BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA

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IN THE MATTER OF THE APPLICATION BY TRANSCANADA KEYSTONE PIPELINE, LP FOR A PERMIT UNDER THE SOUTH DAKOTA ENERGY CONVERSION AND TRANSMISSION FACILITIES ACT TO CONSTRUCT THE KEYSTONE XL PROJECT	:	HP 09-001 APPLICANT'S INITIAL POST-HEARING BRIEF

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A hearing in this matter was held in Pierre on November 2-4, 2009. Pursuant to the amended scheduling order dated December 31, 2009, Applicant TransCanada Keystone Pipeline, LP (Keystone) submits the following initial post-hearing brief in support of its application.[1]

1. Project description.

Keystone proposes to construct and operate the Keystone XL Project ("the Project"), a crude-oil pipeline from the Western Canadian Sedimentary Basin to the United States Gulf Coast. (TC-1 ¶ 1.1.) The Steele City segment of the pipeline runs

[1]References throughout this brief to the hearing transcript are denominated "Tr. at __." References to prefiled testimony are denominated by exhibit number, since prefiled direct and rebuttal testimonies were admitted as exhibits at hearing. References to Keystone's permit application are to TC-1, the updated application introduced at hearing.

from Hardisty, Alberta to Steele City, Nebraska, and in the United States passes through Montana, South Dakota, and Nebraska. (*Id.* ¶ 1.2.) The pipeline connects to the Keystone Pipeline from Steele City, Nebraska, to Cushing, Oklahoma. From there south to Nederland, Texas, the Project includes new pipeline known as the Gulf Coast Segment. (*Id.*) At Houston, the Project includes a lateral extension to Moore Junction, Texas. (*Id.*) The length of the Project is 1,707 miles of new pipe; of that total, 1,380 miles of pipe are in the United States. (*Id.*) The proposed pipeline route enters South Dakota in the northwest corner in Harding County. From there, the route passes through Butte, Perkins, Meade, Pennington, Haakon, Jones, Lyman, and Tripp Counties. The route totals approximately 314 miles in South Dakota. (*Id.* ¶ 2.1.1.)

The new pipe will have a nominal 36-inch diameter. (*Id.* ¶ 1.2.) The initial nominal capacity of the Project is 700,000 barrels per day (bpd). If future demand warrants, pumps may be added to the proposed pump stations increasing the maximum nominal throughput to 900,000 bpd. (*Id.* ¶ 2.1.2.) The pipe material grade will be X-70 or X-80 and comply with API 5L-PSL2. (*Id.* ¶ 2.2.1.) Pipe wall thickness will be either 0.463 inch (X-70) or 0.405 inch (X-80). (*Id.*) The maximum operating pressure (MOP) is 1,440 pounds per square inch gauge (psig), except for seven low-elevation segments close to the discharge of pump stations, identified at Table 2 of Keystone's application, where the MOP will be 1,600 psig. The pipe at these segments will have a wall thickness

of 0.572 inch (X-70) or 0.500 inch (X-80). (*Id.*) The total length of these segments is 15.83 miles. (*Id.*)

The pipeline will have seven pump stations in South Dakota. Two will be located in Harding and Tripp Counties, and one each in Meade, Haakon, and Jones Counties. (*Id.* ¶ 2.2.2.) The property for pump stations will be acquired in fee. The pump stations will be designed and constructed to meet the requirements of the National Electric Code and API 500. Each station will have up to five electrically-driven pumps, an electrical building, an electrical substation, a small maintenance building, a communications tower, and a parking area. (*Id.*) Keystone will purchase power from local providers. (*Id.*) Each pump station will have backup battery capability to maintain communications between the pump station and the operational control center and to provide lighting and power for minor facility procedures. (*Id.*) All of the above-ground facilities, including any pigging facilities and deep-well anode ground beds for the cathodic protection system, will be located within the fenced perimeter of the pump station or valve site. (*Id.*)

The pipeline will have 16 mainline valves in South Dakota. (*Id.* ¶ 2.2.3.) In addition to seven at the pump stations, there will be seven other remotely-controlled valves, and two manually-operated valves with check valves, located at the White and Cheyenne Rivers. (*Id.*; Keystone's Response to Staff Data Request 4-1 (TC-17).) When not located at a pump station, mainline valves will be located within a fifty foot-by-fifty-

foot site located within the 50-foot wide permanently-maintained right of way. (*Id.* ¶ 2.2.3.)

The pipeline construction corridor will be 110 feet wide, consisting of the 50-foot wide permanent right of way and 60 feet for temporary work space. (*Id.* ¶ 2.2.4.) Additional temporary workspace will be needed for special construction techniques, like at stream and road crossings and steep terrain. (*Id.*) The total acreage affected by construction activities, including pipe and contractor yards, construction camps, and access roads, will be 5,327 acres, of which 1,955 will be affected during operations by the permanent right of way, pump stations, and permanent access roads. (*Id.*, Table 3.) There will be two construction camps in South Dakota, each of approximately 80 acres, to accommodate workers in remote locations. (*Id.* ¶ 2.2.4.) One will be located near Union Center and the other near Winner. (TC-6 ¶ 7.) Each camp will be designed to accommodate approximately 600 workers, and will include prefabricated buildings. (*Id.*; TC-1 ¶ 2.2.4.) Each camp will be permitted and operated in compliance with all applicable regulations. (*Id.* ¶ 2.2.4.)

