

US SFR OWNER, LLC

DOCKET NO. 50-613

KEMMERER POWER STATION, UNIT 1

CONSTRUCTION PERMIT

Construction Permit No. CPAR-1

1. The U.S. Nuclear Regulatory Commission (NRC or the Commission) has found that—
 - A. The application for a construction permit, as supplemented and revised (the application), filed by TerraPower, LLC, on behalf of US SFR Owner, LLC (USO, the applicant), complies with the requirements of the Atomic Energy Act of 1954, as amended (the Act), and the rules and regulations of the Commission set forth in Title 10 of the *Code of Federal Regulations* (10 CFR) Chapter I, “Nuclear Regulatory Commission.” There is reasonable assurance that the activities the permit authorizes will be conducted in compliance with the Commission’s rules and regulations, and all required notifications to other agencies or bodies have been duly made.
 - B. The applicant has described the proposed design of the facility, including, but not limited to, the principal architectural and engineering criteria for the design, and has identified the major features or components incorporated therein for the protection of the health and safety of the public.
 - C. Such further technical or design information as may be required to complete the safety analysis, and which can reasonably be left for later consideration, will be supplied in the final safety analysis report.
 - D. Safety features or components that require research and development have been described by the applicant, and the applicant has identified and will conduct a research and development program reasonably designed to resolve any safety questions associated with such features or components.
 - E. On the basis of the foregoing, there is reasonable assurance that: (i) Such safety questions will be satisfactorily resolved at or before the latest date stated in the application for the completion of construction of the proposed facility, and (ii) taking into consideration the site criteria contained in 10 CFR Part 100, “Reactor Site Criteria,” the proposed facility can be constructed and operated at the proposed location without undue risk to the health and safety of the public.
 - F. The processes to be performed provide reasonable assurance that the applicant will comply with the regulations in 10 CFR Chapter I, including the regulations in 10 CFR Part 20, “Standards for Protection Against Radiation,” and that the health and safety of the public will not be endangered.

- G. USO is technically qualified to design and construct the facility in accordance with the Commission's regulations set forth in 10 CFR Chapter I.
 - H. USO is financially qualified to design and construct the facility in accordance with the Commission's regulations set forth in 10 CFR Chapter I.
 - I. The issuance of a permit for the construction of the facility will not be inimical to the common defense and security or to the health and safety of the public.
 - J. After weighing the environmental, economic, technical, and other benefits of the facility against environmental and other costs, and considering reasonable alternatives, the issuance of this construction permit, subject to the conditions for protection of the environment set forth herein, is in accordance with Subpart A, "National Environmental Policy Act— Regulations Implementing Section 102(2)," of 10 CFR Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions," of the Commission's regulations, and all applicable requirements.
2. On the basis of the foregoing findings regarding this facility, Construction Permit No. CPAR-1 is hereby issued to USO pursuant to sections 103 and 185a of the Act and 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," for a utilization facility, as defined in 10 CFR 50.2, "Definitions," as described in the application filed in this matter by the applicant and as more fully described in the evidence received at the hearing on that application. The utilization facility owned by USO, known as Kemmerer Power Station, Unit 1, will be located in Lincoln County, Wyoming, and is described in the application.
3. This permit shall be deemed to contain and be subject to the conditions specified in 10 CFR 50.55, "Conditions of construction permits, early site permits, combined licenses, and manufacturing licenses"; is subject to all applicable provisions of the Act and rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the conditions specified or incorporated below:
- A. The earliest date for the completion of the construction of the facility is August 30, 2030, and the latest date for completion is February 28, 2031.
 - B. The facility shall be constructed and located at the site as described in the application, in Lincoln County, Wyoming.
 - C. This construction permit authorizes the applicant to construct a power reactor facility described in the application and the hearing record, in accordance with the principal architectural and engineering criteria and environmental protection commitments set forth therein.
 - D. USO shall perform detailed geologic mapping of the excavations for the safety-related engineered structures; examine and evaluate the geologic features discovered in those excavations; and once geologic mapping information from the excavations for safety-related structures is available for examination by the NRC, notify the Director of the Office of Nuclear Reactor Regulation, or the Director's designee, as specified in 10 CFR 50.4.

