

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA**

IN THE MATTER OF THE APPLICATION
OF SCS CARBON TRANSPORT LLC FOR
AN ENERGY FACILITY PERMIT TO
CONSTRUCT THE SUMMIT CARBON
SOLUTIONS PIPELINE

DOCKET NO. HP22-001

**DIRECT TESTIMONY OF
JON A SCHMIDT, PH.D.**

ON BEHALF OF

SCS CARBON TRANSPORT LLC

SCS CARBON TRANSPORT LLC EXHIBIT #

November 1, 2022

Q. Please state your name and business address for the record.

A. My name is Jon Schmidt. My business address is 2510 Miccosukee Road, Suite 200, Tallahassee, Florida 32308.

Q. Can you briefly describe your education and experience?

A. I have a bachelor's, master's, and doctorate in biological sciences. I have been employed as an environmental consultant for almost 34 years. My primary experience has been the preparation of permit applications and regulatory filings for pipelines, powerlines, liquefied natural gas (LNG) facilities, and natural gas storage facilities throughout the U.S. Over my career, I have served as project task leader, project manager, project director, and owner's environmental representative for large infrastructure permitting projects covering multiple jurisdictions in the U.S.

Q. Please describe your duties with SCS Carbon Transport LLC.

A. As part of the Project team, I am EXP's Project Manager for providing environmental project management services to SCS Carbon Transport LLC. Specifically overseeing the environmental data collection, permit application preparation, and agency consultation.

Q. Which sections of the application are you responsible for?

A. I oversaw or participated in the preparation of the following sections of the application:

- Section 1.8 – Other Required Permits and Approvals;
- Section 2.1.1 – Facility Description Overview;
- Section 4 – Proposed Route and Alternative Routes;
- Section 5 – Environmental Information and Impact on Physical Environment;
- Section 6 – Community Impact;
- Section 7.1 – Monitoring of Impacts (Construction);
- Section 7.1.1 – Environmental Training;
- Section 7.1.2 – Environmental Inspection;
- Section 7.1.3 – Post-construction Monitoring and Maintenance Programs;
- Appendix 3 – Environmental Construction Plan;

- Appendix 5 – Alternative Avoidance Analysis Table;
- Appendix 6 – Map Books (Topographic, Land Use, Soils, Route Variance Overview);
- Appendix 7 – Soil Map Units Crossed by the Project;
- Appendix 8 – Waterbody Crossings;
- Appendix 9 – Wetland Report;
- Appendix 10 – Threatened and Endangered Species Report;
- Appendix 11 – Level III Intensive Cultural Resources Survey;
- Appendix 12 – Unanticipated Discovery Plan

Q. Please describe the permits in addition to the one sought in this application which will be required for construction and operation of the pipeline.

A. Section 1.8 of the application provides an overview of the permits required to construct and operate the Project. I oversaw the compilation of the table of permits that are required for the Project.

Q. Are there any other major industrial facilities that would contribute to cumulative impacts?

A. There are no other major industrial facilities in South Dakota that would contribute to cumulative impacts.

Q. How did SCS Carbon Transport LLC categorize land found along the pipeline?

A. Using national land use databases, field surveys, and recent aerial imagery, SCS Carbon Transport LLC mapped the land uses depicted in Appendix 6.

Q. Were any PUC land uses not documented along the pipeline?

A. The Project does not cross existing and potential extractive nonrenewable resources, other major industries, residential, and municipal water supply and water sources for organized rural water systems.

Q. What effects are anticipated on surrounding land from operation or construction of the pipeline?

A. During construction there will be short-term periods of increased noise, dust, and additional traffic on local roads as the construction spread moves through an area. None of these impacts will be significant or long-term. During operations, there will be no impacts to existing land uses along the pipelines and there will be some increased noise from pump stations. However, SCS Carbon Transport LLC will design the stations to avoid proximity to houses or residential areas to reduce noise impacts.

