TRANS-ALASKA OIL PIPELINE FLOW: DOING JUST FINE AFTER 40 YEARS

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Cover Photo: Trans-Alaska oil pipeline near Pump Station 1 on the North Slope (photo by Lois Epstein)

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Summary of Findings: Recent oil discoveries in the U.S. Arctic will continue the upward trend in trans-Alaska oil pipeline flow begun in 2016 for many years to come. The pipeline will continue operating for decades, with no need to drill in controversial, ecologically-important and federally protected Arctic regions, i.e., the Arctic National Wildlife Refuge, off-limits portions of the National Petroleum Reserve-Alaska, and the Arctic Ocean. Pipelines are designed and operated to carry less than peak flow so there is no basis for alarmist statements about trans-Alaska oil pipeline flow decline.

Introduction

The trans-Alaska oil pipeline, also known as the Trans-Alaska Pipeline System or TAPS, carries crude oil 800 miles from Alaska’s Arctic to the Port of Valdez (see Figure 1), where it is loaded onto tankers and sent to West Coast refineries and to Asia. The pipeline began operations on June 20, 1977. During its 40 years of operations, the pipeline had a maximum annual daily flow, or throughput, of more than 2 million barrels\(^1\) in 1988 and a minimum annual daily flow of approximately 508,000 barrels in 2015.\(^2\) In 2016, however, annual daily flow increased to nearly 518,000 barrels\(^3\) and, as of the end of April 2017, annual daily flow had increased to more than 560,000 barrels.\(^4\) Recent oil discoveries in less controversial, non-federally protected regions of the Arctic will continue the upward trend in pipeline flow for many years to come.

Figure 1

Trans-Alaska Oil Pipeline Route

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1 42 gallons in a barrel.
3 Ibid.
TAPS Flow Trending Upward

Figure 2 shows the location of key confirmed, new oil production projects in the U.S. Arctic; the figure does not include exploration projects as these may or may not result in new production. These new projects and expansions of existing projects will increase flow in the pipeline, countering the slow decline in production from North Slope oil reservoirs. The figure also shows in yellow the large area of leases purchased in December 2016 in the National Petroleum Reserve-Alaska indicating substantial, recent industry interest in drilling in less controversial, non-federally protected regions of the Arctic.

Figure 2
Locations of Key New Oil Production Projects in the Arctic

The information in Figure 2 comes from an April 25, 2017, briefing to the Alaska Legislature by Paul Decker, resource evaluation manager for the Alaska Department of Natural Resources. Decker identified the following land-based projects with production expected in the 2018-2021 timeframe:

Table 1
New Land-Based Projects in the Arctic
Production Expected 2018-2021

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Operator</th>
<th>Estimated Peak Production (barrels/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater Mooses Tooth 1</td>
<td>ConocoPhillips</td>
<td>30,000</td>
</tr>
<tr>
<td>Greater Mooses Tooth 2</td>
<td>ConocoPhillips</td>
<td>25,000-30,000</td>
</tr>
<tr>
<td>Moose Pad, Milne Point Unit</td>
<td>Hilcorp</td>
<td>10,000</td>
</tr>
<tr>
<td>Add'l CDS Wells, Colville River Unit</td>
<td>ConocoPhillips</td>
<td>N/A</td>
</tr>
<tr>
<td>Moraine Project, Kuparuk Unit</td>
<td>ConocoPhillips</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Decker’s briefing also identified the following land-based projects with production expected in 2022 or later:

Table 2
New Land-Based Projects in the Arctic
Production Expected 2022 or Later

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Operator</th>
<th>Estimated Peak Production (barrels/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nanushuk Project</td>
<td>Armstrong Energy, LLC</td>
<td>Up to 120,000</td>
</tr>
<tr>
<td>Point Thomson Unit MGS Project</td>
<td>ExxonMobil</td>
<td>Up to 70,000</td>
</tr>
<tr>
<td>Willow Project</td>
<td>ConocoPhillips</td>
<td>40,000-100,000</td>
</tr>
<tr>
<td>Fiord West Project</td>
<td>ConocoPhillips</td>
<td>N/A</td>
</tr>
<tr>
<td>Placer Project</td>
<td>ASRC Exploration</td>
<td>N/A</td>
</tr>
<tr>
<td>Tofkat Kuparuk C Project</td>
<td>ConocoPhillips</td>
<td>N/A</td>
</tr>
<tr>
<td>Ugnu Project (heavy oil)</td>
<td>Hilcorp</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Two projects, the Liberty Project in federal waters in the Beaufort Sea and the Smith Bay Project in state waters off the highly important Teshekpuk Lake Special Area of the National Petroleum Reserve-Alaska, are located in sensitive, nearshore regions. Table 3, below, shows estimated peak production should these projects proceed. Note that for the Smith Bay project, no well flow tests have been performed so the likely production rate is unconfirmed.6

