

Nord Stream path profile

October 2022

Since everybody and anybody think they are entitled to give their opinion in a brouhaha of opinions, see below the path profile of the Nord Stream pipelines as I calculated it, going from Russia on the left to Germany on the right. The apparently steep slopes are due to the fact that the horizontal and vertical scales are in a ratio of 1 to 1,000.

I marked the location of the pipeline rupture in red. The depth at that location is about 80 to 90 m, so the residual pressure in the pipeline is 8 to 9 bar, from the original 300 or so.

The amount of gas lost to the atmosphere would fill, if liquefied, about 10 of the largest LNG carriers. Its value is probably about \$1 billion as I write.

It so happens that repairing a ruptured pipeline is no big deal, and I sort of know what I'm talking about. Media outlets and governments alike have talked alarmingly about irreversible corrosion if the inside of the pipeline were to be exposed to sea water for a long time. However, given the location of the rupture, a very short length of the pipeline is filled with water, the rest being gas at a pressure of 8 to 9 bar.

Only by opening the end valves would sea water fill the pipelines.

Also, the pipeline wall seems to be very thick, at about 40 mm, to withstand the pressure, and it is coated externally with more than 110 mm of concrete to provide enough weight. It would probably take quite a few decades to actually corrode the pipe walls. It is also probably coated internally, although I couldn't ascertain the fact.

To further secure the pipeline, the Russians could push a plug (called a pig in the pipeline vernacular) with compressed inert gas all the way to the point of rupture, and so could the Germans from the other end. The additional gas lost to the atmosphere would add about 3% to what was already vented. Chances are the pigging operation will not happen until the time of repair, though.

It seems the Russians own the pipelines and the gas therein.

I would think that, coincidentally or not, the location of the rupture is serendipitously such that the least sea water entered the pipeline.

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