BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA

IN THE MATTER OF THE APPLICATION OF DAKOTA ACCESS, LLC FOR AN ENERGY FACILITY PERMIT TO CONSTRUCT THE DAKOTA ACCESS PIPELINE PROJECT	))))))	HP14-002

DIRECT TESTIMONY OF

JOEY MAHMOUD

ON BEHALF OF

DAKOTA ACCESS, LLC

DAKOTA ACCESS EXHIBIT 2

July 6, 2015

Q. Please state your name, present position and business address.

A. My name is Joey Mahmoud. I am the Vice President of Engineering of Dakota Access, LLC ("Dakota Access"), the Applicant in this proceeding, and Senior Vice President of Engineering of Energy Transfer Partners, L.P. ("ETP"). My business address is 1300 Main Street, Houston, Texas, 77002.

Q. What are your duties and responsibilities as Vice President of Engineering of Dakota Access and Senior Vice President of Engineering of ETP?

A. For Dakota Access, I am responsible for the overall technical development and execution of the Dakota Access Pipeline Project (the "Project") as it relates to non-commercial items and I am ultimately responsible for the installation and preparation of the Project to go into operations. This includes the day-to-day management of the technical professionals and experts to accurately and timely execute the Project from concept to design to construction and ultimately to operations of the facilities.

As Senior Vice President of Engineering for ETP, my role is similar in scope, but broader in concept. My responsibilities include the non-commercial development and execution of ETP's larger or more complex projects from concept to operations.

Q. Please describe your educational and professional background.

A. I received a Bachelors of Science in Animal Science from Texas A&M University in 1993 and a Masters of Agriculture in Rangeland Ecology and Management (Ecosystem Management) with an emphasis in Rangeland and Wetland Ecology Management from Texas A&M University in 1996. My professional experience is centered on the transportation and logistics of moving energy related products across the United States and project management. Throughout my career, my emphasis has been in project management and execution, and

leadership of projects for successful execution and deployment of development capital into energy infrastructure projects.

When I first began at Energy Transfer, I was Vice President of Regulated Projects, then Vice President of Engineering and now Sr. Vice President of Engineering Major Projects. In each of these positions, my responsibilities were for the development and execution of capital projects from concept or inception to operations.

Prior to Dakota Access and Energy Transfer, I worked for an engineering and environmental consulting firm called PBS&J where my responsibilities included the routing and siting of energy infrastructure facilities and projects and the permitting and construction of those facilities and running a business unit within the consulting firm titled the "Energy Division." My tasks were to manage, develop, and execute the energy related projects the firm had been hired to execute.

Following PBS&J, I worked at Cheniere Energy where I was the Vice President of Regulatory and Government Affairs. I was the corporate officer responsible for the day to day execution of the company's regulatory and environmental programs, compliance and project oversight and execution. Part of my responsibilities also included execution of the company's special projects and philanthropy program.

Q. Have you previously submitted or prepared testimony in this proceeding in South Dakota?

A. No.

Q. What is the purpose of your direct testimony?

A. I am testifying in support of Dakota Access’s request for a permit pursuant to Energy Conversion and Transmission Facility Act authorizing Dakota Access to construct, install,

operate, and maintain the South Dakota portion of the Dakota Access Pipeline, to be comprised of approximately 274.5 miles of new 30-inch outside diameter crude oil pipeline from a point near Herreid, South Dakota, and extending southeasterly for approximately 274.5 miles through the state of South Dakota to ultimately terminate at Patoka, Illinois, where the pipeline will connect with several of the existing tank farms located near Patoka, Illinois.

My testimony will include (i) a description of the corporate organization of Dakota Access and its affiliates; and (ii) Dakota Access's request for authority to construct the Project under SDCL 49-41B and ARSD 20:10:22 which includes, without limitation the purpose of the facility, the estimated cost of the facility, demand for the facility, and to provide general information regarding the proposed site and the process we went through to select the site. In addition, I will testify regarding the potential impact this facility will have on the state and communities through which it passes.

Q. **Can you provide a description of the corporate organization of Dakota Access and its affiliates?**

A. Dakota Access, LLC is a Delaware limited liability company with its principal offices at 3738 Oak Lawn Avenue, Dallas, Texas 75219. The membership interest of Dakota Access, LLC is owned 75 percent by Dakota Access Holdings, LLC and 25 percent by Phillips 66 DAPL Holdings LLC.

Dakota Access Holdings, LLC is owned 100 percent by Energy Transfer Partners, L.P. ("ETP"), a master limited partnership publicly traded on the New York Stock Exchange ("NYSE"). Energy Transfer Equity, L.P. ("ETE"), also a master limited partnership publicly traded on the NYSE, indirectly owns the general partner of ETP and certain of that partnership's limited partner units. ETP owns the general partner of Sunoco Logistics Partners,

L.P. ("SXL") and certain of its limited partner units. (ETE and ETP are together referred to herein as "Energy Transfer"). Energy Transfer maintains its corporate headquarters at 3738 Oak Lawn Avenue, Dallas, Texas 75219.

ETP and SXL have reached an agreement in principle for the transfer to SXL of an indirect 30 percent interest in Dakota Access, LLC.

Phillips 66 DAPL Holdings LLC is owned 20 percent each by Phillips 66 DE Holdings 20A LLC, Phillips 66 DE Holdings 20B LLC, Phillips 66 DE Holdings 20C LLC, Phillips 66 DE Holdings 20D LLC, and Phillips 66 DE Holdings Primary LLC. The five Phillips 66 entities are owned 100 percent by Phillips 66 Project Development Inc. Phillips 66 Project Development Inc. is 100 percent owned by Phillips 66 Company. Phillips 66 Company is 100 percent owned by Phillips 66, a Delaware corporation. Phillips 66 maintains its corporate headquarters at 3010 Briarpark Drive, Houston, Texas 77042.

Q. Will the pipeline be operated by Dakota Access, LLC?

A. The proposed pipeline project will be owned by Dakota Access, LLC and operated by DAPL-ETCO Operations Management, LLC; and ultimately will be operated day-to-day under an operating agreement by our crude oil pipeline affiliate Sunoco Logistics. Sunoco Logistics currently operates the majority of the Energy Transfer family of assets crude oil pipelines. This arrangement has been made to take advantage of and maximize our ability to seamlessly integrate this new asset into our company umbrella to maximize the pipeline safety considerations, operational consistency and overall cost efficiency. Dakota Access will rely upon Sunoco's existing crude oil operating infrastructure such as the back-end accounting systems, control room, operating integrity programs as well as rely upon Sunoco's experience and overall policies and procedures.

Q. Please give us an overview of the proposed pipeline.

A. Dakota Access, LLC (Dakota Access), is proposing to construct the Dakota Access Pipeline Project (Project). DAPL-ETCO Operations Management, LLC will operate the Project. Sunoco Pipeline L. P. has been appointed as operator of the Dakota Access Pipeline on behalf of DAPL-ETCO Operations Management, LLC. The overall proposed Project is a 1,172.53-mile-long, 12-inch to 30-inch diameter pipeline that will connect the rapidly expanding Bakken and Three Forks production areas in North Dakota to existing crude infrastructure in Illinois. The project originates in the northwest portion of North Dakota and traverses southeast through South Dakota, Iowa, and Illinois and terminates at the existing Patoka, Illinois hub. The pipeline is proposed to transport approximately 450,000 barrels per day (bpd) initially, with an anticipated capacity of 570,000 bpd or more. The Project's purpose is to move an economical abundant reliable domestic supply of crude oil from the Bakken and Three Forks production area in North Dakota to a crude oil market hub located near Patoka, Illinois. From the Patoka hub, the crude oil will be transported by other pipelines to refineries located in the Midwest and the Gulf Coast via existing and proposed pipeline infrastructure to further the U.S. goal of energy independence. Approximately 274.5 miles of the 1,172.53-mile-long pipeline will be constructed within South Dakota, crossing 13 counties in the eastern half of the state. The Project enters South Dakota in Campbell County approximately 17 miles east of the Missouri River, and continues southeast through McPherson, Edmunds, Faulk, Spink, Beadle, Kingsbury, Miner, Lake, McCook, Minnehaha, Turner, and Lincoln counties. The Project crosses the Big Sioux River approximately 14 miles south of Sioux Falls, and continues in a southeast direction through Iowa. One pump station is located within South Dakota, approximately seven miles southeast of Redfield in Spink County.

Q. What is the estimated cost of the facility?

A. The cost of constructing the entire 1,172.53-mile-long pipeline beginning in North Dakota, going through South Dakota and Iowa, and terminating in Illinois is estimated to be approximately $3.8 billion. Construction of the 274.5-miles of pipeline and facilities within South Dakota will cost approximately $820 million.

Q. Can you describe for us the demand for the facility?

A. Dakota Access has secured binding long-term transportation and deficiency contracts from multiple committed shippers to support development of the Dakota Access Pipeline with a crude oil transportation capacity of approximately 450,000 bpd, with ninety percent (90%) of the transportation capacity subscribed by those committed shippers and the remaining ten percent (10%) of the transportation capacity reserved for walk-up shippers. Transportation service on the Dakota Access Pipeline shall be provided by Dakota Access pursuant to the Interstate Commerce Act and in accordance with the rules and regulations of the Federal Energy Regulatory Commission for common carrier crude oil pipeline transportation service thereunder. Subscriptions from committed shippers were obtained by Dakota Access in connection with an initial open season that ran from March 12 to May 23, 2014, and an expansion open season that commenced on September 23, 2014, and concluded in mid-December of 2014.

Q. Where in South Dakota is the pipeline expected to be developed?

A. The Project originates in North Dakota and enters South Dakota in Campbell County approximately 17 miles east of the Missouri River. A summary of the Project facilities in South Dakota is outlined in Table 11.0-1. The Project exits South Dakota as it crosses the Big Sioux River approximately 14 miles south of Sioux Falls, and continues in a southeast direction through Iowa. Approximately 274.5 miles of the 1,172.53-mile-long pipeline and one pump

station will be constructed within South Dakota. Additionally, Dakota Access will construct aboveground appurtenances including 40 mainline valves (MLVs) and three pig launcher and receiver (L/R) facilities. Contractor/staging yard (s) will also be required for the project.

Pipeline Crossing Length (miles) / Pump Station Impact Area (acres)	**County**
29.17	Campbell
6.64	McPherson
36.17	Edmunds
27.88	Faulk
36.06	*Spink
30.35	Beadle
21.97	Kingsbury
14.26	Miner
18.61	Lake
1.72	McCook
26.16	Minnehaha
2.15	Turner
23.51	Lincoln
36.06	Spink

Construction of the new pipeline will require a typical construction ROW width of 125 feet in uplands, 100 feet in non-forested wetlands, 85 feet in forested areas (wetlands and uplands), and up to 150 feet in agricultural areas. Following construction, a 50-foot wide permanent easement will be retained along the pipeline.

Where necessary, Dakota Access will utilize additional temporary workspace (ATWS) outside of the construction ROW to facilitate specialized construction procedures, such as horizontal directional drills (HDDs); railroad, road, wetland, waterbody, and foreign utility line crossings; tie-ins with existing pipeline facilities; areas with steep side slopes; and pipeline crossovers. These ATWS will be allowed to revert to pre-existing conditions following construction activities, so there will be no permanent impacts on these areas.

Dakota Access will utilize existing public and private roads to access the pipeline ROW and aboveground facilities to the extent practicable. Existing roads utilized will include paved, gravel, or pasture roads, and other conveyances. Some roads will require modification or improvement to facilitate safe access for construction equipment and personnel. The Project may require construction of new temporary and permanent roads to provide access to the new pipeline both during construction and for future pipeline maintenance activities. Access roads have not been thoroughly defined during this early design phase. Dakota Access will seek and enter into road use agreements with all affected units of government.

