BEFORE THE
PUBLIC UTILITIES COMMISSION
STATE OF SOUTH DAKOTA

IN THE MATTER OF THE PETITION OF TRANSCANADA KEYSTONE PIPELINE, LP FOR ORDER ACCEPTING CERTIFICATION OF PERMIT ISSUED IN DOCKET HP09-001 TO CONSTRUCT THE KEYSTONE XL PIPELINE

DOCKET HP14-001

PREFILED TESTIMONY OF JENNY HUDSON
ON BEHALF OF THE COMMISSION STAFF
APRIL 2, 2015

Q. Please state your name and business address.

A. My name is Jenny Hudson. My business address is 28100 Torch Parkway, Warrenville, Illinois, 60555.

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

A. I am employed as a Vice President-Senior Project Manager by EN Engineering, an engineering and consulting firm specializing in pipeline design, codes compliance, integrity and automation 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 pipeline integrity, codes compliance and corrosion control. Additionally, I am a member of several industry technical committees. My resume is included in Exhibit___JH-1.

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. There are three main objectives of the Staff in this testimony. First, to ensure that the proposed changes to the Findings of Fact in the Decision, as identified by TransCanada Keystone Pipeline's (the Applicant) Tracking Table of Changes, comply with the Federal Pipeline Safety Regulations 49CFR 195, Transportation of Hazardous Liquids by Pipeline. Secondly, the objective is to ensure that the Applicant has met any new requirements imposed by the Federal Pipeline Safety Regulations 49CFR 195 since the Amended Final Decision and Order was issued on June 29, 2010 with respect to the application for a permit (Permit) to construct and operate a crude oil pipeline in South Dakota. Lastly, the objective is to ensure that the amended permit conditions, and any project changes, are still able to meet the conditions upon which the permit was issued, specifically focusing on pipeline design, integrity management and compliance with PHMSA regulations (49CFR 195).

This testimony deals specifically with changes to Federal Pipeline Safety Regulations 49CFR 195 since the Amended Final Decision and Order was issued and project changes specific to the area of Integrity Management (§195.452).

Q. Please describe any changes to federal pipeline safety regulations since the Amended Final Decision and Order was issued on June 29, 2010.

A. Since the proposed Keystone Pipeline is a hazardous liquid pipeline, I will describe any changes to Part 195 – Transportation of Hazardous Liquids by Pipeline.

As part of Amendment 195-94, which went into effect October 1, 2010, section 195.207 was added as a new section covering the transportation of pipe by railroad, ship or barge. This amendment also revised sections 195.3, 195.116, 195.264, 195.307, 195.401, 195.432, 195.452, 195.571, 195.573, and 195.588. Per the Federal Register notice, these amendments did not require pipeline operators to take on any significant new pipeline safety initiatives.

On January 1, 2011, changes to Part 195 went into effect as part of Amendment 195-95. These changes addressed the National Registry of Pipeline and LNG Operators and reporting requirements. As part of the changes, new section 195.64 was added, section 195.62 was removed, and updates were made to sections 195.48, 195.49, 195.52, 195.58 and 195.63. The intent of these changes was to enhance the Pipeline and Hazardous Materials Safety Administration's (PHMSA) ability to understand, measure and assess the performance of individual operators and the industry in its entirety, as well as to expand and simplify the electronic reporting required of operators.

As part of Amendments 195-96 and 195-96C, changes were made to apply safety regulations to rural low stress hazardous liquid pipelines that were not previously covered by safety regulations. Section 195.12 was rewritten to address these new requirements. Changes were also made to sections 195.1 and 195.48. These changes went into effect October 11, 2011 and were made in

order to comply with a mandate provided in the Pipeline Inspection, Protection, Enforcement, and Safety Act of 2006.

Amendment 195-97 expedited certain implementation dates pertaining to the Control Room Management regulations contained in section 195.446. The rule went into effect August 15, 2011.

Amendment 195-98, which went into effect October 25, 2013, updated the administrative civil penalty maximums for violation of the safety standards and made technical corrections and updates to certain administrative procedures. This amendment made changes to section 195.402.

