M A N I T O B A	**)**	**Order No. 177/06**
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THE PUBLIC UTILITIES BOARD ACT	**)**	**December 22, 2006**

Before: Graham F.J. Lane, B.A., C.A., Chairman
Alain Molgat, B.Comm., C.M.A., Member

AN APPLICATION BY CENTRA GAS MANITOBA INC.
FOR AUTHORITY TO CONTINUE
WITH FOUR PARTY TRENCH INSTALLATIONS

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1.0 INTRODUCTION

By this Order, the Public Utilities Board (Board) approves Centra Gas Manitoba Inc.'s (Centra) continued testing and use of "Four Party Trenching" (4PT), and further extends the deadline for Centra filing a final report with the Board on Centra's safety and cost experience with 4PT, compared to conventional trenching, by June 30, 2009.

Centra, a subsidiary of Manitoba Hydro, is Manitoba's largest natural gas distributor. In an ongoing effort to improve safety and, potentially, lower the costs of installing natural gas piping, Centra embarked on a pilot program of installing its gas mains in a common trench with electrical and communication cables. This installation method is termed 4PT, as the gas piping is installed in a common trench with electricity, television and communication cables. The planning for this pilot program began in 2003 with installations commencing in 2004.

In the 2005 General Rate Application hearing (GRA), Centra provided early economic results from 4PT test initiatives that were disappointing in that costs were considerably higher than would be expected from piping installed by the conventional method (single party trench).

As a result, Board Order 103/05 directed:

> *"Centra cease all gas pipe line installations using the four party trench method as of December 31, 2005, unless and until Centra can satisfy the Board that anticipated savings can be realized and that there is no greater risk to public safety."*

Since that time, Centra has had more experience with 4PT, and the costs of projects since the early experience have reduced somewhat but still are above conventional trenching experience. Acknowledging this, Centra developed an optimization plan to bring the overall costs of the 4PT method down to parity with the conventional approach, while retaining the goal of eventually achieving costs with 4PT below that of the conventional

approach. Centra continues to maintain 4PT represents a safer approach than the conventional method.

The deadline set by Board Order 103/05 was extended in Order 10/06, firstly to August 31, 2006, then again, initially by letter to September 30, 2006. By its application of September 29, 2006, Centra asked the Board to provide unconditional approval to the 4PT method, towards Centra fully implementing a cost optimization plan.

Centra further requested that if the Board was unwilling to give unconditional approval for 4PT, it extend the deadline for response to Directive 9 of Board Order 10/06, which calls for an assessment of the cost experience and prospects of 4PT, to no earlier than March 31, 2009.

The Board reviewed Centra's requests in a public hearing held in the Board's offices in December 2006; the intervener to the process were Consumers Association of Canada and Manitoba Society of Seniors (CAC/MS0S). Immediately following the hearing, the Board provided direction to Centra, which is confirmed herein.

2.0 BACKGROUND

The following provides a review of events and timelines with regard to 4PT:

- Centra began testing 4PT in early 2004. From March 2004 to present, nearly all new development in urban centers involve 4PT.
- In December 2004 Centra reported that initial analysis indicated a potential 25% overall cost savings for 4PT relative to the conventional method of installation. Centra also expressed the view that 4PT installations are safer.
- Early results and expectations were reiterated through the Information Request process leading to the 2005 GRA. However, during the cross examination phase of the hearing, Centra reported 4PT results indicative of increased costs over conventional methods of 80%-100% or higher. Centra opined that the 4PT

"optimization process", to be completed in 2005, would achieve savings of approximately 20% from conventional installations.

- By Board Order 103/05, the Board indicated that 4PT costs nearly double the conventional method of installation were unacceptable. The Board directed Centra to demonstrate potential savings by the end of 2005. Centra was directed to file a report with the Board supporting 4PT economics by December 31, 2005.
- In compliance with Board Order 135/05, Centra provided a December 2005 report calling for 4PT to continue through an optimization process, indicating that anticipated savings of up to 20% could be realized. Safety advantages over conventional installations were again indicated. Centra requested that the Board rescind Board Order 103/05, and allow Centra to proceed with the process of optimizing 4PT.
- By December 2005, Centra had not made any contingency plans for 2006 construction if the Board directed an end to 4PT. So that construction during the peak heating season was not adversely impacted by Board deliberation on 4PT, by a January 2006 letter the Board extended the December 31, 2005 deadline to April 30, 2006.
- On January 24, 2006, Board Order 10/06 provided a further extension to August 31, 2006. Centra was directed to have in place by June 30, 2006 a contingency plan to take effect if the Board rejected Centra continuing with 4PT.
- By a letter dated April 2006, the Board approved capital costs required by Centra to implement the 4PT optimization process.
- In a letter of July 2006 Centra reported that 4PT costs remained higher than conventional trenching costs, and indicated the optimization process was not complete.
- By a letter of August 2006, the Board further extended the 4PT deadline to September 30, 2006. Again, the Board directed that alternate construction plans be prepared in the event the Board did not grant approval to continue with 4PT.

