COQA Light Sweet Crude
Subcommittee Meeting - 07/30/20
Zoom Meeting

Website address: crudemonitor.us
Next meeting: Part of the COQA Fall Meeting via zoom on October 21, 2020

Light Sweet Crude subcommittee discussion and planning by the Oversight Committee.

Highlights:

- Member Attendees
    - Approximately 15 persons in attendance

- Welcome
    - Aaron welcomed all to the meeting. He noted that he sent the agenda and meeting minutes from the May 28 meeting, and sent a copy of the specs for CME for reference in preparation for this meeting
    - The intention of this meeting is to be a discussion since the project is getting started
        - The objective is to develop ideas on how to proceed and move forward

- Opening Remarks
    - Dennis S noted that he recognized most everyone by way of the Zoom background
    - There has been 15 years involvement as an organization in coming up with good WTI specifications. The world has changed a lot, but the group has been successful in getting the specifications through. CME adopted them in 2019
    - Dennis S commented that the group has been renamed by Aaron and other committee members
    - Discussion was turned over to Aaron

- General Discussion
    - Aaron proposed the topic of updating test methods and noted there are 7 test methods that could be considered. Time spent during the initial meeting on specifications and how specifications could be potentially updated did not really get into how to go about it. Question is how we could go about reviewing the current specifications that are posted
    - Jeff ask how many years the specifications have been in place
    - Aaron indicated the specification have been in place since January 2019
    - The discussion continued to an agreement that it would be better if the discussion was more around test methods than focusing on actual specifications, for clarification
    - Jeff asked what drives the committee to want to change the test methodology

- Aaron suggested that it is about having the most current methods
- Jeff asked; should we just add them as opposed to getting rid of the present test methods, and Aaron responded that there is a need to discuss further
- An example was given around D5708 and discussion if D5708 was the best or not. Satbir indicated there is a simpler new method for metals in crude and having new methods available has been something that drove this discussion
- Jeff asked if that newer method is faster also? Doss and Satbir responded that it is faster; 5 minutes as opposed to hours.
- Anna asked for clarification on which methods we were comparing, and Satbir clarified that they were D8252 and D5708
- Aaron posed the question of how the committee would go about reviewing tests or comparing
- Jeff stated that work has already been done by ASTM
- Frank suggested that just because it is an ASTM test does not mean that it does not have any bias associated with it
- Satbir said that ASTM PTP is a place that is doing the comparison. Frank wondered about how long it would take for the results to be available
- Doss suggested that in updating methods for specifications, if the same methods were kept, it would be possible to make note of which is the current method, and which is a 2020 method to specify latest year or version
- Dennis S asked what CME NYMEX would say if the committee came up with a better method. One question that would be asked is if there was a bias. A response could be to add information in an appendix, such as microcarbon residue and how it compares to Conradson carbon to demonstrate that there is no bias in the data
- Nanette suggested limited comparison studies have been done with ICP and XOS, and they do see that the XOS has some bias high compared to the ICP. So, if there is a requirement to have a faster method like the XOS, then it would be good to do a study to compare the bias
- Frank asked if it was ICP method A or method B. Nanette said she would have to confirm that. Satbir said that it was his understanding that it was method B
- Nanette stated that the reason she brought it up was that it does make it difficult to the operator to enforce limits if they have two methods
- Satbir suggested that this will apply to any two methods. For ASTM, precision tests do not compare one test to another, they look at precision within one method. The precision may overlap, but it is likely there may always be a difference between two different tests
- Nanette clarified that she is not against the XOS method; stating that it is a much simpler method for the user, but it would be problematic to have crude that meets the specification and then have the same crude exceed specification due to a change in method
- Satbir agreed and commented that as new methods are developed, this will be an ongoing discussion. The XOS method will always have a difference since the ICP test requires digestion which may lose components. Due to this, XRF may always be a bit higher
- Bill commented that along with an obvious need for a documented understanding of any bias that may be in place, the committee needs to address the concern expressed

by Nanette. He commented that from the discussions in San Antonio he got the feeling that some level of standardization would be helpful; so, one of the efforts could be to support recognition in the industry for D6377 instead of RVP. Bill requested comment from others.