Amendment 195-99, which went into effect March 6, 2015, incorporated by reference new, updated or reaffirmed editions of applicable consensus standards subject to the regulations, and also made non-substantive editorial corrections clarifying code language in certain sections. This amendment added new section 195.207 addressing requirements for the transportation of pipe by truck. Additionally, changes to the following sections were made: 195.5, 195.406, 195.3, 195.106, 195.116, 195.118, 195.124, 195.132, 195.134, 195.205, 195.214, 195.222, 195.228, 195.264, 195.307, 195.405, 195.432, 195.444, 195.452, 195.565, 195.573, 195.579 and 195.587. Per the Federal Register notice, these amendments did not require pipeline operators to take on any significant new pipeline safety initiatives.

Of additional note is Amendment 195-93. This amendment added a new section to Part 195 addressing Control Room Management. While the effective date of this ruling was February 1, 2010, which was prior to the Amended Final Decision and Order being issued, the regulation did not require operators to have Control Room Management procedures developed until August 1, 2011. As a result, Control Room Management was not directly discussed during the prior proceedings.

Q. Numerous sections of code were referenced previously as being modified. Were these changes significant?

A. The majority of the changes were clarifications in code language, editorial corrections, modifications to the way industry standards are referenced in the regulation and incorporating by reference updated or reaffirmed versions of industry standards. As an example, prior to Amendment 195-99, section 195.132 used the term “API Standard 620”. After the amendment, section 195.132 read “API Std 620”. However, there were some changes that could be considered more substantive, which I will discuss below.

Changes to section 195.1, made as part of Amendment 195-96, provided for a complete rewrite of the section. This section identifies which pipelines are covered by Part 195. The primary impact was the inclusion of all rural onshore hazardous liquid low stress and certain gathering pipelines under the regulation.

Changes to 195.12, made as part of Amendment 195-96, address changes to the requirements for rural low stress pipelines.

Changes to 195.64, made as part of Amendment 195-95 added reporting requirements to operators as they relate to the National Registry of Pipeline and LNG Operators.

Changes to 195.207, as made by Amendment 195-94, added this section covering the transportation of pipe by railroad, ship or barge. Amendment 195-99 added requirements for the transportation of pipe by truck.

Changes to 195.432, made as part of Amendment 195-99 added significant detail to paragraph (b) regarding internal inspection interval of in-service breakout tanks.

Amendments 93 and 97 added requirements pertaining to Control Room Management.

Q. Please describe how the changes to Part 195, described previously, will have an effect on the proposed Keystone Pipeline?

A. As mentioned previously, the majority of the changes were not substantive in nature and as a result, have minimal impact on the requirements for the design, integrity management and implementation of Part 195 requirements, as they

relate to the proposed Keystone pipeline. However, there are some changes that will.

Since the Amended Final Decision and Order was issued on June 29, 2010, changes to 49 CFR Part 195 have required operators to develop and implement a Control Room Management Plan. Control Room Management requirements were not specifically addressed in the prior proceedings. The Control Room Management Regulations will be described in more detail by Mr. Chris Hughes.

Through use of the National Registry of Pipeline and LNG Operators, Keystone will be required to notify PHMSA no later than 60 days before construction on the pipeline begins. This is addressed in 195.64(c)(1)(ii).

Transportation of pipe will need to be per the mandates set forth in section 195.207.

Significant changes relative to rural low stress pipelines were made to the federal pipeline code; however, since the proposed Keystone pipeline is not a rural low stress rural line, those regulatory changes do not have an impact on this proceeding.

Changes related to breakout tanks were made to the federal pipeline code; however, Keystone has stated there will be no tank facilities constructed in South Dakota. As a result, there is no impact relevant to these proceedings.

Q. Keystone updated project specifications as they relate to Finding 50 in the Amended Final Decision and Order to state 19.9 miles of the proposed pipe in South Dakota have the potential to impact a High Consequence Area. Previously Keystone had stated a spill had the potential to impact 34.3 miles of HCA. Can you please describe the impact this change has?

A. As a result of the change, less pipe in the state of South Dakota will be subject to integrity management regulations (195.452) due to less pipe having the potential to impact a High Consequence Area in the event of a pipeline release.

