

MANITOBA ) Order No. 133/06  
 )  
THE PUBLIC UTILITIES BOARD ACT )  
 )  
THE GAS PIPE LINE ) September 22, 2006

BEFORE: Graham F.J. Lane, B.A, C.A., Chairman  
Monica Girouard, CGA, Member  
Alain Molgat, B.Comm, CMA, Member

**CENTRA GAS MANITOBA INC.: REQUEST FOR VARIANCE -  
SEALED REINFORCED THREADED FITTING BELOW GRADE**

**Executive Summary**

By this Order, The Public Utilities Board (Board) varies a component of Board Order No. 14/04 and authorizes Centra Gas Manitoba Inc. (Centra) to test the use of sealed reinforced threaded fittings (SRT) below grade on an experimental basis at restricted locations.

Upon acceptable test results, the Board will consider approval of more general use of the proposed new procedure.

**Application**

On June 21, 2006, Centra applied to the Board for a variance of Board Order No. 14/04 so as to allow the use of a sealed reinforced threaded fitting below grade within the Riser Rehabilitation Program (RRP). Board Order 14/04 specified an approach bearing the approval of the Canadian Standards Association (CSA), specifically CSA Z662-03 Clause 4.5.2.

CSA Z662-03 Clause 4.5.2 prohibits the use of threaded underground fittings, stating:

#### "4.5.2. Threaded Joints

The use of threaded pipe-to-pipe and pipe-to-component connections shall not be permissible for:

- (a) permanently buried installations, except for auxiliary connections (such as drains, valve body bleeds, and instrument taps) directly into components;
- (b) pipe larger than 114.3 mm OD;
- (c) pipe larger than 60.3 mm OD with a maximum operating pressure greater than 3500 kPa; or
- (d) piping in HVP service, except for joints in instrument piping.

**Note:** Threaded joints should be avoided in sour service and where crevice corrosion, severe erosion, cyclic loading, bending, or unusual loading conditions may occur."

Service risers are an integral part of the natural gas service lines that extend from service mains, normally located on adjacent streets, to buildings, rising above ground to outside shut-off valves.

Service riser rehabilitation may require a service line to be extended from below ground level through welding a new service riser to an existing service line. Centra advised of approximately 100 service risers in its distribution system requiring this type of rehabilitation.

Primarily to reduce service costs, Centra proposed the use of SRT fittings as an alternative in limited conditions to the welded connection now required by virtue of Board Order 14/04. As the SRT fitting was to be located below ground level, Centra sought the Board's variance.

While Centra continues to support the prohibition of underground

threaded fittings in conventional applications, Centra holds that SRT has advantageous features, contending that SRT fittings have threads recessed in a steel sleeve making it stronger than a conventional threaded connection, with the threads sealed from the environment eliminating corrosion and coating risks.

Centra conducted tests of SRT fittings, and in support of its application filed a document, "Assessment of the Use of a Sealed Reinforced Threaded Connection in a Coupling for Use in Extension of Steel Risers on Natural Gas Service". Centra submitted that the restriction now in place by virtue of Board Order 14/04 (with respect to CSA Z662-03 Clause 4.5.2) should not apply to SRT fittings in certain underground applications.

In support of its Application, Centra also filed the following related information:

1. Standard Number: 740.02 ("Rising Steel Service Risers");
2. Standard Number: 254.01 ("Steel Coupling SRT x SW"); and
3. Technical Data Sheet, Loctite 620, of May 2004.

#### **Board Review**

The Board sought advice from Energy Consultants International Inc. (ECI), the Board's longstanding engineering advisors which advice guided the Board's deliberation.

ECI suggested that SRT fittings may have other applications outside the RRP, though Centra was applying now only for a variance to allow SRT use in the RRP.

ECI noted that Centra had not performed any field testing of the SRT fitting connection below grade, though such testing is generally required by industry and CSA prior to CSA approval of a practice. ECI also noted:

1. The long term effectiveness of the sealing compound (Loctite 620, designed for use in the automotive industry) is key to Centra's conclusion that the SRT fitting design is suitable as a permanent below grade piping connection. Yet, ECI was unaware of Loctite having been used in below grade applications in the natural gas industry, and Loctite's resistance to corrosion and degradation below grade in Manitoba's soil conditions is not yet known.
2. Only subsequent testing will provide full assurance that SRT connections will withstand the strain forces caused by Manitoba's freeze/thaw cycles and ground settlement.

### **Board Findings**

The Board congratulates and encourages Centra with respect to its research into the development of safer and more cost effective ways of designing, operating and maintaining its natural gas distribution system.

The Board will approve the variance only so as to allow for the testing of below ground SRT fittings for experimental purposes. Upon adequate testing and the filing with the Board of satisfactory test results demonstrating the proposed new fitting

is suitable for use in Manitoba conditions, the Board will consider expanding the variance.

In short, the Board will not allow the use of below grade SRT fittings on a routine basis until testing has been performed and adequate test results filed with the Board. As well, at this time, the SRT fitting is not to be tested at or near any occupied residential or commercial dwelling unit.

The Board will require Centra to establish a test plan and file the plan with the Board for the Board's review prior to beginning testing. Centra must also pursue adoption of its proposed SRT fittings as an approved CSA standard.

The Board is aware that the restricting of the variance to experimental use only may negate some or all of the anticipated benefits with respect to the RRP for the approximate 100 below grade riser extensions identified.

**IT IS THEREFORE ORDERED THAT:**

1. Order 144/04 be varied, notwithstanding CSA Z662-03 Clause 4.5.2, allowing for the use of Sealed Reinforced Threaded fittings as described in Centra Gas Manitoba Inc.'s Standard 254.01 and 740.02 (dated June 17 and 18, 2006, respectively) for testing use in locations not at or near any occupied residential or commercial dwelling units.
2. Prior to testing, Centra Gas Manitoba Inc. file a test plan

with the Board for the Board's review and approval prior to commencing testing.

3. Centra Gas Manitoba Inc. file the results of the tests and, if obtained, an engineer's opinion that that fitting is acceptable and safe for below grade use in the Manitoba.
4. Centra make submission to CSA to adopt its process and provide copies of its application to the Board.

THE PUBLIC UTILITIES BOARD

"GRAHAM F. J. LANE, C.A."  
Chairman

"G. O. BARRON"  
Acting Secretary

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Order No. 133/06 issued by  
The Public Utilities Board

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Acting Secretary