- Aaron asked if we need to make a table that lists current methods and then list the alternatives to those methods?
- Bill responded that since our last meeting he had taken the liberty to dive into FERC into the regulations one of the more recognizable systems on quality specification and test methods, and there is quite a variance between descriptions of methods if they are included at all. A good starting point would be to put together a table that talks about what the main tests are and alternatives so that we can get an understanding.
- Aaron asked how we would get started on that and suggested we could take a start at the initial table and we could have the advisory panel fill in the alternatives.
- Brant said one thought he had during this discussion is that we are talking about the CME NYMEX at Cushing. Could we bucket it into couple of buckets, such as one being Cushing and tweaks to methods, and another to capture activities around the Gulf Coast and some specs from Argus and Platts and CME HCL specifications and other contracts. Break out Cushing and the Gulf Coast compiling the specifications that are floating around out there. Define what are the parameters to use and what is the data. Working around the Gulf Coast to make a robust specification and it is going to be different from Cushing. We can use the persons in this group to look into that and influence as an organization.
- Aaron asked for volunteers to review the different organizations.
- Brant stated that specifications are public information but not necessarily the methods. We could put together a table that lists the specifications and then ask the organizations what the methods are. He indicated he would be happy to put together a table of what is known, and others can add to that. This can be provided to the group.
- Dennis S indicated that we have Laura Huchzermeyer from Platts for our upcoming meeting, and she may be a good contact for this discussion.
- Aaron opened that he had some discussion and emails with Terry Thompson and asked him to share.
- Terry commented that it stems from the discussion on what is the correct method for vapor pressure in crudes. AP-42 is the bible for using scans or methods for vapor in crude. Some places can only estimate pounds per month with accurate vapor pressure. AP-42 says true vapor pressure can be D5191 alternative to RVP for other than crude oils. Calculations from RVP skews high. And we talked about other methods.
- Aaron suggested that as we go through some of these items that we can review gravity, vapor pressure, and others from the list.
- Terry noted that it is pretty obvious what the rational is behind metals, viscosity, etc. evaluating question of quality of crude oil. But stated he cannot see where vapor pressure is used as quality of crude oil. He commented he does not know that setting a limit is of any value.

- Doss suggested that it does make a difference from shale plays into the SPR. Stated that the SPR cannot accept higher vapor pressure crude due to diffusion, so the older graph is the way to go so that emissions do not get incorrectly over reported.

- Aaron asked about the status of sending communication (email) to CME
  - Dennis S responded that he did not send anything to Dan. He said he would put something together and provide to Aaron for review prior to passing it along. He clarified that he thinks that we as a group are saying we are not looking to change the values for the specification but just the methods to obtain those values and asked if this is correct.
  - Aaron responded that this is correct. There is something tactful that we can do to help the industry, such as, formation of webpage to review methods. Bill is working on that.
  - Bill noted that as far as the FERC and CER regulations, he has taken a dive into that pile and started to put together a database spreadsheet. He has touched on that. With regards to a website, he would like to defer to a situation to where Brant has something started so that there is some context to which a website can be built around.
  - Aaron responded that we could divert to the next meeting and consider how to do that. There are several members from pipelines. He asked if we should reach out to them for information about their rules and regulations, especially on the Gulf Coast.
  - Bill suggested that perhaps Nanette and Tyler that can pull them up and asked if it would be an easy thing to do or not.
  - Nanette responded that it was.
  - Aaron requested that the information be sent to him.
  - Bill suggested to get John Harkins to put his in as well.
  - Dennis S added that Anna with Marathon Pipeline may be able to provide information as well.
  - Bill indicated that when received the results could compile that information into a master sheet. He also added that Dan Brusstar did mention that advising on test methods would be an easy thing to do. Dan stated that it is hard to change limit but changing methods should not be a challenge. Bill said he wanted to put that there for information.

- The floor was opened for any other discussions or suggestions
  - Jeff asked about specifications on crudes
  - Dennis S responded that obviously the events of April 20 when prices went berserk caused some to start saying this is not the way to price crude and that something around Gulf Coast was needed; Platts and Argus have had press releases on specifications. I circulated feedback. Other organizations are setting specifications where they need to do so, but it is not their area of expertise for methods and such. Rusty Braziel also referenced those.