Q. How was the site for the pipeline selected?

A. Dakota Access utilized a sophisticated and proprietary Geographic Information System (GIS) based routing program to determine the preferred pipeline route based on multiple publicly available and purchased datasets. Datasets utilized during the Project routing analysis included engineering (e.g., existing pipelines, railroads, karst, and power lines, etc.), environmental (e.g., critical habitat, fault lines, state parks, national forests, brownfields, national registry of historic places, etc.), and land (e.g., dams, airports, cemeteries, schools, mining, and military installations, etc.). Each of these datasets were weighted based on the desire to co-locate with certain features (low values) and the risk of crossing, or desire to avoid others (higher the risk,

the higher the value), while minimizing overall length of the route. The GIS program utilized the weighted datasets to produce the preferred baseline route. For example, the existing pipelines dataset was assigned the lowest value so that the routing tool followed existing pipelines to the extent possible to minimize potential impacts. An example of a high weighted feature is the national parks dataset; therefore the GIS routing program excluded any national parks from the preferred pipeline route to avoid impacts to these federal lands.

The baseline centerline route was the output of the GIS routing analysis that was completed during the fatal flaws phase of the Project, and the basis of further investigation. As the Project moved into the design phase, coordination with agencies within states crossed by the Project advanced, survey data collection commenced, landowners were engaged, and additional datasets were collected. These more focused datasets were then utilized to incorporate reroutes as needed to optimize the route.

The proposed pipeline route has been modified in multiple locations for constructability issues and various other reasons including avoidance of Well Head Protection/HCAs, U.S. Fish and Wildlife Service (USFWS) easements, environmental features such as wetlands and waterbodies, cultural resource sites, incompatible land uses (e.g., recently expanded quarries), home/farm sites, buildings, irrigation systems, power poles/towers and other structures, trees planted for windbreaks, and property corners. Route modifications were made through a process that included detailed review of recent aerial imagery, actual site visits, the existing datasets, and helicopter reconnaissance as warranted.

Q. How does the project categorize route modification?

There are three basic categories of route modifications including, realignments, minor reroutes, and major reroutes.

Realignments are small changes in the pipeline route resulting in a change in centerline location of less than 150 feet. Realignments are fully within the 400-foot environmental/cultural survey corridor and do not require additional survey efforts if surveys were already complete at the time of realignment. To date, there have been a total of 92 realignments constituting a total length of 35.6 miles of route modification.

Minor reroutes are changes in the pipeline route of greater than 150 feet from the original centerline and therefore require some additional environmental/cultural survey coverage if surveys were completed prior to development of the reroute. Minor reroutes are relatively short and typically do not involve new landowners. There have been a total of 37 minor reroutes with a total length of 28.0 miles.

Major reroutes are more extensive route modifications over many miles and involving multiple new landowners. Major reroutes typically require additional environmental/cultural survey coverage. Presently, there has been three major reroutes with a total length of 55.1 miles. The two most recent reroutes, due to identification late in the route development process are depicted in the maps and tables, but are not incorporated into the Project MPs. The Spink County reroute is identified with an "A" before the MPs, while the Turner and Lincoln counties reroute is identified with a "B". At this point in time, all reroutes depicted in Exhibit A are considered the proposed route.

Q. How would you describe your assessment of the proposed route?

A. The currently proposed route most closely meets the objectives of the Project, while minimizing potential impacts to the environment and maintaining the health and safety of the public. Additional route modifications will continue through permitting and land acquisition processes to further reduce environmental impacts and reduce the need for eminent domain.

Q. Have you assessed the potential impacts of the facility on the community?

A. Yes. The following information identifies the effects of construction and operation of the Project on the community, taxes, agriculture, population, transportation, and cultural resources. The following discussion includes potential impacts on commercial and industrial sectors, housing, land values, labor market, health facilities, energy, sewage and water, solid waste management facilities, fire protection, law enforcement, recreational facilities, schools, transportation facilities, and other community and government facilities or services.

Q. What are the expected impacts to the commercial and industrial sectors?

A. The local economies are anticipated to benefit from temporary hiring of local employees and from the influx of non-local construction workers. The South Dakota portion of the Project area is anticipated to cost $820 million, approximately $486 million of this total (59 percent) will result in direct spending in the South Dakota economy. Economic benefits to local commercial businesses are anticipated to increase through the sales of food, lodging, services, and goods that will be generated by the temporary non-local work force. Dakota Access will purchase goods, including construction materials and other supplies for the Project from local businesses. Local purchases for construction will include consumables, fuel, equipment maintenance, equipment rental, space leasing, miscellaneous construction-related materials such as office supplies, and some medical/dental needs. The direct spending within the state will cause indirect and induced spending of $168 million and $186 million. The total impact on the South Dakota economy will be $836 million increase in production and sales.

The Project will not result in operation impacts to the commercial sector. Construction and operation impacts to the industrial sector are not anticipated.

Q. What is the expected impact to the housing market?

A. It is expected that most non-local Project workers will use temporary housing, such as rental units, hotels, motels, campgrounds, and recreational vehicle parks. In the South Dakota counties that the pipeline corridor crosses, there are approximately 2,500 available rental units, 4,700 motel rooms, and 1,900 campground/recreational vehicle spaces. These accommodations are all within approximately 10 to 40 miles of the pipeline corridor. During the construction months between February and August 2016, it is estimated that up to approximately 1,448 pipeline construction personnel will be in South Dakota. It is anticipated that most of the temporary workers will seek housing in the more populated, service-oriented towns located within a reasonable commuting distance to the work site.

Q. Will Dakota Access use local labor?

A. It is anticipated that 10-12 permanent employees will be hired in South Dakota. Approximately 724 construction personnel (Dakota Access employees, contractor employees, construction inspection staff, and environmental inspection staff) are anticipated to be associated with each construction spread. The current construction plan involves two large construction spreads in 2016 in South Dakota, for a total of 1,448 construction personnel. Project construction will result in more than 7,100 additional job-years of employment with an approximate $303 million increase in labor income. Dakota Access expects that its construction contractors will hire temporary construction personnel from the local communities where possible. It is estimated that up to 50 percent of the total construction work force could be hired locally, with the remaining portion consisting of non-local personnel.

The net economic effect on local communities should be positive for the duration of the construction period. Construction of the Project will result in short-term benefits to the local communities.

Q. What do you anticipate the impacts will be to health facilities?

A. Local healthcare facilities will provide healthcare services to Dakota Access workers during the construction and operation phases of the Project. Dakota Access' health and safety policies and procedures should limit the utilization of local health facilities during the temporary influx of non-local construction workers during Project construction. Due to the limited number of permanent employees required for operations, no effect on health services and facilities are anticipated during operation of the Project.

Q. What will be the impact on local energy facilities?

A. Existing (hotels, offices, etc.) and portable facilities (along the ROW) and the local communities should not see any impact on their public utilities as a result of the Project. No significant effects from operation of the Project are anticipated.

Q. What will be the impact on local sewage and water facilities?

A. Construction of the Project will generate non-hazardous pipeline construction wastes including human waste, trash, pipe banding and spacers, waste from coating products, welding rods, timber skids, cleared vegetation, stumps, rock and all other miscellaneous construction debris. All waste, which contains (or at any time contained) oil, grease, solvents, or other petroleum products will be segregated for handling and disposed of in accordance with federal and state regulations.

Q. Does the project anticipate impacts to solid waste management facilities?

A. All trash will be removed from the construction ROW on a daily basis unless otherwise approved or directed by Dakota Access. Minor vegetation, rock and other natural debris will be removed from the construction ROW by the completion of clean-up. All trash and wastes will be removed from every construction area when work is completed at each location. All waste

materials will be disposed at licensed waste disposal facilities.

All drill cuttings and drilling mud will be disposed at an approved location. Disposal options may include spreading over the construction ROW in an upland location approved by Dakota Access, hauling to an approved licensed landfill, or other site approved by Dakota Access and in accordance with applicable regulations. Human wastes will be handled and disposed of exclusively by means of portable self-contained toilets during all construction operations. Wastes from these units shall be collected by a licensed contractor for disposal only at licensed and approved facilities.

Due to the above reasons, significant impacts to solid waste management during construction are not anticipated. In addition, solid waste operational impacts associated with this Project are not anticipated.

Q. What are the expected impacts from construction and operation to fire protection and law enforcement?

A. Law enforcement agencies in the communities adjacent to the Project should not experience a significant impact from the pipeline workers. All employees and contractors must abide by all federal, state and local laws. If any infractions occur, the employees or contractors will be subject to termination.

Dakota Access will work with the local law enforcement, fire departments, and emergency medical services to coordinate effective emergency response.

Dakota Access will utilize employees and contractors as emergency responders within its initial response efforts in the event of a pipeline spill. Dakota Access will be consistent with industry practice and in compliance with applicable regulations relating to spill personnel. In the unlikely event of a spill, the usual role of local emergency responders is to notify community members,

direct people away from the hazard area, and address potential impacts to the community such as temporary road closings. Local emergency responders typically are trained and capable to execute the roles described above without any additional training or specialized equipment. Dakota Access will proactively work with emergency response agencies to provide pipeline awareness education and other support. Dakota Access will implement a comprehensive public awareness program, consistent with all company pipelines in the U.S. This program will commence in advance of the Project in-service date (estimated as October 2016). The purpose of the public awareness program is to inform key members of the public of the location of Dakota Access facilities and activities to protect the public from injury, what to do if an emergency occurred, protect or minimize effects on the environment, protect Dakota Access facilities from damage by the public, and provide an opportunity for on-going public awareness.

Dakota Access' public awareness program follows National Preparedness for Response Exercise Program Guidelines developed by the U.S. Coast Guard and adopted by the Pipeline and Hazardous Materials Safety Administration (PHMSA), the Bureau of Ocean Energy Management, Regulation and Enforcement, and the EPA. Participation in this program ensures that Dakota Access meets all federal requirements mandated by Oil Pollution Act of 1990.

Q. What will be the expected impacts to recreation from construction and operation?

A. South Dakota has extensive recreational opportunities including fishing, boating, hunting, hiking, camping, biking, and bird watching. The most heavily used areas will most likely occur where public access exists. The Project does not cross any federal or state owned wildlife lands; however, construction of the Project may temporarily limit access to certain private areas used for recreation. Construction of the Project may limit access to these walk-in areas and private lands. In addition, hunting opportunities may be interrupted within the vicinity of construction

activities; however, possible access and hunting opportunity impacts will be temporary. No impacts associated with the operation of the Project are anticipated. Hunting is compatible with normal operation of the pipeline.

No impacts or limited access to any fishing or boating areas are anticipated as result of construction or operation of the Project. In the unlikely event an impact should occur, it will be short-term and infrequent, therefore impacts to fishing and boating is not anticipated.

Q. Please describe for us the expected effect on transportation in the areas of construction and operation?

A. Transportation routes to be utilized during construction will be established through consultation with state and local highway agencies as necessary. Those contacts will begin soon and continue through construction. Dakota Access expects to enter into road use agreements with all affected state and local highway agencies.

Dakota Access will seek to have the Commission set a road bond in accordance with SDCL 49-41B-38.

The Department of Commerce and Regulation, Division of Highway Patrol has jurisdiction over the federal and state highway system in South Dakota, and is responsible for issuing transportation-related permits to accommodate construction vehicles and traffic. Dakota Access has initiated contacts with local permitting authorities for the purpose of establishing timelines for road permit approvals.

During construction, traffic on highways and secondary roads will be increased due to the construction activities and due to the influx of construction workers. Hauling of line pipe and most construction equipment will be within state road and bridge weight limits. There will be isolated hauling of equipment that will require special permits for weight and/or width. There

may be an increased temporary demand for permits for vehicle load and width limits. The primary impact will be deterioration of gravel or stone surfaced roads requiring grading and/or replenishment of the surface materials. Dakota Access expects to be responsible for repairing damage to roads and restoring them to pre-construction condition or as agreements with the affected agencies dictate.