Keystone intends to begin construction of the Steele City Segment in 2011 and complete construction of the Project in 2012. (*Id.* ¶ 1.4.) There are five construction spreads, or segments, in South Dakota, with some scheduled in 2011 and some in 2012. (*Id.*) The segments are shown in Exhibit 2 of the Application.

The total estimated cost of equipment and construction of the Project in South Dakota is approximately $921.4 million. (*Id.* ¶ 1.3.)

2. The permit application.

Keystone filed a permit application pursuant to SDCL § 49-41B-2.1(3) on March 12, 2009. Keystone later filed revised and updated applications on August 26, 2009, and October 19, 2009. The PUC held public input hearings on April 27, 2009, in Winner and Phillip, and on April 28, 2009, in Buffalo. On May 20, 2009, the PUC entered an order granting party status to 11 individuals and three entities, the City of Colome, the Tripp County Water User District, and Dakota Rural Action (DRA).

On June 30, 2009, the PUC entered an order establishing a procedural schedule. The deadline for discovery was set for July 31, 2009, and prefiled testimony from Keystone and Staff was due on September 1, 2009. Intervenors had until September 8, 2009, to file their testimony, with rebuttal testimony due on October 19, 2009. The hearing on Keystone's application was set for November 2-6, 2009.

On September 3, 2009, DRA filed a motion to extend the time for it to file testimony. The PUC granted the motion by order dated September 15, 2009, and gave DRA until September 22, 2009. DRA also filed a motion to compel discovery from Keystone, and the PUC held an ad hoc hearing on September 23, 2009. DRA had not filed any testimony as of that date. On October 2, 2009, the PUC entered an order

granting in part and denying in part DRA's motion to compel. Pursuant to Commissioner Johnson's motion, the PUC reconsidered part of its order and granted DRA additional discovery with respect to request no. 6 by order dated October 8, 2009.

On the same date, the PUC entered an order extending once again the time for DRA to file testimony, this time until October 20, 2009, with rebuttal testimony due on October 27, 2009. DRA did not file any testimony by the extended deadline. Of the other intervenors, David and Debra Niemi submitted prefiled testimony, but no one else did.

On October 21, 2009, the PUC granted DRA's request to change the public comment time during the hearing. The PUC changed the starting time for the hearing to 6:00 p.m. on November 3, 2009.

The hearing began on November 2, and concluded on November 4, 2009. No Intervenor other than DRA appeared at the hearing. DRA appeared through its counsel of record and Kelly Fuhrer of Plains Justice. Keystone called the following witnesses: Robert Jones, Richard Gale, Steve Hicks, Jon Schmidt, Meera Kothari, Heidi Tillquist, Don Scott, John Hayes, and Tom Oster.

DRA called no witnesses.

Before Staff began its case, DRA offered 21 exhibits, although counsel did not have copies of the exhibits at the time and they were not introduced into the record. (Tr. at 166-67, 179-213.) Counsel for DRA agreed to provide the documents in electronic

form before the conclusion of the hearing so that Keystone and Staff could consider and address their admissibility. (*Id.* at 213-14.) Hearing Officer Smith deferred ruling on the exhibits, except for the testimony of Heidi Tillquist from the Keystone hearing, which was admitted as DRA-15. (Tr. at 214-15.)

Staff called the following witnesses: Tim Binder, Dan Flo, James Arndt, Ross Hargrove, William Walsh, Jenny Hudson, David Schramm, William Mampre, Derric Iles, Paige Hoskinson Olson, Tom Kirschenmann, Brian Walsh, Kim McIntosh, and Michael Kenyon.

Before Staff concluded its case in chief, DRA withdrew its offer of exhibits, but indicated that it would submit them as public comment. (Tr. at 521-25.) The docket does not indicate that any of the exhibits were ever submitted. On November 13, 2009, Keystone filed a brief opposing the admissibility of any of the exhibits and argued that the PUC could not consider them for any purpose in determining whether to grant a permit for the Project. While DRA has not re-urged the admission of these exhibits, Keystone stands by the arguments in its brief.

The hearing concluded on November 4, 2009. Pursuant to SDCL § 49-41B-24, the PUC has until March 12, 2010, to make findings of fact and conclusions of law and to determine whether Keystone should be granted a permit and, if so, under what conditions.

3. Keystone's burden of proof.

Keystone's burden of proof is established by statute. As Hearing Officer Smith noted at the beginning of the hearing, Keystone must prove:

(1) The proposed facility will comply with all applicable laws and rules;
(2) The facility will not pose a threat of serious injury to the environment nor to the social and economic condition of inhabitants or expected inhabitants in the siting area;
(3) The facility will not substantially impair the health, safety or welfare of the inhabitants; and
(4) The facility will not unduly interfere with the orderly development of the region with due consideration having been given the views of governing bodies of affected local units of government.

