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 XL PIPELINE PROJECT	)))))))	HP 09-____ **DIRECT TESTIMONY OF DONALD M. SCOTT**

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

Answer: My name is Donald M. Scott. My business address is 450 1st Street SW, Calgary, Alberta, T2P 5H1 Canada.

2. Please provide a description of your areas of responsibility with TransCanada Keystone Pipeline, LP (Keystone) as related to the Keystone XL Project.

Answer: I am a consulting engineer for Keystone; I am involved in Supervisory Control and Data Acquisition (SCADA) systems, pipeline hydraulics, leak detection systems, and Pipeline Controller training for the Keystone XL Project.

3. Please state your professional qualifications and experience with pipeline operations.

Answer: I am a registered professional engineer in APEGGA (Association of Professional Engineers of Alberta). I have forty years of engineering experience of which 21 years are in the liquid hydrocarbon pipeline business. Areas of pipeline work experience are in capital project management; pipeline hydraulic design and analysis; building of pipeline simulation trainer systems; software-based pipeline leak detection

systems; and preparation of industry standards and regulator documents for Canadian and US jurisdictions.

4. **Have you provided a resume?**

Answer: Yes, my resume is attached as Exhibit A of my testimony.

5. **Are you responsible for portions of the application which Keystone is filing with the South Dakota Public Utilities Commission seeking a permit under the Energy Conversion and Transmission Facilities Act?**

Answer: Yes, I am individually or jointly responsible for the information provided in the following sections of the application:

- Section 2.3.2 – Abnormal Operations;
- Section 2.3.2.1 – SCADA and Leak Detection;
- Table 4 – Impact Summary Table; and
- Section 6.5.2 – Protection of Human Health and Safety.

6. **Could you briefly summarize the information provided in Section 2.3.2 – Abnormal Operations?**

Answer: Section 2.3.2 explains that Keystone is required by federal regulation to include in its written operating procedures manual those procedures that will provide safety when normal operating parameters have been exceeded, and identifies various types of procedures that are included in the manual.

7. Could you briefly summarize the information provided in Section 2.3.2.1 – SCADA and Leak Detection?

Answer: Section 2.3.2.1 describes the SCADA system that Keystone will use to remotely monitor and control the pipeline system. The SCADA system will include a redundant, fully functional, backup Operational Control Center (OCC), available for service at all times; automatic features to ensure operation within prescribed pressure limits; and additional automatic features installed at the pump stations to provide pipeline pressure protection in the event communications with the SCADA host are interrupted.

Section 2.3.2.1 also describes the complimentary leak detection methods and systems that are available within the OCC and in the field. These methods are overlapping in nature and progress in leak detection thresholds. These leak detection methods and systems are as follows:

- Remote monitoring performed by the OCC Operator, which consists primarily of monitoring pressure and flow data received from pump stations and valve sites fed back to the OCC by the Keystone SCADA system. Remote monitoring is typically able to detect leaks down to approximately 25 percent to 30 percent of pipeline flow rate;
- Software-based volume balance systems that monitor receipt and delivery volumes. These systems are typically able to detect leaks down to approximately 5 percent of pipeline flow rate;
- Computational Pipeline Monitoring or software-based leak detection systems that utilize a model to break the pipeline system into smaller segments and monitor each of these segments on a mass balance basis. These systems are typically capable of detecting leaks down to a level approximately 1.5 percent to 2 percent of pipeline flow rate;
- Computer-based, non-real time, accumulated gain/(loss) volume trending to assist in identifying low rate or seepage releases below the 1.5 to 2 percent by volume detection thresholds; and

- Direct observation methods, which include aerial patrols, ground patrols, and public and landowner awareness programs that are designed to encourage and facilitate the reporting of suspected leaks and events that may suggest a threat to the integrity of the pipeline.

8. Can you briefly describe the information that you are responsible for in Table 4 – Impact Summary?

Answer: I am responsible for the reference to SCADA and leak detection systems in the Public Health and Safety section of the table.

9. Can you briefly describe the information you are responsible for in Section 6.5.2 – Protection of Human Health and Safety?

Answer: I am responsible for the cross-reference to Section 2.3.2.1 (Leak Detection) in Section 6.5.2.

10. Do you adopt the portions of the application referenced herein as your own testimony in this matter?

Answer: Yes, with the caveat that I am jointly responsible for certain portions of the application with additional witnesses.

11. Does this conclude your prepared direct testimony?

Answer: Yes it does.

Dated this 24 day of February, 2009.

Donald M. Scott

Exhibit A

Resume for Donald Scott

Donald M. Scott, P. Eng.

Senior Technical Advisor

Introduction

Mr. Scott has 40 years of engineering experience including over 21 years experience in hydrocarbon pipelines in both technical and management positions. The pipeline experience is in engineering and capital projects, pipeline operations and application of computer systems to pipeline control and monitoring.

Specialization

He specializes in pipeline control, pipeline hydraulics, simulation systems, and software based pipeline leak detection (or Computational Pipeline Monitoring systems). He has extensive experience in the development and management of SCADA and other computer applications to support pipeline operations.

Key Experience

- Implementation of software based leak detection systems on Enbridge pipelines; provision of hydraulic simulation services to all areas of Enbridge; development of simulation trainer systems for Pipeline Controllers. .
- Represented the Company and its affiliates and assumed leadership role on technical committees' such as the American Petroleum Institute Task Force on Software Based Pipeline Leak Detection systems and CSA Z662 Pipeline Leak Detection.
- For 18 years acted as the Secretary/Member of Enbridge's Pipeline Control Committee, which has jurisdiction for approving changes to any aspect of pipeline control.
- Planned and supervised research, development and testing of new instrument applications for Enbridge's pipelines.

Key Achievements

- Developed and implemented a multi-year, $30 million project to provide software based leak detection systems on 19 Enbridge pipelines. Scope of work included software selection, changes to SCADA, additional instrumentation, system testing and working with the Control Centre users.

Professional Qualifications & Affiliations

- **University of Manitoba—**B.Sc. Engineering (Mechanical), 1971
- **Member of the Association of Professional Engineers, Geologists & Geophysicists of Alberta (APEGGA)**