



U.S. Department
of Transportation

Pipeline and Hazardous
Materials Safety
Administration

1200 New Jersey Avenue, SE
Washington, D.C. 20590

SEP 14 2010

Ms. Jaclyn A. Brillling
Secretary, Public Service Commission
State of New York Department of Public Service
Three Empire State Plaza
Albany, New York 12223-1350

Re: Case 09-G-0552 (National Grid)

Dear Ms. Brillling:

Pursuant to 49 USC § 60118(d), the Pipeline and Hazardous Materials Safety Administration (PHMSA) has reviewed your letter of February 22, 2010, notifying us that the State of New York Department of Public Service (Commission) issued, pending PHMSA's acceptance, a waiver to National Grid of 16 NYCRR § 255.233(a) regarding pipeline miter joints. The New York Rule is equivalent to 49 CFR § 192.233(a). National Grid's request covers its 7.8 mile, 30-inch Clove Lakes Pipeline and associated laterals, located on Staten Island, New York. The Commission's waiver would allow the maximum allowable operating pressure (MAOP) of the pipeline system to be increased from 419 pounds per square inch (psi) to 550 psi.

After a thorough review PHMSA has concluded that the record does not contain sufficient justification to permit a conclusion that the waiver would be consistent with pipeline safety. Accordingly, PHMSA objects to the Commission's grant of a waiver at this time based on our safety concerns regarding the existence of 77 miter joints in excess of 3 degrees up to 4 degrees in the pipeline in heavily populated, Class 4 locations on Staten Island.

Neither New York nor PHMSA regulations currently allow miter joints above 3 degrees on pipelines operating above 30% of specified minimum yield strength (SMYS). National Grid has requested a waiver that would allow it to operate the pipeline at 39% of SMYS at the proposed 550 psi MAOP.

The 30-inch Clove Lakes pipeline was constructed in 1959 with 1950's vintage pipe that has low toughness properties. The pipeline was hydrostatically tested in 1987, but the waiver does not include a retest to confirm the present pipeline condition. While mechanical tests on several miter girth welds show these girth welds to be safe, the condition of the other 77 miter girth welds cannot be confirmed without excavation and either cut-out or non-destructively testing the girth weld. The pipeline also has some low cathodic protection voltage potentials in Goethals gate area.

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Ms. Jaclyn A. Brillling

State of New York Department of Public Service – National Grid

The Staten Island route of the pipeline contains schools, a nursing home, houses of worship, several multi-story apartment buildings, and several shopping centers within the potential impact radius for the 30-inch pipeline. Due to the highly populated area through which this pipeline travels, PHMSA believes that a Commission waiver of NYCRR § 255.233(a) would be inconsistent with pipeline safety.

If the applicant is able to supplement its waiver request with information demonstrating that the waiver would be consistent with pipeline safety, PHMSA will review the matter again should you request that we do so. My staff would be pleased to discuss this matter or any other regulatory matter with you. John Gale, Director of Regulations (202-366-0434), may be contacted on regulatory matters and Jeff Gilliam, Director of Engineering (303-888-2587), may be contacted on technical matters specific to this request.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Wiese". The signature is stylized with a large, sweeping initial "J" and "W".

Jeffrey D. Wiese

Associate Administrator for Pipeline Safety

nationalgrid

July 15, 2009

Via Electronic Mail and Federal Express

Hon. Jaclyn A. Brillling, Secretary
New York State Public Service Commission
Three Empire State Plaza
Albany, New York 12223-1350

**Re: Petition of The Brooklyn Union Gas Company
d/b/a National Grid NY for Waivers of Federal
and State Miter Joint Requirements to Permit an
Increase in Maximum Allowable Operating Pressure
Case 09-G-0552**

Dear Secretary Brillling:

Enclosed please find an original and five copies of the above Petition of The Brooklyn Union Gas Company d/b/a National Grid NY.

