

SUBJECT: Northern Natural Gas Company. Request for determination of operator's compliance with transmission line odorization requirements.

FROM: Edward J. Ondak, Chief, Central Region, DPS-26

TO: William H. Gute, Assistant Director, Operations and Enforcement, DPS-20

It is my opinion that Northern Natural Gas Company (Northern) is not complying with the requirements of 192.625(b) which requires the odorization of natural gas (gas) in transmission lines in Class 3 and Class 4 areas, Northern has interpreted the requirements of 192.625 in such a way that their procedures addressing odorization of transmission lines allows unodorized gas to be transported in Class 3 locations (and Class 4, if they exist). Northern contends that their interpretation is correct in meeting the intent of the regulation.

We need an interpretation to determine if the lines in question require odorization, or not. At present the pipelines are not odorized and are located in residential and commercial areas. Although, only one part of the Northern system is presented for consideration in this request, I imagine that the decision will affect many other pipelines in the operator's system that lie in Class 3 locations.

APPLICABLE REGULATIONS:

The regulations that apply to this issue are found in 192.625 Odorization of Gas. 192,625(b) requires that after December 31, 1976, a combustible gas in a transmission line in a Class 3 or Class 4 location must be odorized unless it is excepted from odorization by conditions described in 192.625(b)(1-3). The exceptions which might apply to the case at hand are:

192.625(b)(1). If at least 50 percent of the length of the line downstream from that location is in a Class 1 or Class 2 location, (odorization is not required).

192.625(b)(3). If the line is a lateral line which transports gas to a distribution center and 50 percent of the length of that line is in a Class 1 or Class 2 location, (odorization is not required).

Northern did not indicate that any of the exceptions of 192.625(b)(2) would apply.

THE PIPELINES:

The pipelines under consideration and which appear to require odorization are in Northern's Elk River System in Minnesota. They are located in several cities on the north side of the Minneapolis - St. Paul metropolitan area. A map showing part of the area through which the system passes is included in Exhibit A. The pipeline sections that are of concern are located in Class 3 areas that include both residential and commercial development. Sections of the pipelines also pass through a park (within the park and airport properties) occupied by 20 or more persons, etc., per 192.5(d)(2) was not investigated, but is not pertinent to the situation at this point.

A copy of the operator's North Branch District system map is included in Exhibit B. The Elk River System is circled. This map illustrates the location of the pipeline segments under consideration and also the general nature of the configuration of the Northern pipeline system. The Northern system is not a transmission system that transports gas from Point A to Point B, but is like a tree with many branches and delivers gas through its transmission lines to a broad area throughout the northern Midwest states that it serves. This map illustrates only a portion of the overall Northern system. The system is similar to many intrastate transmission company systems, containing piping that branches off and provides service to many cities and towns.

The piping diagram in Exhibit C, provided as an attachment to Northern's letter of August 23, 1989, (Exhibit F) addressing their position on this issue, is highlighted to illustrate the pipelines that are in question. They contain Class 3 areas that, in my opinion, should be odorized. The pipeline diameters and the maximum allowable operating pressures (MAOP), also the normal operating pressures, are shown on the diagram. The MAOP of Line M-87701 is 877 psig. The MAOP of Line M-78801 is 877 psig upstream of the regulator and 735 psig downstream of the regulator.

The Elk River Lateral System data included in Exhibit D, also provided by the operator's letter of August 23, 1990, provides the in-service date of the various laterals, or branches, their diameters and lengths, and the length of each lateral in Class 1, 2, and 3 locations. The in-service dates illustrate when segments of pipeline were added to the system and which segments were part of the original construction. The lines that appear to require odorization are highlighted. These have been selected because more than 50 percent of their lengths are located in Class 3 areas.

It may also be helpful to know that the "MM" and "MB" terminology preceding the line numbers on the diagram and data sheet mean Minnesota Mainline and Minnesota Branch, respectively.

It should also be noted that Northern does not sell directly to the end-user of the gas, but sells to other operators at the indicated town border stations on the map and diagram. The other operators, privately owned and municipally owned, distribute the gas to the consumers.

CENTRAL REGION AND NORTHERN POSITIONS ON LATERALS:

All of the lines are transmission lines. If the Class 3 locations on the lines that have Class 3 locations are at the ends of the lines, all of those end sections of these lines would require odorization because they could not meet the exception of 192.625(b)(1). 50 percent of the piping downstream of the Class 3 locations would not be in Class 1 or Class 2 locations. However, the exception of 192.625(b)(3) would allow these lines to remain unodorized if they are classified as laterals and 50 percent of the lengths of the laterals are in Class 1 or Class 2 locations. Herein lies the problem - the definition of a lateral.

