UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Ho K. Nieh, Chairman
David A. Wright
Bradley R. Crowell
Matthew J. Marzano
Douglas W. Weaver

In the Matter of US SFR OWNER, LLC (Kemmerer Power Station, Unit 1)	Docket No. 50-613-CP

CLI-26-5

MEMORANDUM AND ORDER

In this uncontested proceeding, we consider the sufficiency of the NRC Staff's review of the application of US SFR Owner, LLC (USO), a wholly owned subsidiary of TerraPower, LLC (TerraPower), for a permit to construct Kemmerer Power Station, Unit 1 (KU1) in Lincoln County, Wyoming.[1] As discussed below, we find that the Staff's review was sufficient to support the regulatory findings. We therefore authorize issuance of the construction permit.

[1] *See* US SFR Owner, LLC; Notice of Hearing, 90 Fed. Reg. 60,132 (Dec. 23, 2025) (Hearing Notice).

I. BACKGROUND

A. Proposed Action

The construction permit would authorize construction of KU1, a Natrium advanced reactor plant, outside of the town of Kemmerer in Lincoln County, Wyoming.[2] The KU1 project is supported by the U.S. Department of Energy's (DOE's) Advanced Reactor Demonstration program and would be used to demonstrate the Natrium sodium fast-reactor technology.[3] The KU1 reactor plant consists of an 840 megawatt thermal (MWt) pool-type, metal-fueled, sodium-cooled fast reactor (SFR) featuring a "compact and simple safety envelope" and utilizing a molten salt energy storage system, which would enable KU1 to vary its supply of energy to the grid—up to a net 500 megawatts electric (MWe)—while maintaining constant reactor power.[4] The KU1 reactor plant will provide electricity generation capacity in the PacifiCorp service area.[5] USO expects to complete construction by February 28, 2031,[6] and apply for a future Class 103 operating license for a 40-year period.[7]

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[2] *Id*., 90 Fed. Reg. at 60,132. Natrium is a technology developed by TerraPower and General Electric (GE)-Hitachi. Ex. NRC-004A, Letter from George Wilson, TerraPower, to NRC Document Control Desk, "Submittal of the Construction Permit Application for the Natrium Reactor Plant, Kemmerer Power Station Unit 1" (Mar. 28, 2024), at 1 n.1 (ADAMS accession no. ML26026A334).

[3] Ex. NRC-006A, Letter from George Wilson, TerraPower, to NRC Document Control Desk (Oct. 3, 2025), Encl. 1, "Preliminary Safety Analysis Report, Revision 1 – Public," at 1.1-1 (PSAR) (ML26026A345).

[4] *Id*.

[5] *Id*.

[6] Ex. NRC-001A, "Staff's Statement in Support of the Uncontested Hearing for the Issuance of a Construction Permit for the USO Kemmerer Power Station, Unit 1," Commission Paper SECY-25-0102 (Dec. 18, 2025), at 18 (ML26026A330) (Staff Information Paper) (citing Letter from George Wilson, TerraPower, to NRC Document Control Desk, "Submittal of Supplemental Information to Support the Kemmerer Unit 1 Construction Permit Application Review" (Dec. 9, 2025) (ML25343A199)).

[7] *Id*. at 4.

The Staff conducted a safety review of the KU1 construction permit application to determine whether it complies with the Atomic Energy Act of 1954, as amended (AEA), and the NRC's regulations.[8] The Advisory Committee on Reactor Safeguards (ACRS) provided an independent assessment of the safety aspects of the application and selected portions of the Staff's associated safety evaluation (SE).[9] The ACRS stated that its review supported the issuance of the construction permit.[10] The Staff also performed an environmental review, in accordance with the National Environmental Policy Act of 1969, as amended (NEPA), that evaluated the environmental impacts of constructing KU1.[11] Based on its safety and environmental reviews, the Staff recommended that the Commission issue the construction permit to USO.[12]

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[8] *See* Ex. NRC-003A, "Safety Evaluation Related to the U.S. SFR Owner, LLC Construction Permit Application for the Kemmerer Power Station Unit 1" (Nov. 2025) (ML26026A333) (SE). The Staff also submitted for our review in this proceeding a nonpublic version of the safety evaluation and other relevant documents. *See NRC Staff Exhibit List* (Jan. 26, 2026) (Staff Exhibit List). Where possible, we refer to the public version of these documents.

