Welcome to the 6th International Meeting of the COQA/CCQTA

Dennis L. Sutton
COQA Executive Director
May 2018
Previous Joint Meetings

- Alternating between Canada and the US every two years-
  - 2008- Calgary
  - 2010- New Orleans
  - 2012- Kananaskis
  - 2014- San Francisco
  - 2016- Edmonton
  - **2018- Denver**
  - 2020- Canada TBD
The Crude Oil Quality Association (COQA)
Outline

- Mission and Purpose
- Background
- Subcommittees
- Organizational Structure
- Sponsors and Supporters
- Future
COQA’s Mission

- Ensure quality and consistency of crude oil are maintained from production to refinery
- Expand definition of quality beyond API gravity and sulfur
- Oppose indiscriminate alteration in quality, e.g. blending
- Promote communication between all sectors of industry
We ....

- Promote better understanding of crude oil quality issues throughout the petroleum industry through
  - Open meetings – three times annually
  - Encouraging exchange of technical information on issues and experience impacting transportation, handling, storage, and refining of crude oil
  - Cooperation with other industry groups, e.g. American Fuel & Petrochemical Manufacturers (AFPM), the Canadian Crude Quality Technical Association (CCQTA) and American Petroleum Institute (API)
  - And, communicating information on our Website www.coqa-inc.org
Our web site

- The web site is maintained by our Executive Assistant - Crude Quality Inc.

- The web site contains meeting archives that are a wealth of reference information.

- The front page highlights upcoming events, news and current events; so check it out!
Welcome to the Crude Oil Quality Association!

The Crude Oil Quality Association (COQA) is dedicated to the belief that maintaining the integrity and consistency of the refining characteristics of crude oil streams is of importance to all parties involved in crude oil activity, from production locations to the refinery.

To this end, we hold three meetings annually. These meetings are open to the public and we welcome your attendance and involvement.

Upcoming Events

**COQA Houston/Sugar Land, October 24-25th, 2018**

Dates: 24 – 25 Oct, 2018

COQA is once again holding its Houston fall conference in conjunction with the **Opportunity Crudes Conference** for a full week of interesting meetings, presentations, and networking. Save the date and plan to join us!

Our venue will be the **Marriott Sugar Land Town Square** (16090 City Walk, Sugar Land, TX 77479). Links for registration, accommodations, and other information are forthcoming.
Meetings Policy

- Open forum for discussion of technical issues related to production, handling, transportation, and refining
- No restrictions on attendance or participation
- Consideration given to views of all
- Adhere to a strict anti-trust policy, and not discuss:
  - Price, pricing policy, cost, or discounts
  - Sales & production quotas, territories, allocations, shares
  - Endorsement or disparagement of products or services
  - Liabilities, warranties, guarantees, conditions of sale
  - Coercive practices or control of competition
Background

- 1994: Small group of refiners and pipeline operators met in Midland, TX and formed the Refiner’s Crude Oil Quality Group (RCOQ).
- 1996: RCOQ renamed Crude Oil Quality Group (COQG) to recognize broader interests of members.
- 2009/10: Renamed Crude Oil Quality Association (COQA) and tax exempt status as a 501 (c) (6) corporation.
Many of the issues discussed 15+ years ago are still relevant today

- In 1998, Jim Healey and Kevin Waguespack published an article in Hydrocarbon Processing magazine on “Managing Crude Oil Quality for Refining and Profitability”.
- High TAN crudes and their impact in the refinery.
- In 1999, the archives note discussion on True Vapor Pressure testing technology.
Background

- Some other projects in the early 2000s
  - Methanol in crude - relevant to Gulf of Mexico operations where methanol is used as a hydrate inhibitor
  - Water Measurement in Crude - BS&W vs. Karl Fischer
  - A comprehensive survey of additives in crude oil led by Dr. Larry Kremer of Baker Petrolite
Background- LLS specs

- One of the most significant accomplishments of the COQG, together with the work of Shell Pipeline, was the implementation of comprehensive specifications for Light Louisiana Sweet (LLS) crude oil moving on Capline pipeline from St. James, LA.