Q. Did the project analyze the effects of the Pipeline on land uses and if so, what are the impacts?

A. Yes, Section 5.5 (Land Use and Local Land Controls) provides an assessment of the land uses impacted by the Project and the minimization and mitigation measures that will be implemented to address those impacts. The land uses crossed are also depicted on maps in Appendix 6. Since the predominant land use crossed by the project is rural agriculture, and because the pipeline will be buried a depth of four feet or more below pasture/rangeland and agricultural fields, the pipeline project will be compatible with the current land uses crossed. The route also crosses through ten rural water system territories or districts. During construction and maintenance, SCS Carbon Transport LLC will coordinate with the rural water authority to identify and avoid impacts to underground utilities, including water lines.

Q. Does the project cross any public properties?

A. There are approximately 477.3 miles of pipeline in the state. Of this, approximately 4.2 miles (0.01% of the total miles) will cross Department of School and Public Lands, South Dakota Department of Transportation, and South Dakota Department of Game, Fish and Parks land. The remainder of the land crossed is privately owned. No tribal or federal lands are planned to be crossed by the pipeline routes.

Q. What are the regional landforms in the project area?

A. The Project pipeline is located entirely to the east of the Missouri River within the Interior Plains Physiographic Region. Much of the Project west of the James River is within the Glaciated Missouri Plateau Section of the Great Plains Physiographic Province. The Glaciated Missouri Plateau landscape is characterized by hummocky rolling hills and prairie potholes formed in glacial moraine and till deposits (USGS 2004). The remaining portions of the Project are located within the Central Lowland Physiographic Province. The Central Lowland is further divided into the Western Lake and Dissected Till Plains sections among others. The landscape of the Western Lake and Dissected Till Plains is characterized by flat to gently rolling hills formed in glacial till deposits dissected by many streams (USGS 2004). Elevation relief along the route is approximately 850 feet; from around 2,100 feet above mean sea level (MSL) in McPherson County to around 1,250 feet above MSL along the James River in Beadle Country. Aerial photography and USGS topographic maps showing the Project route in South Dakota are provided in Appendix 6.

Q. Have you included a topographic map of the project area?

A. Yes, topographic mapping is provided in Appendix 6.

Q. What geological features are in the project area?

A. Surficial overburden deposits expected to be found at the trench depth across glaciated Eastern South Dakota are composed primarily of Quaternary age alluvium, eolian deposits, lacustrine sediments, moraine (till), and outwash. Beneath the surficial overburden, which can range in thickness from a thin veneer up to 1,000 feet thick, is lithic bedrock (Tomhave et. al. 2004). Lithic bedrock in the Project area consists primarily of Late Cretaceous and Early Proterozoic rocks. Bedrock units in glaciated Eastern South Dakota are known to outcrop along

rivers and creeks where the glacial sediment overburden has been eroded away; however, no known bedrock outcrops were identified along the Project route. According to the Soil Survey Geographic Database (SSURGO), a total of approximately 9 acres of the Project workspace has a depth of bedrock less than 3 feet, while the majority of the Project area has a depth to bedrock greater than 6 feet. No unique geological features protected by federal, state, or local governments will be disturbed by the Project. Construction of the Project will include surface disturbance along the right-of-way (ROW) and at ancillary facilities. Impacts to topography will be relatively minor and short-term since SCS Carbon Transport LLC will restore surface contours and drainage patterns as closely as possible to pre-construction conditions. No significant operational impacts to geological resources are expected.

Q. Are any economic deposits found within the project area?

A. The pipeline does not cross any active, inactive, or permitted mining or oil and gas operations. None of the route crosses historic mining areas. The pipeline ROW does not cross or is in proximity to existing oil and gas wells. However, SCS Carbon Transport LLC would still follow the 811 one call underground facility procedures to determine if unmapped flow lines or pipelines are in the area. Construction of the Project may result in short-term and localized demand for sand and gravel, but these demands will not significantly affect the long-term availability of construction materials in the area. No significant operational impacts to economic deposits are expected.

Q. Please describe the soils found within the project area.

A. Soil maps are provided in Appendix 6 of the application. A description of the soils crossed is provided in Appendix 7.

