

Granular Resource Requirements for Proposed Mackenzie Valley Pipelines:

Technical Papers and Workshop Proceedings

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Northern Oil and Gas Action Program (NOGAP) Project A4:
Granular Resources Inventory and Management**

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SECTION 7.

DISCUSSION PANEL "A"

INDUSTRIAL BORROW DEMAND ISSUES

OIL PIPELINE BORROW DEMAND ISSUES

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As I had noted in my earlier presentation, Interprovincial Pipe Line (IPL) currently operates the Norman Wells to Zama crude oil pipeline but is not actively pursuing any big-inch northern oil pipeline projects. After the completion of the Norman Wells line IPL did complete engineering and economic evaluations of a big-inch line from the Mackenzie Delta to Edmonton (Figure 1). The cost of this line, at about \$3-billion is not economic at this time.

I don't really have anything more to add in terms of granular requirements for a small-inch line extended into the Mackenzie Delta area. However, I might make some commentary perhaps on differences on Polar Gas pipeline versus an oil pipeline. One difference is with respect to the use of concrete river weights. IPL did use a fair number of weights in the first stage of the Norman Wells pipeline with the idling of the line for one year before production and, predictably, an empty pipeline tends to move upwards. The second year I believe is where the rule was--"If

you can put it in dry, put it in dry". That cut down our weight consumption considerably and we did not have any construction or operations problems by doing it that way. That was not as impacting on our liquids line as it might be for a gas line.

I think again the resistance of the pipeline to denting or buckling is a major factor. North of KP 440, the pipeline wall thickness is really driven by straining due to frost settlement. For the southern sections of the system, internal pressure resulted in pipe stress of up to 72% of yield. In the more northerly sections, it diminishes to around 60% of yield. We protected the pipeline mechanically by installing cathodic protection. This has been determined to be quite effective in protecting the pipeline. On a semi- or alternate year basis, we're also completing calibration of thaw-frost settlement on the pipeline. Finally, we've also concluded that there's no damage to the coating. To verify this, we have run an internal magneto-flux tool looking for internal and external corrosion.

Note: The text of this presentation has been transcribed from an audio-tape recording of the workshop presentations. If necessary, we would suggest that the reader verify the accuracy of these comments with the presenter.

Figure 1. Proposed Mackenzie Valley Oil Pipeline Route