- In September 2006, Centra requested a further extension of the 4PT deadline to allow for two full construction seasons in order to complete optimization. Accordingly, Centra proposed a deadline of March 31, 2009 for completion of the costing analysis called for by Directive 9 of Order 103/05. Centra reiterated there was sufficient evidence to support the continuation of the 4PT program until that date, and that safety advantages if not economic remained with 4PT.
- By a letter dated October 25, 2006, the Board informed Centra that the 4PT issue, and Centra's September 2006 request to further extend the deadline for proof of adequate economics, would be considered by the Board in an oral public hearing to be held in December 2006.

3.0 CENTRA'S POSITION

Centra proposed that 4PT be the preferred, though not only, method of installation of underground utility plant in urban residential subdivisions. Centra contended that 4PT will improve public safety, reduce damage to plant, provide better responsiveness to developer requirements, and, eventually, produce equal or superior cost performance relative to the conventional trenching method.

Therefore, Centra requested the Board grant approval to the continuation of its application of 4PT. Alternatively, Centra requested the Board allow 4PT to continue and extend the time for filing a response to Directive 9 of Board Order 10/06 until March 31, 2009. This to allow for two full construction seasons to fully implement and optimize 4PT, evaluate the installation process and provide a complete response to the Board.

3.1 Safety

Centra maintained that the primary reason for implementing 4PT is safety. Centra cited seven specific features of 4PT that enhance safety:

1. Eliminate the need to cross energized high voltage electric cables and gas mains when extending services to homes.

2. Coincidental installation of gas, electric, and communications plant eliminates the excavation by the second utility around the first utility's plant.
3. Elimination of long gas services installed under the street which will eliminate the damages caused during road, water, or sewer rehabilitation or renewal.
4. Elimination of long gas services under the street allows for a clear corridor on public property for future new or renewed plant.
5. The convenient installation of service stubs in a buried wooden box eliminates excavation around energized plant when services are extended to a home.
6. Verifiable separation of the utilities in the open trench.
7. More compact footprint will allow reduced setback of houses without compromising safety.

4PT is normally located on private property, on an easement obtained from developers passed onto the owner of the property. However, the City of Winnipeg is in the process of amending residential zoning to reduce the set-back of the front of dwellings to the front property line. Reducing this setback will reduce the space available for either 4PT or conventional trench, forcing the trench back onto public property.

Installations would have electrical and communications cables located on the alignment used by the gas mains in a conventional installation. Centra opined safety will not be compromised, regardless of whether 4PT is located on public or private property.

Directive 6 of Board Order 10/06 required Centra to develop homeowner awareness and education programs specific to the existence of 4PT on homeowner property. Centra indicated its Call Before You Dig Program is sufficient for 4PT, and proposed no changes to this program. Centra maintained that this program is the most effective way to reduce third party line damages.

Although continually striving for improvements in this program, Centra did not anticipate that specific homeowner education programs relating to 4PT will be required. Centra

submitted that one advantage of the Call Before You Dig Program with 4PT is that both electrical and gas plant will be marked with a single call to Centra or Manitoba Hydro.

Pursuant to Board Order 10/06, Centra will continue to track damages to 4PT installations. Thus far, Centra reported nine damages have occurred: seven to the main or service header, and two to services. Centra noted that these damages were not caused by homeowners, but in the initial construction phase of the development.

In most developments, 4PT has located the gas main on private property, placing the gas main closer to dwellings. Safety risk involves a combination of frequency of damage and severity of consequences. Centra concurred that proximity of the gas pipe to a dwelling is a factor in measuring safety. Although Centra has employed a model to determine the potential reduction in frequency of damages, Centra reported that it had not completed a formal risk assessment to determine the overall effect on safety of 4PT.

In the absence of historical data, Centra attempted to quantify the reduction in damages from 4PT by assessing established neighbourhoods typical of where a 4PT installation could have been implemented. Centra estimated a reduction in the number of damages of up to 65% based on the historical damages that had occurred in these neighbourhoods over a five year period. Centra also considered the increase in damages from moving the gas pipe into the existing three-party trench. In the same five year period, there were only 23 electrical damages. Assuming each electrical damage also causes a gas line damage, this could result in a net decrease in the number of damages.

