TRANS MOUNTAIN PIPELINE SYSTEM

NORTHWEST AREA COMMITTEE MEETING – SEATTLE, WA.
13TH FEBRUARY 2013

MICHAEL DAVIES
Proposed Expansion

- Expand capacity to 890,000 bpd
- Customer contracts for ~ 700,000 bpd on 15 and 20 year terms
- Increased demand from U.S. west coast and Asia – drives need for additional capacity to Washington refineries and Westridge Marine Terminal

Current Operations

- Operating since 1953
- Capacity: 300,000 bpd
- 715 miles between Edmonton and Burnaby
- Ferndale and Anacortes
- Transports refined products, heavy and light crude oils including dilbit.
- Last expanded in 2008
2012 Trans Mountain Throughput by Product Type

- Light Crude: 50%
- Heavy Crude: 22%
- Synthetic Crude: 12%
- Refined Products: 16%
TMPL Throughput 2012

2012 Trans Mountain Throughput by Destination

- Kamloops: 47%
- Westridge: 21%
- Burnaby: 28%
- Puget Sound: 4%
Product Destination – History to 2011

- Washington State
- British Columbia
- Offshore
- OPEC Embargo
- West Coast Initiative
- Suez Crisis
- Korean War
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
Emergency Response Plans

– Compliant with Washington Administrative Code (WAC)
– Approved by Washington Department of Ecology (WSDOE) and Department of Transportation - Pipeline and Hazardous Materials Safety (PHMSA)

Emergency Response Field Guides

– Available in all vehicles and includes: Responder Health and Safety, Internal & External Notifications, Spill/Site Assessments, Spill Containment and Recovery, Protection of Sensitive Areas Multiple Hazardous information

Control Points Manual

– Strategic points along water systems where spill recovery equipment can be placed

Incident Command System (ICS)

– Kinder Morgan utilizes the ICS structure to manage emergencies
Emergency Response Training & Exercises

• Training
  – All operations staff annually complete Hazardous Waste Operations Emergency Response (HAZWOPER) refresher training
  – Annually staff participate in ICS system training

• Annual Exercises
  – Two response equipment deployment exercises
  – One ICS system tabletop exercise
  – Cooperative exercises with other agencies
Emergency Response Equipment

Kinder Morgan Owns and Operates Emergency Response Equipment

• **Equipment**
  – Two recovery trailers strategically stored at field sites. One trailer is located in Laurel and the second trailer in Anacortes. The trailers contain:
    • Personal Protective Equipment
    • 1200 ft of 12 inch River Boom
    • Generators, Pumps
    • Various Skimmers
    • Portable Storage Tanks
  – One boom boat for lake and river deployments
  – ICS Trailer equipped with all of the materials to set up a command post
Outside Resources Available

Kinder Morgan Has Signed Agreements With Outside Resources

- Marine Spill Response Corporation (MSRC)
  - MSRC is a service provider for Kinder Morgan in the event of a water based spill. They have the staff and equipment to respond to a large spill. MSRC can also respond to a land based spill.

- Witt/ O’Brien’s
  - Witt/ O’Brien’s is a service provider to Kinder Morgan in the event of any emergency. They will provide support and staff to the Incident Management Team (IMT) when necessary.

- National Response Corporation (NRC)
  - Kinder Morgan is presently working on signing an agreement with NRC by the end of year.
Westridge Marine Terminal

- One tanker berth face
  - Partially (85%) laden Aframax
    - Typically 5 tankers /month
    - 2 crude oil barges /month
    - 1 jet fuel barge (receiving) /month
  - ~3% of PMV traffic

- Three tanker berth faces
  - Partially (85%) laden Aframax
    - Up to 34 tankers /month
    - 2 crude oil barges /month
    - 1 jet fuel barge (receiving) /month
  - ~14% of current PMV traffic
• Vessel is selected by a pipeline shipper and proposed to KMC

• Proposed vessel must meet all international and local rules and regulations

• Vessel is vetted by KMC to ensure:
  – Age, design and construction
  – Certification and insurance requirement
  – Manning
  – No adverse operating history
  – Terminal compatibility

• Terminal reserves the right to decline a vessel

• All vessels destined to a Canadian port are required under law to have a contractual arrangement in place with the certified oil spill response organization – WCMRC
Marine Traffic

- Transit follows established traffic separation scheme (CCG and USCG)
- Traffic is monitored by vessel traffic services (CCG and USGC)
- Aids to navigation maintained by CCG and USCG
- PMV and Transport Canada rules and regulations in place
- BC Coast Pilots (certified by Pacific Pilotage Authority) onboard between Victoria and Terminal
  - 2 Pilots during loaded transit
- Tug escort arrangements using tethered tugs during harbor transit (loaded and ballast)
  - Up to 4 tugs during departure
- Tethered purpose built escort tug through Haro Straits and Boundary Pass (loaded)
Vessel Traffic Analysis

ALL Vessel Traffic Movements (Y 2011)

~ 60 calls to WRMT
~ addn 350 calls at WRMT

Juan de Fuca (2011 - Daily Commercial Vessel Movements)
- 76% Cargo vessels
- 16% Tank vessel
- 8% Passenger & Ferries

Juan de Fuca (Future - Daily Commercial Vessel Movements)
- 70% Cargo vessels
- 22% Tank vessel
- 8% Passenger & Ferries

Based on 2011 AIS information from Marine Exchange
Regulatory Oversight of Crude Oil Transport Operations

- IMO
- National Energy Board
- Transport Canada
- Environment Canada
- DFO - CCG
- Transportation Safety Board
- PPA
- PMV
- BCMOE
- Alberta Environment
- BCOGC
- Alberta ERCB

Pacific Ocean

200 mile limit
Brotchie Ledge Pilot Station
PMV
Westr ridge Dock

BC
AB
Project Application Requirements

- Application to National Energy Board
- Application must describe “effect of the project on the environment”
- Effects include those from normal operations and from “accidents and malfunctions”
- Application will describe effect of increased tanker traffic

- Marine studies to support the application will include those required for TERMPOL review by Transport Canada
- TERMPOL review involves quantitative risk assessment
  - Moffat Nichol
  - Det Norske Veritas (DNV)
  - Witt O’Brien’s
  - Tetra Tech
Product Quality

We transport a wide range of products and the terms and conditions for this service are defined in our Tariff 88.

These conditions include product quality limits typical of major pipelines:

(a) Reid vapour pressure: 103 kPa
(b) Sand, dust, gums, sediment, water or other impurities (total in aggregate): 0.5%
(c) Receipt Point a temperature: 38ºC
(d) **Density**: 940 kg/m³
(e) Kinematic Viscosity: 350cSt
(f) Having any organic chlorides or other compounds with physical or chemical characteristics that may render such Petroleum not readily transportable by the Carrier…

Trans Mountain has been transporting diluted bitumen since late 1980s without incident or operational problems due to dilbit properties.
Fate and Behavior

KMC has engaged O’Brien’s Response Management and Polaris Applied Sciences to conduct a Study of Fate and Effects of Heavy Crude Oils on Marine Waters

- Step 1 Literature Search Completed
- Step 2 Gap Analysis and Research Plan Completed
- Step 3 Applied Research (at CRREL) Scheduled for March 2013
- Step 4 Final Report Scheduled for April 2013

Applied Research is intended to include test of typical oil sands products under ambient conditions similar to those of the Salish Sea

Other tests on diluted bitumen are underway
- API
- National Academy of Science