BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF SOUTH DAKOTA

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 PIPELINE PROJECT	)	HP 07-001 **DIRECT TESTIMONY OF MICHAEL KOSKI**

1. Please state your name and address for the record.

Answer: Michael Koski. TROW Engineering Consultants, Inc. 1300 Metropolitan Boulevard, Suite 200, Tallahassee, Florida, 32308.

2. What is your role with the TransCanada Keystone Pipeline project?

Answer: I am Vice President of Energy Services of Trow Engineering Company. I am Project Director of the Technical Team for the TransCanada Keystone Pipeline, L.P. (Keystone) project.

3. Please state your professional qualifications.

Answer: I received a Bachelors degree in engineering in 1988. I have 19 years of experience with pipeline routing and permitting including oil, refined product, natural gas, water and slurry pipelines throughout North America and in other parts of the world.

4. Have you provided your resume?

Answer: Yes, a resume of my qualifications and experience is attached to my prepared testimony as Exhibit A.

5. Are you responsible for portions of the application which Keystone has filed with the South Dakota Public Utilities Commission seeking a siting permit for the Keystone Pipeline?

Answer: Yes.

6. Mr. Koski, Are you responsible for Section 4.1 of the application, which focuses on route selection?

Answer: Yes

7. Can you summarize the testimony regarding route selection?

Answer: The route selection process is one of numerous iterations involving the participation of multiple disciplines. The process involves a number of steps including the identification of objectives, gathering of data, identification of constraints and opportunities, definition of control points, and the development and assessment of alternatives based on these data. The assessment of alternatives includes the solicitation of input from the public and relevant agencies and the completion of environmental and cultural resources surveys.

8. Mr. Koski, are you responsible for Section 4.2 of the application regarding route refinement?

Answer: Yes I am

9. Can you summarize the information in that section?

Answer: Yes. Subsequent to the identification of a preferred alternative, agency discussions resulted in input which resulted in further refinements to the route.

10. Can you address the major route refinements that Keystone has undertaken in South Dakota?

Answer: Yes. First, subsequent to submitting its initial application to the U.S. Department of State for a Presidential Permit, and the accompanying Environmental Report, Keystone developed a route alternative in North and South Dakota to respond to environmental, land use and operational issues. The 55-mile Hecla Sands route alternative is located in Sargent County,

North Dakota and Marshall and Day Counties, South Dakota. In response to US Fish and Wildlife Service (USFWS) input, this alternative shifts the proposed route west to avoid crossing environmentally sensitive areas consisting of USFWS grassland easements within a stabilized dune field called the Hecla Sandhills. Specific concerns were stabilization and revegetation of sand dunes over the long term, the presence of listed and sensitive plant and animal species, and the lack of existing access to a proposed pump station site within the sandhills.

Subsequently, Keystone conducted a review of shallow aquifers in the area. The USFWS also expressed concern about crossing grassland easements. Moreover, field reconnaissance indicated extensive wetlands along the proposed route in South Dakota. As a result, of this review and input, Keystone developed a revised version of the Hecla Sands reroute. This reroute is located in existing farmland, crosses less wetland acreage, avoids all USFWS grassland easements, and traverses only one mile of USFWS wetland easements. This route change was filed with the Department of State in January 2007.

Second, the USFWS requested that Keystone minimize impacts to an area of native prairie protected by USFWS easements in Day County. To minimize impacts to these easements, Keystone shifted its route to a maximum deviation of approximately 0.5 miles to the west of the original route.

Third, the USFWS requested that Keystone minimize impacts to Raymond Prairie Chicken Leks habitat, in an area of tall grass surrounded by intensively farmed cropland. To minimize impacts to this habitat, Keystone shifted its route to a maximum deviation of one mile to the east of the original route.

Finally, as the result of discussions with the City of Yankton, Keystone has completed route refinement work in the vicinity of the City of Yankton to accommodate future growth in the area.

11. Mr. Koski, are you responsible for Section 4.3 of the application?

Answer: Yes I am.