Q. Is there prime farmland located along the pipeline route?

A. Approximately 23 percent of the lands crossed by the Project have soils identified as prime farmland. Impacts on these areas of prime farmland soils will be minimized by mitigation measures to be implemented according to the Environmental Construction Plan (ECP) (**Appendix 3**). During construction activities, topsoil on agricultural land, including on prime farmland areas associated with the pipeline ROW, will be stripped to the maximum depth of 12 inches and segregated from the subsoil. Unless the landowner or land management agency requests otherwise, topsoil will be stripped from over the pipeline trench and the adjacent subsoil storage area. Segregated topsoil will be returned following backfilling of the subsoil, re-establishment of pre-construction contours, ensuring preservation of topsoil within the construction area. Short-term impacts such as excavation and handling, and small isolated spills of fuels or lubricants may temporarily alter the capability of prime farmland following construction. Following the completion of construction, areas of prime farmland disturbed by the installation of the pipelines and temporary access roads will be allowed to revert to pre-construction uses; therefore, construction activities in these areas will not adversely impact prime farmland. Impacts from maintenance activities in these areas will be minor and short-term.

Q. Please describe the impacts to hydric soils from construction of the pipeline.

A. Approximately 6 percent of the lands that would be disturbed during construction have soils rated as hydric soils and approximately 11 percent of these lands have fine textured and poorly drained soils making them prone to compaction. Soil compaction and rutting can occur with the movement of heavy construction vehicles along the pipeline ROW and on temporary access roads during construction. Compaction can damage soil structure, reduce infiltration, and increase runoff and erosion. The degree of compaction will depend on the moisture content and texture of the soil at

the time of construction. Compaction will be most severe where heavy equipment operates on moist to wet soils with fine textures. Detrimental compaction also can occur on soils of various textures and moisture contents if multiple passes are made by heavy equipment. If soils are moist or wet where trench-line only topsoil trenching has occurred, topsoil will likely adhere to tires and/or tracked vehicles and be carried away. Rutting occurs when the soil strength is not sufficient to support the applied load from vehicle traffic. Ruts that exceed topsoil depth can mix topsoil with subsoil, thereby reducing soil productivity. Rutting affects the surface hydrology of a site as well as the rooting environment. The process of rutting physically cuts plant roots and reduces the aeration and infiltration of the soil, thereby degrading the rooting environment. Rutting also disrupts natural surface water hydrology by damming surface water flows, creating increased soil saturation upgradient from ruts, or by diverting and concentrating water flows creating accelerated erosion. Compaction and rutting impacts will be mitigated in these areas using timber mats and special crossing techniques. Contractors will restrict certain construction activities and work in cultivated agricultural areas in excessively wet soil conditions to minimize rutting and soil compaction. Work may be suspended during wet weather when there is potential of material mixing soil horizons or the potential for excessive compaction. To minimize potential impact to soil resources, soil will be prepared after final grading to facilitate revegetation in undeveloped areas. This could include tilling compacted soil or other measures depending on the extent and severity of compaction.

Q. Please describe any measures which the project is taking with regard to erosion.

A. The overall impact from soil erosion is anticipated to be minor because only 25.8 acres of the pipeline ROW have soils identified as susceptible to wind erosion and 88.1 acres have soils identified as susceptible to water erosion (<0.01%) (See Table 6 in the Supplemental Application). The contractors will use erosion and sedimentation control devices to reduce impacts from erosion

following the best management practices outlined in the ECP (**Appendix 3**). SCS Carbon Transport LLC will monitor the effectiveness of erosion mitigation measures to maximize revegetation efforts following construction. Operations of permanent facilities will likely result in permanently altered soils or loss of soil resources within the specific facility footprint, accounting for less than one percent of the total acreage of the Project. Impacts from maintenance activities will be minor because disturbances will be isolated, short-term, and infrequent and include clearing the permanent pipeline ROW of vegetation (in areas outside wetlands, waterbodies, and agricultural land) and identifying corrosion through regular inspections. SCS Carbon Transport LLC will routinely monitor the pipeline ROW to identify areas where erosion occurs.