SDCL § 49-41B-22. (Tr. at 5.) Keystone has satisfied each of these criteria.

A. The Project will comply with all applicable laws and rules.

Keystone committed in its application to comply with all applicable laws, rules, and regulations, including the United States Department of Transportation (USDOT) regulations at 49 CFR Part 195. (TC-1 ¶ 2.2. and ¶ 7.1) Keystone's primary regulator at the federal level is the Pipeline Hazardous Materials Safety Administration (PHMSA) of the USDOT. Keystone has applied for a special permit from PHMSA, discussed below, and will comply with all conditions imposed as part of that permit if it is granted by PHMSA. On Keystone's behalf, Meera Kothari testified to Keystone's overall compliance with 49 CFR Part 195, including its intended compliance with whatever conditions PHMSA may impose in connection with the special permit. Keystone must

also cooperate with and facilitate federal agency compliance with the National Environmental Policy Act and Section 106 of the National Historic Preservation Act. Steve Hicks testified generally to Keystone's compliance with state and local permitting.

Staff called fourteen witnesses at hearing, none of whom testified to any law, rule, or regulation, state or federal, with which the proposed pipeline would not comply. Staff witness Dan Flo testified that after examining the application and all of the responses to data requests made by Staff, he and his colleagues at National Resource Group concluded that the materials they reviewed showed "a complete Application in compliance with applicable South Dakota regulations." (Tr. at 241-42.) More particularly, and as more fully discussed below, David Schramm testified to compliance with 49 CFR Part 195, Subpart H, addressing corrosion protection; Jenny Hudson testified that the Project would comply with the integrity management provisions of 49 CFR 195.452; and Paige Hoskinson Olson testified that Keystone was complying with the procedural requirements of Section 106 of the National Historic Preservation Act, with the Department of State acting as the lead agency for implementation.

No witness at the hearing suggested that Keystone would not comply with any applicable laws or regulations.

B. The Project does not pose a threat of serious injury to the environment or to the social and economic condition of inhabitants or expected inhabitants in the siting area.

1. The route does not adversely affect the environment or any inhabitants.

Although the PUC does not have jurisdiction to require that the Project be re-routed, *see* SDCL § 49-41B-36, the suitability of Keystone's chosen route is addressed in Keystone's application as required by regulation. (TC-1 at 25-29.) At hearing, Keystone offered the testimony of Richard Gale (Tr. at 13-23), its witness on route selection, who on cross examination explained the process for determining the location of pump stations. (Tr. at 16-22.) There were no questions posed at hearing to Mr. Gale that challenged the chosen route. In addition, Keystone's witness Jon Schmidt testified that the pipeline route posed no threat to existing oil or gas wells in northwest South Dakota. (Tr. at 52-54.)

The only routing issue identified through prefiled testimony was a concern that the route impacted the City of Colome's water supply. (S-17 at 6-7.) Staff witness Brian Walsh from DENR, a hydrology specialist, testified at hearing, however, that after the pipeline route was moved to avoid the area, he had no concerns about impacts to the City of Colome. (Tr. at 475-76.)

In prefiled testimony, Derric Iles, the State Geologist who testified for Staff, identified the Tripp County Water User District as a hydrologically sensitive area because of the location of 21 wells located near and along the proposed route. (S-16 at 3-4.) Iles

stated in his direct testimony that Keystone's construction and operation methods were sufficient to adequately mitigate any risks to the area. (*Id.* at 6.) He also testified at hearing that the Tripp County Water User District could not be impacted by any pipeline spill in the area, regardless of magnitude, because it is up-gradient from the pipeline. (Tr. at 441, 449-50.) Heidi Tillquist, an environmental toxicologist with AECOM, testified for Keystone that most of the route is not sensitive to ground water contamination. (*Id.* at 158.) Tillquist also testified that the risk of a pipeline spill affecting public or private water wells was low because the soluble components of crude oil are unlikely to travel more than 300 feet from the spill site. (*Id.* at 142-43.) There are no private or public wells within 200 or 400 feet, respectively, of the right of way. (TC-16, Data Response 3-46.)

Keystone is required by PHMSA regulations to identify High Consequence Areas affected by the pipeline. HCAs are specific locales and areas where a release could have the most significant adverse consequences. HCAs are defined by PHMSA regulations and include high population areas, sensitive drinking water resources, and ecologically-sensitive resource areas. To ensure protection of these sensitive resources, HCAs are subject to higher levels of regulation under 49 CFR Part 195. The total length of pipe in South Dakota with the potential to affect an HCA is 34.3 miles. (TC-12 at ¶ 24.) Tillquist testified that based on her estimate of spill frequencies, discussed below, a spill

that could affect an HCA would statistically occur no more than once in 250 years. (*Id.*) Tillquist also testified at hearing that because of her early involvement in the planning process, Keystone was able to route around many HCAs. "So the amount of high consequence areas that we impact on this project would be much lower than you would see on a typical project just because TransCanada got this risk assessment done early in the process." (Tr. at 152.)

