Part 2:
Body text:

Background

The USS Thresher SSN-593 was the first of a new class of submarines, designed for optimum performance of sonar and weapon systems, capable of diving deeper and running quieter than other submarines during the 1960's.

On April 10,1963, the Thresher was off the coast of New England with another submarine, the USS Skylark. At 7:47 am the Thresher started a deep dive. Everything was fine until 9:13am. At this time the Thresher sent a message to the Skylark which read *"We are experiencing minor difficulties, we have a positive up angle, and are attempting to blow. Will keep you informed"*. The Skylark then received two garbled messages at 9:16 am and 9:17 am, before detecting a high energy, low frequency disturbance, which was the crushing of the Thresher as it had fallen below crush depth killing all 129 people on board.

Cause of disaster

The probable cause of this disaster was a leak in the engine room's seawater piping system. The pipes in this system were joined by silver brazing. The navy used two tests to test the quality of the silver-braze

1. The hydrostatic test
   All the silver-braze joints passed this test.
2. The ultrasonic test
   This was more accurate, but was more expensive and time consuming.

The inspectors used the ultrasonic test only on the easily accessible joints, which was the main reason for the failure of the piping system.

Other errors that contributed to the failure were

- The engineers were overly concerned with the nuclear component and did not set the same standards for the non-nuclear components
- The writer of the ship's manual used an old manual as a guide, though there were many different features on the Thresher that were not there on old ships.
- The backup systems were located too close to the main systems; so one accident destroyed both the systems.

Applicability to the future

The loss of the Thresher taught the world a couple of lessons.

1. All components of a project are equally important
2. All components should at least meet or exceed the current standards.

All these facts show that the following reasons lead onto the failure of the submarine apart from technical failures.

- Lack of understanding of a new system
- Stupidity
- Greed for more powerful artillery

We hope that the future engineers will realise the importance of these factors and try their best to avoid such disasters, in the future.