United States Naval Nuclear Propulsion Program

Presentation to Idaho LINE Commission

May 2018
FOCUSED MISSION

• Provide militarily effective nuclear propulsion plants and ensure their safe, reliable, and long-lived operation

CRADLE TO GRAVE RESPONSIBILITY AND 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)

PROGRAM RECORD

• Program founded in 1948
• Over 7,000 reactor-years of safe operations
• Over 162,000,000 miles safely steamed
• 101 operating reactors (compared to 99 commercial power reactors)
• Welcomed in more than 150 ports in over 50 countries worldwide

EXECUTIVE ORDER 12344 SET FORTH IN PUBLIC LAW 98-525 AND 106-65
Naval Nuclear Propulsion Program

**Naval Reactors**

**Field Offices**
- REPORT TO DIRECTOR
  - Ensures focus on mission
  - Immediate identification of concerns

**NUCLEAR POWERED FLEET**
- 81 warships
- About 45% of major combatants

**NAVAL REACTORS FACILITY**
- Dry Storage Program
- Expended Core Facility

**DEDICATED LABORATORIES**
- Bettis Laboratory Site
- Knolls Laboratory Site
- Government Owned / Contractor Operated

**SPECIALIZED INDUSTRIAL BASE**
- Single dedicated prime contractor
- Hundreds of suppliers

**R&D/TRAINING REACTORS**
- Train 3000 students/year

**SHIPYARDS**
4 Public / 2 Private

**SCHOOLS**
- Nuclear Power School
- Nuclear Field “A” School
After defueling, all naval spent fuel transported by rail to NRF for examination:

- Ensures maximum performance of current fuel
- Enables design of new fuel with longer lifetimes
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 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.

2008 ADDENDUM TO AGREEMENT

• Continued use of the 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.

NAVAL REACTORS IS COMPLIANT WITH THE AGREEMENT AND ADDENDUM
SERVING A VITAL ROLE SUPPORTING THE NATION’S NUCLEAR POWERED FLEET FOR OVER 60 YEARS
Providing unique capabilities to the Naval Nuclear Propulsion Program

CAPABILITIES AND ACCOMPLISHMENTS:

• Began operations in 1958
• Large water pool
  - Visual examination, processing, and storage of spent fuel
  - Assembly/disassembly to support irradiation testing of new materials
• Shielded hot cells for detailed examination of test specimens
• Specialized facilities for placing spent fuel in sealed canisters for dry storage/disposal
Dry Storage Packaging Operations

Placing Naval Nuclear Fuel into Dry Storage Canisters since 2003

• Dry Storage Packaging is on track to meet the 2023 provision of the Idaho Settlement Agreement and Consent Order.

• Over 150 spent fuel canisters have been loaded since 2003.

• Spent fuel canisters are ready to be shipped to a permanent repository.

OVER 70% OF NAVAL SPENT FUEL INVENTORY SUBJECT TO 2023 PROVISION HAS ALREADY BEEN PLACED IN DRY STORAGE
Cask Shipping and Receiving Facility was constructed for:

- Unloading aircraft carrier fuel from M-290 shipping containers.
- Loading spent fuel into shipping containers for rail transport to a permanent repository or interim storage facility.

NAVAL SPENT FUEL CANISTERS ARE ROAD-READY FOR SHIPMENT
Spent Fuel Handling Recapitalization Project

VITAL RECAPITALIZATION EFFORT TO SUSTAIN THE NAVAL REACTORS FACILITY MISSION INTO THE FUTURE
**Socioeconomic Impact Summary**

- Naval Reactors invests more than $400M in Idaho each year
- Approximately 1,500 employees at NRF
- Spent Fuel Handling Recapitalization Project will provide additional jobs during construction
- Each job at NRF adds about one to two jobs in the community