3.2 Costs

3.2.1 Comparison of Conventional to 4PT Costs

Pursuant to Board Order 10/06 Directive 10, Centra compiled detailed costs of 4PT installations, compared to the costs that would have been incurred with conventional installations. From the inception of 4PT until March 31, 2006, 60 projects have been completed. The cost of installing pipe using 4PT was $738,589, or 35% higher than the estimated cost of the conventional method.

Centra noted that the costs reported for the 60 4PT projects were adjusted because of data accuracy issues. Centra reported that detailed analysis of nine projects determined that 4PT costs were, on average, 5% higher than actual because of incorrect charges to work orders. In Centra's response to Directive 8 of Board Order 10/06, the nine project costs were 5% lower than the SAP reported them, as supported in the detailed analysis. The costs for the remaining 51 work orders were, accordingly, adjusted down by 5%. The 5% adjustment was based on the average difference between the reported costs and the detailed analysis costs for the nine projects. Centra stated that it could produce corrected and more accurate costs for each project, but that it is a time consuming, cumbersome undertaking.

3.2.2 Overheads and Interest

In making the comparison between conventional and 4PT installation costs, Centra removed the overhead and interest components. According to Centra, third party contractors doing conventional installations do not attract overheads, while internal crews doing 4PT installations do. Centra asserted that a fair comparison between conventional and 4PT involves removing overheads as overall corporate overhead does not change whether a conventional or 4PT occurs. The impact of removing overheads from the costing analysis effectively reduces the cost of 4PT relative to conventional costs.

3.2.3 Safety Watches

Safety watches are required whenever an energized high voltage cable is crossed. A Manitoba Hydro employee is required to witness any excavation and crossing of the cable. The cost is traditionally charged to Centra in a conventional method of installation scenario. In 4PT, crossings are made by one installer in an open trench with non-energized cabling and gas pipes. Therefore, safety watches are not required, reducing costs.

3.2.4 Line Locating

Centra consulted with line locating personnel and obtained an estimate for the reduction in time required to perform a line location because of the predictable location of the gas piping relative to the electrical cabling. This time saving was estimated at 25%. Based on the hourly cost of performing this service, this equates to a $9.50 savings per property, assuming one line location is performed at that property at some point in the future.

3.2.5 Optimization Process

Pursuant to Board Order 135/05, Centra developed a plan to optimize the 4PT methodology. This plan was completed by the deadline of December 31, 2005. However, the plan was not executed. Part of the plan involved capital expenditures, and these expenditures were not incurred because of Centra concern that the Board might not allow 4PT to continue. The optimization plan includes the purchase of vehicles, equipment and personnel training.

Centra held that cost parity between conventional installations and 4PT installations can be achieved once optimization is complete. The optimization plan presented by Centra centres around internalizing the gas piping installation, and having a single crew perform the electrical and gas installation simultaneously.

One area where internalizing is expected to yield considerable savings is with inspection. In a conventional installation, a Centra inspector is on site 100% of the time to inspect the work of contractors. With the fully optimized, internalized process, Centra/Manitoba Hydro crews will inspect and be responsible for their own work; this being MH's current practice for installation of the high voltage cabling, though a change to the current practice for installing natural gas piping by conventional method.

3.2.6 Directive 9, Board Order 10/06

Directive 9 of Board Order 10/06 mandates that:

> *Centra track the costs of three test case projects – one with more than 100 residential lots, one with between 50 -100 residential lots, and one with fewer than 50 residential lots. A comparison of the actual costs of fully*

optimized and completed 4PT installations and installations done conventionally is to be projected.

The current comparison made by Centra included an adjustment based on an average correction required for nine projects. The intent of this Directive is to provide for an accurate and relevant test to determine the performance of 4PT compared with the conventional methodology.

3.2.7 Market Penetration

Currently in Winnipeg, over 90% of homes in new urban residential developments are connected to gas service. Centra's feasibility test assumes that only 65% of homes will subscribe to gas service within Winnipeg and other fast developing areas. In slower-developing areas, the feasibility test assumes 50% of homes will subscribe to gas service. Centra views the feasibility test as being overly conservative, and plans to monitor long term market trends to determine if changes to the feasibility test are required.

3.3 Rate Base Inclusions

As of Centra's most recent calculation, Centra has accrued $787,600 of additional cost using 4PT instead of the conventional methodology. Centra requested that these costs be included in the rate base. The reasoning was that the safety benefits from 4PT have been and will continue to be realized by customers. Centra noted that achieving cost parity between conventional and 4PT installations does not include the expectation of future recovery of the $787,600, nor any additional costs incurred relative to the conventional method until cost parity is achieved.

