Trans Mountain Pipeline

COQA Seattle, WA
June 6, 2013
Presentation Outline

- KMC
- TMPL
- Puget Sound
- Managing differing commodities
- Expansion
  - Edmonton tank farm;
  - TMPL – Sumas, Puget Sound & Westridge
Kinder Morgan: Facts

• Kinder Morgan is the largest midstream and the third largest energy company in North America;

• Interest in or operator of approximately 80,000 miles of pipelines and 180 terminals;

• Largest natural gas transporter and storage operator in the U.S. with approx. 70,000 miles of pipelines;

• Largest independent transporter of petroleum products in the U.S.;

• Largest transporter of carbon dioxide (CO2) in the U.S.;

• Largest independent Terminal owner/operator in the U.S.;

• Only oilsands pipeline serving the West Coast in Canada.
Kinder Morgan Canada -- TMPL

- 715 Miles;
- 24 – 36” diameter;
- From Edmonton, AB to Burnaby, BC and Puget Sound;
- 24 pump stations
Trans Mountain Pipeline -- Diversity

- Only pipeline system in North America that transports both Crude Oil and Refined Products;
- Custom blending for refineries;
- Services Terminals and Refineries in central British Columbia, Vancouver, and Washington State (via Puget Sound Pipeline);
- Services other markets via Westridge Marine Terminal (California, US Gulf Coast and Asia);
- Only pipeline from the Oilsands to the West Coast of Canada;
- In operation since 1953;
Kinder Morgan Canada – Puget Sound

- 65 mile line;
- 16 – 20” diameter;
- 180,000 bbl/d capacity
Puget Sound

- **Puget Sound**
  Connects with Trans Mountain at Sumas, British Columbia on the International Boundary, delivering Canadian crude oil to refineries in Ferndale and Anacortes on the West Coast of Washington State.

- **System Facts:**
  - In operation since 1956
  - Ships light and heavy Canadian crude oil to various Washington State refineries
  - Length: 105 km (65 miles)
  - Size: 406 - 508 mm (16 to 20-inches)
  - Capacity 180,000 b/d
Multiple Grades & Delivery Locations

- How can we serve such diverse interests?
  - Batch sizing and staging
  - Buffers and transmix
  - Common Streaming
  - Merchant Storage
  - Batch Cutting
  - Education
Commodities vs. Critical Staging Tanks

- 50+ approved commodities – limited tankage;
- Edmonton
  - 19 tanks (2.2 MM bbls);
  - 20 incoming feeders;
  - Segregation and timing
- Sumas
  - 6 tanks (650,000 bbls);
  - Rate differential from mainline;
  - Assigned by refinery blends;
- Burnaby
  - 13 tanks (1.6 MM bbls);
TMPL Service Standards

- Service Standards provide shippers with expectation of what’s possible;
- More approved commodities than available tanks – what must be segregated, what can go over bottoms, what can be comingled.

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Note: S = Segregated, C = Commingled, B = Bottom
Batch Sizing and Staging

- Batch sizes limited to tank capacity;
- Do not have the ability to receive directly due to rate differentials (TMPL mainline into Puget Sound);
- Segregation by material grade – optimal for tank utilization rates;
- First in / First out - batches landing are pumped out in the order received;
- Enforcement of hold time policy
Common Streaming

- By combining commodities with similar properties and value, we can reduce tank requirements;

- May require some Equalization;
  - Examples:
    - MSW
    - Light Synthetics
Diverse Qualities

• Each delivery point has specific needs and complexities:
  – Capacity
  – Complexity

• Building awareness – across logistics, scheduling and operations improves performance and results.
Trans Mountain Edmonton Tank Farm
Edmonton Tank Farm Expansion

- Expansion in 2 phases: 4.82 MM bbls;
- Phase 1 (2013) 3.62 MM bbls;
- Phase 2 (2014) 1.00 MM bbls;
- 14 tanks – 13 Merchant, 1 Regulated;
- Largest tanks (7) – 400,000 bbls;
Edmonton Tank Farm -- Now
Proposed Scope of Expansion Project

- The proposed expansion to increase capacity to 890,000 barrels per day
- Projected capital cost: Approximately $5.4 billion (CAD)
- Expansion based on 15- and 20-year commitments from shippers to use the line
Proposed Scope of Expansion Project

- Result: a dual-line operation – twinned pipeline (approximately 980 km of new pipeline) with:
  - Existing line—lighter products
  - The proposed new line for heavier oils
- 36-inch pipeline diameter
- 11 new pump stations for a total of 35 pump stations along the route
Puget Sound System

Existing System
- Serves Cherry Point and Anacortes
  - Length: 105 km (65 miles)
  - Diameter: 20” and 16”
  - Current capacity: 170,000 bpd
  - Pump stations: one at Laurel
  - Transit time ~24 hours

Proposed Upgrades
- Increase capacity to 225,000 bpd
  - New Burlington Pump Station
  - New 20” diameter pipeline (~1 mile long), deactivation of adjacent 16-inch diameter pipeline
  - Removal of existing Burlington scraper trap
  - One additional pump at Laurel Pump Station
  - One additional meter at each Ferndale and Anacortes Facilities
- $40 million
Westridge Dock Expansion

- One loading berth – post expansion – 3 berths;
- Currently 7 loadings per month – post expansion – 37 loadings per month;
- New 30” diameter pipe to cover >2 miles from BBY terminal to Dock;
- New: Emergency Response Equipment, secondary containment, vapour recovery, fire protection and loading facilities.
Tankers in Vancouver

- Today: Aframax tanker capacity, 650,000 bbls
- Future: Suezmax tanker capacity, 1,000,000 bbls, savings $1.50/bbl
- Port Metro Vancouver supportive of Suezmax capability
- New Nav. Aids
- New Training for Vessel Pilots and Tug Captains
- Supporting BCIT Testing and simulation
- 2nd narrows channel dredging
TMEP Schedule

- Pre Application: 1.5 years
- Toll Application
- Decision: 1.5 years
- Facilities Application
- Construction: 2 years

Timeline:
- 2012
- 2013
- 2014
- 2015
- 2016
- 2017
Fates and Effects – a teaser

- Interesting aspect of expansion – examining crude oil behaviors under a variety of stressors and situations;
- A few selected, quantity gathered, subjected to a variety of conditions and observed and measured;
- Currently just raw data....
• Questions???????