It is my contention that each branch line is a lateral unto itself. This would mean that there can be laterals off of laterals. Each lateral begins at the point that it branches off of the line that supplies it.

As I understand Northern's policy of lateral classification, if 50 percent of the entire Elk River System, as illustrated in the diagram in Exhibit C, is not in a Class 3 or Class 4 location, none of the lines require odorization. Their "Guideline for Odorization of Natural Gas in Pipelines" is included with their letter in Exhibit F. Their policy in regard to defining lateral is found in Item No. 4, Interpretation. I do not feel that this meets the intent of the regulation. It leaves all of the lines supplied by and including M-78801 without odorant. Clearly, more than 50 percent of this piping is in Class 3 locations.

I believe that each individual line, using Northern's line numbering system as a basis for lateral determination - other methods of delineation are very possible - is a separate lateral. Thus the following lines, for example, are laterals:

- M-87301 Anoka
- M-78801 Lexington
- M-77601 Minneapolis
- M-86901 Coon Rapids
- M-79001 Spring Lake Park
- M-8901 Blaine
- M-78701 Circle Pines

Under this definition each of the lines supplied by and including M-78801 require odorization.

DETERMINATION REQUIRED:

In regard to the Elk River System, as presented, what lines are laterals? Is the system one expanded lateral, as Northern has proposed? Which lines, if any require odorization?

In considering that part of the Elk River System that is supplied by and includes M-78801, is it necessary to consider that segment of M-87701 from the MM-86501 supply point up to the M-78801 take-off point as part of each of the lines in that grouping when determining the length of

the lateral for odorization purposes? For example, using Exhibit E, is IH a separate lateral, or must be the lateral serving Spring Lake Park be considered to be delineated by ABIH?

In the diagram below, lateral AB branches from a mainline system to serve a community. Lateral CD is constructed to serve another community with gas from lateral AB. Another lateral, EF, is constructed to provide gas to another town border station serving the first community. Class 3 locations and lengths of pipelines are as shown. All lines are transmission.

SMALL DIAGRAM SHOWN HERE

1. What line sections require odorization and why?
2. In considering the lateral ending at D for odorization requirement purposes, is the lateral CD, or is it ACD?
3. In considering the lateral ending at F for odorization requirement purposes, is the lateral EF, or is it AEF?

NOTE: THERE ARE 7 PAGES OF ATTACHMENTS HERE.

ENRON CORP

August 23, 1989

Mr. Ivan A. Huntoon, Staff Engineer
Department of Transportation
Central Region Office
Research and Special Programs
Administration
Office of Pipeline Safety
911 Walnut Street, Room 1811
Kansas City, Missouri 64106

Re: Lexington Branch Line Odorization

Dear Mr. Huntoon:

As requested during the July 10-12, 1989 inspection at the North Branch location I am sending you some information regarding the Lexington branch line odorization situation. Attachment 1 to this letter lists the various pipelines that make up the Elk River lateral, which includes the Lexington and related pipelines. Also Attachment 2 is a diagram which shows the relationship of the various pipelines and the main transmission line from Farmington to North Branch. The map that you were given during the inspection should allow you to orient the various pipelines. Attachment 1 shows the earliest in-service date for each pipeline which provides the chronological sequence that you requested. I've provided the earliest line segments were installed later on. The regulator shown on MB91901 is actually in the Elk River TBS #1. the 12 TBS's with no branch lines are located over, or just beside the particular pipelines. Their connecting lines are only a few feet long.

On the Elk River lateral there are two controlling MAOPs. The MAOP of pipeline MB87701 is 877 psi which is governed by a .6 design factor on 20", .281" wall, X52 pipe. As communicated to you on July 21, the governing Class 3 location near Milepost 10.32 has been qualified to operate at the .6 design factor by pressure testing to 1422 psi. The MAOP on the Lexington portion of the lateral, after the regulator valve at the start of MB78801, is 731 psi dictated by a .5 design factor on the 20", .281" wall, X52 pipe.

The question of whether the Lexington branch line should be odorized is really a question of what constitutes a lateral line. As you are aware, there is no definition of a lateral line in Part 192, other than that in Paragraph 192.625(b)(3), "... a ... line which transports gas to a distribution center," (emphasis added).