Q. Please describe for us your expectations in terms of taxes due the state and local governments?

A. SDCL Chapters 10-13 requires that the Department of Revenue annually determine the assessed value of the pipeline for ad valorem property tax purposes. Assessed value must be determined using the cost, market, and income approaches to appraisal per SDCL Chapter 10-37-9.1.

The increased economic activity that results during construction of the pipeline will generate additional sales, use, gross receipts, and lodging taxes of approximately $36 million for state government, plus $3 million for local governments. Once the pipeline goes into operation South Dakota State and local governments will realize ongoing annual sales, use, and gross receipts of about $197,000. Also, during the first full year of operation the pipeline will generate an estimated $14 million in new property taxes for local governments.

Q. Can you describe for us the forecast of the pipeline's impacts on agricultural?

A. Impacts to pastureland and rangeland areas will result from temporarily clearing vegetation in the ROW. These areas are anticipated to recover in one to three growing seasons after construction is complete. Long-term or permanent impacts are not anticipated, except at aboveground facility locations that will be fenced in and removed from current use.

Rangeland may be affected during construction by restrictions on livestock movement across

construction areas. Once construction is complete and the ROW has been restored, grazing and livestock movement over the permanent ROW may resume. Landowners will be compensated for the temporary loss of land use. Grazing practices should return to normal after vegetation is re-established, therefore permanent impacts are not anticipated.

Access to and work on pastureland and rangeland will be in accordance with all easement agreements and applicable permits and regulations.

Permanent impacts on agricultural production are not anticipated since the pipeline will be buried deep enough to allow continued use of the land. Agricultural production across the permanent ROW will be allowed to resume following final clean-up of pipeline construction. Dakota Access will restore all lands equivalent to adjacent off-ROW lands and will provide compensation for crop loss, diminished productivity, and other damages to farmland.

Reclamation and revegetation of croplands impacted by Project construction will be in accordance with applicable easement agreements. Land will be recontoured to pre-existing conditions as practical and disturbed structures, ditches, bridges, culverts, fences, and slopes will be restored. Measures within the AIMP (Exhibit D) will be implemented to minimize potential impacts to agricultural areas.

Access to and work on croplands will be in accordance with all applicable permits and regulations.

Q. Please describe your forecast of the impacts on South Dakota's population?

A. Approximately 1,448 construction personnel at peak construction are anticipated for the pipeline construction spreads in South Dakota. The Project construction period will be relatively short in any given area and most non-local workers will not be accompanied by their families during their employment, therefore should not have impact on local population.

During construction of the Project, there is likely to be a positive impact on income with an estimated $303 million increase in labor income. Once the pipeline has been built, the yearly operations and maintenance spending will add 12 permanent jobs, approximately $2 million in labor income, and approximately $4 million in additional production and sales to the South Dakota economy.

During operations, the small number of potential permanent jobs suggests that the Project will not have long-term impact on income, occupational distribution, or cohesion of the local communities.

Q. Please describe your thoughts on pipeline decommissioning.

A. Sections 20:10:22:33.01 and 20:10:22:33.02 are not applicable to this Project application. However, if/when decommissioning is necessary it will be done pursuant to applicable federal and state laws at the time of decommissioning.

Q. Does this conclude your testimony?

A. Yes.

Dated this _____ day of July, 2015

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Joey Mahmoud

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA

IN THE MATTER OF THE APPLICATION OF DAKOTA ACCESS, LLC FOR AN ENERGY FACILITY PERMIT TO CONSTRUCT THE DAKOTA ACCESS PIPELINE PROJECT	))))))	HP14-002

DIRECT TESTIMONY OF

MONICA HOWARD

ON BEHALF OF

DAKOTA ACCESS, LLC

DAKOTA ACCESS EXHIBIT 6

July 6, 2015

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

A. Monica Howard. 1300 Main Street, Houston, TX 77002.

Q. Can you briefly describe your education and experience?

A. I have a Bachelor's of Science in Reclamation, with a biological emphasis and minors in Earth Science and Horticulture. I have over 15 years of environmental experience supporting the energy industry. I am currently the Director of Environmental Sciences for Energy Transfer and the Environmental Project Manager for Dakota Access Pipeline Project.

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

A. I am responsible for sections: 12. Alternatives; 13. Environmental Information; 14. Effects on the Physical Environment; 15. Hyrdology; 16. Effects on Terrestrial Ecosystems; 17. Effects on Aquatic Ecosystems; 18. Land Use; 20 Water Quality; 21. Air Quality; and parts of 23. Community Impact.

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. The table below lists the permits and clearances currently identified for the construction of the Project within South Dakota.

Permits/Consultation List and Status for South Dakota Segment of DAPL			
Agency	**Permit**	**Agency Action**	**Status as of June 2015**
Federal			
U.S. Army Corps of Engineers, Omaha District – South Dakota Regulatory Office	Sections 404/401 Clean Water Act Nationwide Permit 12	Authorization of discharge of fill material into waters of the U.S., including wetlands	Submitted in December 2014, updated Pre-Construction Notification areas were submitted in April 2015. USACE review is ongoing.
	Section 10 Rivers and Harbors Act	Authorization of pipeline crossings of navigable waters of the U.S.	
	Section 106 Archaeological Resources Protection Act	Section 106 consultation through the Nationwide Permit 12 process	

Permits/Consultation List and Status for South Dakota Segment of DAPL			
Agency	**Permit**	**Agency Action**	**Status as of June 2015**
U.S. Fish and Wildlife Service, South Dakota Ecological Services Field Office	Endangered Species Act Section 7 Consultation	Consider lead agency findings of impacts on federally listed; provide Biological Opinion if the Project is likely to adversely affect federally listed or proposed species or their habitats	Topeka shiner is the only protected species potentially affected at three streams. No effect due to HDD and compliance with Programmatic BO for NWP in SD.
U.S. Fish and Wildlife Service, Sand Lake National Wildlife Refuge Complex	Wetland and Grassland Easements– Special Use Permit	Issuance of a one-time use permit, valid for 5 years, for construction of pipeline through protected features within U.S. Fish and Wildlife Service easements	Draft Environmental Assessment for Special Use Permit and right-of-way easement submitted to the USFWS in April 2015, USFWS provided comments in May 2015, the revised draft Environmental Assessment was submitted to the USFWS in June 2015. USFWS review is ongoing.
	Wetland and Grassland Easements– Right-of-Way easement	Issuance of a 30-year-term right-of-way easement after construction, for long-term maintenance and management of pipeline	
Farm Service Agency/Natural Resources Conservation Service	Crop Reserve Program	Authorization of crossing areas enrolled in the Crop Reserve Program	Consultation with the Farm Service Agency on areas enrolled in the Crop Reserve Program is ongoing. No permit required. To date we have secured easements on 12 of the 17 CRP easements crossed by the Project.
Pipeline and Hazardous Materials Safety Administration	49 CFR Part 194 and 195	Integrity Management Plan and Emergency Response Plan	Plans to be submitted in September 2016. No permit required.
State			
South Dakota Department of Environment and Natural Resources	National Pollutant Discharge Elimination System General Permit for Discharges of Hydrostatic Test Water (SDG070000)	Consider issuance of General Permit for hydrostatic test water discharge to waters of the U.S., construction dewatering to waters of the state	Anticipate submitting in October 2015 upon completion of the hydrostatic test plan.
	Surface Water Withdrawal Permit	Consider issuance of surface water withdrawal permit for temporary use	
	South Dakota Codified Law Sec 34A-18 Oil Spill Response Plan	Oil Spill Response Plan	To be submitted in September 2016. No permit required.
South Dakota Game Fish and Parks	State Listed Threatened and Endangered Species	Consultation on natural resources	Agency stated they would comment through the PUC process and that no formal authorization is required.
South Dakota State Historical Society, State Historic Preservation Office	Section 106 of National Historic Preservation Act	Review and comment on activities regarding jurisdictional cultural resources	Class III report submitted in June 2015. Federal agencies will be consulting directly with the SHPO in relation to jurisdictional crossings.
South Dakota Department of Transportation	Crossing Permits	Consider issuance of permits for crossing state highways	Currently completing applications and have planning meetings scheduled.
Local			
County Road Departments	Crossing Permits	Issuance of permits for crossing of county roads	Currently completing applications and have planning meetings scheduled.

Permits/Consultation List and Status for South Dakota Segment of DAPL			
Agency	**Permit**	**Agency Action**	**Status as of June 2015**
County and Local Authorities	Floodplain, Conditional Use, and building permits where required	Review under county approval process	Evaluating the need for respective permits, applications will be submitted as required.

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

A. Dakota Access attempted to identify current and planned major industrial projects by reviewing South Dakota Public Utilities Commission and Federal Energy Regulatory Commission dockets as well as other publicly available online resources.

To date, no major projects within the Project vicinity have been identified through these searches; therefore no adverse cumulative impacts are anticipated.

Q. How did Dakota Access categorize land found along the pipeline?

A. The PUC land use categories (*italic*) were defined as follows for the Project.

a. *Lands used primarily for row and non-row crops in rotation* are agricultural fields that may be tilled but not irrigated. Primary row crops include corn, soybeans, sunflowers, and cereal grains.

b. *Irrigated lands* are agricultural fields irrigated with center pivots, furrows, or flood irrigation received from lateral ditches.

c. *Pasturelands and rangelands* include lands that may have been plowed at some time in the past and replanted to pasture grasses. There is a high to moderate component of non-native grasses.

d. *Haylands* include lands that have grass and alfalfa crops with evidence to suggest hay production such as the presence of bales.

e. *Undisturbed native grasslands* are dominated by native grass species. Non-native plant

species may be present but are in low densities. It also includes restored grasslands dominated by native grass species.

f. *Existing and potential extractive nonrenewable resources* include coal, uranium lignite, and oil resources that are in the vicinity of the Project.

g. *Other major industries* include wind power development and energy transfer.

h. *Rural residences and farmsteads, family farms, and ranches* are individual farmsteads and outbuildings, as well as farmstead windbreaks and shelterbelts.

i. *Residential* includes suburban and urban residential areas.

j. *Public, commercial, and institutional use* includes county roads, highways, and railroad ROWs, commercial developments, schools, and churches. This category includes roadway borrow ditches that may be vegetated.

k. *Municipal water supply and water sources for organized rural water systems* include surface water reservoirs and groundwater wells that withdraw water for public water supplies.

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

A. Four land use types were not documented along the proposed route, including existing and potential extractive nonrenewable resources; other major industries; municipal water supply and water sources for organized rural water systems; and noise sensitive land uses.

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

A. Permanent effects on surrounding land uses are not anticipated since the pipeline is primarily a below ground structure with little land use conversion.

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

A. The primary land use types impacted by the proposed Project are lands used for agriculture. Predominant agricultural land uses within the Project area are as follows: row crop agriculture, pastureland /rangeland, hayland, and irrigated land. A secondary use for many of the land use types is hunting and recreation; this is discussed further within Community Impact Section 23.1– Forecast of Impact on Community. Once installed, the pipeline will be below the surface and will not affect normal agricultural or recreation activities.

The public, commercial, and institutional use are road and railroad ROWs, including the borrow ditches. These areas crossed by the Project total a small percentage of the overall Project land uses (2.2 percent), but occur frequently because of the section line road system in South Dakota

Q. Does the project cross any public properties?

A. The only public property crossed in South Dakota is a State School and Public Lands tract, which is crossed for 2,783 feet in Campbell County.

The Project does not cross any federal or state-owned parks, recreation areas, or wildlife management areas within South Dakota. An analysis of natural or scenic areas within the Project corridor included designated scenic outlooks, viewing areas, recreational trail areas, preserves, and byways. No designated natural or scenic areas were identified along the route.

