TRANS ALASKA PIPELINE SYSTEM

AOGA Briefing
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TAPS BACKGROUND

- Incorporated August 14, 1970 to design, build, operate and maintain the pipeline, pump stations and the Valdez Marine Terminal.
- Alyeska personnel and contractors continually monitor and operate TAPS so oil flows safely, efficiently and in an environmentally sound manner.
- Currently owned by four oil pipeline companies. In transition to three.
TAPS OWNERS

TAPS Owners & Percentages*

BP Pipelines (Alaska), Inc. 48.441%
ConocoPhillips Transportation Alaska Inc. 29.2086%
ExxonMobil Pipeline Company 20.9943%
Unocal Pipeline Company 1.3561%

*9/18/13
TAPS HIGHLIGHTS

- 800-mile warm-oil pipeline in cold climate.
- Arctic pipeline operated successfully for 37 years.
- 2013 throughput average: 534,000 bpd.
- Nearly 7% of U.S. domestic oil supply.
- 17th billion barrel of crude oil received into TAPS on July 19, 2014.
- 21,000+ tankers loaded.
- More than 20% of west coast refinery input.
- Nationally significant infrastructure.
- Supplies Alaska refineries.
TAPS IS ALASKA’S ECONOMIC ARTERY

- AOGA: 1/3 of all Alaska's jobs, about 110,000, are attributed to the oil and gas industry.
- Fuels 1/3 of Alaska’s economy.
- >90% of Alaska’s unrestricted general fund revenue.
- Delivers >$8.5 billion in revenue each year; $24 million/day
- Annual tax payments to municipalities throughout Alaska.
- Permanent Fund of $45 billion.
TAPS TODAY

• Four active pump stations with forward flow: 1, 3, 4 & 9
• Pump Station 5: relief station
• Pump Station 7: heat
• Yukon Response Base, Delta Response Base, and Glennallen Response Base
• Valdez Marine Terminal (VMT)
• Ship Escort/Response Vessel System (SERVS)
VALDEZ SNOW REMOVAL
There were 5 “Performance Contract” spills. The total amount of petroleum product released was the lowest since 2008 (1.3 barrels).
Operational Challenges

- TAPS was designed as a warm oil pipeline
- Circumstances have changed:
  - Throughput and temperatures continue to decline
  - Low flow concerns with water dropout, ice formation, wax deposition, frost heaves, snow accumulation
STEADILY DECLINING THROUGHPUT

- Slower velocities and longer transit times
  - At 2.1 million bpd, < 5 days PS01 to Valdez
  - At 600,000 barrels/day, >15 days PS01 to Valdez
  - At 300,000 barrels/day, >30 days PS01 to Valdez

- Lower temperatures
- Less turbulence with lower flow rates
- Water and crude oil solids settle out of the crude oil

Forecast figures: State of Alaska DOR, Spring 2014 Revenue Sources Book

Alaska Oil and Gas Association
LOW FLOW ISSUES – WATER & ICE

- Water separation and accumulation at low points during flowing conditions
- Ice formation in flowing conditions
LOW FLOW SCENARIO

• Poor weather
• Cold temperatures
• Boom challenges
• Inventory builds
• Producers prorate (scale back production)
• Potential shutdown
PIGGING IMPACTS

Wax received on scraper pig

Mitigation options and further testing
DECLINING THROUGHPUT

There is one simple way to avoid the water dropout, ice formation, wax deposition and geotechnical concerns that TAPS faces as flow declines. That solution is to increase and sustain throughput in the pipeline. Greater flow rates will increase the health and viability of TAPS.