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Ms. Kimberley Cliffe-Phillips  
Environmental assessment Officer  
Mackenzie Valley Environmental Impact Review Board  
Yellowknife, NT

July 6, 2004

Dear Ms. Cliffe-Phillips;

**Deh Cho Bridge – Environmental Assessment Information Requests 1.1.1 – 1.1.5**

Attached are responses to the first round of information requests (IRs), prepared on behalf of the proponent, the Deh Cho Bridge Corporation.

Please do not hesitate to contact us for any further information that may assist in the process.

Yours truly,

Andrew Gamble

c Albert J. Lafferty, DCBC  
Jivko Jivkov, Jivko Engineering  
attachment

**Environmental Assessment of Deh Cho Bridge**  
**Response to Mackenzie Valley Environmental Impact Review Board**  
**Information Request**

**IR Number:** 1.1.1

**Response:**

- a) It refers to financial risks only. The reference cited was in response to the Chamber of Mines concern about possible construction cost overruns. The DCBC, TD and the GNWT are all conducting due diligence and risk management to minimize the likelihood and possible impacts of cost overruns (as outlined in DAR Section B.4.1).
- b) Not applicable. However, TD Securities (and GNWT) will seek confirmation that DCBC and its contractors are in compliance with all terms of environmental approvals and permits and are appropriately insured against environmental liabilities.

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**IR Number:** 1.1.2

**Response:**

- a) The engineering design, plans and specifications for the proposed bridge development are being prepared by a team of qualified professional engineers, and are based on geotechnical, hydrotechnical and environmental information provided by specialised consulting firms.
- b) The design team was assembled and lead by Andrew Gamble & Associates of Yellowknife, NT. The team includes the structural engineering consultants J.R. Spronken & Associates of Calgary, AB and Jivko Engineering of Yellowknife, NT. The tender drawings will be stamped by Spronken & Associates who is the Responsible Structural Designer for the project.

Consulting firms and scientific labs providing specialised design information include:

- ✓ EBA Engineering Consultants of Yellowknife, NT – geotechnical information for foundation design; embankment material; concrete aggregate testing; and pavement design
- ✓ Trillium Engineering of Edmonton, AB – river engineering, ice forces, elevations of flood and ice-action, scour, etc.
- ✓ Davenport Engineering Group of University of Southern Ontario, London ON – wind tunnel testing of model sections of the bridge to establish vibrations, oscillations and other parameters of the bridge lateral stability.
- ✓ University of Calgary, Calgary AB – Model testing of the suspension scheme of the main span including portals, stays, articulated attachments, etc.
- ✓ Golder Associates of Edmonton AB – environmental considerations, impact on aquatic and terrestrial wildlife, water quality monitoring program, etc.

In preparation of implementation plan and cost estimates the construction industry also is being extensively consulted.

- c) The final design must be approved by the GNWT.

The GNWT has retained the structural engineering consulting firm BPTec Engineering of Edmonton, AB to carry out peer review of the bridge design. For the purpose of this review BPTec has assembled a team of consulting engineering firms specialised in structural, geotechnical and hydrotechnical engineering. The reviewing team analyses every single aspect of the proposed design and its conformity with the applicable codes.

The process of peer review includes consecutive submissions by the design team of different design stages. The reviewers provide back their comments and accept or refer for further discussion some of the sensitive issues. Occasionally the reviewers and the designers meet to discuss in person design schemes and details, interpretation of codes, construction methods, etc. At present time it would be fair to say that the reviewers have confirmed over 85% of the design material and are evaluating the material submitted on the meeting held on May

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26, 2004. It is anticipated the reviewing process will be finalized before the end of July 2004, when the reviewers will issue their final report.

**IR Number:** 1.1.3

**Response:**

- a) Steel girders and prestressed concrete girders are both used extensively in bridges and are virtually interchangeable for this application. Both could be used to meet required performance specifications and have similar maintenance and design life characteristics. Normal market costs for supply are similar. The selection of one over the other is normally based on overall cost and designer/owner preferences.

In this case, the transportation and erection logistics favour a steel girder design. A significant increase in steel prices could outweigh these advantages and make a concrete girder more economic. This will be assessed at the time of tendering and, if steel prices remain abnormally high at that time, the concrete girders may be substituted.

This substitution would have no material impact on the design or specifications of the bridge. There would be adjustments to details, such as expansion joints and connections.

- b) There would be no significant changes to impact predictions. Both the steel and concrete girder alternative would be pre-fabricated in a southern shop and transported in sections to the site for final assembly and erection. The erection technique may change, due to the heavier concrete girder sections.

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**IR Number: 1.1.4**

**Response:**

- a) The DCBC has consulted with the Interagency Group and its constituent members regarding their concerns and suggestions for minimizing, monitoring and mitigating potential social impacts, particularly during construction. This group brings together all agencies involved in community social issues to coordinate their efforts. It includes:

- |                         |                        |
|-------------------------|------------------------|
| ○ RCMP                  | ○ Wellness Coordinator |
| ○ Friendship centre     | ○ School               |
| ○ Health centre         | ○ Dene Band            |
| ○ Drug & alcohol worker | ○ Metis Local          |

In the Community Benefits Commitment Plan, the DCBC proposes several measures to achieve the objective of minimizing negative impacts (DAR Appendix 7, pages 8 and 11).

In addition there is a plan to invest \$25,000 in a community organization to monitor social impacts and consider remedial actions as required. This would be initiated on final approval of the project. The DCBC will seek recommendations from the Inter Agency Action Group on which organization(s) would take the lead.

- b) Together, the member agencies represent the full range of community knowledge, skills and responsibilities to support community social development.
- c) This will be up to the participating agencies to determine, but would likely include monitoring of any trends/increases in reported incidents or referrals.
- d) It is anticipated that the responsible agencies would determine appropriate responses to any issues and will maintain contact with DCBC and its contractors on any actions required by them. The DCBC will consider cost-sharing additional resources where need can be demonstrated.

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**IR Number:** 1.1.5

**Response:**

- a) The current design of the proposed bridge incorporates features to facilitate diversion of the fuel spill away from the river towards the river bank.
- b) Not applicable.
- c) The original design contemplated installation of deck drains that would direct the rain water running in the gutters along the curbs into the river. In case of fuel spill the fuel would also have been discharged into the river through these deck drains.

After careful analysis of the rainfall data for the area it was concluded that the deck drains could be avoided by directing all rain water (and potential fuel spill) towards the abutments at both ends of the bridge. From that point the rain water or spill will be directed in open gutters, sloping down the embankment shoulders and ending at the toe of the shoulders some 20 m to 25 m behind the water line. The gutters will have 12% to 15% longitudinal slopes and will be built of precast concrete elements.

The gutters will be discharging into containment ditches, parallel to the waterline, constructed similarly to the ditches along the highway.

In case of a spill, the fuel accumulated in the ditches will be dealt with according to the provisions of the Spill Contingency Plan, in a way similar to the spill that might occur on the 7 km section of highway that extends along the north shore of the river between the bridge and the Big River Motel.