Q. What are the regional land forms in the project area?

A. The state of South Dakota is generally equally divided east and west by the Missouri River, with the western half of the state having greater topography than the eastern half of the state. The project is located in the eastern half of the state where elevations can range from 1,000 feet to 2,000 feet. The portion of Project area located east of the Missouri River and west of the James River is within the Glaciated Missouri Plateau of the Great Plains physiographic province (U.S. Geological Survey [USGS], 2004a).

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

A. A topographic map of the Project area is included in Exhibit A2.

Q. What geological features are in the project area?

A. The Project is located in the Great Plains and Central Lowlands physiographic provinces (USGS, 2004a), and lies within the glaciated portion of South Dakota. Surficial deposits within this region are composed primarily of alluvium, eolian deposits, lacustrine sediments, moraine (till), and outwash (USGS, 2005).

The bedrock geology is composed of Cretaceous and Precambrian aged rocks that formed in marine environments (The Paleontology Portal, 2003).

Bedrock in the Project area crops out along the Missouri River bluffs, along many rivers and creeks, and other areas where the glacial sediment has been removed by erosion.

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

A. Of South Dakota's primary non-fuel resources, approximately 69 percent of the total non-fuel production value in 2011 originates from a combination of cement (portland), clays, feldspar, gemstones, gold, gypsum, iron ore, lime, mica, silver, and stone (dimension granite). Crushed stone amount to approximately 16 percent of the state's non-fuel production value, while the remaining 15 percent comes from construction sand and gravel.

Campbell, Edmunds, Kingsbury, Lake, Lincoln, McPherson, Spink, and Turner Counties contain construction sand and gravel. Minnehaha County contains construction sand and gravel, as well as crushed stone. The SDGS Sand, Gravel, and Construction Aggregate Mining Interactive Map did not identify industrial mining operations within one mile of the Project area; therefore, it is not anticipated that the Project will impact mineral resources (SDGS 2014).

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

A. Maps depicting the limits of the soil map units within the Project area are provided in Exhibit A3. Exhibit C includes total crossing distance of each soil series unit, the acres impacted by construction of the aboveground pump station, and the characteristics of each of the soil map units within the Project area, including prime farmland, hydric properties, compaction potential, erosion, restrictive soil layers, shallow bedrock, and revegetation properties.

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

A. The U.S. Department of Agriculture (USDA) defines prime farmland as "land best suited to food, feed, forage, fiber, and oilseed crops" (Natural Resources Conservation Service [NRCS], 2014).

Approximately 37 percent (99.9 miles) of the soils crossed by the pipelines are considered to be prime farmland, and approximately 44 percent (120.5 miles) of the route is identified as farmland of statewide importance.

The pump station in Spink County is located on 4.3 acres of prime farmland; however this location is not under active cultivation.

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

A. The majority of the soils within the Project area are classified as hydric in Exhibit C, some of which are prime farmland if drained. Soil compaction and rutting will likely result from the operation of heavy equipment along the Project. The extent of soil compaction will depend on the degree the soils are saturated, with the most severe compaction occurring where heavy equipment is operated on highly saturated soils. Dakota Access will minimize these impacts by implementing mitigation measures during construction such as the uses of timber mats or the use of low ground weight bearing equipment. Decompaction in the form of ripping/tilling will take place where needed during restoration.

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

A. Soils with high erosion potential within the Project area were identified based on NRCS designations of land capability class and subclass. The majority of the soils within the Project area have low erosion potential. Various areas are characterized by steep slopes (slopes greater than 8 percent) and are indicated as such in Exhibit C. To minimize or avoid potential erosion impacts, Dakota Access will utilize erosion and sedimentation control devices as described in the Project-specific SWPPP (Exhibit D).

Environmental Inspectors will be retained throughout construction to oversee and report on construction compliance. The effectiveness of revegetation and permanent erosion control devices will be monitored by Dakota Access' operating personnel during the long-term operation and maintenance of the Project Facilities.

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

A. No shallow bedrock was identified within the Project area; however shallow Natric was identified through desktop analysis and field surveys. Natric is a subsoil layer with a high concentration of sodium salts. Dakota Access has retained an agricultural consultant to develop specific mitigation measures for work in these areas.

Q. How will the project revegetate the construction areas?

A. Once the land contours are restored, a seed bed will be prepared in non-agricultural areas and reseeded with appropriate seed mixed based on the time of year, landowner agreements, and land managing agency recommendations. Additionally, any necessary additional erosion protection measures will be implemented/installed including water berms, mulch, erosion control mattiner, etc. Agricultural areas will be turned over to the farmer to resume agricultural

activities in agreement with the easements.

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

A. Seismic hazards include earthquakes, surface faulting, and soil liquefaction. According to the USGS Seismic Hazards maps for the U.S., the Project is situated in an area of very low seismic probability; therefore no mitigation is proposed.

Q. Is there karst terrain along the pipeline?

A. Karst terrain results from the dissolution of highly soluble bedrock such as limestone and dolomite. Areas with karst terrain are more susceptible to subsidence events (Galloway et al., 2005). Karst occurs in approximately 47.5 miles of the Project ROW.

Q. Are there areas of expected slope instability along the pipeline route?

A. Slope instability occurs when unconsolidated soils and sediments located on steep slopes become saturated, usually from a flooding event. Only one geologic formation is known to be susceptible to landslides in the Project area, the Pierre Shale. Approximately 189 miles of the Project area is located in Pierre Shale

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

A. If shallow bedrock or boulders are encountered during construction that cannot be economically excavated from the ROW by an excavator or rock trencher, blasting may need to be utilized to assist in ditch excavation. In the unlikely event blasting is necessary; Dakota Access has developed a Blast Plan for the Project which outlines best management practices to minimize potential impacts due to blasting.

As outlined in Section 14.7− Seismic and Subsidence, desktop studies have identified a potential for karst geology along certain portions of the route. Dakota Access will conduct pre-

construction training to educate personnel on the identification of karst features during excavation. If karst features are identified along the route, Dakota Access will take steps to ensure the integrity and safety of the pipeline, which may include realignment or specialized construction techniques.

Q. Has the pipeline examined the impacts to hydrology from construction?

A. The following sections include information on the hydrology of the Project area including drainage patterns, water uses, and hydrostatic testing.

Q. Will the pipeline interfere with drainage patters along the route?

A. The pipeline is a below ground facility and therefore will not interrupt drainage patterns within the Project area.

Q. What are the sensitive area or water uses along the project route?

A. Consultation with the SDDENR during the Project fatal flaws analysis identified Zone A Wellhead Protection and Source Water areas within Minnehaha County. These areas define the boundaries in which the land area contributes water to a well. These protection areas are in place to protect the quality of local drinking water (SDDENR, 2014a). The baseline centerline crossed/clipped two of these areas; however, through the reroute process Dakota Access has successfully avoided crossing these protected areas.

The South Dakota Association of Rural Water Systems supports water uses including clean drinking water and water for local agriculture and industries. These water uses are managed throughout the state by districts based on region. The Project crosses seven rural water systems within South Dakota including WEB, Mid Dakota, Kingbrook, Minnehaha, Lincoln, South Lincoln, and the Lewis and Clark system which overlaps the majority of these water districts that are located on the eastern border of the state, and continues into Iowa. Dakota Access is in

discussions with the rural water systems regarding appropriate methods and measures for crossing their respective lines.

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

A. Dakota Access will utilize surface waters as a water source for hydrostatic testing in agreement with the owners of the water rights and/or any state or federal permit. The exact locations of the hydrostatic testing and discharge sites will be determined in coordination with the selected contractor. Groundwater is not expected to be used during construction or operation.

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

A. Groundwater is not currently proposed for use during construction and operation of the Project. The trench will need to be dewatered occasionally where the shallow groundwater or stormwater is pumped from the trench and discharged to a near-by upland to create a more suitable working environmental for installing the pipeline. This effect of this pump and discharge will be highly localized and is not anticipated to have impacts to the use of groundwater in the immediate or general project area.

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

A. Dakota Access is permitting the Project through the USACE nationwide permit program for Section 404/10 of the Clean Water Act (CWA) impacts; specifically Nationwide Permit 12. The SDDENR has previously issued Section 401 water quality certification for projects that qualify for nationwide permit 12 coverage; Dakota will abide by all general and regional conditions of the permits.

Under Section 303(d) of the CWA, states are required to identify waterbodies that are not attaining their designated use(s) and develop total maximum daily loads (TMDLs), which

represent the maximum amount of a given pollutant that the a waterbody can assimilate and still meet its designated use(s). Three U.S. Environmental Protection Agency (EPA) 303(d) impaired waterbodies are crossed by the project: Turtle Creek, James River, and Big Sioux River. However all will crossed by HDD and additional impacts to these impaired waterbodies are not expected.

The general discharge permit for hydrostatic test water discharges will be sought as needed and conditions adhered too, direct discharges to waters are not proposed.

Q. Please describe the terrestrial setting of the project.

A. The Project area crosses the Great Plains Steppe Province and the Prairie Parkland (Temperate) Province ecoregions (USDA, 2014a). The western part of the Project area in South Dakota is located in the Great Plains Steppe Province and is characterized by rolling, flat plains. Elevations slope from approximately 2,500 feet from the west to 1,000 feet in the eastern section of this ecoregion. The majority of this region is made up of young glacial drifts and dissected till plains. Vegetation is mostly comprised of short and tallgrass prairie with not much woody vegetation. However, there are some scattered areas of eastern cottonwood (*Populus deltoids*) forested floodplains within this prairie dominated ecoregion (USDA, 2014b).

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

A. The Project route crosses six terrestrial vegetation community types in South Dakota which largely mirror the PUC land use types and include pastureland/rangeland (18%), native grassland (<1%), hayland (7%), row-crop agriculture (71%), residences and farmsteads (<1%), and ROW corridors (2%). The predominant vegetation communities crossed are row-crop agriculture and pastureland/rangeland as depicted in the table below.

Vegetative Communities Crossed by the Project	
Counties	**Vegetation Communities (acres)**

Crossed (North to South)	Pastureland / Rangeland	Native Grassland	Hayland	Row-Crop Agriculture	Residences & Farmsteads	Right of Way Corridors
Campbell	222.3	30.1	102.4	189.0	1.5	15.5
McPherson	8.4	0.0	2.9	107.9	2.7	3.8
Edmunds	45.1	0.0	56.5	593.0	0.2	12.8
Faulk	73.4	0.0	47.2	420.2	4.0	12.7
Spink	182.5	0.0	42.7	461.7	2.1	19.3
Beadle	154.7	0.0	24.5	352.5	2.8	12.0
Kingsbury	73.4	0.0	29.7	303.0	1.2	9.3
Miner	23.2	0.0	0.7	242.0	9.3	6.9
Lake	59.6	0.0	26.3	268.0	1.0	6.8
McCook	2.6	0.0	4.3	19.6	0.1	0.7
Minnehaha	90.4	0.0	21.9	375.2	0.3	16.1
Turner	6.5	0.0	5.0	28.0	2.4	0.9
Lincoln	27.4	10.8	5.6	403.0	2.6	11.3
State Total	**969.3** **18 %**	**41.0** **< 1%**	**369.5** **7%**	**3763.1** **71%**	**30.0** **< 1%**	**128.1** **2 %**

Q. Please describe the pastureland/rangeland crossed in South Dakota.

A. The pastureland/rangeland vegetative community is primarily located in the northern portion of the Project in South Dakota and includes lands that may have been plowed at some time in the past and replanted to non-native pasture grasses. The primary land use is grazing by livestock. This plant community has a high to moderate percent cover of non-native grasses. Native grasses and forbs may be present but are not dominant and have low cover.

