



# **A Culture of Safety**

## **Submarine Safety in the U. S. Navy**

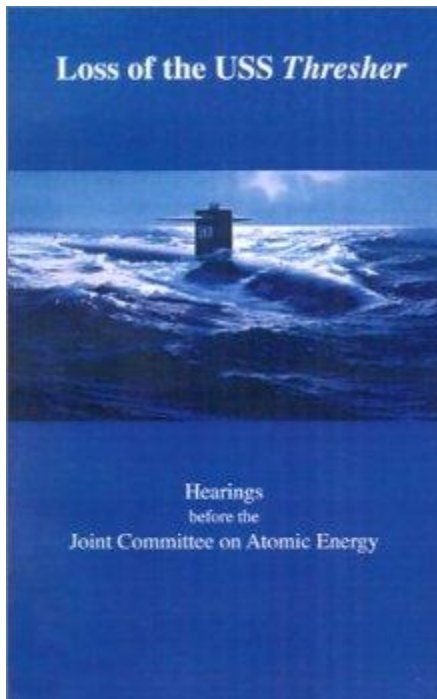
**Safety Culture and High Reliability Organizations**  
**Defense Nuclear Facilities Safety Board**

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**Rear Admiral, US Navy (Retired)**  
**27 August 2014**

***Fifty One Years Ago , on April 10, 1963 ...***



*USS THRESHER was lost at sea.  
All 112 crew and 17 civilians perished.*



- The purpose of the SUBSAFE Program is to provide “maximum reasonable assurance” of:
  - Hull integrity to **preclude** flooding
  - Operability and integrity of critical systems and components to **control** and **recover** from a flooding casualty

# Elements of a Culture of Safety

- **Responsibility**
  - A duty, obligation, or burden
- **Accountability**
  - The state of being answerable for one's actions
- **Integrity**
  - Rigid adherence to a code of behavior



# Elements of a Culture of Safety

- **Work Discipline**
  - Knowledge Of and Compliance With Requirements
- **Material Control**
  - Correct Material Installed Correctly
- **Documentation**
  - Design Products (Specs, Drawings, Maintenance Standards, etc.)
  - Objective Quality Evidence (OQE)
- **Compliance Verification**
  - Inspections, Surveillance, Technical Reviews, Audits
- **Balanced Separation of Authorities**
- **Continual Education and Training**

# Compliance Verification



- **SUBSAFE Certification Audits:**

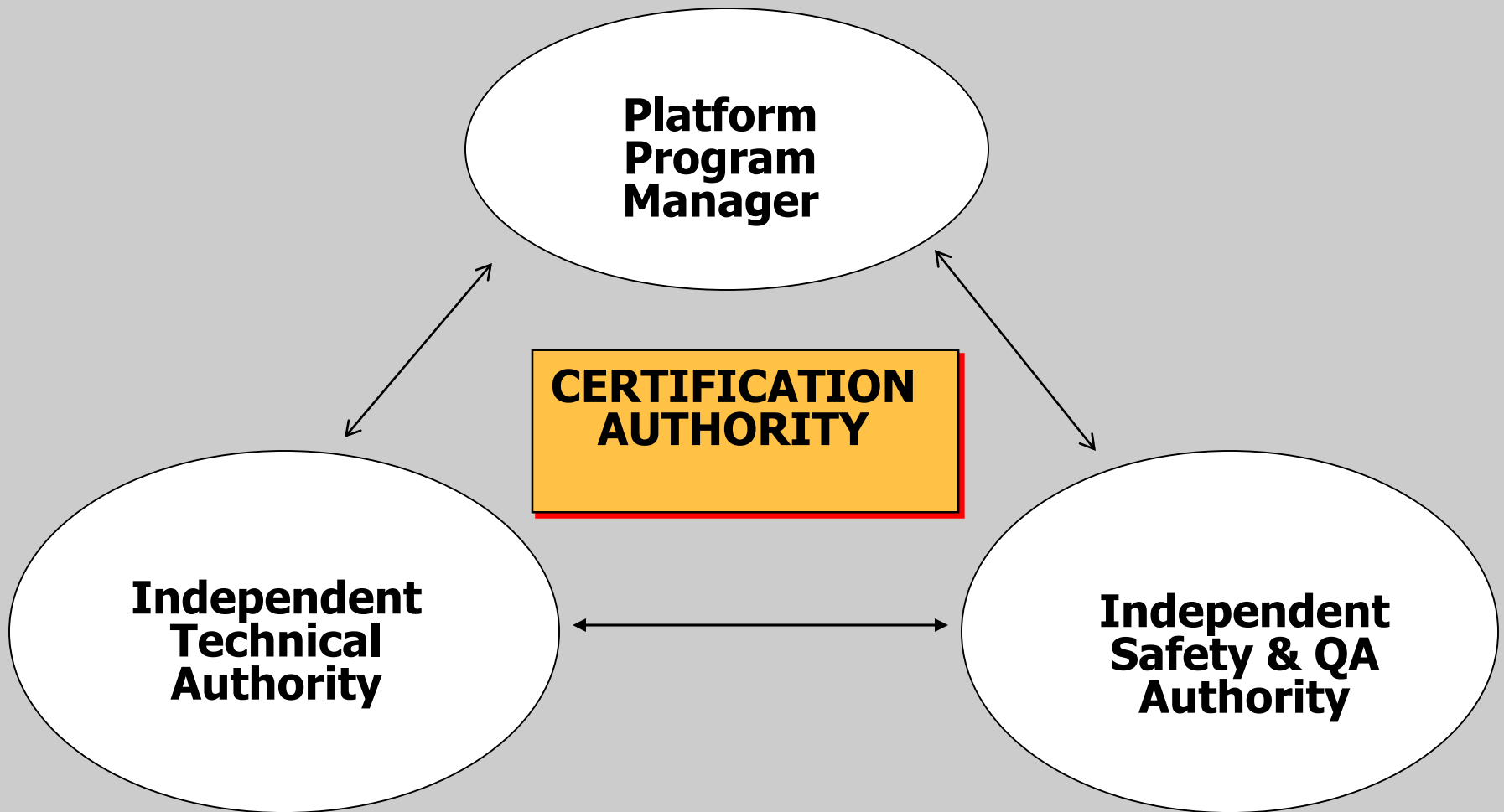
- Ship specific
- A critical element for certification for sea trials and unrestricted operations

