

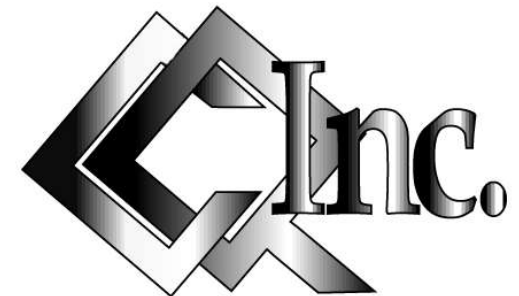
Crude Oil Quality Group

Crude Quality Inc.

Update Presentation to the COQG

January 29th, 2004

New Orleans, LA



Overview

- ◆ CAPP Crude Quality Initiatives 2004
 - ◆ Continuation of crude quality monitoring programs
 - ◆ Have included new heavy streams, synthetics, synbits
 - ◆ Continuation of CrudeMonitor.ca
 - ◆ Attempting to incorporate crude quality variance in the Incentive Toll Agreement with Enbridge
 - ◆ Will put \$\$ value on variance from prescribed quality
 - ◆ Producer, Shipper, Carrier shared cost (gives all parties joint incentive to success)
 - ◆ Due sometime in 3Q2004
 - ◆ May involve end-to-end quality measurements

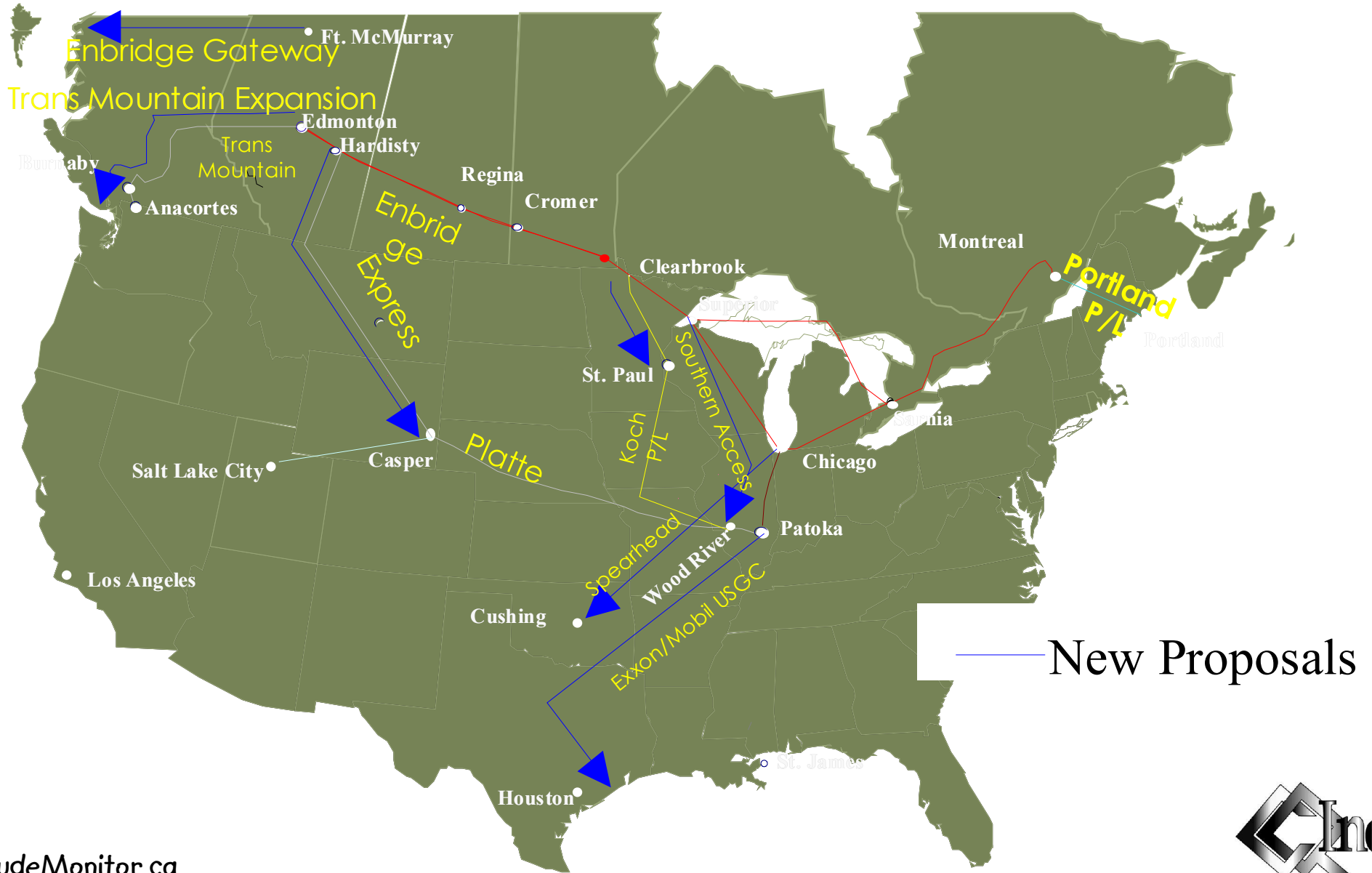


Under Discussion

- ◆ Prediction of growth from ~2MM to ~3MM bpd by 2010
 - ◆ continued growth in the bitumen, synthetic areas
 - ◆ declines predicted in conventional light and heavy production areas
 - ◆ evaluating new markets and delivery possibilities
- ◆ Equalization methodology review study
 - ◆ changing the rules for crude blending
- ◆ Stream consolidation (currently seen from efficiency and utilization perspective, though quality improvement is seen as a component of the deliverable benefits)



Pipeline Alternatives



Consolidation Discussions

Impacts of Reduced Number of Commodities : Summary

Approximate Cost savings available to industry if the number of commodities was reduced Examples are based on maximum reduction from 59 to 10

