



headquarters in Omaha, Nebraska, and maintains offices in Dallas and Houston, Texas. (*Id.* at 193:5-24.)

2. On October 28, 2022, December 7, 2022, December 8, 2022, and January 30, 2023, the Commission granted party status to several counties, three labor unions, the South Dakota Telecommunications Association, the South Dakota Association of Rural Water Systems, the South Dakota Rural Electric Association, and multiple individuals.

3. The proposed right-of-way for the proposed Navigator Heartland Greenway Pipeline (“the Pipeline” or “the Project”) crosses five counties. Brookings County, Lincoln County, and Moody County intervened. Turner County did not intervene. Minnehaha County intervened for the limited purpose of responding to Navigator’s motion that under SDCL § 49-41B-28 the Commission preempt a zoning ordinance that Minnehaha County adopted on June 13, 2023. The Commission entered an order granting Minnehaha County’s motion to intervene on July 28, 2023.

4. The following individuals were granted party status and are represented by Brian Jorde and Ryan Cwach (collectively the “Jorde Landowners”):

Dwayne Pederson Land Co. (Karla Lems)  
Dakota Aeration (Karla Lems)  
Pederson Ag (Karla Lems)  
Sherwood Beek  
Kristi Devick Beek  
Kevin Alberts  
Merle Alberts  
Merle Alberts Living Trust  
Denis Andersen  
Janet Andersen  
Paula Bell  
Connie Beyer  
Rick Bonander  
Dale Bonnema  
Bonnema Family Trust  
Dana Bosma, Burggraff Farms

Frank Burggraff  
Glenn Burggraff  
Jackie Burggraff  
Lynda Burggraff  
Wayne Burggraff  
Joanne Jackson Burke  
Bruce Burkhart  
Julie Burkhart  
Kay Burkhart  
Ann Cowart  
Don Cowart  
DeJa View Family Farm LLC  
Linda Dawley  
Todd Dawley  
Todd and Linda Dawley Living Trust  
Jessica Deering  
Patrick Deering  
Arnold Erickson  
Tamara Ford  
Gary Haak  
Gerald Haak  
Mike Hoffman  
Carol Hoines  
Warren Jackson  
Spencer Jacobson  
Todd Jacobson  
Mary Ann Janssen  
Dennis Jarabek  
Janelle Jarabek  
Jarabek Special Spousal Living Trust  
Daniel Janssen  
Robert Janssen  
Ethan Javers  
Mark Javers  
Michelle Jensen  
Chuva Johnson  
David Johnson  
David Johnson Living Trust  
Bud Johnston  
Knutson Grandchildren Trust  
Lisa Knutson  
Merlin Knutson  
Miles Lacey  
Richard Lacey  
Dave Larson  
Helen Le Brun

Mark Le Brun  
Ray Luze  
Rick Luze  
Bonnie Myrlie  
Keith Myrlie  
Nelson Living Trust  
Beverly Nelson  
Daniel Nelson  
Daryl Nelson  
Diana Nelson  
Joan Nelson  
Scott Nelson  
Marilyn Olson  
Overseth-Ruesink Legacy Trust  
Crystal Page  
Dan Paulson  
Jill Paulson  
Tab Pepper  
Becky Poss  
Clayton Rentschler  
Art Richert  
Beverly Richert  
Richert Family Trust  
Berton Risty  
Joyce Risty  
Jenae Ruesink  
Evelyn Schuer Living Trust  
Schwebach Family Trust  
Marilyn Schwebach  
Rosemary Schwebach  
Tom Schwebach  
Glenn Scott  
Brad Severson  
LuAnn Severson  
Lonna Smeen  
Merlyn Smeen  
Merlyn and Lonna Smeen Living Trust  
Ryon Smeen  
Maryls Stensaas  
Angela Teal  
Brian Teal  
Ronald Teal  
Ronald and Angela Teal Rev. Trust  
Walter Theis  
Roger Van Dyke  
Robyn Ventura

Tony Ventura  
Verlyn and Anna Legacy Trust  
Galen Ver Steeg  
David Vinzant  
RoSchell Vinzant  
Wright Brothers Partnership  
RJ Wright  
Leroy Zorr  
Paulette Zorr

Party status was also granted to the following individuals not represented by Jorde and Cwach:

Mr. William G. Haugen, Jr.  
Eric H. Bogue  
Leslie Downer  
Cathy Lu Miller  
Lesley Pedde  
David Reker  
Gwen Reker  
Kathy Jo Serck POA for Lois Jean Rollings  
Alfred Slaathaug  
Ricky A. Veldkamp

5. PUC Staff fully participated in the docket.

#### **Procedural Findings**

6. On September 27, 2022, Navigator filed an application for a siting permit under SDCL Ch. 49-41B (the “Application”). The Application was received in evidence as Ex. N20.

7. On September 30, 2022, the Commission entered an order giving notice that the Application was filed and that pursuant to SDCL §§ 49-41B-15 and -16, the Commission would hold public-input meetings on November 21-22, 2022. On November 21, 2022, the Commission held a public-input meeting at the Canton Performing Arts Center in Canton, South Dakota. On November 22, 2022, the Commission held public-input meetings at the William J. Janklow Community Center in Flandreau and the Ramkota Conference Center in Sioux Falls. Navigator representatives attended the meetings to answer questions.

8. The Commission entered an order assessing a filing fee on October 14, 2022, and set a procedural schedule on January 19, 2023. The procedural schedule directed that prefiled testimony would be used in the docket. The procedural schedule was amended by order dated March 2, 2023. Under that order, testimony from Intervenors and Staff, as well as supplemental testimony from Navigator, was due on May 25, 2023. Rebuttal testimony was due on June 26, and surrebuttal testimony was due on July 11, 2023. Witness and exhibit lists were due July 18, 2023. An evidentiary hearing was scheduled to begin on July 25, 2023, and conclude on August 3, 2023. The order dated March 2, 2023, also included a protective order for confidential information.

9. Because of a scheduling conflict with the venue, the schedule for the evidentiary hearing was changed to begin on July 25 and end on August 5, 2023.

10. At the Commission's regularly scheduled meeting on December 6, 2022, Navigator advised the Commission of its discovery that due to an administrative mailing error, some landowners within the statutory notice corridor did not receive timely notice under SDCL § 49-41B-5.2 that the Application had been filed and that the Commission would hold public-input meetings under SDCL §§ 49-41B-15 and -16. On December 9, 2022, Navigator filed a letter in the docket explaining how the error occurred, and stating that while 1,052 letters were sent, 1,256 landowners should have received notice. Of the 204 landowners who did not receive the statutory notice, 92 had previously received notice of the project and an invitation to a public open house, while 112 landowners did not receive prior notice. Navigator stated in the letter that it would not object to any late-filed application for party status as untimely. Navigator also "request[ed] that the Commission set an additional public-input meeting under SDCL § 49-41B-

15 to allow the landowners who received late notice to make public comment and ask questions directly to Navigator.”

11. The Commission placed this issue on its meeting agenda on December 20, 2022. The agenda listed the item for Commissioner discussion. The Commission took no action on Navigator’s request that another public-input meeting be scheduled, although Commissioner Hanson stated his support for another meeting.

12. After the Commission took no action on Navigator’s request, Navigator sent notice to affected landowners on December 28, 2022. The letter stated that the Application had been filed on September 27, 2022, that it was available online and was also filed with the County Auditor in each county where the pipeline would be located. The letter stated that the public-input meetings that were held in November could be accessed through the Commission’s website. The letter also advised affected landowners that further formal proceedings on the Application would be held and that they could seek party status. On January 12, 2023, Navigator filed notice of this letter, together with an exemplar letter and a confidential list of landowners to whom it was sent.

13. On January 24, 2023, the Jorde Landowners moved that the Commission return Navigator’s Application under SDCL § 49-41B-13(2) for failure to provide notice to all landowners under SDCL § 49-41B-5.2. By order dated February 13, 2023, the Commission denied the motion. Commissioner Hanson voted to grant the motion.

14. The Commission entered an order dated July 14, 2023, addressing various procedural issues, entirely excluding the testimony of Loren Staroba, Marvin Lugert, Berton Risty, and Becky Poss, excluding the testimony of Curtis Jundt related to a 24-inch pipeline, and excluding Attachment 1 to Marvin Abraham’s testimony.

15. General Counsel for the Commission held prehearing conferences on July 11 and July 20, 2023.

16. An evidentiary hearing was held beginning on July 25, 2023. The hearing recessed from July 28-30, and continued July 31 through August 5. After a recess, the hearing resumed on August 8, which concluded all testimony except for testimony relating specifically to Navigator's preemption motion. The Commission held additional hearing days on August 24-25, 2023, to consider evidence related to preemption and the orderly development of the region. At the beginning of the hearing on August 24, the Commission granted Navigator's motion to admit Exhibit 68, which is plume-modeling mapping.

17. At the beginning of the hearing on July 25, 2023, the Commission considered Staff's written objections to certain exhibits and witnesses filed by the Jorde Landowners. The Commission ruled that witnesses who had not previously submitted prefiled testimony would not be allowed to testify and that Attachments 4-11 to the common testimony submitted by the Jorde Landowners would be excluded from evidence.

18. The following parties participated in the evidentiary hearing: Navigator; Staff; the Jorde Landowners; the South Dakota Rural Electric Association and the South Dakota Association of Rural Water Systems; and the Great Plains Laborers' District Council and International Union of Operating Engineers, Local 49, the United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States and Canada, AFL-CIO, and the Laborers International Union of North America. Moody County appeared through its State's Attorney on July 25, 27, and August 24-25, 2023, and Minnehaha County appeared through counsel of record on July 27, and August 24-25, 2023.



19. In connection with its motion to intervene for a limited purpose, Minnehaha County moved that Navigator's preemption motion be held in abeyance. The Commission denied that motion by order dated July 28, 2023.

20. On July 27, 2023, the Commission set additional hearing days to consider Navigator's preemption motion. The additional hearing days were scheduled and held on August 24-25, 2023.

21. At the evidentiary hearing, Navigator called as part of its case-in-chief Jeff Allen (who adopted in part the testimony of David Giles), Elizabeth Burns-Thompson, Brian Brinkman, Jon Muller, Jared McEntaffer, Mark Hereth, Steve Lee (who also adopted in part the testimony of David Giles), John Godfrey, Vidal Rosa, and Brandi Naughton. In rebuttal, Navigator called Steve Lee, Michael Harrison, Jeff Pray, Steve Brandenburg, Laura McGlothlin, and Monica Howard.

22. As part of its case-in-chief, Staff called William Byrd, Tim Cowman, Alissa Ingham, Matt Frazell, Hilary Morey, Jenna Carlson-Dietmeier, and Jon Thurber. Staff did not call any rebuttal witnesses.

23. The Jorde Landowners as part of their case-in-chief called Dr. John Abraham, Karla Lems, Rick Bonander, R.J. Wright, Todd Dawley, Glen Scott, Miles Lacey, Connie Beyer-Lalonde, Keith Myerlie, Dana Bosma, Dan Nelson, Dan Janssen, Mark LeBrun, Gerald Haak, Guy Haak, Julie Burkhardt, Brian Teal, Richard McKean, Dan Paulson, Jill Paulson, Bruce Burkhardt, Terry Florence, Arnie Erickson, Dennis Anderson, Bev Nelson, Clayton Rentschler, Roger VanDyke, Tony Ventura, Janet Anderson, and Patricia Deering. The Jorde Landowners did not call any rebuttal witnesses.

24. The three Unions called Mike Mikich, Nate Runke, and Randy Harris. The Unions did not offer rebuttal testimony.

25. The South Dakota Rural Electric Association called Ted Smith, and the South Dakota Association of Rural Water Systems called Clint Koehn. These entities did not offer rebuttal testimony.

26. At the conclusion of Navigator's case in chief, the Jorde Landowners renewed their motion to return the Application based on the landowner-notice issue. The Jorde Landowners also made an oral motion for judgment as a matter of law under SDCL § 15-6-50. Both motions were denied.

### **The Project**

27. The Application is for a permit under SDCL Ch. 49-41B to construct and operate a pipeline to transport carbon dioxide.

28. The proposed pipeline is the Heartland Greenway Pipeline System, and it is the midstream transportation portion of a new interstate carbon capture, transportation, use, and sequestration system. Navigator will transport CO<sub>2</sub> emissions compressed at a dense/supercritical phase at capture facilities from, initially, ethanol and fertilizer plants. Navigator will transport the CO<sub>2</sub> for a fee to either permanent and secure underground sequestration sites located in Illinois or to offtake points such as a terminal or pipeline connection for distribution to commercial or industrial users of CO<sub>2</sub>.

29. The Heartland Greenway Pipeline System is approximately 1,300 miles of pipe located in South Dakota, Nebraska, Minnesota, Iowa, and Illinois. Navigator currently has contracts to transport CO<sub>2</sub> from 21 facilities, including three facilities in South Dakota.

