

BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF SOUTH DAKOTA

In the Matter of the Petition for Declaratory  
Ruling of the South Dakota Public Utilities  
Commission regarding 49 C.F.R. § 192.3

PS 11-001  
**Comments of Intervenor  
NorthWestern Energy**

NorthWestern Corporation d/b/a NorthWestern Energy respectfully submits the following comments in this docket.

### **Natural Gas Pipeline Classifications**

NorthWestern Energy will split this discussion into two sections. First, we believe, as demonstrated below, that the new Aberdeen distribution main should remain classified as a distribution line. Second, we will discuss the overall classification of lines beyond the immediate Aberdeen main matter.

#### ***Aberdeen Main***

This docket concerns classification of NorthWestern Energy's natural gas line starting at the Northern Border Pipeline (NBPL) tap near Aberdeen, South Dakota, and ending south of Aberdeen with three service points: (1) the Aberdeen Peaking plant; (2) the Northern Beef Packers (NBP) processing plant located in the city limits of Aberdeen; and (3) a connection with NorthWestern Energy's Aberdeen distribution system.

#### *Pipeline Description:*

- ◆ 6.25 miles of 6-inch steel line
- ◆ Operation Pressure: 650 PSIG (NBPL operates from 1200 to 1300 PSIG)
- ◆ MOAP: 878 PSIG (NBPL-established MAOP is 1440 PSIG)
- ◆ 20% SMYS = 879 PSIG
- ◆ Installed in 2011
- ◆ Odorized

- ◆ Four different pipelines leave this NBPL tap station serving Aberdeen, Mellette, Groton, and a new line
- ◆ Customer 1 – Aberdeen Peaker: gas consumption volume capability of a large ethanol plant but the projected usage of one-tenth of a large plant due to air permits
- ◆ Customer 2 – NBP: usage roughly equivalent to one-fourth of a large ethanol plant
- ◆ Customer 3: connection to NorthWestern Energy’s distribution system

*Definitions from 49 C.F.R. § 192.3:*

- ◆ **Distribution Line** means a pipeline other than a gathering or transmission line.
- ◆ **Gathering Line** means a pipeline that transports gas from a current production facility to a transmission line or main.
- ◆ **Main** means a distribution line that serves as a common source of supply for more than one service line.
- ◆ **Transmission Line** means a pipeline, other than a gathering line, that:
  - (1) transports gas from a gathering line or storage facility to a distribution center, storage facility, or large volume customer that is not downstream from a distribution center; (2) operates at a hoop stress of 20 percent or more of SMYS; or (3) transports gas within a storage field.

*Pipeline Classification:*

In reading the Part 192 definition for a gathering line, the Aberdeen pipeline described above is not a gathering line. It does not connect a production facility to a transmission line or main.

According to the Part 192 definition of a transmission line, the Aberdeen pipeline described above is not a transmission line. First, this line does not transport from an upstream gathering line or a storage facility. Second, this line is downstream from the NorthWestern Energy distribution center at the NBPL tap that serves this area. Third, this pipeline operates at a hoop stress less than 20% of SMYS. Finally, this pipeline does not transport gas within a storage field.

This line operates at less than 20% of SMYS and begins at a pressure limiting and metering station on an interstate natural gas transmission pipeline. From there the line extends to various

pressure reduction points, beyond which the gas is distributed to consumers. Because there is not a transfer of gas to individual customers for resale beyond the pressure limiting and metering station, this station meets the distribution center description provided in 49 C.F.R. § 192.3. Therefore, this line is a distribution line, or main, as it is a common source of supply for more than one service line.

### ***Using 20% SMYS versus Who is Connected***

As stated in the Petition for Declaratory Ruling, “Past practice in South Dakota has been to classify all lines under 20% of [Specified Minimum Yield Strength (SMYS)], that originate at interstate transmission lines and end at a large volume customer, as distribution.” (Pet. at 1.) This practice has provided utilities in South Dakota the opportunity to design and operate pipeline systems in a safer manner regardless of who is connected to the pipeline.