\$ 65 MM Annual Pipeline Operating Cost reductions*

\$ 21 MM Annual Capital cost reductions*

\$ 60 MM Industry cost reductions

\$146 MM Total Cost Reduction

~ 30¢ /bbl total cost reduction potential

*Splitting between Enbridge / Industry varies depending on regulatory structure

Consolidation

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Consolidation

Impacts of Reduced Number of Commodities: Industry Savings

Results would vary by Shipper but approximated as:

\$ 26 MM **Reduced contamination (~5¢/bbl)**

- Price increase to producers for more consistent quality
- Optimization increase to refiners
- More predictable and lower sulfur pickup

\$ 34 MM **Improve predictability of delivery times**

(I.e 2 days more predictable to Chicago)

- Improved delivery reliability will reduce stranded batches & save distressed prices & administration costs for change orders (~5¢/bbl)
- Less carrying cost & refinery tankage for inventory \$8mil /yr

\$ 60 MM

CrudeMonitor Data Quality

Repeatability Study on HTSD

Repeatability Study

- ◆ Initiated to answer concerns regarding variability in HTSD data
 - ◆ Marathon Ashland first raised the issue and CQI, Maxxam and Marathon have participated in study
 - ◆ Background
 - ◆ CrudeMonitor.ca uses double run modified ASTM D5307 procedure versus single run procedure(s) for HTSD
 - ◆ Marathon found that CrudeMonitor.ca variability was double their own at all % off levels
 - ◆ Maxxam completed ASTM D6299-2 Precision Study