Q. Are there any restrictive soil layers or shallow bedrock found along the pipeline route?

A. According to the SSURGO database, approximately 9 acres (<1 percent) of the Project route have soils with a depth to bedrock of 3 feet or less. It is unlikely that Pierre Shale will be encountered along the Project route at the trench depth, where shallow depth to bedrock coincides with areas underlain by the Pierre Shale formation. The remaining Project route has a depth to bedrock that exceeds 6 feet. A review of the SSURGO database indicates that approximately 131 acres (2 percent) of soils crossed by the Project route are considered saline within the top 6 feet and approximately 78 acres (1 percent) are considered sodic within the top 6 feet. Appendix 7 identifies the depth to bedrock for each of the soil map units. In stony or rocky soils, revegetation recovery rates may be slow, however, following the best management practices within the ECP will minimize impacts of restrictive soil layers on surficial soils and their revegetation.

Q. How will the project revegetate the construction areas?

A. Over 84% of the project impacts are in agricultural production (crop, hayfield, improved pasture). All of this land will be allowed to revert to agricultural production in the year following construction. There will be no long-term impacts to the use of the land for agricultural purposes. What is not in agricultural production is barren, open water, or herbaceous vegetation, so impacts will be short term and herbaceous vegetation allowed to regrow across the right-of-way. Approximately 7 acres are classified as wooded, of which approximately 4 acres are a temporary impact and 3 acres are a permanent impact. Trees will be removed and either provided to the landowner for their use or sale or hauled and disposed of in an appropriate manner. The permanent ROW will be kept free of trees within 15 feet of either side of the pipeline to ensure integrity and ease of maintenance and aerial patrols. The ECP (**Appendix 3**) will be followed for soil handling, restoration, seeding and stabilization measures to allow vegetation in non-agricultural areas to regrow to previous conditions following construction.

Q. Are seismic or geologic hazards present and mitigated in the project area?

A. South Dakota historically has little earthquake activity that would be considered threatening or cause damage to property. There are no identified active faults within 100 miles of the Project footprint. The low probability of a seismic event occurring within the Project area makes the occurrence of soil liquefaction unlikely. Several areas along the Project route in South Dakota are located where karst hazards are present. Approximately 29 percent of the soils along the Project route contain clay minerals such as smectite or montmorillonite. Clays have properties whereby when they are exposed to successive cycles of wetting and drying, they shrink and swell, and the soil fluctuates in volume and strength. Additionally, the Pierre Shale underlies the surficial overburden along approximately 78 percent of the Project route. Although it is

unlikely that Pierre Shale will outcrop along the Project route in upland areas at the trench depth, it is known to outcrop along rivers and creeks where the glacial sediment overburden has been eroded away. Slope instability occurs when unconsolidated soils and sediments located on steep slopes become saturated, usually following a precipitation event. According to the USGS Landslide Hazard Inventory, the majority of the Project in South Dakota is in an area designated as having low susceptibility to landslides and there are no known areas along the Project route in South Dakota identified with high susceptibility to landslides. Measures found in the ECP will be utilized to address landslide potential. During operations, routine maintenance activities would not expose the system to these potential geologic hazards.

Q. Does the project expect construction constraints as a result of the landforms and geology along the route?

A. No, see the testimony provided above as well as Sections 5.1.1 through 5.1.5 of the application.

Q. Has SCS Carbon Transport LLC examined the impacts to hydrology from construction?

A. Yes, Section 5.2.1 provides a detailed assessment of the hydrologic features impacted by the route and the measures that will be undertaken to protect those resources. The measures outlined in the ECP describe the minimization of impacts that will occur with the best management practices described in that plan.

Q. Will the pipeline interfere with waterbody drainage patterns along the route?

A. No, since the pipeline will be buried beneath stream channels or installed with a trenchless method, there will be no permanent impact to stream structure or the ability of the stream to maintain pre-construction flow characteristics.