12. Can you tell us to what extent the reliance on eminent domain power could be reduced by use of an alternative site?

Answer: Yes I can. All practical route alternatives for the Keystone project involve crossing privately owned lands. Accordingly there is no known viable alternative route which would reduce the possibility for reliance on eminent domain powers.. As a 220-mile linear facility, Keystone requires easements from a large group of landowners. Keystone is endeavoring to negotiate easements will all landowners on a voluntary basis, It is not possible, however, to site the project on a route where the project will impact only landowners who are willing to grant easements on a voluntary basis.

13. Mr. Koski, are you responsible for Section 7.1 of the application, which addresses monitoring of impacts?

Answer: Yes I am.

14. Can you summarize the information contained in that section?

Answer: Yes I can. Keystone will implement a detailed environmental training, inspection and monitoring programs. Keystone will require all construction personnel to undergo environmental training prior to being allowed to work on the project. All contractor personnel will attend a 1 to 2 hour group training session. All supervisory personnel will attend a full day session. Training will be designed to ensure awareness of environmental issues and

regulatory conditions and commitments. During construction , Keystone will deploy a team of environmental inspectors to monitor construction to ensure compliance with conditions and commitments.

Following construction, keystone will conduct post-construction monitoring to ensure successful reclamation of disturbed areas and as required by specific permits.

15. Mr. Koski, do you adopt each of the above sections of Keystone's application as your testimony in this proceeding?

Answer: Yes I do.

16. Was collocation along any existing rights of way considered in routing the Keystone pipeline and, if so, what was considered?

Answer: Yes. During the route selection process, Keystone assessed the availability of existing linear facilities that could serve as possible collocation opportunities. Keystone is currently collocated with the following linear facilities.

Milepost	County	Feature	Distance Collocated
302.0 to 303.1	Clark	414th Ave	6100'
371.6 to 372.2	Hanson	428th Ave	3300'
427.2 to 427.8	Yankton	Kaneb pipeline	3200'
435.3 to 436.3	Yankton	Proposed Road	5600'
436.4 to 436.7	Yankton	Bramble road	1330'
436.7 to 437.6	Yankton	Kaneb pipeline	4900'

In addition, a high level route alternative was considered early in the route concept identification process, which was collocated with portions of Interstate Route 29. Details as to why this was not adopted as a preferred option are described later in my testimony.

17. Mr. Koski, is it your opinion that the proposed location of the Keystone Pipeline has minimal adverse affects on the environment, natural resources and citizens of the state of South Dakota?

Answer: Yes.

18. Mr. Koski, was Exhibit A to the application prepared under your supervision and direction?

Answer: Yes it was.

19. Can you tell us what Exhibit A to the application is?

Answer: Exhibit A to the application is a general soil map of soil associations within South Dakota and a superimposed map of the pipeline route over aerial photography of South Dakota and images of the pipeline route superimposed over land use types along the route in South Dakota.

20. Mr. Koski, can you generally describe how the route in South Dakota was chosen?

Answer: Yes I can. The route in South Dakota was selected through the iterative process noted above. This first involved the identification of control points. Control points which affect the route in South Dakota include the point where the route crosses the international border with Canada and the proposed crossing location of the Missouri River near Yankton, South Dakota. The crossing of the international border coincides with the optimum utilization and conversion of

an existing natural gas pipeline in Canada. The location of the Missouri River crossing was determined as described later in my testimony.

Based on these control points, a general study area was established. Physical data relevant to pipeline route selection was collected to establish constraints and opportunities for consideration. A multi-disciplinary team was established to review these data and to establish a preferred route. This route was presented at public open houses and in agency discussions to solicit input on the route. Input received through this process was utilized to refine the route as described earlier in my testimony.

21. Mr. Koski, how did Keystone determine the location of the Missouri River crossing at Yankton?

Answer: Given the project objective of Cushing Oklahoma and the point where the alignment crosses the US/CDN border, the pipeline must cross the Missouri River. Large rivers such as the Missouri River can offer a significant impediment to pipeline routing and accordingly the selection of an appropriate crossing location can significantly influence the overall routing of the pipeline. In the general region of the required crossing, the Missouri River is either impounded with dams forming significant lakes or is being allowed to meander naturally within its valley. Accordingly, the selection of a relatively stable portion of the river which will experience minimal lateral migration is preferred. Additionally, the selection of a location which is relatively narrow is also preferred.

