

GAZIFÈRE INC.
DEMANDE D'AUTORISATION PRÉALABLE
REINFORCEMENT – CHEMIN VANIER
DESCRIPTION OF THE PROJECT AND TECHNICAL INFORMATION

1. Project Objectives

Gazifère Inc. supplies natural gas to the West End of Gatineau (former municipality of Aylmer) through a NPS 6 steel high-pressure pipeline along chemin d'Aylmer. The distribution system in the West End of the amalgamated City of Gatineau has seen rapid growth over the past years and is anticipated to continue to grow over the next 5 years at a rapid pace. As a result, the high-pressure system feeding the West End of the City of Gatineau requires reinforcement to be able to deliver the additional load demand anticipated for the 2004 / 2005 heating season.

Gazifère proposes to reinforce the existing high-pressure system by installing 2650m of NPS 8 steel gas main along chemin Vanier and chemin Pink. This will provide a third feed to the NPS 6 steel main on chemin d'Aylmer, by connecting the NPS 8 main along chemin Pink to the NPS 8 steel main on chemin Vanier.

2. Project Description

2.1. Pipeline Routes (see Map, GI-1, document 2)

The proposed reinforcement main will be a NPS 8 (outside diameter 219.1mm, wall thickness 4.8mm) steel pipeline that will tie-in to the end of the NPS 8 steel main on chemin Pink at chemin Vanier and to the NPS 8 steel main on chemin Vanier at boulevard du Plateau.

2.2. Operating Pressure

The proposed NPS 8 steel high pressure main will have a normal operating pressure of 1025kPa (175psig.) This is also the maximum operating pressure of the Gazifère high-pressure network.

2.3. Project Schedule

Construction is anticipated to begin in May 2004, and should be completed by July 2004.

GAZIFÈRE INC.
DEMANDE D'AUTORISATION PRÉALABLE
REINFORCEMENT – CHEMIN VANIER
DESCRIPTION OF THE PROJECT AND TECHNICAL INFORMATION

2.4. Pipeline Lengths

The pipeline lengths of the proposed NPS 8 steel high pressure main are as follows:

Street	Pipe length
chemin Pink	140m
chemin Vanier	<u>2,510m</u>
Total	<u>2,650m</u>

3. Project Justification

The Gazifère high pressure network ends at the Aylmer District station, which is one of the 3 regulating stations that reduces the gas pressure (from high pressure to intermediate pressure) for distribution within the West End of Gatineau. In order to maintain the required outlet pressure for the Aylmer distribution system, a minimum inlet pressure of 700 kPa (100psig) is required into the station.

The network analysis for the 2003/04 heating season is forecasting inlet pressures to the Aylmer District Station to be 683kPa (99psig) on a 47 degree-day Celsius, which is below the system minimum pressure of 700kPa. A degree-day is a measure of coldness of weather anticipated based upon the extent to which the daily mean temperature falls below the reference temperature of 18°C. A 47 degree-day Celsius represents a daily mean temperature of -29°C, not including wind chill. The distribution system is designed to meet the demand load for the peak hour on a 47 degree-day Celsius.

Distribution systems are designed to meet load requirements of the peak hour periods (47 degree-day Celsius,) rather than annual volumes. If the peak hour periods were not met, then Gazifère would not be able to supply all of their customers during these peak times.

The system minimum pressure of 700kPa is derived with a safety factor to ensure that all downstream requirements can be maintained during peak operating conditions, so that the risk of losing customers is minimized.

GAZIFÈRE INC.
DEMANDE D'AUTORISATION PRÉALABLE
REINFORCEMENT – CHEMIN VANIER
DESCRIPTION OF THE PROJECT AND TECHNICAL INFORMATION

The Gazifère high-pressure network is analyzed using customer consumption data from the previous heating season. Some large industrial customers fed by this network are currently using less than their contracted load with Gazifère. If customers such as Domtar and Bowater increase their consumption to their contracted loads, the forecasted pressures at Aylmer District Station for the 2003/04 heating season are 510kPa (74psig.) At this pressure, the outlet pressure at Aylmer District Station would not be sustained on a peak day, and curtailment of the industrial customers would be required.

A remote access pressure recorder has been installed at the Aylmer District station, so that the pressure at the end of the high-pressure network can be monitored during peak operating conditions. During the 2002/03 heating season, the inlet pressure to Aylmer district station fell to 808 kPa (117psig.) This was recorded on a 38-degree day Celsius. As of January 21, 2004, the lowest recorded pressure at the inlet to the Aylmer district station during the 2003/04 heating season was 772 kPa (112psig) on a 44-degree day Celsius. This pressure was recorded while our 4 and 16 hour interruptible customers were not using natural gas. With the additional load added this past construction season, and if a peak day (47-degree day Celsius) was reached, the recorded pressures are anticipated to be 683kPa (99psig.) Even with the interruptible customers curtailed, the forecasted inlet pressure is still below the system minimum pressure, and a reinforcement is required.