Enron believes that a literal interpretation of 192.625 (b)(3) is too narrow and was not intended. As an example of the unreasonable situations that arise, with a literal interpretation, refer to Attachment 2, and mentally remove all of the TBS's with no branch lines, including and Elk River #1. Then, a literal interpretation applies to the remaining Elk River system would result in a determination that there were at least 16 lateral lines in the system, seven of which would now require odorization. One of these lateral lines would be the tail of the Buffalo B line, MB67101. In addition, there would be seven transmission lines, one of which, MB78801, would now require odorization under 192.625(b)(1). Conceivably, all of the short lateral lines, as well as some more of the transmission lines would eventually require odorization. If the TBS locations removed mentally from the system are added, it becomes very difficult to determine what some of the lines are. Is MB87701 (ends at Elk River TBS #1) four lateral lines?

The literal approach, particularly when applied to a large operator such as Enron, would result in many odorizers being required, resulting in large installation and operating costs, without significant public safety benefit. The discussion accompanying the final rule for Amendment 192-21; Docket No. OPS-24 indicates that it was the intent of the exclusion in 192.625(b)(3) to prevent installation of odorizers on short segments of line where "... the costs of installing and operating odorizers would far exceed the safety benefit." In addition, Amendment 192-21

provided for leakage surveys using leak detector equipment in Class 3 and 4 locations to "... provide a compensatory measure of protection for the public where transmission lines carry unodorized gas in Class 3 and Class 4 locations".

Recognizing that a literal interpretation of 192.625(b)(3) was not intended by Amendment 192-21, Enron has adopted a "lateral system" definition in Engineering Standard 7160, copy attached. Consistent with the requirements of Procedure 80.402, copy attached, and ES 7160, Enron believes the system of pipelines listed on Attachment 1 and shown on Attachment 2 constitute a "lateral line" as the term is used in Paragraph 192.625(b)(3). The pipelines on the Lexington portion of the diagram starting with MB78801, are considered to be a segment of the lateral system. Odorization is not required because at least 50 percent of the "lateral" system is in Class 1 and Class 2. Enron considers the mainline, i.e., MM86501, to constitute a "transmission line" in the sense where Paragraph 192.625(b)(1) would apply. Consistent with Procedure 80.507, a copy attached, all facilities without odorization, in a Class 3 location, are surveyed twice each year with gas leak detection equipment.

Sincerely yours,

John W. Caskey
Code Compliance Engineer

Attachments

Engineering Standards

GUIDELINE FOR ODORIZATION OF NATURAL GAS IN PIPELINES

- * 3.3 For intrastate pipelines in Texas over with the Railroad Commission of Texas has jurisdiction, these exclusions apply in addition to those in Section 3.2.

- 3.3.1 Gas in storage underground or other storage,

- 3.3.2 Gas used or sold primarily for use in natural gasoline extraction plants, recycling plants, chemical plants, carbon black plants, industrial plants and irrigation pumps,

- 3.3.3 Gas used in lease and field operation or development or in repressuring wells.

4. INTERPRETATION

- * The interpretation and application of these rules to the Company's pipeline system appears straight forward except for Section 3.2.3 dealing with lateral lines. As a matter of Company policy, when analyzing a lateral line, consider all pipeline interconnected in a system that extends from the mainline system through a lateral line as one lateral line. Using this definition, specific short segments of pipeline serving various communities or industrial customers along a branchline system would lose their identity and be a part of a lateral system. The percentage of Class 1 or Class 2 would thus be determined on the basis of total mileage in the lateral system.

5. APPROVED ODORANTS AND ODORIZING EQUIPMENT

- * The odorants and odorizing equipment listed in Tables 1 and 2 are currently approved by the Railroad Commission for use in Texas. When odorization of gas is required in intrastate pipelines in Texas, approved odorants and equipment will be used. Use of the listed items is discretionary other locations.

6. ODORANT CONCENTRATION

- * Where odorization of gas is required per Section 3, the gas must be odorized so that at a concentration in air of 20% of the lower explosive limit, the gas is readily detectable by a person with normal sense of smell.

and in particular whether the pipeline known as the Letts Lateral is a transmission or a distribution line in accordance with those regulations.