- Closing Remarks
    - Aaron asked all to reach out if they think of something else. 'We want to make this sub-committee successful and valuable. We have had good discussion today and have a good idea how to move forward.
    - We will pull info together and will then see when we can meet again.'
    - Aaron noted that the timing of the following meeting is still being evaluated. We will probably have another discussion prior to the fall meeting. Would definitely get together prior to October so would be good to talk again in about 60 days
    - Thank you for joining and participating.
    - Dennis H will be getting the minutes together.
    - Aaron thanked all for attending.
    - The meeting was adjourned.

Appendices to the Minutes (attached)

- CME-WTI Spec Amendments.docx

- Attendees
    - Aaron Dillard (Phillips 66)
    - Anna Morris (Marathon Pipeline)
    - Bill Lywood (Crude Quality Inc.)
    - Brant Easterling (Magellan Midstream)
    - Dennis Haynes (Nalco Water)
    - Dennis Sutton (COQA)
    - Frank Hagardorn (XOM)
    - Jani Riddhi (Enterprise Products)
    - Jeff Thompson (CVR)
    - John Harkins (Energy Transfer)
    - Kesavalu Bagawandoss (Environmental Standards)
    - Nanette Yearly (Enbridge)
    - Satbir Nayar (XOS)
    - Terry Thompson (FFPO)
    - Tyler Caughman (Magellan)

CME Group

Special Executive Report

DATE: **December 14, 2017**

SER#: **8050**

SUBJECT: **Amendments to the Light Sweet Crude Oil Futures Contract Specifications Commencing with the January 2019 Contract Month and Beyond**

Effective Tuesday, January 2, 2018, New York Mercantile Exchange, Inc. ("NYMEX" or "Exchange") will amend Rule 200101. ("Contract Specifications") of the Light Sweet Crude Oil Futures contract (the "Contract") (Rulebook Chapter: 200, Commodity Code: CL) commencing with the January 2019 contract month and beyond.

Specifically, the Exchange is amending the quality specifications of the Contract to include five additional quality test parameters to provide further assurance that the quality and integrity of the domestic sweet crude oil stream is maintained. The five additional quality parameters include tests for distillation, vanadium, nickel, total acid number ("TAN"), and micro carbon residue. The specific test parameters and their corresponding test methodologies are detailed below. In addition, the Exchange is deleting the reference to specific domestic crude oil grades in conformity with standard industry practice, which does not reference specific crude oil grades in the domestic sweet common stream.

Appendix A below provides Rule 200101. in blackline format effective on January 2, 2018. Appendix B further below provides Rule 200101. (deleting references to contract months prior to January 2019) in blackline format effective on November 20, 2018.

Please refer questions on this subject to:

Energy Research

Daniel Brusstar	Daniel.Brusstar@cmegroup.com	212.299.2604
Russell Karas	Russell.Karas@cmegroup.com	212.299.2345

Appendix A
NYMEX Rulebook

(**bold/underline** indicates addition; ~~strikethrough~~ indicates deletion)

(Effective January 2, 2018)

Chapter 200
Light Sweet Crude Oil Futures

200101. CONTRACT SPECIFICATIONS

(ALL CONTRACT MONTHS PRIOR TO JANUARY 2019)

The contract grade for delivery on futures contracts shall be "crude oil" which shall mean a mixture of hydrocarbons that exists in a liquid phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities. Crude oil as used herein refers to the direct liquid hydrocarbon production from oil wells, or a blend of such, in its natural form, not having been enhanced or altered in any manner or by any process that would result in misrepresentation of its true value for adaptability to refining as whole crude petroleum. For the purpose of this contract, condensates are excluded from the definition of crude petroleum.

Light sweet crude oil meeting all of the following specifications and designations shall be deliverable in satisfaction of futures contract delivery obligations under this rule:

200101.A. Domestic Crudes (Deliverable at Par)
1. Deliverable Crude Streams

West Texas Intermediate
Low Sweet Mix (Scurry Snyder)
New Mexican Sweet
North Texas Sweet
Oklahoma Sweet
South Texas Sweet

Blends of these crude streams are only deliverable if such blends constitute a pipeline's designated "common stream" shipment which meets the grade and quality specifications for domestic crude. ~~Enterprise Products Company's~~ **Enterprise Products Partners L.P.** (including any successor in such capacity, "Enterprise") and Enbridge Pipeline (Ozark) LLC's (including any successor in such capacity, "Enbridge") Common Domestic Sweet Streams that meet quality specifications in Sections 101.A.2.-7. of this rule are deliverable as Domestic Crude.

