intensity score of the ethanol produced at Green Plains. So Chapter 6 discusses different ways that the CI score can be reduced without using the project. So alternative formula practices were discussed as well as implementation of energy efficiency changes at the ethanol plant. In Chapter 6 both of those

things could produce the score board of those things and in combination could produce the CI score more. And if the project also demands it, those three things together, obviously, would reduce the CI score the most.

The Chapter 5 prepared the alternative routes. Talked about normal operation of the pipeline. There's also a chapter, Chapter 8, which is what happens if there's an accidental release, a leak or a rupture, along the pipeline. Appendix G is associated with Chapter 8 and that is the work that Dan did with dispersion modeling. And the CFD analysis, and I think all of this is right here, and I'll let Dan go ahead and discuss and summarize what he did for the Draft EIS.

MR. DAN PRASCHER: Oh, I'm sorry.

Okay. My name is Dan Prascher, D-A-N, last name is P like Paul, R-A-S-C-H-E-R.

And like Andrew said, I did the modeling for the dispersion models that is Appendix G. The other thing he mentioned is HDR did one of the parts in that appendix, and that is the summary of all of the various PHMSA regulations that all operators of hazardous liquid and gas pipelines must adhere to.

And not just after what's being asked in

these proceedings, but if they are allowed to do this, then they will go under the jurisdiction of PHMSA, which stands for the Pipeline Hazardous Material Safety Administration. And they're a very large branch of the Department of Transportation.

And so if they are given the opportunity to operate, then they would have to adhere to eight different subchapters that are extremely long, and they have to do that from day one and then every day henceforth till death do you part.

So they cover everything from constructing the actual building of the pipe where it's manufactured, design of the pipeline itself, how it's all constructed, put together. How it's all tested. It all has to be tested before any hazardous liquids are introduced. And then operated.

And of course, when you're operating a pipeline like that, the folks who are doing it then could possibly affect the integrity of the pipeline so they have to be trained, they have to be certified. And I didn't mention this before, that's both a written and a performance evaluation, and they have to do that every so often. It's not just like you're qualified once and you go off on your

way, they have to recognize that diligence and being able to replicate that you're doing right, you're doing it the same way. They have certifications they have to go through and they have to recertify every year. I mean, depending on how complicated the task is that they are doing.

In addition to that, they also have to submit to a antidrug and alcohol misuse program, under which they also have to take random drug tests. And these drug tests are much more stringent than the type of drug test that is performed when you hire into a new job.

And so in that way they're ensuring that everybody who could possibly affect the integrity of the pipeline will train and they're not under the influence of anything, and there's documentation to show that every so often.

In addition to that, the operation part is how they control it, how they communicate with the public, how to help them understand where the pipe is, what to look out for.

They also have to have an intervention program, which also is very involved. The public excavators and other folks, emergency responders.

And then one of the largest parts is the

intervention plan. And one thing there is, you don't just create one of these plans and then it's stamped and you move on about your business, what you have to do as part of what PHMSA expects, is you do that and then you improve on it all the time. If something is wrong, you need to bring it in before something goes wrong and it actually affects anyone else and they deal with it up front to bolster your program and you get better, and that's from now until forever.

So anyway, the point of all that is there are several things that they have to do and they need to do over and over again. You get better at it. Not just do the same thing, but figure out how to do better. And that's all with PHMSA, who makes sure what they do.

So if you'd like to see, you know, the major bullets of what all that is, I didn't even go over all of it, and I'm going to wrap it up because I'm supposed to be brief and I'm not being brief.

So I will just say that is in there to give an idea of what they will have to do. And also to that point, one of the other things that they have to do on the integrity management plan is they have to be able to find what this pipeline could

potentially intersect with good influence, good effect, and how much.

And so part of that is an aerial dispersion model, and in the event, a very small event likelihood that there was a rupture, they have to be able to define how big does this get and where do you go and when is it not going to be of harm anymore. And so we did that, the Applicant did that.

And what I was asked to do by the state, by HDR, is to take a look at what they did. And they presented all of the materials to me, I checked it, I did my own independent analysis as well, and what they did we agreed with it. I then did a little more conservatism and put a little more conservatism into what I was doing and I did that just to check things. And, again, it's not because we don't trust them, that's like already said, it's just to verify, right. And because these things are important, they actually affect people's lives and we've got to make sure that they're right and the Applicant has to do that.

And so in doing that, we wanted to also take it a few steps further and just make sure we're covering all the bases. Like Andrew said, a lot of

work went into this. We tried to think of everything possibly that could affect folks and account for it.

And so one of those things is we did a computational fluid dynamics model, it's something accomplished through a multiphysics engine in order to do a realtime simulation model of a potential release. How it mixes with the environment from the fluid dynamic, thermodynamics standpoint. And what are the worst case possible conditions that may get over terrain and interact with windbreak and possibly, you know, affect other folk.

And then the final thing that we did with part of that is we said, okay, well, what are the -- what are the sensitivity analysis, what are the inputs that make the biggest, that create the biggest effect on the dispersion. And it turns out that wind speed and pipeline pressure are the two most influential.

And so one thing to keep in mind with that is it's actually the opposite with wind speed. The higher the wind speed, the less of the dispersion happens, or it travels the least amount of distance away from the pipeline. And I know that sounds counterintuitive, but the reason it is that

way is the thing that pushes it out is the wind. So if the wind is moving quickly, is pushing it, and it's also mixing it more, and as it mixes more the CO2 concentration goes down and becomes safer faster. And so that's what we did.

And, again, all of this, I'm being overly plump with it, all of this is in there, all the results, all the numbers are all there if you have any questions.

MR. ANDREW LEVI: Thanks, Dan.

So the DEIS is available electronically on our website. That website is on the bottom of this handout. It's also available on the Minnesota Public Utilities Commission's eDocket site. I don't recommend that you get it there, but you can if you want.

The problem with eDockets is everything has to be under ten megabyte chunks, so it just turned into a whole bunch of files. But it is most convenient for either the flash drives on the table to look, but the whole EIS is on there and you can take it home and just plug it into your machine and it's all there electronically.

It's available in print at the Breckenridge and Fergus Falls public libraries.

There's review copies in the back. There's three copies in the back by the cookies. So you can certainly take a look at that tonight.

And there are summaries available on the front table. This is the executive summary from the EIS. It's this long document, I understand that, but if you were to review the executive summary and dive into the document itself through the table of contents you'll get to the subjects that interest you the most and that might be one way to tackle it.

I have written about as many pages as the Harry Potter series. So the table of contents is certainly a good way to go about it.

So we will move on to comments tonight. We want comments most useful tonight and we're looking for what needs to be clarified in the EIS. Is there something in there that's confusing, that can be written differently? Is there anything missing?

So we issued the scoping decision, it's what the table of the contents of the document is. Did we miss something? And let us know if we did and we can get that in there. And then is there anything else that you think needs to be added to the EIS to be complete and accurate based on that

scoping decision.

So comments on the Draft EIS along with our responses to those comments will be included in the Final EIS. And the Final EIS will include appropriate revisions to the draft based on substantive comments.

So a substantive comment is it kind of gets to the heart of the issue. Here's a paragraph, here's what, you know, you think is wrong with it, what you think needs help, and then provide the fix, basically. And then we'll take a look at it and we will certainly fix it, we'll certainly make that change if appropriate. A nonsubstantive comment might be something along the lines of, I don't like that paragraph, and we have nothing really to go on and all we can do is say, comment, thanks for your comment. So with these, you know, substantive comments an any changes that you feel are necessary to the EIS, that fix is what we're looking for.

So there's several ways to provide comments. Verbal comments tonight and tomorrow night at the virtual public hearing are the only two opportunities left to provide your comments verbally. We have a court reporter to be able to take those comments down.

You can complete and submit this comment form, fold it and tape it and throw a stamp on it and that will come to me. You can of course also use your own envelope and use the address that's on here. We have our website. You can provide a comment on the website. You can click a link, submit a comment, and there's a fillable form that pops up and you can attach documents to that. And you can also email me directly.

And just a reminder that the comment period for this is February 23rd, that is the comment period for comments on the Draft EIS. It closes on the 23rd, so you need to get your comments in before then.

So tonight, the next thing is for your comments and questions. If we could get you to come up to the microphone and state and spell your name, if you could. Janet can only get one person down at a time, so if we could just remember that it is one speaker at a time.

And if you could, you can honestly provide comments on anything you'd like and ask, you know, questions about it if you'd like to change the project; however, from EERA's perspective in moving from a Draft to a Final EIS, you know, those

questions that we talked about before are what needs to be clarified. Is there anything missing, anything that needs to be added for a more accurate EIS are most useful for us right now.

And I forgot to grab the sheet, the sign-in sheet, so I don't know if anybody has asked to speak. So I think we can just move to a show of hands.

Does anyone want to come up and provide the first comment or ask a question? Two or three?

Seriously?

Do you want to come up?

MS. SUE BRIESE: Yes. So I'm Sue Briese, B-R-I-E-S-E. And we're landowners.

I appreciate the process. I learned a lot. And studying the procedure on this. So thank you for all that information on things, and you talked to us since then as well, since those last things when we met last May.

I have some comments and I kind of jumped around in this -- sorry, nobody else is going to speak so I don't have to rush through it, do I? In this summary? Anyway --

MR. ANDREW LEVI: Would it be easier to move it to the side?

MS. SUE BRIESE: Oh. So, first of all, and this has been something that we wondered about for a long time, we had to do something, and that's the reasons why.

But on page ES2 it talks about the alternative routes, the three routes, the RA North, the hybrid, the RA South, but to look it up we have to go to a different spot to try to find it. And then every time we have looked at it, the font is very small. So we pulled up plat books and all that stuff and the easements are all covered, 160 acres. But we had to try to find out where it's going to, kind of picture that and drop it into the overall scheme. It would be nice if it would say, see attached map, or put the map where it talks about the three routes.

MR. ANDREW LEVI: Okay. That's a good point.

MS. SUE BRIESE: So that's for my comment on vagueness and transparency. Some things aren't transparent but to you. But we don't read these type of documents, we're not engineers and, you know, we don't know a lot of, for the state of Minnesota, we don't know enough to be dangerous, as we say. So it's really hard to know.

And then, again, that's where we have to rely on, like, hey, Dan said what's your capacity. Dan, you've looked at this PHMSA, I listened to one of the hearings in Iowa that was online while people came and testified, and it was emotional for the farmers. And one question is did they ever pass anything based on those hearings they had? It was like early summer.

MR. ANDREW LEVI: They are in the process. They're in the process. They haven't done anything yet.

Joe, do you want to come up and give a brief little summary of where we're at with the PHMSA regs? The short answer is they're in the process, but nothing has been finalized.

MS. SUE BRIESE: And they override the state?

MR. ANDREW LEVI: Yes, PHMSA sets the safety standards, the state of Minnesota does not.

MR. JOE SEDARSKI: Joe Sedarski, S-E-D-A-R-S-K-I, I work with HDR.

Very brief, but essentially the PHMSA means that they -- sorry, I attended those hearings as well virtually, and their whole purpose was to go out and explain what they're trying to do for

getting potential rulemaking that they're looking at. So there's a schedule that they're going to actually provide new rules that may or may not come out, depending.

The formal notices haven't come out. It's getting close, we expect it sometime this June. And we're watching that, as well as part of the EIS order from the PUC was that we would monitor that and provide an update within the Draft EIS, which we've done nothing, there is no answer. There will be rulemaking, like a formal rulemaking coming, and something will come out of this.

MS. SUE BRIESE: Will anything change with the PHMSA or the pipeline? Will anything change with the psi?

MR. JOE SUDARSKY: That detail, I don't know what is going to happen.

MS. SUE BRIESE: The letter --

MR. ANDREW LEVI: That might be a better question for Summit to try to answer.

MR. ALEX LANGE: Alex Lange, L-A-N-G-E.

Based on the PHMSA rules -- let me back up.

The diameter of the pipeline, the pressure under which it operates is driven more by

the CO2 moving more. So then kind of the federal regulations, federal regulations dictate kind of what strength in pipeline wall thickness based on the pressure rating. The pressure rating also falls towards the hydraulic of the line and what pressure we need to hit so we can move CO2 through the pipeline.

MS. SUE BRIESE: So that's basically -- the design is from PHMSA?

MR. ALEX LANGE: Correct.

MS. SUE BRIESE: And then you pull the psi through it?

MR. ALEX LANGE: Correct. So volume height, define what our pressure is, and going from the pressure rating that we need to the actual pipe specifications that's defined if you follow the equation which falls into PHMSA regulations.

MS. SUE BRIESE: Okay. Another question I had. So the PUC in North Dakota denied the permit. I imagine these other states are watching Minnesota and there's counties in the southern part of the state that you are kind of like the trail maker?