- Based on these requirements, Keystone gathered topographic information for the area, defined the limits of special designated reaches of the river, and searched for existing buried utility crossings to serve as possible collocation opportunities. Based on these data, a number of possible crossing locations were determined on a preliminary basis.

These preliminary crossing locations included the impounded areas west of Yankton, an existing pipeline crossing at Yankton, and a point downstream of the Recreational River designation near Ponca State Park. Based on environmental and construction issues, the existing pipeline crossing location at Yankton was considered preferred since it was in a relatively stable section of the river, was relatively narrow and was adjacent to two existing pipeline crossings. However, the crossing location was within a designated section of the river. Keystone carried out a series of meetings with the National Park Service (NPS), USACOE, and the City of Yankton to discuss a crossing at this location. Through a series of meetings, a crossing plan utilizing the Horizontal Directional Drilling technique was developed and proposed. The HDD would drill under the river and the NPS jurisdictional lands on each side of the river.

22. Mr. Koski, can you explain why the I-29 corridor was not selected as the best route for the Keystone Pipeline?

Answer: Keystone considered the use of the I-29 corridor at one point in the project development.

- Keystone did not consider locating the project within the I-29 corridor, as this is not allowed due to safety issues and the impediment the facility would create to highway maintenance and expansion.
- Keystone rejected the option of locating adjacent to the I-29 right of way for the following reasons:
    - I- 29 includes numerous overpasses and interchanges which would require the route to deviate away from the corridor at frequent locations – increasing the length and impact of the pipeline.

- Interstate highways such as I-29 tend to connect areas of development and in fact can spur development at interchanges. These areas of residential and commercial development result in the need for additional deviation from the corridor, further increasing the length and impact of the project. Examples of developed areas along I-29 in South Dakota include Watertown, Brookings, and Sioux Falls.
- I-29 is not consistent with basic control points influencing the project – being the U.S./Canada border crossing and the Missouri River crossing. A route which both traversed along I-29 and respected these control points would increase the overall length and environmental impact of the project.

RESPONSES TO DATA REQUESTS

23. Are you responsible for providing the information requested in the Public Utility Commission's Data Request 1-2?

Answer: Yes.

24. Please summarize your response to Data Request 1-2.

Answer: Keystone provided maps as requested, showing project location with respect to cemeteries, places of historical significance, other facilities, political subdivisions and the like.

25. Are you responsible for providing the information requested in Data Request 1-3?

Answer: Yes.

26. Please summarize your response to Data Request 1-3.

Answer: The data response indicates that subsidence risk can be related to earthquake and slope stability risks, which are discussed in subsection 5.3.6 of the Application. Subsidence

can also be caused by bedrock dissolution in karst terrain (areas with underlying limestone bedrock near the surface). The national karst maps (Davies et al. 1984, Tobin and Weary 2005) were reviewed to determine areas of karst terrain. These areas can be visualized in the attached Karst Geological Areas Map (Figure 1), based on Tobin and Weary 2005.

The overall subsidence hazard risk from sinkholes that form in karst terrain is considered low. Deep (generally 50 feet or more) glacial drift deposits overlie karst terrain in South Dakota. This deep and interbedded glacial material matrix limits the potential for sinkholes to cause fractures and soil displacement at the surface.

27. Are you responsible for providing the information requested in Data Request 1-4?

Answer: Yes.

28. Please summarize your response to Data Request 1-4.

Answer: With the exception of the potential for landslide hazards, there are no other significant geological hazards that limit the design, construction or operation of the Keystone Pipeline. Overall, landslide potential is considered a low hazard along the Keystone Pipeline route in South Dakota. Keystone will assess the need for remediation techniques and utilize them where necessary.

29. Are you responsible for providing the information requested in Data Request 2-3?

Answer: Yes.

30. Please summarize your response to Data Request 2-3.

Answer: Keystone provided shape files containing all the latest routing data available and containing the following:

- Centerline;
- Permanent easement;
- Temporary easement;
- Mile posts;
- Extra workspaces;
- Pump stations; and
- Access Roads.

31. Are you responsible for providing the information requested in Data Request 2-4?

Answer: Yes.

