

0. AVOIDING NUCLEAR MELTDOWN - Story Preface

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During the same year that K-19 encountered a potential nuclear meltdown, a catastrophic incident happened in Idaho Falls (on January 3, 1961). In this image we see "the destruction found inside the SL-1 reactor core after it was damaged by a nuclear prompt-critical excursion on January 3, 1961 which killed three men. The extensive damage reminds people of the vast energies released when a nuclear reactor is designed and operated improperly." Image created by the Idaho National Engineering and Environmental Laboratory, INEEL 81-3966. Online via Wikimedia Commons.

When a nuclear accident involving a loss of coolant occurs, like it did aboard K-19 (and, eighteen years later, at Three Mile Island), the outcome can be fatal. The reactor needs coolant—quickly—to keep it from overheating and commencing an uncontrolled chain reaction. But how could that happen when K-19 had no built-in system to deliver the critically needed coolant to the primary cooling loop?

The captain and crew needed to improvise. The leak had to be fixed or none of the men would live. Worse, a total fuel meltdown could result in the loss of the ship through an explosion. Were that to occur, what would happen to the submarine's ballistic missiles?

Quick-thinking, risk-taking men (both officers and midshipmen) had to work under severe radioactive conditions. Working in the more remote areas of Compartment Six, self-sacrificing sailors were exposed to noxious gases and steam sure to cause radiation sickness.

Captain Zateyev's memoirs reflect the horror of K-19's predicament and the courage of his crew:

While working inside the reactor compartment, of course, they were alarmed, but they walked into that compartment without hesitation, ready for hard work. I saw the same calm, the same self-possession in Ryzhikov, Kashenkov, Penkov, Kharitonov, Savkin and Starkov. (K-19, page 130.)

Lt. Boris Korchilov specifically asked for permission to help. Zateyev responded: "Boris, do you know what you're asking?"

It took hours for the men to successfully weld the two pipelines together, thereby preventing a total catastrophe, but even those repairs had to be fixed. The ship's executive officer Vladimir Yenin (referred to as "Mikhail Polenin" in the film), volunteered for that job. Zateyev recalled:

At one point a leak did develop in the jury-rigged piping. My starpom [second-in-command] Yenin; Chief Petty Officer Ivan Kulakov; and Seaman Leonid Berezov (the commander of the missile operators' department) repaired that leak and received heavy doses of radiation in the process. (K-19, page 135.)

Reaching Compartment Six, where the nuclear reactor was located, Zateyev saw Korchilov leave after his work was completed:

...the bulkhead door opened and Korchilov emerged from the compartment. He ripped off his gas mask and immediately began vomiting a white and yellow foam...All the men who had been in Compartment Six were exposed to massive amounts of radiation, the doses they sustained going far beyond permissible levels. (K-19, page 131.)

In fact, some of the men were already dying.

See Alignments to State and Common Core standards for this story online at:

<http://www.awesomestories.com/asset/AcademicAlignment/AVOIDING-NUCLEAR-MELTDOWN-K19-Widowmaker>

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