Q. Please describe for us the native grassland community.

A. The native grassland vegetative community includes grassland dominated by native mixed grass and tall grass species. Non-native plant species may be present but in low quantities. This land use includes undisturbed grasslands that may have been plowed at some time in the past. It also includes restored grasslands dominated by native grass species. Native grasslands were only identified in Campbell and Lincoln counties.

Q. Please describe the hayland plant community.

A. The hayland plant community is land that has been cropped for hay forage production.

Q. Please describe row-crop agriculture.

A. Row-crops are characterized by annual herbaceous vegetation planted for the production of human consumption, animal feed, biofuel, or other specific purposes. Row-crop agriculture accounts for the majority (71 percent) of the Project route.

Q. Please describe the vegetation in residences and farmsteads.

A. This vegetation community describes the rural residences and farmsteads, and suburban residential land uses and may include farmsteads and outbuildings (including abandoned farmsteads), farm windbreaks and shelterbelts, and maintained residential yards.

Q. Please describe the vegetation along existing right-of-way corridors.

A. These are road and railroad ROWs including the vegetated borrow ditches. Vegetation is typically non-native planted vegetation, some native species are present and tract noxious species can be present.

Q. What are the noxious weeds?

A. In addition to collecting data on the vegetative communities just described, Dakota Access identified and collected data on areas of noxious weeds encountered along the route. There are 7 noxious weeks published on the South Dakota state noxious weed list (South Dakota Weed - Chapter 38-22). South Dakota counties also have noxious weed lists for species that are locally problematic. Table 16.1-2 from the application lists the state and county listed noxious weeds in South Dakota and is presented below.

Table Error! No text of specified style in document.**-1**
2014 South Dakota State and County Noxious Weeds

Latin Name	**Common Name**	**State**	**County**
Acroptilon repens	Russian knapweed	X	
Arctium minus	*burdock		X

Table Error! No text of specified style in document.**-1**
2014 South Dakota State and County Noxious Weeds

Latin Name	Common Name	State	County
Artemisia absinthium	*absinth wormwood		X
Cardaria draba	hoary cress / whitetop	X	
Carduus acanthoides	*plumeless thistle		X
Carduus nutans	*musk thistle		X
Centaurea diffusa	diffuse knapweed		X
Centaurea maculosa	spotted knapweed		X
Cichorium intybus	chicory		X
Cirsium arvense	*Canada thistle	X	
Cirsium vulgare	*bull thistle		X
Conium maculatum	*poison hemlock		X
Convolvulus arvensis	*field bindweed		X
Cynoglossum officinale	houndstongue		X
Euphorbia esula	*leafy spurge	X	
Hyoscyamus niger	black henbane		X
Hypericum perforatum	St. Johnswort		X
Leucanthemum vulgare	oxeye daisy		X
Linaria dalmatica	Dalmatian toadflax		X
Linaria vulgaris	*yellow toadflax		X
Lythrum spp.	purple loosestrife	X	
Onopordum acanthium	Scotch thistle		X
Phragmites australis	**Phragmites* / common reed		X
Polygonum sachalinese	giant knotweed		X
Potentilla recta	sulfur cinquefoil		X
Sonchus arvensis	*perennial sowthistle	X	
Tamarix spp.	saltcedar	X	
Tanacetum vulgare	common tansy		X
Tribulus terrestris	puncturevine		X
Verbascum thapsus	common mullein		X

Source: South Dakota Department of Agriculture, 2014
* Noxious weeds identified to date within the Project area.

Dakota Access is collecting noxious weed species locations, and the size and percent canopy cover of infestations during field surveys along the Project route. To date, a total of 12 species of state and county noxious weeds were documented within the Project area (Table 16.1-2). The overall percentage of canopy cover was low (3.4 percent) within areas where noxious weeds were identified during field surveys. Canada thistle, field bindweed, and absinth wormwood

(*Atemisia absinthium*) are the common noxious weeds identified along the proposed route.

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

A. Both temporary and permanent impacts to vegetation may occur as a result of the Project. Row-crop agriculture and haylands will be temporarily disturbed and removed from production during construction. However, agricultural production will resume during the growing season following completion of the pipeline construction. Dakota Access will restore row-crop agriculture and haylands to preconstruction conditions as soon as practicable following construction in accordance with the Agricultural Impact Mitigation Plan (AIMP) (Exhibit D of the application) and landowner agreements. Landowners will be compensated for crop losses, short term reduced yields, and other damages resulting from the pipeline construction.

The proposed Project area includes limited areas of residences and farmsteads, including windbreaks. The 50-foot pipeline permanent ROW will be kept clear of trees, to allow for pipeline inspection and maintenance. Landowners will be compensated for loss to landscaping, timber, etc. on areas impacted by the project. Disturbed areas outside the permanent ROW will be revegetated with a recommended seed-mix and natural succession will allow the vegetation to revert to preconstruction types. Tree and shrub replanting is not proposed.

The route crosses grasslands and pastureland/rangeland that are primarily used for grazing. This grass-dominated land cover controls water runoff and sediment from directly entering groundwater, nearby lakes, rivers ponds and streams while contributing to wildlife habitat and livestock forage. Dakota Access will restore all grasslands as near to pre-construction conditions as practicable. Where conservation programs are in place, Dakota Access will work in accordance with the Natural Resource Conservation Service and Farm Service Agency regarding

reseeding and reclamation.

Dakota Access will incorporate topsoil segregation within agriculture, improved pasture, and residential areas during construction. A maximum depth of 12 inches or to the depth of top soil if less than 12 inches, or as agreed upon with the landowner, will be segregated. Unless otherwise requested, 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, ensuring preservation of topsoil within the construction area. This practice preserves the seed bank within the topsoil and encourages revegation within the ROW.

Reclamation and revegetation of grasslands and pastureland/rangeland may include soil conditioning such as de-compaction when reseeding as necessary to improve vegetative re-growth. Seed mixes will be developed based on data from pre-disturbance field surveys and with input from the local NRCS.

Revegetation success will be monitored along the pipeline ROW in accordance with applicable requirements.

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

A. To mitigate the spread of any noxious weeds, BMPs and weed control practices during construction and operation may be implemented; common measures include:

- Treating known noxious weed infestations prior to ground disturbance.
- Immediately reseeding following construction.
- Using weed-free seed in reclamation activities.
- Using weed-free erosion control materials.

Routine mowing of the permanent right-of-way can assist in week control. Operation and maintenance excavation activities should not exacerbate noxious weed conditions since

disturbances will be infrequent and isolated.

Q. What types of terrestrial wildlife may be found along the pipeline route?

A. The Project area provides foraging and sheltering habitat for many species of mammals, raptors, and songbirds.

Q. What impacts to wildlife are expected and what mitigation measures will be adopted?

A. Construction will be short-term and result in temporary and permanent impacts to wildlife. Given the large percentage of agricultural development along the Project ROW, species that may utilize the Project area are used to seasonal vegetation impacts. Displacement of more mobile species from the corridor to adjacent similar habitat could occur during increased human and equipment presence during the construction period. Causality to less mobile species may take place during the clearing and grading phases of construction.

The Project area will be returned to pre-construction contours, land uses, and vegetation cover after pipeline construction. There are very few trees along the project ROW, and where impacts occur, they are typically associated with residences and shelterbelts; many of which are comprised of fast growing non-native tree species.

Q. Are there terrestrial sensitive, threatened and endangered species wildlife found along the pipeline corridor?

A. A comprehensive list of federal and state listed species within the counties crossed by the Project, including habitat assessments and determinations of impact or effect on the species was performed. Early coordination and informal consultation with the USFWS, the South Dakota Natural Heritage Program (SDNHP), and South Dakota Game, Fish and Parks (SDGFP) was initiated. Species occurrence records and designated critical habitat were obtained.

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

A. Based on completed survey data and assessment, no effect to protected terrestrial species is anticipated. Dakota Access is continuing to consult with the resource agencies to obtain concurrence with this determination prior to initiating construction.

Q. Approximately how many waterbody crossings have been identified?

A. Dakota Access has identified 279 waterbody crossings located within the Project footprint. Of these, 10 are perennial, 105 are intermittent, 139 are ephemeral streams, and 25 are ponds (open water). The MP, waterbody name, state water classification, and flow regime for surface waters crossed or otherwise impacted by the Project can be found in Exhibit C. The Project does not cross any waterbodies categorized as high-quality fisheries within South Dakota. A total of three waterbodies crossed by the Project are categorized as low-quality, and have warmwater fishery classifications: Turtle Creek (warmwater marginal), James River (warmwater semipermanent), and Big Sioux River (warmwater semipermanent) (ARSD 74:51:01, 2014); all of which will be crossed via HDD.

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

A. Impacts to waterbodies that are open-cut will be limited to general crossing area during the construction phase and include: increased sedimentation and turbidity; introduction of water pollutants; or entrainment of fish. To reduce the possibility of potential impacts from a potential release, Dakota Access will implement the Spill Prevention, Containment, and Countermeasures Plan. No permanent long-term effects on water quality or fish communities are anticipated to occur as a result of the construction or operation of the pipeline.

Dakota Access will minimize potential impacts to open-cut waterbodies by implementing best management practices, where necessary.

Maintenance activities within the Project area will likely be infrequent, short-term, isolated, and will not affect aquatic biota or their habitat

The pipeline trench will be excavated immediately prior to pipe installation to limit the duration of construction will be expedited to minimize impacts. Excavated materials will be stored no less than 10 feet from the edge of the waterbody and temporary erosion control devices will be utilized to prevent the sediment from reentering the waterbody. Additional temporary workspace will be set back a minimum of 30 feet from the waterbody where conditions allow and vegetation will remain in place along the banks for as long as practical prior to crossing to further filter sediment from entering the waterbody. Bridges will be installed to allow for maximum flow of the waterbodies, and down stream flow will be maintained throughout construction actvities

The HDD crossing method will be utilized at all waterbody crossings greater than 100 feet wide, where required to avoid impacts to sensitive resources, and as needed for other constructability concerns. The HDD method allows for pipeline installation without excavating a trench. A HDD Contingency Plan has been prepared for construction. HDD crossings of wetlands and waterbodies are listed in the table below.

Wetland and Waterbody Horizontal Directional Drill Locations		
County	**Waterbody Name**	**HDD Length**
Faulk	Wetland	1,270
Spink	Turtle Creek	1,500
Spink	Wetland	1,650
Beadle	James River	3,227
Beadle	Wetland	1,194
Lincoln	Big Sioux River	2,350

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

A. Wetlands are limited in extent to depression features (e.g., prairie potholes) and riparian

areas. Palustrine emergent (PEM) wetlands are the dominant wetland type throughout the Project area; there is one shrub scrub wetland and no forested wetlands.

Table 17.2-1 below summarizes all wetlands within the Project area; this includes USACE jurisdictional wetlands and non-jurisdictional wetlands.

Summary of Wetlands Crossed by the Dakota Access Project by County			
County	**PEM (acres)**	**PSS (acres)**	**Total (acres)**
Beadle County	4.4	0	**4.4**
Campbell County	2.7	0	**2.7**
Edmunds County	8.3	0	**8.3**
Faulk County	7.0	0	**7.0**
Kingsbury County	5.0	0	**5.0**
Lake County	5.1	0	**5.1**
Lincoln County	1.4	0	**1.4**
McCook County	3.5	0	**3.5**
McPherson County	2.5	0	**2.5**
Miner County	2.5	0	**2.5**
Minnehaha County	5.0	0.6	**5.6**
Spink County	20.9	0	**20.9**
Turner County	0.2	0	**0.2**
Total	**68.5**	**0.6**	**69.1**

Q. What impacts to wetlands are expected and how did Dakota Access work to minimize impacts?

A. Dakota Access has designed the Project to avoid permanent fill in wetlands. Aboveground facilities have been sited within upland areas resulting in no permanent loss of wetlands. As wetland features were surveyed, minor route adjustments were made where practicable to avoid or minimize the impact. Some wetland impacts will be avoided by implementation of an HDD.