[9] *See* Ex. NRC-007, Letter from Walter L. Kirchner, Chairman, ACRS, to David A. Wright, Chairman, NRC, "Report on the Safety Aspects of the Construction Permit Application for a TerraPower Natrium Reactor at the Kemmerer Power Station" (Nov. 16, 2025) (ML26026A347) (ACRS Letter). The ACRS is a committee of technical experts charged with reviewing and reporting on safety studies and applications for construction permits and facility operating licenses.

[10] *Id*. at 2.

[11] *See* Ex. NRC-002, "Environmental Impact Statement for the Construction Permit Application for Kemmerer Power Station Unit 1" (Final Report), NUREG-2268 (Oct. 2025) (ML26026A331) (FEIS); Ex. NRC-001C, "Draft Summary Record of Decision, U.S. Nuclear Regulatory Commission Docket No. 50-0613, Construction Permit Application for the Proposed Kemmerer Power Station, Unit 1" (nonpublic) (ML26026A354); *see* 42 U.S.C. § 4321 et seq.

[12] Ex. NRC-001A, Staff Information Paper, at 21-22; *see* Ex. NRC-001B, "US SFR Owner, LLC, Docket No. 50-613, Kemmerer Power Station, Unit 1, Construction Permit" (nonpublic) (ML26026A353) (Draft Construction Permit).

B. The Hearing Process

Section 189a. of the AEA requires that the Commission hold a hearing on an application to construct a power reactor.[13] After the Staff issued its final review document—in this case, the SE—the Staff submitted an Information Paper to the Commission outlining its determinations and recommendation regarding issuance of the construction permit.[14] The Staff Information Paper serves as the Staff's primary testimony for this uncontested hearing.[15] Shortly thereafter, we issued a notice for the uncontested hearing that outlined schedule milestones for the hearing and the standards for our review.[16] We issued nine questions on safety and environmental-related topics for the Staff and USO to answer in writing.[17] Additionally, the Staff filed a number of exhibits related to its review of the application.[18]

C. Review Standards

Our review standards track the two major areas of focus for the review of a construction permit application: the Staff's safety and environmental reviews. For the safety review, we must determine whether the application satisfies the requirements in 10 C.F.R. §§ 50.35(a) and 50.40.[19] For our environmental review, we must make the determinations outlined in 10 C.F.R.

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[13] AEA § 189a., 42 U.S.C. § 2239(a)(1)(A) ("The Commission shall hold a hearing . . . on each application under section 2133 or 2134(b) of this title for a construction permit for a facility . . . .").

[14] *See* Ex. NRC-001A, Staff Information Paper, at 14-22.

[15] *Id*. at 1.

[16] *See* Hearing Notice, 90 Fed. Reg. at 60,133. The Commission did not receive any comments from interested government participants in response to our invitation to provide written statements. *See id*.

[17] Order of the Secretary (Transmitting Hearing Questions) (Jan. 12, 2026) (unpublished) (Questions Order); *US SFR Owner, LLC Responses to Commission Hearing Questions* (Jan. 21, 2026) (Applicant Responses); *NRC Staff Responses to Commission Hearing Questions* (Jan. 26, 2026) (Staff Responses).

[18] *See* Staff Exhibit List.

[19] *See* Hearing Notice, 90 Fed. Reg. at 60,132-33.

§ 51.105(a).[20] If we determine that the application meets the standards and requirements of the AEA and the NRC's regulations and that any notifications to other agencies or bodies have been duly made, we will issue a construction permit "in such form and containing such conditions and limitations" that we deem "appropriate and necessary."[21]

We do not review USO's application de novo; rather, we consider the sufficiency of the Staff's review of the application on both safety and environmental matters.[22] In other words, we consider whether the safety and environmental record is adequate to support issuance of the construction permit and whether the Staff's findings are reasonably supported in logic and fact.[23] Under our regulations, we must reach our own independent determination on certain environmental findings—i.e., whether the relevant NEPA requirements have been met, what is the appropriate "final balance among conflicting factors," and whether the construction permit "should be issued, denied[,] or appropriately conditioned."[24] But we will not "second-guess [the Staff's] underlying technical or factual findings" unless we find the Staff's review incomplete or inadequate or its findings insufficiently explained in the record.[25]

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[20] *See id.* at 60,133. Because this is an uncontested proceeding, 10 C.F.R. § 51.105(a)(5), which concerns only contested proceedings, does not apply.

