



Environmental Impact Statement for the Recapitalization of Infrastructure Supporting Naval Spent Nuclear Fuel Handling at the Idaho National Laboratory

AGENCY: DEPARTMENT OF ENERGY

ACTION: Notice of availability

SUMMARY:

The U.S. Department of Energy (DOE) Naval Nuclear Propulsion Program (NNPP) announces the availability of the *Final Environmental Impact Statement for the Recapitalization of Infrastructure Supporting Naval Spent Nuclear Fuel Handling at the Idaho National Laboratory* (DOE/EIS-0453-F). The Final EIS evaluates the potential environmental impacts associated with recapitalizing the infrastructure needed to ensure the long-term capability of the NNPP to support naval spent nuclear fuel handling until at least 2060.

DATES:

The NNPP will publish a Record of Decision no sooner than 30 days after publication of the U.S. Environmental Protection Agency's (EPA) Notice of availability in the **Federal Register**.

ADDRESSES:

Copies of the Final EIS are available in public reading rooms and libraries as indicated in the **SUPPLEMENTARY INFORMATION** portion of this notice. The Final EIS is also available for review at www.ecfrecapitalization.us and on the DOE's NEPA Web site at <http://energy.gov/nepa>.

FOR FURTHER INFORMATION CONTACT:

For further information about this Final EIS, contact:

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For information regarding the DOE NEPA process, please contact: Ms. Carol M. Borgstrom, Director, Office of NEPA Policy and Compliance (GC-54), U.S. Department of Energy, 1000 Independence Avenue, SW., Washington, DC 20585, Telephone (202) 586-4600, or leave a message at (800) 472-2756.

SUPPLEMENTARY INFORMATION:

The NNPP prepared this Final EIS in accordance with the National Environmental Policy Act of 1969 (NEPA), as amended (42 U.S.C. section 4321 *et seq.*), the Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of NEPA (40 CFR parts 1500-1508), and the DOE NEPA implementing procedures (10 CFR 1021). This Final EIS addresses all public comments on the Draft EIS which was issued on June 19, 2015 (80 FR 35331). The NNPP is committed to managing naval spent nuclear fuel in a manner that is consistent with the *Department of Energy (DOE) Programmatic Spent Nuclear Fuel Management and Idaho National Engineering Laboratory Environmental Restoration and Waste Management Programs Final Environmental Impact Statement (DOE/EIS-0203-F)*, and to complying with the Settlement Agreement, as amended in 2008, among the State of Idaho, the DOE, and the Navy concerning the management of naval spent nuclear fuel. Consistent with the Record of Decision for DOE/EIS-0203-F, naval spent nuclear fuel is shipped by rail from shipyards and prototype facilities to the Idaho National Laboratory (INL) for processing. To allow the NNPP to continue to unload, transfer, prepare, and package naval spent nuclear fuel for disposal, three alternatives are evaluated in the Final EIS: No Action Alternative, Overhaul Alternative, and New Facility Alternative. The preferred alternative to recapitalize the infrastructure supporting naval spent nuclear fuel handling is to build a new facility (New Facility Alternative).

Background

The mission of the NNPP, also known as the Naval Reactors Program, is to provide the U.S. with safe, effective, and affordable naval nuclear propulsion plants and to ensure their continued safe and reliable operation through lifetime support, research and development, design, construction, specification, certification, testing, maintenance, and disposal. A crucial component of this mission, naval spent nuclear fuel handling, occurs at the end of a nuclear propulsion system's useful life or when naval nuclear fuel has been depleted. The NNPP is responsible for removal of the naval spent nuclear fuel through a defueling or refueling operation. Both operations remove the naval spent nuclear fuel from the reactor, but a refueling operation also involves installing new fuel, allowing the nuclear-powered ship to be redeployed into the U.S. Navy fleet. Once the naval spent nuclear fuel has been removed from an aircraft carrier, submarine, or prototype, it is sent to the Naval Reactors Facility (NRF) for examination

and further naval spent nuclear fuel handling including transferring, preparing, and packaging for transfer to an interim storage facility or geologic repository.

The NNPP ensures that naval spent nuclear fuel handling is performed in a safe and environmentally responsible manner in accordance with 50 U.S.C. sections 2406 and 2511 (codifying Executive Order 12344). Nuclear fuel handling is an intricate and intensive process requiring a complex infrastructure.