- **SUBSAFE Functional Audits:**

- Facility specific review
  - Policies
  - Procedures
  - Practices
- Verifies organizational compliance with SUBSAFE Program requirements



# Balanced Separation of Authorities



# Challenges

- **Ignorance**
  - The state of not knowing
  
- **Arrogance**
  - The habit of behaving based on pride, self-importance, conceit, or the assumption of intellectual superiority and the presumption of knowledge that is not supported by facts
  
- **Complacency**
  - Satisfaction with one's accomplishments, accompanied by a lack of awareness of actual dangers or deficiencies



# Long Term View

**"Good ideas are not adopted automatically. They must be driven into practice with courageous patience."**

**"Once implemented they can be easily overturned or subverted through apathy or lack of follow-up...a continuous effort is required."**

**- Hyman G. Rickover**

Photo # NH 97570 Brass pipe recovered from USS Thresher debris field, 1963



# Constant Reminder: Never Forget

Photo # NH 82320 USS Thresher (SSN-593) underway on the surface

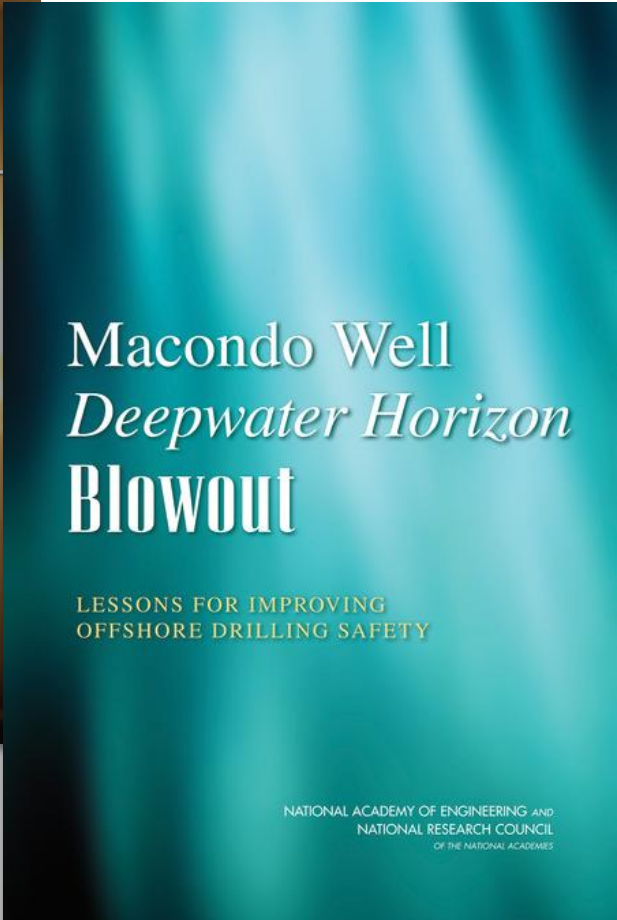
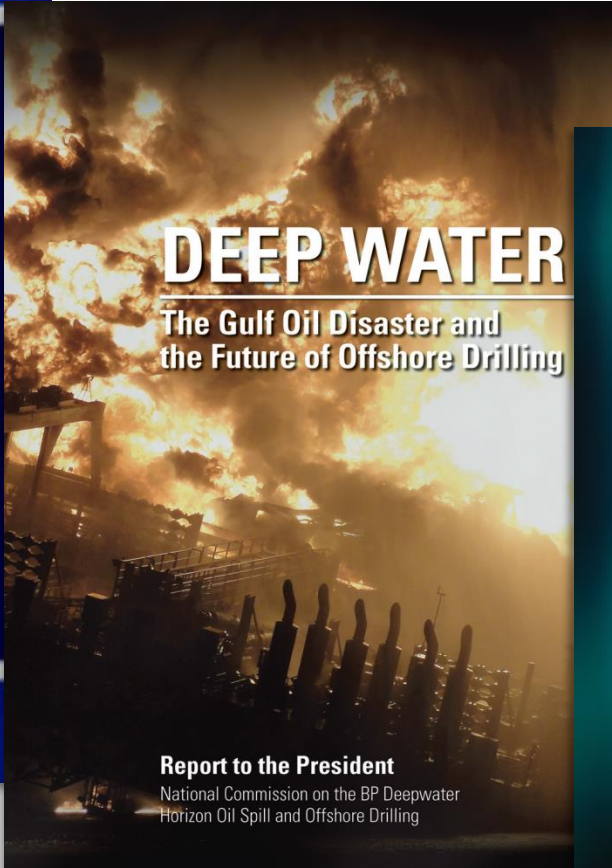
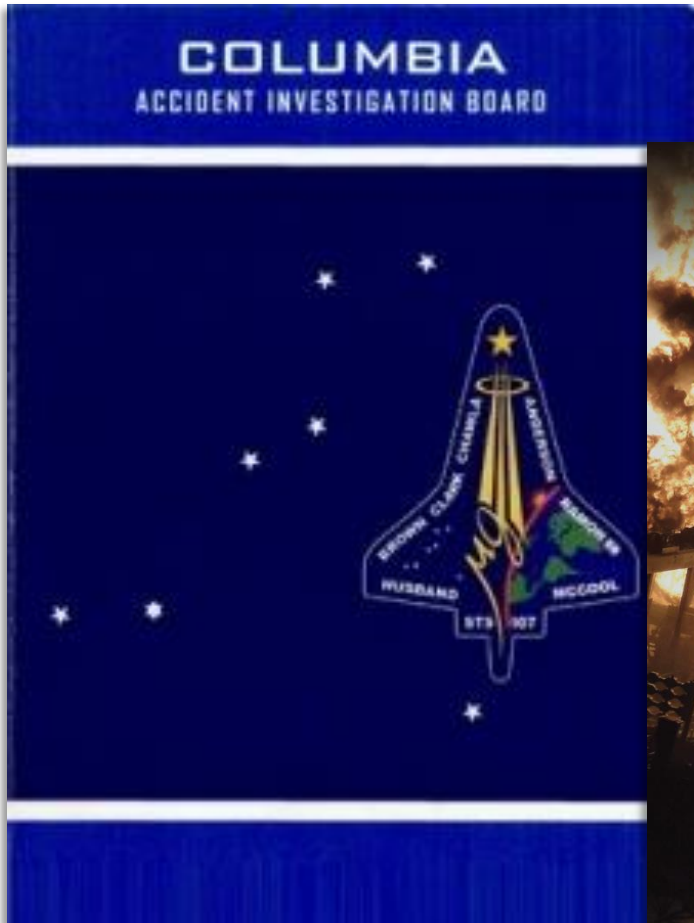


Photo # NH 97117 Upper hull of the nuclear USS Thresher photographed by USS Manta 1968



Vis Tacita : Silent Strength

# The principles apply beyond submarines ...





**United States Navy Submarine Sailors  
Keepers of a Proud Legacy**