



[6450-01-P]

DEPARTMENT OF ENERGY

Record of Decision for the Recapitalization of Infrastructure Supporting Naval Spent Nuclear Fuel Handling at the Idaho National Laboratory

AGENCY: Department of Energy.

ACTION: Record of Decision.

SUMMARY: The U.S. Department of Energy (DOE) Naval Nuclear Propulsion Program (NNPP) is issuing this Record of Decision (ROD) for the recapitalization of infrastructure supporting naval spent nuclear fuel handling at the Idaho National Laboratory (INL) at the Naval Reactors Facility (NRF) based on information and analyses contained in 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) issued on September 23, 2016. The NNPP will recapitalize the infrastructure supporting naval spent nuclear fuel handling at the INL by constructing a new facility in the northeast section of the NRF site (i.e., Location 3/4). In making this decision, the NNPP considered potential environmental impacts of the alternatives, impacts upon the NNPP support of naval spent fuel handling until at least 2060, availability of resources, and public comments on the Draft and Final Environmental Impact Statements (EISs), DOE/EIS-0453-D and DOE/EIS-0453-F.

FOR FURTHER INFORMATION CONTACT: For further information about this ROD, contact Mr. Erik Anderson, Department of Navy, Naval Sea Systems Command, 1240 Isaac Hull Avenue, SE, Stop 8036, Washington Navy Yard, DC 20376-8036.

For information regarding the DOE NEPA process, 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.

The Draft and Final EIS are available at www.ecfrecapitalization.us and on the DOE NEPA web site at <http://energy.gov/nepa>.

SUPPLEMENTARY INFORMATION: The NNPP prepared this ROD 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 part 1021). 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 ROD for DOE/EIS-0203-F, naval spent nuclear fuel is shipped by rail from shipyards and prototype facilities to the INL for processing. To allow the NNPP to continue to unload, transfer, prepare, and package naval spent nuclear fuel for disposal, three alternatives

were evaluated in the Draft and Final EIS: No Action Alternative, Overhaul Alternative, and New Facility Alternative. The impacts to human health and the environment for all the alternatives would primarily be small; however, there would be impacts to naval spent fuel handling from the No Action and Overhaul Alternatives; therefore, the NNPP selected the preferred alternative (New Facility Alternative) at Location 3/4 since a new facility will improve long-term capacity, increase efficiency and effectiveness, reduce long-term costs and risks, and best support the ability of the NNPP to comply with the Settlement Agreement, as amended in 2008.

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, the spent fuel is sent to 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).

Alternatives

Consistent with the ROD for DOE/EIS-0203-F, naval spent nuclear fuel will 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 the Draft and Final EIS.

1. No Action Alternative

The No Action Alternative involves maintaining the Expanded Core Facility (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 structures, systems, and components. 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 was included in the Draft and 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 workaround 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 in safe working order, including regular upkeep and actions sufficient to sustain the proper functioning of structures, systems, and components (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 would 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.

Environmental Impacts of Alternatives

With the following exceptions, there are no environmental impacts associated with any of the alternatives, or the impacts are negligible or small:

- For the No Action Alternative, there would be large and profound impacts to naval spent nuclear fuel management and national security needs.
 - While ECF operations continue, management of M-290 shipping containers and work stoppages would affect fleet performance and the ability to manage naval spent nuclear fuel in accordance with the Settlement Agreement and its 2008 Addendum.
 - If ECF operations cease, the NNPP would eventually be unable to defuel and refuel submarines, leading to the inability of the nuclear-powered ships or their nuclear-trained naval personnel to be deployed or

redeployed into fleet operations. Additionally, the NNPP would be unable to meet the requirements of the Settlement Agreement and its 2008 Addendum.

- For the refurbishment period of the Overhaul Alternative, there would be moderate impacts on naval spent nuclear fuel management from temporary work stoppages; however, the facility would be operated to minimize the impact on the NNPP's ability to meet its mission.
- For the New Facility Alternative, there would be beneficial impacts on naval spent nuclear fuel management once the new facility is fully operational because of increased process efficiencies.
- For the No Action Alternative, the refurbishment period of the Overhaul Alternative, and the construction and transition period of the New Facility Alternative, the impact from seismic hazards to ECF, without additional refurbishment or upgrades, would be moderate from the continued degradation of the facility over time.
- For the New Facility Alternative, electrical energy consumption impacts would be moderate in the transition period and the new facility operational period.

Environmentally Preferable Alternative

The impacts to human health and the environment from all the alternatives would primarily be small. The New Facility Alternative would involve the largest amount of ground surface disturbance but would provide the lowest risk from seismic hazards. Conversely, the No Action Alternative would involve no new ground disturbance but would pose a higher risk from seismic hazards. The Overhaul Alternative would involve some ground disturbance and a risk from seismic hazards that falls between the other

two alternatives. Because the impacts to human health and the environment for all the alternatives would primarily be small, all alternatives are considered to be comparable and indistinguishable under CEQ regulations; therefore, the NNPP concludes that there is no environmentally preferred alternative.