- These are still in place today and now managed by Marathon Pipeline, Capline operator.
# LLS specs

<table>
<thead>
<tr>
<th>Property</th>
<th>Significance</th>
<th>Spec</th>
</tr>
</thead>
<tbody>
<tr>
<td>API Gravity</td>
<td>A general indication of the quality</td>
<td>34-41</td>
</tr>
<tr>
<td>Sulfur, wt %</td>
<td>Will affect processing</td>
<td>0.40 max</td>
</tr>
<tr>
<td>Vanadium + Nickel, ppm</td>
<td>Will affect catalyst poisoning</td>
<td>8.0 max</td>
</tr>
<tr>
<td>Microcarbon Residue, wt%</td>
<td>A measure of the vacuum resid content</td>
<td>2.0 max</td>
</tr>
<tr>
<td>Light Ends (C2- C5s), vol %</td>
<td>Included to ensure condensate was not added</td>
<td>6.0 max</td>
</tr>
<tr>
<td>Total Acid Number*</td>
<td>A measure of crude corrosivity; very important to refiners with metallurgy constraints</td>
<td>0.70 max</td>
</tr>
<tr>
<td>High Temperature Simulated Distillation (HTSD)</td>
<td>HTSD is a fast, accurate gas chromatographic method for measuring the boiling range distribution. These parameters ensure predictable yields and value for the refiners.</td>
<td>280-380</td>
</tr>
<tr>
<td>20% distilled, °F</td>
<td></td>
<td>510-610</td>
</tr>
<tr>
<td>50% distilled, °F</td>
<td></td>
<td>4.0-12.5</td>
</tr>
<tr>
<td>1020°F+, wt %</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* - added later at initiative of shippers
Background- WTI specs initiative

- In 2005, the COQA began diligently pursuing the establishment of specifications for WTI at Cushing, OK
- Discussions among interested parties, testing of batches at Cushing, and statistical evaluation headed by Clifford Mills, culminated in a 2010 letter from COQA recommending specs similar to LLS.
Background- WTI specs initiative

- Because these specs involve multiple operators, and have commercial implications to the NYMEX Light Sweet crude contracts, they have been thoroughly reviewed.
- This initiative brought significant media attention to COQA and our activities.
- In December 2017, both CME/NYMEX and Enterprise announced their adoption of these specs!
More Recently

- In addition to the CCQTA, COQA has partnered with Hydrocarbon Publishing and the Opportunity Crudes Conferences, and with Argus and their Argus Americas Crude Summits.

- When possible, COQA meetings have been scheduled to facilitate collaboration with the ASTM Crude Oil: Sampling, Testing, and Evaluation course, allowing attendees to attend both the course and COQA meetings.
More Recently

- In 2013, COQA recognized quality challenges associated with Crude-by-Rail and established a Subcommittee to focus on this.

- Crude-by-Rail brought crude oil quality (and particularly light ends characterization) to the mainstream media. COQA members have been involved with many related initiatives, e.g. API Task Force.
Currently

- A new Additives Subcommittee is beginning under the leadership of Bill Schmidt, ConocoPhillips.
Corporate Governance

- Executive Board
  - Executive Director
  - Treasurer
  - Secretary
  - Seven to eleven members at large, including one CCQTA position
  - Current board includes various industry sectors - midstream, refining, trading, consulting, support

- And, an Advisory Board
  - Comprised of representatives of each corporate member
Directors

- Jim Healey, Mapco, 1994-1996
- Dennis Sutton, retired from Marathon Petroleum, 2014 - current
Financial Support

- As a not for profit organization, we rely on the support of our corporate members.
- Our support is through
  - Annual memberships
  - Event sponsors at our meetings
  - Individual Meeting Attendance fees
Membership

- Two classes of corporate / organizational membership
  - Sponsor
  - Supporter

- Collectively, members encompass a broad cross-section of petroleum industry
  - Up- mid- and downstream, oilfield services, independent inspectors, among others
Our 2018 Corporate Sponsors

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LOOP
Marathon Petroleum
Marathon Pipeline
Motiva
PBF Energy
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SGS
Shell Pipeline
Suncor Energy
Valero
Welcome to Our New Corporate Sponsor - Camin Cargo
Welcome to Our New Corporate Sponsor - Motiva
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Hydrocarbon Publishing
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L-K Industries
Maxxam Analytics

