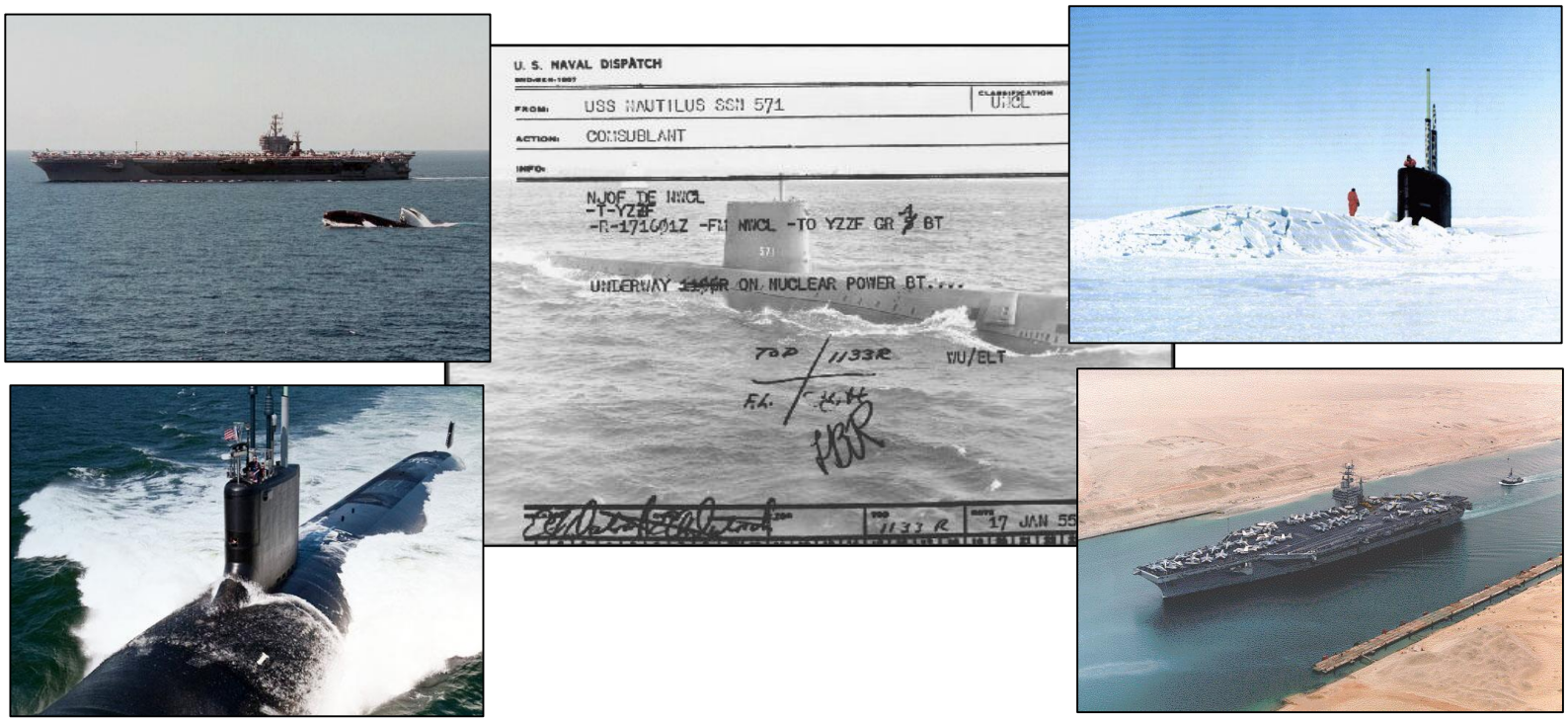
United States Naval Nuclear Propulsion Program

Presentation to Idaho LINE Commission

May 2018



Integrated Navy and DOE Program

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**

Admiral James F. Caldwell, Jr.