2. The chance of a significant spill anywhere in South Dakota is remote.

Heidi Tillquist testified that, in her expert opinion, the Project would not pose a significant threat of serious injury to the environment nor would it substantially impair the health, safety, or welfare of the inhabitants because the likelihood of a pipeline release is low and adverse effects would be mitigated. (TC-12 at ¶ 10.) In reaching that conclusion, Ms. Tillquist cited a number of factors, including the multiple safeguards that Keystone will utilize to prevent and minimize impacts from a potential pipeline release. These safeguards include routing, material selection, engineering design, pre-operational testing, continuous operational monitoring, and emergency preparedness. *Id.*

Heidi Tillquist also testified to the statistical risk of an oil spill. In her prefiled testimony, Tillquist indicated that she had conservatively estimated that the chance of a pipeline spill was no more than one in 7,400 years for any given mile of pipe. (TC-12 at ¶ 10.) At hearing, Tillquist explained how she arrived at that figure (Tr. at 128-30), which

is based on pipeline failure data maintained by PHMSA. (*Id.* at 130-31.) Tillquist testified that the calculation she made was deliberately conservative, meaning that it overestimates the chance of a spill. (*Id.* at 131.) Tillquist also testified that the size of such a spill would likely be three barrels or less (*Id.* at 131-32) and would be contained within the pipeline trench. (TC-12 at ¶ 10.) According to PHMSA data, the majority of pipeline spills are detected within three hours. The data reflect that the mean spill volume of those spills not detected within the first 48 hours was 527 barrels and declined with time. These data support Keystone's assertion that a sizable volume of oil is unlikely to escape detection for more than a few days. (TC-1, ¶ 2.3.2.1.)

Tillquist testified that her spill risk assessment, which was unchallenged, is used in the NEPA process, is relevant to the placement of valves, and is used in Keystone's integrity management program. (Tr. at 134.) She also testified that Keystone develops its emergency response plans based on maximum spill volume, not the expected spill of three barrels or less. (*Id.* at 134-35.)

3. The pipeline is unlikely to adversely affect any significant paleontological or cultural resources.

Along the pipeline route in South Dakota, Harding County is the one location where pipeline construction is most likely to unearth significant fossils. Keystone witness Dr. Jon Schmidt, with Trow Engineering Consultants, testified at hearing that Keystone has hired contractors to perform cultural resource surveys pursuant to Section 106 of the

National Historic Preservation Act (NHPA), and to work with the Department of State and South Dakota State Historic Preservation Office to look for cultural resources. (Tr. at 46-48.) He also testified that Keystone had hired contractors to conduct paleontological surveys on federal and state land pursuant to Bureau of Land Management guidelines and to work with the BLM and South Dakota Museum of Geology to look for paleontological resources. (*Id.* at 47-48.) The results have been provided to the Department of State, which will work with the SHPO to determine which surveyed sites are eligible for treatment under the NHPA. (*Id.*) In prefiled testimony, Dr. Schmidt indicated that surveys to date have found three significant fossil localities on state and federal lands in South Dakota, and that during recent survey work in Harding County, six significant fossil localities were identified in the proposed right of way, with one additional significant fossil locality identified along a proposed access road. (TC-4 at ¶ 16.)

Dr. Schmidt testified that Keystone will mark on construction alignment drawings any areas thought likely to contain significant paleontological resources on state and federal land, and a paleontological monitor would be assigned to those areas during construction. For state or federal lands, Keystone will prepare a plan to be approved by the State addressing both how construction will be monitored and the disposition of any significant finds. (*Id.*). If any significant finds are made during construction on private land, the private landowner retains the right to the fossils. (Tr. at 55.)

Dan Flo, an environmental consultant with National Resource Group, reviewed for Staff Keystone's plans addressing paleontological and cultural resources and found them typical and proper. (Tr. at 243, 254-55.) He recommended that the PUC require Keystone to adopt a separate plan addressing paleontological resources consistent with his recommendations, which included identifying areas where fossils are likely to be found, having a paleontologist monitor construction activity in those areas, and having Keystone encourage landowners to work with the Museum of Geology. (*Id.* at 251-61.) Keystone plans to do all of these things.

Derric Iles, the State Geologist, also testified for Staff. He agreed that a landowner on whose property a fossil is discovered should be encouraged to contact the Museum of Geology for guidance in dealing with the fossil. (Tr. at 439.) He also testified that construction of the pipeline presented a "tremendous opportunity" for the discovery of fossils that otherwise might remain undiscovered. (*Id.* at 442.)

Paige Hoskinson Olson from the SHPO testified that Keystone is complying with the process required by Section 106 of the NHPA. (Tr. at 451-52.) She did not testify to any concerns about the impact of the pipeline on cultural resources in South Dakota that cannot be mitigated through the processes underway.

