Agenda

• Where We Are
• Data Review
• Summary of Data
• Trends
• Program Review
Where We Are

• Total Cushing samples: 158 (as of May 15, 2018)
  – Domestic Sweet Blend: 111 samples
  – WTI@Cushing: 47 samples

• 2018 Budget
  – 2018 actual to April 30: $ 40,628
  – 2018 annual budget: $ 121,500
  – April 30 spending = 33% of annual budget

• Start Date: January 2017

• End Date: December 2018

• CME Adoption: January 2019
Data Review

DSW + WTI API Gravity (°API)

Off Spec: 2
DSW + WTI Sulfur (mass%)

Off Spec: 10
DSW + WTI MCR (mass%)
DSW + WTI TAN (mgKOH/g)

Off Spec: 0
DSW + WTI Light Ends (IBP×220°F, mass%)

Off Spec: 7
DSW + WTI 50% Point (degrees Fahrenheit)

Off Spec: 5

DSW + WTI 50% Point (degF)

Monthly Average 50% Point (°F)

Monthly Average

Batch
DSW + WTI Sample Compliance

Distribution of on-spec and off-spec samples

- On Spec, 67
- Off Spec, 91

Number of test categories out of compliance for all off-spec samples

- Off Spec in 1 Category, 55
- Off Spec in 2 Categories, 27
- Off Spec in 3 Categories, 7
- Off Spec in 4 Categories, 2

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Summary Data Review

• Vanadium issues meeting specification
  – Very high fail rate 75 out of 158 (47%)
  – If specification was 17 ppm = 27 fail (17%)
  – If specification was 19 ppm = 4 fail (2.5%)

• Residue Content issues meeting specification
  – High fail rate 34 out of 158 (22%)
  – Last 4 consecutive average monthly failure
    – If specification was 17 mass% = 18 fail (11%)
    – If specification was 18 mass% = 7 fail (4.4%)

• No significant difference between DSW and WTI at Cushing
Program Review

• So far:
  – High quality data showing need for continued monitoring
  – Concern over specifications not being met in several categories

• Future planning:
  – Pipeline activities
    • Communication of specifications and policies upstream
    • Continued communication between COQA and DSW facility operators
  – Go upstream? Ex. Midland quality?
  – Develop and implement monitoring program for 2019