

1    Q.    **Re: Project B-12 Upgrade Unit 2 Stack Breeching**

2            With reference to page 12 of the July 2011 report in support of this Project, provide  
3            details of the scope of the repairs to the internal insulating liner, estimated to cost  
4            \$270,000, which Hydro would have completed in 2010 but for the proposal of this  
5            Project for 2012? Was there a report prepared by or for Hydro regarding these  
6            repairs? If so, provide a copy of that report.

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9    A.    Upon initial inspection of the Unit 1 and Unit 2 breeching in 2010, Hydro contracted  
10           C&E Refractories (C&E) to inspect and provide a quote to complete the required  
11           repairs. C&E had performed other major repairs in the Holyrood breeching and are  
12           familiar with the work required.

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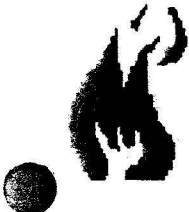
14           A copy of their quotation JC2380-10 (dated September 25, 2010) is attached. This  
15           quote provides two options for the replacement block. The least cost option would  
16           be selected as indicated in red in the attached quote.

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18           It should be noted that the price provided is now dated by one year. Due to  
19           escalation and also further deterioration of the breeching, this price is no longer  
20           valid. Also, the price was provided to Alstom. If Alstom were to hire C&E as a  
21           subcontractor, then Alstom would apply a mark-up. Alternatively, Hydro could hire  
22           C&E and manage the work directly to avoid this mark-up.

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24           As explained in the quote, there are significant items that would be in addition to  
25           the price provided, including: scaffold, confined space management and rescue, and  
26           installation of temporary angle iron to protect good block when grit blasting.



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September 25, 2010

ALSTOM Canada Inc.- Power Service  
Holyrood, NL

**ATTN: Archie Gillis**

**REFERENCE: Unit # 1 & Unit # 2 East / West Breeching**

**QUOTATION: JC2380-10**

We are pleased to submit our budget quotation for the refractory work you require on # 1 and # 2 Units located at Newfoundland & Labrador Hydro in Holyrood NL.

The work is to be confined to the east and west breechings in both of these units and are describe below.

**Unit # 1**

**East Breeching** - There are 6 areas totalling approx 378 sq ft between the walls, ceiling and outlets. During the time of inspection there was no work required on the floor.

The 378 sq ft will have existing damaged tile removed. The casing will then be sandblasted to remove any build up of debris and membrane. The clean casing will have a primer sprayed coated then new Pennguard Block will be applied and laid in a 1/8" membrane.

**West Breeching** - There are 15 areas measuring approx 700 sq ft between the walls, ceiling and outlets. During the time of inspection there was no work required on the floor.

The 700 sq ft will have existing damaged tile removed. The casing will then be sandblasted to remove any build up of debris and membrane. The clean casing will have a primer sprayed coated then new Pennguard Block will be applied and laid in a 1/8" membrane.

**Unit # 2**

**East Breeching** - There are 8 areas measuring approx 614 sq ft between the walls, ceiling and outlets and the complete floor measuring approx 420 sq ft.

The 614 sq ft will have existing damaged tile removed. The casing will then be sandblasted to remove any build up of debris and membrane. The clean casing will have a primer sprayed coated then new Pennguard Block will be applied and laid in a 1/8" membrane.

The floor will have the existing castable and tile removed. The casing will then be sandblasted to remove any build up of debris and membrane. The clean casing will have a primer sprayed coated then new Pennguard Block will be applied and laid in a 1/8" membrane. After the tile have been installed C&E will then pour 3" of Pacocast 24AR castable on top of them.

**West Breeching** - There are 24 areas measuring approx 650 sq ft between the walls, ceiling and outlets and the complete floor measuring approx 420 sq ft.

The 650 sq ft will have existing damaged tile removed. The casing will then be sandblasted to remove any build up of debris and membrane. The clean casing will have a primer sprayed coated then new Pennguard Block will be applied and laid in a 1/8" membrane.

The floor will have the existing castable (**castable only**) removed and replaced with 3" of Pacocast 24AR.

We have allowed for (5) men to perform this work which consist of (1) Mason Forman, (2) Masons and (2) Helpers.

We will require working 11 ten hour shifts for unit # 1 and 19 ten hour shifts for unit # 2. This schedule can be reduced by increasing the crew and working in more than one breeching at a time, however the travel cost will increase and the living allowance will remain the same.

Our budget price is based on working the compressed work week Monday through Friday (4 ten hour shifts per week) day shift only and if any days are worked outside of this our budget will be adjusted accordingly and extra charges will apply.

**Please note** - Our budget is based on assuming all staff will be travelers and if local people are on this project our price will be adjusted and reduced accordingly. Our prices are based on current labour and material rates. Prices may be adjusted depending on schedule of project.

**C&E to supply the following:**

1. Equipment for removing and replacing refractory
2. Refractory material for this project including freight
3. Skilled masons to perform work
4. Helpers to assist our masons
5. Standard safety supplies but no allowance for fresh air if required
6. Travel and living expense for our men

**Alstom to supply the following at no cost to C&E:**

1. Compressed air at 90 PSI
2. Electricity at 110/220 volt
3. Containers for and disposal of debris
4. Angle iron and installation where sandblasting will be performed
5. Scaffold as required
6. Gas testing as required for safe entry
7. Man watch as required
8. Mixing station
9. Washroom and lunchroom facilities for our workers

We are proving two material options and they are as follows:

**Unit # 1 - Pennguard 28**

Labour	\$ 33,500.00
Material	\$186,386.00
Equipment	\$ 7,195.00
Travel and living	\$ 17,096.00
Freight	<u>\$ 8,500.00</u>
Total	\$252,677.00

**Unit # 1 - Pennguard 55**

Labour	\$ 33,500.00
Material	\$ 95,559.00
Equipment	\$ 7,195.00
Travel and living	\$ 17,096.00
Freight	<u>\$ 8,500.00</u>
Total	\$161,850.00

**Unit # 2 - Pennguard 28**

Labour	\$ 57,427.00
Material	\$302,542.00
Equipment	\$ 10,520.00
Travel and living	\$ 28,344.00
Freight	<u>\$ 8,500.00</u>
Total	\$407,333.00

**Unit # 2 - Pennguard 55**

Labour	\$ 57,427.00
Material	\$163,624.00
Equipment	\$ 10,520.00
Travel and living	\$ 28,344.00
Freight	<u>\$ 8,500.00</u>
Total	\$268,415.00

The manufacturer has advised that the Pennguard 28 may be discontinued at the time of the project. Pennguard 28 is not a stock item and is only manufactured in large quantities. Should you choose the Pennguard 28 option then it may be wise to place an order for this material prior to project date. Pennguard 55 has been used in 95% of these applications and is readily available. Please note that NL & Lab Hyrdo has performed a repair in the past with Pennguard 55 and has had great success to date.

Trusting that this budget proposal meets with your approval, we thank you for this opportunity to quote and we look forward to working with you in the future. If you have any questions, please do not hesitate to contact us.

Regards,  
Don Cole