32. Please summarize your response to Data Request 2-4.

Answer: Keystone provided shape file that contained the most up to date valve locations at the time.

33. Do you adopt the above data responses as part of your testimony in this proceeding?

Answer. Yes.

34. Do the portions of the application for which you are responsible support the granting of a permit by the Commission for the Keystone Pipeline Project?

Answer: Yes they do.

35. Does this conclude your testimony?

Answer: Yes it does.

Dated this _____ day of September, 2007.

MICHAEL KOSKI

Trow

Michael J. Koski, P.Eng.
Vice President, Energy Services Division

Michael Koski is currently the Vice President of Energy Services with Trow Engineering Consultants Inc. He has been with Trow since 1988 when he was a project engineer in the Thunder Bay, Ontario office. In 1992, Mr. Koski was moved to Winnipeg to open and manage a Trow branch office in that location. In October 1995, Mr. Koski was appointed manager of the newly formed Pipeline Services Division and operates out of Tallahassee, Florida. Due to the unprecedented growth of the division and corresponding increase in the scope of services offered, the division was renamed the Energy Services Division in 1998.

Mr. Koski has extensive experience in engineering and environmental issues, particularly with respect to the pipeline and mining industries. This unique blend of expertise has enabled him to serve as a key execution team member for several major pipeline projects involving capital costs in excess of 1 billion dollars. His experience includes the design and construction planning of pipeline routes, pipeline river crossings, erosion and sediment control, right-of-way reinstatement planning, hydrology/hydraulic studies, slope and excavation stability assessments, dewatering system design, directional drilling assessments, construction control and environmental permit negotiations. He is considered an expert with regards to pipeline river crossings having provided expert testimony in hearings and litigation, served on technical panels, presented at industry conferences and authored several related manuals for governmental and industry.

Mr. Koski's project experience encompasses both the Canadian and US regulatory environments. He has considerable experience with both the NEB and FERC processes as they relate to natural gas pipeline projects.

The following references may be contacted to verify Mr. Koski's experience and performance with respect to project management of major pipeline projects.

Mr. Steve Marr
North American Pipeline Investments
Transcanada
(403) 920-2056

Mr. Larry Drader
Vice President
Alberta Energy Company
(403) 266-8306

EXHIBIT A

Education

B.Eng. in Civil Engineering, first class standing, Lakehead University, 1988

Basic Spills, Response, Lampton College of Applied Arts and Technology, 1989

IECA Short Courses: Erosion and Sediment Control, Bioengineering, Streambank stabilization, 1994 and 1995

Professional Affiliations

Association of Professional Engineers of Ontario
International Erosion Control Association

Employment

1999 – Present
Trow Engineering Consultants, Inc.
Vice President, Energy Services Division
Tallahassee, Florida, USA

1995 – 1999
Trow Engineering Consultants, Inc.
Manager, Pipeline Services Division
Tallahassee, Florida, USA

1992 – 1995
Trow Consulting Engineers, Ltd.
Winnipeg Branch Manager
Winnipeg, Manitoba, Canada

1988 – 1992
Trow Consulting Engineers, Ltd.
Project Engineer
Thunder Bay, Ontario, Canada

Typical Experience

Pipelines

- Designed route selection and review procedures for large diameter cross country pipeline projects and managed the multidisciplinary teams necessary to complete the selection process.
- Conducted preliminary route reviews involving the determination of features, which would ultimately affect the permitting, construction, operation or cost of a specific project. Reviews conducted using a combination of remote sensing and field reconnaissance techniques.
- Prepared numerous environmental management and construction plans for pipeline river and wetland crossings.
- Prepared and maintained project execution plans for the design and construction of pipeline systems.
- Championed environmental permitting activities including the development and implementation of negotiation strategy.
- Developed a technique to efficiently conduct sediment transport assessments to assess the degree and extent of impaired water quality and sedimentation expected to occur as a result of pipeline water crossings.
- Developed and evaluated specialized pipeline water crossing techniques.
- Evaluated the erosion potential and developed a system of erosion control planning for pipeline river crossings.
- Designed right-of-way reinstatement procedures and specifications and managed their subsequent implementation.
- Conducted extensive on-site inspections and managed teams of inspectors for various aspects of pipeline construction..
- Conducted desk top and field terrain analyses related to route selection and assessment.
- Managed the development of contract bid documents including project descriptions, contracts, drawings and specifications. Participated in the bid review and contractor selection process.
- Assisted in the development of Request for Proposal packages for Engineering and Procurement services.