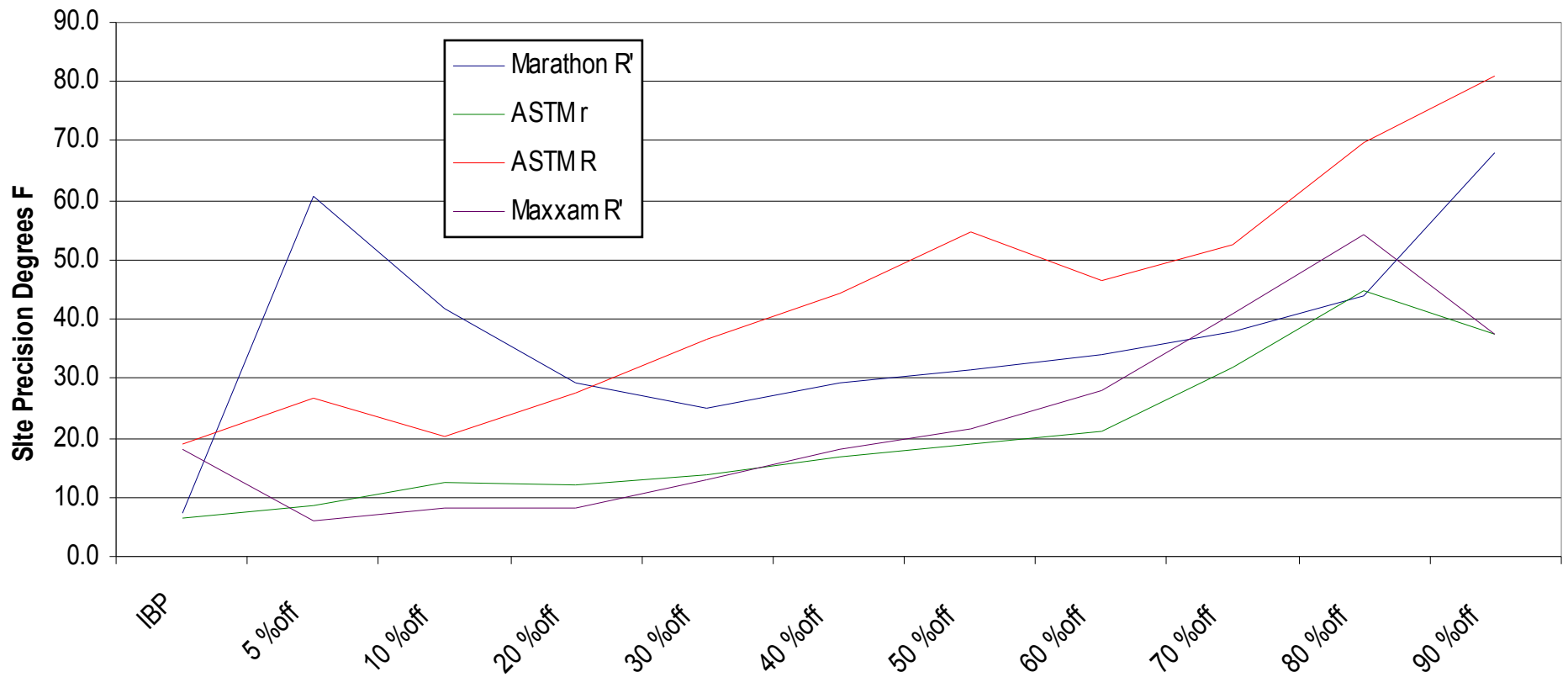
Precision Study

- ◆ Methodology
 - ◆ 2 Fosterton crude oils (0.937g/mL) were mixed and ampulized.
 - ◆ 3 technologists analyzed the samples on 2 instruments over a period of 25 days.
 - ◆ Data compiled and analyzed following ASTM D6299-2 methodology