Temporary impacts to wetlands that will be open cut will be limited to the construction phase and include disturbance of vegetation, potential for sedimentation, temporarily increased turbidity and related secondary effects.

Q. What best management practice will be implemented to protect and restore them?

A. Where impacts to wetlands are unavoidable, Dakota Access will implement BMPs to ensure that the wetland is restored post-construction in accordance with appliable regulations and permits. These BMPs include the following:

- Wetland boundaries will be clearly defined and marked prior to initiating construction in the area.
- The minimum construction equipment necessary for pipeline installation will be utilized within wetlands.
- If standing water or saturated soil conditions are present, or if construction equipment will cause ruts or mixing of the topsoil and subsoil, construction equipment operating in wetland areas would be limited to the use of low ground pressure equipment or normal equipment operating from timber equipment mats.
- Limit tree stump removal and grading within wetlands to the area directly over the pipeline, unless required for safe installation.
- Segregate topsoil from the area directly over the trench line in unsaturated soils.
- Use of trench plugs/breakers at wetland boundaries ensures that wetland hydrology is restored following construction.
- Pre-construction contours will be restored along the pipeline ROW, allowing wetlands to naturally revegetate.

Q. What sensitive, threatened and endangered aquatic species might be found along the route?

A. A comprehensive list of all federal and state listed species within the counties crossed by the Project, including habitat assessments and determinations of impact or effect on the species

was completed.

The USFWS South Dakota Ecological Field Office identified eight waterbodies crossed by the Project that have Topeka shiner occurrences; including the James River, Shue Creek, Pearl Creek, Middle Pearl Creek, Redstone Creek, Rock Creek, East Fork Vermillion River, and Big Sioux River. An additional waterbody, the West Fork Vermillion River, was also identified for occurrence; however, the project crosses in its headwaters where it is an emergent wetland with no perennial flowing water and therefore not suitable habitat for the species. Some of these will be crossed via HDD and avoid impacts to the species. All open cut crossing will take place in accordance with the *Programmatic Biological Opinion for the Issuance of Selected Nationwide Permits Impacting the Topeka Shiner in South Dakota* (October 2014) and result in no likely adverse effects.

The northern river otter and whooping crane have SDNHP species occurrence records within one mile of the Project. The northern river otter has been documented in the James and Big Sioux Rivers (SDNHP, 2014 and SDGFP, 2014c) within the Project area; however, both of these rivers will be crossed via HDD so potential impacts to the northern river otter will be avoided. The Project area is within the migratory range of the whooping crane; however, this stop-over species is highly mobile and would likely avoid construction areas for the vast similar and suitable habitat throughout the area and region, therefore no effect on this species is anticipated.

No other aquatic threatened, or endangered aquatic species or their critical habitat has been reported within two miles of the Project. Pending final results of field surveys and input from resource agencies, appropriate mitigation and protection measures will be implemented to minimize potential impacts.

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

A. Air quality impacts along the pipeline include potential air emissions during both construction and operation of the pipeline. Dakota Access will comply with all federal and state air quality regulations that are applicable to the proposed facilities along the pipeline and will take necessary steps to ensure that they do not cause an exceedance of any air quality standard. There is one proposed pump station along the pipeline; however, if the potential to emit is below 25 tons per year of each of the relevant criteria pollutants, a source is exempt from obtaining either a construction or operating permit in South Dakota. Emissions from the pump station are anticipated to be well below this threshold; additionally emissions from all launcher/receiver and main line valve sites will be well below the threshold. Therefore, no air permits are being sought.

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

A. Cultural resources surveys were conducted for the Project in accordance with Section 106 of the National Historic Preservation Act and the guidelines set forth by the South Dakota State Historical Society to identify and record the extent and temporal affiliation of archaeological resources and assess the potential eligibility for inclusion in the National Register of Historic Places (NRHP).

In August of 2014, consultation was initiated with the South Dakota State Historic Preservation Office (SHPO), and a scope of work was submitted and approved that detailed the Level III intensive survey plan for the Project. It included a survey plan for the Pre-construction Notification (PCN) permit areas defined by the lead Federal agency (USACE-Omaha District), provided a tiered survey approach for high and moderate probability areas as delineated through extensive background research, and the survey of any identified NRHP properties to comply with SDCL 1-19A-11.1. To provide additional information to the SHPO, GIS modeling based on

environmental factors and known cultural resources was used to create a predictive model for locations of unidentified cultural resources.

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

A. Prior to initiating fieldwork for the proposed project route and all reroutes/route modifications, literature reviews were conducted. No properties listed in the NRHP are located within 1-mile of the Project centerline. Within one mile, 215 previous surveys, 148 archaeological sites, 397 historical structures and, eight cemeteries were noted. Two of these resources, both railroad segments, are eligible for inclusion in the NRHP; one which is not within the Project footprint and will be not be impacted and the other is the grade bed for the historic Great Northern Railroad in Spink County.

Q. Has the project performed archaeological investigations?

A. Archaeological investigations were conducted from August through November 2014 and March through July of 2015. Fieldwork consisted of pedestrian reconnaissance, shovel test excavation and test unit excavation. The artifacts collected during this survey were washed, analyzed, and catalogued. As of July 1 2015, all high and moderate probability areas have been surveyed in addition to low probability areas where access was permitted for a total of 97.7% of the route.

Surveys of three previously recorded sites (39CA85, 39ED53, 39BE85) listed as unassessed were re-surveyed and not relocated.

Three stream crossings in the Project were determined by the Level III survey to have the potential for buried cultural deposits. Deep trenching was conducted at these locations following a SHPO approved scope of work. The results of the trenching were negative for cultural material.

Q. Are any sites found along the project eligible for inclusion in the NRHP?

A. As of July 2015, a total of 55 cultural resources consisting of 50 archaeological sites and two historical districts and three individual structures were documented within the Project footprint. Of these, 42 sites have been recommended to be not eligible for inclusion in the NRHP. These sites consist of artifact scatters, isolated finds, or historic sites that do not possess adequate data or integrity to meet NRHP criteria. The three relocated sites discussed in the previous response remain unevaluated. The remaining ten sites consisting of two newly recorded prehistoric stone circle sites, two revisited prehistoric sites (39BE29/39BE94/39BE95; 39LN21), and six historic railroad/railroad bed segments have been recommended as eligible for inclusion in the NRHP. Reroutes have been evaluated to avoid impacts for the newly recorded prehistoric stone circle sites in Campbell County. Additionally, sites 39BE29/39BE94/39BE95 and 39LN21 will be avoided by HDD.

In South Dakota, all railroads are considered eligible for inclusion in the NRHP. Upon consultation with the SHPO it was determined that a construction trench could be excavated across the bed, but the bed must be reconstructed at the conclusion of construction. Photographic documentation and a brief context for each of these sites was determined to be an appropriate mitigation measure for the portion of the railroad beds impacted by the project. Dakota Access will comply with the excavation and restoration of these beds; therefore the impact would be negligible.

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

A. Reports detailing the results of the comprehensive field investigations were prepared in accordance with the SHPO Guidelines submitted to the SHPO in June 2015 for review, no comments have been received to date. An Unanticipated Discovery Plan was also submitted to

the SHPO.

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

A. Yes.

Dated this _____ day of July, 2015

_____

Monica Howard

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA

IN THE MATTER OF THE APPLICATION OF DAKOTA ACCESS, LLC FOR AN ENERGY FACILITY PERMIT TO CONSTRUCT THE DAKOTA ACCESS PIPELINE PROJECT	))))))	HP14-002

DIRECT TESTIMONY OF

JOHN H. EDWARDS "JACK"

ON BEHALF OF

DAKOTA ACCESS, LLC

DAKOTA ACCESS EXHIBIT 5

July 6, 2015

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

A. John H. Edwards "Jack", 4401 S. Technology Dr., South Suite, Sioux Falls, South Dakota, 57106

Q. Can you briefly describe your education and experience?

A. I graduated High School, with college engineering courses. I have over 35 years of work experience in the pipeline industry and held positions in both operations/maintenance and new pipeline and facility construction. Some of the positions I held are Construction Manager, on maintenance and new pipeline construction projects and Project Manager, on new pipeline projects.

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

A. I am responsible for construction related sections of the application including sections: 19. Local Land Use Controls; 22. Time Schedule; 23.5. Forecast of Impact on Transportation; 24. Employment Estimates; 25. Future Additions and Modifications;

Q. Can you briefly describe construction of the pipeline facilities?

A. Construction of the new pipeline will require a typical construction ROW width of 125 feet in uplands, 100 feet in non-forested wetlands, 85 feet in forested areas (wetlands and uplands), and up to 150 feet in agricultural areas. Following construction, a 50-foot wide permanent easement will be retained along the pipeline. There will be one full Pipeline Spread in South Dakota and two partial Spreads. Each pipeline construction Spread will have approximately 900 personnel including sub-contractors and approximately 100 Inspection stall which includes Right of Way representatives and administration staff. The typical pipeline construction sequence is: (i) Survey and staking of workspace; (ii) Clearing and Grading, construction crews will clear trees, install temporary bridges to cross small water bodies, and

install temporary gates in existing fences; (iii) Right of Way grading, workspace will be leveled to make a safe work area, top soils will be separated as per DAPL Agricultural Impact Mitigation Plan; (iv) Stringing of pipe, pipe is trucked from the pipe storage yards and laid adjacent to pipeline ditch area; (v) Bending of pipe, using a bending machine pipe is bent so pipe can be installed at different elevation as required; (vi)Welding, pipe is welded into long sections; (vii) Non Destructive Examination (NDE), all welds are inspected to ensure their integrity; (viii) Trenching, pipe ditch is dug to required depth; (ix) Pipe Lowering, pipe is lowered into ditch in long sections; (x) Backfill, pipe ditch is backfilled; (xi) Rough Grade, the remaining subsoil and top soils are placed over workspace; (xii) Hydro Testing, pipe sections will be filled with water and pressure test to 1.25 times maximum operating pressure (MOP); (xiii) Final Clean-up, (xiv) Full Restoration, workspace is leveled to preconstruction condition, grasses planted, fences repaired, pipeline warning signs placed along easement.

Q. What is the construction and operating timeline?

A. Dakota Access anticipates starting construction within South Dakota in 2015 as soon as applicable permits and approvals have been issued. Commissioning of the facilities should occur in August 2016 for in-service in October 2016. Restoration activities will continue as necessary to ensure proper restoration of the disturbed areas.

Q. Can you describe the typical drawings included in Exhibit B?

A. DAPL filed five Typical Right of Way Configurations for construction of the pipeline. During construction of the pipeline, the contractor will prepare work space following these Typical Right of Way Configurations. Each typical is designed to ensure topsoil is protected from mixing with subsoil.

Those five typical are as follows:

1. Agricultural-Full top Soil Segregation w/ Drain Tiles (P12-54-SD) illustrates topsoil to be stripped and segregated for the entire width of work space, 125 feet wide, with an additional 25 feet for top soil storage. Also, illustrates pipeline being installed with 2 feet separation from drain tiles. Depth of topsoil segregation is maximum 18 inches or minimum actual depth.

2. Upland Construction Full Top Soil Segregation (P12-55-SD) illustrates top soil to be stripped and segregated for the entire width of work space, 125 feet wide, with an additional 25 feet for top soil storage. Topsoil could be stored on either side of the workspace. Depth of topsoil segregation is maximum 18 inches or minimum actual depth.

3. Upland Construction Ditch Line Only Soil Segregation (P12-56-SD) illustrates topsoil segregation ditch line and ditch spoils storage, 125 feet wide work area. Depth of top soil segregation is maximum 18 inches or minimum actual depth.