Thank you for your attention to this matter.

Very truly yours,

/s/ Catherine L. Nesser
Catherine L. Nesser

Enc.

STATE OF NEW YORK DEPARTMENT OF PUBLIC SERVICE

THREE EMPIRE STATE PLAZA, ALBANY, NY 12223-1350

Internet Address: <http://www.dps.state.ny.us>

MAR 04 2010

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Secretary

February 22, 2010

Mr. Jeffrey D. Weise
Associate Administrator for Pipeline Safety
USDOT Pipeline and Hazardous Materials Safety Administration
400 Seventh Street – S.W.
Washington, DC 20590

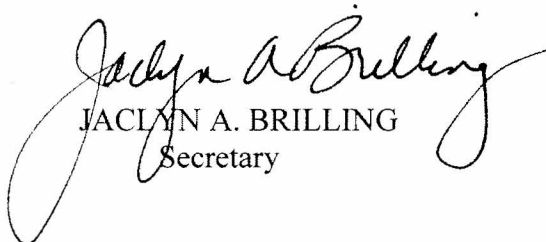
Re. Waiver of 16 NYCRR §255.233(a)

Dear Mr. Weise:

At a session of the New York State Public Service Commission held on February 11, 2010, the enclosed memorandum was considered and approved. The Commission granted a waiver of 16 NYCRR §255.233(a) regarding miter joints in steel pipelines, subject to USDOT concurrence. The waived rule is equivalent to a provision of the federal regulations (49 CFR §192.233(a)). Therefore, we hereby provide written notice of the waiver, as required by 49 USC §60118(d), for your consideration and approval.

Unless we hear otherwise, we will assume the waiver becomes effective 60 days from the date of this letter. If there are no objections to the waiver, we would appreciate an affirmative response prior to 60 days, if possible.

By direction of the Commission,


JACLYN A. BRILLING
Secretary

Enclosure

Filed Session of February 11, 2010
Approved as Recommended
and so Ordered
by the Commission

JACLYN A. BRILLING
Secretary

Issued and Effective February 11, 2010

STATE OF NEW YORK
DEPARTMENT OF PUBLIC SERVICE

February 11, 2010

TO: THE COMMISSION

FROM: OFFICE OF ELECTRIC, GAS, AND WATER - SAFETY SECTION

SUBJECT: CASE 09-G-0552 - Petition of The Brooklyn Union Gas Company d/b/a National Grid NY for Waivers of Federal and State Miter Joint Requirements to Permit an Increase in Maximum Allowable Operating Pressure.

RECOMMENDATION: Staff recommends that The Brooklyn Union Gas Company d/b/a National Grid NY be granted a waiver of the miter joint requirements in 16 NYCRR Part §255.233(a) to permit an increase in the maximum allowable operating pressure.

Summary

The Brooklyn Union Gas Company d/b/a National Grid NY (NGrid NY) has petitioned for a waiver to increase the maximum allowable operating pressure (MAOP) in its Clove Lakes Line (or pipeline) from 419 psig to 550 psig. The Clove Lakes Line contains 77 miter joints¹ that deflect the pipe greater than

¹ Miter joint - a joint in a pipeline where each end of the pipe to be joined is cut at an angle from an initially square end. The two angled pieces welded together result in a change in direction of the pipeline.

three degrees. The current 419 psig MAOP of the pipeline results in a corresponding hoop stress level of 30% of the specified minimum yield strength (SMYS). The current safety regulations limit the operating pressure of a pipeline to that which causes a hoop stress of 30% SMYS for steel pipelines with miter joints that deflect the pipe at no more than three degrees. The proposed waiver would allow the Clove Lakes Line to operate up to 39% SMYS with miter joints changing the direction of the pipe greater than three degrees, but not more than four degrees. The waiver recommended herein is limited in scope to the 77 miter joints identified by the company.