Centra's end goal is for 4PT installations to achieve cost parity or better. If cost parity cannot be achieved, but 4PT is within 5 to 10% of conventional installations, Centra suggests 4PT is still of value to consumers based on enhanced safety.

Centra has not contemplated a course of action if, after optimization, 4PT does not reach parity with conventional installation costs. It expressed confidence that in the end 4PT would achieve both safety and economic objectives.

3.4 Other Jurisdictions

4PT methods are used in other jurisdictions in Canada. Currently, Enbridge and Union Gas (Ontario), and ATCO Gas (Alberta) employ 4PT. Gaz Metro in Quebec is developing guidelines for 4PT, and Terasen Gas (British Columbia) is planning a pilot project.

Cost performance in these other jurisdictions varies, with Union Gas experiencing a 15% reduction in costs, ATCO Gas realizing a 10% reduction, and Enbridge reducing installation costs by 20-30% compared with conventional installations. All three of these entities use externally contracted crews for the installations.

Safety performance data is not complete. Enbridge reports that damages decreased by 50 to 80%. ATCO Gas reports a reduction in damages in 4PT areas compared with single party gas installations.

3.5 Commitment to Other Parties

Centra has not entered into any agreements with other 4PT trench utilities or developers; directives arising from this Board Order will not affect existing contractual arrangements.

4.0 INTERVENERS' POSITIONS

4.1 Position of CAC/MSOS

CAC/MSOS objected to Centra being allowed to continue using 4PT methodology for gas installations given the economics have not been proven out.

CAC/MSOS opined that Centra has not properly planned or executed the projects with respect to project costs, and has not demonstrated or supported safety improvements. As well, CAC/MSOS held that Centra has not performed a formal risk assessment to

quantify potential increases in damages and increased safety risk from moving plant onto customers' property.

CAC/MSOS held that relocating plant on private from public property will serve to shift damages from contractors to homeowners. Homeowners would bear more risk, possibly without the homeowners' knowledge. CAC/MSOS suggested that Centra provide a better quantification of damages, an assessment of the potential increased damages from having plant on private property, and the implication of shifting the safety risk from one group to another. CAC/MSOS would like to see a formal risk assessment undertaken by Centra.

Although Centra's position is that optimization will come from internalization, CAC/MSOS noted that Centra has not considered contracting the entire 4PT installation, including the facility for the contractor to self-inspect the work. CAC/MSOS disagreed with Centra's contention of negative experience with reliance on contractors.

CAC/MSOS opined that utilities in other jurisdictions using 4PT have achieved cost savings compared to conventional installations, this through the use of contractors. For CAC/MSOS, though Centra has stated that its optimized, internalized process will achieve cost parity with conventional installations, no study has been undertaken to determine if a fully contracted 4PT installation can match cost savings CAC/MSOS claimed were achieved in other jurisdictions.

4.2 Position of CEPU Local 681

CEPU did not offer any comments and took no position on any of the matters presented to the Board.

5.0 BOARD FINDINGS

The Board is satisfied that 4PT offers safety advantages, and holds that safety is more important than economics when natural gas distribution is involved. The Board accepts that Centra has an effective optimization plan for 4PT and that this plan holds the prospects of eventually reducing 4PT costs to the level of conventional trenching.

The Board is satisfied that Centra is equipped to judge when to employ 4PT and when to rely on private contractors rather than its own crews.

The Board is satisfied that Centra has adequate grounds to seek two full construction seasons to employ 4PT towards achieving cost parity with conventional trenching and securing and further demonstrating safety enhancements. The Board is prepared to rely on quarterly reports related to safety and Centra's indication that it will report to the Board if its projections or experience with 4PT changes materially from its current plans and projections.

6.0 IT IS THEREFORE ORDERED THAT:

1. Centra Gas Manitoba Inc. may employ 4PT construction as it deems advisable for safety reasons;
2. Centra seek cost optimization consistent with enhanced safety, for 4PT;
3. Centra will file with the Board on or before June 30, 2009, a report outlining the safety and cost experience, both as incurred and experienced, and in comparison with projections for conventional trenching results; and
4. Centra will advise the Board on no less than a quarterly basis of its ongoing experience with 4PT, and upon a material change in either its experience or its expectations with respect to 4PT.

THE PUBLIC UTILITIES BOARD

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

"G. O. BARRON, C.G.A."
Acting Secretary

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Acting Secretary