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Table 3  
Potential Nearshore Projects in the Arctic  
Production in 2022 or Later

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Operator</th>
<th>Estimated Peak Production (barrels/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liberty Project</td>
<td>Hilcorp</td>
<td>60,000</td>
</tr>
<tr>
<td>Smith Bay Project</td>
<td>Caelus</td>
<td>Up to 200,000</td>
</tr>
</tbody>
</table>

Less than Peak TAPS Flow: Not a Problem!

Pipelines are designed and operated to carry less than peak flow. Although the trans-Alaska oil pipeline is transporting roughly one-fourth of its capacity, that flow level does not have great operational significance. While it’s true that lower oil flow requires operational changes, the pipeline’s operator—Alyeska Pipeline Service Company—employs such measures. These measures include more frequent use of cleaning “pigs,” a tool used to scrape wax and other non-desirable debris off the pipeline’s interior walls, and adding heat and methanol to facilitate flow.

BP, ConocoPhillips, and ExxonMobil represent 98.6 percent of the ownership of the pipeline as of April 2017. Because of the money these companies have invested in Arctic oil production, they have a strong interest in the pipeline operating as long as Arctic oil production remains profitable. We can expect these companies to invest in the measures needed to keep the pipeline operating over the long-term.

Additional evidence that the pipeline will operate for many years comes from several court cases. A state court decision in 2011 between the pipeline owners and the State of Alaska involving property taxes determined that the pipeline is likely to operate for more than 50 additional years, i.e., until at least 2065 with proven reserves. That decision was affirmed by the Alaska Supreme Court. The approach used by the state court was affirmed a second time by the Alaska Supreme Court in a similar case in 2015.

TAPS Flow: The Sky is NOT Falling

Those who advocate for seismic activities and new oil drilling in sensitive lands and waters such as the Arctic National Wildlife Refuge, off-limits portions of the National Petroleum Reserve-Alaska, and the Arctic Ocean (see Attachment A) often express a “sky is falling” perspective on the

7 Unconfirmed. See footnote 6.
10 See *BP Pipelines (Alaska) Inc. v. State, Dep’t of Revenue*, 325 P.3d 478 (Alaska 2014).
11 See *State, Dep’t of Revenue v. BP Pipelines (Alaska) Inc.*, 354 P.3d 1053 (Alaska 2015).
pipeline’s flow. In a January 5, 2017, press release on their introduction of a bill to allow oil production on the coastal plain of the Arctic National Wildlife Refuge, for example, Alaska Senators Lisa Murkowski and Dan Sullivan stated:

_TAPS, an engineering marvel that has served as one of America’s great energy routes for decades, is facing more and more challenges from declining throughput. Closure of the pipeline would shut down all northern Alaska oil production, devastating Alaska’s economy and deepening U.S. dependence on unstable countries throughout the world._

In contrast to this alarming statement by Alaska’s U.S. senators, no one familiar with the pipeline’s operations expects closure of the line for decades, even without the recent Arctic oil discoveries listed in Tables 1 and 2 that will prolong the pipeline’s operational life.

### Conclusion

**All evidence shows that the trans-Alaska oil pipeline will remain operating for many decades.** As a result, there is no justification to pursue seismic activities or drilling projects on controversial, ecologically-important and federally protected Arctic regions including the Arctic National Wildlife Refuge, off-limits portions of the National Petroleum Reserve-Alaska, and the Arctic Ocean.

With the new oil discoveries in the U.S. Arctic documented in this report, the industry is poised to increase trans-Alaska oil pipeline throughput for many years.

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Attachment A

Map Showing Key Federally Protected Regions in the Arctic