

BOMA INTERROGATORY #21

INTERROGATORY

Ref: Exhibit C, Tab 1, Schedule 4, p1 Unaccounted-for Gas Variance Account

- (a) Please provide the calculation (with explanation) of the contribution of the GTA project.
- (b) The actual 2016 UAF was more than fifty percent higher than forecast. What accounts for such a large variance?
- (c) Over the last twelve years (2016 vs. 2004), UAF has increased thirteen-fold. What measures is EGD taking, or planning to take, to determine the cause of the escalation, and to correct it?

RESPONSE

- a) Please see section b) for details on the calculated contribution of the GTA project.
- b) Enbridge recognized that UAF volumes in 2016 were higher than 2015 (though at the same level as 2014), and put together a cross-functional team in early 2017 to identify root causes for the UAF variance and look for opportunities for continuous improvement. The team's analysis has been able to explain  $56 \times 10^6 \text{m}^3$ , or 42% of the total  $133.1 \times 10^6 \text{m}^3$  UAF volumes for 2016, whereas the remaining  $77 \times 10^6 \text{m}^3$  or 58% was unable to be directly assessed. The following is a discussion of the known factors. Part (c) below explains the Company's action plan to try to reduce UAF and mitigate these contributing factors in the future.

1) GTA Impacts

The completion of the GTA project in 2016 resulted in a significant increase in extra high pressure pipeline capacity in EGD's gas distribution system. EGD estimates that the gas required for line pack (to fill the line) and which was not billed to customers was  $2,158 \times 10^6 \text{m}^3$  on an average December day. As a result, this additional gas in line pack, not billed to customers, represents a new source of UAF for 2016. The other impact from the GTA Project has been the UAF associated with construction-related venting which has been estimated at  $425 \times 10^3 \text{m}^3$ . Line pack and venting estimates were provided by Network Analysis and Engineering groups within EGD using flow rate and duration estimates. Outside of operational requirements to perform

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work on the facilities, no additional venting related UAF should be anticipated.

2) Metering Differences at Gate Stations

The second factor identified by the cross-functional team was metering differences at gate stations. EGD has approximately 40 gate stations with upstream transmission companies, including TCPL and Union Gas, who own the official custody transfer meters (billing meters). These custody transfer meters are required to meet Measurement Canada specifications (approximately +/-1%). EGD utilizes check meters downstream of the custody transfer meters that are used to validate the volume purchased from the transmission company. A process is used whereby each day, only those meter variances of sendout greater than 2% between EGD's check meters and the custody meters are reported to and investigated by TCPL or Union. Smaller variances are not reported. The Company's experience has been that these meter differences can largely be attributed to the variability in the types of meters (turbine, ultrasonic, rotary) used at the gate stations between both parties, and the differences therein. As a result of the large UAF result for 2016, a quantitative summary of daily meter differences between EGD's check meters and TCPL custody transfer meters was conducted for 2016. The analysis indicated a difference of  $37.9 \times 10^6 \text{m}^3$ . While there are some daily instances where TCPL readings are lower than EGD, the majority of daily variances show TCPL readings as higher. This is most notable at Vic Square<sup>1</sup> gate station which alone had a variance of  $12.4 \times 10^6 \text{m}^3$ . The higher TCPL readings indicate a higher sendout being recorded by TCPL and billed to EGD than EGD's check meters, representing a significant source of UAF.

3) Meter Issues and Measurement Correction

From time to time, Enbridge encounters technical issues with existing meters and with the installation of new meters. This can lead to gas being supplied that is not metered or that is not metered (measured) accurately. When Enbridge becomes aware of any such issues, then steps are taken to address the situation. Analysis conducted by the cross-functional team indicates that UAF for 2016 related to meter corrections and other metering issues that were remedied once they were identified totals around  $13 \times 10^6 \text{m}^3$ .

4) Gazifère Metering Issue

From May to August 2016, an investigation of the ultrasonic meters at the Jacques Cartier and Hull gate stations indicated that the high summer temperatures resulted in a temperature stratification phenomenon, which was causing EGD's billing meters to Gazifère to overstate the amount of

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<sup>1</sup> Vic Square constitutes between 20%-25% of total sendout.

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Gazifère's billings. As a result of the billing review, an adjustment of 2,132 10<sup>6</sup>m<sup>3</sup> was made to Gazifère's billing. This increased the UAF for EGD's system. A number of modifications to the meter runs were made in 2016 as a result, including insulation of the exposed piping to reduce the impact of high summer temperatures on the velocity of gas in the pipe. Finally, consideration of Coriolis meter technology for low-flow situations is also being pursued with Measurement Canada as a potentially more viable alternative to ultrasonic meters in these situations.

- c) EGD acknowledges that UAF is higher than in some prior years. That said, the UAF volumes change each year, and it is not accurate to say that the UAF volumes are now 13 times higher than in the past. A review of the history of UAF volumes (see Exhibit C, Tab 1, Schedule 4) shows that 2016 UAF volumes are around the same level as in at least two prior years (2000 and 2014).

EGD is committed to taking appropriate steps to reduce UAF. The following are actions that EGD's cross-functional team has identified and is in the process of assessing and implementing, demonstrating the Company's commitment to ongoing efforts to reduce UAF.

Meter Issue/Measurement correction	<ul style="list-style-type: none"> <li>*Review metering processes for Large Volume Billing meters and resources to ensure timely resolution of metering issues</li> <li>*Review metering best practices related to industrial turbine meter correction.</li> </ul>
TCPL custody transfer meter differences	<ul style="list-style-type: none"> <li>*Complete System Measurement's Study examining processes and records for non-billing meters at major stations.</li> <li>*Review metering design at Victoria Square Gate Station and any gate station with atypical discrepancies compared with TCPL; request metering change with TCPL or Union, where necessary, to align and reduce future discrepancy.</li> <li>*Review Gas Control's daily sendout verification processes to request validation from TCPL or Union when meter variances are greater than +/- 1%</li> </ul>
Gazifere meter issue	<ul style="list-style-type: none"> <li>*Pursue approval and installation of Coriolis metering for low and high flow metering situations.</li> </ul>
Increase in line pack from the GTA	<ul style="list-style-type: none"> <li>*Continue to monitor impacts to line pack from changing pressure and temperature in the system. This includes changes in line pack resulting from the GTA project and ensuring that meter differences are in tolerance.</li> </ul>
GTA Project venting	<ul style="list-style-type: none"> <li>*No further recommendations</li> </ul>

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