4. Emergent Non-Saturated Wetlands and Heavily Forested Lands (P12-57-SD), illustrates topsoil to be stripped and segregated for ditch line and ditch spoil storage area, 100 feet work wide. Depth of topsoil segregation is maximum 18 inches or minimum actual depth.

5. Forested and Scrub Shrub Saturated Wetlands (P12-58_SD), illustrates topsoil to be stripped and segregated for the entire width of work space, 85 feet wide of work area. Although not illustrated on typical drawing, the contractor may choose to place timber mat in working area instead of stripping top soil. Timber mat will allow equipment to travel work area without mixing of topsoil with subsoil.

Q. Are there plans for the valve sites?

A. Typical Piping and Plan Elevation, 30 inch Mainline Valve Pipeline (P12-48) illustrates the 50 feet by 75 feet area required for the Mainline Block Valves. Block Valve will be installed

aboveground and area will be fence with a 6 feet chainlink fence.

Q. Are there pump station plans?

A. Pump Station Site Typical, illustrates the 9 plus acres purchased in fee by DAPL, with the pipeline launcher/receiver with pump station tie-in piping. Additionally, this Typical illustrate basic pump station layout.

Q. Please describe the additional temporary work space requirements of the pipeline?

A. Where necessary, Dakota Access will utilize additional temporary workspace (ATWS) outside of the construction ROW to facilitate specialized construction procedures, such as horizontal directional drills (HDDs); railroad, road, wetland, waterbody, and foreign utility line crossings; tie-ins with existing pipeline facilities; areas with steep side slopes; and pipeline crossovers. These ATWS will be allowed to revert to pre-existing conditions following construction activities, so there will be no permanent impacts on these areas.

Q. Will restoration be required?

A. Yes. Final restoration of pipeline easement and temporary work space shall be completed once pipeline is installed. All restoration shall be completed in accordance with the Agricultural Mitigation Plan, landowner and Permit requirement.

Q. Where will the project store pipe and other equipment necessary for construction?

A. During construction of the pipeline, the contractor will require off ROW areas for the storage of pipe and equipment necessary for the construction of the Project facilities. These staging/contractor yards will be located near the Project at locations with convenient and safe access to the Project areas. Efforts will be made to select contractor yards that have been previously disturbed by human activity but do not have an ongoing land use that will preclude Project usage. These areas will also be restored to preconstruction conditions or as otherwise

directed by the landowner.

Q. How will the project access work space to construct the pipeline?

A. Dakota Access will utilize existing public and private roads to access the pipeline ROW and aboveground facilities to the extent practicable. Existing roads utilized will include paved, gravel, or pasture roads, and other conveyances. Some roads will require modification or improvement to facilitate safe access for construction equipment and personnel. The Project may require construction of new temporary and permanent roads to provide access to the new pipeline both during construction and for future pipeline maintenance activities. Access roads have not been thoroughly defined during this early design phase. Dakota Access will seek and enter into road use agreements with all affected units of government and private landowners

Q. Will the pipeline require the use of water during construction?

A. Yes, there are two types of water uses required for the construction of the pipeline. Water is necessary for horizontal directional drilling (HDD) and hydrostatic testing the pipeline to insure the integrity.

Water for the HDD operation is used to mix with bentonite for drilling operation lubrication, hole stability and to remove drill cuttings from the hole.

Water required for hydrostat testing is temporarily used. Hydrostatic testing shall be conducted to verify the integrity of the newly installed pipeline, and will be conducted in accordance with the requirements of PHMSA pipeline safety regulations (49 Code of Federal Regulations [CFR] Part 195), Dakota Access testing specifications, and applicable permits. Dakota Access will develop a hydrostatic test plan, following completion of survey and design, and in coordination with the selected contractor.

All applicable laws, rules and permits will be followed throughout this process.

Q. Will water be discharged after its use?

A. Yes, water will be discharged as a result of these two types of uses. Hydrostatic testing discharge water is filtered and discharged back to water sources in accordance Landowner and permit requirements, utilizing applicable BMPs (SWPPP, Exhibit D to the Application) to reduce the rate of water flow and prevent scouring from runoff. Based on the implementation of these measures, no impacts to local hydrology are anticipated and all applicable laws, rules and permits to do so will be obtained and followed.

Q. How else will hydrology be affected?

A. In addition, trench dewatering will occur on an intermittent basis along the Project ROW dependent on site conditions and weather during the construction period. During construction, open trenches may accumulate water from groundwater seepage or precipitation. Under these circumstances, trench dewatering will be used to pump accumulated water from the trench, away from nearby waterbodies, and into vegetated upland areas. Water pumped out of trenches will be discharged in strict compliance with DAPL Agricultural Impact Mitigation Plan and Landowner requirements, utilizing applicable BMPs to reduce the rate of water flow and prevent scouring from runoff.

Q. Will the pipeline utilize deep well injection?

A. Dakota Access does not anticipate utilization of deep well injection for this Project.

Q. Are any homes displaced along the project route?

A. The Project does not displace any homes.

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

A. Permanent effects on surrounding land uses are not anticipated since the pipeline is

primarily a below ground structure with little land use conversion.

Q. Did the project prepare an agricultural impact mitigation document?

A. Yes. It was attached as Exhibit D.

Q. Please describe the agricultural impact mitigation document.

A. Construction activities will temporarily disturb the land uses within both the construction and permanent ROW. Following construction, these areas will be re-contoured to previous conditions, reseeded and/or return to previous agricultural uses. Drainage systems such as roadway ditches or drainage tile crossed and disturbed by the pipeline during construction will be restored in accordance with permits and landowner agreements. Dakota Access will take appropriate measures to protect land uses used for livestock production (pastureland/rangeland, undisturbed native prairie, row-crop agriculture) during construction. Project contractors will coordinate with landowners to provide passage for livestock and will provide temporary fencing and gates where required to protect livestock from construction-related hazards. Following construction, fences and gates are rebuilt to original condition. Direct impacts to the public, commercial, and institutional land use will be minimized through construction design measures.

Q. What are the impacts to roads?

A. Most roadways will be bored underneath during construction eliminating direct disturbance to the roadway and vegetation. Indirect impacts include temporary road closures or traffic delays during construction for equipment crossing. After construction, roadways will resume normal traffic conditions in the Project ROW. Potential traffic impacts are discussed further within Community Impact Section 23.1– Forecast of Impact on Community.
After construction, impacts to land uses along the pipeline will be negligible. Operations and maintenance activities may be needed but will be isolated and infrequent. As per the negotiated

ROW agreements, no structures will be allowed within the permanent ROW, but overall land use will be allowed to revert to pre-construction conditions.

Q. What are the permanent impacts to land use?

A. Permanent impacts to land use will occur at the aboveground facilities associated with the Project. The frequency of aboveground facilities is low (40 MLVs, two L/Rs, and one pump station with L/R) and the majority of these sites are small in size; permanent impacts to the surrounding land use will be minimal (0.2 percent of the Project footprint).

Q Does the project cross South Dakota Rural Water Systems?

A. Yes, see the chart below.

South Dakota Rural Water Systems Crossed by the Project	
Name	**Approximate Miles Crossed**
WEB	114.5
Mid Dakota	47.0
Kingbrook	50.0
Minnehaha	25.7
Lincoln	12.3
South Lincoln	12.8
Lewis and Clark	70.1
Source: South Dakota Rural Water Systems, 2014	

DAPL is in negotiation with all Rural Water System to lower any waterlines effected by the crude oil pipeline.

Q. How does Dakota Access address local land use controls?

A. DAPL will design, construct, operate, and maintain the pipeline, pump stations, and valve stations in compliance with applicable zoning and county permit requirements. DAPL may request variances and/or special use permits, as necessary. DAPL recognizes the existence of South Dakota Codified Law (SDCL) 49-41B-28, regarding local ordinances and their application to the project, and reserves the right to request the Commission to invoke its provisions during the proceedings in this application should the need present itself.

Dated this _____ day of July, 2015

_____

Jack Edwards

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA

IN THE MATTER OF THE APPLICATION OF DAKOTA ACCESS, LLC FOR AN ENERGY FACILITY PERMIT TO CONSTRUCT THE DAKOTA ACCESS PIPELINE PROJECT	))))))	HP14-002

DIRECT TESTIMONY OF

CHUCK FREY

ON BEHALF OF

DAKOTA ACCESS, LLC

DAKOTA ACCESS EXHIBIT 4

July 6, 2015

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

A. My name is Chuck Frey. I am employed by Energy Transfer Partners and my business address is 1300 Main St, Houston, TX. 77002.

Q. What is your position with Dakota Access, LLC ("Dakota Access")?

A. I am the Vice President of Engineering.

Q. Please briefly describe your educational experience.

A. I have a Bachelor of Science Degree in Civil Engineering from Texas Tech University.

Q. Please describe your duties with Dakota Access.

A. I am responsible for the engineering and engineering related work activities for Dakota Access.

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

A. I am responsible for sections: 10. Demand for the facility; 11. General Site Description; 37. Standards of Construction; 38. Line Description; 38.1. Design Capacity; 38.3. Technical Specifications; 38.4.Compressor Stations; and, 38.5. Storage Facilities.

Q. Describe the demand for the facility.

A. Dakota Access has secured binding long-term transportation and deficiency contracts from multiple committed shippers to support development of the Dakota Access Pipeline with a crude oil transportation capacity of approximately 450,000 bpd, with ninety percent (90%) of the transportation capacity subscribed by those committed shippers and the remaining ten percent (10%) of the transportation capacity reserved for walk-up shippers. Dakota Access Pipeline's crude oil transportation capacity can be expanded to approximately 570,000 bpd if transportation demand increases. Transportation service on the Dakota Access Pipeline shall be provided by Dakota Access pursuant to the Interstate Commerce Act and in accordance with the rules and

regulations of the Federal Energy Regulatory Commission for common carrier crude oil pipeline transportation service thereunder. Subscriptions from committed shippers were obtained by Dakota Access in connection with an initial open season that ran from March 12 to May 23, 2014, and an expansion open season that commenced on September 23, 2014, and concluded in mid-December of 2014.

Q. Provide a general description of where the facility is located in South Dakota.

A. The Project originates in North Dakota and enters South Dakota in Campbell County approximately 17 miles east of the Missouri River. A summary of the Project facilities in South Dakota is outlined in Table 11.0-1 below. The Project exits South Dakota as it crosses the Big Sioux River approximately 14 miles south of Sioux Falls, and continues in a southeast direction through Iowa. Approximately 274.65 miles of the 1,169-mile-long pipeline and one pump station will be constructed within South Dakota. Additionally, Dakota Access will construct aboveground appurtenances including 40 mainline valves (MLVs) and three pig launcher and receiver (L/R) facilities.

Pipeline Crossing Length (miles) / Pump Station Impact Area (acres)	**County**
29.17	Campbell
6.64	McPherson
36.17	Edmunds
27.88	Faulk
36.06	*Spink
30.35	Beadle

21.97	Kingsbury
14.26	Miner
18.61	Lake
1.72	McCook
26.16	Minnehaha
2.15	Turner
23.51	Lincoln
36.06	Spink

Q. Describe all above ground facility present along the pipeline route.

A. There are three types of above ground facilities:

Pump Station: The pump station is an above ground facility. The pump station is planned to be located in southwestern Spink County, approximately seven miles southeast Redfield, South Dakota. The pump station will be fenced and contain three pumps driven by electric motors, an electrical and controls building, electrical substation, a surge tank with a secondary containment dike, a communications tower, and parking area for station personnel. Design and construction of the pump station will meet the requirements of the National Electric Code and American Petroleum Institute (API) 500 and USDOT regulations at 49 CFR Part 195. Dakota Access will purchase electricity for the pump station from the incumbent provider. The pump station will be fully designed for remote, unmanned operation via the Pipeline Control Center or local operation.

The pipe entering and exiting the pump station will be located underground; however, some of the piping within the pump station yard (after entering and prior to exiting the pump station

facilities) will be aboveground.