4. Keystone's Construction, Mitigation, and Reclamation Plan adequately protects the environment and inhabitants.

Keystone's CMR Plan dated November 2008 was filed as Exhibit B to Keystone's permit application. (TC-1, Ex. B.) As discussed in the prefiled testimony of Steve Hicks, the CMR Plan addresses general construction methods, but also soil protection, water-crossing methods, vegetation reclamation, aquatic resources protection, and reclamation. (TC-6 at ¶ 12.) Dr. James Arndt, a soils consultant with Natural Resource Group, LLC, reviewed the soils-related provisions of the CMR Plan for Staff. Ross Hargrove, also with NRG, evaluated the reclamation provisions of the CMR Plan for Staff. In responding to data requests from Staff made before the hearing, Keystone disclosed that it was in the process of preparing, in consultation with the area National Resource Conservation Service (NRCS), construction/reclamation unit mapping to address differing construction and reclamation techniques for different soils conditions, slopes, vegetation, and land use known along the pipeline route. (TC-5, Data Response 3-25.) This mapping results in identification of segments that are called con/rec units.

Dr. Arndt testified at hearing that he reviewed the CMR Plan and Keystone's responses to Staff's data requests, and that Keystone provided highly-detailed information on soils-related limitations and hazards that were specifically identified throughout South Dakota by milepost. (Tr. at 269-73.) He reviewed Keystone's proposed con/rec unit for the sand hills and called it appropriate and a template for other areas. (*Id.* at 281.) Dr.

Arndt recommended that the PUC require Keystone to provide its con/rec unit classification system before construction and that the con/rec units be prepared in consultation with the NRCS, which he thought was the agency with the most expertise. (*Id.* at 275, 319.) Dr. Arndt also testified that working with the NRCS should enable Keystone to avoid some areas where construction or reclamation would be especially problematic due to slopes or soil conditions, like steep areas dominated by sodium bentonite. (*Id.* at 303-04.) He testified that it was an "excellent idea" for Keystone to consult with the NRC and then landowners to account for best farm management practices. (*Id.* at 319.)

Dr. Arndt testified that maintaining depth of cover in certain areas was a concern, but that Condition 20 in the special permit imposed by PHMSA on the Keystone Pipeline was an appropriate remedy. (*Id.* at 332.) Condition 20 provides:

> In areas where the pipeline is susceptible to threats from chisel plowing or other activities, the top of the pipeline must be installed at least one foot below the deepest penetration above the pipeline. If routine patrols indicate the possible loss of cover over the pipeline, Keystone must perform a depth of cover study and replace cover as necessary to meet the minimum depth of cover requirements specified herein.

Id.

Dr. Arndt also recommended an alternative soil-handling technique, which he said was "the only thing I saw that was not provided in the Construction Mitigation Reclamation Plan," involving "basically a triple lift" for sensitive areas with very poor

underlying subsoils. (*Id.* at 276-77, 305.) He suggested that Keystone be required to use a multifunction probe to probe the soil looking for paralithic shale and saline soils of the subsoil. (*Id.* at 278-79.) The triple-lift procedure would probably require additional work space, and so would involve "tradeoffs that have to be assessed for a given particular area." (*Id.* at 287.) He testified that landowners "probably know their land better than anyone else." (*Id.* at 285.)

Keystone disagrees with Dr. Arndt that the triple-lift procedure he described should be required exclusively. Dr. Schmidt testified in rebuttal that the triple-lift procedure would require additional workspace and an even wider right of way, which some landowners do not want. (*Id.* at 593-95.) He testified that there are advantages and disadvantages to using the geo-probe and triple-lift method recommended by Dr. Arndt, and preferred instead "the ability to use multiple tools, not just one particular technology." (*Id.* at 595-96.) Dr. Schmidt testified that Keystone

> would prefer to work with the NRCS to develop multiple methods so that when we go to the landowner after we've consulted with the NRCS to develop our con/rec unit mapping through the area we want to be able to have multiple options so that if a landowners wants us to strip topsoil across the right of way, then we want to be able to explain to him that to do so we need a wider footprint through your pasture or prairie or whatever it is and what the time would be to do that versus [selecting from] some other options that the NRCS could develop.

(*Id.* at 594-95.)

5. The pipeline meets or exceeds all applicable integrity standards.

In prefiled testimony, Meera Kothari, a project engineer with Keystone responsible for pipeline design and integrity management, testified that the pipeline will be designed, constructed, tested, and operated in accordance with all applicable requirements, including but not limited to the PHMSA pipeline safety regulations at 49 CFR Part 195. (TC-8 ¶ 7.) In general, the pipeline will operate at a maximum pressure of 1,440 psig, except for approximately four percent of the pipeline consisting of certain location-specific low-elevation segments, where the MOP will be 1,600 psig. Segments with an MOP of 1,600 psig will have a design factor of 0.72 and minimal nominal pipe wall thickness of either .0572 (X-70) or 0.500 inch (X-80). (*Id.*) As with the Keystone Pipeline, Keystone has applied to PHMSA for a special permit to allow a design factor of 0.8 instead of 0.72. (*Id.* ¶ 13.) Keystone is seeking a special permit for three reasons: (1) because the design factor of 0.8 is consistent with Canadian standards and construction; (2) because the USDOT has adopted the 0.8 design factor for new natural gas pipelines; and (3) there is a significant economic benefit to consumers because of the reduced steel costs. (*Id.* ¶ 13.) The difference in pipe thickness between standard pipe and pipe constructed to the design standard of 0.8 is 1/20th of an inch. (Tr. at 61.) If the Special Permit is approved, Keystone will comply with whatever conditions PHMSA imposes in its use of 0.8 design-factor pipe.