Merichem
North Dakota Pet. Council
Nalco Champion
PAC
Plains Marketing
Saybolt Core Labs
Schneider Electric
Suez
US Dept. of Energy
Welcome to Our New Corporate Supporters- Saybolt Core Labs & Suez (formerly GE)
We Thank Nova Analytics Inc., Our Sponsor of This Evening’s Reception!
We Thank Maxxam, a Gold Level Sponsor, at this Joint COQA/CCQTA Meeting!
We Thank AGAT Laboratories, a Gold Level Sponsor, at this Joint COQA/CCQTA Meeting!
We Thank Our Bronze Level Event Sponsors!
Our Next Meeting- Fall 2018

- October 24 & 25- Sugar Land Marriott Town Square- suburban Houston
  - Coordinating with the Opportunity Crudes Conference October 22-24
Our Next Meeting

- **October 24 & 25, 2018 - Sugar Land, TX**
  - Monday to Wednesday - Opportunity Crudes Conference
  - Wednesday - Subcommittee and Board meetings
  - Thursday - General sessions
- **COQA Agenda will include presentations from:**
  - Stephanie Sheldon, Enterprise
  - Chris Carolan, ASI Standards
  - Baytek International
  - Qin Xin, CanmetEnergy
  - And more to come…
Opportunity Crudes Conference - 2018

- Five Topical Sessions- including “Crude contaminants, incompatibility, blending strategies amid changing feedstocks”

- Presentation confirmations from:
  - Axens N.A.
  - Baker Hughes GE
  - BASF
  - Bechtel
  - CB&I
  - CSIS
  - Dorf Ketal
  - Energy Analysts Int'l.
  - Emerson Automation Solutions
  - GRENAZYZE
  - HTRI
  - Modcon Systems
  - Morningstar
  - Nalco Champion
  - Petrobras
  - PetroStor Tech
  - ProCorr Consulting
  - Schneider Electric
  - Sensor Networks
  - Suez
  - Well Resources
  - Upgrading Solutions
Our 2019 Meetings

- March 13 & 14, 2019- Hilton Riverside in New Orleans, LA

- Mid 2019- Oklahoma. Dates and venue TBD.
  - Working on a Cushing tour in conjunction with the meetings.
What’s Trending?

- US crude production up 78% in the last 6 years. Crude oil production over 10 million barrels per day. Natural gas and NGLs already well above their respective record production levels. And for all three commodities, the U.S. market has only one way to balance: **Exports**. One-third of all NGL production is getting exported, 15% of crude production now regularly moves overseas.
U.S. crude output to hit 12 million bpd in late 2019 - EIA

NEW YORK (Reuters) - U.S. crude oil production is expected to rise more than previously expected to 12 million barrels per day by the fourth quarter of 2019, the U.S. Energy Information Administration said on Tuesday in a monthly report.
US East Coast refiners race to secure cheap Permian oil

US crude shipments from the US Gulf Coast to the East Coast averaged 2.8 million barrels per month in the December-to-February period -- the highest level in three years -- as East Coast refiners rushed to take advantage of the steep discounts of Permian Basin crude relative to benchmark US prices. Refiners including Monroe Energy and Phillips 66 have been delivering crude to their East Coast facilities by sea, but they’re now considering ramping up rail shipments as insufficient pipeline capacity in West Texas leaves little room to boost volume by sea.

Reuters (5/10)
What’s Trending?

ENERGY

Marathon creates the top US refiner with $23 billion Andeavor deal

- Marathon Petroleum said it would buy rival Andeavor for more than $23 billion.
- The combined company that would leapfrog Valero Energy as the largest U.S. refiner by capacity.
What’s Trending?

- WTI Quality
  - COQA project
  - Announcements by CME/NYMEX and Enterprise in December 2017

- DOE/DOT Crude Oil Characterization Research Study Report released in November 2017
So, as the crude picture changes, there are still many crude quality issues and challenges.

- US Crude Exports
- Light Tight Oil Quality
- Light Ends Measurement and Specifications
- Processing Changing Crude Slates
- WTI Quality
Announcements

- Spouses and Guests can meet at 9:00 am in the lobby to discuss sightseeing ideas. My wife, Sanny, will provide suggestions.

- Reception this afternoon 5:30- 7:30 in the Mt. Elbert Room.
Announcements

- A Special Welcome to our first time attendees!

- For lunch (both today and tomorrow), you are free to choose from the many nearby choices.

- Other?
Comments, Questions?