30. In South Dakota, the pipeline will be approximately 112.6 miles of new pipe located in Brookings, Moody, Minnehaha, Lincoln, and Turner Counties. (Ex. N1 at p. 32.) The pipeline will serve Valero’s ethanol plant in Aurora; the POET Biorefining plant in Chancellor; and the POET Biorefining plant in Hudson. The line from Aurora to Hartley is 63.8 miles of 8-inch pipe. The lateral line to Chancellor is 22.6 miles of 6-inch pipe, and the lateral line to Hudson is 26.1 miles of 6-inch pipe. (Ex. N1 at p. 32, Table 2.1-1.) Maps attached to Exhibit N1 show the route of the pipeline in South Dakota as of May 25, 2023. (Ex. N1 at pp. 79-96.) Table 2.1-1 in the Application shows the number of miles in each affected county. (Ex. N1 at p. 32.)

31. The initial design capacity of the entire proposed pipeline system, which is not expected to be utilized by the 21 facilities at the outset, is to transport 10 million metric tons (“MMT”) of CO<sub>2</sub> per year, with capacity up to 15 MMT per year by adding booster stations and laterals for new customer locations.

32. Carbon capture equipment will be installed at each customer’s facility by either the customer and/or Navigator Carbon Services LLC. Carbon dioxide that would otherwise be emitted into the atmosphere will be captured, dehydrated, cooled, and compressed to a dense/supercritical phase to allow for increased transportation efficiency.

33. To be transported on the NHG pipeline, carbon dioxide must meet purity specifications that will be closely monitored by equipment at the capture facilities. Navigator’s standards require at least 98% pure CO<sub>2</sub>, with the remaining 2% being primarily nitrogen and oxygen. (Tr. at 714: 21-25; *id.* at 716:9 to 717:3.) Ethanol facilities are a particularly good source of pure CO<sub>2</sub>, with almost no natural impurities. (Tr. at 1106:19 to 1107:1; *id.* at 1301:1-20.)

34. There will be no booster facilities in South Dakota for the pipeline proposed in the Application. There will be one launcher/receiver site installed in Lincoln County at the junction of the POET Hudson and Chancellor laterals. The site will be used for pigging facilities for in-line inspection during operations. The site will be approximately two to four acres and will be fenced. (Ex. N20 at 3, 9.)

35. There will be 18 mainline valves in South Dakota, with each valve location being approximately 30-feet wide by 70-feet long and located within the permanent right-of-way. (*Id.* at 9.) There will be no other above-ground facilities associated with the pipeline in South Dakota.

36. The pipeline will have a maximum operating pressure of 2,200 pounds per square inch gauge (psig), with a normal operational range between 1,300 and 2,100 psig. (*Id.* at 8.)

37. During normal operations, the temperature of the CO<sub>2</sub> entering the pipeline will be in a supercritical phase, which means above 88 degrees Fahrenheit at a pressure of above 1,070 psig. (Tr. at 1049: 5-17.) The operating temperature range for the inlet of the pipeline is between 90 degrees Fahrenheit and 120 degrees Fahrenheit. (Tr. at 2969:18-22.) As the CO<sub>2</sub> travels through the Pipeline it normalizes to ground temperature. (*Id.*) The distance for that to occur is usually between five to ten miles downstream of a compression site or a pump site. (*Id.* at 2991:1-6.)

38. The pipeline will be buried with at least five feet of cover which exceeds PHMSA requirements and industry standards. (Ex. N20 at 10; Tr. at 226:4.)

39. At the hearing, Steve Lee estimated that the starting date for construction would be either late 2024 or early 2025 upon receipt of all necessary permits to construct. (Tr. at 996: 11-13.) Project in-service is likely to occur in late 2025 or early 2026. (*Id.* at 996:16-22.)

Construction is likely to take 9-10 months and could be interrupted by winter weather depending when it begins. (*Id.* at 997:2-19.)

40. No construction will begin in South Dakota until a final investment decision has been made based on receipt of all required permits, including those necessary for sequestration in Illinois. (Tr. at 129:22 to 130:3; *id.* at 221:25 to 222:12.)

41. The estimated cost of the project in South Dakota is \$154 million. (Ex. N2, ¶ 17.)

42. Construction of the pipeline will typically require a temporary right-of-way for construction 100 feet wide in uplands and agricultural areas and 75 feet through sensitive areas, including most waterbodies, wetlands, and forested areas. (Ex. N20 at 10.) Where additional temporary workspace is necessary, it will typically be 50 feet wide by 150 feet long. (*Id.*) The permanent right-of-way for operations and maintenance is 50 feet wide. (*Id.*)

#### **Demand for the project**

43. Navigator conducted a nonbinding open season in March and April 2021 to gauge interest in the project. (Tr. at 3096:21-23.) Beginning in June 2021, Navigator held a binding open season that remained open through September 1, 2021. Through the binding open season, Navigator sought binding volume commitments for capacity on the pipeline. (*Id.* at 3097:5-13.) Between 50-60 interested parties signed confidentiality agreements with Navigator to obtain information about open-season terms, the transportation services agreement, and the tariff. (*Id.* at 3098:20-25.)

44. As a result of the open season, Navigator obtained one signed contract and continued conversations with other interested parties, resulting in another signed contract. As of the hearing, Navigator has signed shipper contracts in South Dakota with two companies, Valero and POET, each for a term of 12 years. (*Id.* 3099:5 to 3100:7; Ex. N63.)

45. The shipper contracts have options to extend the term. (Tr. at 3100:25 to 3101:8.)
46. Navigator has reserved 10% of pipeline capacity for availability to walk-up shippers, meaning a shipper who has not made a volume commitment. Provided that a walk-up shipper agrees to abide by Navigator's rules and regulations in the tariff and agrees to pay the transportation rate, a walk-up shipper may transport CO<sub>2</sub> on the Pipeline. (Tr. at 3101:10 to 3102:4.)
47. Navigator will post to its website a copy of its tariff approximately 30 days before commencement of service. (Tr. at 3102:17.)
48. In addition to POET and Valero having signed contracts with Navigator to ship CO<sub>2</sub>, 15 of 15 South Dakota ethanol plants have publicly committed to some level of carbon management technology. (Tr. at 273:19-24.)
49. Valero's commitment to carbon sequestration is part of its board-approved response to its investors' request to provide greenhouse gas emission reduction plans. (Tr. at 2735:4-14.)
50. Valero anticipates that its commitment to carbon transportation will continue after the expiration of the 45Q and 45Z tax credits because of the development of low-carbon markets that will take advantage of low-carbon ethanol. (Tr. at 2736:15-17; *id.* at 2745:9-14.)
51. Navigator is currently working with companies that want to use CO<sub>2</sub> for purposes other than sequestration, including interest from companies that want to buy CO<sub>2</sub> from the pipeline rather than relying on a single facility to source the CO<sub>2</sub>. (Tr. at 3103:16 to 3104:5.) Navigator has hired a commercial engineer to enable CO<sub>2</sub> that has been depressured to be offloaded from the pipeline for commercial uses. (*Id.* at 3104:8-15.) There is current commercial demand for 10 to 11 million metric tons of CO<sub>2</sub> annually. (*Id.* at 3105:6-9.)

52. Navigator has signed a memorandum of understanding with Infinium, a company that is working to combine hydrogen with CO<sub>2</sub> to make gasoline, methanol, diesel, and jet fuel without crude oil; Infinium needs 600,000 metric tons of CO<sub>2</sub> per year to produce efuels. (*Id.* at 3105:11 to 3106:4.) Navigator would transport CO<sub>2</sub> to Infinium by pipeline. (*Id.* at 3106:7-21.)

53. Navigator is in discussion with five to ten other companies that are also looking to receive from the pipeline large scale quantities of CO<sub>2</sub> for commercial or industrial use. (*Id.* at 3107:8-10.)

54. Navigator is also talking to power plants about their interest in capturing, transporting, and sequestering CO<sub>2</sub>. (Tr. at 3110:20 to 3112:6.)

55. California, Oregon, Washington, and Canada each have Low Carbon Fuel Standard programs, which offer ethanol and other fuel producers marketable credits as incentives for meeting low carbon standards. (Ex. N13, ¶ 8; Tr. at 2737:1-4.) These markets are important to ethanol producers and the incentives they provide to liquid fuel producers do not expire with the 45Q and 45Z tax credits. (Ex. N13, ¶ 8; Tr. at 2736:15-28; *id.* at 2737:1-10.)

56. Navigator and Puro.earth, a subsidiary of Nasdaq, reached an agreement for Puro.earth to validate and certify Navigator's carbon dioxide removal credits, which allows digital tradable CO<sub>2</sub> removal certificates to be bought and sold to help neutralize the buyer's residual carbon emissions. (Ex. N13 § 9.) There is a developing market for these credits, which are used by businesses that do not have other ways to capture carbon dioxide or reduce their production of carbon dioxide, like big tech or big oil. (*Id.*; Tr. at 3108:20 to 3109:4.)

57. Navigator has been contacted by multiple lenders who are motivated by mandates related to decarbonization and are interested in financing the project. (Tr. at 129:13-15; *id.* at 130:9-11; *id.* at 235:16 to 237:7.)

### Existing regulation

58. The Pipeline Hazardous Materials Safety Administration (PHMSA), which is part of the United States Department of Transportation, currently regulates CO<sub>2</sub> pipelines under 49 C.F.R. Part 195. (Ex. N11 ¶¶ 7, 15.) PHMSA has regulated CO<sub>2</sub> pipelines since the 1970's. (*Id.* ¶ 15.)

59. There are approximately 5,339 miles of CO<sub>2</sub> pipelines in the United States. (*Id.* ¶ 18.) Their safety record based on data maintained by PHMSA is better than other hazardous liquid pipelines, with a lower accident rate per 1,000 miles. (*Id.* ¶¶ 19, 20; Tr. at 1299:6-15.) For a 20-year period starting in 2003, there were no reported fatalities and one reported injury as defined by PHMSA, which occurred in 2007, related to the operation of CO<sub>2</sub> pipelines. (Ex. N13 ¶ 19.) Pipelines are the safest mode of transporting hazardous liquids. (*Id.* ¶ 20; Tr. at 1295:5-12; *id.* at 1325:3.)

60. PHMSA regulates CO<sub>2</sub> that is transported in a supercritical state, and its regulation extends fully to any pipeline that transports CO<sub>2</sub> in a supercritical state even though the CO<sub>2</sub> may not remain in a supercritical state throughout the entire pipeline. (Ex. N13, ¶ 15; Tr. at 592:15; *id.* at 593:6-9.)

61. The scope of PHMSA's regulation covers design, construction, operation, and emergency preparedness and response. (*Id.* ¶¶ 9-13.)

62. PHMSA has a routine auditing program for all operators within its jurisdiction. The process involves a comprehensive review of programs at which PHMSA inspectors ask "incredibly detailed questions," and undertake a "pretty rigorous" review. (Tr. at 1806:7 to 1808:23.) PHMSA undertakes both integrated inspections and program-by-program audits, both



of which are “a lot of work for the operator” and “a lot of work for PHMSA.” (*Id.* at 1814:14 to 1815:14.)

63. William Byrd, an expert witness who testified for Staff, testified that in his experience PHMSA’s regulation of CO2 pipelines has been effective. (Tr. at 1827:1-8.)

64. Navigator has been engaged with PHMSA with respect to the design and proposed construction and operation of the Navigator Heartland Greenway Pipeline starting in 2021 with initial communications about the system and design premise followed by official notification under an operator I.D. in February 2022. (*Id.* at 1130:9-23.) Navigator meets with PHMSA quarterly, and to date PHMSA has stated no concerns about anything it has reviewed with Navigator. (Tr. at 1131:2-3; *id.* at 1025:2-14.)

65. On May 26, 2022, PHMSA announced a new rulemaking for CO2 pipelines, including requirements related to emergency preparedness and response. (*Id.* ¶ 16.) The rulemaking process may be lengthy, and it is unknown when it will be concluded. (Tr. at 1825:14 to 1826:8.) The current rulemaking may not be concluded for years. (*Id.* at 1826: 7-8.)

66. Mark Hereth, an expert witness who testified on behalf of Navigator, and William Byrd, an expert witness who testified on behalf of Staff, both have expertise and extensive experience in pipeline safety regulation. Both testified that existing federal regulation by PHMSA through current statutes and regulations is adequate and there is no need for the Commission to wait until the conclusion of PHMSA’s current rulemaking process before issuing a siting permit for Navigator’s pipeline. (Tr. at 581:25 to 582:25; Ex. S1 at 11:41 to 12:7.). Byrd testified that he expects the final PHMSA rulemaking to be a “codification of what is currently best practices,” which is “pretty common.” (Tr. at 1827:9-12.) He does not foresee “a rulemaking out of PHMSA that’s going to surprise anybody with new requirements. It’s just

going to bring everybody up to a certain level that, hopefully, prudent operators are already at.” (*Id.* at 1827:18-21.) Steve Lee testified that based on leading indicators of what PHMSA is working on, every one of Navigator’s current specifications for construction will meet or exceed any new rule that PHMSA may promulgate. (*Id.* at 1052:12-25.)

67. Hereth also testified that, while it is possible, he does not expect PHMSA’s rulemaking to address improvements in design and construction, but does expect it to relate to emergency preparedness and response and public engagement. (Tr. at 604: 8-11; *id.* at 617:8-18.)

