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DEPARTMENT OF TRANSPORTATION

Pipeline and Hazardous Materials Safety Administration

[Docket No. PHMSA-2006-23448; Notice 2]

Pipeline Safety: Grant of Waiver; Maritimes & Northeast Pipeline, L.L.C.

AGENCY: Pipeline and Hazardous Materials Safety Administration (PHMSA); DOT.

ACTION: Grant of Waiver.

SUMMARY: PHMSA is granting Maritimes & Northeast Pipeline, L.L.C. (M&N) a waiver of compliance from certain PHMSA regulations for the United States portion of its pipeline system. This waiver increases the maximum allowable operating pressure (MAOP) for the pipeline. This waiver decision also authorizes M&N to increase the design factor for its compressor station piping, grants relief from the strength testing requirements for M&N's compressor station piping, grants relief in establishing the MAOP of pipelines operating above prescribed hoop stresses, grants relief from the capacity requirements of pressure limiting stations, and authorizes M&N to maintain the pressure rating of portions of the waiver area subject to a change in class location.

Before granting the waiver, PHMSA performed a thorough technical review of M&N's application and supporting documents. PHMSA requested and received supplementary information on numerous technical aspects of M&N's design, engineering, operations, and maintenance practices. The materials are available in docket PHMSA-2006-23448 at http://dms.dot.gov. PHMSA also sought comments from the public and received positive feedback from States along the pipeline and the Technical Pipeline Safety Standards Committee.

The waiver is subject to and conditional upon supplemental safety criteria set forth in this notice. The supplemental safety criteria address the life-cycle management of the subject pipeline and require M&N to adhere to maintenance, inspection, monitoring, control, and reporting standards exceeding existing regulatory requirements.

SUPPLEMENTARY INFORMATION:

Background

M&N requested a waiver of compliance for the United States portion of its pipeline system in Class 1, 2, and 3 locations to operate at stress levels up to 80 percent, 67 percent, and 56 percent, respectively, of the pipeline's specified minimum yield strength (SMYS). The current MAOP of the pipeline system is 1,440 pounds per square inch gauge (psig) and the waiver would increase it to 1,600 psig. Specifically, M&N requests a waiver of compliance from the following regulatory requirements:

- 49 CFR § 192.111 - *Design factor (F) for steel pipe;*
- 49 CFR § 192.201 - *Required capacity of pressure relieving and limiting stations;*
- 49 CFR § 192.503 - *General Requirements;*
- 49 CFR § 192.611 - *Change in class location: Confirmation or revision of maximum allowable operating pressure;* and
- 49 CFR § 192.619 - *Maximum allowable operating pressure: Steel or plastic pipelines.*

The proposed waiver applies to approximately 203 miles of M&N's 24-inch diameter pipeline. This portion of pipeline extends from M&N's Baileyville, Maine compressor station near the United States/Canadian border to Westbrook, Maine, and includes two compressor stations.

The proposed waiver also applies to approximately 100 miles of 30-inch diameter pipeline. This portion of pipeline is owned jointly in undivided interest by M&N and Portland Natural Gas Transmission System (PNGTS) and is referred to as the "Joint Facilities Mainline." The pipeline extends from Westbrook, Maine to Dracut, Massachusetts. Specifically, the Joint Facilities Mainline requests a waiver of compliance from the following regulatory requirements:

- 49 CFR § 192.111 - *Design factor (F) for steel pipe;*
- 49 CFR § 192.201 - *Required capacity of pressure relieving and limiting stations;*
- 49 CFR § 192.611 - *Change in class location: Confirmation or revision of maximum allowable operating pressure;* and
- 49 CFR § 192.619 - *Maximum allowable operating pressure: Steel or plastic pipelines.*

M&N placed its pipeline in service on December 1, 1999. M&N Operating Company, L.L.C., a wholly owned subsidiary of Duke Energy Gas Transmission, operates the pipeline. The pipeline is 24-inch diameter, Grade X-70 pipe with varying wall thicknesses. M&N inspected 100 percent of the pipeline's girth welds using radiography. The pipeline, including girth welds, is coated with fusion bonded epoxy. M&N tested the Class 1 and 2 pipelines to 125 percent of MAOP and the Class 3 pipeline was tested to 150 percent of MAOP. In addition, M&N performed an in-line inspection (ILI) of its pipeline in 2002 and no anomalies were detected.

