

**3/9/10
LUNCH &
LEARN:
DECLINING
THROUGH-
PUT ON
TAPS**



FACT

MANAGING LOW THROUGHPUT

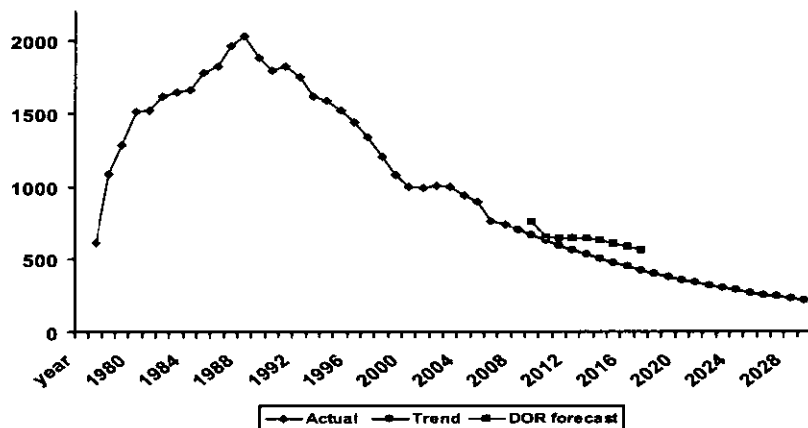
DATE

02/10

DECLINING THROUGHPUT ON TAPS

TAPS' throughput peaked in 1988 at 2.1 million barrels a day. Today, throughput is less than 700,000 barrels a day, declining about 5 percent a year. Lower throughput amounts to slower-moving oil that takes longer to get to the Valdez terminal, and is colder when it arrives. The colder, slower oil also has more water drop out and wax build up. This amounts to technical challenges and higher operating costs on TAPS. Alyeska is amid a \$10 million low-flow study to determine the best future actions to keep TAPS viable for years to come. That way, TAPS can maintain its critical and iconic role in Alaska's economy.

This graph shows the predicted decline of oil without further development, according to TAPS and the Department of Revenue. TAPS could fall below 500,000 barrels a day by 2014.



FACTS ABOUT LOW FLOW

- * Today, daily throughput is just under 700,000 barrels a day. Throughput is typically lower in summer months.
- * The colder oil temperatures results in water separating and settling, leaving potential for ice formation.
- * The lower the throughput, the slower the oil moves. It once took oil four days to get to Valdez. Now it takes about 13.
- * When throughput drops below 500,000 barrels a day -- potentially as early as 2014 -- oil temperature could fall below 32 degrees before reaching Valdez.
- * TAPS was designed for warm oil. Today, oil is 110 degrees entering the pipeline and around 40 degrees on reaching Valdez.
- * These conditions are creating challenges today for those that operate and maintain TAPS.

PREPARING FOR AND UNDERSTANDING LOW FLOW ON TAPS

COOPERATION: Alyeska leadership is collaborating with the TAPS owners to determine the best steps to keep the pipeline viable in the future.

RESEARCH: An ongoing low flow study is analyzing implications of lower throughput, and determining potential steps for the future.

MAINTENANCE: As throughput decreases and oil cools more rapidly in transit to Valdez, there is potential for more wax to deposit on the pipeline's interior walls. Alyeska runs cleaning pigs every 10-14 days. Alyeska also continues to use smart pig technology to monitor and maintain integrity. In summer 2009, crews installed an instrument pig launcher at Pump Station 8 in order to send instrument pigs down the southern end of the line.

NEW PUMPS: Alyeska reconfigured several pump stations for today's lower flow rates. The new pump stations can also be modified to accommodate increase in throughput in the future.

INTERNAL INITIATIVES: TAPS employees are working internally to become more efficient and prepare the company for future operations.