68. While existing pipeline operators have been grandfathered with respect to a new rulemaking, to the extent that an operator has designed and constructed a pipeline according to best practices or design and construction standards that exceed current PHMSA requirements, like DNV-RPF-101, then the operator would not need to be grandfathered if PHMSA adopted those standards as part of its rulemaking. (Tr. at 605:19 to 606:15.) Changes to regulations concerning operations, emergency response, or public awareness, which are ongoing obligations, would apply to the Project without any issue of grandfathering. (Tr. at 618:8-12.)

### **Routing**

69. As described in Section 2.0 of the Application, Navigator’s key objective in determining the proposed route of the Pipeline is to minimize the collective impact of the Pipeline along its route. Provided all other things are equal, the most direct route between two points would offer the least impact. However, not all things are equal across a footprint of five states, or even multiple counties as in South Dakota. Positive and negative considerations and constraints such as co-location; avoidance and minimization of contact with populated areas and sensitive environmental resources; geological, topographical and other constructability factors;

setbacks from inhabited structures and gathering places; and the other types of features were gathered and weighted in determining a preliminary route, along which a corridor was established (this is further described below). Then, as additional information and details were gathered from specific aerial imagery and Lidar data commissioned by Navigator and accomplished by flyovers along these routes; public informational meetings and other discussions with landowners and local officials; and on-the-ground surveys and inspections, further micro-routing was performed. (Ex. N5, Direct, ¶ 8.)

70. Navigator used a third-party GIS-based proprietary computer program known as Pivvot. This GIS program provides suitable baseline pipeline routes between two points using and weighting multiple publicly available, purchased and licensed data sets that provide information on engineering, environmental, physical, geotechnical, and land use and ownership, and other geographic and demographic features. Features that were considered in the route development process include, but are not limited to, existing linear infrastructure (i.e. railroads, pipelines, and electric power lines, roads); infrastructure and structures (e.g. buildings, wells, levees,); environmental (i.e. wetlands, waterbodies, protected habitats, floodplains), land use (e.g. land cover, conservation easements, land cover, state and national parks, national forests, and wildlife management areas; other Federal and state lands; other recreation lands and areas; easements); geological (e.g. slope, topography, depth bedrock, karst, fault lines/areas, landslide potential, peak ground acceleration; mines and mining activity), soils (series, soils categories, prime farmlands, hydric soils, and corrosivity) cultural (cemeteries, national register of historic places); and other (e.g. brownfield, superfund, and hazardous waste sites and landfills). Each of the data sets used in the GIS program is weighted, based on whether it represents characteristics desirable for a pipeline route or undesirable characteristics to be avoided. The GIS program also

takes into account the objective to minimize the overall length of the route, consistent with consideration of the other criteria and constraints (i.e. features to be avoided as described above).

71. The routing process includes an objective to minimize the overall length of the route, consistent with the goal of minimizing the collective impact of the Pipeline along its route. (Ex. N5, Direct, ¶ 8; Tr. at 747:12-21.) As required by the National Environmental Policy Act, routing must first try to avoid impacts, then minimize them, and finally mitigate them. (Tr. 8/2 at 192675:162 to 1927:3-14.) Navigator's routing process followed these principles. (*Id.* at 192775:617-920.)

72. As part of its routing process, Navigator held voluntary open-houses in Garretson and Flandreau, to which landowners within a quarter-mile of the centerline were invited. Navigator considered comments and questions from landowners as part of its routing process.

73. Navigator's routing process was appropriate and consistent with industry standards. (Tr. at 1928:3-6.)

74. Navigator filed updated maps dated May 25, 2023, showing the current route that is final subject to minor changes based on constructability issues or landowner requests that can be accommodated. (Ex. N1 at pp. 79-244.)

75. Based on the route shown in Ex. N1, the closest distance from the pipeline to municipal borders is as follows: Aurora, 1,050 feet; Egan, 1,130 feet; Canton, 2,850 feet; Valley Springs, 4,310 feet; and Brandon, 9,420 feet. (Ex. S1 at 14:19-27.)

76. Based on the route shown in Ex. N1, the distance in feet to the nearest school is 6,540 feet. (Ex. S1 at 14:29-31.)

77. Based on the route shown in Ex. N1, for Navigator's six-inch pipeline segments, there are two inhabitable structures within Navigator's initial routing buffer and five inhabitable

structures within Navigator's design and operations buffer. (Ex. N59.) For Navigator's eight-inch pipeline segments, there are four inhabitable structures within Navigator's initial routing buffer and five inhabitable structures within Navigator's design and operations buffer. (*Id.*) For these locations, Navigator will use appropriate mitigation measures to provide an equivalent level of safety. (Tr. at 999:19 to 1000:1.)

### **Design and engineering**

78. The Heartland Greenway Pipeline has been designed to meet or exceed the requirements of 49 C.F.R. Part 195. The ways in which the design exceeds federal regulation are listed in the PHMSA Exceedance Table. (Ex. N22.)

79. The Pipeline is designed with increased nominal wall thickness in excess of federal requirements, which are found at 49 C.F.R. § 195.106. For six-inch pipe, the wall thickness is 0.250 inches, which is a design factor of 0.49. For eight-inch pipe, the wall thickness is 0.277 inches, which is a design factor of 0.57. Federal regulation requires a design factor of 0.72, so Navigator's design exceeds federal requirements (a lower design factor is more strenuous). (Ex. N22.)

80. Navigator has designed the Pipeline to comply with the recommended industry practices identified in DNV-RP-F104, Design and Operations of CO2 Pipelines (Sept. 2021), which is a design standard promulgated by Det Norske Veritas ("DNV"). (Ex. N5, Direct, ¶ 12.) DNV is an international standards body based in Norway that has promulgated standards for offshore pipelines, on-shore pipelines, and CO2 pipelines. (Tr. at 1255:25 to 1256:21.) DNV also certifies whether pipelines comply with its standards. (*Id.* at 1262:20 to 1263:6.)

81. DNV-RP-F104 is an internationally acceptable standard specifically for the design and operation of a CO2 pipeline. (*Id.* at 1263:7-18.) The standard was admitted in evidence as a confidential document. (Ex. N10, Ex. B.)

82. Navigator commissioned DNV to review its design basis for the Heartland Greenway Pipeline, including safety philosophy, concept development and premise, material selection, and design, and to verify its compliance with sections 3 (safety philosophy), 4 (concept development and design premises), and 5 (materials and pipeline design) of DNV-RP-F104. (*Id.* at 1263:19 to 1264:3; Ex. N10 ¶ 6.) After its review, DNV certified that Navigator's design complies with sections 3, 4, and 5 of DNV-RP-F104. (Ex. N10 ¶¶ 13-14, Exs. C, D; Ex. N5, Rebuttal, ¶ 8, Ex. B.)

83. Navigator's conformance with DNV-RP-F104 as evidenced by DNV's third-party design verification reports exceeds PHMSA requirements. (Ex. N10 ¶ 17.)

84. Navigator has also asked PHMSA to conduct a design review, which is a service that Navigator would pay for that is provided in PHMSA's discretion under 49 U.S.C. § 60117(d) and 49 C.F.R. Part 190, Subpart E, §§ 190.401-411, for larger projects exceeding \$2.5 billion in capital investment. (Tr. 1132:12 to 1133:7; *id.* at 1813:24-1814:7.) Navigator's total project cost including the other states exceeds \$2.5 billion. (Ex. N20 § 1.6.)

85. Fracture propagation is a known issue with CO2 pipelines. To further analyze the known issue, Navigator retained DNV to assist with an extensive fracture propagation and ductility analysis to determine the required metallurgical properties for the proposed Pipeline system and will use crack arrestors, which is a redundant practice recognized as effective in preventing fracture propagation. (Ex. N22; Ex. N5, ¶ 8.) PHMSA's regulation on ductile

fracture propagation is a performance-based standard that William Byrd testified “work pretty well.” (Tr. at 1819:21 to 1820:4.)

86. Navigator developed an enhanced API 5L-PSL2 line pipe specification that exceeds 49 C.F.R. Part 195.112. (Ex. N22; Ex. N5 at ¶ 15.)

87. Navigator has worked with outside engineering firms in the design of the Pipeline, including DNV, Integrity Solutions Ltd, and LJA Engineering Inc., which has performed detailed engineering design of the pipe, mainline valve settings, and the launcher/receiver facilities. Navigator has separately retained Trimeric Corporation to provide additional quality and technical review of LJA’s engineering work. (Ex. N5, ¶ 32.)

88. Navigator will employ materials inspectors during the process of manufacturing the pipe. (Ex. N5, ¶¶ 15, 29.)

89. To ensure compliance with Navigator’s quality standards for CO<sub>2</sub>, which in part serve to protect the pipe from internal corrosion due to the presence of impurities, there will be automatic equipment at each capture facility that prevents any CO<sub>2</sub> not meeting the pipeline tariff quality standards from entering the pipeline. (Tr. at 716:4 to 717:3; 1060:21 to 1061:10.)

90. The Pipeline will employ cathodic protection to prevent external corrosion. (Ex. N6, ¶ 18.) A cathodic-protection system is a redundant mitigation system. (Tr. at 678:13-15.) The system will have several rectifiers and anode beds throughout. (*Id.* at 678:18-22.) The system is tested on a regular basis as required by PHMSA. (*Id.* at 678:23 to 679:4.)

91. The Pipeline will be coated before it is placed in the trench with Fusion Bonded Epoxy, which is effective in protecting the pipe from external corrosion. (Tr. at 1440:1-7.) The coating will be examined during handling and installation of the pipe. (Ex. N5 ¶ 18.)

92. Navigator worked with union representatives to qualify the welding specifications for the Pipeline, which included third-party observers and laboratory destructive testing to ensure compliance with the specifications. (Tr. At 1138:8 to 1139:1.)

93. Non-destructive testing will be performed on 100% of all field welds, which exceeds PHMSA's requirement of 10%. (Ex. N5, ¶ 18.)

94. To minimize the risk of third-party damage, the Pipeline will be buried with five feet of cover, which exceeds PHMSA requirements and is two-feet deeper than industry standard. (Ex. N5, ¶ 15; Ex. N22.) In addition, Navigator will install warning tape above the pipe to alert an operator during excavation to the pipeline's presence. (Ex. N5, Supplemental, ¶ 21; Ex. N6, Direct, ¶ 22.) The pipeline depth will be greater when it is installed using a bore or horizontal directional drilling. (Tr. at 1206:13-15.) Third-party excavation damage is the leading cause of pipeline damage. (Tr. at 600:12-14.)

95. Navigator will install remote-controlled and automatic mainline valves (MLV's) along the pipeline as a safety measure. The MLVs allow for prompt response and isolation of line segments in the unlikely event of an emergency or other abnormal operating condition. (Ex. N5, ¶ 25.) The MLV locations will be approximately 30 feet wide by 70 feet long and located within the permanent easement area. (*Id.*) The MLVs will be installed in locations that are accessible to authorized employees, protected from tampering, and consistent with 49 C.F.R. § 195.260. (*Id.*)

96. The spacing of mainline valves is determined based on 49 C.F.R. Part 195 CO2 dispersion modeling and accounts for HCAs, populated areas, environmentally sensitive areas, and unusually sensitive areas. (Ex. N5, Supplemental, ¶ 6; Tr. at 952:10 to 954:2.) Navigator has located 18 MLVs in South Dakota; additional valve placement may occur as a result of



Emergency Flow Restriction Device analysis, and additional review of HCA and ESA analysis. (Ex. N5, Supplemental Direct, ¶ 6; Tr. at 755:3 to 756:14; Ex. N64.) The valve placement is shown on Exhibit N42, which was admitted as a confidential document because it shows valve locations with HCA impact. (Ex. N42.) The valve spacing shown in Ex. N42 is on average around five miles within HCAs and outside HCAs is around 10 miles, which exceeds PHMSA requirements. (Tr. At 756:1-14.)

97. Staff’s consulting expert William Byrd testified that in his opinion the valve spacing he reviewed “seems to be more than adequate.” (Ex. S2 at 8:38 to 9:25.)

98. No expert witness testified at the hearing to any deficiencies or weaknesses in Navigator’s pipeline engineering and design, including the locations and spacing of MLVs.

99. All carbon steel pipelines share common characteristics that make them more alike than different with respect to design, engineering, and operations. Steve Lee testified that about 80% of the issues are consistent and transferable knowledge, while geographical differences account for 10%, and the product transported through the line is about the remaining 10%. (Tr. at 2968:10-22.) John Godfrey similarly testified that “steel doesn’t care what’s in it,” and there are no unique threats to a CO2 pipeline that would lead to a greater probability of failure other than internal corrosion due to impurities or the risk of ductile fracture. (Tr. At 1340:13 to 1341:4; *id.* at 1341:1-3; *id.* at 1341:3-4; *id.* at 1343:14-21.) He testified that impurities are not an issue with CO2 sources from ethanol plants and Navigator has accounted for the risk of ductile fractures. (*Id.*)

### **Environmental impacts and mitigation**

100. Tim Cowman, the State Geologist, reviewed relevant sections of Navigator’s Application and exhibits and concluded that there are no geological formations along the right-

of-way that pose a risk to pipeline stability. (Ex. S5 at 3:29-35; Tr. at 1912:7-15.) Cowman similarly testified that he was not aware of any geologic formations that would be a threat to the safety of the Pipeline if the route shifted slightly. (Tr. at 1921:22-24.)