Q. Will the project use surface water and/or ground water in construction or operation?

A. SCS Carbon Transport LLC will require the temporary use of water to hydrostatically test the pipelines before operation, dust control along workspaces during construction, and during horizontal directional drilling (HDD) operations during construction. For hydrostatic testing, water is used as a test medium by filling the welded pipeline segment with water and bringing the water to a pressure greater than the operating pressure of the pipeline. This kind of test confirms operational integrity before the pipeline is put into service. The water is withdrawn from existing surface or groundwater resources and, after use, returned to the source. There are no additives or chemicals added to the water. During hydrostatic testing, the water is used only to put pressure on the pipeline to test its integrity. For dust control during construction, water will also be used along gravel or dirt roads to suppress dust formation. Water use for each source is dictated by the availability from municipal, surface, or groundwater sources near the Project. Authorizations and/or permits will be acquired for water use for dust control. During HDD operations in construction, water will be required to mix with naturally occurring drilling mud (e.g., bentonite clay) for drilling operation lubrication, hole stability, and to remove drill cuttings. Water will be sourced from municipal, surface, or groundwater sources and proper authorizations will be obtained before use. There will be no operational use of surface or groundwater for the Project.

Q. Are there impacts to aquifers expected along the pipeline route?

A. No, where installed using an open trench method, the pipelines will be buried at a nominal depth with approximately four feet of cover. This would put the trench depth at 6-10 feet depending on the location and whether any crossings of rivers, streams, or other linear features are necessary. The soil removed from the trench will be returned in the order it was removed, with topsoil last. This will ensure that recharge properties will not be impacted and potential impacts to aquifers temporary and minor. Pipeline installed by the HDD method will be 25 feet or greater below the

bottom of the large rivers crossed. In this case, the use of naturally occurring drilling mud (e.g., bentonite clay) will seal the hole drilled for the pipeline. This will ensure that the pipeline is not a conduit between aquifer zones or to introduce surface flows into the HDD hole. During operations, there will be no impacts to aquifers from operations. The pipeline is largely installed in the shallow confines of surficial aquifers and in the event of a release, the CO₂ would vent to the atmosphere since it is under pressure. These events are unlikely and would be infrequent to result in no impacts to aquifers from operations.

Q. What water quality permits are expected for the project?

A. SCS Carbon Transport LLC will be required to obtain a general permit for stormwater discharge from the construction footprint, a general permit for the discharge of hydrotest water, a general permit for trench dewatering, and if necessary, permits to appropriate surface water for construction purposes.

Q. Please describe the terrestrial setting of the project.

A. A majority of the Project is located in agricultural land uses. This includes cropland, hayfields and grasslands (>94%). The setting therefore is mainly of agricultural land use and vegetative cover, with row crops (mainly corn and soybean) interspersed with hayfields and grasslands that are overseeded with legumes for grazing. Sporadically located along the Project are waterbodies (streams and rivers), barren areas, small tree lines or wind breaks, and transportation or utility corridors.

Q. What are the vegetation community types found along the project route?

A. The majority of the pipelines in South Dakota will impact agricultural land uses, mainly row crop (71.5%), hayfields (13.2%), and grasslands utilized for pastureland (9.7%). Areas used for the production of annual crops are usually planted in wheat, corn, and/or soybeans. Dominant

vegetation observed in hayfields within the Project area consist of oat (*Avena sativa*), blue grama (*Bouteloua gracilis*), smooth brome (*Bromus inermis*), blue grama (*Bouteloua gracilis*), redroot (*Ceanothus americanus*), orchardgrass (*Dactylis glomerata*), creeping wildrye (*Elymus repens*), fox-tail barley (*Hordeum jubatum*), alfalfa (*Medicago sativa*), reed canarygrass (*Phalaris arundinacea*), Kentucky bluegrass (*Poa pratensis*), tall false ryegrass (*Schedeonorus arundinaceus*), and common dandelion (*Taraxacum officinale*). Grasslands used as pasture are areas dominated by graminoid or herbaceous vegetation. There are very few wetlands (2.9%) found along the pipeline routes, mostly herbaceous wetlands, and the Project avoids residential areas. Section 5.3.1 of the application, along with the aerial imagery provided in Appendix 6, provides an overview of the vegetative communities found along the Project.

