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December 19, 2008

Regulatory Affairs Correspondence  
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British Columbia Public Interest Advocacy Centre  
Suite 209 – 1090 West Pender Street  
Vancouver, BC  
V6E 2N7

Attention: Mr. James L. Quail, Executive Director

Dear Mr. Quail:

**Re: Terasen Gas Inc. ("Terasen Gas")  
Application for a Certificate of Public Convenience and Necessity ("CPCN") for  
the Fraser River South Arm Crossing Upgrade (the "Application")  
Response to the British Columbia Public Interest Advocacy Centre on behalf of  
the British Columbia Old Age Pensioners Organization et al ("BCOAPO")  
Information Request ("IR") No. 1**

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On November 6, 2008, Terasen Gas filed the Application as referenced above.

Terasen Gas respectfully submits the attached response to BCOAPO IR No. 1 in advance of the deadline for IR responses as established in Commission Order No. G-173-08.

If there are any questions regarding the attached, please contact the undersigned.

Yours very truly,

**TERASEN GAS INC.**

***Original signed:***

Tom A. Loski

Attachment

cc (e-mail only): Registered Participants



Terasen Gas Inc. ("TGI", "Terasen Gas" or the "Company") Application for a Certificate of Public Convenience and Necessity ("CPCN") for the Fraser River South Arm Crossing Upgrade (the "Application" or the "Project")	Submission Date: December 19, 2008
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### 1.0 Reference: Exhibit B-1, p. 31.1

Please explain how the four alternatives that the Company considered were identified, who identified these alternatives, and when they were first identified.

**Response:**

The Alternatives were developed in response to TGI's concerns regarding seismic events, river erosion, and the effects of future dike improvements on the NPS 20 and NPS 24 pipelines. The Alternatives were formulated based on a series of studies performed over the last few years (refer to Section 4.1.2 of the Application). After Golder submitted its 2008 Report (refer to Appendix 5 of the Application), TGI decided on the four Alternatives with input from internal technical personnel, consultants and external stakeholders. As described in Section 5 of the Application, TGI is of the view that HDD is the only suitable methodology to rehabilitate the crossings. Using the evaluation criteria described in the Application, TGI concluded that the replacement of the NPS 20 and NPS 24 by HDD is the best option to mitigate the unacceptable risks at the crossings.



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## 2.0 Reference: Exhibit B-1, pp 15 – 19, p. 26 Table 6.1, and Appendix 13

2.1 Please provide amounts included in the cost estimates for each alternative for contingency costs.

### Response:

The cost estimates for each Alternative were prepared using the same preliminary project plan and basis for comparative purposes. The estimates were developed by identifying major items of work in the project plan, using non-binding quotations, historical costs and forecasts with an allowance for as yet undefined costs in the major items.

A specific line item for contingency was not included in the estimate, as this a double accounting of the risk allowance within the estimate at this stage. Based on the preliminary plan developed to prepare the cost estimate, TGI believes the estimate accuracy to be -15 +20 percent.

TGI proposes to prepare a control estimate with contingency using statistical risk analysis techniques following detailed design engineering, material and construction tendering, and negotiation of landowner workspace agreements.

2.2 For each alternative, please identify (i) the undepreciated amounts of facilities that would be removed from rate base, (ii) the salvage amounts corresponding to those assets, (iii) the proposed treatment of any revenues received by the Company in disposing of pipeline assets, and (iv) how the Company would propose to adjust the rate base (in each case).

### Response:

Under its Asset Accounting Policy, Terasen Gas currently uses the pooled cost of accounting method for its gas plant in service. Depreciation is recorded monthly with the rate base decreased on a mid-year basis as the depreciation provision is credited to the accumulated depreciation account and the depreciation is charged against income. In the retirement of an asset, the utility's rate base is not necessarily decreased at the time of retirement unless there are salvage proceeds, upon which the proceeds would contribute to reducing the utility's rate base. Conversely, for disposal related costs, the retirement costs would serve to increase the utility's rate base.

(i) Under existing accounting policy and described above, there will be no undepreciated amounts of facilities removed from rate base. To reflect the retirement of the noted facilities, Terasen Gas will be crediting the gas plant in service for the NPS 20" line for the amount of \$961,487 and \$1,128,715 for the NPS 24" with the accumulated depreciation account debited for the same amounts,



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leading to no decline in net rate base. The gas plant in service amounts provided represents the estimated cost of the noted facilities.

- (ii) TGI is not forecasting any salvage proceeds for those assets.
- (iii) If there were any salvage from the assets they would be credited to the Accumulated Depreciation which would then reduce Terasen Gas' rate base.
- (iv) As outlined in above discussion, the Company does not expect any adjustment to the rate base due to the retirement of the pipeline assets.

2.3 Was the \$6 million in efficiencies associated with Alternative 1, (constructing both crossings at once, compared to replacing one now and the other later) mentioned on page 16 calculated by comparing the estimated cost of Alternative 1 with the sum of the expected costs of Alternatives 2 and 3? If so, did the Company consider the present value of the costs of pursuing Alternative 2 now and Alternative 3 later as compared with the cost of Alternative 1?