The Keystone Special Permit excludes pipeline segments operating in PHMSA – defined HCAs described as high population areas and commercially navigable waterways; pipeline segments operating at highway, railroad, and road crossings; piping located within pump stations, mainline valve assemblies, pigging facilities, and measurement facilities; and areas where the MOP is greater than 1,440 psig. (TC-8 ¶ 15.) In issuing a Special Permit to Keystone for the Keystone Pipeline project, PHMSA did so on the basis of a finding that its issuance was not inconsistent with pipeline safety and that it would provide a level of safety equal to or greater than that which would be provided if the pipeline were operated under the otherwise applicable regulations. (*Id.* at ¶ 15.)

Kothari's prefiled testimony also addressed Keystone's Integrity Management Program; best management practices including prequalifying steel suppliers, mills, and coating plants; mechanical and hydrostatic testing in the field; inspection of the coating; inspection methods to detect various forms of construction damage; safeguards to protect against corrosion, including fusion bonded epoxy applied to the external surface of the pipe and cathodic protection; and the use of high-strength steel. (TC-8 ¶¶ 11, 22, 25-29.) At hearing, Kothari agreed that the pipe used by Keystone is "top of the line" due to Keystone's prequalification and rigorous specifications. (Tr. at 59.) The pipe meets the APL 5L line pipe standards. (*Id.* at 61.)

Staff witness Jenny Hudson, an engineer with EN Engineering, testified that she had reviewed Keystone's integrity management plan for compliance with 49 CFR Part 195, and that it complied with all regulatory requirements. (Tr. at 399-400.) Staff witness David Schramm, also an engineer with EN Engineering, testified that Keystone's corrosion program met federal requirements. (Tr. at 409-10.) He testified that, regardless of soil type, Keystone's cathodic protection design "appears more than adequate to mitigate the effects of external corrosion." (*Id.* at 411.) Schraam also approved of Keystone's internal and atmospheric corrosion programs. (*Id.* at 412-14.) He testified that Keystone's programs were industry best practices. (*Id.* at 418-19.) Given the proposed programs, he testified that as long as they are in operation, there would be "a very, very long time of systems in operation with little corrosion rate during that particular time." (*Id.* at 421).

6. Keystone's SCADA leak-detection system is state of the art.

Don Scott, a consulting engineer for Keystone, testified about Keystone's SCADA system for detecting leaks. In prefiled testimony, he described Keystone's ability to remotely monitor pipeline operations on a continuous basis from the Operational Control Center in Calgary. (TC-10 ¶ 8.) The system, more particularly described in Section 2.3.2.1 of Keystone's permit application, provides for: remote monitoring of pressure and flow data from the pump stations and valve sites that allows Keystone to detect leaks

down to approximately 25-30% of pipeline flow rate; software-based volume balance systems that monitor receipt and delivery volumes sufficient to detect leaks down to approximately 5% of pipeline flow rate; computational monitoring capable of detecting leaks to a level of approximately 1.5 to 2% of pipeline flow rate; volume trending analysis to assist in identifying low-rate or seepage releases below the 1.5 to 2% of pipeline flow detection thresholds; and direct-observations methods, including aerial patrols, ground patrols, and public and landowner awareness programs. (*Id.*) Scott testified at hearing that it takes less than ten seconds for the system to gather information and get it to the OCC, or the fully-redundant backup control center, in Calgary. (Tr. at 80-81.) He described reliability of the system, including communication, as "virtually 100 percent." (*Id.* at 82-83.) The primary communication system is satellite-based, with a phone-system backup. (*Id.* at 83.)

William Mampre, an engineer with EN Engineering, testified for Staff about his review of Keystone's SCADA system. He testified at hearing that the producer of Keystone's SCADA system was well-known and the system was "one that I would probably select myself." (Tr. at 430-31.) He testified that Keystone's backup procedures were appropriate and that everything Keystone was doing to monitor the pipeline was done "as well as anybody else in the industry." (*Id.* at 431-32.) He concluded that there was nothing better to monitor pipeline operation than what Keystone has proposed:

"What they are doing here is more than adequate and the best they can possibly do on monitoring the system. And I was pretty pleased to read all the safety devices they have on the system." (*Id.* at 435.)