Main Line Valves (MLV's): Dakota Access plans to install 40 MLVs along the route in South Dakota. Approximate locations for these valves are shown in the route mapping presented in Exhibits A2, A3, and A4. The MLVs will be constructed within the 50-foot permanently maintained ROW, and be approximately 75-feet-long and 50-feet-wide. These valve sites will be located within an easement obtained from landowners. The spacing intervals between the MLVs along the ROW are based upon the location of the high consequence areas (HCAs), DOT requirements and permit requirements. All valves will have remote actuators so that in the unlikely event of an emergency, these valves can be quickly activated from the Pipeline Control Center to isolate sections of the pipeline to minimize environmental impacts. The valves will also be designed to allow for local operation.

Launcher/Receivers: All pipeline segments will allow the passage of internal inspection devices, which are capable of detecting internal and external anomalies in the pipe such as corrosion, dents, and gouges. Internal inspection of pipelines has been largely responsible for reducing pipeline incident frequencies over the past decade. Pig L/Rs are designed to launch and receive these internal inspection devices.

All pig L/Rs and MLVs will be above-ground fabricated settings which will have a design factor of 0.5 and a pipe wall thickness of 0.625 inch (X-70). The L/Rs will be located along the Project as identified in Exhibits A2, A3, and A4.

Q. What is the design and construction standard by which Dakota Access will be built?

A. The Project is being designed according to USDOT regulations at 49 CFR Part 195, Transportation of Hazardous Liquids by Pipeline; the final design and construction will meet or exceed all applicable standards.

The entire pipeline will have a design factor of 0.72. The pipeline will have a nominal 30-inch diameter. Pipe material grade will be X-70 and comply with API 5L-PSL2. Pipe wall thickness will be 0.429 inch (X-70) or 0.625 inch (X-70). To protect against corrosion, Dakota Access will apply an external FBE coating to the pipeline and an impressed cathodic protection system will be used. All material will be manufactured, constructed, and operated in accordance with applicable regulations.

Q. Have you applied for any waivers from PHMSA?

A. No.

Q. As proposed, does the project meet or exceed all federal and state standards?

A. Yes.

Q. What is the design capacity and design pressure?

A. A process flow diagram for the South Dakota segment of the Project can be found within Exhibit B. The design of the pipeline system is based on a maximum operating pressure of the entire pipeline of 1,440 psig to allow a consistent maximum discharge pressure from the Project pump station, optimized for efficiency at various flow rates up to system capacity. Some sections will be exposed to lower pressures due to the combined pump station discharge pressure, friction pressure loss and hydrostatic head gain or loss for pipe segments located at elevations that differ from pump station elevation.

Q. Does the Project include compressor stations?

A. No.

Q. Does the Project include storage facilities?

A. No.

Q. In addition, are you sponsoring any Exhibits to the Application?

A. Yes, Exhibit B and Exhibit C to Application.

Q. Does this conclude your testimony?

A. Yes.

Dated this ____ day of July, 2015

_____

Chuck Frey

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA

IN THE MATTER OF THE APPLICATION OF DAKOTA ACCESS, LLC FOR AN ENERGY FACILITY PERMIT TO CONSTRUCT THE DAKOTA ACCESS PIPELINE PROJECT	))))))	HP14-002

DIRECT TESTIMONY OF

TODD STAMM

ON BEHALF OF

DAKOTA ACCESS, LLC

DAKOTA ACCESS EXHIBIT 8

JUNE 26, 2015

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II. Purpose and Coverage of Testimony ..... ___

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

Answer: My name is Todd Stamm. I am the Vice President – Pipeline Operations of Sunoco Logistics L.P. My business address is One Fluor Daniel Drive, Building A, Level 3, Sugar Land, TX, 77478-5095.

Q. **Can you briefly describe your education and experience?**

Answer: I have over 20 years of experience with Sunoco Logistics, L.P. I have held various roles throughout the company, with a focus on operations, engineering and construction, project management and crude trucking. I hold a B.S. in Civil Engineering and Architectural Engineering from Drexel University and a MBA in Management from Wayne State University.

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

Answer: Section 23.1, 23.4, 23.7, 38.0 and 38.3 as well as all operational oversight.

Q. What is the purpose of your testimony?

ANSWER: I will describe how the Dakota Access pipeline will be operated and managed from a safety standpoint. This will include information regarding the operations control center for the Dakota Access pipeline, and the maintenance, surveillance and inspection procedures for the pipeline. I will also describe the public awareness and safety initiatives planned for the pipeline.

Q. Please described the operations control center.

ANSWER: The operations control center ("OCC") is a state of the art control center which coordinates all operations throughout the system, including flow rate, pressure, and opening and closing of valves. The operations control center also monitors devices that alert operators to changes in operating parameters, providing a detection mechanism for response to emergency conditions. Satellite and telecommunications links connect the operations control center with facilities along the pipeline to ensure rapid response and constant monitoring of pipeline conditions.

Q. Will the operations control center be operated 24/7?

ANSWER: Yes, the operations control center for the Dakota Access pipeline will be manned 24 hours a day, 7 days a week, 365 days a year.

Q. What kind of data will be collected and transmitted to the operations control center?

ANSWER: A wide variety of data necessary and useful to monitoring the pipeline's operations will be collected and transmitted to the operations control center. The advanced Supervisory Control and Data Acquisition ("SCADA") systems will be utilized to constantly monitor sensing devices placed along the pipeline to track the pressure, temperature, density, and flow of liquid petroleum under transport, and display each movement's status to operators at the control center. Through these systems the pipeline's operators can maintain the pipeline within established operating parameters and can remotely shut down pump stations and isolate pipeline segments when they observe abnormal conditions or if safety parameters are exceeded.

A subsystem of the SCADA system, known as the Computational Pipeline Monitoring system ("CPM"), has the ability to analyze deviations in the flow of liquids to the pipeline, thus improving the operator's ability to identify leaks and other abnormal operating conditions. The CPM system will be used on the Dakota Access pipeline as one of several leak detection capabilities.

Q. Will operating procedures be established to govern the operation and control of the pipeline through the operations control center?

ANSWER: Yes. Strict operations procedures will be prepared and used to direct the OCC operator's actions in both normal and abnormal operations to reduce the risk of release. Such systems and procedures are part of Energy Transfer's extensive efforts to maintain safe operations.

Q. In addition to remote monitoring and control of the pipeline's operations through the operation's control center, will local operation of the pipeline be possible?

ANSWER: Yes. In addition to remote control operations, local automated control operations and manual overrides will be in place to control or operate the pipeline should remote communications fail. Field operations personnel will be located in close proximity to facilities that are controlled remotely from the control center. Field personnel will be trained to respond to abnormal conditions and manually oversee equipment or systems as needed. In the event the pipeline cannot be safely operated manually through remote operations with the control center, the pipeline will be shut down until satisfactory control can be re-established.

Q. Please describe the procedures that will be employed for periodic inspections, surveillance, and maintenance of the Dakota Access pipeline.

ANSWER: During installation and commissioning, the line will be subjected to careful inspection and testing to verify its integrity and compliance with all regulatory standards and contract specifications. Testing will include checking coating integrity; examining by non-destructive testing 100% of field welds (which is well above the 10% required by federal regulation); internally inspecting the entire length of the line by using an inline

inspection tool; and hydrostatically testing the pipeline.

Detailed maintenance procedures will be established which will include regular inspections and surveillance of the pipeline which will include detailed analysis of navigable waterways as required by regulations of the U.S. Department of Transportation, Pipeline and Hazardous Material Safety Administration (PHMSA), at 49 Code of Federal Regulations Part 195.

The pipeline right of way will be patrolled and inspected by air every ten days, weather permitting, but at least every three weeks and not less than 26 times per year, to check for abnormal conditions or dangerous activities, such as unauthorized excavation along the pipeline route.

Q. Will maintenance and emergency response personnel be stationed along the route of the pipeline?

ANSWER: Yes. Upon completion of the project, in addition to the remote control capabilities of the operations control center described above, personnel will be strategically placed along the route of the pipeline. The pipeline operator and qualified contractors will maintain emergency response equipment and personnel at strategic points along the route and will train personnel to respond to pipeline emergencies. Additionally, contracts will be in place with oil spill response companies that have the capability to mobilize to support cleanup and remediation efforts in the event of a pipeline release.

Q. Where will the emergency response equipment be located?

ANSWER: Current plans are for the Redfield Pump Station and in close proximity to Sioux Falls, South Dakota.

Q. Where will the personnel with Dakota Access who are trained in emergencies responses be located?

ANSWER: All personnel employed on the DAPL system will be trained in emergency response as well as the NIMS ICS (National Incident Management System) (Incident Command System) system of managing an emergency response. Personnel will be staffed at the regional office at the Redfield Pump Station as well as several positioned along the main pipeline corridor.

Q. Will an emergency response plan be prepared for the Dakota Access pipeline?

ANSWER: Yes. An emergency response plan for the Dakota Access pipeline, as required by federal regulations 49 CFR 194 and approved by PHMSA, is being prepared and will be in place prior to commencing transportation of crude oil. The plan is currently in draft form.

In addition, the operator will coordinate with local emergency responders and trained local authorities in preventing and responding to any pipeline related problems. These activities will include conducting and hosting, over a period of time, emergency response drills with both employees and local emergency responders along the pipeline route.

Q. What kind of programs and procedures will be implemented to support public awareness and public safety?

ANSWER: For all of its pipelines, Energy Transfer conducts extensive public education outreach programs, including damage prevention programs, that meet or exceed industry (American Petroleum Institute Recommended Practice 1162) and Federal requirements (49 CFR 195.440) concerning public awareness of pipelines and pipeline safety matters. These programs will be implemented for the Dakota Access pipeline.

Q. Will signage be installed to alert the public to the location of the pipeline?

ANSWER: Yes. The Dakota Access pipeline will be marked with signage and warnings pursuant to federal regulations at road and highway crossings, navigable rivers, and other locations; to alert the public to the presence of underground lines and to provide information, contact numbers, and emergency data.

Q. Will Dakota Access utilize the one-call system?

ANSWER: Yes. The Dakota Access pipeline will utilize the 811 one-call system, which is a nationally recognized system to prevent third party damage to underground facilities. When a person or contractor plans to excavate, they place a call to the 811 one-call center and operators identify the location of where the excavation will be and then notify all affected utilities in the area. Upon notification, the pipeline company will dispatch personnel to mark the locations of the pipe and provide specific guidance to the caller if additional company oversight is needed during excavation.

Q. Will a fusion bonded epoxy coating be applied to the pipeline?

ANSWER: Yes.

Q. Please describe the fusion bonded epoxy coating that will be applied and its purpose.

ANSWER: Fusion Bonded Epoxy (FBE) coating consists of resin and hardener components in a powder form. When the powder is sprayed onto the heated pipe surface, the powder components combine to form a bond to the steel surface and provide a coating barrier between the steel pipe surface and corrosive environments, such as soil or water, preventing corrosion of the underlying steel pipeline surface.

Q. Will a cathodic protection system be installed on the pipeline?

ANSWER: Yes.

Q. Please describe the cathodic protection system and how it works.

ANSWER: The cathodic protection system will be an impressed current system. It will consist of multiple transformer/rectifier units and anode installations along the pipeline route. The transformer/rectifier units convert AC current to DC current. The DC current is injected into the earth from the anode installations and the DC current flows from the anodes to the pipeline surface through earth. The interaction between the applied DC current from the transformer/rectifier anode installations and the corrosion current at the pipe surface where the FBE coating may have been damaged mitigates corrosion of the pipeline steel surface.

Q. If the Dakota Access pipeline is constructed, installed, and operated as described in the application and at this hearing, do you believe the pipeline can be safely operated?

ANSWER: Yes