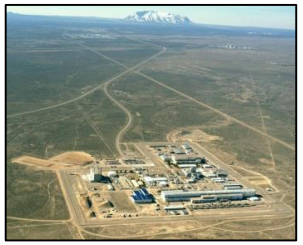
EXECUTIVE ORDER 12344 SET FORTH IN PUBLIC LAW 98-525 AND 106-65

Naval Nuclear Propulsion Program

Field Offices

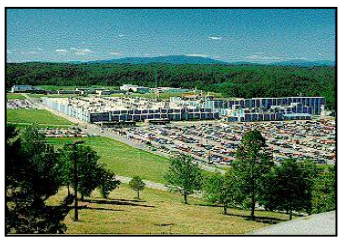
REPORT TO DIRECTOR
- Ensures focus on mission
- Immediate identification of concerns

Naval Reactors

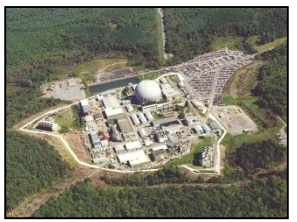
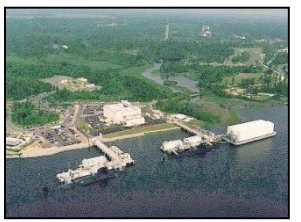