MR. ANDREW LEVI: Am I kind of the troublemaker?

MS. SUE BRIESE: The trail maker. I don't know, maybe the troublemaker.

MR. ANDREW LEVI: It depends on your perspective, I suppose.

We are required, the state of Minnesota is required to process applications as they come in in time frames associated with those. So we're moving forward based on those time frames.

I think that where the state of Minnesota process ends up with some of these other states I guess is just where it ends up. We have the timeline that we're following based on the rules that we have to follow and that's what -- that's kind of where we're at.

Does that answer? Is that what you were asking?

MS. SUE BRIESE: Yeah. Kind of. I imagine I looked at what you guys did, as to what they're going to do.

MR. ANDREW LEVI: I know that from our perspective we were asked by -- the Public Utilities Commission was asked to delay looking at this project because there's not a permit yet issued yet in North Dakota. And the PUC's stance is essentially that we, the state of Minnesota, has our

process and that process isn't influenced by what's going on in North Dakota. Just like if North Dakota had already issued a pipeline permit, it was being built or whatever, that would influence the PUC's decision on whether or not to issue a permit, so it kind of goes both ways.

MS. SUE BRIESE: You have a statutory obligation, you have to do that?

MR. ANDREW LEVI: Right. 280 days is what we have.

MS. SUE BRIESE: Exactly, right.

MR. ANDREW LEVI: One more.

MS. SUE BRIESE: So if I ask a question of you, if I have a copy and do comment, you know, I probably will, but do you return comments personally, like if I just had a question like tonight?

MR. ANDREW LEVI: If you were to call and ask I can try to answer your questions the best I can. Formal comments that come in during the formal comment period, we'll reply to those as we need to.

MS. SUE BRIESE: So if I ask you to reply, you'll reply?

MR. ANDREW LEVI: I guess we'll find out.

MS. SUE BRIESE: And I have some comments

already written out, but I'm going to run through them real quickly and maybe expand upon them at some point.

But we've talked about before the land is different, in different areas where the pipeline is going to run through some of these differently than way out west versus our land, which is on the river, okay.

Water concerns. I don't know what I read that, you know, the water tables will be decreased when the CO2 is converted. I don't know enough about it and I'm just asking that question.

Talking about this Appendix G, the leak, and you identified that tonight so we do maybe need to read through that ourself before we ask questions on that.

And just the routes on page 2 talks about the north route, and the three routes, sometimes I think it could be prejudicial to certain landowners because of their goals for their property versus other people's goals. And everybody has a right to deal with their own property.

You know, again, labor, I don't get the details when it talked about transparency. Human settlement is an area that it talks about, the RA

North would have several more residents, and then, you know, I counted in our little area just west of town, yeah, there's a lot of like maybe 99 people potentially in those building sites and so I don't know what it means when it talks about several more residents.

MR. ANDREW LEVI: All we can do is count houses.

MS. SUE BRIESE: Yeah.

MR. ANDREW LEVI: I don't know how many people live in there.

MS. SUE BRIESE: Yeah. The biggest -- so the people that are affected, it talks about Fish and Game and my question is why isn't there more concerning that? There would be further noise and visual impacts on this land versus other residences. It just -- I went to, like, the Fish and Game plan is more important than a residence, and you can --

MR. ANDREW LEVI: I think that that, you know, we talk about things in categories. We talk about recreation, we talk about the human side of things. But we don't necessarily -- we don't necessarily weigh those against each other in the EIS, we just try to outline what the impacts are for the decision-makers, for the Public Utilities

Commission. And then it's basically, you know, it's the Public Utilities Commission that then decides.

So if they decide that this project, or any project, for that matter, if they're issuing a permit and there's certain impacts over here and certain resources and there's certain impacts over here and certain resources, then they have to weigh those two against each other and basically make that decision as to what kind of gets mitigated and what gets impacted and they make that decision.

So I hear what you're saying, but --

MS. SUE BRIESE: So they counted itself, the project within that paragraph, that's what you're referring to?

MR. ANDREW LEVI: Yes. So in the recreation section, we're talking about recreation. In the human health and safety section we're talking about human health and safety. You know, they're --

MS. SUE BRIESE: They don't piggyback off of the other.

MR. ANDREW LEVI: No. There's recreation and tourism kind of goes together a little bit, so there's some of that, but for the most part they're not piggybacked onto each other.

MS. SUE BRIESE: Um-hmm.

MR. ANDREW LEVI: They stand alone.

MS. SUE BRIESE: Explain populated areas. That's on ES4. It says there will be no impacts on populated areas because no population areas are within 1,600 feet of the route width. And I have some maps, some GIS maps that, I mean, all these sites are closer than 1,600 feet. What does that mean?

MR. ANDREW LEVI: We used a definition for populated area that is an incorporated area or a legal entity, and since this is a designated place, this is a statistical map based on the incorporated places.

MS. SUE BRIESE: So, like, developments, but not individual residents, individual people are not counted --

MR. ANDREW LEVI: Yes.

MS. SUE BRIESE: -- in the 1,600 feet?

MR. ANDREW LEVI: If a residence is outside of one of those areas, then, yes, for the purposes of this it is not considered a populated area.

MS. SUE BRIESE: See, and that's kind of a little twist on words, is populated, you know. I mean, because I know it's within 200 feet of some

residences.

MR. ANDREW LEVI: We do talk about residences themselves further on, this is just the executive summary, you know. Chapter 5, is really preparing these routes and going through this, I think it is around 150 pages long.

MS. SUE BRIESE: Good one.

MR. ANDREW LEVI: So we get into it, but we do talk about the residences within certain distances. It just didn't happen in the executive summary.

MS. SUE BRIESE: Okay. I did appreciate that Summit Carbon agreed to provide monitors for houses, for residences within X amount of feet.

MR. ANDREW LEVI: We recommended that they do that, they haven't, and we don't know if they will.

MS. SUE BRIESE: Okay. Well, I like that recommendation anyway.

So then, say, for example, not that it's something that -- say, somebody wanted to agree to solar panels on their land, with this pipeline there, could they do it?

MR. ANDREW LEVI: I can let Summit expand on that. But I think it would all be -- I'll just

let Summit expand on it.

MR. ALEX LANGE: So the 50-foot easement, permanent easement, that will go through the property, you know, we cannot have anything solid built on top of 50 foot, mostly for safety reasons. In case we have to inspect it, dig it up, and repair and respond. So on that 50-foot input area, if it would be a permanent impact, a permanent structure on there, it, you know, would go on there. But a lot of that, you know, and when I say that, too, it's going to be negotiated with the contractor, things of that nature, so a lot of that is a negotiated period to make sure that the line is still accessible.

MS. SUE BRIESE: And I know landowners have been approached, obviously, for solar panels.

I think I'm done.

MR. ANDREW LEVI: Sounds good.

MS. SUE BRIESE: Thank you.

MR. ANDREW LEVI: If you think of any more, come on up. Thank you, Sue.

Does anyone else have any questions or comments?

MR. ANTHONY HICKS: I'm Anthony Hicks, H-I-C-K-S.

And I actually just wanted to thank the folks for this initial draft. Obviously, my position is general manager of the ethanol plant and, actually, I was quite surprised that it was as neutral in its opinion as it was. I felt -- I was concerned that it would be biased in one way or another, but I think you've done an excellent job. And I thank you for the time and effort you put into it. And hopefully that, you know, the comments, that you receive all of them.

It will be a tremendous benefit to our community, and the plan itself adds 10 to 15 cents a bushel bases to corn, and we are going to consume about 20 to 22 million bushels a year. If we go away, that corn will basically go on rail and probably to the west coast. And the bases will obviously reflect that because it bears on the market, and that's a destination market. So it's a positive approach for us and it will retain jobs here.

Thank you.

MR. ANDREW LEVI: Thank you.

Anyone else?

Well, does anyone else -- yeah, come on up.

MS. SUE BRIESE: Sue Briese.

At the last hearings, we did have some comments, and thanks to Mr. Hicks we did have some comments about some things that were outside the scope where somebody wanted to bring in some other type of project. And we realize there's been talk about the economical benefits, and I think we're here talking about the safety effects of the routing and not how much money -- or how much money might not be projected into our community.

MR. ANDREW LEVI: Um-hmm. Yep.

The Commission weighs all those factors in their decision. Economics is one of those things. Safety is one of those things. Impacts to -- other impacts to humans, noise, aesthetics are things. So, yeah, it's not just one thing that the Commission looks at.

Yeah.

MS. LELA ROBINSON: Lela Robinson, R-O-B-I-N-S-0-N.

I'd like to thank Mr. Hicks for coming and sharing that, because I've been a part of multiple pipelines for drilling and pulling pipe, and I tell you what, it's been amazing. The kids, the schools, the communities. It brings so many

workers, and we need that, you know. It helps keep the money here and it supports the community itself. And I just think it's a wonderful idea.

And I also work for LIUNA Local 563 with another one here, and I thank you guys for the opportunity of having that here, it's going to bring up lots of work and help lots of families.

Thank you.

MR. ANDREW LEVI: Thank you.

MR. DALE SCHMIDT: My name is Dale Schmidt, S-C-H-M-I-D-T.

I have not reviewed the literature I got yesterday from the Chamber of Commerce, but I'd like to read one article that came out in the paper on February 7th. I'll make it short.

Math is not only the basis of truth and duty, it means the same thing. That Gulligan, beautiful truth comes to mind when reading a just-published state case study that compares costs and for a permanent dioxide field to output on the plan on the 2,000 mile Summit steel pipeline to wind- and solar-based electricity that fuel battery, electric vehicles, or BEVs.

And as part of that, the new study, what gives the better environmental and financial

returns, building cement on CO2 pipelines, that encourages more ethanol use. Or investing in the same amount on solar and wind generators to power BEVs.

The resulting math presented by the study, author Mark V. Jacobson, a civil and environmental engineer at Sanford University was detailed, and it's very beautiful in its conclusion, don't spend another penny on Summit's five-state CO2 pipeline.

MR. ANDREW LEVI: Thank you.

Does anyone else want to come up?

I don't think so. I'll again stall for a little bit and then if anybody wants to come up I'll ask again.

But I'll just remind everyone about the open comment period, and that's through February 23rd. You can submit those comments in writing, via email, regular mail, or the online commenting tool. That's all laid out on this handout. You can mail this in, too, if you'd like.

There's a virtual public meeting tomorrow night, it starts at 6:00, and we'll start with the same brief discussions from the other night, and then we'll open it up to folks' questions and

comments.

So please do get your -- you can comment verbally tomorrow night, too, at that virtual public hearing. Please do get those comments in by February 23rd. If you comment once, you're more than welcome to comment again should something come to mind.

So we look forward to reading all those when they come in. I think that's all of what I had to say.

Does anyone else want to come out and would like to comment or ask a question?

All right. Well, thank you -- oh, yes, come on up.

MR. SCOTT LANKOW: My name is Scott Lankow, L-A-N-K-0-W.

I worked in manufacturing for 30 years and typically projects like this, if anything, are over engineered for safety's sake. And due to our geographical location and proximity to the plant, we will have the smallest diameter pipeline in the whole route. It will be the least invasive as far as construction because it is only four inches in diameter. And because there will be no step-up pumps in the line along the route, we will have the

lowest pressures, thereby reducing chances of rupture, fractures, cracking, any kind of damage to the pipeline.

So because we have, in my view, only benefits to gain from this and the least amount of risk of anybody in the whole route, I see nothing but positives and positive outcomes for this project. And I urge positive, you know, approval for this project.

I'll just comment that typically these pipes, you know, as was brought up earlier, these pipes, this material, is going to be heavily inspected. The workers will be -- I've been through this, I mean, you're not just going to let somebody off the street who doesn't hardly know what the process is to be working on this. These people will be heavily qualified.

I have no problem with this. I think it's nothing but a good green light.

Thank you.

MR. ANDREW LEVI: Thank you.

Anyone else?

All right. Well, thanks for coming this evening, and everyone drive home safe, and we'll see you in May.

(Matter concluded at 6:54 p.m.)

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DEIS MEETING - 22-422

WEBEX - FEBRUARY 8, 2024 - 6:00 p.m.

BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

AND DEPARTMENT OF COMMERCE

In the Matter of the Application of Summit Carbon Solutions, LLC, for a Routing Permit for the Otter Tail to Wilkin Carbon Dioxide Pipeline Project in Otter Tail and Wilkin Counties, Minnesota

MPUC DOCKET NO. IP-7093/PPL-22-422

Meeting held remotely via:

WebEx and Telephone

FEBRUARY 8, 2024

COURT REPORTER: Christine Simons, RPR, RMR

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MR. ANDREW LEVI: Good evening, everyone. My name is Andrew -- excuse me -- my name is Andrew from the Minnesota Department of Commerce.