Q. Please briefly describe the impacts to vegetation and any mitigation measures which the project intends to adopt.

A. The route traverses agriculture, grassland/rangeland, palustrine emergent/scrub-shrub wetlands, previously disturbed, riverine/open water, and upland forest. The dominant vegetation traversed is agriculture. In agricultural lands, construction will result in relatively small, temporary loss of crops during construction. SCS Carbon Transport LLC will repair or restore any drain tiles, fences, and land productivity that are temporarily disturbed during construction. Grasslands/rangelands will be temporarily impacted during construction. SCS Carbon Transport LLC will adhere to their ECP to restore these areas and allow vegetation to recover in the ROW. There will be no permanent impact to, nor maintenance of, the vegetation along the route in this community type except shrubs will not be allowed to grow over 15 feet high within 15 feet of either side of the centerline. Temporary impacts to emergent and scrub-shrub wetland vegetation will occur during construction. To mitigate the potential impacts, SCS Carbon Transport LLC will implement specific procedures as outlined in the ECP. Pipeline construction through wetlands must comply, at a minimum, with

US Army Corps of Engineers (USACE) Section 404 permit conditions. Construction of the pipeline will disturb approximately 7 acres of forested land in South Dakota. Construction of the pipeline will necessitate clearing of the ROW and permanent conversion of the affected wooded areas for the lifetime of the project. During operations, the majority of the ROW will be allowed to revert to pre-construction conditions. Woody vegetation in forested areas will be removed periodically above the pipeline (approximately 15 feet on each side of the centerline) to maintain visibility of the area above the pipeline for aerial pipeline observation and to permit access to all areas along the pipeline in the event of an emergency. Routine maintenance activities would not result in long-term alterations of vegetation since disturbances would be isolated, short-term, and infrequent.

Q. What will be done regarding noxious weeds along the project?

A. SCS Carbon Transport LLC will implement procedures to prevent the spread of noxious weeds. The Contractor will clean the tracks, tires, and blades of equipment by water or compressed air to remove excess soil prior to moving the equipment out of weed or soil-borne pest infested areas. The Contractor may also utilize cleaning stations to remove vegetative and soil materials using water at a high pressure in lieu of compressed air. The duration between final grading and permanent seeding will be minimized to reduce the potential growth of nuisance species establishing. Certified weed-free hay or straw will be used for mulch and sediment barriers. Where required by weed control boards for specific species that require treatment ahead of construction, the topsoil will be stripped from the full width of the ROW where isolated weed populations exist and will be stored separately from other topsoil and subsoil. These locations will be identified and marked prior to construction activities by an Environmental Inspector (EI). Alternatively, approved herbicides may be used to prevent the growth and spread of weeds. Only non-residual herbicides will be used.

Q. What kinds of wildlife and what are the expected impacts and what mitigation measures will be adopted?

A. Much of the habitat crossed by the route consists of agriculture or grassland/rangeland. Impacts in these habitats will be short-term and represent a small fraction of the total available habitat in the Project area. Consequently, the effects of long-term habitat loss on native wildlife populations will be minor. Since the Project involves very little forest or tree clearing, the potential for disturbance to raptors is minor. Impacts from increased noise and human presence during construction also will be temporary and minor. Noise from operations (pump stations) will also be minor since there are so few and are sited mostly in agricultural land.

Big and small game wildlife will experience temporary impacts as they move away from the construction ROW. After construction, the majority of the habitat will be restored to the previous vegetative cover and land use. Very little forested area will be converted that would displace species using this habitat. Since the amount of habitat temporarily affected during construction represents a small fraction of the total available habitat, impacts to game species will be minimal. SCS Carbon Transport LLC will work with wildlife agencies on the structural designs of the pump stations to reduce the potential use of these structures as raptor roosts during operations. Routine maintenance activities would not result in significant impacts to wildlife or its habitat.

