

DOMESTIC SWEET / WTI SPECIFICATIONS

For COQA- June 2010

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Domestic Sweet / WTI Specifications



- Review
- Current Status
- Future Plans

Pre-2009



- For over 15 years, the concept of more comprehensive specifications on WTI/Domestic Sweet has been discussed.
- In 2005, COQG began working on developing specifications for WTI/Domestic Sweet at Cushing, OK.
- Early data indicated the need for better definition of sampling and analytical procedures.

2009



- Beginning in 2009, conference calls (open to all interested parties) have been used to complement the COQA meetings to progress in a more timely manner.
- Commercial labs were surveyed to determine their capabilities and interest in conducting analyses.
- Using tightly defined sampling and lab procedures, a comprehensive testing program was agreed upon in order to develop specifications.

Domestic Sweet - Lab Testing

- We agreed on the following slate of analytical testing for WTI/Domestic Sweet:
 1. API Gravity by ASTM D287
 2. Total sulfur by ASTM D4294
 - Centrifuge to eliminate free water
 3. Total Acid Number (TAN) by ASTM D664 using the first inflection point
 4. Nickel by ASTM D5708B
 5. Vanadium by ASTM D5708B
 6. MCRT by D4530
 7. High Temperature GC Simulated Distillation (HTSD) by ASTM D7169. After much discussion on the best points to use, we agreed on the % at 220°F, the 50% point, and % > 1020F.

2009



- By late 2009, Clifford Mills had received data for 61 WTI/Domestic Sweet samples (all taken at Cushing), sampled over a several month time frame, supplied by four different sources and analyzed by three different commercial laboratories.
- Overall, the data was good but there were some questions, particularly regarding the HTSD data. Subsequently, some samples were rerun for HTSD.

2010



- Consultant Clifford Mills gave a detailed presentation of the Domestic Sweet data at the February 2010 COQA meeting in New Orleans.
- Following more conference calls to agree on proposed specifications, a written ballot was sent on April 1 to all parties involved.

The Ballot

- The ballot presented the following proposed specifications:

<u>Parameter</u>	<u>Specification</u>	<u>Test Method</u>
MicroCarbon Residue (MCR)	2.4% or less by weight	ASTM D4530
Total Acid Number (TAN)	0.28 mg KOH/g or less	ASTM D664
Nickel	8 ppm or less	ASTM D5708B
Vanadium	15 ppm or less	ASTM D5708B
Light Ends <220°F by HTSD	Not more than 19% by weight	ASTM D7169
50% point by HTSD	470°F- 570°F	ASTM D7169
Vacuum Residuum >1020°F by HTSD	Not more than 16% by weight	ASTM D7169

The Ballot

- The ballot was sent to the following organizations:

Harry Giles- COQA	Clifford Mills- Consultant
Marathon Petroleum	BP
ConocoPhillips	Plains Pipeline
Valero	Coffeyville Resources
Enbridge Pipelines	BlueKnight Energy Partners
Enterprise Pipeline	Sunoco
Sinclair	Barclays
Gary Williams	NCRA
Frontier	Holly Corp.
SemGroup	Chevron
Shell Pipeline	Crude Quality Inc.
Intertek CalebBrett	SGS
Inspectorate	

The Ballot- Results



- Of the 25 organizations receiving ballots, written responses were received from 19.
 - ▣ 14 responses were affirmative on all 7 specifications.
 - ▣ Valero abstained on #1 (MCR) and affirmative on the others.
 - ▣ Three companies abstained on all 7.
 - ▣ BP voted negative on items #2 (TAN) and #3 (Nickel).
 - ▣ A number of comments were received.

The Ballot- Comments

- MCR- from Valero- Two commercially available assays are closer to 1.2%. 2002 Core Labs assay has 1.2%. Internal plant data shows WTI receipts far <2%.
- From BlueKnight Energy Partners- They are abstaining but are very interested if a workable solution for enforcement can be implemented.
- Items 1-5 and 7- from Frontier- These are good starting points but should be reviewed...would be better if lower to prevent blending the stream far from historical characteristics. Frontier is concerned the blenders will blend to the limit for a year and then ask that the limits be reset higher.

The Ballot- Comments



- ▣ From Holly- Is it possible to add some sort of specs regarding “olefin in crude”?
- ▣ From Chevron- Fix the specs so they are consistent in sentence structure
- ▣ From Crude Quality Inc- suggest the addition of the word “recovery” into the 7169 specs.

Conclusions



- NYMEX API Gravity Specification of 37-42.
 - ▣ Data consistent with this range. No desire to change
- NYMEX maximum Sulfur specification of 0.42 wt%
 - ▣ No desire to change specification.
 - ▣ Much concern that so many batches do NOT meet this specification.

Conclusions

- Based on the responses, we have unanimous agreement for the following specifications:

<u>Parameter</u>	<u>Specification</u>	<u>Test Method</u>
MicroCarbon Residue (MCR)	2.4% or less by weight	ASTM D4530
Vanadium	15 ppm or less	ASTM D5708B
Light Ends <220°F by HTSD	Not more than 19% by weight	ASTM D7169
50% point by HTSD	470°F- 570°F	ASTM D7169
Vacuum Residuum >1020°F by HTSD	Not more than 16% by weight	ASTM D7169

Conclusions



- Compliance
 - ▣ The Capline LLS, NYMEX Light Sweet Crude programs and others do not define enforcement procedures.
 - ▣ LLS experience shows that while it may be challenging initially, compliance with more comprehensive WTI/Domestic Sweet specs can be achieved.
 - ▣ Initial specs are not unchangeable.

Future Plans - Implementation



- COQA representatives should contact their individual anti-trust attorneys and be sure legal is aware of COQA's efforts and to provide appropriate counsel.