**Response:**

The determination of the \$6 million of efficiencies was described in the response to BCUC IR 1.5.4.

In its response to BCUC IR 1.18.1, the Company set out an analysis, similar to that requested in this question. In the economic analysis set out the Company has assumed that the NPS 24 pipeline is replaced now and the NPS 20 pipeline is replaced in 2018. The PV of this scenario is \$32.9 million, as compared to \$26.8 million set out in the Company's proposal to replace both pipelines at once.

2.4 Please provide a table that includes all CPCN applications the Company has filed with the BCUC and subsequently undertaken over the last ten years showing for each project: (i) the ex ante cost estimate, (ii) the amount of contingency costs included in the estimate, (iii) the ex ante expected accuracy of the cost estimate, (iv) the ex ante expected impact on revenue requirement, (v) the actual ex post cost of the project, and (vi) the actual ex post impact on the revenue requirement.

**Response:**

As outlined in the Application, pages 8 to 12, TGI regards this project as non-discretionary. There is a significant potential for the two crossings to fail, particularly following a seismic event. The consequences of such a failure are significant.



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Prolonged loss of gas supply would not only impact a large number of businesses, industries and residents, but it would particularly impact facilities providing food services, accommodation and care to those most in need following an earthquake. Unlike the potential failures of other more accessible and repairable parts of the TGI transmission and distribution systems, the integrity of underwater crossings is critical to minimizing the duration and extent of any gas supply interruption to a significant part of the Lower Mainland. There could also be serious safety consequences related to a high pressure pipeline failure at this location. TGI considers that the risk associated with these crossings to be unacceptable and remedial action is necessary.

The information being sought in this question is of no relevance or assistance to the Commission in selecting the appropriate alternative to address the unacceptable risk posed by the status quo. Further, the discrepancy between ex ante estimates and ex post actual results in previous projects says nothing about whether a discrepancy on a particular project was the result of imprudence on the part of the Company or cost escalation that was entirely outside of the Company's control. In this case, the Commission will have had the opportunity to approve the contracts with the updated control budget in hand.

In light of the fact that the information sought is not relevant, and in light of the significant amount of work that would be required to provide a complete response, TGI respectfully declines to provide the information requested.



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**3.0 Reference: Exhibit B-1, p. 20, Table 5.1**

3.1 Note (1) at the bottom of this table indicates that the accuracy of each cost estimate is -15% +20%. Please explain how this accuracy should be interpreted, why this -15% +20% interval was chosen, and how the methodology used to estimate the costs of each alternative ensured the same "confidence" interval for each alternative.

**Response:**

The -15% +20% cost accuracy for each Alternative in Table 5.1 is the overall range for the total project cost. The -15% +20% cost accuracy was not chosen, but rather represents the net result of the accuracy of the available information at the time of preparation. Since the same base information and project plan was utilized for each of the Alternatives, the same interval range is the outcome.



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#### 4.0 Reference: Exhibit B-1, p. 27 Table 6.2

4.1 Please provide a status update with respect to the activities "Detailed Engineering," "Tendering (Materials)," and "Tendering (HDD)" listed as "Schedule Milestones."

#### **Response:**

The activities listed in Table 6.2 of the Application as "Detailed Engineering", "Tendering (Materials)" and "Tendering (HDD)" are on-schedule and progressing as planned. Refer also to the Schedule in Appendix 7 of the Application, and ID No column in the Schedule, as noted below, that summarizes specific sub-activities as follows:

##### ID 8 - Detailed Engineering

- Supporting CPCN process
- Prepared material specifications
- Completion of addition borehole drilling
- Communication with City of Richmond on dike – pipeline compatibility requirements

##### ID 11 - Tendering (Materials)

- Issued Linepipe Request for Quotation

##### ID 13 - Tendering ("HDD")

- Preparation of the Expression of Interest to identify the short list of potential HDD – pipeline contractors who may bid on the work.



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**5.0 Reference: Exhibit B-1, Appendix 5, Golder Report dated June 27, 2008, p. 28**

5.1 The Report states that "[it] is of a summary nature and is not intended to stand alone without reference to the instructions given to Golder by the Client, communications between Golder and the Client, and to any other reports prepared by Golder for the Client relative to the specific site described in the report."

Please provide a copy of any and all such instructions, communications, and other reports as referred to by Golder that have not been filed as evidence in this proceeding.

**Response:**

The instructions TGI gave to Golder are documented in RFQ Reference #Q071581RDM, Part 2 Scope of Work (see Attachment 5.1). Golder's previous 2007 Report (Appendix 3) is also relevant to this work. TGI gave no other instructions or communications to Golder relating to the technical content of their June 27, 2008 report.





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## 6.0 Reference: Exhibit B-1, Appendix 12

6.1 This Appendix appears to indicate a "cross-over point" for income tax expense in 2016. Please provide the assumptions underpinning the income tax expense and also indicate whether the Company expects to pay this expense as shown in Appendix 12.