Q. Does this change violate any requirements set forth in 49 CFR Part 195?

A. Presuming the revised HCA analysis was performed in accordance with Part 195, it does not.

Q. Does this change violate any mandates set forth in the original or amended permit conditions?

A. Presuming the revised HCA analysis was performed in accordance with Part 195, it does not.

Q. Do any of the other project changes identified in the Tracking Table of Changes provided by Keystone violate the mandates set forth in 49 CFR 195.452?

A. No they do not.

Q. As they relate to 49 CFR 195.452, do any other project changes identified in the Tracking Table of Changes provided by Keystone violate the mandates set forth in the original or the amended Permit Conditions?

A. No they do not.

Q. Does this conclude your testimony?

A. Yes.

Jenny Hudson, PE
Vice President – Integrity

Key Relevance
Integrity Management
Compliance and Best Practice Audits
Risk Assessment and Prioritization
MAOP / MOP Verification
Integrity Assessments

Job Title:
Vice President
Integrity

Years with EN Engineering: 13

Total Years of Experience: 15+

Primary Office Location:
Warrenville, IL

Education:

- B.S., Geological Engineering, University of Missouri, Rolla, Missouri, 1997

Professional Registration:

- IL

Overview: Ms. Hudson has over fifteen (15) years of pipeline integrity, codes compliance, and corrosion control experience with natural gas and hazardous liquid pipeline systems. Experience includes developing pipeline integrity procedures, participating in and providing assistance with jurisdictional audits, providing expert testimony, implementing External Corrosion Direct Assessment (ECDA) and Internal Corrosion Direct Assessment (ICDA) methodologies, developing Control Room Management plans and procedures and records verification.

Relevant Projects:

Southern Star Central Gas Pipeline – Integrity Management
Develop written integrity management plan procedures and supporting documentation to meet the requirements of Subpart O. Facilitate operator committee meetings to review, finalize and implement procedures within the organization. Develop and provide training to operator personnel on new plans and procedures.

Southern Star Central Gas Pipeline – Integrity Management
Facilitate operator preparation for PHMSA jurisdictional integrity management audit. Actively participate in jurisdictional audit as client representative.

Vectren Energy Delivery – Integrity Management
Develop and modify written integrity management plan procedures and supporting documentation. Facilitate operator committee meetings to review, finalize and implement procedures within the organization. Develop and provide training to operator personnel on modified and new processes and procedures.

Vectren Energy Delivery – Integrity Management
Provide support on pipeline integrity issues as well as External Corrosion Direct Assessment and Internal Corrosion Direct Assessment.

Southwest Gas – Integrity Management
Manage team and perform audit of integrity management program to identify code compliance and best practice issues. Review included manual and procedure review, personnel interviews and documentation review.

South Dakota Public Utilities Commission - Integrity Management
Provide expert testimony on integrity management issues related to hazardous liquid pipelines on two occasions.

United States Gypsum - Integrity Management
Manage and oversee integrity management program including HCA identification, threat analysis and integrity assessment. Actively participate in jurisdictional integrity management audit as client representative.

DTE/MichCon - Integrity Management
Perform jurisdictional review of integrity management program including code compliance and best practice recommendations. Make modifications to ECDA plan.

Professional Organizations & Affiliations:

- ASME B31.8 Corrosion / O&M Subgroup
- AGA Transmission Pipeline Operations
- AGA Corrosion Control

Publications & Patents:

- Co-Author of "Cathodic Protection of a Large-Diameter Distribution System: Corrosion Monitoring and Testing", American Water Works 2004 DSS Conference
- Co-Author of "New Distribution Regulations Promote Risk Analysis", American Public Gas Association, 2008
- Presentation for NACE Central Area Conference, 2008
- Presentation for Kentucky Gas Association, 2008
- Presentation for Illinois American Water Works Association, 2010
- Presentation for AGA Operations Conference, 2012

Professional Certifications:

- NACE – International Cathodic Protection Technologist (CP Level 3)

Relevant Projects (Cont'd):

Northern Natural Gas - Integrity Management
Facilitate mock integrity management audit. Evaluated oral responses as well as written documentation and provided feedback in order to help operator prepare for jurisdictional audit.

