Contaminated Crude Clouds Urals Export Picture

Ural Dirty

Defective crude has prompted both transit countries and European end users to suspend the import of Russian Urals Export Blend consignments.

The problem hit last week. Initially, the official line from Minenergo (the Russian Energy Ministry) was to call the deteriorating condition of export crude "technical" in nature.

However, it became clear as the week wore on – and additional countries suspended either passthrough volume or receipt on the Druzhba ("friendship") Pipeline – that the situation was far more serious.

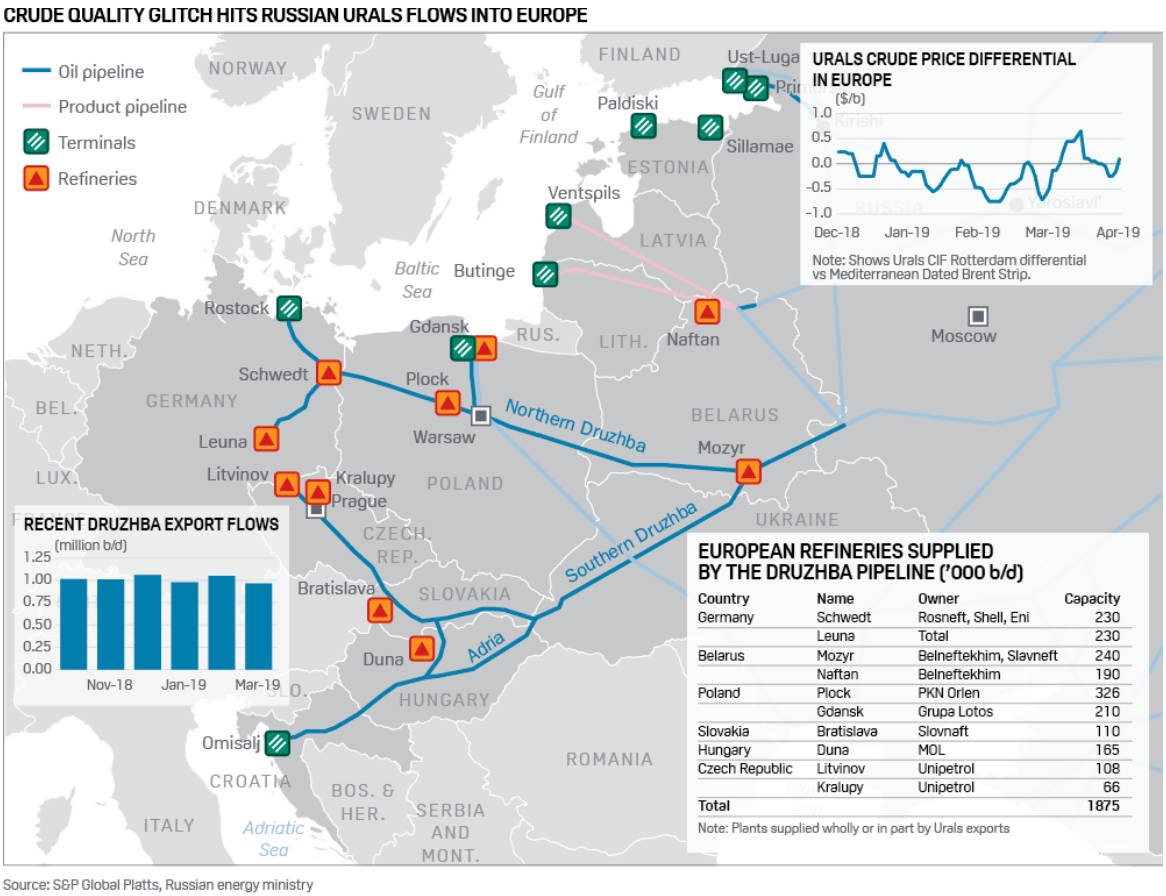
Finally, on Friday, Minenergo acknowledged that the problem comprised contamination by chlorides in the export flow. While there has been no comment from either Minenergo or Transneft (the Russian pipeline monopoly), sources tell me there are at least 300,000 tons (about 2.1 million barrels) of contaminated oil already in the Druzhba network of pipes and services refineries.

The main affected refinery is located in Mozyr, owned by a joint venture of Russian oil company Slavneft and Belarusian state oil and chemical company Belneftekhim. Sources also suggested over the weekend that Belarus would be charging Transneft at least $100 million for the loss of product sales from the refinery combined with the costs of cleaning/repairs at the refinery itself. The Mozyr facility has an effective production capacity of 240,000 barrels a day, but often runs at a volume lower than that level.

Druzhba began deliveries in 1962 with full operations beginning in late 1964. At some 2,500 miles it still is the longest oil pipeline in the world. It remains the main vehicle for the transport of Russian crude oil into Europe with the capacity to carry in excess of 1 million barrels a day. For several years now, it has also provided transport of Kazakh oil, mixing with Russian in the Transneft pipeline network.

When first designed, Druzhba was intended to service western regions of the then-Soviet Union with transport on to Soviet allies in Eastern Europe.

Comprised of two primary branches, the "Northern Druzhba" travels across Belarus and Poland to Germany. The "Southern Druzhba") briefly also crosses Belarus, before transiting Ukraine, Hungary, and Croatia to the small Adriatic coastal town of Omislaj on Kirk Island, southeast of Trieste. A spur on the "Southern" route moves northwest across Slovakia to the Czech Republic.



