Crude Oil Quality Issues from the Refining Side

Crude Oil Quality Association
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San Antonio, Texas
AFPM Represents:

- U.S. petroleum refiners
- U.S. petrochemical producers
- Therefore, it is a:
  - Domestic organization
  - Downstream organization
  - Manufacturing organization
AFPM Represents:

Downstream sector
AFPM Represents:

- 52 US petroleum refiners
- 38 US refiners are AFPM members
- AFPM members operate 98.2% of US capacity
  - Smallest member – 7,500 bpd capacity
  - Largest member – 2,110,000 bpd capacity
Description of quality issues

- Refiners have been experiencing problems with the quality of crude oils delivered from Cushing
- What do refiners mean by “quality”? 
Description of quality issues

• Define “quality”
  – Meets specifications
    ▪ Commercial specifications such as WTI
  – Meets expectations
    ▪ Consistency in non-specified properties
      o Distillation
      o Metals
      o Acid number
      o Resid content
Description of quality issues

• Blended crudes are more prevalent
  – Which conform to sulfur and gravity specs
  – Which may have significant variability in other critical properties
Effects on refineries

• Effects of crude variability
  – Crude oil value - the value of the delivered crude oil depends on non-specified properties
    ▪ Yields
    ▪ Refinery configuration/resid yield
    ▪ Refinery configuration/constraints
Effects on refineries

• Effects of crude variability
  – Operating costs – operating costs depend on crude oil properties
    ▪ Metals
    ▪ Acid
  – Safety/Mechanical Integrity
    ▪ Acid can accelerate corrosion rates
Present Situation

• Pipeline samples indicate that crude is being blended to maximize the inclusion of very light crude
• Report of refinery asphalt being blended with condensate to “create” domestic sweet crude
Goals

• AFPM members support development of a crude oil specification that will include additional properties

• The new/revised specification for “domestic sweet” should be adopted by the CME as the basis for futures contracts
Crude Oil Specification

• Add specifications for other properties
• Use or modify the COQA 2010 recommendation
  ▪ Add distillation specifications
  ▪ Add metals specifications
  ▪ Add TAN specification
  ▪ Add carbon residue specification

• COQA 2010 v.2.0
Crude Oil Specification

• COQA 2010 v.2.0
  – Consider limits for propane and butane
  – Consider a specification to minimize blending of bitumen
  – Consider a specification for asphaltenes
  – Consider a specification that would exclude cracked stocks
Pathway

• AFPM members support a data program
  – Validate or modify COQA 2010
  – Promote transparency for crude deliveries
• AFPM members support CME adoption of the revised specification as the basis for the futures contract
Challenges

- Funding
- Enforcement of crude specifications
- Obtaining buy-in of midstream companies
- Enforcement of midstream companies’ specifications and regulations
AFPM Role

- Collaborate with COQA
- AFPM Manufacturing Committee has “deputized” a Supply Workgroup
AFPM
American Fuel & Petrochemical Manufacturers