Public Involvement

On July 20, 2010 the NNPP published a Notice of Intent (NOI) in the Federal Register (75 FR 42082) to prepare an EIS for the recapitalization of infrastructure supporting naval spent nuclear fuel handling and examination on the INL. Due to fiscal constraints on the DOE budget, project schedules changed such that the evaluation of the recapitalization of naval spent nuclear fuel handling capabilities progressed further than evaluations for examination recapitalization. As a result, an amended NOI was published on May 10, 2012 (77 FR 27448) to announce the NNPP's reduction in the scope of the EIS to include only the recapitalization of naval spent nuclear fuel handling capabilities.

On June 19, 2015 the NNPP published in the Federal Register (80 FR 35331) a Notice of Availability (NOA) of the Draft EIS; the duration of public comment period through August 10, 2015; the location and timing for three public hearings; and the various methods that could be used for submitting comments on the Draft EIS. In response to a request from the Shoshone-Bannock tribes, on August 14, 2015 the NNPP published a notice that it was reopening the public comment through August 31, 2015 (80 FR 48850).

The NNPP considered all comments received in preparing the Final EIS. On September 30, 2016 the NOA for the Final EIS was published in the Federal Register (81 FR 67338).

Decision

The NNPP will recapitalize the infrastructure supporting naval spent nuclear fuel handling at the INL by constructing a new facility in the northeast section of the NRF site (i.e., Location 3/4). This decision will include recapitalization of the naval spent nuclear fuel handling capabilities described in the EIS including: unloading M-140 and M-290 shipping containers; temporary wet storage of naval spent nuclear fuel; initial examination of naval spent nuclear fuel; resizing and securing nuclear poison in naval spent nuclear fuel modules; transfer of naval spent nuclear fuel for more detailed examination at the examination location; loading naval spent nuclear fuel into naval spent nuclear fuel canisters; transfer of naval spent nuclear fuel into or out of temporary dry storage; and loading waste shipping containers.

As described in the EIS, the recapitalization of ECF infrastructure supporting the preparation and examination of irradiated fuel and material specimens and the destructive examination of naval spent nuclear fuel will be the subject of separate evaluation under NEPA. No decision is being made at this time regarding the recapitalization of ECF infrastructure for examinations. Therefore, in addition to building a new facility, the NNPP will continue to perform limited upgrades as necessary to keep the ECF infrastructure in safe working order.

Basis for the Decision

The impacts to human health and the environment from the Overhaul Alternative and New Facility Alternative would primarily be small. Recapitalizing the infrastructure and processes for naval spent nuclear fuel handling by building a new facility will improve long-term capacity, increase efficiency and effectiveness, and reduce long-term costs and risks. The new facility will improve the ability of the NNPP to meet long-term mission needs and anticipated future production capabilities and enhance the ability of the NNPP to meet the 1995 Settlement Agreement and its 2008 Addendum. Continuing to perform upgrades to the ECF infrastructure will ensure that operations that continue in ECF are conducted in a safe and environmentally responsible manner. Building a new facility at Location 3/4 will allow the NNPP to utilize existing overpack fabrication and storage buildings and the existing facility for loading M-290 shipping containers for shipments to an interim storage facility or a geologic repository in conjunction with the new facility. Therefore, based on these factors, the NNPP has selected the New Facility Alternative at Location 3/4.

Mitigation Measures

NNPP standards for construction and operation of facilities incorporate engineered and administrative controls to minimize impacts to the environment, workers, and the public. Furthermore, activities are performed to comply with applicable laws and regulations, including obtaining appropriate construction and operating permits. Complying with permits, following standard procedures and management practices, and implementing best management practices, when applicable, are considered part of normal practices and are not included as mitigation measures.

The NNPP will prepare a Mitigation Action Plan (MAP) to track mitigation commitments. The MAP will explain the planned mitigation measures and the monitoring needed to ensure compliance. These measures include actions identified during consultation with agencies and actions where credit is taken for reducing impacts. These mitigation measures are listed below.

Mitigations Identified Through Consultation

Mitigation commitments resulting from consultations with the State Historic Preservation Office (SHPO) and Tribal Government (Appendix B of the EIS) are listed below:

1. Idaho State Historical Society Compliance Archeologist concurred with the recommendation of no adverse effect if “Recommendations for Additional Project Measures” as identified in Section 8.3 of the 2013 Cultural Resources Investigations Report are adopted. A subset of the recommendations that meet the definition for mitigations are:
 - Monitor sensitive archaeological resources located in proximity to the three defined direct areas of potential effect for indirect impacts and implement protective measures if warranted;
 - Conduct cultural resource sensitivity training for personnel to discourage unauthorized artifact collection, off-road vehicle use, and other activities that may impact cultural resources;
 - Implement a Stop Work Procedure to guide the assessment and protection of any unanticipated discoveries of cultural materials during construction and operations.

2. Provide the Shoshone-Bannock Tribes Heritage Tribal Office the opportunity to monitor key ground-disturbing activities that occur at NRF in support of the recapitalization activities.

Mitigations Where Credit is Taken for Impact Reduction

Best Management Practices (BMPs) identified in the EIS that are part of adopted DOE, INL, or NRF plans, contractor stipulations, or listed in standard operating procedures for the DOE, INL, or NRF are not considered a mitigation. Additional BMPs, where credit is taken for reducing an impact are listed below:

1. Use of high-performance generators (Tier-4).

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James F. Caldwell, Jr., Director
Naval Nuclear Propulsion Program

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