Background

Both NYCRR Part §255.233(a) and 49 CFR Part §192.233(a) require the following regarding miter joints in pipeline:

"A miter joint on steel pipe to be operated at a pressure that produces a hoop stress of 30 percent or more of SMYS may not deflect the pipe more than three degrees."

The Clove Lakes Line is a 7.8-mile, 30-inch steel pipeline originally certified in 1959 at a MAOP of 350 psig (25% SMYS) and operated at that pressure until 1987. In 1987, the pipeline was updated to a MAOP of 419 psig (just under 30% SMYS) with the approval of a waiver² (1987 Waiver). In 1987 the applicable Commission regulations limited hoop stress levels for pipelines containing miter joints with a deflection of more than 3 degrees to no more than 20% of SMYS. The 1987 Waiver allowed the pipeline to operate up to 30% of SMYS. The miter joint requirements in 16 NYCRR Part 255 were revised in 1989 to mirror

² Case 15686 - Petition by the Brooklyn Union Gas Company for a Waiver of the requirements of 16 NYCRR §255.51(c)(3)(iv)(a)(1) Regarding the Maximum Allowable Operating Pressure for Transmission Pipelines Containing Mitered Bends.

the federal regulations, cited above, and have remained unchanged since.

Today, the downstate natural gas market is becoming more constrained. The Cloves Lakes Line currently has a peak-day capacity of approximately 500 MDth/day from the point where NGrid NY's system interconnects with the interstate pipeline facilities of Texas Eastern Transmission, LP (TETCO) near the TETCO Goethals Gate Station, across Staten Island, to a point near the Verrazano Narrows Bridge. By increasing the operating pressure of the pipeline to 550 psig, NGrid would be able to transport up to an additional 100 MDth/day.

The natural gas delivered by TETCO to the Goethals Gate Station has historically cost less than gas delivered by other transmission pipelines. If NGrid NY can access additional supply via the TETCO pipeline without threatening the safety of such delivery, it may result in a cost savings for customers.

Discussion

If the Commission grants this waiver, concurrence from the United States Department of Transportation, Pipeline and Hazardous materials Administration (PHMSA) would also be required before the waiver becomes effective since the Federal pipeline safety regulation 49 CFR §192.611(a) contains the same requirement. PHMSA can support or deny this waiver since, in effect, this would also be a waiver of the federal regulation. PHMSA is required, by Federal statute, to respond within 60 days of notification of Commission action if it takes exception to the waiver.³ The waiver would go into effect if no reply is received within the sixty-day time limit.

³ 99 USC §60118

The Clove Lakes Line operates at 30% of SMYS and contains a total of 77 miter joints that deflect the pipe greater than three degrees, but less than four degrees. Since the current state and federal code requirements limit miter joints to three degrees beyond an operating stress of 30% SMYS, a waiver is required to raise the pressure in the pipeline.

In order to ensure the pipeline is able to withstand the increased hoop stress on these miter joints, and to also ensure the rest of the pipeline can withstand the pressure increase and resulting hoop stress, several concerns need to be addressed:

First, there needs to be some evidence that miter joints that deflect the pipe greater than three degrees can withstand stresses at the higher SMYS level. In order to test and demonstrate the capability of the miter joints to withstand the greater stress, NGrid NY hired Battelle Memorial Institute (Battelle) to perform destructive and non-destructive testing of miter joints. NGrid NY cut out an actual miter joint from the pipeline and sent it to Battelle for testing. The Company also fabricated three other joints for comparison testing by Battelle, a zero-degree joint, a four-degree joint, and an eight-degree joint. Each joint was subjected to a pressure test, and bending test, and a combined pressure and bending test.

Battelle performed a burst test on the actual miter joint removed from the Clove Lakes Line in addition to other pressure, bending, and material tests. The pressure level reached 2,296 psig before an extension pipe adjacent to the miter joint failed. The failure occurred at a stress level equal to 164% of SMYS, a pressure level that the Clove Lakes Line will never encounter with proper pressure regulation.