Q. What impacts and mitigation measures if any, can be anticipated for sensitive, threatened, and endangered species?

A. SCS Carbon Transport LLC completed general habitat surveys for listed species in the summer/fall of 2021 and in 2022. The results of those species surveys are provided in the listed species reports provided to the US Fish and Wildlife Service and South Dakota Game, Fish, and Parks for their review. Their concurrence with the survey results should be forthcoming by the

second quarter of 2023. The results of this informal consultation will be included in the Biological Assessment that will be prepared for the USFWS and USACE

Q. Approximately how many waterbody crossings have been identified?

A. The Project footprint lies within four South Dakota River basins. Construction of the Project will involve 19 crossings of named waterbodies within these basins, including 1 lake, 5 ephemeral stream crossings, 1 intermittent stream crossing, and 12 perennial stream crossings. Project construction will involve 173 additional crossing of other types of waterbodies including small ephemeral unnamed streams, named streams with no defined channel, roadside and field ditches, prairie potholes, and man-made ponds. A listing of all waterbody crossings is provided in **Appendix 8**. Additional information on the impact of these crossings is provided in Section 5.2, Hydrology and Section 5.6, Water Quality. Typical drawings of waterbody crossings are found in Appendix B of the ECP (**Appendix 3**).

Q. What impacts to aquatic ecosystems are expected and what mitigation measures will be implemented?

A. Potential impacts to surface waterbodies from Project construction could result from such things as altering the contours of the ground thereby altering surface water runoff paths, changing the consistency and porosity of the surface which can alter the amount and rate of surface water runoff, blocking existing drainage channels such as agricultural drainage tiles and culverts which can lower surface drainage capabilities and result in ponding or flooding; or alteration of stream banks and bottoms which can cause the stream to widen, meander, or infill, resulting in changes to runoff and discharge. Construction of the Project will have only minor and temporary impacts on surface drainage. BMPs outlined in the ECP (**Appendix 3**) will be implemented to ensure that any impacts on surface drainage and hydrology are minor. The HDD crossing method will be used at four river

crossings: the James River at three different segments and the Big Sioux River at the South Dakota – Iowa border. The crossing of a branch of Brant Lake will also be constructed by HDD. Using the HDD method allows the Project to collocate with an existing road corridor across this branch of the lake without having any surface disturbance or long-term impacts. Descriptions of HDD and other waterbody crossing methods are provided in Section 2.2 and **Appendix 3** of the application. Because HDD does not involve any intended direct contact with the waterbody, channel bed, or banks, no impacts to hydrology are expected at these crossings. Restoration includes grading, stabilization, and revetment BMPs. These BMPs embrace bioengineering concepts, which encourage the restoration of natural streambanks. After the installation of the pipeline, the disturbed ROW will be backfilled and restored to its pre-construction grade thus avoiding any change to the pre-existing surface water drainage patterns. The pipeline will be constructed under river channels with potential for lateral scour. Engineering design will ensure that the pipeline will be buried at an adequate depth under channels, adjacent floodplains, and flood protection levees to avoid pipe exposure caused by channel degradation and lateral scour. Determination of the pipeline burial depth will be based on site-specific channel and hydrologic investigations were deemed necessary.

Q. What wetland vegetation types are found along the pipeline route?

A. Wetlands within the Project area were classified into three categories: palustrine emergent (PEM) wetlands, palustrine scrub-shrub (PSS) wetlands, and palustrine forested (PFO) wetlands (Cowardin et al. 1979). Wetlands within the Project area in South Dakota are limited to approximately 20.30 miles of PEM wetlands and less than 0.13 mile of PFO wetlands. Less than a tenth of an acre of PSS wetlands will be impacted. PEM wetlands generally are dominated by fowl blue grass (*Poa palustris*) and fox tail (*Hordeum jubatum*) in areas that typically contain water for several weeks after spring snowmelt. Shallow-marsh vegetation