7. Keystone's emergency response measures are sufficient to protect the environment and inhabitants.

John Hayes testified for Keystone about its Emergency Response Plan, training, equipment and resources, and emergency responders necessary to address abnormal operating conditions. In his prefiled testimony, Hayes indicated that Keystone will prepare a project-specific ERP for the Keystone XL Project based on the Keystone ERP, which was recently approved by PHMSA. (TC-11 ¶ 14; Tr. at 115.) The ERP addresses regulatory compliance and technical training for Keystone personnel, including training in spill-response scenarios. (TC-11 ¶ 15.) Staff will also be trained in Incident Command System. (*Id.*) Keystone will also purchase and locate along the pipeline route in South Dakota emergency response equipment consisting of at least two 34-foot trailers, oil spill containment and recovery equipment, boats, and a communication office. (*Id.* ¶ 16; Tr. at 117.) Keystone is also committed to continued improvement and auditing of its ERP and processes. (*Id.*; Tr. at 109.) At hearing, Hayes testified that the ERP, which is required by both state and federal law, will be sent to PHMSA for approval approximately six months before operations begin. (Tr. at 99.) He testified that about 80% of the Keystone

ERP applies to KXL. (*Id.*) He expects a draft ERP to be ready by July 1, 2010. (*Id.* at 100.)

Once a spill is detected, Keystone's expected response time is within six hours. (*Id.* at 102-03.) To meet that time, Keystone will have full-time personnel located in South Dakota to respond to an emergency. (*Id.* at 103-04.)

Hayes explained Keystone's commitment to continued improvement and auditing. (*Id.* at 109-11.) He also testified to accepting and incorporating changes to the ERP proposed by Brian Walsh at DENR that were not required by PHMSA. (*Id.* at 111-12.)

Kimberly McIntosh from DENR testified for Staff that DENR has the resources necessary to oversee the assessment and clean up of a crude-oil release from the pipeline. (S-18 at 5; Tr. at 496.) McIntosh also testified to her personal experience with pipeline releases in South Dakota. Of the 17 pipeline releases documented by DENR, she testified that the pipeline facility responded immediately to the incident in every case. (Tr. at 502.)

8. The project will not have a significant negative effect on the natural environment.

Like the Keystone Pipeline, the Project has been and continues to be subject to exhaustive environmental review. Section 5 of Keystone's application discusses environmental information and the effect of the Project on the natural environment. As indicated in the application, Keystone included a preliminary Environmental Report with

its Presidential Permit application submitted to the Department of State on September 19, 2008, and later filed a more comprehensive report on November 20, 2008, including field survey reports, and documentation of agency consultation regarding wetlands and cultural and biological resources. Keystone filed a Supplemental Environmental Report with the DOS in July 2009. (TC-1 ¶ 5.1.) Environmental impacts are summarized in Table 6 of Keystone's application. Because the project requires a Presidential Permit to cross the border between Canada and the United States, the Department of State is preparing an Environmental Impact Statement (EIS) pursuant to NEPA. Staff witness Dan Flo testified that the public comment period opened on January 28, 2009. (Tr. at 240.) When a draft EIS has been prepared, there will be a 45-day comment period. (*Id.* at 241.) Jon Schmidt testified that, although the process is not within Keystone's control, he expects the draft EIS to be issued sometime in the first half of 2010. (Tr. at 49.)

Pipeline construction and operation will have only minimal effects on wildlife and biological resources. In prefiled testimony, Dr. Schmidt testified that because much of the habitat crossed by the route is rangeland or pasture, the effects of long-term habitat loss on native populations would be minor. (TC-4 ¶ 25.) Big and small game will temporarily move from the construction right of way, but the majority of the habitat will be restored to its previous cover and land use. (*Id.*) Because the amount of habitat temporarily affected by construction is a small fraction of the total available habitat,

impacts to game species will be minimal. (*Id.*) Surveys for sage and sharp-tailed grouse in 2009 found two leks within two miles of the right of way in Harding County on private property. (*Id.*)

Keystone also surveyed for protected species, including raptors and bald eagles, western prairie fringed orchid, and interior least tern. (*Id.* ¶ 26.) Keystone identified 28 raptor nests along the right of way in 2008 and 25 in 2009. (*Id.*) No western fringed prairie orchids or nesting terns were located. (*Id.*) Surveys for swift fox and river otter will be limited to suitable den habitat and conducted before construction. (*Id.*) The USFWS has block-cleared South Dakota for black-footed ferrets, so no surveys are necessary. (*Id.*) Both the USFWS and the South Dakota Department of Game Fish & Parks will require mitigation for the American burying beetle in Tripp County. (*Id.*)

Impacts to aquatic species and ecosystems will also be limited. Less than five miles of the route in South Dakota crosses wetlands or riverine habitats. (*Id.* ¶ 27.) Keystone will directionally-drill the Little Missouri, Cheyenne, and White rivers, will open-cut the other perennial streams, and will mitigate impacts as outlined in the CMR Plan. (*Id.*) The USFWS and SDGFP identified four sensitive aquatic species that could potentially be affected by the Project. (*Id.*) One, the sturgeon chub, is located only on the Cheyenne and White rivers and impacts will be limited by directional drilling. (*Id.*)

Surveys within tributaries of the Keya Paha River in 2009 did not find any of the other species. (*Id.*)

Several Staff witnesses addressed the impact of the Project on South Dakota's wildlife. Tom Kirschenmann, the chief of terrestrial resources within the Division of Wildlife for the South Dakota Department of Game Fish & Parks, submitted prefiled testimony in which he addressed sensitive wildlife areas crossed by the pipeline and concluded that Keystone can mitigate the effect of the Project on several sensitive areas or species. (S-15 at 2-3.) He concluded at hearing that given appropriate reclamation procedures, the effect of the Project on wildlife habitat would be "very minimal." (Tr. at 469-70.) Derric Iles testified about geologic issues, and did not disagree with Keystone's statement that "[n]o unique geological features protected by federal, state, or local governments will be disturbed by the Project." (TC-1, ¶ 5.3.2.)