Proposed Action

NNPP is proposing to recapitalize the current naval spent nuclear fuel handling capabilities provided by the Expended Core Facility (ECF) located at the NRF on the INL. The purpose of the proposed action is to provide the infrastructure necessary to support the naval nuclear reactor defueling and refueling schedules required to meet the operational needs of the U.S. Navy. The proposed action is needed because significant upgrades are necessary to ECF infrastructure and water pools to continue safe and environmentally responsible naval spent nuclear fuel handling until at least 2060.

The transfer, preparation, and packaging of naval spent nuclear fuel are vital to the NNPP's mission of maintaining the reliable operation of the naval nuclear fleet and developing effective nuclear propulsion plants. Although ECF continues to be operated in a safe and environmentally responsible manner, the ECF infrastructure and equipment necessary to accomplish the work of naval spent nuclear fuel handling need significant upgrades to continue safe and environmentally responsible naval spent nuclear fuel handling until at least 2060. Efforts are ongoing to sustain this infrastructure, preserve these essential capabilities, and ensure that the high NNPP standards for protecting the environment continue to be met. However, major portions of this infrastructure have been in service for over 50 years.

Alternatives

Consistent with the Record of Decision for DOE/EIS-0203-F, naval spent nuclear fuel would continue to be shipped by rail from shipyards and prototypes to NRF for processing. To allow the NNPP to continue to unload, transfer, prepare, and package naval spent nuclear fuel for disposal, three alternatives were identified and analyzed in this Final EIS.

1. No Action Alternative

The No Action Alternative involves maintaining ECF without a change to the present course of action or management of the facility. The current naval spent nuclear fuel handling infrastructure would continue to be used while the NNPP performs only preventative and corrective maintenance. The No Action Alternative does not meet the purpose for the proposed action because it would not provide the infrastructure necessary to support the naval nuclear reactor defueling and refueling schedules required to meet the operational needs of the U.S. Navy. The No Action Alternative does not meet the NNPP's need because significant upgrades are necessary to the ECF infrastructure to continue safe and environmentally responsible naval spent nuclear fuel handling until at least 2060. As currently configured, the ECF infrastructure cannot support use of the new M-290 shipping containers. Significant changes in configuration of the facility and spent fuel handling processing locations in the water pool would be required to support unloading fuel from the new M-290

shipping containers. In addition, over the next 45 years, preventative and corrective maintenance without significant upgrades and refurbishments may not be sufficient to sustain the proper functioning of ECF infrastructure and equipment. Upgrades and refurbishments needed to support use of the new M-290 shipping containers and continue safe and environmentally responsible operations would not meet the definition of the No Action Alternative; therefore, these actions are represented by the Overhaul Alternative.

The implementation of the No Action Alternative (i.e., failure to perform upgrades and refurbishments), in combination with the NNPP commitment to only operate in a safe and environmentally responsible manner, may result in ECF eventually being unavailable for handling naval spent nuclear fuel. If the NNPP naval spent nuclear fuel handling infrastructure were to become unavailable, the inability to transfer, prepare, and package naval spent nuclear fuel could immediately and profoundly impact the NNPP's mission and national security needs to refuel and defuel nuclear-powered submarines and aircraft carriers. In addition, the U.S. Navy could not ensure its ability to meet the requirements of the Settlement Agreement and its 2008 Addendum.

Since the No Action Alternative does not meet the purpose and need for the proposed action, it is considered to be an unreasonable alternative; however, the No Action Alternative is included in the Final EIS as required by CEQ regulations.

2. Overhaul Alternative

The Overhaul Alternative involves continuing to use the aging infrastructure at ECF, while incurring increasing costs to provide the required refurbishments and work-around actions necessary to ensure uninterrupted aircraft carrier and submarine refuelings and defuelings. Under the Overhaul Alternative, the NNPP would operate ECF in a safe and environmentally responsible manner by continuing to maintain ECF while implementing major refurbishment projects for the ECF infrastructure and water pools. This would entail:

- Short-term actions necessary to keep the infrastructure and equipment in safe working order, including regular upkeep sufficient to sustain their proper functioning (e.g., the ongoing work currently performed in ECF to inspect and repair deteriorating water pool concrete coatings).
- Facility, process, and equipment reconfigurations needed for specific capabilities required in the future. These actions involve installation of new equipment and processes, and relocation of existing equipment and processes, within the current facility to provide a new capability (e.g., modification of ECF and reconfiguration of the water pool as necessary to handle M-290 shipping containers).
- Major refurbishment actions necessary to sustain the life of the infrastructure (e.g., to the extent practicable, overhaul the water pools to bring them up to current design and construction standards).