[21] 10 C.F.R. § 50.50.

[22] *See Exelon Generation Co., LLC* (Early Site Permit for Clinton ESP Site), CLI-05-17, 62 NRC 5, 34, 38-39 (2005).

[23] *See id*. at 39.

[24] *Id*. at 45 (quoting 10 C.F.R. § 51.105(a)(1)-(3)).

[25] *Id*.

II. DISCUSSION

We find that USO's application meets our regulatory requirements for issuance of a construction permit, but we note that our decision does not constitute approval of the design.[26] While we have considered the record in its entirety, we focus our discussion of the Staff's safety and environmental reviews on novel issues and site-specific considerations.[27]

A. The Staff's Safety Review

This construction permit will be the first issued under 10 C.F.R. Part 50 for a non-light-water commercial power reactor in over 50 years.[28] Some Part 50 requirements have not been addressed for a non-light-water reactor in several decades because the more recent non-light-water reactor applications[29] have been for nonpower facilities, and some of the requirements in Part 50 only apply to commercial reactors.[30] As with the recent non-light-water nonpower reactor construction permit reviews, USO established design-specific principal design criteria (PDCs) instead of using the general design criteria in Part 50, Appendix A.[31]

Before submitting its construction permit application on behalf of USO in 2024, TerraPower engaged in extensive preapplication activities with the Staff, including the

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[26] *See* 10 C.F.R. § 50.35(b). Because USO did not request approval of the safety of any design feature or specification in its application, the Staff did not make any findings on the safety of any 10 C.F.R. Part 50 design feature or specification. *See id.*; Ex. NRC-001A, Staff Information Paper, at 8; Ex. NRC-003A, SE, at 1-4.

[27] *See* Staff Requirements—SECY-24-0032—Revisiting the Mandatory Hearing Process at the U.S. Nuclear Regulatory Commission (July 18, 2024), at 1 (ML24200A044) (SRM-SECY-24-0032); *see also* "Revisiting the Mandatory Hearing Process at the U.S. Nuclear Regulatory Commission," Commission Paper SECY-24-0032 (Apr. 12, 2024) (ML24103A090).

[28] Ex. NRC-001A, Staff Information Paper, at 9.

[29] *E.g.*, Kairos Power's Hermes and Hermes 2 and Abilene Christian University's Molten Salt Research Reactor. *Id.*

[30] *Id.*

[31] *Id.*

development of topical reports, white papers, and a readiness assessment.[32] Some technical issues were addressed in parallel with the Staff's review of the application.[33] USO supplemented its application and provided clarifications through timely responses to the Staff's requests for confirmatory information, participation in a general regulatory audit, and in docketed correspondence.[34] The Staff granted four exemptions from NRC regulations—three requested by USO and one on its own initiative.[35] The exemptions relate to high-assay low-enriched uranium (HALEU) fuel and criticality accident requirements, emergency core cooling system analysis, financial qualifications, and the use of the safety classification process described in Nuclear Energy Institute (NEI) 18-04, Revision 1, "Risk-Informed Performance-Based Technology Inclusive Guidance for Non-Light Water Reactor Licensing Basis Development."[36]

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[32] *Id*. at 3. While TerraPower submitted the construction permit application on USO's behalf, USO—a wholly owned subsidiary of TerraPower—will own 100 percent of KU1 and will be the NRC permit holder and responsible for the construction of KU1. As the Staff explains in its Information Paper, "USO is a U.S.-based company created to serve as a vehicle for TerraPower's [DOE] Advanced Demonstration Project bid for the Natrium Demonstration Project." *Id*. The Staff found that USO is technically qualified based upon the agreements and relationship between USO and TerraPower. *Id*. at 4 (citing Letter from George Wilson, TerraPower, to NRC Document Control Desk, "Agreement between US SFR Owner, LLC and TerraPower, LLC" (May 2, 2024) (ML24123A242)).

[33] The Staff reviewed 13 TerraPower topical reports concurrently with the application. The Staff completed a safety evaluation for each topical report and included limitations or conditions on its use in the associated safety evaluation. The safety reviews confirmed that the limitations or conditions for the topical reports referenced in the PSAR were satisfied or could reasonably be left to the operating license stage. *Id*. at 3.