2. Sulfur: 0.42% or less by weight as determined by ASTM Standard D-4294, or its latest revision;

3. Gravity: Not less than 37 degrees American Petroleum Institute ("API"), nor more than 42 degrees API as determined by ASTM Standard D-287, or its latest revision;

4. Viscosity: Maximum 60 Saybolt Universal Seconds at 100 degrees Fahrenheit as measured by ASTM Standard D-445 and as calculated for Saybolt Seconds by ASTM
Standard D-2161;

5. Reid vapor pressure: Less than 9.5 pounds per square inch at 100 degrees Fahrenheit, as determined by ASTM Standard D-5191-96, or its latest revision;

6. Basic Sediment, water and other impurities: Less than 1% as determined by ASTM D-96-88 or D-4007, or their latest revisions;

7. Pour Point: Not to exceed 50 degrees Fahrenheit as determined by ASTM Standard D-97.

200101.B. Foreign Crudes

1. Deliverable Crude Streams

U.K.: Brent Blend (for which the seller shall be paid a 30 cent per barrel discount below the last settlement price)

Nigeria: Bonny Light (for which the seller shall be paid a 15 cent per barrel premium above the last settlement price)

Nigeria: Qua Iboe (for which the seller shall be paid a 15 cent per barrel premium above the last settlement price)

Norway: Oseberg Blend (for which the seller shall be paid a 55 cent per barrel discount below the last settlement price)

Colombia: Cusiana (for which the seller shall be paid a 15 cent per barrel premium above the last settlement price)

2. Each foreign crude stream must meet the following requirements for gravity and sulfur, as determined by ASTM Standards referenced in Sections 101.A.2.-3. of this rule:

Foreign Crude Stream	Minimum Gravity	Maximum Sulfur
Brent Blend	36.4 API	0.46%
Bonny Light	33.8 API	0.30%
Qua Iboe	34.5 API	0.30%
Oseberg Blend	35.4 API	0.30%
Cusiana	34.9 API	0.40%

3. In the event that a Federal U.S. Superfund tax and/or Oil Spill tax is in effect at the time of delivery for foreign crude oil, the buyer shall reimburse the seller for all such taxes that have been or will be paid by the seller.

No blends of foreign crude oil streams or foreign and domestic crude oil streams shall be Deliverable.

200101. CONTRACT SPECIFICATIONS

(ALL CONTRACT MONTHS COMMENCING WITH JANUARY 2019 AND BEYOND)

The contract grade for delivery on futures contracts shall be "crude oil" which shall mean a mixture of hydrocarbons that exists in a liquid phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities. Crude oil as used herein refers to the direct liquid hydrocarbon production from oil wells, or a blend of such, in its natural form, not having been enhanced or altered in any manner or by any process that would result in misrepresentation of its true value for adaptability to refining as whole crude petroleum. For the purpose of this contract, condensates are excluded from the definition of crude petroleum.

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~~Low Sweet Mix (Scurry Snyder)~~
~~New Mexican Sweet~~
~~North Texas Sweet~~
~~Oklahoma Sweet~~
~~South Texas Sweet~~

Blends of ~~these~~ **West Texas Intermediate ("WTI") type light sweet** crude streams are only deliverable if such blends constitute a pipeline's designated "common stream" shipment which meets the grade and quality specifications for domestic crude. ~~Enterprise Products Company's~~ **Enterprise Products Partners L.P.** (including any successor in such capacity, "Enterprise") and Enbridge Pipeline (Ozark) LLC's (including any successor in such capacity, "Enbridge") Common Domestic Sweet **("DSW")** Streams that meet quality specifications in Sections 101.A.2.- 12 ~~7~~. of this rule are deliverable as Domestic Crude.