II. FACTS

Iowa Southern presents the following facts upon which this declaratory ruling is based:

1. The Letts Lateral is a two and one-half mile long, 300 psig steel pipeline owned and operated by Iowa Southern in Muscatine County, Iowa, for the purpose of transporting natural gas from an interstate transmission pipeline owned by Natural Gas Pipeline Company of America to the town of Letts.

2. Iowa Southern holds a valid permit for this pipeline in accordance with **IOWA CODE** chapter 479, and this permit was renewed by the Board on October 15, 1989, in Docket No. P-558.

3. In a letter from Board staff dated July 17, 1989, Iowa Southern was informed that the four bolt-on band clamp repairs previously made to the Letts lateral did not comply with federal pipeline standards for repairs to transmission pipelines pursuant to 49 C.F.R. §192.715.

III. QUESTION PRESENTED

Iowa Southern presents the following question in its declaratory ruling petition:

Is a lateral which (1) does not transport gas from a gathering line or storage facility to a distribution center or storage facility, (2) does not transport gas within a storage field, and (3) operates at a hoop stress of less than twenty percent specified minimum yield strength (SMYS), considered a transmission pipeline in accordance with 49 C.F.R. §192.3, and thus subject to transmission line regulations, including maintenance and repair?

Iowa Southern questions whether a pipeline which meets none of the §192.3 criteria for a transmission line can be considered a transmission line. An answer to the exact question framed by Iowa Southern would serve no useful purpose. Iowa Southern submits in its filing that the Letts Lateral and other similar pipelines should be classified as distribution lines. Therefore, the

Board will address whether the Letts lateral and other similar pipelines are transmission pipelines under the federal definition, and therefore subject to all other federal regulations applicable to transmission pipelines, or whether the Letts lateral and other similar pipelines are distribution lines.

IV. ANALYSIS

The Letts lateral is located entirely within the state of Iowa and is owned and operated by an Iowa jurisdictional utility. It is, therefore, an intrastate pipeline under the Natural Gas Pipeline Safety Act and the Natural Gas Act, and is subject to the jurisdiction of the Board.

The Board conducts its pipeline safety programs under federal certification granted by the U.S. Department of Transportation (DOT) in accordance with Section 5(a) of the Natural Gas Pipeline Safety Act. Under this certification, Iowa is responsible for enforcement of the federal standards against intrastate pipeline operators. Section 3(a)(1) of the Natural Gas Pipeline Safety Act provides that "any state agency may adopt additional or more stringent standards for intrastate pipeline transportation if such standards are compatible with the Federal minimum standards." The DOT, in its publication entitled "Guidelines for States Participating in the Pipeline Safety Program" (1988), recognizes the power of states to make interpretations and specifies, "any interpretation of a DOT standard adopted by a state agency must be compatible with the interpretation of that regulation issued by the DOT." Therefore, the Board has the authority to interpret the definitions in the federal standards subject to compatibility with any applicable prior federal interpretations.

In 49 C.F.R. §192.3, the DOT established three classes of pipelines: gathering lines, transmission lines, and distribution lines. Distribution lines are further subclassified as mains or service lines. Gathering lines collect gas from production facilities, transport it to transmission pipelines, which in turn transport it to distribution centers. Transmission may be interrupted by

storage en route. The classification of a pipeline as transmission or distribution is not dependent on the character of its owner, on whether it is interstate or intrastate, not on changes in the ownership of the gas being transported, The term "lateral" is not defined by the DOT. However, lateral is defined by the American Gas Association to mean a branch line off a larger pipeline. See Glossary for the Gas Industry, 36 (4th ed. 1986).

The federal definition of "distribution line" in §192.3 is "a pipeline other than a gathering or transmission line." The criteria for a transmission line is set forth in 49 C.F.R. §192.3 49 C.F.R. §192.3 provides, in pertinent part:

"Transmission line" means a pipeline, other than a gathering line, that:

- (a) Transports gas from a gathering line or storage facility to a distribution center or storage facility;**
- (b) Operates at a hoop stress of 20 percent or more of SMYS; or**
- (c) Transports gas within a storage field.**

A plain reading of §192.3 shows the use of "or" would indicate a pipeline is a transmission pipeline if it meets any one of these three criteria.

The criteria set forth in 49 C.F.R. §192.3(b) and (c) are easily eliminated with respect to the Letts Lateral. The pipeline transports gas from an interstate pipeline to a town and is not associated with storage. Information on file in Docket No. P-558 confirms that the Letts Lateral does not operate at hoop stress of 20 percent or more of specified minimum yield strength (SMYS) (at 300 psig internal pressure the stress in the pipe wall does not exceed 29 percent of the SMYS for the grade of steel used). In addition, the Letts Lateral is not associated with gas production, and therefore, cannot be a gathering line as that term is defined in §192.3.

