

BEFORE THE  
PUBLIC UTILITIES COMMISSION  
STATE OF SOUTH DAKOTA

KEYSTONE XL PROJECT  
DOCKET HP09-001

PREFILED TESTIMONY OF JENNY HUDSON  
ON BEHALF OF THE COMMISSION STAFF  
SEPTEMBER 2009

BEFORE THE PUBLIC UTILITIES COMMISSION STATE OF SOUTH DAKOTA

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**Q. Please state your name and business address.**

A. My name is Jenny Hudson. My business address is 7135 Janes Avenue, Woodridge, Illinois, 60517.

**Q. By whom are you employed and in what capacity?**

A. I am employed as a Senior Project Manager by EN Engineering, an engineering and consulting firm specializing in pipeline design services for the oil and gas industry.

**Q. Please describe your educational background and professional experience.**

A. I hold a B.S. degree in Geological Engineering from the University of Missouri-Rolla. Additionally, I am a registered Professional Engineer in the State of Illinois as well as a registered NACE Cathodic Protection Technologist.

My professional experience consists of employment in the pipeline industry with EN Engineering and previously with Nicor Gas. While at Nicor Gas I had roles in the Storage Department as well as in the Corrosion Control Department. At EN Engineering, my responsibilities have been focused in the areas of corrosion control and pipeline integrity. My current responsibilities include developing and reviewing Integrity Management plans and procedures as well as technical oversight of External and Internal Corrosion Direct Assessments. My resume is included in Exhibit A.

**Q. On whose behalf was this testimony prepared?**

A. This testimony was prepared on behalf of the Staff of the South Dakota Public Utilities Commission (Staff).

**Q. Please state the purpose of your testimony in this proceeding.**

A. The main objective of the Staff in this testimony is to ensure that TransCanada Keystone Pipeline, LP (the Applicant) has met the requirements of the Federal Pipeline Safety Regulations 49 Part CFR 195, Transportation of Hazardous Liquids by Pipeline, with respect to the application for a permit (Permit) to construct and operate a crude oil pipeline in South Dakota. This testimony deals specifically with the area of Integrity Management (§195.452).

**Q. How will your testimony be organized?**

A. The testimony will explain the purpose of integrity management and the approval process.

**Q. Can you please describe the purpose of the liquid integrity management rule?**

A. Yes. After several high profile pipeline ruptures in the United States, the U. S. government identified the need to implement additional regulations pertaining to the integrity of hazardous liquid pipelines. The rule includes specific regulations to assess, evaluate and analyze the integrity of hazardous liquid pipeline segments that in the event of a pipeline release could affect the public and the environment.

**Q. When did the hazardous liquid integrity management rule become effective?**

A. For hazardous liquid pipeline operators with greater than 500 miles of pipe, the final rule went into effect May 29, 2001. For hazardous liquid pipeline operators with less than 500 miles of pipe, the final rule went into effect February 15, 2002. Pipelines constructed or converted to hazardous liquids service after May 29, 2001, are required to have a written plan within one (1) year after the date the pipeline begins operation.

**Q. Can you please explain what a high consequence area is?**

A. Yes. For hazardous liquid pipelines, a High Consequence Area (HCA) is defined by 49 CFR Part 195 §195.450 as one of the following: a commercially navigable waterway, a high population area, an “other” populated area or an unusually sensitive area.

A high population area is further defined as an urbanized area that contains 50,000 or more people and has a population density of at least 1,000 people per square mile.

An "other" populated area is further defined as a place defined and delineated by the U.S. Census Bureau that contains a concentrated population such as an incorporated or unincorporated city, town, village or designated residential or commercial area.

An unusually sensitive area is defined by 49 CFR Part 195 §195.6 as a drinking water or ecological resource area that is unusually sensitive to environmental damage from a hazardous liquid pipeline release.

Examples of a drinking water resource include but are not limited to the water intake for a Community Water System or a Non-Transient Non-community Water System that obtains its water supply primarily from a surface water source and does not have an adequate alternative drinking water source, and a sole source aquifer recharge area where the sole source aquifer is a karst aquifer.

Examples of ecological resources include but are not limited to a multi-species assemblage area, a migratory water bird concentration area and an area containing an imperiled or endangered species.

**Q. Please explain any federal regulations in regards to homes and structures intended for human occupancy.**

A. There are no requirements in 49 CFR §195.452 that specifically address homes and structures intended for human occupancy. Per the rule, an urbanized area or area with a concentrated population may be considered a High Consequence Area (HCA). In such a case, additional requirements for assessing, evaluating and analyzing the segment of pipeline having the ability to affect the HCA take effect.

**Q. Please discuss requirements for emergency flow restriction devices as they relate to the integrity management rule.**

- A. An Emergency Flow Restricting Device (EFRD) is defined by federal code as a check valve or remotely operated valve. Per §195.452, if an operator determines that an EFRD is needed in order to protect an HCA in the event of a pipeline release, the EFRD must be installed.

The Applicant identified sixteen (16) valve locations in the state of South Dakota. The Applicant specified remotely operated valves will be placed at pump stations and upstream of major river crossings and sensitive water areas. Additionally, the Applicant considered the locations of HCAs when determining mainline valve locations.

