



NUCLEAR REGULATORY COMMISSION

[Docket No. 50-613; NRC-2024-0078]

US SFR Owner, LLC.; Kemmerer Power Station, Unit 1; Environmental Assessment and Finding of No Significant Impact

AGENCY: Nuclear Regulatory Commission.

ACTION: Notice; issuance.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) staff is making a finding of no significant impact (FONSI) for a proposed issuance of an exemption in response to a February 28, 2025 request, as supplemented by letters dated April 7, and April 29, 2025, for the proposed Kemmerer Power Station Unit 1 (Kemmerer 1) facility. Specifically, TerraPower, LLC (TerraPower), on behalf of its wholly-owned subsidiary US SFR Owner, LLC (USO), requested an exemption that would modify a portion of the definition of construction applicable to the prohibition on construction of production and utilization facilities without an NRC license for the proposed Kemmerer 1. If granted, this exemption would allow the driving of piles, subsurface preparation, placement of backfill, concrete, or permanent retaining walls within an excavation, installation of foundations, or in-place assembly, erection, fabrication or testing, which are for structures, systems, and components (SSCs) classified as non-safety-related with no special treatment (NST) the failure of which could cause a reactor scram or actuation of a safety-related system that are located on the proposed Kemmerer 1 energy island prior to receipt of a construction permit (CP) and without a limited work authorization. The NRC staff is issuing a final Environmental Assessment (EA) and FONSI associated with the proposed exemption request.

DATES: The EA and FONSI referenced in this document are available on **[INSERT DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

ADDRESSES: Please refer to Docket ID **NRC-2024-0078** when contacting the NRC

about the availability of information regarding this document. You may obtain publicly available information related to this document using any of the following methods:

- **Federal Rulemaking Website:** Go to <https://www.regulations.gov> and search for Docket ID **NRC-2024-0078**. Address questions about Docket IDs in Regulations.gov to Bridget Curran; telephone: 301-415-1003; email: Bridget.Curran@nrc.gov. For technical questions, contact the individual listed in the “For Further Information Contact” section of this document.

- **NRC’s Agencywide Documents Access and Management System (ADAMS):** You may obtain publicly available documents online in the ADAMS Public Documents collection at <https://www.nrc.gov/reading-rm/adams.html>. To begin the search, select “Begin Web-based ADAMS Search.” For problems with ADAMS, please contact the NRC’s Public Document Room (PDR) reference staff at 1-800-397-4209, at 301-415-4737, or by email to PDR.Resource@nrc.gov. For the convenience of the reader, instructions about obtaining materials referenced in this document are provided in the “Availability of Documents” section.

- **NRC’s PDR:** The PDR, where you may examine and order copies of publicly available documents, is open by appointment. To make an appointment to visit the PDR, please send an email to PDR.Resource@nrc.gov or call 1-800-397-4209 or 301-415-4737, between 8 a.m. and 4 p.m. eastern time (ET), Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: Mallecia Sutton, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; telephone: 301-415-0673; email: Mallecia.Sutton@nrc.gov.

SUPPLEMENTARY INFORMATION:

I. Introduction

By letter dated March 28, 2024, TerraPower, LLC (TerraPower), on behalf of its wholly-owned subsidiary US SFR Owner, LLC (USO), submitted a construction permit (CP) application, including an environmental report to the NRC staff for a reactor facility

pursuant to part 50 of title 10 of the *Code of Federal Regulations* (10 CFR), “Domestic Licensing of Production and Utilization Facilities,” and section 103 of the Atomic Energy Act of 1954, as amended. The proposed facility, referred to as Kemmerer Power Station Unit 1 (Kemmerer 1), if approved, would be built in Lincoln County, Wyoming and utilize TerraPower and General Electric-Hitachi Sodium sodium fast reactor technology. Supplements to the application were submitted on May 2, 2024, and May 9, 2024. On May 21, 2024, the NRC staff accepted the CP application for docketing (89 FR 47997). This CP application is undergoing a separate review by the NRC staff. As part of that review, the NRC is preparing a detailed review of the environmental impact associated with the CP application, which proposes to construct a non-light water Sodium reactor for Kemmerer 1, in an environmental impact statement.