We're here tonight for the virtual meeting for the Otter Tail to Wilkin Carbon Dioxide Pipeline Project.

If we could move to the next slide, please.

So just a little bit about tonight's meeting before we get started. All attendees are muted during the presentation. Following the presentation, we will open the meeting up to your comments and questions.

You can comment or ask a question tonight by raising your hand. The raise-the-hand function is down, kind of, on the bottom of the screen by the smiley face down there. You can raise your hand; or if you're on the phone, you can dial *3. That will put you in a queue, and the host will then address you and unmute your phone and unmute your line. And you can go ahead and ask your question and comment.

So if you'd like to get in the queue now, you certainly can. We will repeat these instructions when we get to that point in the meeting, but I just wanted to let you know how that

will work when we get there.

Next slide, please.

So these are the things we'd like to briefly discuss tonight before we open the meeting up to your questions and comments. We'd just like to introduce everyone who is on the call today, talk briefly about the proposed project, as well as the state permitting process: Where we've been and where we still need to go. And talk about the draft environmental impact statement, and then, of course, how you can submit your comments during this open comment period and this evening.

So I guess we can start with instructions again -- introductions again. My name is Andrew. I'm with Energy Environmental Review and Analysis within the Department of Commerce. We prepared the draft environmental impact statement on behalf of the Public Utilities Commission.

With me tonight from HDR -- HDR was our consultant on this project, as well as Allied Solutions, they were a sub-consultant -- we have Joe, Pat, and Will. Will is on the call. He's stuck in the car, so he's not going to turn the screen on, but he will later if he needs to. And Cathy is also with us this evening from HDR; and Dan

from Allied Solutions is with us. From the company, from Summit Carbon Solutions, the applicant, we have Scott, Alex, Jason, and Christy and Britta.

And she's a little bit busy right now, so we won't ask her to turn on her screen, Christine is here. She is a court reporter, and she is transcribing this meeting so that your comments are taken down and part of the record.

Next slide, please.

So, again, just to remind everyone, we're here talking about the Otter Tail to Wilkin Carbon Dioxide Pipeline Project. Summit Carbon Solutions proposes to construct and operate approximately 28.1 miles of 4-inch diameter carbon steel pipeline and associated facilities, which are mainline valves, a cathodic protection system, and access roads, as well as a capture facility to transport -- to capture and transport CO2 from the Green Plains ethanol plant to the border where it would -- to the North Dakota-Minnesota border near Breckenridge, where it would interconnect with the larger Midwest Carbon Express project. And that CO2 from the ethanol plant would eventually find its way west of Bismark, North Dakota, where it would be permanently sequestered underground.

Next slide, please.

A pipeline routing permit is required from the Public Utilities Commission because the proposed project would operate at a -- is designed to operate at a pressure of more than 275 pounds per square inch and carry a gas. If a route permit is issued by the Public Utilities Commission, various other approvals might be required for the project, such as a road-crossing permit from local road authorities or the Minnesota Department of Transportation; river crossings would require a permit from the DNR, a license to cross state land and waters.

Additionally, the company does not have the power of eminent domain for this project, so landowner permission would also be required for the company to build the project.

Next slide, please.

This slide shows what steps in the permitting process have already been completed. So the applicant submitted a route permit application, and, by law, once a route permit application is submitted, the State needs to process those applications.

The scoping environmental assessment

worksheet was prepared and scoping meetings were held. Those scoping meetings allowed you the opportunity to tell us what you thought we should discuss and study in the draft environmental impact statement.

The scoping decision was issued. Which is, essentially, the table of contents for the -- for the draft EIS, and we worked -- EERA staff worked with HDR and Allied to prepare the draft EIS, and that was issued in late January.

Next slide, please.

As you can see from this slide, there's still plenty of process left to go. There's currently, right now, an open comment period on the draft EIS. Once we receive and incorporate your comments, we will issue a final EIS, and then there will be a comment period on the adequacy of the final EIS: Does the EIS address -- does the final EIS address the questions -- excuse me, address the information in the scoping decision? Essentially, is what we said would be there, there?

After that, there will be a public hearing and comment period. That will happen in May. That will be in the project area, I believe in Fergus Falls. This is an -- these same folks will

be there, except an Administrative Law Judge will also be there. They will oversee the meeting.

And that is the meeting where you have the opportunity to express your opinion, you know, on the project: Should it be built, should it not be built, and why? And the Administrative Law Judge will prepare a report and recommendation to the Public Utilities Commission.

While the ALJ is preparing that report, the Public Utilities Commission will make a decision on whether or not the EIS is adequate, and after that ALJ report is issued, the Commission will make a decision on whether or not to issue a route permit. That decision is expected some time in late August, early September.

Next slide, please.

So this is just a couple slides about the draft EIS. You know, what is it? Well, it's an information document. It is not designed to advocate one way or the other. It is designed to develop a common set of facts that folks can use to wrap their head around the project. Is it designed to inform decision-makers when they make a decision about the project.

Next slide, please.

So the draft EIS was prepared. It was based on several documents, including the application submitted by the applicant and the scoping environmental assessment worksheet published by our -- by the Department of Commerce.

Scoping comments helped develop the table of contents for the document, and as we developed the draft EIS, we needed additional information. Some questions came up and we asked the applicant to provide that additional information, and there -- all of our questions and their responses are included as an appendix in the EIS.

There was an opportunity, at the request of the Public Utilities Commission, to allow tribes and state agencies the opportunity to comment on a preliminary draft EIS. We received feedback from several tribes and agencies during that time. We used geographic information, GIS desktop analysis to prepare the document. We drove through the -- you know, site visits, and as stated previously, this would not have -- I couldn't, obviously, do this myself, so it needed HDR and Allied to help prepare that. Allied Solutions, Dan, prepared a rupture analysis and really took a hard look at what would happen if there was an accidental release of CO2.

Next slide, please.

There's a lot of information in the draft EIS. You know, it's 350 pages long, plus appendices. We told you that we would take a hard look, and we most certainly did. It discusses the proposed project. It discusses the regulatory framework. It discusses the different alternatives that were included for detailed analysis.

And there are three route alternatives that were studied in the draft. There were alternative technologies that were studied in the draft, alternative practices that could be undertaken by farmers or the ethanol plant to lower the carbon intensity score of the ethanol produced.

We found that those alternative practices -- both the farming practices and the energy-efficiency practices -- could reduce the carbon intensity score independently; more so in combination. We also concluded that all three practices -- both the proposed project, the energy efficiency practices and the farming practices -- in combination would, of course, reduce the CI score even more.

We studied a no-action alternative, what we expected to occur if the project was not

constructed. We also looked at lifecycle impacts of ethanol.

These potential impacts were described. We tried our best to put them into context and characterize them as negligible, minimal, moderate, or significant. We also suggested and recommended mitigation measures to, you know, mitigate potential impacts.

Another thing that we did is we looked at operation of the pipeline. And we looked at operation of the pipeline under normal operating conditions, and then we looked at it under what -- if there was an accidental release of carbon dioxide, either a leak or a rupture.

Again, I have mentioned a couple times already that Dan prepared that -- the modeling -- and worked with Cathy and others at HDR to develop Chapter 8, which is the accidental release chapter. And I'll just take a quick break here and let Dan briefly summarize his work in the preparation of the EIS.

MR. DAN PRASCHER: Thanks, Andrew.

Like Andrew said, I'm Dan Prascher. I spell my last name P as in Paul, R-A-S-C-H-E-R.

And I worked with -- I was asked by the

State and HDR to do a set of modeling to try and figure out -- try and couch where the affected areas would be and to how much -- if there ever was a release. And the work that we did that he mentioned in Appendix G, there are four sections, actually, in there. The first one talks about PHMSA, what -- the kind of regulations that they required -- that all operators are required to adhere to, and then the other three are studies that Allied did for this effort.

PHMSA, the first section, that stands for Pipeline Hazardous Material Safety Administration. They're a branch -- major branch of the Department of Transportation, and they regulate any entity that is shipping hazardous substances across state lines. And in certain states, they also regulate more than that if there happens to be an agreement between the state and PHMSA, but they are -- regardless of who is doing that, the federal regs set down by PHMSA are what each operator of oil and gas -- you know, oil and gas have to adhere to. They have to -- they are subject to those.

And to kind of give you a flavor of what that is, I'll kind of go through that. I'll try and be brief. And this would be in addition to gaining

the ability to build. So going through this process that we're all here talking about today, and if the State does allow Summit Carbon to build this. And then they are asking for several things that Summit -- they're asking for several things for Summit Carbon to do.

But on top of all of that, once they begin operation, they'll be required to do a litany of things. There are eight major categories of types of regulation that they will have to do, starting on day 1 and continuing through for forever. It's something that they are required to do. And that starts with construction, it starts with materials that are used in the pipe mill creating the pipe from steel. There are regulations that specify how that is to be done. Standards have to be met all the way through construction and design -- of course, before that -- and then how everything is tested before it gets put into service.

And then, of course, through operation -- and there are many different parts of that operation. If there's a, you know -- if they're being controlled through a control room, then there are a lot of different regulations they have to

follow there.

Public awareness, damage prevention, how they interact with the public. Not just the public, but also emergency responders. Excavation professionals that may be doing excavation in their areas -- in the area of this project, and different efforts that they go through to ensure that damage doesn't come to the pipe. And corrosion control: Finding it, dealing with it, preventing it, and one of the major parts of that is the integrity management plan.

And so they're required to put that together, but it doesn't stop there. They don't just make it and then they can go about their merry way and put it on a shelf somewhere. It's in many places of the IMP, the integrity measurement plan. It talks about how there has to be review. There has to be metrics met.

They're expected -- in summary, they're expected to create an integrity measurement plan that addresses all relevant risks. Not necessarily the things that are imminent, but things that could happen. You've got to prevent them so they never come to fruition. And so what that means is they have to test for that, that sort of thing. They

don't think they have an issue, but they don't know that they don't, so they have to do tests.

And it's a continual improvement situation where they do tests, they learn more information. They use that information to bolster what their plan is. Maybe they need to change things, maybe they need to analyze things more frequently. There's a -- it's a very large thing that happens every year, and the expectation is that it needs to get better, and it needs to show a definitive and measurable progress over time.

Part of that plan, the requirements for doing that, is to do an aerial dispersion model, and so that's -- they're required to say, okay, through this modeling, we -- worst-case scenario, we see how far a potential impact could go and to what severity could it go, and use that for planning purposes. And that's also part of what was included in this DEIS. The details of which are in Appendix G that talk about -- talk about that, and so Summit did do that.

And as a -- you know, a check, and we -- it's not that we don't trust Summit, but it's, you know, trust, but verify, right? And so they provided us -- they were very good about providing

us with information about that. They were really good to work with in that way. They gave us their analysis, all the information we asked for, and then I checked what they did, agree with their approach, and how they did that.

And then I also did an independent analysis to check, and part of that analysis was we went a little bit further. Because we want to -- as Andrew said, we want to make sure that we're looking at all of the relevant possible items that could be useful to folks, and to help them really understand, what are the total consequences? What are the total benefits of this?

And so in that light, we took it a bit farther. I did the modeling for the -- what's called a computational fluid dynamics model. It's a multiphysics software that we use that we can use the model in realtime, a potential rupture, worst case -- of course, we're trying to put our hands around what could be the worst case. And what does that do over terrain, specifically terrain that would be common in -- you know, for this project in those rights-of-way.

But then also encounter -- if it can encounter something like windbreaks, because there

are a lot of windbreaks out there, what does that do? And so through this -- the acronym is CFD analysis. We were able to show that, yeah, the terrain doesn't really affect it. And the windbreak really does stop it, as you might suspect, right? Because if the whole design of a windbreak is to stop the wind, well, the wind is what's carrying a potential release, so that kind of follows.

In addition to that, we also did a sensitivity study. So what we were doing there is we're saying, here are the key attributes that add to or could affect CO2 release, and what are the things that really, really show the biggest impact -- or potential impact to release.

And it may be no surprise, the pressure of the pipeline -- pipeline pressure and the wind, and the one thing to note is it's not -- it's not -- it's not the higher the wind, the bigger the impact; it's actually the opposite. The more wind that's involved, the faster it actually mixes. Because the thing that's propelling it is also -- it's propelling the -- the thing that's propelling the CO2 is also the thing that helps it mix with the surrounding air, the environment.

And so the more wind you have, the less

impact distance you actually release. Just kind of at first blush, it seems kind of counterintuitive, but those are the two things that we found were really impactful, were most impactful of the other -- of all of the attributes that we looked at and tested using machine learning and gradient-boosted trees, which I -- now that I say it out loud, I realize that always doesn't mean anything to anyone. But we analyzed many, many different models in order to build our final model.