[34] *Id.* at 3, 15, 16; Ex. NRC-003A, SE, at 1-1 to -2; *see* Ex. NRC-006A, Letter from George Wilson, TerraPower, to NRC Document Control Desk, "Submittal of Revisions to the Construction Permit Application for the Natrium Reactor Plant, Kemmerer Power Station Unit 1" (Oct. 3, 2025) (ML26026A345); Letter from Mallecia Sutton, NRC, to George Wilson, TerraPower, "US SFR Owner, LLC – Summary Report for the General Regulatory Audit of the Kemmerer Power Station Unit 1 Construction Permit Application (EPID No. L-2024-CPS-000)" (Nov. 21, 2025) (ML25302A445).

[35] Ex. NRC-001A, Staff Information Paper, at 8-9. USO requested a fourth exemption related to the scope of the maintenance rule monitoring program that the Staff identified as applicable at the operating license stage and therefore did not grant at this time. *Id*.

[36] *Id*.; Ex. NRC-003A, SE, app. B, at B-1.

In its Information Paper, the Staff highlighted its achievement of completing the safety and environmental reviews of the KU1 construction permit application significantly ahead of the initial schedule previously communicated to TerraPower.[37] The Staff attributed the acceleration of its safety review to its "continued application of enhanced licensing practices such as the effective use of a core team, extensive use of audits, and streamlined documentation of [S]taff findings, in addition to streamlined internal processes and effective coordination" with NRC management and the ACRS.[38] In service of its approach, the Staff employed a focused legal review of the application, emphasizing areas where the applicant requested regulatory exemptions or proposed new approaches to meeting requirements.[39]

1. Key Design Features

Although sodium fast-reactor designs have been developed and demonstrated in the past, several key features of the KU1 design are expected to enhance safety when compared to earlier designs. These include the use of HALEU fuel, which has favorable neutronics characteristics; the use of multiple mechanical primary coolant pumps to reduce the chance that forced circulation of coolant might be lost; a highly reliable scram system to ensure reactor shutdown if necessary; and a seismic isolation system to mitigate seismic loads on the reactor core.[40] The use of diverse passive and active heat removal systems is expected to increase safety margins in the event of accidents, and the inherent features of the primary coolant

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[37] Ex. NRC-001A, Staff Information Paper, at 2 (citing Letter from Mallecia Sutton, NRC, to George Wilson, TerraPower, "US SFR Owner, LLC – Kemmerer Power Station Unit 1 Construction Permit Application Review Schedule and Resource Estimate (EPIDS: L-2024-CPS-0000 and L-2024-LNE-0002)" (June 12, 2024) (ML24162A063)); *see also* Staff Responses at 1 (stating "the Staff accelerated its review of the [KU1 application] by 9 months . . .").

[38] Ex. NRC-001A, Staff Information Paper, at 2.

[39] *Id*.; Staff Responses at 1-2.

[40] Ex. NRC-001A, Staff Information Paper, at 10; Ex. NRC-007, ACRS Letter, Encl. 1, at 1-2.

system would, due to low operating pressures, ensure there is no driving force to energetically disperse or transport radionuclides away from the reactor.[41]

Among the novel aspects of the proposed KU1 design is the physical separation of reactor safety systems from those that generate electricity.[42] Under this "nuclear island" concept, the reactor, which sits in a sodium pool, would transfer heat via low-pressure, high-temperature sodium to an intermediate sodium piping loop through intermediate heat exchangers located in the reactor pool. The intermediate sodium loop transports heat to a molten salt system through sodium-salt heat exchangers (SHXs).[43] Within the SHXs, molten salt would be heated by the reactor, through the intermediate molten sodium loop, then transported over distances to a physically separated "energy island," where electrical generation systems are located. There, the molten salt would be stored in tanks, and heat from the salt would be used to create the steam needed to power a turbine-generator.[44] Due to physical separation of the electricity- and steam-generating systems from the nuclear island, their performance (or failure) is not expected to affect the safety of the reactor.[45]

One of the greatest areas of uncertainty regarding plant hazards involves the potential for sodium-salt reactions in the SHXs.[46] USO intends to design the SHX system to preclude sodium-salt reactions or demonstrate that any credible failures will result in a negligible amount of sodium and salt interacting, but further research and development is needed to support the

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[41] Ex. NRC-007, ACRS Letter, at 1, 5.

[42] Ex. NRC-001A, Staff Information Paper, at 10 n.3; Ex. NRC-007, ACRS Letter, at 2 and Encl. 1 at 2.