The Joint Facilities Mainline was placed in service on December 10, 1999. This pipeline is 30 inches in diameter and is constructed of Grade X-70 pipe with varying wall thicknesses. M&N inspected 100 percent of the pipeline's girth welds using radiography, and the pipeline, including girth welds, is coated with fusion bonded epoxy. The Joint Facilities Mainline tested the Class 1 and 2 pipelines to 125 percent of MAOP, and the Class 3 pipeline was tested to 150 percent of MAOP. M&N performed an ILI of its 30-inch diameter pipeline in 2001 and a number of anomalies were detected. The anomalies were the result of a cathodic protection (CP) problem that M&N has resolved.

Pipeline System Analysis

M&N conducted evaluations of the United States portion of its pipeline and the Joint Facilities Mainline to confirm whether the system could safely and reliably operate at increased stress levels. As part of its evaluation, M&N analyzed and compared the threats imposed on a pipeline operating at 72 percent of SMYS to those imposed on a pipeline operating at 80 percent of SMYS, including: (1) external corrosion; (2) internal corrosion; (3) stress corrosion cracking; (4) pipe manufacturing; (5) construction; (6) equipment; (7) immediate failure due to puncture; (8) delayed failure due to resident defects or damage; (9) incorrect operation; and (10) weather/outside factors. M&N asserts that any impacts that could potentially threaten the integrity of its pipeline as a consequence of the pipeline operating at higher stress levels have been addressed and resolved.

M&N requested a waiver of compliance from the regulatory requirements at 49 CFR § 192.111. This regulation prescribes the design factor to be used in the design formula in § 192.105. The design factors are found in the following table:

Class location	Design factor (F)
1……..	0.72
2……..	0.60
3……..	0.50
4……..	0.40

M&N proposed a design factor of 80 percent of SMYS for Class 1, 67 percent of SMYS for Class 2, and 56 percent of SMYS for Class 3 locations.

M&N also requested a waiver from § 192.201(a)(2)(i) which states if the MAOP is 60 psig or more, the pressure may not exceed MAOP plus 10 percent, or the pressure that produces a hoop stress of 75 percent SMYS, whichever is lower. M&N proposes to set the over pressure protection for the waiver sections to 104 percent of the pipeline's MAOP. This setting is based on the ratio of 75 percent to 72 percent of SMYS.

M&N also requested a waiver from the requirements of § 192.503(c) for the 203-mile section of its 24-inch pipeline, which limits the maximum allowable hoop stress to 80 percent of the pipeline's SMYS if air, natural gas, or inert gas is used as the test medium. M&N desires to test its compressor station piping to 82 percent of SMYS. M&N did not request a waiver from this section of the regulations for the Joint Facilities Mainline.

Section 192.611 requires an operator to confirm or revise the MAOP of its pipeline if the hoop stress corresponding to the established MAOP of a segment of pipeline is not commensurate with the present class location. M&N notes that any future class location changes may result in separate waiver requests.

Finally, M&N requested relief from § 192.619, which establishes the test factor requirements for pipelines, but does not reference a test factor for pipelines operating at 80 percent SMYS. All class locations in the M&N pipeline system have been tested to the most conservative requirements listed in § 192.619, including 1.25 for class 1, 1.25 for class 2, and 1.5 for class 3. M&N asserts conformity with ASME B31.8 testing requirements in which the test factor is established at 1.25 for pipelines operating at 80 percent SMYS.

Comments on the waiver

On March 22, 2006, PHMSA published a notice of intent to consider the waiver and solicited public comments. On May 15, 2006, PHMSA extended the public comment period to June 16, 2006. PHMSA received 29 comments.

Seven commenters supported the waiver and provided conditions for approval, which PHMSA addressed in the supplemental safety criteria. Five commenters raised technical concerns. These issues included design limitation of railroad crossings to 60 percent of SMYS and concerns about increased pipeline operating pressure and blasting operations. PHMSA notes that the M&N pipeline operating stress levels at railroad crossings meet current railroad guidelines and will

continue to conform to the requirements after increasing the pressure on the pipeline (uprating). The conditions later described in this waiver require M&N to have an acceptable plan to monitor and mitigate the affects of ground movement on the pipeline. Issues include monitoring of blasting operations adjacent to the pipeline.

Seventeen commenters opposed the waiver because of concerns about the increase in the impact radius of the pipeline after the pressure uprating. The supplemental safety criteria established by PHMSA address the increased impact radius. The remaining commenters raised issues outside the scope of this waiver request, such as compensation and aesthetics.

Grant of Waiver

PHMSA considered M&N's waiver request and whether its proposal will yield an equivalent or greater degree of safety than that currently provided by the regulations. PHMSA published its notice of intent to consider waiver and solicited comments on March 22, 2006 (71 FR 14575).