101. Cowman also concluded that the Pipeline poses only a minimal threat to the Big Sioux Aquifer. (Tr. at 1913:4-10.)

102. Navigator retained Terracon to conduct a Phase 1 geohazard assessment of the Project route. (Ex. N58.) The assessment was completed and provided to Staff in discovery. (Ex. N5, ¶ 5.) A second phase study using field verification and additional due diligence will be done, which may include site specific assessments. (*Id.*) Navigator needs survey access to complete the assessment, which affected landowners to date have denied. (Tr. at 2966:3 to 2967:6.) Based on the Phase I assessment, Navigator knows that there are known mitigation methods for any geological hazard that may be encountered in South Dakota. (Tr. at 1193:21 to 1194:3.) The additional information that will be provided is more associated with construction techniques and Navigator will confirm appropriate installation techniques when the Phase II assessment is completed. (Tr. at 2967:7-11.)

103. Brian Sterner testified on behalf of Staff that he was concerned about the need to identify areas of steep slopes where the pipe might need to be anchored during construction. (Tr. at 2191:19 to 2192:20.) Steve Lee testified that there are no such areas of concern in South Dakota, and Navigator will construct using HDD anywhere the slope is over 35 degrees. (Tr. at 2967:12-22.) The State Geologist, whose testimony Sterner did not hear, confirmed that there are no geological formations along the Project route that pose a risk to pipeline stability. (Tr. at 2192:21-22; *id.* at 1912:7-15.) Sterner agreed that he had no reason to disagree with the opinions of the State Geologist. (Tr. at 2193:21-24.)

104. Staff Witness Sara Thronson testified that due to low risk of subsidence in the area of the proposed Pipeline route, Navigator has sufficiently addressed necessary mitigation measures. (Ex. S11, p. 3:68-70.)

105. Navigator will provide the results of the Phase II geohazard assessment to the Commission upon completion. (Tr. at 2967:23 to 2968:1.)

106. Sterner stated concerns about effects on aquatic resources, but agreed that if Navigator receives a permit from the U.S. Army Corps of Engineers, which also includes a water quality certificate from DANR, his concerns would be resolved. (Tr. at 2180:12 to 2181:7.)

107. Sterner testified that additional field surveys for wetlands delineation were necessary. (Tr. at 2184:21 to 2186:2.) He agreed that a wetland delineation report is required for U.S. Army Corps permitting, and that if Navigator obtains and complies with such permitting, it would address his concerns about wetlands delineation. (Tr. at 2186:8 to 2187:5.)

108. Monica Howard testified that Navigator is meeting with the U.S. Army Corps twice every month and has been meeting at least monthly since the inception of the project. (Tr. at 3189:9 to 3190:2.) Based on those meetings with the applicable district of the U.S. Army Corps, a formal delineation done on every feature that is crossed is not required. (Tr. at 3190:3-4.) The delineation is largely immaterial to the overall impact of the Project because the impacts are temporary and are a construction-related issue. (Tr. at 3190:3-25.) Navigator has not found unexpected wetlands through its field surveys, but has found the opposite, that certain areas hold water sometime during the year, but do not have the hydric conditions to support a wetland, meaning that areas that were mapped as wetlands are being removed from the mapping. (Tr. at 3191:1-10.)

109. The Project will not affect mineral resources in South Dakota. There are four construction aggregate sites within 0.25 miles of the Project area, but all four are reclaimed.

There are no oil and gas wells within 0.25 miles of the Project. (Ex. N5, Direct, ¶ 39.)

110. The Project is located in an area of low seismic probability with no faults within 100 miles of the Project area. Because of the low probability of seismic activity, soil liquefaction, which typically occurs when loose, saturated soil is subject to a seismic event, is unlikely. (Ex. N5, Direct, ¶ 41.)

111. Hilary Morey with the South Dakota Department of Game, Fish, & Parks (“SDGF&P”) testified on behalf of Staff that the Department had consulted with Navigator about Federal and state listed species that could be affected by the Project and provided a siting letter to Navigator, including recommendations to avoid and minimize impacts to wildlife. (Ex. S4 at 4-5.) Further consultation yielded a second siting letter in September 2022. (*Id.* at 5:9-13.) Morey testified that Navigator and SDGF&P collaborated to outline avoidance and mitigation measures for the Topeka Shiner and agreed that Navigator would use HDD for any stream crossings where Topeka Shiners could be present. (*Id.* at 15:1-5.) Morey also testified that the U.S. Fish and Wildlife Service has authority over the federally listed Topeka Shiner, so further mitigation measures would likely be outlined in the Biological Assessment. (*Id.*)

112. Morey also testified that Navigator and SDGF&P agreed to appropriate mitigation measures concerning the Lined Snake and recommended that they be memorialized in a permit condition. (*Id.* at 17-18; *id.* at 19:17-20.) She testified that the specific mitigation measures addressed in Monica Howard’s rebuttal testimony were agreed to. (*Id.* at 2828:1-6.) A report on the Lined Snake is in evidence as Ex. N54.

113. Navigator and SDGF&P have worked together to address access to walk-in hunting areas during construction; Navigator will provide 60-days' notice before construction affecting such areas. (Ex. S4 at 19:9-23; Tr. at 2828:7-10; Ex. N15, ¶ 19.)

114. Navigator worked with SDGF&P and USFWS to address acoustic bats and completed bat surveys on accessible parcels. (Ex. N15, ¶ 19.) Navigator is presuming presence of protected bats at unsurveyed locations, which is accounted for in the Biological Opinion. (*Id.*) A memo addressing bat impacts in South Dakota was provided to Staff in discovery. (*Id.*; Ex. N53.) Morey testified that presuming presence is a common practice and appropriate. (Tr. at 2837:19 to 2838:9.)

115. The Project affects a minimal area of native grasslands in South Dakota, 0.6 acres, some of which are near the Big Sioux River and Split Rock Creek. (Ex. N1 at 39, Table 6.5-1.) Navigator will use HDD at those locations to avoid disturbing native grasslands, which Morey agreed was appropriate. (Tr. at 2838:17 to 2839:24; *id.* at 3188:4-25.)

116. The Project route crosses 112.61 acres of vegetated land in South Dakota. (Ex. N1, at 39, Table 6.5-1.) Cultivated crops account for 98.98 acres. Pasture is 7.82 acres, and developed land is 4.05 acres. (*Id.*)

117. Navigator has consulted with the State Historic Preservation Office (“SHPO”) to address cultural resources that may be encountered during construction. The Project has been segmented, so certain areas of the Project require only federal permits under § 106 of the National Historic Preservation Act, while some sections are subject to SHPO review under SDCL § 1-19A-11.1. (Ex. S6 at 4:23-43.)

118. On March 21, 2022, SHPO received a letter and scope of work describing the proposed cultural resources survey of high probability areas and potential USCACE permit

areas. SHPO responded by letter dated March 28, 2022, and recommended certain additional methodologies for defining high probability areas. (Ex. S6 at 5:2-15.)

119. On February 10, 2023, Navigator submitted a Level III Cultural Resources Survey Report as part of its USACE permit; SHPO provided a letter on March 7, 2023, acknowledging receipt of report materials and requesting that Navigator submit results from the 2023 surveys. (Ex. N1, ¶ 8; Ex. S6 at 5:17-24.)

120. Navigator also provided a hard copy of the archaeological survey report prepared by Perennial Environmental, a contractor to Navigator. (Tr. at 2847:5-13.) The report contains the unanticipated discoveries plan, which incorporated edits and comments made by SHPO. (*Id.*; *id.* at 285:3-12.)

121. Jenna Carlson-Dietmeier, the Interim State Historic Preservation Officer, testified on behalf of Staff that based on her review Navigator has complied with SDCL § 1-19A-11.1 and to date has complied with all of her recommendations. (Tr. at 2848:23 to 2849:1; *id.* at 2852:13-17.)

122. Dr. Carlson-Dietmeier also testified that additional surveys needed for federal permitting will be completed when access is granted and the USACE will consult with SHPO as required under Section 106. (Tr. at 2849:4 to 2850:7; *id.* at 2851:13-17.) The additional cultural surveys will allow Navigator to decrease the number of areas where something might be encountered during construction, thus allowing avoidance in advance of construction. (Tr. at 3254:6-13.)

123. Dr. Carlson-Dietmeier agreed that use of an environmental inspection team during construction as outlined in the unanticipated discoveries plan is appropriate. (Tr. at 2852:4-6.)

124. Navigator has established a tribal engagement program, including the retention of its consultant Tribal Energy Resources, to engage with interested tribes on cultural resources. (Tr. at 3184:7-25.) Navigator established a list of potentially interested tribes, met initially with interested tribes, and now has a monthly meeting with participating tribes. (*Id.* at 3184:20 to 3185:9.) Interested tribes have been invited to accompany Navigator on its cultural surveys and to perform their own surveys. (*Id.* at 3185:6-14.)

125. As of the hearing, biological surveys were approximately 99% complete, and cultural surveys were between 80-85% complete. (Tr. at 2093:2-16.)

126. Navigator has completed all surveys where it has access to property that needs to be surveyed. In hopes of maintaining good relationships with landowners, Navigator has respected the objections of landowners who have refused survey permission despite the statutory right to survey granted by SDCL § 21-35-31. (Tr. at 3260:15 to 3261:25.) Since 2022, the Jorde Landowners have refused survey permission. (Tr. 3171:9 to 3172:4.)

127. Navigator has obtained signed easement options from 102 out of 300 landowners. (Tr. at 3171:9 to 3172:4.)

128. With respect to threatened and endangered species, additional surveys are not necessary because Navigator is presuming presence, which satisfies SDGF&P. (Tr. at 3254:14 to 3255:1; *id.* at 3258:16-18.) With respect to federally protected species, Navigator has completed surveys required by USFWS. (*Id.* at 3258:18-19.) With respect to wetlands and cultural resources, areas not surveyed can and will be avoided through installation methods. (*Id.* at 3258:20 to 3259:10.)

129. With respect to uncompleted geological surveys, Navigator does not object to the permit being conditioned on completion of necessary geological surveys and implementation of installation methods appropriate to the results of such surveys. (Tr. at 3259:19 to 3260:7.)

130. No additional survey work will affect the route, and any results can be accounted for by design, installation methods, or operational controls. (Tr. at 3262:5-14.)

131. The evidence establishes that Project impacts to wildlife, terrestrial resources, aquatic resources, and cultural resources will be minimal, temporary, and appropriately mitigated.

### **Risks and consequences of a leak**

132. The statistical probability of a leak or pipeline rupture is low. The probability of a failure resulting in a release of CO<sub>2</sub> from the pipeline based on PHMSA data is 0.0011 incidents per mile per year. (Ex. N40, ¶ 7-5.) The size of the release represented by the probability is 6,799 barrels. (*Id.*) By comparison, the amount of CO<sub>2</sub> released in the Satartia incident was approximately 31,000 barrels. (Ex. LO111 at 3.) Because Navigator's design, engineering and operations plans exceed federal and industry standards, and given the age of many of the pipelines represented in PHMSA's data, the statistical probability is conservative. (Tr. at 1080:8 to 1081:17.)

133. A worst-case scenario rupture of a CO<sub>2</sub> pipeline would result in a plume of CO<sub>2</sub> being released into the atmosphere. (Tr. at 718:20 to 719:3.) A white plume would likely be visible, depending on conditions. (Tr. at 752:14-22.) The CO<sub>2</sub> that is released undergoes a phase change from supercritical or liquid to gas, the time for which is affected by temperature, impurities, and pressure. (*Id.* at 719:4-21.) CO<sub>2</sub> is non-flammable, colorless, odorless, and heavier than air. (Ex. N5, ¶ 20; Tr. at 724:25 to 725:1.) CO<sub>2</sub> is mildly toxic; the symptoms from



exposure depend on a combination of concentrated CO<sub>2</sub> coupled with exposure time and range from no effects, mild to moderate respiratory stimulation, to asphyxiation. (*Id.*; Tr. at 725:2-7; *id.* at 728:20 to 729:8.) Carbon dioxide would passively release from the isolated pipeline segment until equalization and would continue to dissipate into the atmosphere. (*Id.*)

134. As part of its routing process, Navigator performed air-dispersion or plume modeling to determine where a plume from a worst-case pipeline rupture might travel and who could be affected. (Ex. N5, Rebuttal, ¶ 9.) Navigator's modeling is discussed in Exhibits N62 and N47A, both of which were admitted as confidential documents. (Exs. N62, N47A.)

135. Navigator is not aware of another company that has used plume modeling as part of its routing process. (Tr. at 746:12-20.)

136. The modeling was used to establish a tiered hazard approach to risk-ranking the potential impact to human health and safety from CO<sub>2</sub> releases. The hazard levels are based on emergency exposure limits which are expressed as a concentration or dose over time. These limits are based upon published information available from domestic and international agencies. (Ex. N47A.)