[43] Ex. NRC-003A, SE, at 7-43.

[44] Ex. NRC-001A, Staff Information Paper, at 10 n.3; Ex. NRC-007, ACRS Letter, at 2 and Encl. 1 at 2.

[45] *Id*.

[46] Ex. NRC-001A, Staff Information Paper, at 10; Ex. NRC-007, ACRS Letter, at 6.

final design.[47] A proposed permit condition would require USO to file annual reports of its research and development activities for the SHX system, which would help the Staff identify and address safety questions early, before an operating license application is submitted, and assist the Staff in deciding how to focus its oversight of construction activities in the interim.[48]

Another area of uncertainty identified by the Staff has to do with protection from sodium fires due to sodium leakage from vessels, pipes, and during fuel handling activities, including when fuel is moved from the sodium coolant to storage in water.[49] Due to sodium's chemical reactivity with concrete, air, and water, sodium leakages and fuel movements can create fire hazards that are different from those experienced by light-water reactors. Accordingly, we asked the Staff and USO to address the suitability of existing fire protection standards for the development of detection, suppression, and support systems needed to fight sodium fires.[50]

Both the Staff and USO stated that existing codes and standards are suitable to develop the level of information needed to support a construction permit.[51] The Staff noted that fire protection strategies are highly dependent on the final plant design, so the applicant will need to coordinate the further development of those strategies with construction activities.[52] USO used available fire protection codes and standards, including standards applicable to liquid-metal-cooled reactors, to develop the preliminary plant layout in the PSAR, and as construction progresses and the design is finalized, any changes would follow design control processes in

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[47] Staff Responses at 10; Ex. NRC-003A, SE, at 13-4 to -7.

[48] Staff Responses at 10. According to the Staff, it discussed this proposed permit condition with the applicant, which confirmed that annual reporting would not impose an undue burden. *Id*.

[49] Ex. NRC-001A, Staff Information Paper, at 10.

[50] Questions Order at 5.

[51] Staff Responses at 8-9; Applicant Responses at 4.

[52] Staff Responses at 9.

accordance with its NRC-approved quality assurance program.[53] Finally, the Staff will consider including fire protection within the scope of its construction oversight and will review the final design of fire protection structures, systems, and components (SSCs) during the operating license stage.[54]

2. Application of the Licensing Modernization Project Methodology

This application is the first to use a fully risk-informed, performance-based licensing basis for a power reactor.[55] Specifically, the KU1 application used the Licensing Modernization Project (LMP) methodology, which was endorsed by the Staff in 2020.[56] As the Staff notes in its Information Paper, the employment of the LMP methodology represents a major milestone in the NRC's transition to risk-informed regulation.[57]

The LMP methodology is an iterative process that both informs and is informed by plant design.[58] Accident scenarios that span a range of probabilities are developed based on the design, then the performance of plant SSCs in response to each scenario is evaluated and the

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[53] Applicant Responses at 4.

[54] Staff Responses at 9.

[55] Ex. NRC-001A, Staff Information Paper, at 11.

[56] *Id*. at 4; Ex. NRC-007, ACRS Letter, at 1. The LMP approach is described in NEI 18-04, "Risk-Informed Performance-Based Technology-Inclusive Guidance for Non-Light Water Reactor Licensing Basis Development," Rev. 1, and was endorsed, with certain clarifications, in Regulatory Guide 1.233, "Guidance for a Technology-Inclusive, Risk-Informed, and Performance-Based Methodology to Inform the Licensing Basis and Content of Applications for Licenses, Certifications, and Approvals for Non-Light-Water Reactors," Rev. 0.

Guidance for the content of applications using this process is provided in NEI 21-07, which was endorsed, with certain clarifications and additions, in RG 1.253, and is also provided in DANU-ISG-2022-01.

[57] Ex. NRC-001A, Staff Information Paper, at 11.

