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

[Map showing various pipeline routes and locations, including Enbridge Gateway, Trans Mountain Expansion, Edmonton, Hardisty, Regina, Cromer, Clearbrook, Patoka, Montreal, Portland P/L, Spearhead, Exxom/Mobil USGC, Southern Access, Wood River, Cushing, Houston, St. James, Salt Lake City, Los Angeles, Ft. McMurray, Casper, Platte, Cromer, Clearbrook, Chicago, St. Paul, Patoka, Portand P/L.]
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

Total Cost Reduction: $146 MM

~ 30¢/bbl total cost reduction potential

*Splitting between Enbridge / Industry varies depending on regulatory structure
Consolidation

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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**
Repeatibility Study on HTSD
Repeatibility 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 amupilized.
  - 3 technologists analyzed the samples on 2 instruments over a period of 25 days.
  - Data compiled and analyzed following ASTM D6299-2 methodology
Precision Study
Marathon R' and Maxxam R' vs ASTM D5307 Precision

Summary
Precision Study

Marathon Data vs Maxxam Data

Error Bars set at ASTM D5307 Reproducibility

Degrees F

5 %off 10 %off 20 %off 30 %off 40 %off 50 %off 60 %off 70 %off 80 %off 90 %off

Maxxam Study Data → Marathon Data → Crude Monitor Data
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
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