The locations of EFRDs, as well as the technical rationale for placement of EFRDs, are subject to review during a PHMSA jurisdictional audit.

**Q. Please explain the liquid integrity management plan approval process.**

- A. There is no formal federal approval process for liquid integrity management plans. Per the rule, operators are expected to have a written document meeting the requirements of 49 CFR §195.452 within one (1) year of a pipeline going into operation.

Pipeline operators are subject to jurisdictional PHMSA audits. During these audits, auditors will review the operator's written integrity management plan to verify it meets the requirements of 49 CFR §195.452. Depending on the nature of any findings, the Pipeline and Hazardous Materials Safety Administration (PHMSA) may issue an enforcement action to the operator. The enforcement action could be in the form of a Corrective Action Order, a Notice of Probable Violation, a Notice of Amendment or a Warning Letter. Corrective Action Orders and Notices of Probable Violations could include a civil penalty.

Although not required by 49 CFR §195.452, the Applicant filed a copy of their written integrity management document with PHMSA for review. PHMSA will not formally approve this document.

**Q. At what stage in the integrity management plan development process is Keystone XL?**

A. The Applicant developed a baseline written integrity management plan document. This document was reviewed and approved by various individuals within the Applicant's organization. As stated previously, the Applicant filed a copy of their written integrity management plan with PHMSA for review.

Additionally, the Applicant performed a preliminary evaluation of HCAs. The Applicant determined that 34.3 miles of pipeline in the state of South Dakota has the potential to affect a HCA in the event of a pipeline release.

**Q. To the extent that data is available does it appear that TransCanada Keystone Pipeline, LP is in compliance with Part 195 §195.452?**

A. Based on my review of the application and to the extent data is available, yes.

**Q. Are there any conditions that you recommend as part of granting the siting permit for South Dakota? If so, what are they?**

A. No.

# **ENEngineering**

**Jenny Hudson, P.E.**

Senior Project Manager, Technology

<b>Education</b>	BS, Geological Engineering, University of Missouri, Rolla, Missouri, 1997
<b>Professional Registrations</b>	Professional Engineer, Illinois
<b>Professional Certifications</b>	NACE – International Cathodic Protection Technologist (CP Level 3)
<b>Continuing Education and Training</b>	NACE International AC Mitigation Course NACE International Designing for Corrosion Control Course
<b>Professional Accomplishments</b>	Co-Author of “Cathodic Protection of a Large-Diameter Distribution System: Corrosion Monitoring and Testing”, American Water Works 2004 DSS Conference  Presentation for NACE Central Area Conference, 2008 Presentation for Kentucky Gas Association, 2008
<b>Summary of Experience</b>	Ms. Hudson has over ten years of pipeline integrity, corrosion control and cathodic protection experience. Project experience includes developing pipeline integrity procedures, participating in and providing assistance with jurisdictional audits, implementing External Corrosion Direct Assessment and Internal Corrosion Direct Assessment methodology and cathodic protection design work.
<b>Project Experience</b>	<b>Southern Star Central Gas Pipeline</b>  Develop written integrity management plan procedures and supporting documentation including ECDA and ICDA plans. Administer training related to corrosion control field testing and integrity management. Manage implementation of External Corrosion Direct Assessment methodology as well as review and analyze data. Provide support for Long Range Ultrasonic Testing including procedure development and notification to PHMSA. Actively participate in PHMSA jurisdictional audit.  <b>Vectren Energy Delivery</b>  Develop and modify written integrity management plan procedures and supporting documentation. Provide support on pipeline integrity issues as well as External Corrosion Direct Assessment and Internal Corrosion Direct Assessment. Oversee development of transmission Design Manual.  <b>South Dakota Public Utilities Commission</b>  Provide expert testimony on integrity management issues.  <b>Oklahoma Natural Gas</b>  Perform gap analysis of written integrity management plan. Furnish documented feedback on plan including recommended modifications.

*Exhibit A*

**Jenny Hudson, P.E. (continued)**  
Senior Project Manager, Technology

**Project  
Experience  
(cont'd)**

**Nicor Gas**

Management and implementation of External Corrosion Direct Assessment and Internal Corrosion Direct Assessment projects. Provide support for Long Range Ultrasonic Testing including procedure development and notification to PHMSA.

**DTE / Michcon**

Management and implementation of External Corrosion Direct Assessment and Internal Direct Assessment projects. Provide support for Long Range Ultrasonic Testing.

**United States Gypsum**

Develop jurisdictional manuals including Integrity Management Plan, Operation and Maintenance, Emergency Response. Manage External Corrosion Direct Assessment. Provide continual guidance on pipeline jurisdictional issues. Perform risk analysis and risk ranking. Perform on-site review of integrity management and O&M records.

**DuPage Water Commission**

Develop and assist with corrosion control program. Activities include establish monitoring program, cathodic protection design, data review, data analysis and corrosion control consulting. Field testing for steel and PCCP water transmission mains including structure-to-electrolyte readings, AC readings, isolation flange testing, Panhandle Eastern Testing, stray current interference testing and close-interval survey.

**Northwest Suburban Municipal Joint Action Water Agency**

Evaluation of cathodically protected PCCP water transmission main. Testing included close-interval survey (on, instant off and depolarized), isolation flange testing and cathodic protection test point readings. Project also included analysis of data and recommendations.