Over the last 10 years, NorthWestern Energy has constructed several two-inch, four-inch, six-inch, and eight-inch diameter steel pipelines to service communities, large rural customers, residential developments, and distribution center load growth. Each one of these lines is designed with a Maximum Allowable Operating Pressure (MAOP) of less than 20% SMYS. NorthWestern Energy maintains the lower stress rating to maximize safety while lowering some upfront costs and annual maintenance costs. As a practice, NorthWestern Energy utilized transmission standards where they made sense. Some of the design and construction differences between transmission and distribution are included in Appendix A. For increased safety with distribution lines, NorthWestern Energy utilized the valve location placement based class, API 1104 Welding, and required non-destructive testing similar to transmission line construction. NorthWestern Energy also utilized standard distribution requirements in the odorization of all lines and conservative

pressure testing. NorthWestern Energy believes that, for these pipelines, meeting all distribution requirements, and adding transmission requirements where it makes sense, provides the maximum amount of safety at the best rates, thereby avoiding unnecessary regulatory expenses for pipelines that are meant to run at much higher SMYS.

If NorthWestern Energy and other operators are required to classify pipelines according to Staff's newly proposed interpretations, utilities will be required to invest more upfront, with increased ongoing maintenance (listed below) resulting in decisions to control costs for rate payers, by installing transmission lines with higher SMYS; therefore, increasing safety risks. Although the additional maintenance helps mitigate the risk of higher SMYS pipelines, if there is a release, risks to property and life increase.

As an example, NorthWestern Energy's facilities were recently hit by a third party plowing in drainage tile. This pipeline has a current MAOP of less than 20% SMYS. The plow tore a hole in the pipeline. The third party safely evacuated the area and reported the leak. Had this pipeline been built under this proposed rule change, there is a good chance it would have been engineered with a thinner wall thickness to help with controlling installation costs and resulting in a higher SMYS rating. Staff's proposed change in pipeline classifications could have increased the risk of a pipeline rupture under this scenario versus tearing a hole in the pipe as did occur. The incident could have been much more severe.

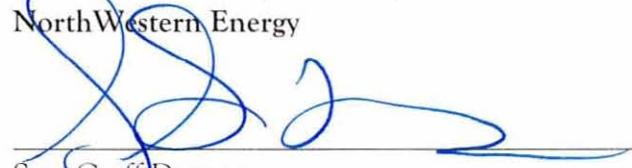
Additional safety benefits under the current pipeline classification practices include a better tolerance for corrosion due to the additional thickness of the pipe wall. The pipeline would also have an increased ability to handle stress and strain from the environment.

There is also a financial impact related to this proposed classification standard. In order to cost justify some projects, operators will need to increase the operating pressure as it relates to SMYS to control costs. In some cases, the projects will no longer be feasible, affecting economic growth in South Dakota.

NorthWestern Energy believes there are definitely roles and needs for transmission lines and transmission line designs, but NorthWestern Energy also believes the current classification options maintain higher safety factors while delivering a cost efficient solution to consumers. Without these options, it would be hard to justify constructing or acquiring any new lines that would qualify as a transmission line at the lower SMYS levels as proposed.

Dated this 4<sup>th</sup> day of January, 2012.

NorthWestern Corporation d/b/a  
NorthWestern Energy



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### Certificate of Service

Dori L. Quam hereby certifies that on this 4<sup>th</sup> day of January, 2012, a true and correct copy of the foregoing Comments of Intervenor NorthWestern Energy was served upon the following by electronic mail:

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## Design Differences between Transmission and Distribution

The safe operating pressure for steel pipe is determined by a formula in 49 C.F.R. § 192.105. Utilizing this calculation will provide the operator with the Maximum Allowable Operating Pressure of the facility.

The formula is  $P = (2St/D) \times F \times E \times T$ .

- ◆ P = Design Pressure
- ◆ S = Yield Strength
  - Specified Minimum Yield Strength (SMYS) is the minimum yield strength for a specific material according to its specifications.
- ◆ t = Nominal Wall Thickness
- ◆ D = Nominal Outside Diameter
- ◆ F = Design Factor

The design factor is applied based on class location. The factor can be de-rated further based on location of the facility within certain conditions like Right-of-Way (ROW).

Class	Design Factor	ROW or other factors
1.	.72	.60
2.	.60	.50
3.	.50	
4.	.40	

- ◆ E = Longitudinal Joint Factor<sup>1</sup>
- ◆ T = Temperature De-rating Factor<sup>2</sup>

### **Line Valves, 49 C.F.R. §§ 192.179 & 192.181**

- ◆ *Transmission:* The spacing of valves on a transmission line is based on Class Location.