137. Navigator selected two models for its analysis. It retained Integrity Solutions to do modeling using ALOHA, which stands for Aerial Locations of Hazardous Atmospheres. (Tr. at 973:8-11.) Navigator chose ALOHA because it is widely used by first responders in the field. (Tr. at 980:22 to 981:1.) Navigator also retained DNV to do modeling using its proprietary PHAST program and chose PHAST in part because it was available through DNV and in part because the model had been validated through a real-world experiment in 2015 with empirical data and published research data and results. (Tr. at 981:2-10; *id.* at 981:16-24.)

138. John Godfrey and Matt Frazell both testified that Navigator used appropriate modeling as part of its routing analysis. Matt Frazell, a consulting expert for Staff, testified that the use of ALOHA and PHAST as part of Navigator’s routing analysis was appropriate because those programs are industry-best practices and widely accepted within the industry to do consequence analysis and dispersion modeling. (Tr. at 1951:11-19; *id.* at 1952:3-6.) John Godfrey, who is employed by DNV, the company employed by Navigator to do PHAST modeling, testified that Navigator’s use of ALOHA and PHAST was “a prudent approach.” (Tr. at 1266:23 to 1267:20.)

139. Frazell also testified that he was familiar with DNV’s validation of PHAST through its real-world experiment in 2015 at Spadeadam, the results of which were published and “well known.” (Tr. at 1952:7-19.)

140. Dr. John Abraham testified that modeling based on computational fluid dynamics, or CFD, is more accurate than the PHAST and ALOHA models and should have been used by Navigator. (Ex. LO90 at pp. 6-9.) Staff’s consulting expert William Byrd testified, however, that CFD modeling is more appropriate for site-specific and overland flow analysis, which is used to inform risk management decisions such as higher integrity pipe or enhanced emergency response, and is not normally used to determine a pipeline’s route. (Ex. S2 at 8:26-36.)

141. Dr. Abraham also testified that CFD modeling could be done for a representative flatland scenario with minimal terrain changes and that few if any locations would require site-specific modeling. (Ex. LO91 at 3:12-17.) Godfrey testified that for a representative flatland scenario, PHAST modeling would yield a similar result and accomplish the same thing because the power of CFD modeling comes from being able to model obstructions and terrain effects, so if that were not being done, there would be no advantage to using CFD modeling. (Tr. at

1291:17 to 1293:20.) Godfrey testified that CFD models have a time and a place, but that with respect to a large linear infrastructure project, it was appropriate to use PHAST modeling for a comprehensive analysis of the system, and to use CFD as a tool to refine the risk assessment when warranted. (Tr. at 1302:9 to 1304:15.)

142. Dr. Abraham testified that it would be unnecessary to do CFD modeling to calculate where a plume would go if there were no city nearby or no people who could be affected, and that “you don’t need to model every inch of a pipeline. You need to use your judgment and model situations that may cause harm to people.” (Tr. at 853:8-16.) “You do not need to use CFD everywhere.” (*Id.* at 854:10.)

143. Dr. Abraham has not done any CFD modeling for a proposed pipeline and has no experience in pipeline routing, design, or operation. (Tr. at 855:23 to 856:17.) He was not familiar with any specifics about DNV and has never worked with DNV. (*Id.* at 876:6-10.)

144. Dr. Abraham did not do any CFD modeling with respect to the Project even though he could have run a CFD model for the Project based on publicly available information and other information available in the docket. (Tr. at 880:3-6; *id.* at 909:23 to 910:24.)

145. Dr. Abraham’s testimony is insufficient to establish that Navigator’s plume modeling was inappropriate or unreliable.

146. Navigator has committed to use CFD modeling for site-specific analysis of location with elevated risk or elevated consequences and has contacted three companies with proven experience in modeling and pipeline systems for that purpose. (Tr. at 974:10-19; *id.* at 976:6-9, 14-15; *id.* at 977:9-10; *id.* at 978:13-24.) As explained in the air dispersion guidance document, Navigator will use its subsequent Emergency Flow Restricting Device Analysis and

the air-dispersion modeling already done to establish criteria for areas where the Pipeline could affect HCAs. (Ex. N47A ¶ 4.9.)

147. The Commission finds that Navigator's use of ALOHA and PHAST models was appropriate and reasonable.

148. For the modeling that was done, Navigator used a worst-case guillotine rupture of the pipe and maximum operating pressure for the release rate. (Tr. at 965:7-19; 1993:19-22; *id.* at 1994:2-4; Ex. N47A at 4.7.)

149. Matt Frazell testified that in his opinion, the release pressure at maximum operating pressure was adequate for the modeling and the distances yielded by the modeling seemed reasonable. (Tr. at 1994:10-16.)

150. No testimony in the record establishes that the results of Navigator's air dispersion modeling are not reasonable or reliable.

151. Based on the results of the modeling, Navigator selected the most conservative results for a guillotine rupture release for each line size and established a baseline design or initial-routing buffer distance for each pipe size that applies to residential structures and gathering places. (Ex. N62.) Navigator also established buffers for design and operations, emergency response, and public awareness. (*Id.*)

152. Navigator has discussed its plume modeling with local emergency responders as part of its emergency response training. (Tr. at 1375:24 to 1377:22.) In addition, Navigator created a map of the Pipeline route in South Dakota showing the Hazard Level II analysis, which has been publicly filed. (Ex. N68.)

153. A pipeline leak would not cause any long-term adverse effects to groundwater or drinking water. (Tr. at 3201:16 to 3202:2.)

154. Any CO2 release from the Pipeline could be remediated and would not cause any long-term environmental impact. (Tr. at 2583:22 to 2584:3.) Terry Florentz from DANR adopted the prefiled testimony of Jaquelyn McGuire, who stated in prefiled testimony that DANR has the resources necessary to oversee the assessment and cleanup of a CO2 release and that the Project does not place any additional burden on DANR's Inspection, Compliance, and Remediation Program. (Ex. S3 at 7:117-127.)

155. William Byrd testified that in his opinion, the Project should not pose a threat of serious injury to the environment nor to the social and economic condition of inhabitants or expected inhabitants of the siting area, and should not substantially impair the health, safety, or welfare of the inhabitants in the siting area. (Ex. S2 at 12:30-34.)

#### **The incident in Satartia, Mississippi**

156. The record contains PHMSA's report dated May 26, 2022, on the failure on the Denbury Gulf Coast Pipeline on February 22, 2020, in the vicinity of Satartia, Mississippi. (Ex. LO111.)

157. Because the Denbury pipeline was 24-inch diameter pipe, some of the effects of that incident could happen if there were a similar event in South Dakota, but some could not. (Tr. at 731:6-12.)

158. The cause of the rupture was soil movement that caused excessive axial loading on the pipe. (Tr. at 589:11-16.) PHMSA cited Denbury for failing to conduct a geohazard assessment of the landslide potential and risks along the route. (Ex. LO 111 at 3.)

159. PHMSA also cited Denbury for failing to reach out to emergency responders, who were unaware of the pipeline's existence in the county. (Tr. at 1286:10-23.)

160. Mark Hereth testified that one of the lessons learned in Satartia is that a pipeline operator needs to be in consistent contact with local emergency responders, which Denbury was not. (Tr. at 655:18-25.)

161. The plume that formed after the rupture was a green cloud that smelled like rotten eggs, indicating the existence of hydrogen sulfide (H<sub>2</sub>S). (Tr. at 1306:20 to 1307:22.) John Godfrey testified that Denbury was injecting H<sub>2</sub>S into the pipeline mixed with injected CO<sub>2</sub>. (*Id.*)

162. The existence of impurities in the pipeline affected the plume and how it travelled. (Tr. at 1329:16 to 1330:7.)

163. The existence of impurities in the pipeline also affected the health consequences from the rupture because the impurities were harmful in their own right. (Tr. at 1330:8-16.)

164. Navigator's pipeline will transport at minimum 98% pure CO<sub>2</sub>, which is very pure CO<sub>2</sub>, "benign," and "easy to manage." (Tr. at 1301:8-20.)

### **Construction and reclamation**

165. Navigator has prepared a detailed document addressing Environmental and Construction Guidance ("ECG") that describes standards for avoiding, minimizing, or mitigating impacts on stream and wetland ecosystems, wildlife habitat, cultural resources, and the human environment. (Ex. N19.) The ECG is intended to communicate Navigator's standards that enable compliance with federal, state, tribal, and local environmental protections, erosion control requirements, specifications, and practices. (*Id.*)

166. The ECG addresses use of environmental inspectors, spill prevention and remediation, dust management, weed management, waste management, noise-impact mitigation, unanticipated discoveries, preconstruction issues, right-of-way clearing, grading temporary

erosion control, trenching, trench dewatering, lowering-in, backfilling, soil decompaction, rock removal, restoration of preconstruction contour, hydrostatic testing, final grading, and restoration. (*Id.*) The ECG also addresses special pipeline construction procedures for agricultural areas, wetlands crossings, waterbody crossings, trenchless installation, difficult soils, steep terrain, and winter construction. (*Id.*) Navigator’s implementation of these procedures will avoid, minimize, or mitigate impacts due to construction.

167. Staff’s consulting witness Adam DiAntonio submitted prefiled testimony suggesting that additions be made to the ECG to address tuning and maintaining construction equipment, minimizing idling of construction equipment and vehicles, and using covers on trucks and equipment to control dust; these suggestions, all of which are related to air quality, were adopted in changes made to the ECG that is marked as Ex. N19. (Ex. N15, ¶ 21; Ex. S8, p. 3:83-90.)

168. Staff’s consulting witness Herbert Pirela, who adopted DiAntonio’s testimony, reviewed the ECG and found it “robust and complete” and consistent with best practices, and he recommended no changes. (Ex. S7, at p. 3:65-74, 76-83, 85-88.)

169. Navigator has prepared an Agricultural Protection Plan (Ex. N1, Supplemental, Ex. D), which supplements the ECG and addresses ways to avoid, mitigate, or minimize impacts to privately owned agricultural land. The plan addresses the use of agricultural inspectors, the construction sequence, points of contact with Navigator, and an array of mitigation measures, including the effects of construction on drain tile and repair or replacement of affected drain tile, separation from existing utilities, winter construction, topsoil stripping and segregation, rock removal, compaction, ingress and egress, temporary access roads, wet-weather construction, and procedures for determining construction-related damages. (Ex. N1, Ex. D.) On April 21, 2023,

Navigator submitted the Agricultural Protection Plan to the South Dakota Department of Agriculture and Natural Resources; DANR did not offer any suggested changes to the document. (Ex. N1, Supplemental, ¶ 7; Ex. N15, ¶ 18.) Navigator’s implementation of these procedures will avoid, minimize, or mitigate impacts to agricultural land due to construction.

170. Navigator has prepared a Weed Control Plan (Ex. N1, Ex. C) that was submitted to DANR for review and comments from DANR were incorporated into the final document. (Tr. at 2011:1-23.) Navigator’s implementation of these procedures will avoid, minimize, or mitigate impacts due to construction.

171. Navigator has prepared a draft Inadvertent Return Contingency Plan, which addresses ways to minimize the potential for an inadvertent return during horizontal directional drilling. (Ex. N15, ¶ 5 and Ex. B.) Navigator will require its contractor to provide project-specific Inadvertent Return Contingency Plans before construction begins. (*Id.*)

172. Navigator will use union labor for construction of the pipeline because union workers are highly trained, including via competency validations. (Tr. at 1139:6-17.) The unions also follow ethical standards to enhance safety. (*Id.* at 1139:18-23.)

173. A separation distance of approximately two feet will be kept between the pipe and existing infrastructure like district drainage and existing utilities. (Ex. N5, ¶ 31.) Clint Koehn of the South Dakota Rural Water Association (“SDRWA”) testified that four feet of separation would be appropriate for the rural water system crossings (Tr. at 1221:16 to 1222:5) and Navigator will work with them to develop a crossing agreement adhering to typical standards. It is standard industry practice to enter into crossing agreements and Koehn saw no reason the SDRWA and Navigator would not be able to work out agreements. (Tr. at 1228:1-5.)



Ted Smith similarly testified on behalf of the South Dakota Rural Electric Association that there is ample time before construction to reach an agreement on crossings. (Tr. at 1765:9-19.)

174. Sections 6.7 and 6.8 of the ECG address wet weather construction and Section 4.7.1 discusses decompaction. (Ex. N15, ¶ 26.) Navigator's third-party environmental inspector will work with the contractor and the landowner to determine when conditions are too wet for construction. (Tr. at 2209:8 to 2212:4.) Navigator has committed to having its ECG and Agricultural Protection Plans enforced by the inspectors, including wet-weather conditions. (Tr. at 3264:4-16.)

175. Navigator will use third-party inspectors during construction, including utility, welding, coating, safety, agricultural, and environmental inspectors. No inspector will be affiliated with Navigator, its affiliates, or the contractors. (Ex. N5, ¶ 13; Tr. at 2012:22 to 2013:20.) Navigator has agreed to comply with inspection protocols by the Commission through permit conditions. (*Id.*) Navigator's employment of third-party inspectors during construction and inspection protocols imposed by permit condition are in addition to the PHMSA inspectors who will also be present during construction. (Tr. at 622:13 to 623:5; Ex. S2 at 5:36-39; *id.* at 5:46 to 6:16.)

