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Nuclear submarines went to sea with potentially disastrous defect

from [The Guardian](#), 02 May 2010

by [Severin Carrell](#) and Rob Edwards

Two British nuclear submarines went to sea with a potentially disastrous safety problem that left both vessels at risk of a catastrophic accident, the Guardian can reveal.

Safety valves designed to release pressure from steam generators in an emergency were completely sealed off when the nuclear hunter killers *Turbulent* and *Tireless* left port, a leaked memo discloses.

The problem went undetected on [HMS](#)

[Turbulent](#) for more than two

years, during which time the vessel was on operations around the Atlantic, and visited Bergen in Norway, the Portuguese capital, Lisbon, and Faslane naval base near Glasgow.

It was not noticed on [HMS Tireless](#) for more than a year, and was finally detected last month, two months after *Tireless* started sea trials from its home port at Devonport naval base in Plymouth.

Tireless was involved in another a serious incident in 2007, when two submariners were killed in an onboard explosion in air purification equipment. In 2000, it was stranded in Gibraltar for nearly a year after a leak from pipework leading from its reactor, putting immense strain on British relations with Spain.

The Ministry of Defence memo, which was written last week, admits that both cases involving the sealed-off valves were "a serious incident" that raised major questions about "weak and ambiguous" safety procedures at Devonport dockyard and within the Royal Navy.

The blocked valves, on the hull of the submarines, meant that steam from nuclear-powered boilers could not have been released in an emergency, leading to a potentially disastrous build-up of pressure.

[John Large](#), a consultant on nuclear safety who advises governments on submarine safety, said: "It was a very significant failure. These two submarines were unfit for service. It was a perilous situation."



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He said sealing these valves was like blocking the valve on a domestic pressure cooker. If pressure had built up to dangerous levels, the submarine's steam circuit could have burst, leaking radioactivity into the submarine and shutting down the reactor.

"There would be a risk of fatalities," Large said. "This was such a glaring and fundamental omission. It's jaw-dropping."

The MoD memo, which has been circulated to thousands of managers, naval personnel and civilian workers at Devonport and Faslane naval bases, admits that the incidents should have been prevented but that safety procedures were seriously flawed.

"Despite there being several potential safety nets, none succeeded in identifying and arresting the events" before the submarines left the dockyard, the memo reveals. It adds there has been a major shake-up of safety procedures.

The MoD told the Guardian: "We can confirm that, as part of routine maintenance checks, an issue was identified on HMS Turbulent and HMS Tireless which has now been resolved.

"We take safety extremely seriously and as soon as we were aware of this potential issue we took action to address the problem. Detailed investigations to assess the cause and any possible safety implications are ongoing and it is too early to speculate on the outcome of those investigations."

The memo said that the problem arose after the hull valves were replaced by "test blanks" during repair and maintenance work at the privatised Devonport nuclear dockyard. These test blanks were fitted for "essential" leakage tests on the hulls and "useful" strength and leakage tests of steam discharge pipes inside the vessels.

They should have been removed before the submarines left the dockyard to begin their pre-operational "work-up" voyages in advance of going on patrol. But there was "poor" discipline at Devonport.

The nuclear reactors on both vessels were allowed to be turned on and operated in sea trials and during full operations "without overpressure protection on steam generators", the memo states.

John Ainslie, a spokesman for [Scottish Campaign for Nuclear Disarmament](#), who monitors nuclear submarine activity, said that the very detailed safety warnings and criticisms in the memo showed the MoD was extremely worried about the discovery.

"This is one of a series of serious problems that they've had with the nuclear fleet and at some point, there will be serious consequences," he said. "What this document picks out is a concern that they're missing something as serious as this because the maintenance procedures are very complex. There's the clear potential that they're not picking things up that they should."

See a copy of the leaked memo [here \(1MB jpg, page one\)](#) and [here \(660KB jpg, page two\)](#).

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