NAVAL REACTORS FACILITY
- Dry Storage Program
- Expended Core Facility


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

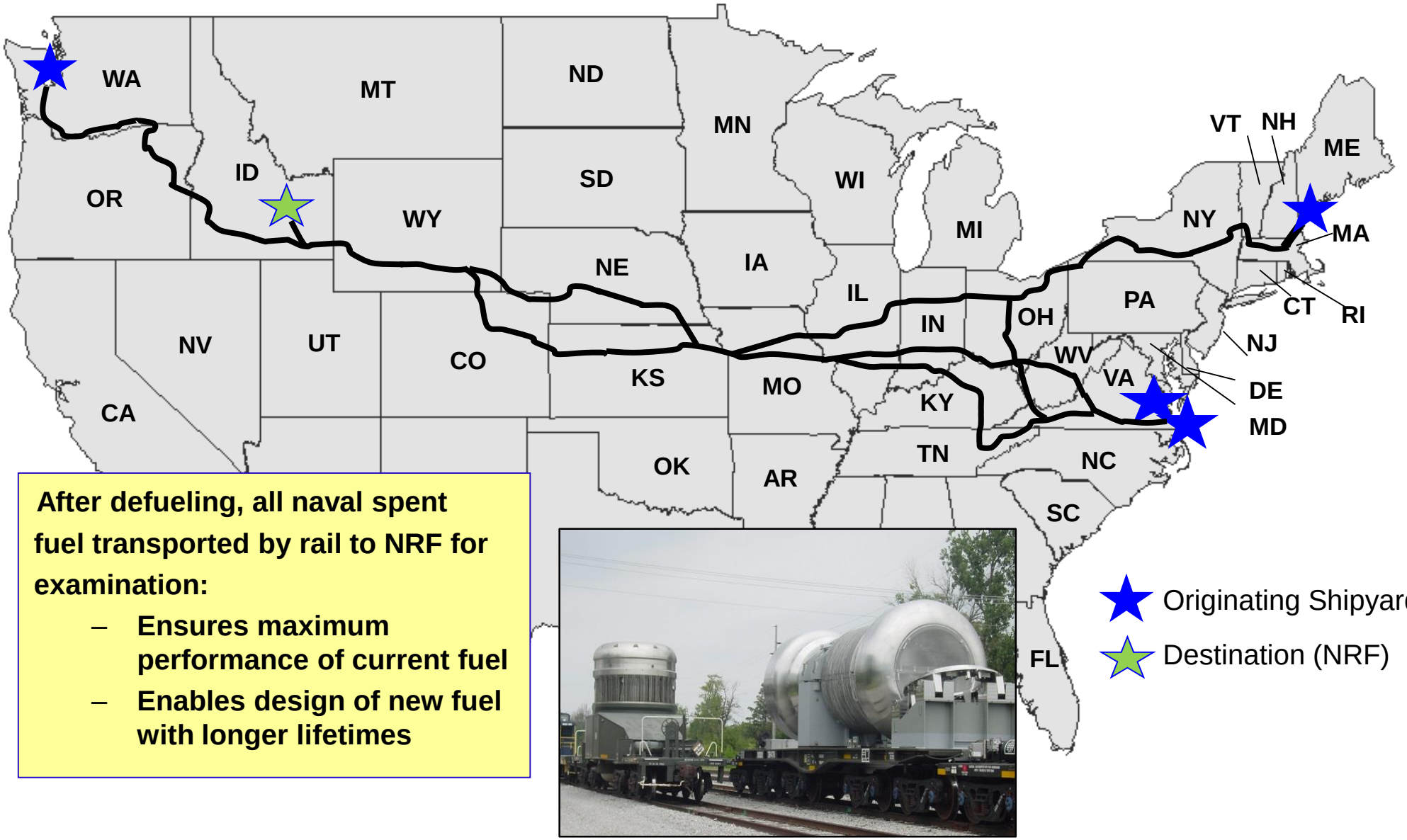

NUCLEAR POWERED FLEET
- 81 warships
- About 45% of major combatants


SHIPYARDS
4 Public / 2 Private

SCHOOLS
- Nuclear Power School
- Nuclear Field “A” School

Naval Spent Fuel Shipping

874 CONTAINERS SAFELY SHIPPED
(March 1957 to Present)



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**

State of 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

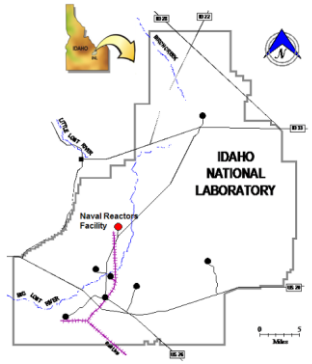
- Limit shipments of naval spent nuclear fuel to Idaho to a running average of 20 containers per year.
- Provide to Idaho annual reports on actual shipments made in the prior calendar year and expected shipments during the next calendar year.
- Include naval spent nuclear fuel among the early shipments to a permanent geologic repository or interim storage site.