The high-pressure network in Gazifère currently operates at the maximum operating pressure (MOP) of 1207kPa (175psig.) The MOP is the highest pressure that the system can operate at, which is determined by the type of material and the test pressure used at the time the mains were installed. Therefore, additional capacity cannot be attained by elevating the operating pressure of this network.

The need for this reinforcement is two fold; the growth that has occurred in the West-End of Gatineau in the past has brought the NPS 6 steel pipeline along chemin d'Aylmer to capacity and without this reinforcement, Gazifère would not be able to accommodate future growth in the West-End of Gatineau.

The current peak day flow through the NPS 6 steel pipeline along chemin d'Aylmer at chemin Vanier is 7,100 m³/hr. After the reinforcement is installed, the current peak day flow through the same NPS 6 steel pipeline will be reduced to 2,150m³/hr. The difference of 4,950m³/hr will be supplied through the proposed NPS 8 steel reinforcement main on chemin Vanier.

GAZIFÈRE INC.
DEMANDE D'AUTORISATION PRÉALABLE
REINFORCEMENT – CHEMIN VANIER
DESCRIPTION OF THE PROJECT AND TECHNICAL INFORMATION

4. Project Costs

The estimated project costs for the proposed reinforcement is:

<u>Item</u>	<u>Cost</u>
Pipe and Coating	\$149,400
Material (valves, fittings, miscellaneous)	\$18,700
Construction Costs	\$504,000
Overheads	\$44,000
Contingency – 10% (not calculated on overheads)	\$67,200
Total Capital Costs	<u>\$783,300</u>

5. Project Feasibility Study

Gazifère n'a pas effectué d'étude de faisabilité économique du projet étant donné la nature du projet en question. Le projet est un renforcement du réseau de distribution existant et non un projet de développement avec des additions de clients spécifiques. À toute fin pratique, la rentabilité du projet sera négative. Par contre, il est à noter que Gazifère doit procéder à ce renforcement de réseau pour répondre à la demande de sa clientèle existante ainsi qu'à l'augmentation de la demande future afin d'assurer un service adéquat à tous ses clients.

GAZIFÈRE INC.
 DEMANDE D'AUTORISATION PRÉALABLE
 REINFORCEMENT – CHEMIN VANIER
 DESCRIPTION OF THE PROJECT AND TECHNICAL INFORMATION

6. Authorizations Required Under Other Laws

The following permits / easements have been obtained or will be obtained prior to construction of the proposed reinforcement:

	Organization	Status
Permits	1. Ville de Gatineau (secteur Aylmer)	Being prepared for submission
	2. Ministère de l'environnement et de la faune	Not Required
	3. Ministère des Transports du Québec	Being prepared for submission
Easements	16 Easements Required	On Going

7. Impact on Rates including a Sensitivity Analysis

Impact on rates: increase of the revenue requirements by approximately \$94,500 for fiscal 2005.

Sensitivity analysis: not applicable.

8. Impact on the Quality of the Natural Gas Distribution System

Without the installation of a reinforcement main, Gazifère will not be able to sustain the required pressures to the Aylmer intermediate pressure distribution system during the peak hour demand.

The proposed reinforcement will improve the reliability of natural gas delivery to the West End of Gatineau by providing a third feed to the original NPS 6 steel main on chemin d'Aylmer. Should the NPS 6 steel main on chemin d'Aylmer be damaged east of chemin Vanier, it is possible that feed to the West End of Gatineau can be sustained while repairs are made to the damaged gas main.

GAZIFÈRE INC.
DEMANDE D'AUTORISATION PRÉALABLE
REINFORCEMENT – CHEMIN VANIER
DESCRIPTION OF THE PROJECT AND TECHNICAL INFORMATION

9. Alternate Solutions

Alternate routes were examined during the design stage of the proposed reinforcement. No alternatives were deemed to be practical or feasible when compared to the length and cost of the proposed reinforcement identified above.

10. Applicable Technical Standards

The proposed reinforcement will be designed and constructed in accordance with the Canadian Standards Association (CSA) Z662, which are the technical standards that govern oil and gas pipelines in Canada. In addition to these standards, all Enbridge Gas Distribution policies will be adhered to.