By letter dated September 9, 2024, TerraPower submitted, on behalf of USO, an exemption request for the proposed Kemmerer 1. The requested exemptions were from the definitions of construction in 10 CFR 50.10(a), “Definitions,” and 10 CFR 51.4, “Definitions,” and would have excluded all non-safety-related with no special treatment (NST) structures, systems, and components (SSCs) located on the energy island (EI) from the scope of construction as defined in these regulations. By letter dated February 28, 2025, TerraPower submitted, on behalf of USO, a new request that superseded the September 9, 2024 request and requested an exemption with a more limited scope. TerraPower, on behalf of USO, supplemented this request with letters dated April 7, and April 29, 2025. In particular, the supplement dated April 29, 2025, withdrew the requested exemption from 10 CFR 51.4.

As modified by the superseding exemption request and subsequent supplements, the NRC is considering issuance of an exemption that would modify the definition of construction in 10 CFR 50.10(a)(1)(iv) from “SSCs whose failure could cause a reactor scram or actuation of a safety-related system” to “SSCs whose failure could cause a reactor scram or actuation of a safety-related system, excluding Sodium EI SSCs classified as non-safety-related with no special treatment (NST).” This specific

exemption would allow USO to proceed with the driving of piles, subsurface preparation, placement of backfill, concrete, or permanent retaining walls within an excavation, installation of foundations, or the in-place assembly, erection, fabrication, or testing of SSCs classified as NST the failure of which could cause the reactor to scram or actuation of a safety-related system that are located on the proposed energy island (EI) without a limited work authorization while the NRC staff continues its review of the Kemmerer 1 CP application. If the NRC determines that approval of the exemption request is appropriate, the exemption would be issued to USO for the proposed Kemmerer 1.

In accordance with 10 CFR 51.21, the NRC has prepared an EA that analyzes the environmental effects of the proposed action. Based on the results of the EA and in accordance with 10 CFR 51.31(a), the NRC has prepared a FONSI for the proposed exemption. Consistent with 10 CFR 51.33, "Draft finding of no significant impact; distribution," the NRC staff did not prepare a draft finding of no significant impact in this instance.

II. Environmental Assessment

Description of the Proposed Action

The proposed action would modify the definition of construction in 10 CFR 50.10(a)(1)(iv) from "SSCs whose failure could cause a reactor scram or actuation of a safety-related system" to "SSCs whose failure could cause a reactor scram or actuation of a safety-related system, excluding Sodium EI SSCs classified as non-safety-related with no special treatment (NST)." This specific exemption would allow USO to proceed with the driving of piles, subsurface preparation, placement of backfill, concrete, or permanent retaining walls within an excavation, installation of foundations, or the in-place assembly, erection, fabrication, or testing of SSCs classified as NST the failure of which could cause the reactor to scram or actuation of a safety-related system that are located on the proposed EI without a limited work authorization while the NRC staff continues its review of the Kemmerer 1 CP application.

Separate from this EA, the NRC staff is evaluating the proposed action against the relevant exemption criteria in 10 CFR 50.12, "Specific exemptions." The results of this review will be documented in a separate *Federal Register* notice. The NRC staff's review will determine whether the criteria in 10 CFR 50.12 are met. Further, the NRC staff is separately reviewing the submitted CP application and the environmental effects associated with approval, if appropriate, of the CP application. Issuing this exemption, if appropriate, would not constitute a commitment by the NRC to issue a CP for Kemmerer 1. If approved, USO would install the SSCs assuming the risk that its CP application may later be denied.

Need for the Proposed Action

Issuance of the exemption would allow USO to begin the driving of piles, subsurface preparation, placement of backfill, concrete, or permanent retaining walls within an excavation, installation of foundations, or the in-place assembly, erection, fabrication, or testing of SSCs classified as NST the failure of which could cause the reactor to scram or actuation of a safety-related system that are located on the proposed EI without a limited work authorization while the NRC staff continues its review of the Kemmerer 1 CP application. As that work falls under the definition of construction in 10 CFR 50.10(a), without this exemption, 10 CFR 50.10(c) would prohibit USO from performing that work under until the NRC staff issued it a CP or a limited work authorization, should that be appropriate.

TerraPower, on behalf of USO, has indicated that if this work is delayed until issuance of the CP, it would result in substantial schedule delays for the proposed Kemmerer 1. TerraPower, on behalf of USO, also stated that, although the exact costs of delayed operation of Kemmerer 1 would depend on a number of uncertain factors, they are expected to be substantial.