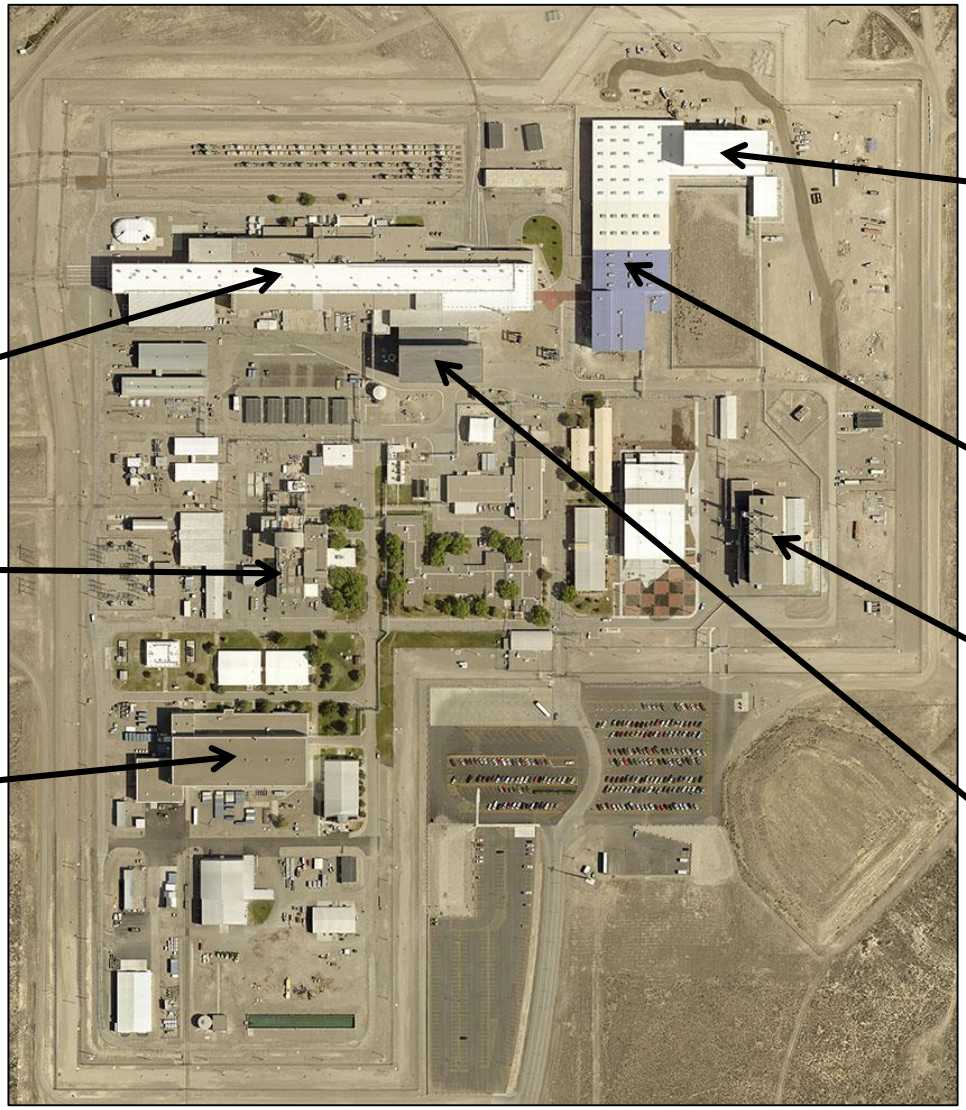
2008 ADDENDUM TO AGREEMENT

- 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

Naval Reactors Facility





Expended Core Facility

A1W Prototype

S5G Prototype

Cask Shipping and Receiving Facility

Overpack Storage

S1W Prototype

Spent Fuel Packaging Facility

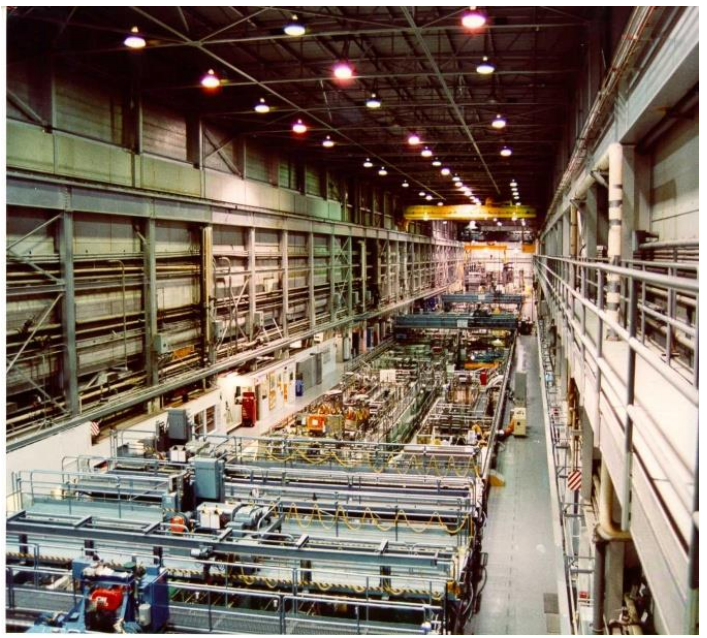
SERVING A VITAL ROLE SUPPORTING THE NATION'S NUCLEAR POWERED FLEET FOR OVER 60 YEARS