2. Sulfur: 0.42% or less by weight as determined by ASTM Standard D-4294, or its latest revision;

3. Gravity: Not less than 37 degrees American Petroleum Institute ("API"), nor more than 42 degrees API as determined by ASTM Standard D-287, or its latest revision;

4. Viscosity: Maximum 60 Saybolt Universal Seconds at 100 degrees Fahrenheit as measured by ASTM Standard D-445 and as calculated for Saybolt Seconds by ASTM Standard D-2161;

5. Reid vapor pressure: Less than 9.5 pounds per square inch at 100 degrees Fahrenheit, as determined by ASTM Standard D-5191-96, or its latest revision;

6. Basic Sediment, water and other impurities: Less than 1% as determined by ASTM D-96-88 or D-4007, or their latest revisions;

7. Pour Point: Not to exceed 50 degrees Fahrenheit as determined by ASTM Standard D-97;

8. Micro Method Carbon Residue: 2.40% or less by mass; as determined by ASTM Standard D4530-15, or its latest revision;

9. Total Acid Number (TAN): 0.28 mg KOH/g or less as determined by the first inflection point; using ASTM Standard D664-11a (2017), or its latest revision;

10. Nickel: 8 parts per million (ppm) or less by mass; as determined by ASTM Standard D5708-15, Test Method B, or its latest revision;

11. Vanadium: 15 ppm or less by mass; as determined by ASTM Standard D5708-15, Test Method B, or its latest revision;

12. High-Temperature Simulated Distillation (HTSD) as determined by ASTM Standard D7169-16, or its latest revision, as follows:

(a) Light Ends <220°F by HTSD: Not more than 19% by mass;

(b) 50% Point by HTSD: 470°F- 570°F;

(c) Vacuum Residuum >1020°F by HTSD: Not more than 16% by mass.

200101.B. Foreign Crudes

1. Deliverable Crude Streams

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Nigeria: Qua Iboe (for which the seller shall be paid a 15 cent per barrel premium above the last settlement price)

Norway: Oseberg Blend (for which the seller shall be paid a 55 cent per barrel discount below the last settlement price)

Colombia: Cusiana (for which the seller shall be paid a 15 cent per barrel premium above the last settlement price)

2. Each foreign crude stream must meet the following requirements for gravity and sulfur, as determined by ASTM Standards referenced in Sections 101.A.2.-3. of this rule:

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3. In the event that a Federal U.S. Superfund tax and/or Oil Spill tax is in effect at the time of delivery for foreign crude oil, the buyer shall reimburse the seller for all such taxes that have been or will be paid by the seller.

No blends of foreign crude oil streams or foreign and domestic crude oil streams shall be Deliverable.

Appendix B
NYMEX Rulebook

(~~strikethrough~~ indicates deletion)

(Effective November 20, 2018)

Chapter 200
Light Sweet Crude Oil Futures

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~~Oklahoma Sweet~~
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Blends of these crude streams are only deliverable if such blends constitute a pipeline's designated "common stream" shipment which meets the grade and quality specifications for domestic crude. Enterprise Products Company's (including any successor in such capacity, "Enterprise") and Enbridge Pipeline (Ozark) LLC's (including any successor in such capacity, "Enbridge") Common Domestic Sweet Streams that meet quality specifications in Sections 101.A.2. 7. of this rule are deliverable as Domestic Crude.

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5. Reid vapor pressure: Less than 9.5 pounds per square inch at 100 degrees Fahrenheit, as determined by ASTM Standard D-5191-96, or its latest revision;

6. Basic Sediment, water and other impurities: Less than 1% as determined by ASTM D-96-88 or D-4007, or their latest revisions;

7. Pour Point: Not to exceed 50 degrees Fahrenheit as determined by ASTM Standard D-97.

200101.B. Foreign Crudes

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Norway: Oseberg Blend (for which the seller shall be paid a 55 cent per barrel discount below the last settlement price)

Colombia: Cusiana (for which the seller shall be paid 15 cent per barrel premium above the last settlement price)

2. Each foreign crude stream must meet the following requirements for gravity and sulfur, as determined by ASTM Standards referenced in Sections 101.A.2. 3. of this rule:

Foreign Crude Stream	**Minimum Gravity**	**Maximum Sulfur**
Brent Blend	36.4 API	0.46%
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3. In the event that a Federal U.S. Superfund tax and/or Oil Spill tax is in effect at the time of delivery for foreign crude oil, the buyer shall reimburse the seller for all such taxes that have been or will be paid by the seller.

No blends of foreign crude oil streams or foreign and domestic crude oil streams shall be Deliverable.

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1. Deliverable Crude Streams

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