Environmental Impacts of the Proposed Action

In February 2025, the Department of Energy (DOE) Office of Clean Energy Demonstrations issued DOE/EA-2264, "Final Environmental Assessment Kemmerer

Power Station Unit 1 Preliminary Activities Kemmerer, Lincoln County, Wyoming,”¹ for the proposed action of authorizing the expenditure of Federal funding to conduct preliminary activities for the proposed Kemmerer 1. According to the DOE EA, the proposed action addresses preliminary activities that would occur prior to the NRC issuance of a CP for the Kemmerer 1 site. These preliminary activities are described in section 2.1, “Proposed Action,” of the DOE EA and include, among other things, the following:

- Earthwork activities, including site clearing and grubbing to remove the top layer of topsoil and organic material and store it in a stockpile area for possible use as backfill.
- Dewatering activities, including establishing temporary dewatering systems to maintain dry working conditions for preliminary activities.
- Excavation and backfill activities, including the importation and placement of common and structural backfill, general excavation of the site, general backfill, development of spoil and laydown areas, placement of common fill, and construction of stormwater management ponds.
- Supporting infrastructure activities, including construction of buildings, temporary utilities, plant roads and parking, walkways, and storm drainage. Preliminary activities include the erection of buildings on the EI. Section 2.1.4.4, “Buildings on the Energy Island,” of the DOE EA states “[t]hese activities would consist of excavation and backfill of the foundations, installation of mud mats, formwork, rebar and embeds, and placement of concrete. Embedded pipes and electrical conduit and grounding would be installed during foundation construction. Steel and superstructure would be installed after completion of the foundations.”

The DOE EA determined that the environmental impacts of these activities on ecological resources; cultural resources; hydrology; socioeconomics; geological resources; and infrastructure, traffic, and transportation are minor. Based on this

¹ https://www.energy.gov/sites/default/files/2025-02/final-ea-fonsi-appendices-2264-terrapower-kemmerer-unit-1-2024-10_1.pdf.

conclusion, DOE issued a finding of no significant impact.² Although the DOE EA stated that it was considering activities that would occur before the NRC's issuance of the construction permit, it captured certain activities which require NRC authorization. Issuance of this exemption would allow the construction of buildings on the EI, which as described in section 2.1.4.4 of the DOE EA, was included in the activities DOE considered. This includes the subsurface preparation, placement of backfill, and concrete, within an excavation, installation of foundations, and the in-place assembly or erection or fabrication of buildings classified as NST the failure of which could result in a reactor scram or actuation of a safety-related system located on the proposed Kemmerer 1 EI. The NRC staff reviewed the analysis in the DOE EA and determined that, because it already considered work that this exemption would approve, despite the different proposed actions, the DOE EA bounds those aspects of the work. Therefore, the NRC incorporates the DOE EA by reference into this EA.

The NRC staff then considered the work that was not covered by the DOE EA. This work consists of the in-place assembly, erection, fabrication or testing of SSCs, apart from the buildings, classified as NST that are located within buildings on the proposed EI the failure of which could cause the reactor to scram or actuation of a safety-related system. As an initial matter, neither TerraPower nor USO are licensed to possess or use radiological materials. Since the proposed action does not involve operating the facility and there are no radiological materials on site, it would result in no significant changes in the types or amounts of radiological effluents that may be released offsite.

Further, the work authorized by this exemption would occur in the same area of the site as the work considered by the DOE EA. Thus, the environment in that area will have already been disturbed by the pre-construction work the DOE EA considered, which is not part of the NRC proposed action, and by the work requiring NRC authorization but that the DOE EA considered. Some of the work encompassed by the

² https://www.energy.gov/sites/default/files/2025-02/final-ea-fonsi-2264-terrapower-kemmerer-unit-1-2024-10_0.pdf

NRC proposed action is not considered by the DOE EA, but the staff finds is similar in nature to work considered by the DOE EA. To the extent that the nature of the work is similar to the work considered in the DOE EA, the NRC staff determined that the effects determination from the DOE EA would bound this work. With regard to the work not considered by the DOE EA which is dissimilar to work the DOE EA considered (e.g. the installation of an SSC within a building as opposed to the construction of the building), the NRC staff determined that this work would not involve any ground disturbing activities. Further, any impacts from hydrologic alteration of groundwater or surface water during the authorized activities would be short-term and minor because the major hydrological impacts would be expected during the conduct of earthwork, dewatering, excavation and backfill, and supporting infrastructure activities analyzed in the DOE EA, not the installation components within buildings. Therefore, due to the nature of the work and the fact that the area would be previously disturbed by the work considered in the DOE EA, the NRC staff finds the effects on the environment by the work that would be authorized by this exemption, if approved, bounded by the analysis in the DOE EA and, therefore, minor.

In conclusion, the NRC staff has determined that the impacts of the proposed exemption on the environment would be minor. Finally, the NRC staff notes that although the DOE EA sometimes describes what it analyzed using different words than the NRC typically uses, its analysis captured the resource areas that the NRC usually considers in its EAs. Therefore, there are no significant non-radiologic environmental impacts associated with the proposed action.