Source: S&P Global Platts, Russian energy ministry

The Price of Friendship

The word as of this morning (April 29) adds two additional ingredients to this unfolding story. First, anecdotal evidence indicates that it may take as long as two weeks before the entire Druzhba system will be cleaned out and for full export flow to renew.

It now appears that some Druzhba exports from the Russian Baltic port terminal at Ust-Luga may be available earlier. There are indications that the volume from that point of origin may not be initially contaminated. That may allow some earlier resumption of selected northern consignments.

Nonetheless, preliminary indications are that this will cost Russia at least $1 billion in lost export revenue, with an additional amount perhaps equal to that in cleanup costs downstream.

Second, Transneft is now claiming that the source of the chloride contamination was deliberate. While not (at least officially) yet calling this sabotage, the Kremlin seems to be moving in that direction.

The pipeline monopoly has stated that its initial investigation reveals a possible intentional action led to the shutdown. Further, according to a contact at the company, Transneft now believes the injection was of “various organic chloride compounds” at a pipeline monitoring station belonging to Samaratransneft-Terminal. According to my information, Transneft has been investigating several companies in Samara since Friday to determine the extent of involvement.

Samaratransneft-Terminal is part of Samaratransneft (STN), a private Russian company billed as the world’s largest vertically integrated oil storage and logistics company. STN has facilities in Russia, Houston, Rotterdam, and the Qingdao Commercial Port.

STN’s assets at Ust-Luga are a main element in moving transited oil from railway cars and feeder lines into Druzhba volume moving out of Russia, while the Rotterdam location figures prominently in European distribution. STN is a minor shareholder in LukoilSamaranaftatankfarm which, in turn, is controlled by Russian oil major Lukoil and comprises a major partner in the Botlek network of oil terminals at Rotterdam, Vopak, and Maasvlakte.

Back in Russia, Transneft is apparently claiming that the chloride was introduced at a STN-Terminal metering location (used to record pipeline crude flow and properties).

However, there is a very contentious dialogue now underway surrounding the nature of the impending Transneft charge. And at least one element in this discussion does not point to sabotage but problems endemic to Urals Blend.

Getting Salty Over There

All oil pipelines run the risk of internal corrosion over time. Among the many causes of pipeline damage are various sodium chloride and related compounds moving (often at great speed) in suspension within the crude flow.

Without getting mired too much in the technical aspects, it is important to note the following. Inorganic chloride (i.e., inorganic salt) present in crude oil can result in pipeline and equipment corrosion as well as flow clogging. It can usually be removed using various methods of electric desalting prior to distilling the oil at a refinery.

Yet even a small amount of inorganic chloride remaining may be harmful over time.

Organic chloride, on the other hand, becomes the usual suspect. This chloride cannot be removed by desalination. The organic version (more properly called “organochlorine” compounds) is found naturally in the crude itself and is also added to decrease viscosity in the flow.

Organochlorines can result in several problems. For our purposes today, I will mention only the most serious. Organochlorines tend to convert into hydrogen chloride (HCl) during the refining process. When added to any moisture, HCl then forms a hydrochloric acid solution, resulting in rapid corrosion. A separate conversion results in ammonium chloride and serious blockage, especially to heat exchangers.

Notice two very important parts of the organochlorine conversation emerging because of the Transneft claim. First, the very quality of the crude being transported must be considered. Second, organic chloride is used as a way to speed up Urals transport.

Each of the two factors just mentioned appears to be present in this case and must be examined before any charge of sabotage is even considered. First, Urals Export Blend contains undesirable properties. Druzhba has been moving oil westward for 57 years and corrosion concerns have been intensifying. In addition to a high sulfur content, several Minenergo studies have addressed the problem of chloride levels in the mix.

So, the composition of the oil itself is an issue.

Second, I have recently released an alert on how the decision by the Trump Administration to impose Iranian sanctions without waivers beginning in early May has obliged European end users to increase the importation of Urals Blend. As a result, the discounted Urals price to Brent has been declining (April 17, 219: https://oilandenergyinvestor.com/2019/04/an-american-gift-is-behind-the-scenes-of-the-pending-russian-oil-move/).

The Kremlin is moving quickly to take a larger portion of the European import market because of Washington’s move on Iranian sanctions. To do so, additional volume needs to move through the Druzhba ASAP. That means increasing use of organochlorines to improve fluid transfer.

This may not have been an episode of sabotage at all. Rather, it may have been caused by an inferior oil mixture made worse by an attempt to move more of it across the pipeline network.

About the Author

Dr. Kent Moors is an internationally recognized expert in oil and natural gas policy, risk management, emerging market economic development, and market risk assessment.

He serves as an advisor to the highest levels of 27 countries, including the U.S., Russian, Kazakh, Chinese, Iraqi, and Kurdish governments, to the governors of several U.S. states, and to the premiers of two Canadian provinces. He's served as a consultant to private companies, financial institutions and law firms in 29 countries, and has appeared more than 2,300 times as a featured radio-and-television commentator. He appears regularly on ABC, BBC, Bloomberg TV, CBS, CNBC, CNN, NBC, Russian RTV, and the Fox Business Network.

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