Based on M&N's application for waiver for its new pipeline and PHMSA's extensive technical analysis and favorable feedback from the impacted States and Technical Pipeline Safety Standards Committee, PHMSA hereby grants M&N's waiver request provided M&N, or a successor operator, complies with the following supplemental safety criteria:

Pipe and Material Quality

1. Fracture Control Plan: M&N must implement an overall fracture control plan addressing fracture initiation, propagation, and Charpy arrest values. The fracture initiation, propagation, and arrest plan must account for the entire range of temperatures, pressures, and gas compositions planned for the pipeline.

2. Fittings: All pressure rated fittings and components (including flanges, valves, gaskets, pressure vessels and compressors) must have a pressure rating commensurate with the MAOP and class location of the pipeline. Designed fittings (including tees, elbows and caps) must have the same design factors as the adjacent pipe.

3. Station Design Factor: M&N may use a design factor not exceeding 0.56 for existing compressor and meter stations. New compressor and meter stations must be designed using a design factor of 0.50 per § 192.111.

4. Temperature Control: The compressor station discharge temperature must be limited to 120° Fahrenheit or a temperature below the maximum long term operating temperature for the pipe coating.

5. Overpressure Protection: Mainline pipeline overpressure protection must limit pressure to a maximum of 104 percent MAOP.

Supervisory Control and Data Acquisition (SCADA)

6. SCADA System: M&N must use a SCADA system to provide remote monitoring of the pipeline system.

7. Mainline Valve Control: Mainline valves that reside on either side of pipeline segment containing a High Consequence Area (HCA) where personnel response time to the valve exceeds one (1) hour must be remotely controlled by the SCADA system. The SCADA system must be capable of opening and closing the valve and monitoring the valve position, upstream pressure and downstream pressure. As an alternative to remote control mainline valves, M&N may implement a leak detection system.

8. SCADA Set Point Review: M&N must implement a detailed procedure to establish and maintain accurate SCADA set points to ensure the pipeline operates within acceptable design limits at all times.

Operations and Maintenance

9. Leak Reporting: M&N must notify the PHMSA Eastern Regional Office as soon as practicable of any non-reportable leaks occurring on the pipeline covered by their waiver.

10. Annual Reporting: Annually, following approval of the waiver, M&N must report the following:

- The results of any ILI or direct assessments performed within the waiver area during the previous year;
- Any new integrity threats identified with the waiver area during the previous year;
- Any encroachment in the waiver area, including the number of new residences or public gathering areas;
- Any reportable incidents associated with the waiver area containing the waiver location that occurred during the previous year;
- Any leaks on the pipeline in the waiver area that occurred during the previous year;
- List of all repairs on the pipeline made in the waiver area during the previous year;
- On-going damage prevention initiatives on the pipeline in the waiver area and a discussion of their success; and
- Any company mergers, acquisitions, transfers of assets, or other events affecting the regulatory responsibility of the company operating the pipeline to which this waiver applies.

11. Pipeline Inspection: The pipeline must be capable of passing ILI. All headers and other segments covered under the waiver that do not allow the passage of an internal inspection device must have a corrosion mitigation plan.

12. Gas Quality Monitoring and Control: A gas quality monitoring and mitigation program must have the ability to restrict constituents that promote internal corrosion to not exceed the following limits:
    - H_2S (4 grains maximum);
    - CO_2 (3 percent maximum);
    - H_2O (less than or equal to 7 pounds per million standard cubic feet and no free water); and,
    - Other deleterious constituents that may impact the integrity of the pipeline must be minimized.

13. Gas Quality Control Equipment: Filters/separators must be installed at locations where needed to comply with the above gas quality requirements and meet M&N's gas tariff.

14. Control of Liquids: Gas quality monitoring equipment must be installed to permit the operator to manage the introduction of contaminants and free liquids into the pipeline.

15. Corrosion Mitigation Plan: M&N must submit an external corrosion mitigation plan as summarized in its waiver petition.

16. Initial Close Interval Survey: An initial baseline Close Interval Survey (CIS) must be completed in concert with the baseline ILI indicated in American Petroleum Institute (API) supplementary requirement 21 and as detailed in its waiver petition.

17. Verification of Cathodic Protection: A CIS must be performed in concert with ILI in accordance with 49 CFR part 192, subpart O reassessment intervals for all HCA pipeline mileage. If any annual test point readings fall below subpart I requirements, remediation must be performed and must include a CIS on either side of the affected test point.

18. Pipeline Markers: The pipeline must employ line-of-sight markings in the waiver area except in agricultural areas, subject to Federal Energy Regulatory Commission permits or environmental permits and local restrictions.