Expended Core Facility

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



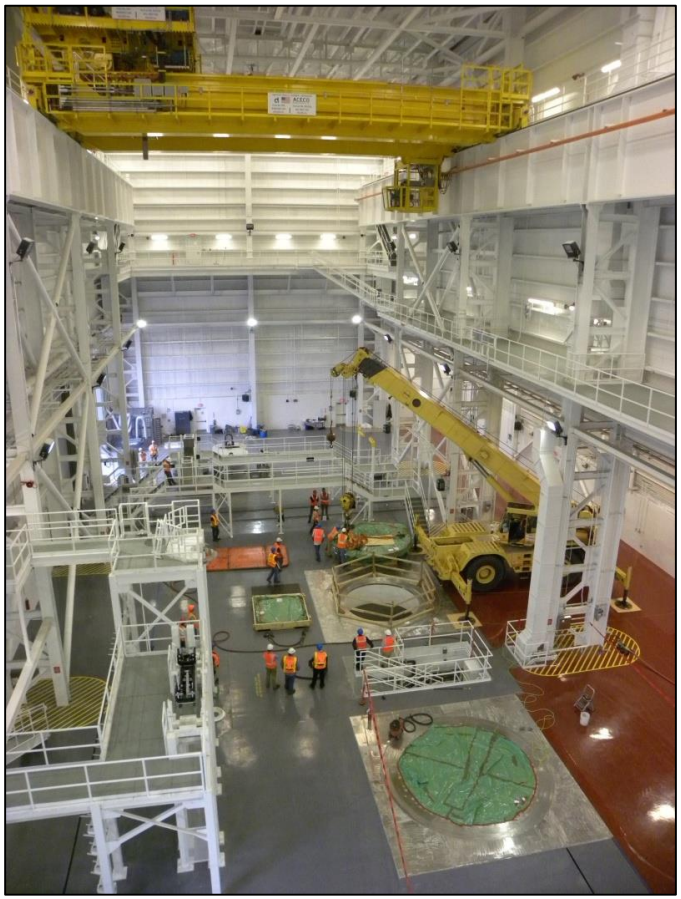
Dry Storage Packaging Operations

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

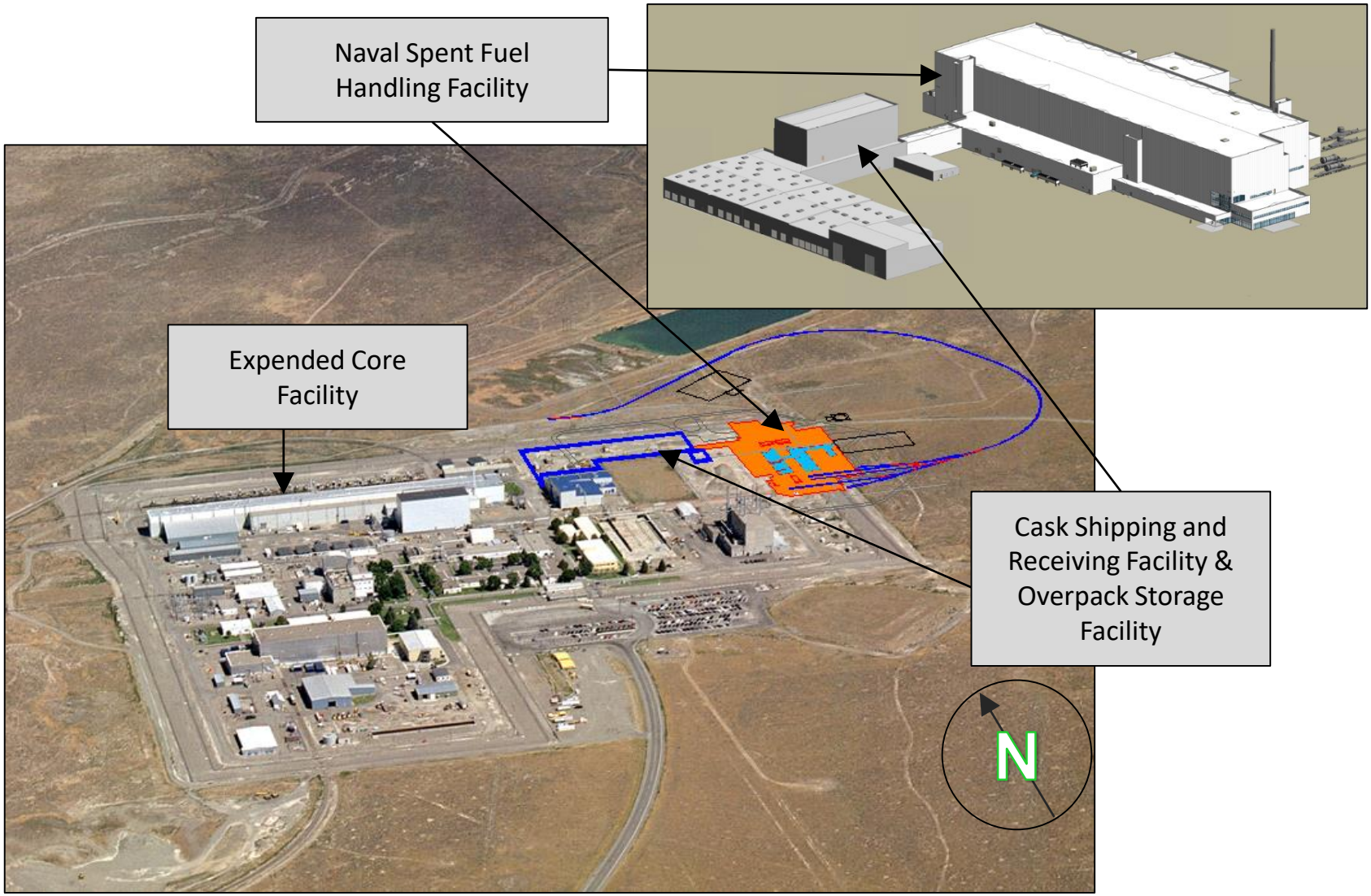


Cask Shipping and Receiving Facility was constructed for:

- 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