176. Navigator has addressed the repair and replacement of drain tile affected by construction in its ECG and Agricultural Protection Plan. (Ex. N19, § 5.1.3; Ex. N1, Ex. D, p. 21.) Two expert witnesses testified about drain tile repair. Richard McKean, an expert witness called by the Jorde Landowners, agreed that drain tile can be successfully repaired when it has been cut during pipeline construction.<sup>1</sup> (Tr. at 2514:1-6.) Steve Brandenburg, an expert witness

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<sup>1</sup> McKean is also a landowner with property along the Navigator route in Iowa. He is represented by Jorde in Iowa proceedings. (Tr. at 2498:16-25; *id.* at 2499:1.) He is opposed to the Project. (Tr. at 2499:2-4.)

called by Navigator, testified that he has worked to repair drain tile that is severed during pipeline construction, and that his company has successfully repaired drain tile in that context. (Ex. N14, ¶ 13.) Navigator has committed to returning as many times as necessary to repair drain tile that is damaged during construction. (Tr. at 3199:3-18.)

177. Before the pipeline is placed in service, it will be pressure-tested through a continuous eight-hour hydrotest at 125% Maximum Operating Pressure (“MOP”). (Ex, N5, ¶ 15.) The testing process involves pushing the water from one test section to the next, which is called cascading hydrotesting, and the water remains at ambient temperature during the testing. (Tr. at 2978:9-21.)

178. Where boring or horizontal directional drilling will be used at road crossings, railroad crossings, large waterbodies, or in other sensitive areas or areas with collateral resources, the Pipeline depth will be typically at least 10 feet for a bore and 25-50 feet for an HDD. (Ex. N5, ¶ 31.) When these methods are used for installation, additional measures will be taken to protect the pipe, including the application of an abrasion-resistant overcoat on top of the fusion-bonded epoxy coating of the pipe. (*Id.*)

179. Navigator will be required to acquire permits authorizing the crossing of county and township roads. These permits will typically require Navigator to restore roads to their pre-construction condition. If its construction equipment causes damage to county or township roads, Navigator will be responsible for the repair of those roads to pre-construction condition. Pursuant to SDCL § 49-41B-38, Navigator will be required to post a bond to ensure that any damage beyond normal wear to public roads, highway, bridges, or other related facilities will be adequately compensated. Staff Analyst Jon Thurber testified that Staff and Navigator have agreed that \$10 million is an appropriate bond amount and that the details related to timing of the

bond will depend on Navigator's construction schedule and may be addressed when Navigator seeks Commission approval of the bond before construction begins. (Tr. at 2884:15-25; *id.* at 2885:1-5.) Before the Commission will release a road bond, it will require that affected townships and counties report their satisfaction with the road work. (*Id.* at 2950:7-17.)

180. Navigator has not yet selected a contractor for the project, but will use a comprehensive pre-evaluation program for contractor selection that considers experience, previous projects in the region, labor and equipment resources, financial strength, safety record, and outstanding litigation. An official pre-qualification package will be finalized when all permits and agricultural considerations are identified. (Ex. N5, ¶ 35.)

181. The Commission finds that the procedures outlined in the ECG, the Agricultural Protection Plan, and as testified to during the hearing, together with the conditions regarding construction practices adopted by the Commission herein, will avoid, minimize, or mitigate impacts from construction of the Project to the environment and social and economic condition of inhabitants and expected inhabitants in the Project area.

182. Navigator will pay landowners for crop damages caused during construction as well as diminished crop yields following construction. (Ex. N60, ¶ 11.) Navigator's commitment to pay actual damages is unlimited in time. (Tr. at 3198:15 to 3199:2.)

183. Navigator will pay a landowner in advance for 250% of lost crop yields based on the assumption that crop production will be fully restored in five years. (Tr. at 1134:4-16.) If the actual crop loss exceeds 250% regardless of when, Navigator will pay the actual damages. (*Id.*) If the actual crop loss is less than 250%, the landowner is not required to refund any amount. (*Id.*)

184. Staff witness Herbert Pirela testified that Navigator's best management practices outlined in the ECG will minimize crop-yield loss. (Ex. S7, at p. 4:95-104.)

185. Pirela also testified that based on the pipeline operating temperatures, "changes of soils temperature by pipelines along the right-of-way is not an issue of concern." (Ex. S7, p. 5:175 to p. 6:185.) He concluded that "the overall effect on vegetation and crops associated with heat generated by the operation pipelines is not significant." (*Id.*, p.6:184-85.)

186. Steve Lee testified that based on studies he is familiar with and has relied on, the temperature gradient of the soil around the pipeline is affected within the first 12 inches, but there are negligible temperature effects greater than 12 inches above the top of the pipeline. (Tr. at 2974:4 to 2975:9; Ex. 23.)

187. Brian Sterner testified that he found an absence of evidence in the record on the effect of pipeline temperatures on soil biology; he testified that while pipeline operating temperatures would affect soil biology, he did not know the effects and any change in productivity could be positive or negative. (Tr. at 2203:13 to 2208:7.)

188. The record contains no evidence that normal pipeline operating temperatures will cause productivity issues or damage to crops.

### **Operations and maintenance**

189. The safety features of Navigator's operations are governed by 49 C.F.R. Part 195. Navigator will prepare and finalize before the Pipeline is placed in service an Operations Manual that will be routinely reviewed and updated throughout operation of the Pipeline. (Ex. N6, ¶ 9.)

190. Navigator's integrity management program will be overseen by PHMSA. (Ex. N6, ¶ 10.) As part of its program, Navigator will regularly evaluate all information about the Pipeline and its integrity threats, identify measures to address risks, and specify criteria for

remedial actions to address integrity concerns. (*Id.*) As William Byrd described PHMSA's integrity management regulations, it is not enough to build, operate, and maintain a pipeline to certain standards; an operator must prove that for certain pipeline segments, the pipeline is safe. (Tr. at 1329:11-24.) That process involves intrusive inspections, inline inspections, pressure testing, and physical inspections of pipe at certain locations based on anomalies discovered during operations or the pipeline's location with respect to "could affect" HCAs. (Tr. at 1830:13-21.) It is an ongoing process. (*Id.* at 1830:22-25.)

191. Navigator will use redundant systems and equipment to ensure that the MOP is not exceeded during operations, including a Supervisory Control and Data Acquisition (SCADA) system with control set points for all compression and pump equipment that are continuously monitored so that if any parameter at a set point detects conditions outside the set tolerance, the system can control the compression and pump equipment. (Ex. N5 ¶ 17.) Each pipeline segment and facility piping will have independent over-pressure devices that are calibrated to open at a set pressure that is at or below MOP for a controlled release of carbon dioxide to the atmosphere. (*Id.*)

192. Navigator's SCADA system and all pipeline operations will be monitored 24 hours per day, 7 days per week, 365 days per year, through a redundant and fully functional Operational Control Center ("OCC"), with a back-up OCC located in a different area of the country. (Ex. N6, ¶ 19.) The OCC will be staffed and monitored by at least two dedicated operators at all times. (*Id.*; Tr. at 1424:20 to 1425:13.)

193. The SCADA system will include a subsystem called the Computational Pipeline Monitoring System, which will analyze deviations of flow through the pipeline, improving the ability to identify leaks and other abnormal operating conditions. (Ex. N5, ¶ 26.)

194. In addition to remote control, local automated controls and manual overrides will be installed to enable field operators to control and operate the pipeline if remote communication fails. (Ex. N5, ¶ 26.)

195. The Pipeline includes multiple features that meet or exceed PHMSA requirements and industry standards to prevent or minimize leaks, including: (1) the installation of mainline isolation and control valves; (2) internal and external corrosion protection equipment and programs; (3) initial and ongoing integrity validation of the pipeline; and (4) the installation and use of a state-of-the-art leak detection system. (Ex. N5, Direct, ¶ 21.)

196. All mainline valves on the Pipeline will be remotely operated or have the capability to be remotely operated; none require a person to close. (Tr. at 960:4-8.) When an automatic or computerized valve shutoff is activated, the valve typically closes in “well within a minute.” (Tr. at 959:18-25.)

197. Navigator will use both continuous and non-continuous monitoring for leak detection. Non-continuous monitoring includes aerial patrol at a minimum of two times per month and use of an in-line inspection tool to validate pipeline integrity. (Ex. N5, ¶ 23.) The frequency of aerial patrols will be at least 26 times per year at intervals not to exceed three weeks, but ideally every 10 days, weather permitting, and will occur a minimum of two times per month. (Ex. N6, ¶ 20; Ex. N22.) In-line inspections to detect internal corrosion will occur more frequently than PHMSA requires (once every three years rather than every five) and will be done so that each pipeline segment is inspected without regard to the transitions between six- and eight-inch diameter pipe. (Ex N22; Tr. at 1439:13-25; Tr. at 1362:2-15.)

198. Continuous monitoring will consist of a variety of compensated mass balance, real-time transient modeling, negative pressure wave technology, fiber-optic sensing cables, and

strategically placed CO2 monitoring devices. The compensated mass balance monitors the mass that enters the pipeline to ensure that it is equal to the mass at the delivery facility. (Ex. N5, ¶ 23; Tr. at 1002:5-9.) Real-time transient models compare the theoretical flow rate and the actual flow rate to determine whether there is a differential. (Tr. at 1002:10-14.) The negative pressure wave technology sends a signal through the product on the inside of the pipeline and measures the return waves in the event of a leak or abnormal operation. (Ex. N5, ¶ 23; Tr. at 1002:15-20.)

199. Navigator is working with a third party, Rave, to develop an automatic alert system, currently called NAV911 (but likely to have a new name when implemented), that would notify by text and email subscribers, who could be landowners or anyone within the Pipeline footprint, of an emergency. (Tr. at 1420:1 to 1421:4.) If a situation triggering an initial alert escalates, the system would make a phone call to each subscriber seeking confirmation of receipt of the message. (*Id.* at 1420:22 to 1421:4.) A landowner's personal information would be kept confidential. (*Id.* at 1421:14-17.) As part of the development process, Navigator is working with counties that have emergency alert systems already in place. (*Id.* at 1421:19-24.)

200. Warning tape will be installed 24 inches above the pipeline where conventionally installed to avoid and minimize the potential for unintentional third-party damage. (Ex. N5, ¶ 21; Ex. N6, Direct, ¶ 22.)

201. Navigator will participate in the 811 Call Before You Dig program and public-awareness programs designed to prevent unintentional third-party damage. (Ex. N5, ¶ 21.) Navigator's public-awareness programs will extend five miles on both sides of the pipeline. (Tr. at 1377:12-18; *id.* at 1379:6-13.) Navigator will use a more targeted and risk-based approach to different types of excavators to make sure that when certain excavators make an 811 call,

someone from Navigator is present at the job site in an effort to prevent third-party damage. (Tr. at 628:25 to 629:15.)

202. Navigator's public-awareness program includes visibly marking the Pipeline as required by federal regulation with signs at road and highway crossings, navigable waterways, and other locations. (Ex. N6, Direct, ¶ 22.) The signs will include owner contact information and emergency information, including an emergency response 800 number. (*Id.*; Tr. at 1496:4-7.) Navigator uses a Carsonite fiberglass pipeline marker. (Tr. at 1497:14-22.) Navigator will regularly replace signs as necessary. (Tr. at 1436:14-18.)

203. Navigator will use fiber optic sensing cables where it is feasible. (Ex. N5, ¶ 23.) Steve Lee testified that it may be difficult or infeasible to place fiber optic cable in locations where the pipe is installed using a bore or HDD, but Navigator is still evaluating the ability to install at those locations. (Tr. at 1003:1-9.) The fiber optic cable uses acoustics to identify third-party activity or the acoustic signature of a CO<sub>2</sub> release. (Ex. N5, ¶ 23; Tr. at 1002:21-25.) Navigator's standard easement provides for the installation of fiber optic cable. (Ex. N60, p. 1.)

204. As part of its integrity management program, Navigator is identifying locations where site-specific dispersion and overland flow modeling is necessary. (Tr. at 1828:1-8; *id.* at 974:10-19.) Using an Emergency Flow Restriction Device assessment, Navigator will identify areas where site-specific modeling using CFD is warranted. (Ex. N5, Rebuttal, ¶ 17.) As William Byrd testified, this is an ongoing part of an operator's integrity management program and the site-specific modeling that will be done informs risk management decisions, not routing. (Ex. S2 at 8:11-36.)

205. Navigator is investigating use of an odorant in the CO<sub>2</sub> transported on the Pipeline. (Ex. N6, Supplemental, ¶ 3.) It is working with Penn State University to develop an



odorant that can be detected but that does not cause internal corrosion or other issues, including problems at the sequestration sites. (Tr. at 1470:19 to 1471:18.) Navigator is optimistic about the prospects for finding a workable odorant, but cannot recommend a condition requiring its use unless it is determined to be safe for pipeline operations. (*Id.* at 1471:20-25.)

206. Navigator's commitment is to have zero incidents and is training its personnel accordingly. (Tr. at 1438:3-9.)

207. During normal operations, Navigator will need very limited access to the permanent right-of-way on any landowner's property and it will follow common industry practice to provide notice between two weeks and two days before entering their property. (Tr. at 3182:11 to 3183:4.) Navigator will make a good-faith effort to contact all landowners before entering their property in nonemergency circumstances. (*Id.* at 3183:5-13.)