And at any rate -- and again, I apologize, that was not very brief. Those are the kind of things that we did. If you are able to look at Appendix G, it has all of the results in there. Of course, this is a little different than the meetings that we've had previous to this, and so I'm happy to answer any questions that I can, any questions that you might have. Thanks.

MR. ANDREW LEVI: Thank you, Dan.

Next slide, please.

So we talked a little bit how we prepared -- what the draft EIS is, what's in it, how it was prepared, and, of course, the big question now is, where is it? It's available electronically at the website there. That is the Department of

Commerce, that's the Environmental Review and Analysis webpage, the EERA webpage.

I believe they're going to put these links into the chat which will make them live, is my understanding. And you can click on them and kind of bring them up and bookmark them quick, if you'd like to, but that is available there.

It is also available on the official project docket, on the eDockets system. That gets broken up for filing, and it ends up in a whole bunch of chunks. So it's, of course, available there, but it is easier to access it through our website.

It is also available in print for your review at the Breckenridge and Fergus Falls public libraries.

Next slide, please.

So now we'll move on to commenting on the draft EIS, and, you know, at this time, there's certain comments that are most useful to us as we are trying to move this draft document into a final document. And those three things are listed there. The first, is there anything that needs to be clarified? Is there anything that's written in a way that's confusing, or could be written, you know,

better so that it's easier to understand? You know, what are those sorts of things. Is there information that's missing? You know, let us know. You know, perhaps we connected the dots without including the information, you know, some of those pieces, which made it difficult to follow.

And, also, is there anything that needs to be added to the EIS -- to the final EIS so that it is complete and accurate? Again, the scoping decision was issued, and that is the table of contents for the document. And so we need to make sure that we are covering everything that is listed in that table of contents in a complete and accurate way.

So comments on the draft EIS, along with responses -- EERA staff responses to substantive comments will be included in the final EIS, and the final EIS will also include appropriate revisions to the draft EIS based on substantive comments.

So a quick way to think about a substantive comment is just that a comment that points out a concern and identifies, you know, why it's a concern, and how it can be fixed. And then, essentially, we'll take a look at that comment, and if we're convinced, we'll change -- we'll change the

information in the draft as it turns to final.

A non-substantive comment would be, you know, perhaps something along the lines of, you know, I disagree with this paragraph or whatnot, this analysis. But, you know, any information to go along with that, there's nothing that we can really do with that. All we can kind of say is, you know, thank you for your comment, comment noted, but we don't have any information to build on to determine if we, you know, agree that that section of the EIS should be changed.

Next slide, please.

So there's several ways to comment. You don't have to speak over the Internet in front of a whole bunch of folks you don't know who they are if you don't want, but verbal comments are only accepted at the public meetings. They were accepted in Breckenridge and in Fergus Falls yesterday and now tonight. And the reason they are is because of Christine, because we have a court reporter here to take down your comments. So tonight is the last time we will accept -- can accept verbal comments into the record for this portion of the process.

You can complete and submit a comment form. That comment form will be available on our

webpage. There is also an online commenting tool on our webpage which is listed there, minnesota.gov/commerce/energyfacilities. Both the forms will be there, that will be up tomorrow morning, and the Internet -- there's a button you can push to submit a comment and a fillable form pops up, and you can submit your comments there. You should get a pop-up window that follows after you hit "submit" that says that you have submitted your comments, and there's an "okay" button there.

And you can also mail your comments to me or e-mail your comments directly to me at the address on the screen. That address is also on the comment form. This presentation will be on the webpage, so you'll have that. And then my e-mail is listed there as well, andrew.levi@state.mn.us for those folks who might not have the screen in front of them. Again, that's andrew.levi@state.mn.us.

And, lastly, the comment period does close on February 23rd. So we do need your comments sooner than -- on or before that date. If you submit a comment -- or one comment and decide you want to comment again, you certainly can. You can comment as many times as you'd like during the comment period. Again, just please have those

comments into us by February 23rd.

Next slide, please.

So, again, this is -- I'm going to turn the meeting over. If you would like to submit a comment, please either raise your hand by hitting the raise-your-hand button at the bottom of the screen or by hitting *3. The host will call your name, and I believe there's a screen that will pop up on your -- a pop-up that will appear on your screen that you'll follow. And they'll let you know that they've been unmuted. You can please state and spell your name for the court reporter, and then go ahead and provide your question or your comment.

You will remain unmuted during that time, but once you're done with your questions and comments, you will be muted again. If you would like to speak again, you most certainly can. You will just have to raise your hand again or dial *3 to get back into the queue.

Again, you have the opportunity to provide any comment you'd like tonight. Those questions that we spoke about earlier are most useful to us right now: What needs to be clarified, what is missing, and what needs to be added so that the final EIS is complete and accurate.

And, again, I just want to remind you that in May there will be an Administrative Law Judge overseeing public hearings where you will have the opportunity to tell the judge -- and thereby tell the Commission -- what you -- you know, what you think about the project. Should it be constructed? Should it not be constructed? What mitigation techniques should be used if it is constructed and so forth.

So tonight we're focused on making the best EIS we can, the most complete and accurate EIS we can with your comment on the document as it moves to final so that can be used by both the Administrative Law Judge and the Public Utilities Commission as they make their recommendation and decision respectively.

So this slide will remain up for the duration of the meeting so that you -- it's right there with how you can comment.

And, I guess, do we have -- anyone raise their hand?

MS. SARA RADIL: We are entering the comment period. Currently, we do not have a raised hand. So participants wanting to make a comment, feel free to look at the bottom of your Webex screen

for the little hand, and I see a comment hand coming through.

All right. Wade Mathiowetz, you are currently being unmuted. Please accept the audio pop-up. State your name for the court reporter and spell your name for the court reporter, and then please provide your comment. Thank you.

MR. WADE MATHIOWETZ: You want me to spell it?

MS. SARA RADIL: Yes. If you could state your full name and spell it for the court reporter, that would be great, and then go ahead on to your comment.

MR. WADE MATHIOWETZ: W-A-D-E, last name, M-A-T-H-I-O-W-E-T-Z.

My question was for Dan. Was the modeling done with the windbreak in the summer months or in the winter months when there's no leaves on the trees? And how many miles per hour wind was that modeling done with?

MR. DAN PRASCHER: So one of the things that we did was we looked at summer months, winter months. We did the analysis both ways and looked at what was -- what contributed to a worse case, and it was the winter.

And we -- the mile an hour that produces the worst amount or the largest amount of impact is about four miles an hour. Anything above that, it gets less, it's less dramatic. And the windbreaks we used, we're looking at things like spruce, things that have -- you know, evergreens, that are typically used in at least one row of windbreaks out there. But, yeah, that's what we used.

MR. WADE MATHIOWETZ: So the four-mile-an-hour for wind does the worst in the winter, and so at night the wind dies down, so we could be at more threat during the night in the winter not knowing all this.

MR. DAN PRASCHER: At a certain point it just becomes so less that it doesn't really migrate. But the thing to keep in mind is the only way this actually becomes an issue for folks is if there is a major rupture, what's called -- you know, a full rupture, where it releases the maximum amount of product into the air all at once. Anything less than that doesn't release a big enough concentration to be harmful to people.

And so it's that initial full release that we were modeling, and we're looking at how does that move, how does that develop into a cloud, how

does that move, and --

MR. WADE MATHIOWETZ: So you're saying that a certain amount is not harmful to humans on a four- to 24-inch line? And it takes ten to -- and they even say this -- 25 minutes to shut down valves, and you're saying it's not harmful to humans, I beg to differ on that one.

MR. DAN PRASCHER: Yeah. Okay. Well, it's not. And this is -- I mean, this is not me saying that, this is the CDC that does tests on this, uses research studies, real-life examples, different releases that have been recorded. They look at the research, they look at the information, and then make a determination of what is harmful to folks.

And a lot of times there's a time component associated with that, and the short-term exposure limit as put forth by the NIOSH, which is part of the CDC. It's what they do, and they collect these limits to help people understand what's safe, what's not, what's of concern. But I believe the effects of the short-term exposure limit is possibly having some respiratory issues -- possibly. Not permanent -- not permanent health risks to a person, and they put that at 30,000 PPM

for CO2.

MR. WADE MATHIOWETZ: Okay. You're familiar with the pipeline rupture in Missouri in 2020, correct?

MR. DAN PRASCHER: In Mississippi, yes, I am.

MR. WADE MATHIOWETZ: Or Mississippi, I'm sorry, yes.

MR. DAN PRASCHER: Yeah, at Satartia, I am.

MR. WADE MATHIOWETZ: I mean, that did some damage there to folks, right?

MR. DAN PRASCHER: It made some people sick. It did not --

MR. WADE MATHIOWETZ: Some unconscious, some rescue vehicles couldn't make it there; is that right?

MR. DAN PRASCHER: Yeah. I believe that some rescue vehicles stalled.

MR. WADE MATHIOWETZ: And some people are still dealing with aftereffects of that?

MR. DAN PRASCHER: I'm not aware of people still dealing with that. I know that there were people who went to the hospital. I believe it was 40 -- I'd be guessing if I told you, but it was,

you know, not an insignificant amount of people. They were sick, no one was hospitalized, no one suffered permanent effects of that.

MR. WADE MATHIOWETZ: Well, even if it was one person or two, it's still human lives here we're talking.

MR. DAN PRASCHER: It is. It is.

MR. WADE MATHIOWETZ: And I think we need to really, really, really not underestimate what's going on here.

(Simultaneous cross-talking.)

COURT REPORTER: Wait --

MR. DAN PRASCHER: And that's -- I appreciate your comment quite a lot, Wade. And that's why we're trying to figure out what the worst-case scenario is. And the thing to keep in mind, too, Satartia was a 24-inch high-pressure pipeline and we're talking about a four-inch.

MR. WADE MATHIOWETZ: Okay.

MR. DAN PRASCHER: Very, very different.

MR. WADE MATHIOWETZ: This says four-inch for this pipeline, and there's -- in this DEIS that was brought up for Wilkin and Otter Tail County, in the drawings it says four to 24. Why is there four to 24, and you're saying it's a four-inch pipeline?

MR. DAN PRASCHER: I can't speak to that. Maybe someone else can, but as far as I know it's always been a four-inch.

Andrew, do you want to --

MR. ANDREW LEVI: Yeah. If it does say a four- to 24-inch, please let us know where. That's a mistake.

MR. WADE MATHIOWETZ: It's in the drawing. I went through 1,050 pages of this, so -- and there's no way that if it's a four-inch line there should be any wording of 24 in there.

MR. ANDREW LEVI: Well, yeah, you're exactly right. If there is wording of -- I mean, we did talk about the Satartia release. Perhaps, that's a 24-inch pipeline. But this is a four-inch pipeline, and that's all it ever would be --

MR. WADE MATHIOWETZ: Right, but it's --

(Simultaneous cross-talking.)

COURT REPORTER: Wait, wait --

MR. ANDREW LEVI: And if it says that it could be 24 inches, then that's obviously a mistake.

MR. WADE MATHIOWETZ: Yeah. In the drawings, it says from four to 24. It's in, probably -- the appendixes, I believe that's where it's at.

MR. ANDREW LEVI: Okay. We'll look for that.

MR. DAN PRASCHER: You know, one other thing to note in Appendix G is doing these analyses, especially with the CFD analysis, it shows how quickly this dissipates, and worst-case scenario, it would dissipate in just under four minutes. And what I mean by "dissipate," I mean the PPM level, the parts per million level, goes down to safe levels everywhere. Not just at the furthest extent, but everywhere within I think, like, it's 3.9 minutes. It's just under four minutes.

MR. WADE MATHIOWETZ: How long can you hold your breath for?

MR. DAN PRASCHER: Well -- and so also to put this into better perspective, it's -- that limit that -- that's a 30,000-PPM level, and what the CDC says is that a person will not have any sort of permanent health effects if they're exposed to that level up to 15 minutes, and we're saying that it's four minutes.

MR. WADE MATHIOWETZ: Okay.

MR. DAN PRASCHER: If that makes sense.

MR. WADE MATHIOWETZ: I mean, that's for an ordinary human. I'm -- we're not talking elderly

or anybody with respiratory problems. I mean, we're doing all average numbers here, but we've got more than just average people living in these places.

MR. DAN PRASCHER: Right, and --

MR. WADE MATHIOWETZ: It's a very big health risk here, people.

MR. DAN PRASCHER: Well, it's -- you know, yeah, it's not. But, those numbers, those limits that are developed with the NIOSH or under the CDC, they take a snapshot of the general population. So we're just not talking, like -- well, we'll say like healthy individuals in their 20s. You know, it's actually a screenshot, and so what they're saying is worst-case scenario, here's what the level is that we recommend.

