ENTERPRISE PRODUCTS PARTNERS L.P.

ENTERPRISE CRUDE SYSTEM OVERVIEW AND QUALITY UPDATE

June 8th, 2017

Jared Gayhart, Director – Crude Oil Distribution
EPD: NATURAL GAS, NGLS, CRUDE OIL, PETROCHEMICALS AND Refined PRODUCTS

**Asset Overview**

- **Pipelines:** Approximately 50,000 miles of natural gas, NGL, crude oil, petrochemicals, and refined products pipelines
- **Storage:** Approximately 260 MMBbls of NGL, petrochemical, refined products, and crude oil, and 14 Bcf of natural gas storage capacity
- **Processing:** 26 natural gas processing plants; 22 fractionators; 11 condensate distillation facilities
- **Export Facilities:** 18 deepwater docks handling ethane, LPG, PGP, crude oil and refined products

**Connectivity**

- Fully integrated midstream energy company aggregating domestic supply directly connected to domestic and international demand
- Connected to U.S. major shale basins
- Connected to every U.S. ethylene cracker
- Connected to ~90% of refineries East of Rockies
- Pipeline connected to 21 Gulf Coast PGP customers

**Assets Under Construction**

- **Pipelines:** Approximately 1,000 miles of pipelines
- **Processing:** 1 gas processing plant
- **Petrochem:** 1 PDH and 1 iBDH facility
- **Frac IX:** Mont Belvieu
MIDLAND CRUDE OIL CONNECTIVITY
4 MMBbl of Storage with Access to Multiple Markets

MIDLAND AREA

Colorado City
Wichita Falls
Cushing
Houston
Eagle Ford
Medallion
SXL Sundown
SXL AMDE

EPD MIDLAND TO ECHO 24"
EPD EAGLE FORD 24"

Gardendale
Lyssy
Three Rivers
Corpus

Three Rivers
Eagle Ford JV 20"

Freeport / Jones Creek
Texas City
Beaumont / Nederland

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MIDLAND TO SEALY CRUDE OIL P/L SEGMENT
FROM PERMIAN SUPPLY HUB TO MULTIPLE MARKETS

- 400-mile, 24” pipeline from Midland to Sealy segment connects to Sealy storage facility
- Sealy connected to ECHO by existing 1.0 MMBPD Rancho II pipeline
- Capacity of 450 MBPD supported by long term contracts
- Expected in-service in 4Q 2017 ramping up through early 2018
- Competitive advantages
  - Origin not dependent on 3rd party pipelines
  - Direct route from Midland to Gulf Coast
  - Four segregations: WTS, WTI, Light WTI and condensate
  - Destination can efficiently distribute barrels to markets on the Texas Gulf Coast

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CRUDE OIL DISTRIBUTION SYSTEM
CONNECTIVITY TO ≈4 MMBBLS REFINING CAPACITY

[Map diagram showing various oil distribution system junctions and connections, with labels for locations such as Cushing, Sealy, Baytown, Beaumont, etc., and pipeline routes indicated.]
TO MATCH REFINERS PREFERRED FEED SLATE: LIGHT OIL EXPORTED & HEAVY / MEDIUM IMPORTED

- We expect EPD assets to handle exports, imports, batching and blending of various crude oil grades and qualities.

![Graph showing crude oil demand and supply trends]

*Potential Exports: Mostly Light Oil and Condensates*

*U.S. Demand for Crude: ~16.2 MMBPD*

Sources: EPD Fundamentals and Company Announcements
ENTERPRISE MARINE TERMINALS
U.S. ENERGY GATEWAYS TO THE WORLD
Freeport Crude

Storage
• 2.6 MMBbls of storage at Jones Creek Terminal

Docks
• 2 ship docks
• Up to 42’ draft
• Up to LOA – 900'/Beam – 145’
• Loading rates up to 20 MBPH

Connectivity
• Seaway Pipeline
• DOE Pipeline

Refinery Connectivity
• P66’s Sweeny Refinery
Texas City Crude

Storage
• 4 MMBbls of storage

Docks
• 2 ship docks
• Up to 45’ draft
• Up to LOA – 1020’/Beam – 220’
• Loading rates up to 30 MBPH

Connectivity
• DOE Pipeline
• EPD ECHO Terminal
• XOM at Webster
• Seaway Galena Park
• Offshore (HOOPS, CHOPS)

Refinery Connectivity
• Valero, Marathon and Lyondell

*Seaway Joint Venture Asset
ENTERPRISE HOUSTON SHIP CHANNEL

Available Crude Supply
- Over 33 MMBbls storage
- Room to grow by more than 4 MMBbls on 58 acre Port of Houston lease

Docks
- 7 ship docks, 2 barge docks
- Up to 45’ draft
- Up to LOA – 950’/Beam – 175’
- Loading rates up to 25 MBPH, up to 35 MBPH future
- Recently loaded a record ~900 MMBbls onto a ship

Refinery Connectivity
- Valero Houston
- Pasadena Refining
- Lyondell
- Shell Deer Park
- XOM Baytown

EHSC Crude & Products
ENTERPRISE BEAUMONT

BMT Crude

Storage
• 4.1 MMBbls of storage with room to grow

Docks
• 5 ship docks, 2 barge docks
• Up to 40’ draft
• Up to LOA – 900’/Beam – 150’
• Loading rates up to 25 MBPH

Connectivity
• Seaway
• CHOPS
• BEA Storage Terminal

Refinery Connectivity
• Connectivity to all Beaumont area refineries

Available Crude Supply

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### EHSC DOCKS

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### BEAUMONT DOCKS

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*Under Construction*
KEY STRATEGIC ASSETS LINK SUPPLY AND MARKET SYSTEMS
Key Observations:
- New testing procedure implemented
- Improvement in sulfur quality
DSW – JONES CREEK (SEAWAY)

**DSW SULFUR - INBOUND (wt%)**

**DSW SULFUR - OUTBOUND (wt%)**
DSW - PORT ARTHUR (SEAWAY)

DSW SULFUR - INBOUND (wt%)
Key Observations:
• In April, DSW movements show significant quality improvements at ECHO and PA
• On average, DSW deliveries at PA have seen a 0.08 wt% drop in Sulfur
ATTENTION TO DETAIL – SEAWAY QUALITY

• ‘Operating Manual’ to include but not limited to the following items:
  • System map including tankage information (tank service, bottoms and tops)
  • Seaway Commodities and Characteristics
  • Seaway Crude Categories
  • Sequencing Rules
    • Optimal batch line up, Minimum train size, Optimal Tank Utilization (Jones Creek and ECHO)
  • Cut Point Matrix
  • Commodity Testing Summary
  • Custody transfer ticket data
  • Seaway Sample and Test Program
    • Commodities, Frequency, Test
INFRASTRUCTURE ADDITIONS TO SUPPORT QUALITY

• Evaluating capital improvements to maintain consistent quality across the Enterprise systems

• Potential projects include:
  • New Tanks – more segregations, enhanced ability to change services, staging
  • Additional Vapor Combustion Units (VCUs) – drain-dry tanks and change services
  • Add additional preview densitometers – improve light/heavy cuts
    • Evaluating other measurement tools to assist in cleaner batch cuts (online viscometers and sulfur analyzers, etc.)