Domestic Sweet Quality Monitoring Project

COQA Subcommittee Meeting
Long Beach, CA
October 04, 2017
Agenda

• So What?
  • Review of the COQA 2010 recommended specifications for DSW
  • Review of the 2017 results to date

• What Now?
  • Decision on specifications to be proposed to NYMEX/CME
  • Decision on ratification process

• What’s Next?
  • Timeline for milestones
## COQA 2010 specifications review

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>MicroCarbon Residue (MCR)</td>
<td>2.4% or less by weight</td>
<td>ASTM D4530</td>
</tr>
<tr>
<td>Total Acid Number (TAN)</td>
<td>0.28 mg KOH/g or less</td>
<td>ASTM D664</td>
</tr>
<tr>
<td>Nickel</td>
<td>8 ppm or less</td>
<td>ASTM D5708B</td>
</tr>
<tr>
<td>Vanadium</td>
<td>15 ppm or less</td>
<td>ASTM D5708B</td>
</tr>
<tr>
<td>Light Ends &lt;220°F by HTSD</td>
<td>Not more than 19% by weight</td>
<td>ASTM D7169</td>
</tr>
<tr>
<td>50% point by HTSD</td>
<td>470°F- 570°F</td>
<td>ASTM D7169</td>
</tr>
<tr>
<td>Vacuum Residuum &gt;1020°F by HTSD</td>
<td>Not more than 16% by weight</td>
<td>ASTM D7169</td>
</tr>
</tbody>
</table>
COQA 2010 specifications review

77 events

COQA Spec 2017
(<2.45 wt%)

211 events

COQA Spec 2017
(<2.24 wt%)

Statistical Analysis
MCR example
## COQA 2010 specifications review

<table>
<thead>
<tr>
<th></th>
<th>Statistics (77 events)</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Mean - 2σ</th>
<th>Mean + 2σ</th>
<th>Statistics (211 events)</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Mean - 2σ</th>
<th>Mean + 2σ</th>
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</thead>
<tbody>
<tr>
<td>Gravity</td>
<td>41.5</td>
<td>0.3</td>
<td>40.9</td>
<td>42.1</td>
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<td>Gravity</td>
<td>41.2</td>
<td>0.5</td>
<td>40.3</td>
<td>42.2</td>
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<tr>
<td>Sulfur</td>
<td>0.406</td>
<td>0.015</td>
<td>0.376</td>
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<td>Sulfur</td>
<td>0.399</td>
<td>0.015</td>
<td>0.369</td>
<td>0.429</td>
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<tr>
<td>MCR</td>
<td>1.89</td>
<td>0.28</td>
<td>1.33</td>
<td>2.45</td>
<td></td>
<td>MCR</td>
<td>1.75</td>
<td>0.24</td>
<td>1.27</td>
<td>2.23</td>
</tr>
<tr>
<td>Nickel</td>
<td>5.0</td>
<td>0.6</td>
<td>3.8</td>
<td>6.2</td>
<td></td>
<td>Nickel</td>
<td>4.8</td>
<td>0.8</td>
<td>3.1</td>
<td>6.4</td>
</tr>
<tr>
<td>Vanadium</td>
<td>14.5</td>
<td>2.6</td>
<td>9.4</td>
<td>19.6</td>
<td></td>
<td>Vanadium</td>
<td>13.3</td>
<td>3.1</td>
<td>7.2</td>
<td>19.5</td>
</tr>
<tr>
<td>Light Ends</td>
<td>17.4</td>
<td>1.1</td>
<td>15.2</td>
<td>19.7</td>
<td></td>
<td>Light Ends</td>
<td>17.2</td>
<td>1.2</td>
<td>14.7</td>
<td>19.6</td>
</tr>
<tr>
<td>Residue</td>
<td>13.8</td>
<td>2.5</td>
<td>8.7</td>
<td>18.8</td>
<td></td>
<td>Residue</td>
<td>13.8</td>
<td>2.3</td>
<td>9.3</td>
<td>18.4</td>
</tr>
<tr>
<td>50% Point</td>
<td>513</td>
<td>21</td>
<td>471</td>
<td>555</td>
<td></td>
<td>50% Point</td>
<td>517</td>
<td>20</td>
<td>477</td>
<td>557</td>
</tr>
</tbody>
</table>
## COQA 2017 Results to date