19. Pipeline Patrolling: The pipeline must be patrolled at least monthly to inspect for excavation activities, ground movement, washouts, leakage, and/or other activities and conditions affecting the safe operation of the pipeline.

20. Monitoring of Ground Movement: An effective monitoring/mitigation plan must be in place to monitor for and mitigate issues of unstable soil and ground movement.

21. Uprating Plan Review and Approval: The uprating plan must be submitted to the PHMSA Eastern Regional Office for review and approval before the uprating plan is executed.

22. Preliminary Criteria Reporting: A preliminary report describing the results, completion dates and status of the supplementary requirements must be completed and submitted to

PHMSA Headquarters and PHMSA Eastern Regional Office prior to commencing the uprating of the pipeline system.

23. Criteria Completion Reporting: A report describing results, completion dates and status of the outstanding supplementary requirements must be submitted to PHMSA Headquarters and PHMSA Eastern Regional Office within 180 days after the uprating is completed. A final report must be submitted upon completion of the second ILI run for the pipeline.

Integrity Management

24. Initial ILI: A baseline ILI must be performed in association with M&N's waiver petition on the pipeline using a high resolution Magnetic Flux Leakage (MFL) tool and a geometry tool before uprating the pipeline. The results of the baseline ILI must be integrated with the baseline CIS as described in criteria number 16.

25. Future ILI: A second high-resolution MFL ILI must be performed on pipe subject to this waiver following the baseline ILI and must be completed within the first reassessment interval required by subpart O, regardless of HCA classification. Future ILI inspections must be performed on a frequency consistent with subpart O for the entire pipeline covered by this waiver.

26. Direct Assessment Plan: Headers, mainline valve bypasses, and other sections covered by this waiver that cannot accommodate ILI tools must be part of a Direct Assessment (DA) plan or other acceptable integrity monitoring method.

27. Damage Prevention Program: Common Ground Alliance's damage prevention best practices must be incorporated into the Maritimes and Northeast damage prevention program.

28. Anomaly Evaluation and Repair: Anomaly evaluations and repairs must be performed based upon the following:

- For purposes of this criteria, the Failure Pressure Ratio (FPR) is an indication of the pipeline's remaining strength from an anomaly and is equal to the predicted failure pressure divided by the MAOP.
- Anomaly Response Time
    - Any anomaly with a FPR equal to or less than 1.1 must be treated as an "immediate" per subpart O.
    - Any anomaly with an FPR equal to or less than 1.25 must be repaired within 12 months per subpart O
    - Any anomaly with an FPR greater than 1.25 must have a repair schedule according to subpart O.
- Anomaly Repair Criteria

- Segments operating at MAOP equal to 80 percent stress level - Any anomaly evaluated and found to have an FPR equal to or less than 1.25 must be repaired.
- Segments operating at MAOP equal to 66 percent stress level - Any anomaly evaluated and found to have an FPR equal to or less than 1.50 must be repaired.
- Segments operating at MAOP equal to 56 percent stress level - Any anomaly evaluated and found to have an FPR equal to or less than 1.80 must be repaired.

a. All other pipe segments with anomalies not repaired must be reassessed according to subpart O and American Society of Mechanical Engineers (ASME) standard B31.8S requirements. Each anomaly not repaired must have a corrosion growth rate and ILI tool tolerance assigned per the Gas Integrity Management Program (IMP) to determine the maximum re-inspection interval.

b. Operators must confirm the remaining strength (R-STRENG) effective area method, R-STRENG - 0.85dL, and ASME B31G assessment methods are valid for their pipe diameter, wall thickness, grade, operating pressure, operating stress level, and operating temperature. If it is not valid, M&N must submit a valid evaluation method to PHMSA. Until confirmation of the previously mentioned anomaly assessment calculations has been performed, M&N must use the most conservative of the calculations for anomaly evaluation.

c. Dents must be evaluated and repaired per §§ 192.309(b)(ii) and 192.933(d)(l)(ii).

29. Potential Impact Radius Calculation Updates: If the pipeline operating pressures and gas quality are determined to be outside the parameters of the C-FER Study, a new study with the uprated parameters must be incorporated into the IMP.

If at anytime PHMSA determines the effect of the waiver is inconsistent with pipeline safety, PHMSA will revoke the waiver at its sole discretion.

AUTHORITY: 49 U.S.C. 60118 (c) and 49 CFR § 1.53.

Issued in Washington, DC on _____.

Theodore L. Willke,

Deputy Associate Administrator for Pipeline Safety.