

The Russian nuclear submarine K-27

On 6 September 1982, the Russian nuclear submarine K-27, with reactors on board, was sunk in 30 metres of water in Stepovogo Bay on the east coast of Novaya Zemlya. K-27 was built as a modified November class submarine but, unlike the normal November class vessels, was equipped with two reactors cooled by liquid metal. In theory, a reactor with liquid metal cooling should be a safe construction, but K-27 suffered a number of problems with its reactors, culminating in a reactor failure during a mission in the Barents Sea on 24 May 1968. While attempting to rectify the fault at sea, 9 persons received fatal radiation doses and a number of others suffered high doses.

The submarine was then laid up in Gremikha, before being eventually decommissioned on 1 February 1979. After this, the reactor section was sealed with furfural and bitumen and the entire submarine was scuttled.

If the sealing on the reactor section were to fail, the radioactive material that is still in the reactors could leak out. Since the metal-cooled reactors have fuel of a very high level of enrichment (up to 95%), there is also a possibility that fuel in contact with water might go critical. It is therefore important to monitor the condition of K-27 and if necessary to raise it so as to be able to store the reactors in a safer manner.