Class	Distances from Valves
1.	10 Miles
2.	7.5 Miles
3.	4 Miles
4.	2.5 Miles

- ◆ *Distribution:* The spacing of the valves on a distribution system must be sufficient to reduce time to shut down sections of main in an emergency. The valve spacing is determined by operating pressure, the size of mains, and the local physical conditions.

<sup>1</sup> Longitudinal Joint Factor for NorthWestern Energy's material and practices is one.

<sup>2</sup> Temperature De-rating Factor for NorthWestern Energy's gas temperature is one.

**Welding Qualifications, 49 C.F.R. § 192.227**

- ◆ *20% SMYS and over:* Welding for this type of pipeline requires API 1104 certification and procedures.
- ◆ *Less than 20% SMYS:* Welding for this type of pipeline requires Appendix C certification and procedures.

**Nondestructive Testing, 49 C.F.R. §§ 192.241 & 192.243**

- ◆ *Under 20% SMYS:* visually inspected.
- ◆ *Over 20% SMYS:* must be nondestructively tested. (example - X-ray) Amount of testing is dependent on class location, pipe size, and operating pressure as a percent of SMYS.

**Strength Test Requirements, 49 C.F.R. §§ 192.505 & 192.507**

- ◆ *Under 30% SMYS but above 100 psig:* must be tested to respective Class Location table, but 150% covers all requirements. Pressure test must be maintained for at least 1 hour. Pressure test of 20% or more of SMYS must be walked and checked for leaks.
- ◆ *Over 30% SMYS:* must be pressure tested to 125% of the MAOP. Depending on the class location and pressure, testing may require evacuation of nearby buildings and/or hydrostatic testing. Pressure test must be maintained for at least 8 hours.

**Odorization, 49 C.F.R. § 192.625**

- ◆ Distribution lines are required to be odorized.
- ◆ Transmission lines are not required to be odorized unless they are in a Class 3 or 4 location and meet certain conditions.

**Class Location, 49 C.F.R. § 192.5**

Class Location is based on a class location unit, which is defined as an area that extends 220 yards either side of the center line of any continuous one mile of pipeline.

- ◆ *Class 1:* Any class location unit that has 10 or fewer buildings intended for human occupancy
- ◆ *Class 2:* Any class location unit that has more than 10 but fewer than 46 buildings intended for human occupancy
- ◆ *Class 3:* Any class location unit that has 46 or more buildings intended for human occupancy; or an area where the pipeline lies within 100 yards of either a building or a small, well-defined outside area (such as a playground, recreational area, outdoor theater,



or other place of public assembly) that is occupied by 20 or more persons at least 5 days a week for 10 weeks in any 12-month period.

- ◆ *Class 4:* Any class location unit where buildings with four or more stories above ground are prevalent.

## **Maintenance Differences between Transmission and Distribution**

### ***Change in Class Location, 49 C.F.R. §§ 192.609 & 192.611***

A change study must be conducted whenever an increase in population density indicates a change and only if the hoop stress is 40% SMYS or greater.

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### ***Patrolling, 49 C.F.R. §§ 192.705 & 192.721***

In general the patrolling is completed by the following intervals. System information and circumstances may require increased patrolling.

- ◆ *Distribution:* business districts are patrolled quarterly and outside business districts are patrolled semiannually.
- ◆ *Transmission:* patrolling is dependent on class location and ROW crossings. The intervals range from quarterly to annual.

### ***Leak Survey, 49 C.F.R. § 192.706 & 192.723***

- ◆ *Distribution:* business districts are leak surveyed annually. Outside business districts leak surveys are completed once every 5 years.
- ◆ *Transmission:* leak surveys are annual for all class locations that are odorized. For Class 3 & 4 that is un-odorized, the intervals are semiannual and quarter respectively.

### ***Integrity Management, 49 C.F.R. § 192.706 & 192.723***

- ◆ *Distribution:* recently developed and submitted Distribution Integrity Management Plan (DIMP). Ranks the risks of the operator's individual system and are specified to

distribution system attributes. Actions are completed by the Operator's assessment to reduce risk.

- ◆ *Transmission*: operate Transmission Integrity Management Plan (TIMP) which includes high consequence areas, risk assessments, monitoring, reporting, and record keeping.