[58] As the probabilistic risk assessment evolves from the construction permit stage, the selection of licensing basis events, classification of structures, systems, and components and identification of associated risk-informed special treatments, and determination of adequacy of defense in depth may be revised. Ex. NRC-007, ACRS Letter, at 6.

safety margins provided by the facility's response are determined. The resulting insights, along with defense-in-depth principles, are then used to further develop and refine the design to assure that regulatory criteria are met.[59]

As the design progresses from preliminary to final, it is possible that safety information described in the PSAR could change. We asked the Staff and USO to explain how they would ensure the licensing bases for a construction permit would be updated if changes occur.[60] The Staff and USO agree that the need for a permit amendment would be considered should there be consequential changes to the PDCs or a reduction in the safety classification of SSCs described in the PSAR.[61] The Staff plans to monitor changes during construction by reviewing required reports and through its construction oversight process.[62]

If an operating license application is later submitted, USO's final safety analysis report will reflect the design and analyses of the as-built plant, including any changes made during design finalization and construction.[63] Ultimately, the NRC will not issue a license authorizing operation of KU1 until the Commission finds that the final design provides reasonable assurance that operation of the facility in accordance with the requirements of the license and NRC regulations will not endanger public health and safety.[64]

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[59] Defense in depth is a design philosophy that incorporates the use of multiple barriers against radiation release and design measures to reduce the potential for, and consequences of, severe accidents. *See Policy Statement on the Regulation of Advanced Reactors*, 73 Fed. Reg. 60,612, 60,615 (Oct. 14, 2008). The ACRS found the applicant's methodical "defense line" approach, which applied a five-layer defense-in-depth model to assure independence and diversity in system designs and operation, notably straightforward and worthy of consideration in future Staff guidance. Ex. NRC-007, ACRS Letter, at 6.

[60] Questions Order at 2-4.

[61] Staff Responses at 3-4; Applicant Responses at 2-3.

[62] Staff Reponses at 3.

[63] Applicant Responses at 3.

[64] *See* 10 C.F.R. § 50.35(c).

B. The Staff's Environmental Review

An environmental review team, comprised of the Staff, its contractors, and U.S. DOE staff,[65] prepared a final environmental impact statement (FEIS) for the Kemmerer project.[66] The FEIS evaluated the environmental impacts of the proposed action[67] and two alternatives—constructing the proposed Natrium advanced reactor at one of two potential alternative locations, and the no-action alternative, which would consist of denying the construction permit

[65] In October 2020, DOE and TerraPower entered into a cooperative agreement to execute the Natrium demonstration project. Therefore, the provision of financial assistance by DOE is considered a federal action and subject to NEPA. Ex. NRC-002, FEIS, at 1-6. The present EIS is part of a series of environmental reviews required to support the broader Natrium demonstration project, which consists of "three separate and unique projects: the Sodium Test and Fill Facility (TFF), a fuel fabrication facility, and Kemmerer Unit 1." *Id*. The final EIS describes the four distinct environmental reviews that will be conducted or have already occurred to ensure that all components of the project are appropriately evaluated under NEPA. *See id*. at 1-6 to -7.

[66] *Id*. at xv, xvi. The NRC's regulations require preparation of an EIS before issuing a permit to construct a nuclear power reactor. *See* 10 C.F.R. § 51.20(b)(1). The Staff issued a draft EIS for public comment in June 2025. *See* Ex. NRC-002, FEIS, at 1-5. The environmental review team held two public meetings in Kemmerer, Wyoming, to solicit public comments, and provided a 45-day public comment period on the draft EIS. After considering the comments received at the public meetings and during the public comment period, the review team made appropriate revisions to the draft EIS and published the final EIS in October 2025. *Id*. The final EIS notes that the environmental impacts of four exemption requests associated with the construction permit application were also encompassed by the analysis of the environmental impacts of the proposed action evaluated in the EIS and would be further reviewed during the operating license stage of the licensing process. *Id*. At the construction permit stage, the environmental review team found that these environmental impacts "would not be significant." *Id*.

[67] The NRC's proposed federal action is "for the NRC to decide whether to issue a [construction permit] to USO, a wholly owned subsidiary of TerraPower, under 10 CFR Part 50 that would allow the construction of Kemmerer Unit 1." *Id*. at 1-1. DOE was a cooperating agency in the preparation of the EIS pursuant to a memorandum of agreement (MOA) with the NRC. The goal of the MOA was the "development of one EIS that serves the needs of the NRC [construction permit] decision process and the DOE decision whether to provide financial assistance to USO, through TerraPower, to demonstrate the Natrium reactor." *Id*. DOE was involved "in all aspects of the environmental review, including scoping, public meetings, public comment resolution, and EIS preparation." *Id*. DOE will issue a separate record of decision to fulfill its NEPA obligations and issue funds to TerraPower through the Advanced Reactor Demonstration Program. *Id*. at 1-3.