208. If the Pipeline is decommissioned in the future, Navigator will comply with applicable state or federal regulation at the time. (Ex. N5, Supplemental, ¶ 48.)

209. Most pipelines throughout the United States are abandoned in place, in part because no ground disturbance is required to remove the pipeline. (Tr. at 2980:13 to 2981:4.)

210. At least two landowners testified about decommissioned pipelines on their property. Neither expressed any concern about their continued presence after decommissioning. (Tr. at 1618; *id.* at 2551:15 to 2552:10.)

### **Emergency response**

211. Navigator will comply with 49 C.F.R. Part 195 with respect to its Emergency Response Plan ("ERP"). (Tr. at 1431:7-10.) It will exceed the regulations by having the plan completed at least 90-180 days before operations and will review the plan bi-annually, which exceeds the requirement that it be reviewed every 15 months. (Ex. N22.)

212. Navigator has completed a first draft of its ERP and submitted it to Staff in discovery at Staff's request. (Ex. N45.) The initial draft is a working document that will be completed through coordination with local emergency responders, culminating in a detailed document that will be several hundred pages long and filled with detailed information, including, for example, contact information for local officials and responders, driving directions to sites, how to respond to weather events, where there are locked gates that might obstruct access to the Pipeline. (Tr. at 1354:1-10; *id.* at 1359:17 to 1360:11; *id.* at 1491:15 to 1492:12.) Preparation of the plan requires collaboration with local responders. (Tr. at 1492:23 to 1493:1.)

213. Navigator's process for preparing an ERP and working with local emergency responders is described in Exhibit A attached to Vidal Rosa's Supplemental Prefiled Testimony, Exhibit N6. In general, the process includes conducting stakeholder and emergency responder CO2 training in Q1 2023; drafting the preliminary ERP; identifying and obtaining necessary resources to execute the preliminary plan after local/regional plans are compiled in Q1 to Q2 2024; setting up a process for local emergency responders to submit equipment requests; training on the NAV911 outcall system; hiring and training operations personnel to supplement regional first responders; performing drills to measure the effectiveness of the ERP before operations; and conducting annual drills upon in-service. (Ex. N6, Supplemental, Ex. A at 16.) Navigator's Emergency Management System is described in Exhibit N43.

214. Navigator first met with emergency responders and local county officials in South Dakota beginning in the summer of 2022. In 2023, Navigator conducted emergency/first responder CO2 training in South Dakota, which included the Director of County Development and Emergency Management for Brookings County; The City of White; Brookings County Ambulance; the Director of EMS, the Sheriff's Office, the 911 Dispatch Center, and the

Emergency Management Office in Lincoln County; the City of Hudson Fire Department; the Worthing Fire Department; the Tea Fire Department; Lennox Area Ambulance; the Lennox Fire Department; the Minnehaha County Director of EMS; the Minnehaha County Sheriff's Office; the Valley Springs Fire Department; the Moody County Director of EMS and the Sheriff's Office; the Colman Fire and Rescue Department; South Dakota Emergency Management; and the Flandreau Santee Sioux Tribe. (Ex. N6, Supplemental, Ex. A at 13-14; Tr. at 1450:7-23.)

215. The Training Overview that was used in South Dakota is in evidence as Exhibit B to Vidal Rosa's Supplemental Prefiled Testimony.

216. Navigator will again meet with emergency responders in South Dakota in October 2023. (Tr. at 1368:21-23.) Meetings with emergency responders will continue until operations begin and after. (*Id.* at 1444:9-15; *id.* at 1455:6-14.)

217. Vidal Rosa has 28 years of experience in pipeline operations, including a crude oil pipeline system in Oklahoma and Texas that Navigator operates today. (Tr. at 1353:6-9; *id.* at 1353:13-16.) He also has previous experience developing the ERP done for Navigator's crude-oil pipeline. (Tr. at 1443:10-17.)

218. As part of its emergency response work with local responders, Navigator will annually conduct unannounced drills involving local responders and grade its own personnel, control-room operators, and local responders on their performance. (Tr. at 1454:2 to 1455:14.)

219. Navigator has deployed an online tool that will allow local emergency responders to communicate about equipment they want to respond to an emergency related to the Pipeline and to request it from Navigator through a grant program. (Ex. N6, Supplemental, ¶ 6; Tr. 1465:12-3.) The communication with first responders about necessary equipment will be ongoing throughout the life of the Project. (Tr. at 1466:1-11.)

220. Navigator will station employees and contractors along the pipeline route to provide prompt responses for maintenance and repair issues. Navigator estimates that 80-100 full-time employees will be stationed along the entire Pipeline, with approximately 10-15 employees located in South Dakota. (Ex. N6, ¶ 21; Tr. at 1508:13-19.) Navigator is considering whether to locate field offices and intends to locate employees where they can timely respond to an incident. (Tr. at 1486:2 to 1487:5.) Navigator will cross-train its operations employees. (Tr. at 1487:6-17.) As part of its local operations employees, Navigator intends to hire a public-awareness employee and a damage-prevention employee. (Tr. at 1486:12-15.)

221. PHMSA has extensive experience and dedicated employees who will review Navigator's ERP. (Tr. at 597:8 to 598:2.)

222. Staff witness William Byrd testified that the Commission could reasonably rely on PHMSA's pipeline-specific expertise in reviewing emergency response plans. (Ex. S2, p. 11:7-22.)

### **Financial responsibility**

223. As provided in its standard easement, Navigator is financially responsible and agrees to hold harmless and indemnify landowners for any liability or damage resulting from Navigator's use of the easement, except to the extent that the damage may be caused by the negligence or willful acts of the landowner. (Ex. N60, ¶ 12.) At the hearing, Navigator agreed that it has no objection to a permit condition that would make it financially responsible for any loss or damage except that caused by a landowner's gross negligence or willful misconduct. (Tr. at 9-17.)

224. As provided in the easement form, Navigator will maintain insurance, including workers' compensation and employer's liability insurance, commercial general liability and

umbrella liability insurance, and business auto and umbrella liability insurance. (Ex. N60, ¶ 13.) Navigator has already talked to its insurance broker about naming landowners as additional insureds on its policies and is willing to consider that upon request. (Tr. at 241:20 to 242:7; *id.* at 243:4-11.)

225. Navigator agreed at the hearing that it was willing to ask its insurer for a waiver of subrogation against any landowner as part of its policies. (Tr. at 2962:18 to 2964:8.)

226. A standard farm liability insurance policy protects a landowner from negligent actions, so if a landowner negligently caused damage to the pipeline on his or her property, such damage would be covered by the policy. (Tr. at 2425:13 to 2426:21.) Damage due to a release of CO2 from the pipeline would typically be excluded from coverage by a pollution exclusion clause. (Tr. at 2428:14-22.) Pollution coverage is available for purchase by landowners should any choose. (Tr. at 2425:12-23.)

### **Economic impacts**

227. The Project will bring jobs, both temporary and permanent, to South Dakota and specifically to the areas of construction and operation. Navigator estimates that approximately 600 to 1,000 workers will be used on the two construction spreads that originate in South Dakota and terminate in Iowa. (Ex. N5, ¶ 38.) Navigator estimates that between 10-15 permanent employees will be located in South Dakota for operations. (Tr. at 1508:13-19.)

228. The project will have a significant and positive impact on South Dakota's economy. Jon Muller performed an economic analysis for Navigator that addressed only Phase One of Navigator's Project in South Dakota. (Ex. N4, Amended Direct, Exhibit A.) His study is based on a model developed by Regional Economic Models, Inc. (REMI), which is peer-

reviewed, widely used by universities, and generally relied on for public-policy use. (Tr. at 439:18-23.)

229. Based on a capital investment in South Dakota of \$142 million, the study yielded total dynamic peak employment in 2024 of 1,020 jobs and average employment during the four-year construction period of 430 jobs. Average annualized wages during this period were estimated to be \$54,300, and total dynamic economic output was estimated to be \$202 million in the peak year. (Ex. N4, Amended Direct, ¶ 7.)

230. Muller's study estimated that ongoing operations and maintenance was expected to be approximately \$5.9 million per year, with 10 people employed in South Dakota. (*Id.* ¶ 8.)

231. Muller's study estimated that the State would receive approximately \$3.0 million annually in ad valorem property taxes. (*Id.* ¶ 9.) The study also estimated that the State would receive \$3.6 million from sales and gross receipts taxes in 2024, and in later years the amount would decline to \$1.4 million per year by 2030. (*Id.*)

232. The study concludes that the positive economic benefits from the Project are material. (Ex. N4, Supplemental, Ex. A at p. 19.)

233. Dr. Jared McEntaffer from the Dakota Institute was commissioned by the South Dakota Ethanol Producers to study the economic impact of both Navigator's Project and the proposed Summit Carbon Solutions pipeline in South Dakota and Iowa. (Ex. N8, ¶ 5.) McEntaffer also used the REMI model for the study he performed. (*Id.* ¶ 8.)

234. The Dakota Institute study showed substantial economic benefits from the projects due to property tax payments, other state and local tax payments, increases in state GDP due to construction spending and ongoing operations spending, and new jobs. (*Id.* ¶ 9.)

235. The Dakota Institute study also concluded that the projects would increase the corn basis by nearly \$0.19 per bushel after five years in response to an estimated 15% increase in ethanol production. (*Id.* ¶ 13.)

236. Valero is currently paying farmers who employ sustainable farming practices a premium price and will continue that as long as Valero can get its fuel certified in markets that recognize those practices. (Tr. at 2743:15 to 2744:3.)

237. Staff did not retain a witness to do any economic modeling addressing the effects of the Project.

#### **Effects on existing and future land uses**

238. The dominant land use crossed by the Pipeline is agricultural land. (Ex. N20 § 6.8.4, p. 51 (95.7% of land uses impacted by the Project are used for agriculture); Ex. N1, Table 6.3-1 at p. 36.)

239. In determining the Pipeline route, Navigator considered publicly available data from the counties about future growth plans. (Tr. at 3173:17 to 3174:16.)

240. Hazardous liquid pipelines do not impair future growth. In many areas, high-value residential suburban neighborhoods grow up around hazardous liquid pipelines. (Tr. at 3169:12 to 3170:13.) This is evident in Minnehaha and Lincoln Counties, where two refined products pipelines transit property where the Empire Mall is located, and Costco is adjacent to the NuStar pipeline terminal, which is served by refined products pipelines. (Tr. at 1557:11 to 1558:6.) The refined products pipelines transit the Prairie Tree Subdivision in Sioux Falls, which Karla Lems testified was “a very nice development.” (Tr. at 1558:17 to 1559:1.)

241. Minnehaha and Lincoln Counties have both created housing eligibilities through their respective zoning ordinances. Brookings, Moody, and Turner Counties do not have housing eligibilities.

242. In both counties where there are housing eligibilities, one housing eligibility of one acre is allowed on a quarter-quarter section (40-acre parcel). The housing eligibility is floating, meaning that the landowner can locate it anywhere on the 40 acres. To locate and use the eligibility, a landowner must obtain a conditional use permit from the county, and obtain a building permit. 1990 Revised Minnehaha County Zoning Ordinance ¶ 3.03 (A), (H); ¶ 3.04(D); 2009 Lincoln County Zoning Ordinance ¶ 3.02(B)(1). The County must also grant approval for access onto a public road. (*Id.*)

243. A housing eligibility may be moved to a contiguous parcel under the same ownership. 2009 Lincoln County Zoning Ordinance ¶ 3.03(A), (E); *id.* ¶ 3.04(Z)(1); Minnehaha County Zoning Ordinance ¶ 3.04(Y)(1).

244. Both the Minnehaha and Lincoln County ordinances recite that the purpose of the eligibilities is to preserve the rural character of the land. The Minnehaha County Zoning Ordinance states with respect to the A-1 Agricultural District: “It shall be the intent of this district to provide for a vigorous agricultural industry by preserving for agricultural production those agricultural lands beyond areas of planned urban development. It is recognized that because of the nature of both agricultural activities and residential subdivisions, that these two uses are generally poor neighbors and therefore a concentration of housing in the A-1 Agricultural District shall be discouraged.” (1990 Zoning Ordinance, ¶ 3.00 A-1 Agricultural district.) The Lincoln County Zoning Ordinance provides: “It shall be the intent of this district to provide for a vigorous agricultural industry by preserving for agricultural production those



agricultural lands beyond areas of planned urban development. It is recognized that because of the nature of both agricultural activities and residential subdivisions, that these two uses are generally poor neighbors and therefore a concentration of housing in the A-1 Agricultural District shall be discouraged.” (2009 Lincoln County Zoning Ordinance ¶ 3.01.)

245. Housing eligibilities in Minnehaha and Lincoln Counties are not intended to promote residential living in the agricultural zoning districts.

246. The Lincoln County zoning ordinance provides that before a building permit may be issued for any new single-family residence located in the A-1 Agricultural District, a “Right to Farm Covenant” must be filed with the Register of Deeds. (2009 Lincoln County Zoning Ordinance ¶ 3.01(B)(1)(e).)