<table>
<thead>
<tr>
<th>Parameter</th>
<th>COQA Specs 2010</th>
<th>DSW Results 2017</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>MicroCarbon Residue (MCR)</td>
<td>2.4% or less by weight</td>
<td>2.23% by weight</td>
<td>-0.17% by Wt.</td>
</tr>
<tr>
<td>Total Acid Number (TAN)</td>
<td>0.28 mg KOH/g or less</td>
<td>Non Detected</td>
<td>-0.28 mg KOH/g</td>
</tr>
<tr>
<td>Nickel</td>
<td>8 ppm or less</td>
<td>6.4 ppm</td>
<td>-1.6 ppm</td>
</tr>
<tr>
<td>Vanadium</td>
<td>15 ppm or less</td>
<td>19.5 ppm</td>
<td>+4.5 ppm</td>
</tr>
<tr>
<td>Light Ends &lt;220°F by HTSD</td>
<td>Not more than 19% by weight</td>
<td>19.6% by weight</td>
<td>+0.6% by Wt.</td>
</tr>
<tr>
<td>50% point by HTSD</td>
<td>470°F - 570°F</td>
<td>477°F - 577°F</td>
<td>+7°F - +7°F</td>
</tr>
<tr>
<td>Vacuum Residuum &gt;1020°F by HTSD</td>
<td>Not more than 16% by weight</td>
<td>18.4% by weight</td>
<td>+2.4% by Wt.</td>
</tr>
</tbody>
</table>
Decision on Recommended Specifications

- Subcommittee conference calls
  - Extensive and detailed review of DSW data (unto itself, to 2017 WTI test results, to 2010 and prior data)
  - Recommended retaining the 2010 specifications
- Subsequent communications indicated a request to retain the TAN specification, even though minimal TAN measured in 2017
- No other parameters were recommended during the subcommittee meeting(s)
- MOTION – move that the 2010 COQA specifications, in their entirety, be the basis of proposed communications with CME/NYMEX
Approvals Process

• In consideration of individual corporate privacy, and the potential need to seek senior management, approval process will be:
  • Motion to be seconded
  • Amendments proposed, passed/defeated in today’s meeting
  • Final motion to be distributed among stakeholders, and as widely as possible
  • Ballot will be aggregate e-mail due by October 18, 2017
  • Lack of reply will be interpreted as support for the motion

• Approvals process is common in midstream operations and industry associations

• Aaron remains key contact point (do we designate alternate?)
What’s Next?

• **October 4, 2017**
  - The Domestic Sweet Subcommittee Meeting – COQA Fall Meeting
    - Review the Domestic Sweet (DSW) proposed specifications
    - Solicit comments from attendees during the subcommittee meeting
    - Provide dates for DSW proposed specs “Open Comment Period (10/4/17 to 10/18/17)”
    - Present pathforward with CME for adoption of the DSW specs recommendations
    - Review and Approve Domestic Sweet Monitoring Program Budget for 2018

• **October 11, 2017**
  - Inform Domestic Sweet Monitoring program funding companies of the revised DSW specification recommendations and ask for their comments by 10/18/17.

• **October 18, 2017**
  - Open Period Closed. All comments reviewed and reported to the DSW Oversight Panel
What’s Next?

**October 25, 2017**
- If consensus is reached
  - Proceed with sending the DSW specs recommendations to CME
- If consensus is not reached
  - Continue to work with the Oversight Panel to resolve any outstanding issues until the proposed specs are confirmed.
  - Reset date for sending DSW specs recommendations to CME

**October 31, 2017 (Assuming DSW proposed specs are confirmed)**
- Send revised COQA Domestic Sweet specification recommendations to CME representative Dan Brusstar

**October 31 thru Mid-December 2017**
- CME discuss new COQA DSW specifications with their customers. If approval is reached with their customers then “adopt” the new DSW specifications.
- Present the new Domestic Sweet specs to the CFTC for inclusion in the Light Sweet Crude Oil Futures contract.
What’s Next?

• **December 2017 to December 2018**
  - 12 months notice period to provide the market time to adjust to the new DSW specifications
  - Continuation of DSW/WTI quality monitoring program
  - Development of violation management system
    - LLS, Basin systems for starting point on discussions

• **December 2018**
  - Projected Implementation date for new Domestic Light Sweet NYMEX Contract
DSW Quality Monitoring Project Funding

2017

• Original objective to find 10 sponsors at $20K each
  • Received 9 commitments at $20K each
  • 2017 sampling program has been reduced to maintenance mode
  • ETA to zero funds = ~ end of October

2018

• Original objective to find 10 sponsors at $13.5K each
  • To maintain a quality records bridge from recommendation to adoption
  • 2018 sampling program will continue on maintenance mode
  • Re-evaluate program mid 2018

• Recommend to begin invoicing past supporters immediately, and solicit new participation