C. The Project will not substantially impair the health, safety, or welfare of the inhabitants.

Many of the subsections above establish that the Project will not substantially impair the health, safety, or welfare of inhabitants near the Project. In addition, testimony at hearing established that there will be significant benefits from the Project.

Staff asked Dr. Michael Madden to conduct a socio-economic analysis of the effects of the Keystone Pipeline. Dr. Madden concluded in an assessment dated October, 2009, submitted with his prefiled testimony, that the positive economic benefits of the

project were unambiguous, while most if not all of the social impacts were positive or neutral. (S-2, Madden Assessment at 21.)

Staff also offered testimony from Michael Kenyon, Director of the Division of Property and Special Taxes for the South Dakota Department of Revenue & Regulation, about the taxes Keystone will pay as a result of the Project. Kenyon estimated the tax impacts on taxpayers in Harding County based on a number of assumptions. (S-13.) He concluded that the substantial revenue generated by the ad valorem taxes assessed against the pipeline will remain with local governments. (Tr. at 579.)

Keystone offered the testimony of Tom Oster, Secretary of the South Dakota Department of Education, that an increase in the assessed valuation for school districts affected by the Project would be positive. (Tr. at 175.) He also testified that the "taxes generated as a result of the pipeline would stay in the school district in which the pipeline resides." (Tr. at 176.)

Because there are few cities or towns in western South Dakota geographically situated to support pipeline workers during construction, Keystone has proposed constructing two camps to house workers, one near Winner and one near Union Center. Steve Hicks testified at hearing that the camps would be all-inclusive, including a waste water treatment plant. (Tr. at 27.) There will be a medical facility at each camp for minor injuries, and Keystone will have a plan in place that identifies major medical facilities and

transportation services, rather than relying on local emergency services for transport. (*Id.* at 35, 43-44.) Hicks testified that the camps will be permitted, constructed, and operated in compliance with all applicable regulations, as summarized in Table 5 of Keystone's application. (TC-6, ¶ 43.) Hicks further testified that while the remoteness of the route presents challenges, he has worked in sparsely-populated areas before. (Tr. at 38-39.) By providing self-sufficient camps, construction will not adversely affect the ability of local towns to serve their existing customer base, including tourists.

D. The Project will not unduly interfere with the orderly development of the region with due consideration having been given the views of governing bodies of affected local units of government.

The pipeline route in South Dakota passes through sparsely-populated areas, and most of the land crossed by the route is used for range or pasture. Keystone estimated that drain tile would be encountered on only three miles of the route. (TC-16, Data Response 3-32.) Because the pipeline is located under four feet of cover, its construction and operation is fully compatible with ranching and farming activities. (TC-1, 5.7.3 and 6.1.2.1.) Only 13.6 acres of prime farmland will be permanently affected by above-ground facilities. (TC-16, Data Response 3-29.) The pipeline is not routed near any population centers in western South Dakota. (TC-16, Data Response 3-82b.) No one testified at hearing that the pipeline would interfere with existing land uses, urban development, or economic development of the area.

The only questions related to potential interference with economic activity were directed to oil and gas development in Harding County. Dr. Schmidt's testimony that Keystone would construct the pipeline to avoid impact to existing oil or gas wells was uncontradicted. (Tr. at 53.) As he commented, there are far more pipelines in Texas, with oil and gas wells "all over the place." (*Id.*)

No local governmental entity appeared at the hearing. Only one, the City of Colome, intervened and sought party status. As discussed, the pipeline was rerouted to avoid any impact to the City of Colome's water supply. (S-17; Tr. at 476-76.) Thus, no local government offered testimony or evidence against the Project. Blaise Emerson, Executive Director of the Black Hills Council of Local Governments, submitted a letter dated October 22, 2009, in connection with the public input hearing on November 3, 2009. Emerson supported the Project, noting the "major economic impact to Western South Dakota" and the "long-term property tax revenue to counties, schools and other local entities." James Doolittle, Executive Director of Black Hills Community Economic Development, also supported the Project as in the national interest and because it "will have a major economic impact in South Dakota during the construction phase as well as long-term tax revenue to support local schools and counties."

Conclusion

Like the Keystone Pipeline, the Project poses no serious threat, but instead presents a significant economic opportunity, for South Dakota. Because it has met its burden under SDCL § 49-41B-22, Keystone respectfully requests that it be granted a permit to construct the Project.

Dated this 20th day of January, 2010.

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