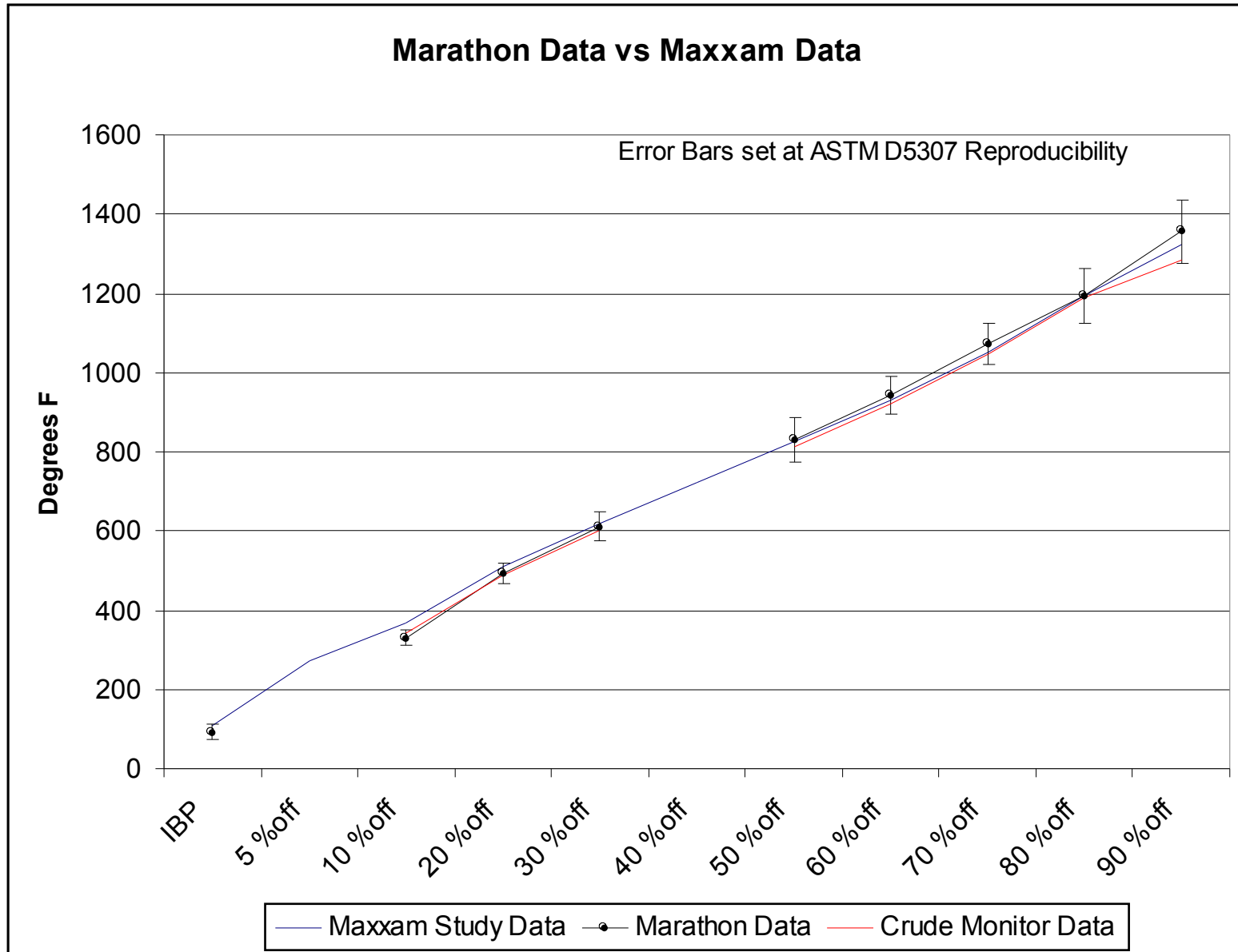


Summary

Precision Study
Marathon R' and Maxxam R' vs ASTM D5307 Precision



Precision Study



Precision Study

- ◆ Conclusions
 - ◆ The confidence (uncertainty) level of Maxxam's data was confirmed.
 - ◆ Maxxam's data is consistently more precise than is predicted by ASTM D5307
- ◆ Next Steps
 - ◆ Investigate single versus double run precision – completion anticipated in 1Q2004
 - ◆ Completing D6299-2 work on light sweet stream



Canadian Summary

- ◆ The quality of WCSB crudes has moved onto the agenda of CAPP's financial decision makers
 - ◆ \$ will make crude quality “real”, trackable, traceable, measured
- ◆ CrudeMonitor.ca will continue through 2004
 - ◆ Synthetics, synbits new to the mix
- ◆ QA,CI programs are in place to ensure confidence