Geotechnical

- Conducted geotechnical investigations for a variety of projects including: commercial buildings, municipal services, buried storage tanks, communication towers, pipe jacking and directional drilling operation, streets and highways, outfall structures and airports.
- Conducted groundwater and seepage studies for the clean up of contaminated properties, design of waste disposal sites and subsurface construction activities.

- Designed numerous dams, diversion berms, and spillways for mine tailings and water retention projects.
- Conducted granular borrow source evaluations involving the determination of the quantity and quality of aggregate present for concrete, asphalt and general fill purposes.
- Conducted excavation and slope stability evaluations.
- Designed and supervised the implementation of subsurface drainage systems.

Environmental and Water Resources

- Performed hydrologic and hydraulic studies for bridge and culvert design, marine construction planning, revetment design, and mine tailings disposal design.
- Prepared storm water management and sediment control plans for construction activities adjacent to sensitive streams and rivers.
- Performed assessments to determine the degree and extent of increased suspended solids concentrations and sedimentation expected to occur as a result of marine excavations.
- Supervised the clean up of environmentally hazardous materials including the delineation of contaminated areas, containment and removal.
- Supervised the performance of asbestos audits and the required abatement for numerous facilities.

Project Management

- Prepared project execution plans for the design and construction of pipelines, tailings dams, and other civil projects.
- Prepared schedule and budget reporting and control procedures.
- Provided long term on-site construction supervision.
- Formulated construction plans to define proposed construction methods, schedules, and environmental management procedures.

Key Projects

- Senior Design Engineer and Project Manager for Trow involvement for the Gulfstream Natural Gas System pipeline project involving approximately 750 miles of 36 inch and 24 inch pipeline from Mississippi and Alabama to Florida.

- Project Engineer and project management committee member for the Viking Voyageur Gas Transmission project, involving approximately 800 miles of 42" pipe from Emerson, Manitoba to Chicago, Illinois. Responsible for the development and execution of route selection, route review, and FERC filing data collection aspects of the project. Managed a team of professionals for the completion of these activities.

- Engineering Coordinator and project management committee member for the 512 mile US portion of the Express Oil Pipeline in Montana and Wyoming. Responsible for the development and execution of the environmental permitting strategy which involved the control of all state and federal agency negotiations, activities of consultants, and liaison with engineering, environmental and legal personnel.

- Geotechnical Coordinator for the Transgas de Occidente project in Colombia South America involving approximately 200 miles of 20" pipeline and 240 miles of small diameter laterals. Responsible for the development and review of construction and restoration procedures, route selection, and slope stability analysis. Managed a team of engineers to review right-of-way reinstatement activities during construction.

- Prime author of the Water Crossing Design and Installation Manual prepared for the American Gas Association. The manual includes guidance and specifications for the design, permitting, construction, restoration, and maintenance of pipeline water crossings in Canada and the United States.

- Managed the completion of geotechnical investigations and preparation of erosion and sediment control plans for over 3,000 kms of new large diameter (42" and 48") pipelines for TransCanada Mainline expansion in Quebec, Ontario, Manitoba and Saskatchewan. Supported agency negotiations for environmental permitting.

- Project Manager for the design for the Sunshine Pipeline project involving approximately 800 miles of 30" pipeline in Mississippi, Alabama, and Florida. Participated in the design of river crossings, permit application/negotiation and route selection/review activities before the project was canceled in 1994.

- Project Manager for engineering, procurement and construction management for 32 miles of water and slurry pipelines for the Stillwater Mining Company in Montana.

- Expert testimony for construction claim litigation associated with permitting and construction of a natural gas pipeline in eastern Canada.

- Route selection oversight for the Southern Natural Gas Palmetto Pipeline project.

- Water-crossing design and construction specification development for the Southern Natural Gas North Alabama Pipeline project.