### **Response:**

The cross-over point is commonly referred to when the depreciation expense is equal to or greater than the capital cost allowance. This does not occur on an incremental basis until 2027. The amount shown in Appendix 12 is the incremental impact to the income tax expense from this investment that the Company would either avoid paying or would pay. The underlying assumptions are that the income tax rates are 31.0%, 30.0%, 29.0%, 27.5%, and 26.0% through 2010, 2011, 2012, 2013 and 2014 respectively, and 26.0% thereafter. The return on equity and capital structure are the approved 2008 TGI rates.



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## 7.0 Reference: Exhibit B-1, Appendix 13

7.1 Please explain why the "Pipe & Coating Materials" for Alternative 4 (NPS 30) are 50% higher than they are for Alternative 1 (NPS 20 & 24).

### Response:

The Pipe and Coating Materials for Alternative 4 (NPS 30) have been estimated higher than Alternative 1 as the estimated pipe tonnage, freight and handling costs due to pipeline diameter and distance for Alternative 4 is greater than Alternative 1. Alternative 4 requires additional valves, pig launching and receiving facilities at the terminal stations whereas Alternative 1 does not require any modifications to these facilities.

Alternative 4, the entire replacement of the existing NPS 20 with NPS 30 includes material for:

- The NPS 30 HDD crossing of Fraser River;
- An HDD crossing of Blundell Road and CN Rail on north side of Fraser River;
- An HDD crossings of River Rd, and CN Rail on south side of Fraser River;
- NPS 30 Induction bends, bypass pipe;
- Cross over valves, actuators, fittings, NPS 30 pigging facilities at Tilbury Station;
- Cross over valves, actuators, fittings, NPS 30 pigging facilities at Nelson Station; and
- Freight, Handling, Stockpiling for above.

Alternative 1, the replacement of only the existing NPS 20 and NPS 24 Fraser River Crossings includes the material for:

- The NPS 20 HDD crossing of Fraser River;
- The NPS 24 HDD crossing of Fraser River;
- NPS 20 and NPS 24 Induction bends, bypass pipe; and
- Freight, Handling, Stockpiling for above.

## **Attachment 5.1**

## **SCOPE OF SERVICES**

The Consultant will provide geotechnical design and construction support for the seismic upgrade of twin Terasen gas transmission pipelines, generally based on Golder Associates' August 9, 2007 report:

“Assessment of Seismic Performance Terasen Gas Inc. NPS 20 and NPS 24 T.P. Pipelines South Arm of Fraser River Tilbury Island (Delta) to Richmond BC.”

The Services shall include:

1. Planning, permitting, implementation and reporting of additional field investigation involving two test holes in the foreshore areas of the Fraser River, as near to the shipping channel as is reasonably practical. A contingency will be identified to carry out additional investigations in the vicinity of the proposed horizontal directional drill (HDD) entry and exit locations, as well as at selected locations where supplementary subsurface information is required for the design and construction of temporary pipe supports, temporary conductor casings and lay-down areas for fabricating the replacement pipeline(s) and ancillary facilities.
2. Updating of Golder Associates' ground response analyses to include the predicted properties of both:
  - a. the largest subduction earthquake event, credibly predicted to occur west of the Vancouver Island coastline, and
  - b. the design seismic event specified in the National and B.C. Building Codes (NBCC 2005/BCBC 2007) - 1:2,475 year return period, 0.52 g site-specific peak ground acceleration.
3. Providing ground response analyses determined in 2. above to DG Honegger Consulting, working with DG Honegger Consulting in support of their analysis of pipeline response, and providing consolidated documentation of both sets of analyses.
4. Working with Terasen staff, DG Honegger Consulting and other contractors to identify conceptual HDD pipeline alignment options, assessing predicted ground motions on pipelines installed at these alignments, and then reviewing pipeline impacts. This would include consideration of varying offsets between the pipeline entry and exit points and the banks of the river, and/or potential ground improvement measures.
5. Providing detailed geotechnical design and follow-on technical advice and monitoring during construction for:
  - a. Replacement of the NPS 20 T.P. pipeline across the Fraser River by horizontal directional drilling (HDD) such that the replacement pipeline shall remain fully fit for service following either of the events specified in 1. above, and
  - b. Improvements to the NPS 24 T.P. pipeline at the South bank of the Fraser River in the form of onshore piping modifications and possible ground improvement, such that the improved pipeline shall retain pressure integrity,

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### **Fraser River South Arm Seismic Upgrade Project**

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or satisfy alternative seismic performance standards as determined by Terasen, following either of the events specified in 1. above.

6. Provide geotechnical input to the preparation of tender documents and specifications for the proposed HDD and pipeline improvement work. A contingency allowance will be identified for provision of construction management services.
7. A contingency will be identified to provide possible input on issues relating to geo-environmental (soil and/or groundwater contamination), bio-environmental (terrestrial biology and/or fisheries permitting) and archaeological (First Nations and cultural resource) services associated with the selected pipeline alignment(s) and/or pipeline improvement zones, as required for design, permitting and construction purposes.

It is recognized that at the time of quotation, a number of factors are not fully known, which may substantially influence the complexity of the design and level of effort required. Both Terasen and the Consultant recognize that changes to the scope of the design process, while maintaining the project completion date, may require resolution using the Equitable Adjustment process in this document.