247. If a certain number of housing eligibilities are aggregated, then a landowner must comply with the county’s subdivision ordinance, which requires internal roads, water, and sewer.

248. Navigator has negotiated with landowners and compensated them for claims that the location of the Pipeline has impaired the value of their land because of the existence of a housing eligibility. (Tr. at 3170:20 to 3171:3.)

249. The landowners who testified about housing eligibilities did not testify that they had specific plans or had obtained conditional use permits from the county. (*See, e.g.*, Tr. at 1567:10-19.) Rather, they offered general testimony that because the pipeline will be located somewhere on their property, it will impair their housing eligibility anywhere on the property.

250. The 50-foot permanent right-of-way for the Pipeline does not preclude normal farming practices. (Ex. N20, ¶ 6.8.3; Ex. N5, ¶ 46.) Farmers may continue to farm croplands or graze livestock or continue other uses of pasture land. (*Id.*)

251. With five feet of cover, the pipeline is designed to support up to 80,000 pounds. (Tr. at 2998:7-10; *id.* at 2998:25 to 2999:10.)

252. If a landowner has particularly heavy equipment that will cross the permanent right-of-way, PHMSA regulations require that Navigator address all external loads, so Navigator must consider that in its design and make further adjustments if necessary. (Tr. at 3016:22 to 3018:4; *id.* at 2979:4-18.)

253. Other than the 18 valve sites located within the permanent right-of-way, the only other above-ground use in South Dakota is the launcher-receiver site.

254. Navigator offered in evidence six studies for the proposition that agricultural land values are not significantly influenced by the presence of a hazardous liquids pipeline. (Ex. S14 at pp. 424-841.) Monica Howard testified that these studies are consistent with her experience, including as a land manager for other pipeline companies. (Tr. at 3167:19-5; *id.* at 3169:4-13.) Steve Lee similarly testified that in his experience the presence of a hazardous liquids pipeline does not influence the value of agricultural land. (Tr. at 1195:16-12; Ex N5, Supplemental, ¶ 46.)

255. Jon Muller testified that in his opinion land values will probably improve as a result of the project. (Tr. at 407:10-15.) His opinion is based in part on paired-sales studies showing that the presence of a pipeline does not affect property values. (Tr. at 408:7-12.)

#### **Other impacts**

256. The Project will not displace any homes. (Ex. N20, § 6.8.2.)

257. The Project does not cross any federal, state, or local parks, recreation areas, or wildlife management areas within South Dakota. No designated natural or scenic areas were identified along the route. (Ex. N20, § 6.8.3.)

258. Air quality impacts are largely limited to air emissions during construction of the pipeline, and Navigator will comply with all applicable federal and state air quality regulations. (Ex. N20, § 6.11.) Staff witness Adam DiAntonio testified that based on his review, Navigator will comply with all applicable air quality standards and regulations (Ex. S8, p. 3:48-57) and that no air-quality permits are needed. (*Id.*, p. 4:99-103.)

259. Most non-local Project workers will use temporary housing, like rental units, hotels, motels, campgrounds, and recreational-vehicles parks during construction. (Ex. N5, Supplemental, ¶ 43.) In the counties crossed by the Project route, there are approximately 2,500 available rental units, 4,700 motel rooms, and 54 recreational vehicle parks within approximately 10-40 miles of the Pipeline route. (*Id.*)

260. Before construction, Navigator's contractors must have health and safety plans in place that will include communication and coordination with local healthcare facilities. (Ex. N5, Supplemental, ¶ 44.)

261. Navigator is working with local electric providers to provide power for the capture facilities and will enter into appropriate agreements to ensure that safe and reliable power is provided without any negative consequences for the grid. (Ex. N5, Supplemental, ¶ 44.)

262. With respect to solid waste management, during construction there will be non-hazardous pipeline construction wastes including human waste, general refuse, pipe banding and spacers, waste from coating products, welding rods and blast media, timber skids, cleared vegetation, and other miscellaneous construction debris. Trash will be removed daily from the construction right-of-way. All waste materials will be disposed of at local licensed waste disposal facilities, in compliance with state and federal regulation. (Ex. N5, Supplemental, ¶ 44.)

263. During construction, traffic on highways and secondary roads will increase. Hauling pipe and most construction equipment will fall within existing state road and bridge weight limits, but Navigator will obtain any necessary temporary permits for heavier loads. (Ex. N5, Supplemental, ¶ 46.)

264. The Project will not include pump or booster facilities in South Dakota, so all impacts on noise will be temporary and associated with construction operations. If construction must occur between the hours of 7:00 p.m. and 7:00 a.m., any noise impacts on neighboring residences will be mitigated by offering residents alternative temporary accommodation. (Ex. N20, § 7.8.) Staff Witness Alissa Ingham testified that this was a reasonable mitigation measure. (Ex. S12, p. 3:181 to p.6:187).

265. The Project will have minimal effects in the areas of housing, sewer and water, solid waste management, transportation, health services, schools, recreation, public safety, noise, and visual impacts.

#### **Views of local units of government**

266. Brookings County intervened in the docket, but did not participate in discovery or the evidentiary hearing. Brookings County has not filed any public comment in the docket. Since the Application was filed, Brookings County has not adopted an ordinance for the purpose of regulating the Project.

267. Turner County did not intervene in the docket and has not participated in discovery or the evidentiary hearing. Turner County has not filed any public comment in the docket. Since the application was filed, Turner County has not adopted an ordinance for the purpose of regulating the Project.

268. Lincoln County intervened in the docket, but did not participate in discovery or the evidentiary hearing. Lincoln County has not filed any public comment in the docket. Since the Application was filed, Lincoln County has not adopted an ordinance for the purpose of regulating the Project, although the Lincoln County Planning and Zoning Board approved two such ordinances.

269. Minnehaha County did not intervene in the docket until after Navigator filed a motion under SDCL § 49-41B-28 asking that the Commission preempt an ordinance adopted by Minnehaha County on June 6, 2023. Minnehaha County sought and was granted leave to intervene for the limited purpose of responding to Navigator’s preemption motion. Minnehaha County attended the evidentiary hearing on July 27, 2023, and its counsel cross-examined one witness, but it did not otherwise participate in the evidentiary hearing.

270. On March 22, 2023, Minnehaha County filed a letter in the docket dated March 22, 2023, and signed by Jean Bender, the Chair of the Minnehaha County Board of Commissioners. The letter states that the Commission “remain[s] concerned about carbon dioxide transmission pipelines,” and it encourages the Commission consider how the project would affect county emergency response plans. The letter reserves the right to regulate aspects of the pipeline consistent with state and federal law, suggests that the Commission consider an appropriate “exit strategy” if the pipeline ceases operation, and advocates that landowners be held harmless from all damages that might arise from operation of the pipeline.

271. On June 6, 2023, Minnehaha County approved Ordinance MC16-179-23. The Ordinance requires that any person who has filed an application with the Commission must give notice to the County of the filing, must provide the County with routing information, a map and list of all affected property owners, a set of plans and specifications of the pipeline, and copies of

the emergency response and hazard mitigation plans required by PHMSA. The ordinance establishes separation criteria, including 330 feet from dwellings, churches, and businesses measured “from the center line of the proposed pipeline to the closest parcel boundary of a use.” The ordinance provides that a property owner may grant a waiver of the minimum setback distance. If the County in its discretion requires the applicant to seek a conditional use permit, the applicant must submit a fee of \$25,000. If a conditional use is granted, the applicant must pay an annual fee to the county of \$300 per linear mile of pipeline within the county.

272. Moody County intervened in the docket but did not participate in the evidentiary hearing other than to respond to Navigator’s preemption motion. Moody County adopted an ordinance on June 26, 2023, that would regulate the Project. The ordinance would require any pipeline facility that must obtain a siting permit from the Commission under SDCL Ch. 49-41B to obtain a conditional use permit from Moody County. A conditional use permit cannot be granted unless the pipeline meets a number of standards, including a minimum setback of 1,500 feet from cautionary uses, including schools, daycares, churches, dwellings, and manufactured homes. Affected property owners may grant a waiver, which allows, but does not require, the County Board of Adjustment to allow the separation distances to be less than that established by the Ordinance; the matter is discretionary. The Ordinance also requires that an applicant obtain all required easements from landowners before applying for a conditional use permit for the express purpose of ensuring that landowners voluntarily agree with the easement. (Tr. 8/25 at 241:14-17.)

273. Navigator has asked the Commission to preempt both ordinances under SDCL § 49-41B-22 as unreasonably restrictive as to its proposed route before the Commission. Two days

of hearing on that issue were held August 24-25, 2023. Navigator will submit supplemental findings related to the ordinances on September 4, 2023.

### **General findings**

274. Navigator has provided all information required by ARSD Chapter 20:10:22 and SDCL Ch. 49-41B.

275. The conditions attached as Exhibit A and incorporated by reference are supported by the record, are reasonable, and will help ensure that the Project will meet the standards established for approval of a construction permit for the Project set forth in SDCL § 49-41B-22 and should therefore be adopted.

276. Subject to the Conditions attached as Exhibit A, the Project will: (i) comply with all applicable laws and rules; (ii) not pose an unacceptable threat of serious injury to the environment nor to the social and economic condition of inhabitants or expected inhabitants in the siting area; (iii) not substantially impair the health, safety, or welfare of the inhabitants or expected inhabitants in the siting area; and (iv) not unduly interfere with the orderly development of the region with due consideration having been given the views of governing bodies of affected local units of government.

277. The Commission finds that a permit to construct the Project should be granted subject to the Conditions set forth in Exhibit A.

278. To the extent that any Conclusion of Law set forth below is more appropriately a Finding of Fact, that Conclusion of Law is incorporated by reference as a Finding of Fact.

### **Conclusions of Law**

1. The Commission has jurisdiction over the subject matter and parties to this proceeding under SDCL Ch. 49-41B and ARSD Ch. 20:10:22. Based on the findings made on

the four elements of Navigator's burden of proof under SDCL § 49-41B-22, the Commission has authority to grant, deny, or grant upon reasonable terms, conditions or modifications, a permit for the construction, operation, and maintenance of the Navigator Heartland Greenway Pipeline in South Dakota.

2. Under SDCL § 49-41B-2.1, a transmission facility includes a gas or liquid transmission line and associated facilities for the transportation of carbon dioxide. The Navigator Heartland Greenway Pipeline is a transmission facility based on this definition.

3. The carbon-capture facilities at each plant are not within the definition of a transmission line under SDCL § 49-41B-2.1 and are therefore outside the Commission's siting jurisdiction under SDCL Ch. 49-41B.

4. Navigator's permit Application, as amended and supplemented through the proceedings in this docket, including the updated attachments to the application, comply with the applicable requirements of SDCL Ch. 49-41B and ARSD Chapter 20:10:22.

5. The standard of proof is by a preponderance of the evidence. Navigator has met its burden of proof under SDCL § 49-41B-22 and is entitled to a permit as provided in SDCL § 49-41B-25.

6. Based on SDCL § 49-41B-33, the Commission has the authority to revoke or suspend any permit granted under SDCL Ch. 49-41B for failure to comply with the terms and conditions of the permit. Any transfer of the permit must, as required by SDCL § 49-41B-29, be approved by the Commission.

7. PHMSA is delegated exclusive authority over the establishment and enforcement of safety-oriented design and operational standards for hazardous materials pipelines, including the Navigator Heartland Greenway Pipeline. 49 U.S.C. § 60101, et seq.



8. Based on SDCL § 49-41B-36, the Commission lacks the authority to compel Navigator to select a different route for the Pipeline or to base its decision on whether to grant or deny a permit on whether the selected route is the route the Commission might itself select.

9. The Commission does not have jurisdiction over matters involving eminent domain or the amount of compensation paid to a landowner for an easement or damages.

10. The Commission does not have jurisdiction to determine whether Navigator is a common carrier for purposes of exercising the right of eminent domain.

11. The Commission needs no other information to assess the impact of the proposed facility or to determine if Navigator has met its burden of proof.

12. Under SDCL § 49-41B-25, the Commission has the authority to impose conditions on the construction, operation, and maintenance of the Project. The Conditions set forth in Exhibit A are supported by the record, reasonable, and will help ensure that the Project will meet the standards established by SDCL § 49-41B-22 for approval of a permit.

13. Landowners who did not receive timely notice under SDCL § 49-41B-5.2 were not substantially prejudiced because after recurring notice, they were able to intervene and participate in the docket, many had actual notice, and they could also offer public comment. *See* SDCL § 1-26-36.

14. To the extent that any Finding of Fact set forth above is more appropriately a Conclusion of Law, that Finding of Fact is incorporated by reference as a Conclusion of Law.

Dated this 29th day of August, 2023.

WOODS, FULLER, SHULTZ & SMITH P.C.

By /s/ James E. Moore

James E. Moore

Melanie L. Carpenter

P.O. Box 5027

300 South Phillips Avenue, Suite 300

Sioux Falls, SD 57117-5027

Phone (605) 336-3890

Fax (605) 339-3357

[James.Moore@woodsfuller.com](mailto:James.Moore@woodsfuller.com)

[Melanie.Carpenter@woodsfuller.com](mailto:Melanie.Carpenter@woodsfuller.com)

*Attorney for Navigator Heartland Greenway*