A transmission line terminates at a "distribution center." However, "distribution center" is not defined in Part 192. The DOT has released interpretations of its regulations in the form of memoranda or letters. In a letter dated May 8, 1974, the DOT found that a distribution center is a terminus which marks the entry of gas into a distribution system, and a distribution system is constituted of mains and service lines. The interpretation system is a distribution center, and the pipeline supplying the regulator station is a transmission line.

The 1974 DOT interpretation is analogous to the Letts Lateral. The interpretation describes a pipeline operating below 20 percent of SMYS which feeds a number of regulator stations which in turn feed gas into distribution systems. The Letts Lateral is a segment of a pipeline operating below 20 percent of SMYS which feeds regulator stations feeding two distribution systems which are the communities of Letts and Grandview. If the piping in Letts and Grandview is not operated at 300 psig, there must be regulator stations to reduce the pressure before it enters the towns. The Letts Lateral, in accordance with the 1974 interpretation, is a transmission pipeline.

In a letter dated May 23, 1979, the DOT found that intrastate pipelines stemming from an interstate transmission line and running to distribution centers are transmission lines. Although it is not known if Iowa Southern has farm taps on the Letts Lateral, the 1979 interpretation also makes it clear the presence of farm taps, which are usually considered services, are irrelevant to the classification of the line.

The Letts Lateral does not meet the criteria to be considered a main and therefore part of a distribution system. "Distribution system" is defined in 49 C.F.R.§192.3 as the system of mains and services which supplies gas to the consumer. The Letts Lateral does not directly feed the service lines which make final delivery to the customer and operates at a higher pressure than the lines which do.

In a November 30, 1978, DOT letter, the DOT clearly intended the definitions of "transmission" and "distribution" lines in Part 192 to be consistent with those in the United States of America Standards (USAS) B31.8 (1968) code. Those definitions in the current edition of that code, American Society of Mechanical Engineers (ASME) B31.8 (1989) provides as follows:

"Pipeline or transmission line" is a pipe installed for the purpose of transmitting gas from a source or sources of supply to one or more distribution centers or one or more large volume customers, or a pipe installed to interconnect sources of supply. In typical cases, pipelines, pipelines differ from gas mains in that they operate at higher pressures, are longer, and have greater distances between connections.

The B.31 code does not define "distribution center" or "distribution line." However, the B.31 code does define "gas main or distribution main" as "a pipe installed in a community to convey gas to individual service lines or to other mains." The Letts Lateral more closely matches the B.31.8 definition for a transmission line than a distribution main. See "decision and Order," Iowa Southern Utilities Company, Docket Nos. P-761, P-762 (May 10, 1985). The use of the term "community" in B.31 shows that distribution is associated with pipe systems in cities, towns, and developed areas and transmission is associated with lines in rural areas.

Letters issued by the DOT on November 30, 1978, and February 14, 1990, in response to an inquiry, further confirm that an intrastate pipeline connected to an interstate pipeline can be a transmission pipeline. In the letters, an intrastate pipeline connecting to an interstate transmission pipeline was found to be a transmission line based on the existence of a single large volume customer at the end of the pipeline, which was considered the equivalent of a distribution center. In each of the interpretations, the DOT did not consider SMYS. The decisions were based on the criteria set forth in 49 C.F.R. §192.3(a). Therefore, if a pipeline is a transmission line based on

the presence of a single large volume customer at its end, a pipeline leading to a community cannot be anything other than a transmission line.

The existence of the criteria set forth in 49 C.F.R. §192.3(a) establishes that pipeline operating at under 20 percent SMYS can be transmission lines. Interpretations issued by the DOT dated July 27, 1971, and May 8, 1974, further support that the term "transmission line" must mean a pipeline which transports gas from an original source, such as gathering or storage, to a community or a large volume customer. The Letts Lateral, and all other similar pipelines, are therefore transmission lines. Any other finding would be inconsistent with the language of the regulations and prior federal interpretations.

IT IS THEREFORE ORDERED:

The petition for declaratory ruling, filed by Iowa Southern Utilities Company on February 27, 1990, is granted to the extent discussed in the body of this order.

UTILITIES BOARD

Dated at Des Moines, Iowa, this 29th day of March, 1989.