application.[68] The environmental review encompassed a full spectrum of environmental resource areas and evaluated the impacts on these resources from construction of the Natrium advanced reactor at the Kemmerer site.[69] The FEIS found that the environmental impacts of the proposed action on all resource areas would be small, except for three areas for which impacts range from moderate (terrestrial ecological resources and historic and cultural resources) to moderate-to-large (socioeconomics).[70] The FEIS also reflects the completion of required consultation efforts under the National Historic Preservation Act[71] and the Endangered Species Act.[72]

The environmental review team's evaluation of alternative sites considered the same environmental resource areas as were considered for the proposed action.[73] Based on its

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[68] *Id*. at xvii, 4-1. The two alternative sites considered were the Naughton 12 site and the Jim Bridger 22 site, both located in the State of Wyoming. *Id*. The Naughton 12 site is also located in Lincoln County. *Id*. at 4-1.

[69] The EIS also evaluated the contribution of preconstruction activities to cumulative impacts and described the impacts of preconstruction and construction jointly for each resource area. *Id*. at 3-1. Further, the EIS discussed the operation and decommissioning stages of KU1 "to aid in the analysis of the entire life-cycle phases of Kemmerer Unit 1." *Id*. at xvi, 1-3.

[70] *Id*. at xviii-xx tbl.ES-1, 6-1 to -4 tbl.6-1. The environmental review team used three levels of significance for potential impacts—small, moderate, or large. Small environmental effects are those that "are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute of the resource." Moderate effects "are sufficient to noticeably alter important attributes of the resource but not to destabilize them." Large environmental effects "are clearly noticeable and are sufficient to destabilize important attributes of the resource." *Id*. at xvii, 1-4. The EIS evaluated the impacts of the proposed project on the following resource areas: land use and visual resources; air quality; hydrology and water resources; aquatic ecological resources; terrestrial ecological resources; historic and cultural resources; socioeconomics; public and occupational health; nonradiological waste management; transportation of radioactive material; uranium fuel cycle and radiological waste management; and postulated accidents. *Id*. at xviii-xx tbl.ES-1.

[71] *See id*. at 1-6, 3-69 to -71. The Staff consulted with the Wyoming State Historic Preservation Office, the Advisory Council on Historic Preservation, and 29 federally recognized Indian tribes. *Id*. at 3-72.

[72] *See id*. app. G, at G-1.

[73] *Id*. at xvii, 4-7 to -8 tbl.4-1.

analysis, the FEIS concluded that there are no environmentally preferable alternatives to the proposed action because each alternative location would also result in potential environmental impacts to affected resources.[74] Consistent with recent amendments to NEPA, the environmental review of the no-action alternative considered the negative environmental impacts of not implementing the proposed action of issuing the construction permit for KU1.[75] In response to our hearing question, the Staff reassessed its analysis of irreversible and irretrievable commitments of resources, and clarified that no irreversible and irretrievable commitments of Federal resources involved in the proposed action were omitted from the analysis in the FEIS.[76] The FEIS also addressed the other relevant requirements of NEPA section 102(2) and 10 C.F.R. Part 51.[77]

On the basis of its environmental review, the Staff recommended issuing the construction permit to USO.[78] To operate KU1, USO will be required to apply for a separate operating license; the Staff will perform an additional environmental review of the project at the operating license stage.[79]

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[74] *Id*. at xvii, 4-8.

[75] *See id*. at 4-1 to -2 (explaining that, in the absence of authorization to construct the KU1 project, the environmental impacts associated with the extended operation of existing assets or construction of new assets to address the need for power in the area "could be substantial and greater than those associated with the proposed action").

[76] Staff Responses at 13.

[77] *See* 10 C.F.R. § 51.105(a)(1). On June 3, 2023, the President signed into law the Fiscal Responsibility Act of 2023. Pub. L. No. 118-5, 137 Stat. 10. The Act included amendments to NEPA in section 321. The amendments added new sections (D), (E), and (F) to section 102(2); as a result, the section 102(2)(E) referred to in 10 C.F.R. § 51.105(a)(1) is now section 102(2)(H), but the substance of the provision remains the same.

[78] Ex. NRC-001A, Staff Information Paper, at 21-22; Ex. NRC-002, FEIS, at 6-12.

[79] Ex. NRC-002, FEIS, at xvi, 1-1, 1-3, 3-1; *see* 10 C.F.R § 51.95(b).