MR. WADE MATHIOWETZ: I understand that part, but where this pipeline is going to be going in other places, the general population isn't a good feel for it. If you're going by close to a nursing home, throw them numbers into it, and then everything is going to -- the dramatics change a lot.

MR. DAN PRASCHER: Yeah.

MR. WADE MATHIOWETZ: I mean, the children -- I mean, I don't know, guys. I think

you've got to really dig deep on this one.

MR. DAN PRASCHER: Well, and from my understanding looking at the right-of-way, it doesn't pass by any places like daycares or schools or retirement homes, any of that stuff. It's very --

MR. WADE MATHIOWETZ: Within how many feet, what's a fair setback --

(Simultaneous cross-talking.)

COURT REPORTER: This is Christine. Can you hear me? Both of you were talking over each other, and so then I can't hear.

So, Dan, you were saying that "it doesn't pass by any places like daycares or schools or retirement homes or any of that stuff. It's very," and then I -- both were talking, so I didn't hear what you said.

And then, Wade, after Dan's done, if you could repeat what you said, please.

MR. DAN PRASCHER: I was just saying it's very rural, very isolated.

COURT REPORTER: Thank you.

MR. WADE MATHIOWETZ: Okay. So you said there's no schools and nursing homes in close proximity. What is "close," or what is the

distance, I guess?

MR. DAN PRASCHER: Pick a distance, it's all distances. It's not within any sort of discernable affected distance.

MR. WADE MATHIOWETZ: Okay. That really didn't clarify any feet or anything.

MR. DAN PRASCHER: So, yeah. So it's not within, what, 2,000 feet, and we're looking at distances that are affected by this pipeline around 600 feet.

MR. WADE MATHIOWETZ: Okay. So you're saying 600 feet is the closest it will be then?

MR. DAN PRASCHER: That's the part where, after 600 feet, the potential rupture would not be concerning by any stretch of the imagination for people, and we looked at further than that.

MR. WADE MATHIOWETZ: Okay.

MR. DAN PRASCHER: I think, actually, in the study, doesn't it, Andrew, say 1,600 feet?

But, still, we're talking about double of what the affected dispersion length would be.

MR. WADE MATHIOWETZ: Okay. In the DEIS report it says Summit recommends people have a CO2 detector for 1,000 feet. So you're saying 600 feet, anything after that really isn't harmful, but we

should have a CO2 detector at 1,000 feet. I'm kind of confused there.

MR. DAN PRASCHER: Yeah. Because everyone wants to be prudent about this. We want to be safe. This does have -- as you said, it has, you know, real consequences. It has -- really affects people's actual lives. So we want to be safe, and there's nothing wrong with putting in detectors. It's just trying to do -- trying to do what's right, what's going to protect the general population.

MR. WADE MATHIOWETZ: Okay.

MR. DAN PRASCHER: And make them feel better, make them feel -- I'm sorry, I spoke over you.

MR. WADE MATHIOWETZ: No, that's fine. Just, you recognize there is a problem, then, up to 1,000 feet. That's what I was clarifying. Thank you.

MR. DAN PRASCHER: No. No, there's not a problem up to 1,000, but what I am saying is we need to be prudent. And there's nothing to say we can't be more conservative, and so we're just being conservative.

MR. WADE MATHIOWETZ: That's all I have now.

MR. ANDREW LEVI: Thank you.

MS. SARA RADIL: All right. Thank you.

Next, we have it looks like a screen name, P-F-U-R-S-H-O-N-G. You are being unmuted. Please accept the audio pop-up, state and spell your name for the court reporter, and then provide your comments.

And just a reminder, when we are commenting, let's make sure that we're allowing one person to speak at that time so that way Christine, the court reporter, can get a clear record. Thank you.

MS. PEG FURSHONG: My name is Peg Furshong, P-E-G, F-U-R-S-H-O-N-G.

I would just like to build off of what Wade has said. First of all, respectfully, the CDC generally comes up with their examples related to CO2 in a contained space with a roof and a ceiling and four doors. Typically the humans that they expose to a harmful pollutant like CO2 have two different time exposures: There's a short exposure and a long exposure. Typically, the person or the test subjects are healthy individuals.

Dan Zegart, the investigative reporter who reported on Satartia, has done follow-up

interviews with the local residents that were exposed to that rupture. People were impacted at a three-mile radius or more from the actual rupture site of that incident.

And we're two years after that incident and people still have significant medical issues with COPD, asthma, they're lethargic, they still have headaches, muscle aches, and are unable to return to work. And he's reported that I -- you know, I've watched the interviews of the people from Satartia. They were hospitalized, and some of them were hospitalized. No one died; I wouldn't dispute that. But there have been long-term health effects for those individuals, and they're still struggling.

So the setbacks, you know, if it's an actual full-out rupture, there is no safe distance. Unless you're out of the impact zone, which depending on the weather, the time of year, and the season could be up to six miles. So that's concerning.

And it seems like, if you look at this route, the ethanol plant is located in Fergus Falls proper. It's going to be going by and near people, a populated area. Definitely would be in a rupture zone if there was a problem, and those people would

be impacted.

And so I think that that's really important to think about if we're just talking about this particular part of the proposed project and the application for this 28 miles. It originates in a populated area. The carbon-capture is going to be a populated area because they'll be capturing the carbon at the ethanol plant.

And so I really think that it's important to be cognizant of that and not dismissive, because this is a test project. We've never seen -- you know, Summit has said, this is a first-of-its-kind pilot project. There's not one of these types of pipelines anywhere in the United States, and certainly not in the Upper Midwest. And so we don't know what is going to happen. We can anticipate what might happen, but we don't know what's going to happen until we have something more tangible to base our decisions off of.

Because most of the, you know, dispersion modeling and things like that are done in areas that aren't necessarily in northern climates or cold climates, or have the weather and the geography that we have here. Because there never has been one of these types of pipelines anywhere in this area.

So we're just guessing, right? Is that fair to say, Dan? We're guessing as to what's going to happen?

MR. DAN PRASCHER: Yeah. I would say that's not necessarily a fair statement, no, and let me give you a little more background. So I model the majority of CO2 pipelines in the continental United States, and I've done that for the last couple of years.

There are several pipelines operating, not quite like this is, but the pipeline part of it has been a known quantity for quite some time. It's been in federal regulations as part of 49 CFR 159, which is hazardous materials. Supercritical CO2 is considered one of those, and it's been in Federal Code for, what, the last decade, something like that.

It actually is very well known and -- but you do make a point. You do make a point about the cold climate, and the software that we use, the multiphysics engines that we employ, they do account for all of that. They do account for the humidity, temperature. And if you look in the Appendix G, it goes through all of the things that we tried to -- that we did use in order to really model what this

is going to look like in Minnesota, where it's being proposed.

Because we don't -- we don't want to do something that's more akin to, you know, Arizona, and then say, well, if you use your imagination -- because, like I said earlier, this is important. We need to get it right, and we did that.

One other point I would like to make is the difference between Satartia and where it's being proposed now in Minnesota is that Satartia, yes, it was much, much more CO2 released, and, also, the geology was such that it kind of created a perfect storm. It was up on a mountain, or a very large hill, I guess. But the valley and the terrain made it so that it created a maximum push. It was like a V-like valley that it went right down into.

And the reason that's bad is because it kind of shields it from crosswinds. You don't get the mixing that you normally see in flat, open terrains like you do here in Minnesota. And so it had the chance, when it's down in those valleys -- and I'm not talking about, you know, like a ditch or something. We're talking about, you know, a 30-, 40-foot wall. You know, the V, this height, 30, 40 feet. It was really a perfect storm event.

And, yes, it did elongate it quite a lot, and we wanted to make sure that we were not modeling that. We were modeling what we're seeing here in Minnesota. They did a realistic look at what we're doing here, and what the study showed is the terrain that's here in Minnesota really doesn't contribute to elongating those -- those impacts like we did see in Mississippi.

MS. PEG FURSHONG: Well, I appreciate that, Dan.

I would just say two things, and I don't necessarily need a response, but I will say them. I don't -- you make it sound like this is really safe, and it's not. Because PHMSA has issued their concerns, and they're reevaluating their criteria and guidelines because they don't think that CO2 is like other pipelines. While they have been operating, they are foreshadowing more significant concerns as this becomes a popular idea to make money.

Second of all, I would say, because the PUC allowed Summit to break this up into, like, segments, maybe the Fergus Falls-to-Breckenridge doesn't have any kind of terrain like you're referring to down in Satartia, but the rest of the

proposed footprint does.

I live in the Minnesota River Valley, and there are 30- and 40-feet, you know, valleys all in -- you know, in segments of this proposed route. At least, where I live in Renville County. So we're going to have to pay for modeling again. Because the modeling that we're doing for this little segment is not going to be useable anywhere else in the footprint -- the proposed footprint.

And I realize that Summit hasn't applied for the rest of the footprint yet, but they fully intend to since they have easements in ten counties. And they have been buying easements, and they've been advertising it. And so we're going to waste taxpayer dollars modeling another round of this as they submit another application and -- or however many they're going to submit.

But I'll just leave it at that. I appreciate your comments. I hope you can understand why people are concerned is because there's a lot of information that's not congruent with everything that people have access to to understand this project. Thank you.

MR. DAN PRASCHER: Yeah. I do greatly appreciate what you said. Yeah, absolutely. This

is serious. That's why we're trying to take it seriously.

And maybe, Andrew, you can speak to, maybe better than I can, about there aren't any taxpayer dollars paying for any of this.

MR. ANDREW LEVI: Yeah. I just wanted to say, Peg, that I appreciate your comments, and I can tell you that we are very concerned about the safety aspect of it, too. We were asked to do the CFD modeling as part of scoping, and we did that. And we spent a lot of Summit's money doing that.

And I think that those -- you know, the results of that study are publicly available, just like folks wanted them to be. So I'm really -- I'm really proud that we were able to do that as we were asked to do.

You know, Summit is responsible for the cost of all permitting. So, you know, again, Dan is correct. There would be no -- there is no taxpayer money involved. And I guess when those applications come in, you know -- for the other portions of the project, if they do come in, and if -- you know, if the CFD modeling that's done here isn't applicable to down here, well, then I think that decision gets made at that time.

You know, the environmental review for this portion of the project is specific to -- that portion is specific to here, and if another alternative -- another -- excuse me, another segment of the larger project comes in, then we'll take the same hard look at that segment as well. So we wouldn't -- I don't think we would simply say that, yeah, it's completely different terrain, but -- you know, it's completely different, but that counts here. I don't see us doing that at all.

But I do appreciate what you're saying, and, you know, we're very concerned about that aspect of it, and that's why we did Chapter 8 the way we did and Appendix G the way we did. So thank you for your comments.

MS. SARA RADIL: Thank you.

And we have a handful of participants with hands raised, so we'll move on. One inquiry came through the chat, Andrew: Just to -- if you could clarify if there is a public hearing date set at this point?

MR. ANDREW LEVI: It's mid-May. It's mid-May. If someone will -- there is a schedule set out by the Administrative Law Judge. That date is probably on there. It escapes me right now. If

someone will look that up.

Christy looked that up. I saw her pop up, and Christy will let us know what that date is.

MS. CHRISTY BRUSVEN: Yeah. Andrew, the schedule for this, the public hearing is set for May 15th and May 16th.

MR. ANDREW LEVI: So, yeah, mid-May.

MS. SARA RADIL: All right. Thank you.

We'll move back to our participant comments now. A couple refresh -- reminders that we are on our first round of comments, so to ensure that we're able to get through all participants, let's attempt to use approximately five to ten minutes for comments. And then what we'll do is, as we wrap up the first round, raise your hand, again, and we'll go back through and open it up for additional comments. I just want to make sure that everyone has an opportunity to comment here.

So our next participant, we have Ginny. Please accept the audio pop-up, state your name and spell your name for the court reporter, and then provide your comment. Thank you.

MS. GINNY ALLIE: I'm sorry. I missed that. I couldn't hear you, the last part.

MS. SARA RADIL: Yes. Go ahead and state

and spell your name for the court reporter, and then provide your comment.

MS. GINNY ALLIE: My name is G-I-N-N-Y; last name is A-L-L-I-E. And what else was I supposed to say?

MS. SARA RADIL: And then feel free to provide your comment or question.

MS. GINNY ALLIE: Okay. I just was piggybacking off of Wade Mathiowetz's comments regarding the information being on much of the EIS listing the pipe to be four to 24 inches. And I put something in the comment -- or the chat to indicate a whole bunch of figures, that I saw that, and the response was that it was helpful and that it could be used for editing purposes.