Aux Sable Liquids Products - Integrity Management
Oversee development of liquid integrity management plan.

Oklahoma Natural Gas - Integrity Management
Perform gap analysis of written integrity management plan. Furnish documented feedback on plan including recommended modifications.

NIPSCO – Integrity Management
Oversee modifications to Transmission Integrity Management Program. Facilitate mock audit and participate in state jurisdictional audit.

Tesoro – Pipeline Safety
Perform pipeline risk management, procedure and management practice audit. Audit included review of written plans, personnel interviews and review of documentation. Formal close-out presentation given to upper management.

NIPSCO – Pipeline Safety
Perform audit of pipeline safety programs, including evaluation of written procedures, personnel interviews and documentation review.

Confidential Client - Due Diligence
Perform data research and integrity evaluation for potential buyer of pipeline assets.

NIPSCO – System Risk and Prioritization
Provide technical support for rate recovery filing including review of methodology used to select projects to reduce system risk and independent review of project cost estimating methodologies. Interact with legal counsel and state jurisdictional agencies.

Vectren – System Risk and Prioritization
Provide technical support for rate recovery filing including review of methodology used to select projects to reduce system risk and independent review of project cost estimating methodologies.

American Gas Association (AGA) – Integrity Management
Organized a study of the potential impact of increased testing requirements on AGA member companies as well as industry as a whole. Analyzed cost, timelines, configuration, inspectability, resource availability, and other barriers. Utilized PHMSA Transmission Annual Report data further substantiated through detailed interviews with subset of AGA member companies.

Ameren – MAOP Verification
Oversee team performing records research, gap analysis and data evaluation related to MAOP verification.

Relevant Projects (Cont'd):

Pacific Gas and Electric - ASV/RCVs
Performed a review of the use of Automatic Shut-off Valves (ASV) and Remote Control Valves (RCV) including industry best practice, survey of natural gas transmission and distribution companies regarding their experiences with ASVs and RCVs, alternatives and merits of available technologies, pertinent industry literature and regulations. Identified individual valve segments within the transmission system and prioritized based on risk factors.

Southern Star Central Gas Pipeline - Training
Administer training related to corrosion control field testing.

Duke - Distribution Integrity Management
Oversee development of Distribution Integrity Management Plan.

Peoples Natural Gas - Distribution Integrity Management
Oversee development of Distribution Integrity Management Plan Procedures.

PECO – Distribution Integrity Management
Perform review of Distribution Integrity Management Program.

Southern Star Central Gas Pipeline - External Corrosion Direct Assessment 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.

Nicor Gas – ECDA / ICDA
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.

Nicor Gas - ECDA
Perform direct examinations as part of ECDA process.

DTE/Michcon - ECDA / ICDA
Management and implementation of External Corrosion Direct Assessment and Internal Direct Assessment projects. Provide support for Long Range Ultrasonic Testing.

United States Gypsum - ECDA / ICDA
Manage External Corrosion Direct Assessment and Internal Corrosion Direct Assessment projects to meet federal mandates.

United States Gypsum - Pipeline Operations
Develop jurisdictional manuals including Integrity Management Plan, Operation and Maintenance, Emergency Response.

Dominion - Audit / Review
Participate on team reviewing various client station assets. Focus was on corrosion control codes compliance and best practice issues.

Relevant Projects (Cont'd):

United States Gypsum - Audit / Review
Participate on team reviewing various client pipeline assets. Focus was on corrosion control codes compliance and best practice issues.

Duke - Control Room Management
Oversee modifications to existing control room management plan.

Integrys - Control Room Management
Oversee development of control room management plans.

DTE/Michcon - Control Room Management
Oversee development of control room management plan.

Northern Natural Gas - AC Mitigation
Develop plan and procedures related to AC corrosion and AC mitigation.

Nicor Gas - Corrosion Control
Perform annual cathodic protection surveys. Obtain rectifier readings and bond readings.

Nicor Gas - Corrosion Control
Perform close-interval survey and direct current voltage gradient survey.

Du Page Water Commission - Corrosion Control
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 - Corrosion Control 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.