2773



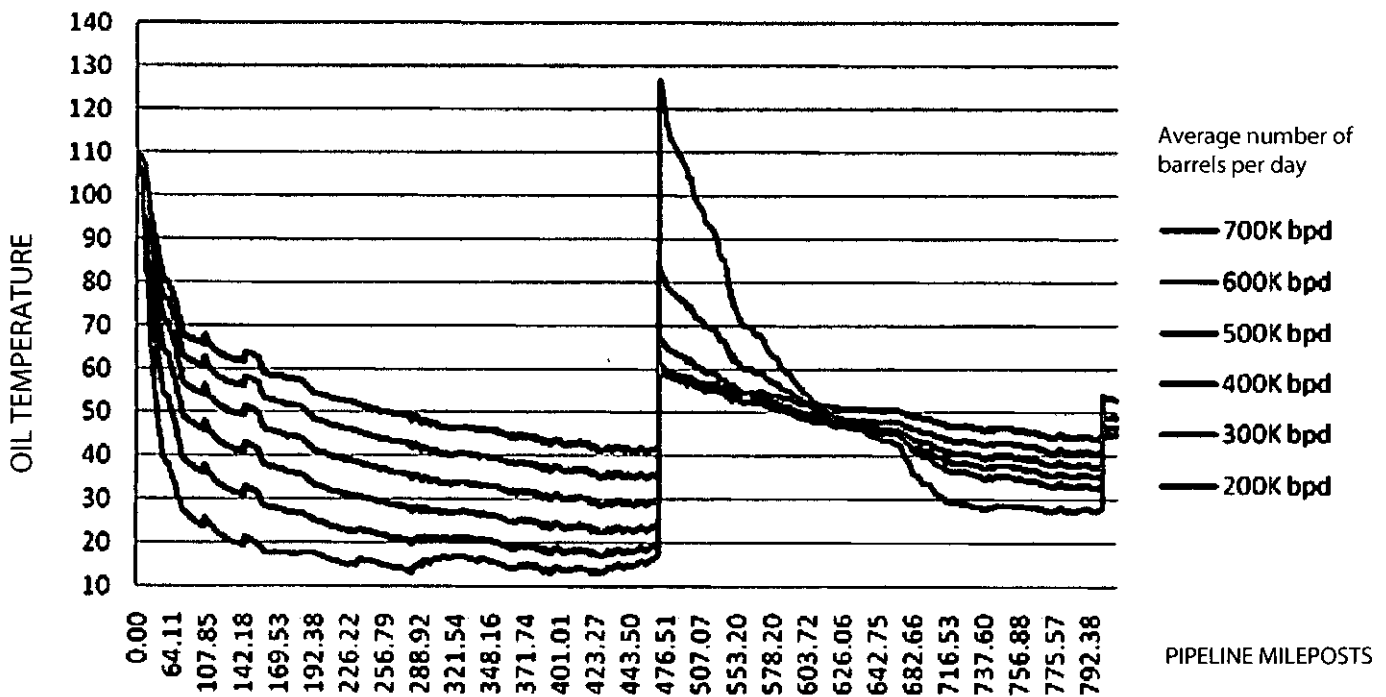
KEEPING TAPS VIABLE: WHY IT MATTERS TO ALASKA

TAPS is facing significant technical challenges associated with lower flows, while also meeting economic challenges from declining throughput. Alyeska is committed to the long-term life of TAPS, while maintaining a commitment to safety, integrity and the environment that has earned the industry's highest honor. Alyeska is simplifying business, and reviewing its current workforce, contracts, and facilities, so that TAPS can preserve its strong role in Alaska's economy. Essential to all of this is understanding the impacts of low flow on the pipeline. The Low Flow Study is expected to substantially conclude in 2010.

POTENTIAL CHALLENGES DUE TO LOW THROUGHPUT

- * Water separation and accumulation during flowing conditions
- * Ice formation in the flowing crude
- * Water acculation and freezing at low points during extended winter shutdowns
- * Increased solids deposition in pipeline and storage tanks
- * Inability to obtain continuous data from instrumented pigs
- * Challenge of restarting TAPS after a prolonged winter shutdown due to gelled crude oil
- * Increased potential for internal corrosion with wax deposits
- * Increased wax received with scraper pigs
- * Potential for frost heaves as soils refreeze

JANUARY TEMPERATURE PROFILE: A SNAPSHOT OF OIL TEMPERATURE AS IT TRAVELS THE PIPELINE



This graph illustrates how oil cools on its roughly 13-day journey to the Valdez Marine Terminal. The temperature spike near milepost 476 is where the pipeline is reinjected with warm oil from the Flint Hills Refinery.