But my concern is, well, do we automatically assume that it's not right, or does that need to be looked at more carefully to see if four to 24 inches is really what was intended?

MR. ANDREW LEVI: No, it was a mistake. It's four inches. It will be four inches on the inside, and then four and a half inches on the outside. So it will have a diameter of about a quarter of an inch all the way around. It's a four-inch pipe with a four-and-a-half inch outside

diameter. It is not -- it will not be bigger than that. That's what they have applied for, and that is all the Commission -- if they issue a permit, it says specifically in the permit the size of the pipe they can construct, and Summit Carbon is asking for a four-inch pipeline and not a 24-.

That is, obviously, a big mistake. That's my fault, and we'll get it fixed. I'm glad that someone -- I'm glad that it was brought to our attention, but I apologize for that. We will do a search for that and make sure that that's fixed in the final.

But Summit is applying for a four-inch pipe. Should the Commission issue a permit, the permit would specify that diameter, and, essentially, if they build something different, then they're violating their permit and it would take get taken away.

MS. GINNY ALLIE: All right.

MR. ANDREW LEVI: It looks as if Christy hopped on, so, Christy, if you have something to add?

MS. CHRISTY BRUSVEN: Andrew, I would just add, you're absolutely correct that the application is for a four-inch pipeline. The

figures attached to the environmental control plan, the ECP, which is an attachment, do have "typical." Which are typical practices, showing best-management practices. Some of those show, you know, a four- to 24-inch pipe because that practice would apply regardless of the diameter of the pipe, or it shows differences, where necessary. So that may be why folks are seeing some references to 24 inches, but, again, the application here is for the four-inch pipe.

MS. GINNY ALLIE: Okay. Thank you for answering that. I just -- because it did say on the bottom of all figures from 2 through 15 on Appendix D, proposed pipeline four to 24 inches. And I think there were other places that said that as well, but thank you for commenting. That's all I have.

MR. ANDREW LEVI: No, again, thank you for bringing that to our attention. That is -- Minnesota, that's their ECP, it's an environmental construction plan, and it is for the entire State of Minnesota. They would, you know, if they do -- if the applicant does submit an application -- and as Peg alluded to -- talked about, you know, they actively are doing so, I believe that construction plan would also apply to those new portions. So,

yeah, that's something that we could look at in the final to try to eliminate that confusion. So we apologize about that. I'm sorry.

Do you have anything else?

(No response.)

MS. SARA RADIL: And if you have anything else, feel free to raise your hand again, and we'll wrap back through the list, as mentioned. So thank you for your comment.

Craig, you're being unmuted. Please accept the audio pop-up, and then state and spell your name for the court reporter and provide your comment. It looks like, Craig, you are unmuted.

MR. CRAIG WOODWARD: Can you hear me?

MS. SARA RADIL: Yes.

MR. CRAIG WOODWARD: Okay. Great. My name is spelled Craig, C-R-A-I-G; Woodward, W-O-O-D-W-A-R-D.

MS. SARA RADIL: Thank you. Feel free to provide your comment.

MR. CRAIG WOODWARD: Okay. And I appreciate the comments that, you know, Dan and the others have made, and also the attendees that are listening in and commenting. Yeah. You know, I'm not unlike them in having some concerns, certainly,

about a hazardous liquid CO2 pipeline.

And you've mentioned Satartia and that and all, and it kind of brings me around. I circled around to something that I believe Dan hinted on, but I don't know if any information was really provided in terms of plume model that was done by Summit. I thought I had read that they have done that and maybe indicated that it was done, but I'm just wondering, what evidence do you have of that? And what did they say about their plume modeling?

You know, I've heard of some that has been done by others, not Summit. But it can be fairly significant because they believe they have -- how -- pounds per square inch in that four-inch pipeline, Dan, was it like 2,100 pounds per square inch, does that sound appropriate?

MR. DAN PRASCHER: Yeah. It's a little higher than that, but yeah, approximately. It's --

MR. CRAIG WOODWARD: A little higher than that, so that's a tremendous amount of pressure to push it, obviously, to where they want to go, which apparently is North Dakota.

And, you know, carbon steel pipe, I think, seems there's sometimes an issue. Obviously in Satartia it busted the seam and exploded, and so

that is a fear, I'm sure, of residents, you know, those folks in Fergus Falls or wherever they might go in the State of Minnesota. So I can appreciate that.

But do you have any hard facts in terms of their plume modeling, Dan?

MR. DAN PRASCHER: Yes. Yeah. They did their modeling. And part of our due diligence that we wanted to do is to say, okay, Summit send us your assumptions, the data you used, let us know what kind of modeling software that you used, and we're going to check all of it; and we did.

And like I mentioned briefly, I just kind of skipped over it, but I did check what they did. Using their assumptions, using all the data that they collected, I agree with their outcome, what their -- with what they arrived at. I think it's reasonable.

And part of -- and when I say "reasonable," what I mean is that our job as pipeline integrity professionals, myself and others, is "reasonable" means we're looking at the worst reasonable case, right? So we're not looking for that one-in-a-gazillion. Like, we're not trying to predict a meteor strike, you know, coming in from --

MR. CRAIG WOODWARD: Right.

MR. DAN PRASCHER: We're trying to look at, all things considered, what is the worst-case scenario, and that's what we're using, what's reasonably worst-case scenario to do it. And so -- and that's -- they did that, and I think they did a pretty good job.

I am usually a little more conservative than most, and so I assumed some things more conservatively than they did, and they -- that's what I put in the report. I'm trying to show that, you know.

MR. CRAIG WOODWARD: Good for you.

MR. DAN PRASCHER: Well, you know --

MR. CRAIG WOODWARD: Well, that's -- yes.

MR. DAN PRASCHER: We want people to know, yeah.

MR. CRAIG WOODWARD: Absolutely.

MR. DAN PRASCHER: So yeah.

MR. CRAIG WOODWARD: What were their findings? Did you have anything specific that I could learn from?

MR. DAN PRASCHER: It's in the report, it's Appendix G.

MR. CRAIG WOODWARD: G, got it.

MR. DAN PRASCHER: Yeah. And it shows what I came up with, it shows what they came up with.

MR. CRAIG WOODWARD: Um-hmm.

MR. DAN PRASCHER: And then all the variables that we used --

MR. CRAIG WOODWARD: Sure, sure.

MR. DAN PRASCHER: -- in that.

MR. CRAIG WOODWARD: Okay.

MR. DAN PRASCHER: But -- yeah. You know, and -- yeah.

MR. CRAIG WOODWARD: Well, I appreciate that, Dan. Thank you.

One other question that I have and it -- well, a comment, not necessarily a question, but did you speak with them in terms of the conversion process of going to an ethanol plant and then converting that gas to a liquid? And did they discuss that at length with you, or how did they approach that process, Dan?

MR. DAN PRASCHER: You mean as far as capturing the carbon --

MR. CRAIG WOODWARD: Yes.

MR. DAN PRASCHER: -- and liquifying it?

MR. CRAIG WOODWARD: Yes.

MR. DAN PRASCHER: No, and that really wasn't my purview.

MR. CRAIG WOODWARD: Okay.

MR. DAN PRASCHER: I'm familiar with that process --

MR. CRAIG WOODWARD: Okay.

MR. DAN PRASCHER: -- and one thing that -- and one thing that I was going to mention, the pressure, the twenty- -- just shy of 2,200 pounds.

MR. CRAIG WOODWARD: Um-hmm.

MR. DAN PRASCHER: You know, you there are several pipelines that I model in the continental United States, and it's not uncommon to go above 3,000.

MR. CRAIG WOODWARD: Um-hmm.

MR. DAN PRASCHER: The trick is, regardless of what the pressure is -- and the pressure is really to keep it in that liquid form. It's not to propel it down the pipeline. But the key thing to take away is they must -- regardless of the pressure, they have to construct the pipeline out of materials that are suitable per API 5L standard. That's a standard by American Petroleum Institute. It's been revised and updated over the

years. The most current is 5L, and it says, if you are going to create a pipeline, it must adhere to these kinds of things. It has to be appropriate for the kind of material that's being transported. It also has to be appropriate for the pressures, and so that means there's a large factor of safety that's also built into the design of these. So, you know, sometimes these pipelines get up to a half-an-inch or inch thick.

MR. CRAIG WOODWARD: Uh-huh.

MR. DAN PRASCHER: You know, they need the extra wall to do that. But, yeah, all of that's dictated to all oil and gas operators by PHMSA regulations.

MR. CRAIG WOODWARD: Sure. Sure. Well, again, I'm going to come back to the conversion process and just if there were -- I don't think you indicated there was much of a discussion about that process with Summit, but -- whoever would be converting gaseous CO2 to liquid form. But in the research that I've done, I think there is a tremendous amount of heat that is generated in that process. Which leads me to have great concerns for our state of Minnesota in terms of water usage, and that's precisely how they intend to dissipate the

extreme heat in that conversion process. And I know this, that they will probably try to get water permits, vis-à-vis working with the DNR, or whoever in Minnesota, in order to provide water.

I know this in terms of they're in other states as well. They're in the Midwest trying to get the pipeline up and running. They have -- they have a meeting March 14th in Des Moines, Iowa, in which they will go before that resource commission. And they are going to ask for water permits totaling a half a billion gallons of water in the course of a year. That is 500 million gallons of water in the course of a year.

I know that -- I know that Minnesota has aquifers that they pull water from. Iowa does, too, and a lot of states do. The aquifers in Iowa, from what I -- in the research that I have done have indicated that they are depleting because of our droughts. So I am quite concerned over that issue of water usage, and it will take -- if they come to Minnesota, I know POET is here. POET has signed up with Summit. There's going to be a great need for water. I hate to see that depleted knowing that Minnesota as well has been under drought conditions and probably will be next year as well.

So, anyway, I don't know if that's been addressed. I don't think it, maybe, has been, but I think maybe it's an environmental study you have done. Maybe that should be brought into it in some facet so that it's recognized. So that's an additional comment I would have.

MR. ANDREW LEVI: Thank you for that comment.

I just wanted to point out that the EIS does talk about water usage. Sara, I think she's on the meeting, she pointed out that there's a discrepancy between what's in the table and what's in the paragraph. But it looks as if the company would be using about 8.2 gallons of water per minute in the winter to cool and about 40 gallons per minute in the summer months to cool. The EIS currently says though that's an average water usage of about 13 million gallons. I did the math wrong on that. I believe it's a little north of 20 million gallons.

MR. CRAIG WOODWARD: That's what I thought, yeah.

MR. ANDREW LEVI: And we'll get that fixed. But that's currently what it's saying is 8.2 in the winter and 40 in the summer, and that's per

minute.

And you're absolutely correct that water appropriation in the State of Minnesota is done by the Department of Natural Resources. And, you know, I'm expecting the DNR to provide some comments on this particular section of the draft EIS.

I'm sorry. I didn't mean to cut you off if you had more. I just wanted to let you know those numbers in case -- just so you know we're aware of the -- it's a lot of water.

MR. CRAIG WOODWARD: It is. It is. Thank you, Andrew and Dan, both for your comments, and that's all that I've -- I've eaten up my five minutes, I'm sure. Thank you.

MR. ANDREW LEVI: Thank you very much.

MS. SARA RADIL: Thank you, Craig.

Up next, we have Ed Iverson. You are being unmuted. Please accept the audio pop-up, and then state and spell your name for the court reporter and provide your comments.

MR. ED IVERSON: Ed Iverson, E-D, I-V-E-R-S-O-N.

I guess you told Wade that the CO2 dissipates in three to four minutes. And first of all, I don't think I can hold my breath that long

either, but I just want -- you never know when to take that last breath to hold it is the problem.

And I guess I've farmed for just about 30 years. I've worked with anhydrous ammonia a lot, and had one experience -- I had a really nice mask so I could breathe in it. And I was walking back to the tractor, and I thought that I was out of it. I could not see any anhydrous cloud or anything. I took my mask off. All of a sudden, I could not breathe.

And I ended up getting back to the tractor, but I just -- I want -- and I know they're different animals, but I want you to be aware of just how fast that can happen. And if it happens in three to four minutes, your panic has set in, and you're in a lot of trouble, and I just -- this gas stuff that hangs low really, really bothers me. And I guess that's all I really had to say.

MR. ANDREW LEVI: Thank you for saying that. I'm glad you're okay, obviously. Yeah. I mean, we're concerned, too. That's why we did it, and that's why we're presenting the information so that it's available so folks know what that distance is, what that time frame is. You know, that's what we're trying to do with the EIS itself.