NGrid NY also hired Kiefner & Associates, Inc. (KAI) to perform a technical analysis and present the test data compiled

by Battelle. KAI also analyzed the relative technical theory related to miter joints, versus pipe fittings traditionally used in lieu of field bending or miter joints to change direction of a pipeline.

KAI's analysis determined that the use of miter joints up to a deflection angle of 12½ degrees actually results in less stress than a 1.5D⁴ elbow fitting operating at 72% SMYS, which is allowed under current safety regulations. None of the 77 miter joints in question changes the direction of the pipe greater than four degrees. Thus, KAI concluded that a properly fabricated miter joint with a four degree change in direction in a system operated at 40% SMYS, should be equally acceptable as the use of a 1.5D elbow in a system operated at up to 72% SMYS.

The second concern is to determine whether there are any leaks or anomalies, such as active corrosion, wall loss, or damage, are present in the pipeline. If anomalies are discovered, and if they are repairable, then they must be repaired before an increase in pressure is permissible. If significant anomalies that impact the integrity of the pipeline are discovered that can not be repaired, then a waiver should not be approved.

One of the most accurate pipeline evaluation technologies today is the use of in-line inspection (ILI) tools, which are sent through the pipe to look for anomalies. NGrid NY performed two⁵ ILI runs in October 2009 to determine if such anomalies or other concerns exist. The company provided a summary of the ILI runs to Staff indicating there are no immediate indications or anomalies that would cause concern with the pipeline operating

⁴ The radius of a 1.5D elbow is equal to one-and-one-half times the diameter of the pipe.

⁵ Geometry tool on October 15th, and Magnetic Flux tool on October 19th.

at 550 psig. It did indicate the ILI tools discovered two small dents in the pipeline, 1% and 3% of the outer diameter of the pipeline, and two metal loss anomalies, one at 47% and one at 20%. These will need to be repaired before the pressure in the pipeline can be raised. The calculated safe operating pressure with the metal loss anomalies are 581 psig, and 610 psig, respectively. There are no active leaks on the pipeline.

The third concern is whether increasing the pressure in the pipeline is a benefit to NGrid customers and to the company. Based on historic pricing, customers may receive an economic benefit if the operating pressure of the pipeline is increased. The historic pricing and gas futures strip pricing both indicate that NGrid can, at times, access lower-priced natural gas delivered on TETCO than it can from competing pipelines. Therefore, by allowing an upgrade in capacity of the pipeline, the company will have greater flexibility to purchase available lower-priced gas. A second benefit to the increased pressure in the pipeline is the added supply and reliability on the NGrid pipeline system.

A Notice of Proposed Rulemaking was published in the State Register on September 16, 2009 in accordance with the State Administrative Procedure Act. The comment period expired on October 31, 2009, and no comments were received.

Recommendation

It is recommended that:

Brooklyn Union Gas Company d/b/a National Grid NY be granted a waiver of the requirements of 16 NYCRR §255.233(a) if all of the following conditions are met:

1. The maximum allowable operation pressure of the Clove Lakes Line is not to exceed 550 psig;
2. The 1% and 3% dent indications, and the 47% and 20% wall loss indications are excavated and repaired before commencing the upgrade process;
3. This proceeding be closed.

Prepared By:

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Utility Engineer 3 (Safety)
Office of Electric Gas & Water

Reviewed By:

Dakin Lecakes
Assistant Counsel

Approved By:

Gavin Nicoletta
Chief, Safety Section
Office of Electric Gas & Water

Michael J. Scott
Deputy Director
Office of Electric Gas & Water



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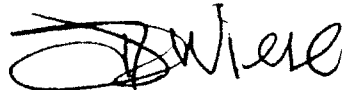
Ms. Jaclyn A. Brillling

State of New York Department of Public Service – National Grid

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