Naval Reactors
United States Naval Nuclear Propulsion Program
The Naval Nuclear Propulsion Program is an integrated program carried out by two organizational units, one in the Department of Energy and the other in the Department of the Navy1.

**FOCUSED MISSION:** Provide militarily effective and affordable nuclear propulsion plants and ensure their safe, reliable, and long-lived operation

**CLEAR & TOTAL RESPONSIBILITY & ACCOUNTABILITY FOR ALL ASPECTS:**
- Research, development, design, construction
- Maintenance, repair, overhaul, disposal
- Radiological controls, environment, safety, health matters
- Officer operator selection, operator training
- Administration (security, nuclear safeguards, transportation, public information, procurement and fiscal management)
- Centralized control of Program’s Industrial Base/Vendors
- Spent fuel custody

**SIMPLE, ENDURING, & LEAN STRUCTURE:**
- Director tenure 8 years, 4-Star Admiral/Deputy Administrator in NNSA
- Dual agency structure with direct access to Secretaries of Energy and Navy
- Small headquarters, field activities

1 Executive Order 12344 set forth in public law 98-525 and 106-65
Naval Reactors Organization

Naval Reactors Facility
- Dry Storage Program
- Expended Core Facility

Report to Director
- Ensures focus on mission
- Immediate identification of concerns

Dedicated Laboratories (GOCO)
- Bettis Atomic Power Laboratory
- Knolls Atomic Power Laboratory

Specialized Industrial Base
- Dedicated equipment prime contractor
- Hundreds of suppliers

Naval Reactors Headquarters
440 personnel

Nuclear Powered Fleet
- 82 warships
- Over 45% of major combatants

Shipyards:
4 Public / 2 Private

R&D/Training Reactors:
Train about 3500 students/year

Schools
- Nuclear Power School
- Nuclear Field “A” School
Need for continued safe and reliable operation in the wartime environment results in a very rugged nuclear fuel designs

DEFENSE IN DEPTH:
- Design: simple, rugged, redundant, fail-safe, conservative
- Rigorous quality control: on-site reps, detailed specs, separate logistics/supply, documentation (quality evidence)
- Comprehensive procedures and procedural compliance
- Oversight
- People: carefully selected, rigorous and continuous training
Naval Spent Nuclear Fuel Management

50 years of experience in the safe handling, transportation, inspection, and storage of spent nuclear fuel.
Naval Spent Nuclear Fuel Inventory

Compact reactors, long life fuel results in a small inventory compared to other sources of spent fuel and high level waste.

Total Repository: 70,000 metric tons
Commercial: 63,000 metric tons
Defense (other than naval): 6,935 metric tons
Naval: 65 metric tons

Naval fuel was a very small fraction (<0.1%) of repository inventory.
Naval Spent Nuclear Fuel Inventory

Compact reactors, long life fuel results in a small inventory compared to other sources of spent fuel and high level waste

~11,000 canisters total

NAVAL FUEL WAS A SMALL FRACTION (<4%) OF OVERALL REPOSITORY INVENTORY

400 naval canisters
Naval Spent Nuclear Fuel Management

Packaging design for dry storage and transportation without further repackaging.
Naval Spent Nuclear Fuel Management

On track to meet commitments for moving spent fuel into dry storage.
The Naval Nuclear Propulsion Program is proceeding with design and procurement of hardware to support transportation of naval spent fuel from Idaho to a repository or interim storage site.
Naval Spent Nuclear Fuel Management

Overpack Storage Expansions #1 and #2
1995 Idaho Agreement and Consent Order

The 1995 Agreement and Consent Order governs management of all spent nuclear fuel and transuranic waste at the Idaho National Laboratory.

**BACKGROUND:**
- The agreement resolved litigation related to concern of Idaho officials that the INL was becoming a de facto permanent repository for spent fuel and transuranic waste.
- Litigation also led to preparation of a Programmatic EIS for management of spent nuclear fuel across the DOE.

**ONGOING NAVY OBLIGATIONS:**
- Limit the number of shipments of naval spent nuclear fuel to Idaho to a running average of 20 containers per year.
- Provide to Idaho annual reports on actual shipments made in the prior calendar year and expected shipments during the next calendar year.
- Include naval spent nuclear fuel among the early shipments to a permanent geologic repository or interim storage site.
- Place all spent nuclear fuel in dry storage by 1 January 2023.
- Remove all spent nuclear fuel from Idaho by 1 January 2035.

**2008 ADDENDUM TO AGREEMENT:**
- Continued use of water pool at the Naval Reactors Facility beyond 2023.
- Continued management of a limited in-process inventory of naval spent nuclear fuel at the Naval Reactors Facility in Idaho beyond 2035.
- Continued archival storage of some naval spent nuclear fuel to support designs under development or in service.