With regards to mitigating that, there are things that can be done in terms of education. I know that, you know, the -- should they be issued a permit for the project, that the company would be conducting an education -- they would -- emergency response plan, which would include an education component. I know that the State would have ideas as to what we think maybe should be included in that, you know. And if you have any ideas, please comment on that and let us know, and that would be appreciated.

So, again, yeah, it is a big deal, and I bet that would scare the crap out of me. I'm sure it did you, too. And -- yeah, and it's a serious thing. Thank you.

MR. ED IVERSON: Well, the biggest thing is, if you can't see it, you don't know which direction to run. And I just -- to me this seems like a bad idea, but I appreciate you taking my comment. And I guess that's all I have for now.

MR. ANDREW LEVI: Thank you.

MS. SARA RADIL: Thank you for your comment.

Peg, you are up next. You're being unmuted. Please state your name and spell your name

for the court reporter, and then provide your comment.

MR. ANDREW LEVI: You don't have to spell it again, Peg.

MS. SARA RADIL: Okay.

MS. PEG FURSHONG: Thanks. Peg Furshong.

Just two quick things. When I referenced taxpayer dollars, could you clarify for me, are all the agencies being reimbursed for their time spent on this project? Or are you referring mostly to the modeling that --

MR. ANDREW LEVI: I'm referring to the modeling, yes, you're correct.

MS. PEG FURSHONG: Yeah.

MR. ANDREW LEVI: So any comment on -- you know, if MnDOT provides comments or AG, you know, Department -- I should -- okay. The Department of Transportation provides comments or the Department of Agriculture or the Pollution Control Agency provides comments, then, yes.

I don't know exactly how they're funded and where their money comes from, but I do know where the money comes from for the EIS, and that's from -- not from taxpayer dollars. But, yes, Peg, you're correct, that I'm sure there's a state

employee somewhere looking at this on a, you know, general fund money somewhere.

So, yes, I was referring specifically to our role in -- EERA's role in this, and I appreciate that clarification. Sometimes we get into our little boxes and forget it's a big city out there.

MS. PEG FURSHONG: I know, and it's not just the state level. The counties, their meetings, there's county commissioner meetings, there's county offices, all sorts of levels of local government that are involved in this process at the expense of taxpayers for this project. So I think that that's just something we should be aware of.

I did also want to ask if the EIS requires this process -- if they permit this process to have transparency with the water use. Because we know that sometimes in corporate industries, they will reach out to other businesses who aren't fully using an appropriation of water and try to access that water.

And we know that potentially that could happen here with the ethanol plant already having -- some of them having appropriations for water may not be using the full amount, and they make arrangements -- because they're partners in this

deal, right, ultimately -- to share water permitting.

And I just feel like, you know, when we're thinking about climate change and we're thinking about the state suffering from drought and transparency for the public that Summit's usage of water should be separate from the ethanol plant's usage of water.

And they both should be transparent to the local communities. Because this is an extremely water-intensive industry, and putting carbon-capture on the ethanol plant is going to double their footprint in every single community.

And while we're just -- I think the other thing about this EIS process that's interesting is, we're just talking about one plant, and there's a proposal right now for a minimum of six in Minnesota, but potentially additional POET plants. And you're talking about 20 million gallons of water annually for one plant, multiply that by six or more, and we're looking at that much more water. And does the State of Minnesota -- I know we're the land of 10,000 lakes, but, honestly, with the drought that we've been experiencing -- and it's only going to get worse as we move forward -- do we

have enough water in the State of Minnesota to support infrastructure that is going to be this water intensive and not a public good?

That's the question that we face, and we shouldn't go into this naively thinking that we'll let them build the infrastructure and figure out the water later. Because they clearly can't run the infrastructure without the water appropriation, and that, to me, is a real pivotal concern that isn't expressed clearly or doesn't communicate well in the draft EIS. It's not really clear to the -- clear that that's an important part of this to make it work, and I think that that should be addressed.

MR. ANDREW LEVI: I'm sorry, Peg. Just to clarify so I know what you're saying and what you want clarified, is you want water use from the ethanol plant and -- but more specifically, acquiring that water -- well, not for the ethanol plant, but for the capture facility, that acquiring that water into the future, you want that discussed more?

MS. PEG FURSHONG: I just think -- two things. One, I think the ethanol -- the water that's going to be used for this infrastructure needs to be separate -- accounted for separately

than the water from the ethanol plant. It's got to be clear that it can't be muddled.

So if an ethanol plant isn't fully using its water appropriation, they don't just slide that water -- because the capture is at the ethanol plant. So it would be easy to let Summit use the water for the carbon-capture very easily. It would be hard to monitor that.

So whatever water is used for the ethanol plant, make sure that it's accountable to the appropriation for the ethanol plant, and whatever water that you think that this carbon-capture process needs, it should be publicly transparent how much water that is and that they're accountable for that. I think that really needs to be clear.

But, also, the draft EIS doesn't really -- the gentleman, Craig I believe his name was, this is all coming out in Iowa right now, and they're shocked to realize how much water is needed for this project accumulatively. And so that's the problem with us breaking the project up in Minnesota is we're not seeing the cumulative impacts or needs.

But, clearly, this is a huge amount of water that this project needs to even run. So if we let them build this infrastructure, do we have the

water to make it sustainable? They say this has a 25-year life. Do you really think we have that kind of water in Minnesota to support this for 25 years? I mean, we should -- if they're projecting the life of the pipeline, we should be projecting if we have the water to support that. I just think that's really important.

And the draft EIS doesn't really articulate the amount of water that's needed or clarify that that is just for this one ethanol plant. So that it's clear that for every ethanol plant the infrastructure is approved for, we need that much more water. That's what I would really like articulated better.

MR. ANDREW LEVI: I understand what you're saying, Peg. Thank you.

MS. SARA RADIL: Thank you for your comment, Peg.

Up next, we have Sharon Leinen. You're being unmuted. Please accept your audio pop-up, and state and spell your name for the court reporter, and then provide your comment.

MS. SHARON LEINEN: Okay. My name: Sharon, S-H-A-R-O-N; Leinen, L-E-I-N-E-N.

Just to add a little bit to what Craig

and Peg were saying. I live in the country. I have a well. I, too, am concerned about how much water this is going to take. I don't want to have to re-drill my well, and I'm wondering if we aren't sacrificing one of our resources just to save another. The water use needs to be looked at, definitely.

And the second thing is, I live about a quarter of a mile from the proposed pipeline, and I have no treeline or anything between me and the pipeline to disperse the CO2 if a rupture should happen. I'm just wondering how we are going to be warned if there is a rupture, if we're going to be warned. Because it's kind of scary to think about it.

MR. ANDREW LEVI: Thank you for that, and, yes, it is scary.

Scott, do you have any comments about a preliminary -- well, do you have any comments, Scott, response further?

MR. SCOTT O'KONEK: All right. You've got to give me a second, Andrew. I'm just trying to unmute myself here, if I could figure out the right button to push.

MR. ANDREW LEVI: You pushed it.

MR. SCOTT O'KONEK: You know, if there -- if there was a release or something -- and, you know, Dan can probably back me up on this also, too -- you know, a quarter-mile is quite out of the distance of, you know, what's stated in the draft EIS of a, you know, problematic area.

But if there was something that happened, you would hear, you know. I mean, obviously we know -- we talk about the pressure that's in this pipeline. You would be hearing that pressure coming out of the pipeline. You would see the actual cloud coming out of the pipe that -- you know, it's changing back from a liquid to a gas. There's lots of freezing that happens there, and there's actually going to be, you know, frozen water particles coming out of the ground. So if there was something going on, you would hear and see something.

MS. SHARON LEINEN: So you're telling me I have to be constantly vigilant in case there's a rupture. What if I'm mowing the lawn and I'm not looking over that way and I can't hear this rupture going on?

MR. SCOTT O'KONEK: You know, I can't talk about every hypothetical scenario that we may run across, but those are the things that would be

coming from the pipe in that instance. And the distance, you know, that you're talking away from the pipeline is totally safe in any circumstance.

MS. SHARON LEINEN: Would you feel safe living that close to the pipeline?

MR. SCOTT O'KONEK: Absolutely.

MS. SHARON LEINEN: Hmm. Yeah. Okay. Well, I just think that people should be aware. There should be some kind of a warning system in place so that we know if something is going on, and there doesn't seem to be anything planned for that at the moment.

MR. SCOTT O'KONEK: And, you know, too -- and, Andrew, I just want to touch on, you know, we -- like -- and you've touched on this a little bit, too, public awareness never stops, public training, you know, never stops. Like, we have to work with all local responders, local agencies, continually train, continue to communicate what's out there. What do you do if you see this or hear this? All of that stuff does not stop ever. It's going to continually be updated. We're going to reach back out, and, you know, that education and communication never stop.

MR. ANDREW LEVI: I just wanted to point

out that the State of Minnesota cannot set safety standards. That said, the State of Minnesota could ask the company if they would like to implement a safety protocol standard, whatever you'd like to call it.

And the State has -- the EERA has recommended as a potential mitigation -- something to think about anyway -- is a reverse -- kind of reverse 911 system. To where if something happens along the pipeline, you know, notice would go out via phone to folks along the pipeline.

You know, we understand that if the whole rupture takes three to four minutes, not -- you know, not sure if that system would -- could be implemented in time, but it's something that we've at least brought up as something to think about to address that idea of the company being able to get in touch with landowners in a hurry and let them know something's up.

MS. SHARON LEINEN: What I'm hearing is those that live along the pipeline route are going to be in a constant state of worry, wondering if there's a rupture going to happen, if somebody's going to let us know. That's not a very nice way to live.

MR. ANDREW LEVI: I don't -- I imagine it wouldn't be.

MS. SHARON LEINEN: Thank you.

MS. SARA RADIL: Thank you for your comment.

Tess Dornfeld, you are being unmuted. Please accept your audio pop-up, state and spell your name for the court reporter, and provide your comment. Thank you.

MS. TESS DORNFELD: Hi. Tess Dornfeld, T-E-S-S, D-O-R-N-F-E-L-D.

I wanted to follow up a little on the discussion about the water use. A 25-year timeline, that's pretty concerning to me. And I don't know, do we have modeling, you know, of the different potential scenarios of what will happen to our state's water resources in the next 25 years? You know, if these -- we could say that we have sufficient water to supply that today, but in 20 years things could look a lot different.

There's just been the news out today that we've now passed 1.5 degrees of warming for 12 months in a row, and we don't know for sure what's going to happen 20 years from now. And so can we really say that we can reliably commit that

amount of water 25 years from now not being sure -- or, like, even if we can make our best guess of whether that will still seem reasonable.

MR. ANDREW LEVI: I think that -- thank you for that. That's a very good point. I think that -- you know, the Department of Natural Resources is -- appropriates water in the state. It's their job and their responsibility to ensure that they're doing that in a way that, you know, maintains that resource. I think that -- I think I'll start with that and say that, and I don't believe that we looked at long-term forecasts or trends in the draft EIS with regards to water, even the aquifers.

I appreciate that comment, and we'll -- you know, we'll move -- take a look at all those after the scoping -- this comment period ends. So thank you for that.

MS. TESS DORNFELD: Yes. And I did also want to ask then about, when it comes to the DNR, you know, they have their process for the water permits, and you mentioned that you expect they'll be commenting on this. In my understanding, the discussion has been this "13 million" that should really be 20-million-gallons number. That is just

for the ongoing operations, but then there's also water that will be impacted during the construction. And that there'll also be permitting needed for that from the DNR, and that that's not outlined in the DEIS.

And so I wonder how the DNR can comment on that if they don't actually have the details on what that construction appropriation would be?

MR. ANDREW LEVI: Yeah. Well, yeah, they would need water for hydrostatic testing. If they take that from a water body, they would need a permit from DNR for that. That water generally gets discharged back into the -- you know, that's not a -- it's not like cooling. It's not a -- destructive is another word, but it doesn't convert the water; it stays as water. So, you know, if they did do that from a water body, they would need a permit from DNR.

So and -- and I think other minor watering might be, you know, watering the roads and things. And I thought we did touch on that, and maybe we didn't. We'll go back and take a look for sure, but I believe we did.

Cathy, do you have anything to add to that?

And then, Christy, we can move over to what it is you have to say.

MS. CATHERINE STOREY: Yeah. I just had a note that on page 5-137 of the draft EIS we do talk about the amount of water that would be needed for construction, which is 125,000 gallons, and then that's also where we talk about the amount of water needed for operations.

MR. ANDREW LEVI: Thank you, Cathy.

MS. CHRISTY BRUSVEN: I have nothing to add. That was the same cite I was going to provide. Thanks.

MR. ANDREW LEVI: It turns out I have that page open on my computer screen as Cathy was saying that. No, thank you for that.

So, yeah, it looks like 125,000 gallons for construction. Of that, 110,000 gallons would be used for hydrostatic testing.