such as spikerush (*Eleocharis palustris*) and wheat sedge (*Carex antherodes*) dominate areas where water typically persists for a few months each spring, and deep-marsh vegetation like cattails (*Typha latifolia*), and hardstem bulrush (*Scirpus acutus*) occupies areas where water persists throughout the year (USDA NRCS 2008b; USEPA 2008a; USGS 2006b). Dominant woody vegetation in PSS in the Project survey area consists of white willow (*Salix alba*), narrowleaf willow (*S. Interior*), and common lilac (*Syringa vulgaris*). The dominant woody vegetation in PFO in the Project survey area consists of eastern cottonwood (*Populus deltoides*), crack willow (*S. fragilis*), white willow, peachleaf willow (*S. amygdaloides*), green ash (*Fraxinus pennsylvanica*), and common buckthorn (*Rhamnus cathartica*). The report provided in **Appendix 9** provides complete lists of dominant species in the wetlands as well as descriptions of soils and hydrology.

Q. What impacts to wetlands are expected and how did SCS Carbon Transport LLC work to minimize impacts?

A. Impacts on wetland vegetation will be greatest during and immediately following construction. To mitigate the potential for these impacts, SCS Carbon Transport LLC will implement specific procedures as outlined in the ECP (**Appendix 3**). SCS Carbon Transport LLC will restore soil grade and replace topsoil to allow wetlands affected by construction activities to naturally revegetate. SCS Carbon Transport LLC conducted an extensive desktop and field survey data collection and analysis effort to identify and avoid, or minimize impacts to, wetlands and waterbodies. This is reflected in the absence of impacts to grassland easements, and minimal impacts to wetland easements as well as wetlands altogether (approximately 182 acres of emergent wetland impacts, and less than 0.1 acre of permanent loss of emergent wetland).

Q. What air quality impacts are expected from pipeline construction or operation?

A. Construction equipment used on the Project will be compliant with emission requirements for on and off-road vehicle classification. Because construction moves along in a linear fashion, emission impacts will be minor and transitory. There are no operational emissions from operation of the electric pumps at the pump stations. Periodic blowdowns at mainline valves or pig launcher/receivers will be minor and infrequent.

Q. How has the project planned for its impacts on cultural resources?

A. The Applicant conducted consultations with the South Dakota State Historic Preservation Office (SHPO), federal agencies, and Tribes to review and approve the study methodology used for this Project. Survey crews were sent where landowner access was granted to conduct Phase I surveys. Tribes were invited to participate in these investigations and many Tribes provided qualified individuals to accompany the survey crews. Once the surveys are completed and the South Dakota SHPO has reviewed and approved the survey results and site recommendations, SCS Carbon Transport LLC will develop mitigative measures to protect eligible sites during construction through avoidance. Monitors and fencing may also be required for areas where sites are in proximity to construction but not impacted by construction. SCS Carbon Transport LLC has agreed to avoid eligible sites in the construction and operation of this pipeline Project.

Q. Were literature reviews conducted and if so, what were the results?

A. Yes, literature reviews were completed as part of the cultural resources pre-survey planning and are included in the Phase I survey report provided as an attachment to this application.

Q. Has the project performed archaeological investigations?

A. Yes, where landowner permissions have been granted, surveys were conducted.

Q. Have you determined whether any sites are eligible for inclusion in the National Register of Historical Places?

A. Cultural surveys found 60 sites recommended as eligible for inclusion to the NRHP. These sites have all been avoided or will be avoided once minor route variances have been implemented. This report will be filed with the South Dakota SHPO concurrent with this application.

Q. Have reports of the investigations been prepared? If so, how will they be utilized?

A. A report of the 2021 field investigations and the 2022 field investigations have been provided as a privileged and confidential attachment to this application. The South Dakota SHPO will review and comment on the investigation report and provide recommendations on site eligibility.

Q. Does this conclude your written pre-filed direct testimony?

A. Yes.

Dated this 1 day of November 2022.



Jon Schmidt