Refurbishment activities would take place in parallel with ECF operations for the majority of the Overhaul Alternative time period. The first 33 years of the 45 years

(i.e., the refurbishment period) would include refurbishment and operations activities being conducted in parallel. During certain refurbishment phases, operations could be limited due to the nature of the refurbishment activities (e.g., operations would not continue in water pools that are under repair). There would then be a 12-year period where only operational activities would take place in ECF (i.e., the post-refurbishment operational period).

Failure to implement this overhaul in advance of infrastructure deterioration would impact the ability of ECF to operate for several years. Further, overhaul actions would necessitate operational interruptions for extended periods of time.

3. New Facility Alternative

A New Facility Alternative would acquire capital assets to recapitalize naval spent nuclear fuel handling capabilities. While a new facility requires new process and infrastructure assets, the design could leverage use of the newer, existing ECF support facilities and would leverage use of newer equipment designs. The facility would be designed with the flexibility to integrate future identified mission needs.

Under the current budget and funding levels for the New Facility Alternative, it is anticipated that construction activities would occur over approximately a 5-year period.

Construction of the New Facility Alternative would occur in parallel with ECF operations. An approximately 2-year period would follow the construction of the New Facility Alternative when new equipment would be installed and tested, and training would be provided to qualify the operations workforce.

A new facility would include all current naval spent nuclear fuel handling operations conducted at ECF. In addition, it would include the capability to unload naval spent nuclear fuel from M-290 shipping containers in the water pool and handle aircraft carrier naval spent nuclear fuel assemblies without prior disassembly for preparation and packaging for disposal. Such capability does not currently exist within the ECF water pools, mainly due to insufficient available footprint in areas of the water pool with the required depth of water.

The NNPP will continue to operate ECF during new facility construction, during a transition period, and after the new facility is operational for examination work. To keep the ECF infrastructure in a safe working order during these time periods, some limited upgrades and refurbishments may be necessary. Details are not currently available regarding which specific actions will be taken; therefore, they are not explicitly analyzed as part of the New Facility Alternative. The environmental impacts from these upgrades and refurbishments are considered to be bounded by the environmental impacts described in the Refurbishment Period of the Overhaul Alternative.

Changes from Draft EIS

The Draft EIS was published by the NNPP in June 2015. The NNPP has considered all public comments received in preparing this Final EIS, which includes the NNPP's responses to those comments. The Final EIS highlights changes that were made to address these comments as

well as changes that have resulted from additional design and planning for the New Facility Alternative. Changes to the design and planning for the New Facility Alternative include changes to the seismic design strategy, water management strategy, and analysis of potential air emissions related to operation of concrete batch plants.

Public Reading Rooms and Libraries

The Final EIS is available for review at the following reading rooms:

Idaho Operations Office
Department of Energy
Public Reading Room
2251 N. Boulevard
Idaho Falls, ID 83402
Telephone: (208) 526-1185

Idaho Falls Public Library
457 W. Broadway
Idaho Falls, ID 83402
Telephone: (208) 612-8460

Shoshone-Bannock Library
Bannock and Pima Streets
P.O. Box 306
Fort Hall, ID 83203
Telephone: (208) 238-3882

Eli M. Oboler Library
Idaho State University
850 South 9th Avenue
Pocatello, ID 83209
Telephone: (208) 282-2958

Twin Falls Public Library
201 Fourth Avenue East
Twin Falls, ID 83301
Telephone: (208) 733-2964

Marshall Public Library
113 South Garfield
Pocatello, ID 83204
Telephone: (208) 232-1263

Boise Public Library
715 S. Capitol
Boise, ID 83702
Telephone: (208) 972-8200

Idaho Commission for Libraries
325 W. State Street
Boise, ID 83702
Telephone: (208) 334-2150

Latah County
Free Library District
110 S. Jefferson
Moscow, ID 83843
Telephone: (208) 882-3925

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