BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA

IN THE MATTER OF THE APPLICATION BY SCS CARBON TRANSPORT LLC FOR A PERMIT TO CONSTRUCT A CARBON DIOXIDE TRANSMISSION PIPELINE

DOCKET NO. HP22-001

Direct Testimony of Jaron Condley
On Behalf of the Staff of the South Dakota Public Utilities Commission
June 23, 2023

Q: Please state your name and business address.

A: Name: Jaron Condley
Business address: 414 E. Clark St, Akeley-Lawrence Science Center, Vermillion, SD

Q: Describe your educational background.

A: I received a Bachelor of Science degree in Geology from Arkansas Tech University in 2016. I have two years of graduate level Geology and Hydrology courses from University of Arkansas.

Q: By whom are you now employed?

A: I am employed by the Geological Survey Program in the South Dakota Department of Agriculture and Natural Resources. We are also referred to as the South Dakota Geological Survey.

Q: What work experience have you had that is relevant to your involvement on this project?

A: Conducting hydrogeologic studies on aquifers in eastern South Dakota;

Mapping bedrock, surface geology, and ground water resources in eastern South Dakota;

Water quality assessments of ground water and surface water in eastern South Dakota;

Project coordination and management for the Big Sioux Water Quality Impact Study.

Q: What Professional Credentials do you hold?

A: I have been investigating and mapping surface geology, bedrock geology, and ground water resources in South Dakota for five years. I have conducted these studies in several counties across eastern South Dakota to determine characteristics of ground water movement, aquifer recharge rates, contaminate transport, water quality, subsurface geology, and surface geology. I am currently an Environmental Scientist II within the South Dakota Geological Survey. I plan and direct the activities for county-wide geologic/hydrogeologic studies, as well as for the Big Sioux Water Quality Impact Study. These projects listed provide information to regulators, planners, and engineers at the federal, state, and local

levels to assist them in making informed decisions regarding the development and protection of the State's natural resources.

Q: On whose behalf was this testimony prepared?

A: I prepared this testimony on behalf of the Staff of the South Dakota Public Utilities Commission.

Q: Have you reviewed Section 5.1 of the Application for Summit Carbon Solutions Pipeline (Project)?

A: Yes.

Q: To the best of your knowledge, does Section 5.1 of the Application properly summarize the geologic formations to be crossed by the Project?

A: For the most part. The discussion in section 5.1 adequately describes the glacial sediment having considerable thickness overlying the bedrock geologic formations, which in turn provides low risk for any mass movement processes at the depth to which the pipeline will be installed. This section cites that, "Karst in the area is described as having fissures, tubes, and caves less than 1000 feet long and 50 feet or less vertical extent…", and there is no known karst topography along the proposed pipeline route. The Niobrara Formation is the formation that is cited in the application as having karst features, but the Niobrara Formation is greater than 50 feet deep across the proposed pipeline route. There wouldn't be any expected karst features or karst topography impacting the pipeline. Other than the karst discussion, SCS adequately describes the geology for the purpose of a shallow pipeline installation.

Q: Does the Project cross any geologic formations that may pose a risk to the pipeline? Please explain.

A: I am not aware of any geologic formations crossed by the pipeline route that would pose a risk to the pipeline stability. The pipeline crosses areas in Beadle, Spink, Hand, Brown, Edmunds, and McPherson Counties where the Pierre Shale is less than 25 feet from the surface, which could potentially have some slumping occurring if the pipeline was installed on slopes where the Pierre Shale is outcropping. The majority of the pipeline route crosses stable glacial sediments and alluvial deposits.

Q: Have you reviewed Section 5.2 of the Application for the Project?

A: Yes.

Q: To the best of your knowledge, does Section 5.2 of the Application properly summarize the hydrology in the Project area?

A: No. Section 6.2 leaves out several major surficial aquifers that the proposed pipeline route crosses; including the Vermillion East Fork, North Skunk Creek, Elm, and the Highmore-Blunt aquifers. SCS does list the Spring Creek aquifer and the Big Sioux aquifer as two of their major aquifers encountered in the pipeline route, but they also list the Dakota and Niobrara Formations, which are buried under significant low-permeability glacial sediments and shouldn't be listed as aquifers crossed by the pipeline route. Section 6.2 also states that most aquifers are more than 50 feet deep in the proposed pipeline route, which is simply not the case. The Vermillion East Fork, North Skunk Creek, Elm, Highmore-Blunt, Spring Creek, and Big Sioux aquifers are all surficial aquifers that are at or very near land surface. Another issue is seen on page 43 of the application. The application states, "The Project crosses portions of 18 counties and several aquifer systems consisting of the same unconsolidated material, sand, gravel, and a portion of the Sioux Quartzite in Lake County.". There is no Sioux Quartzite in Lake County that is at or near land surface, and the proposed pipeline route is near several SDGS test holes that indicate the Sioux Quartzite ranges from 216 feet to over 740 feet below land surface.

Q: Should the Commission be concerned about any aquifers or shallow aquifers that the Project will cross? Please explain.

A: The Vermillion East Fork, North Skunk Creek, Elm, and Big Sioux aquifers are sources of drinking water for public water supply systems. However, if the pipeline is constructed and operated properly it will minimize the potential risks to these aquifers.

Q: Did you provide any recommendations to Summit Carbon Solutions during route development?

A: No.

Q: Does this conclude your testimony?

A: Yes