MS. SARA RADIL: Thank you for your comment.

Heidi Fossen, you're being unmuted. Please state and spell your name for the court reporter, and then provide your comment. Thank you.

MS. HEIDI FOSSEN: Can you hear me?

MS. SARA RADIL: Yes, you are on.

MS. HEIDI FOSSEN: Okay. Heidi Fossen, H-E-I-D-I, F-O-S-S-E-N.

My question is around the energy needed for this project. It's my understanding that the energy needed to actually capture the carbon and turn it into gas is very energy-intensive. I was just wondering if the additional electricity needed to maintain the daily operations of the facility is included in this study.

Does the carbon intensity score for the ethanol take into account the additional energy needed to operate the carbon-capture facility? Does the local electricity grid have the capacity to accommodate the daily operations of the capture equipment? And will the local citizens be affected by the increase in energy needed for this project?

Sorry. That was like five questions.

MR. ANDREW LEVI: I've got four. So we'll try to answer those four, and then let me know what the fifth one was that I missed.

So with regards to a number, there is a number in the EIS, and I'm really hoping that Pat or Cathy or Joe right now is looking that up.

With regards to the CI score, Will, do you have any insight into electrical use in the

capture facility and how that might relate to the CI score in the ethanol produced at the ethanol plant?

MR. WILLIAM NEDS: Yeah, I didn't look into --

MR. ANDREW LEVI: Will, sorry, if you could state and spell your name for the court reporter.

MR. WILLIAM NEDS: Sorry, first time. William Neds, W-I-L-L-I-A-M and N-E-D-S.

So I did look at -- I looked at the alternative strategy section rather than what would be constructed or proposed. I do recall coming across the number, so when they bring it up, you can tell me. But I quickly looked at how that would affect the CI score, and it is significantly less than the current energy use for the project.

I think it would have made an impact of, maybe, one-point increase, and then when you account for the carbon-capture -- which is an approximately 30-point deduction -- maybe would average to about a 29-deduction is like a conservative estimate.

But I don't think that that was in any of my chapters. I don't know if I can point you to where that done. That was just a quick run-through in my head.

MR. ANDREW LEVI: Thanks, Will.

And that's something that we could check, and if it's not there, we could go ahead and add that in the final.

Cathy, it looks like you have that number?

MS. CATHERINE STOREY: Yeah. It's on page 5-51 of the draft EIS. The -- and from the applicant, the project would need 38,501,733 kilowatt hours per year, and the Lake Region Electric Cooperative does not anticipate that it would need to add power generation capacity in order to meet that need. So that's what's in the draft EIS now.

MR. ANDREW LEVI: And I think that -- does that answer your questions? I think that the grid and how it might affect local citizens kind of got combined into one, in that, the electrical co-op doesn't anticipate needing additional generation to supply the ethanol plant. Which I, you know, conclude that that wouldn't affect, you know, their portion of the grid then that they supply.

MS. HEIDI FOSSEN: Thank you. That's all I had.

MR. ANDREW LEVI: Thank you.

MR. WILLIAM NEDS: I can add a little bit more, if you need -- as a comparison now that I have the actual number, if that would be of help.

So the current electricity for the site is 38,000 megawatt hours per year, which is equivalent to approximately 2.7 points in the CI score. And I believe the number --

(Connection lost.)

MR. WILLIAM NEDS: -- kilowatts, so you're still looking at a factor of 10 --

COURT REPORTER: William --

MR. WILLIAM NEDS: Yes.

COURT REPORTER: -- it cut out for just a second. So you were saying that: Equivalent to 2.7 points in the CI score, and I believe... And then I think you had another number after that?

MR. WILLIAM NEDS: Yeah, the number that Cathy had mentioned. I was saying it was about a factor of ten off of the current energy use. Essentially, the decimal point, so it would be less than one.

COURT REPORTER: Thank you.

MR. ANDREW LEVI: Thanks.

And with -- I'm sorry, it is about 7:50. I know it looks as if Wade has his hand up. I

believe we'll move to him next. I'm looking at the person in charge, but after Wade, let's go ahead and take a five-minute break for Christine, for the court reporter. She's been typing vigorously here now for two hours, and as I keep talking she still has to type, so I'll stop. But we'll just take a quick break after Wade's comments.

MS. SARA RADIL: Okay. We will move on to Wade, and you have previously provided your information, so please go ahead with your comment. Thank you.

MR. WADE MATHIOWETZ: A comment towards Scott. They said they would try and let you know if there's an emergency pertaining to this pipeline, whether it be a rupture or a leak. What if you're handicapped, meaning can't move fast or blind and/or deaf? How are you going to address those issues? How are you going to notify me?

And if there was any emergency concerns with this pipeline, why ain't they brought forth before we try and put this pipeline in? It seems like we've got the cart ahead of the horse here. I think safety is one of the utmost concerns of us citizens of this fine state of Minnesota. And yet, as you all know, if we drink water, you're involved

in this.

So I think everybody needs to know, and they weren't transparent with that. And they wanted just -- landowners just to keep quiet and nobody make any comments on this. I think this is a really big safety concern, and this should be made more public than what it is.

MR. SCOTT O'KONEK: Did you want me to answer that, Andrew?

MR. ANDREW LEVI: Yeah. Sorry, I -- yeah.

MR. SCOTT O'KONEK: Okay. Thank you, Wade. So, I mean, we'll have plans in place identifying people, you know, in potential impact areas. We'll work with the local emergency responders that, you know -- on, you know, how to, you know -- if there was, you know, something in this area, how to respond? Who do we need to respond for? Is there, you know, people that may be more sensitive than other people?

All of those things will actually be taken into account in the emergency response plan. That emergency response plan is always being updated, too, in case of changes. And that plan will actually be shared with everybody once we know

exactly what we're crafting to and doing it. That's why we don't have it right now.

So that plan, as it discusses in the DEIS, you know, we have to get that to many people out there. And it will be appropriately distributed and trained upon before, you know, operation would ever go into place.

MR. WADE MATHIOWETZ: What kind of financial burden is this going to create? I live in a rural area, and our fire and EMS and all our personnel here is mostly volunteer, and we don't have extra funding for all this. You know, this stuff is colorless, odorless, it displaces oxygen. Vehicles don't run. So, now, do we have to equip these people with different kinds of vehicles, different kinds of equipment? You know, nobody out here is even close to -- be prepared for any of this.

You know, I think as a big company like you guys are, you should come with the safety stuff first. You know, you're trying to hide behind the horse here on this.

MR. SCOTT O'KONEK: Wade, thank you for that. I -- you know, as far as when it comes to emergency response and, you know, I know there's a

lot of different people that may need things, all the emergency -- we work through the county emergency managers to figure out what may be needed with different departments, you know.

And that stuff, you know, there will be no extra burden or cost if there is additional needs by the forces that you're talking about, our first responders. Someone will actually pay for that. That would be, maybe, a good boost of, you know, stuff that -- equipment or things you guys need for that local area.

So that will be actually on Summit's dime, and the things that will be needed will be worked with those departments and with the emergency managers of the areas.

MR. WADE MATHIOWETZ: We all can say these things, but will they come to frutation [sic]? It's going to cost a lot of money, and I just -- you know, we wouldn't be talking about this if it wasn't just for the money, right? We all know that. Every one of us listening here tonight and involved with this, it's all about the money. Not about what humans lose or gain, it's always about the money, and that's what's wrong with this whole damn project. It's all about the money. Just follow it.

Follow the money, it will lead you where this is going, in somebody else's back pocket at taxpayer's expense.

This is not going to solve us -- you guys think the world is warming up from global warming, come on. Go back in history. Read the history, it's not. From what we're going to spend on this whole project, it's going to -- I mean, we could take a 1,000-gallon tank and put one drop of water in it, and this is what we're going to solve.

Let's get back to reality here, people. This is a farce, and it's going to cost us our water rights. What's it going to cost for us after 20 years when we have no water to get it here? We can't live without water. The plants can survive, and we're surviving now without this CO2 pipeline, period.

MR. ANDREW LEVI: Thanks, Wade.

It's about 8:00, so let's go ahead and take a break. Come back -- is five minutes enough, Christine?

COURT REPORTER: Yes. Thank you.

MR. ANDREW LEVI: So let's just come back at 8:05, and we'll pick up -- I guess, we'll see if anyone -- well, yeah. We'll pick back up with Wade

in five minutes. Thanks.

(Break taken from 8:00 to 8:05.)

MR. ANDREW LEVI: We will go back on the record.

Sara, go ahead.

MS. SARA RADIL: Okay. Thank you.

Wade, just confirming if you had any additional comments?

MR. WADE MATHIOWETZ: Yes. I think the permit for the project without the safety and equipment and plans in place, it's -- we need to have that first before this permit is issued, preconstruction.

MR. ANDREW LEVI: Yeah. I agree with you, Wade. So we have recommended -- so if they get a permit, let's say that. In case I forget to say it again during the rest of what I'm about to explain. If they get a permit, they would need to -- before they can construct, they need to -- the company would need to file several things.

One of those things is called a plan and profile, and that's basically -- it's a plan of where the pipeline would go. And we review that plan and make sure that it's going where they said it was going to go and some other things associated

with that. But -- and this isn't just for pipelines. This is required for transmission lines. It's required for all these -- you know, this infrastructure.

And what we do is with these other plans and these other things that might be required, so, for example, here what we're recommending would happen would be that any emergency response plan be provided to the Commission, developed with the emergency responders, and cover these things that you're talking about. It's written out in Chapter 8 as a recommendation by us, EERA, and that be provided 30 days prior to the plan and profile.

So we agree. Let's not put the, you know, cart in front of the horse here. We need to look at all of this stuff first. We need to make sure that this safety plan is acceptable to the folks that would be implementing it. That would be -- and we would ask that that be in that plan, you know, a signoff be in that plan. This is what we're asking for.

Again, we can't set safety standards. It's just what we're asking of the Commission, and that that plan be filed 30 days prior to them even filing their plan and profile. So that gives us

time, the Commission time, the state time to take a look at that and make sure that, you know, the things are lining up.

So we -- I hear you. I hear what you're saying, and we've recommended a mitigation to hopefully help with that, to not let construction get out ahead of any of these other very important steps that need to happen. These -- they're not boxes that need to get checked, but I guess, you know, these things that need to happen first before this can be constructed. So I do want to say that, yes, I agree with you on that aspect of things for sure.

MR. WADE MATHIOWETZ: Thank you.

The Pipeline Hazard [sic] Material Safety Administration, do they have any safety protocol finalized yet for anything like this? I mean, that's our guideline people we go with, right?

MR. ANDREW LEVI: Yeah. PHMSA sets the safety standards. Dan touched on that a little bit at the beginning. I'm worried if I asked him to do it again, we'll be here until 10:00.

But, Dan, if you can briefly go over those, you know, at a 60,000-foot-level real quick.

I mean, the short answer, Wade, is yes.

Yes, there is, but Dan can get into that a little bit more.

MR. WADE MATHIOWETZ: That's okay. He went through it. I just want to make sure that, you know, their safety standards is up to CO2-standards. That's what I was alluding at, you know.

MR. DAN PRASCHER: They are. They are.

Yeah. And I didn't touch on, maybe, I don't know, half of what's required. It's extensive and ongoing.

MR. WADE MATHIOWETZ: Thank you.

MR. ANDREW LEVI: Thank you, Wade.

MS. SARA RADIL: Thank you for your comment.

Currently I do not see any other hands raised in our participant list. So if you're looking to make a comment, feel free to raise your hand, the small raise-hand button at the bottom of the screen; or if you're joining by phone, dialing *3. Thank you.

MR. ANDREW LEVI: While folks are thinking about whether or not they have an additional question or comment -- or a first question or comment -- I just want to, again, thank everyone for coming tonight, participating tonight.

We greatly appreciate that.

I want to go ahead and remind you about this open comment period. It's open until February 23rd. Please do submit comments. We greatly appreciate those. We read them all.

(Presentation screen changed.)

MR. ANDREW LEVI: And I was going to have to do that. Thank you very much.

So, again, these are the different ways you can provide comments. If you have any questions, you know, shoot me an e-mail, send me an e-mail, and we can help answer those. But, again, I just -- while we're waiting, thank you very much for participating this evening.

Maybe we'll go ahead and wait about another minute, and if no one wants to speak, we'll call it good, but we don't want to cut anyone off.

I don't know if it's been a minute or not, but it sure felt like a minute.

Julie just threw my e-mail into the chat. If you'd like to click on that real quick, that should pop-up, in case you have a question later on.

But, again, I'm not seeing any hands. So, again, thank you very much for participating this evening, and everyone have a good rest of your

night. Thank you.

(Public comment concluded.)

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