C. Findings

1. Safety Findings

We have conducted an independent review of the sufficiency of the Staff's safety findings, with particular attention to the topics discussed above. Our findings, however, are based on the record as a whole.

Based on the evidence presented in the uncontested hearing, we find that USO has described the proposed design of the facility, including, but not limited to, the principal architectural and engineering criteria for the design, and it has identified major features or components incorporated therein for the protection of the health and safety of the public. Further technical or design information as may be required to complete the safety analysis has reasonably been left for later consideration and will be supplied in the final safety analysis report. USO has described the safety features or components that require research and development and has identified and will establish a research and development program reasonably designed to resolve any safety questions associated with these features or components. On the basis of the foregoing, we find that there is reasonable assurance that open safety questions will be resolved satisfactorily at or before the latest date stated in the application for completion of construction of the proposed facility. Taking into consideration the site criteria in 10 C.F.R. Part 100, the proposed facility can be constructed and operated at the proposed location without undue risk to the health and safety of the public.

In making these findings, we also conclude that: (1) there is reasonable assurance that construction of the facility will not endanger the health and safety of the public, and the authorized activities can be conducted in compliance with the NRC's regulations, including the requirements in 10 C.F.R. Part 20;[80] (2) USO is technically and financially qualified to engage in

[80] Approval of a construction permit does not authorize reactor operations, and additional licensing actions would be required to allow USO to receive, possess, use, transfer or dispose of any byproduct, source, or special nuclear material. The Staff would review occupational dose

the activities authorized; (3) issuance of the construction permit will not be inimical to the common defense and security or to the health and safety of the public; and (4) USO's application meets the standards and requirements of the AEA and the NRC's regulations. Required notifications to other agencies have been duly made.[81] Additionally, we find that the Staff's proposed permit conditions are appropriately drawn and sufficient to provide reasonable assurance of adequate protection of public health and safety.[82]

2. Environmental Findings

We have conducted an independent review of the Staff's environmental analysis in the FEIS, taking into account the particular requirements of NEPA. We find that the Staff's review was reasonably supported in logic and fact and sufficient to support the conclusions in the FEIS. Therefore, as a result of our review of the FEIS, and in accordance with the notice of hearing for this uncontested proceeding, we find that the relevant requirements of NEPA section 102(2), and the applicable regulations in 10 C.F.R. Part 51, have been satisfied with respect to the construction permit application. We independently considered the final balance among conflicting factors contained in the record of this proceeding.[83] We find, after weighing the environmental, economic, technical, and other benefits against environmental and other costs, and considering reasonable alternatives, that the construction permit should be issued.[84]

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requirements associated with those actions once applications are received. *See* Ex. NRC-003A, Safety Evaluation, at 10-1. Here, the Staff reviewed USO's plans for developing its final approach to Part 20 requirements and found reasonable assurance that construction activities authorized by the permit can be accomplished in accordance with NRC regulations. *See Id*. at 10-1 to -6. We agree that the Staff's approach satisfies 10 C.F.R. § 50.40(a). *See Kairos Power LLC* (Hermes Test Reactor), CLI-23-5, 98 NRC 53, 60 n.22 (2023).

[81] *See, e.g.*, 10 C.F.R. § 2.104(a); Ex. NRC-001A, Staff Information Paper, at 6, 13, 19; Ex. NRC-002, FEIS, app. B.

[82] *See* 10 C.F.R. §§ 50.35(b), 50.50; Ex. NRC-001B, Draft Construction Permit, at 2-4.

[83] *See* 10 C.F.R. § 51.105(a).

[84] *See id.*

III. CONCLUSION

We find that, with respect to the safety and environmental issues before us, the Staff's review of USO's construction permit application was sufficient to support issuance of the construction permit. We *authorize* the Director of the Office of Nuclear Reactor Regulation to issue the permit for the construction of KU1.

IT IS SO ORDERED.

For the Commission

Carrie M. Safford
Secretary of the Commission

Dated at Rockville, Maryland,
this 4th day of March 2026.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
US SFR OWNER, LLC	)	Docket No. 50-613-CP
	)	
(Kemmerer Power Station Unit 1)	)	
	)	
(Mandatory Hearing)	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing **COMMISSION MEMORANDUM AND ORDER (CLI-26-5)** have been served upon the following by Electronic Information Exchange.

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Office of the Secretary of the Commission

Dated at Rockville, Maryland,
this 4th day of March 2026.