Environmental Impacts of the Alternatives to the Proposed Action

As an alternative to the proposed action, the NRC staff considered denial of the proposed action (i.e., the “no-action” alternative). If the NRC were to deny the exemption request, USO would not be allowed to perform the activities covered by this exemption before the CP is issued, if appropriate. TerraPower, on behalf of USO, has already submitted a CP application for the proposed Kemmerer 1 facility. Should the NRC staff

approve the CP, this work would still occur, just later in the future.

Alternative Use of Resources

There are no unresolved conflicts concerning alternative uses of available resources under the proposed action.

Agencies and Persons Consulted

The NRC staff did not enter into consultation with any Federal agency or with the State of Wyoming regarding the environmental impact of the proposed action. The NRC and DOE have a Memorandum of Understanding (MOU) related to implementation of the National Environmental Policy Act (NEPA) for reactor demonstration projects, including the proposed Kemmerer 1. Although the MOU lays out certain roles and responsibilities for NRC and DOE, it also acknowledges that circumstances may arise where both agencies would be better served by a different form of coordination and notes that it does not preclude such arrangements. In this instance, DOE has already consulted with relevant entities. As discussed in this notice, the NRC staff determined that the effects considered in the DOE EA bound the effects of this proposed action. The NRC staff independently reviewed the DOE's consultation of Federal and state agencies for the proposed action. Based on that review and the determination that the DOE EA bounds this proposed action, the NRC staff determined there was no need for additional consultation. Therefore, the NRC staff relied on the consultation activities conducted by DOE documented in its EA, which it incorporated by reference earlier in this EA.

III. Finding of No Significant Impact

TerraPower, on behalf of USO, has requested an exemption that, if granted, would modify the definition of construction in 10 CFR 50.10(a)(1)(iv) to allow USO to proceed with the driving of piles, subsurface preparation, placement of backfill, concrete, or permanent retaining walls within an excavation, installation of foundations, or the in-place assembly, erection, fabrication, or testing of NST SSCs the failure of which could cause a reactor scram or actuation of a safety-related system that are located on the proposed EI without a limited work authorization while the NRC staff continues its review

of the Kemmerer 1 CP application. The proposed action would not have significant adverse radiological or non-radiological impacts. This FONSI incorporates by reference the EA in Section II of this notice. Based on the EA, the NRC concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the NRC has determined not to prepare an environmental impact statement for the proposed action.

IV. Availability of Documents

The documents identified in the following table are available to interested persons through ADAMS, as indicated.

DOCUMENT DESCRIPTION	ADAMS ACCESSION NO.
Submittal of the Construction Permit Application for the Natrium Reactor Plant, Kemmerer Power Station Unit 1, dated March 28, 2024.	ML24088A059 (package)
Supplement to Construction Permit Application for the Natrium Reactor Plant, Kemmerer Power Station Unit 1 Regarding Agreement between US SFR Owner, LLC and TerraPower, LLC, dated May 2, 2024.	ML24123A242
Supplement to Construction Permit Application for the Natrium Reactor Plant, Kemmerer Power Station Unit 1 Regarding Fitness-for-Duty and Security Clarifying Information, dated May 2, 2024.	ML24123A243
Supplement to Construction Permit Application for the Natrium Reactor Plant, Kemmerer Power Station Unit 1 Regarding Materials of Construction Clarifying Information, dated May 9, 2024.	ML24130A181
Acceptance for Docketing of Kemmerer Power Station Unit 1 Construction Permit Application by US SFR Owner, LLC, dated May 21, 2024.	ML24135A109
Exemption Request Associated with Construction of the Natrium Energy Island dated, September 9, 2024.	ML24253A023
Exemption Request and Application of Topical Report NATD-LIC-RPRT-0001-A for Construction of the Natrium Energy Island at Kemmerer Unit 1, dated February 28, 2025.	ML25059A093

Supplement to Exemption Request and Application of Topical Report NATD-LIC-RPRT-0001-A for Construction of the Sodium Energy Island at Kemmerer Unit 1, dated April 7, 2025.	ML25097A132
Withdrawal of Exemption Request from 10 CFR 51.4 Definition of Construction for Construction of the Sodium Energy Island at Kemmerer Unit 1, dated April 29, 2025.	ML25119A205

Dated: May 2, 2025.

For the Nuclear Regulatory Commission.

Jeremy Bowen,
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Non-power Production and Utilization
Facilities,
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