- E. Prior to submittal of the operating licensing application, USO shall notify the NRC within 30 days after an integrated decision-making process panel is convened for internal approval of the safety analysis, risk assessment, or defense-in-depth adequacy of the design. The notification shall include the schedule for when the supporting documentation will be available for NRC examination.
- F. Prior to the start of construction, as defined by 10 CFR 50.10, USO shall establish and document within the preliminary safety analysis report a dedicated position or positions responsible for overseeing the execution of the Quality Assurance Program Description (QAPD). The person(s) and organizations performing the quality assurance functions shall have sufficient authority and organizational freedom to make decisions related to QAPD implementation, sufficiently independent of cost or schedule considerations, including responsibility for overseeing and ensuring the implementation of audit findings. The position(s) shall not be assigned responsibilities that would challenge the function of assuring that an appropriate quality assurance program is established and effectively executed.
- G. Prior to the completion of construction, USO shall submit periodic reports to the NRC, with the first submitted by December 31, 2026, and continuing annually, covering the latest results and future plans for research and development activities associated with the sodium-salt heat exchanger (SHX) design and sodium-salt reactions. These reports shall include activities to characterize the sodium-salt reaction, mature and develop the SHX design, and develop appropriate design features and controls needed to prevent and mitigate sodium-salt reactions. The reports shall also include research activities, such as materials testing, to improve understanding of the effects of high temperature and exposure to the sodium and salt environment on SHX materials, including weld metals and diffusion bonded material.
- H. Prior to the completion of construction, USO shall submit periodic reports to the NRC, with the first submitted by December 31, 2026, and continuing annually, covering the latest results and future plans for research and development activities necessary to ensure adequate materials performance for structures, systems, or components (SSCs) included in the reliability and integrity management (RIM) program. These reports shall include materials testing and research activities to improve understanding of the effects of high temperature, chemistry exposure, and irradiation on materials, including weld metals. The reports shall also include activities needed to support the RIM program to mature and develop appropriate performance monitoring methods, such as surveillance coupons, inspection methods and means of access, and monitoring approaches supported by validated technical bases.
- I. By December 31, 2026, USO shall submit a report with a complete degradation mechanism assessment (DMA) for the RIM program. This is based on research and development activities related to materials qualification for environmental compatibility of safety-significant SSCs. This complete DMA may be based on preliminary design information but shall include RIM program screening criteria and a technical basis for all

degradation mechanisms that could affect safety-significant SSCs, including those exposed to a molten salt environment. The report shall also include a description of how new and ongoing testing as well as performance monitoring will inform RIM program development and assure component performance considering potential degradation mechanisms, the combined effects of potential degradation mechanisms, and inherent limitations on understanding how they will evolve over the Kemmerer Power Station Unit 1 design life.

- J. The Environmental Protection Plan described in appendix A to this permit is hereby incorporated into this permit.
- 4. This permit is subject to the limitation that a license authorizing operation of the facility will not be issued by the Commission unless: (a) the applicant submits to the Commission the complete FSAR, portions of which may be submitted and evaluated from time to time; (b) the Commission finds that the final design provides reasonable assurance that the health and safety of the public will not be endangered by the operation of the facility in accordance with procedures approved by it in connection with the issuance of said license; (c) the Commission finds that operation of the facility will be in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements were satisfied; and (d) the applicant submits proof of financial protection and executes an indemnity agreement as required by section 170 of the Act.
- 5. This permit is effective as of its date of issuance and shall expire on the latest completion date indicated in paragraph 3.A. above.

FOR THE NUCLEAR REGULATORY
COMMISSION



Signed by Bowen, Jeremy
on 03/09/26

Jeremy S. Bowen, Acting Deputy Director
for New Reactors
Office of Nuclear Reactor Regulation

Appendix:

Appendix A—Environmental Protection Plan

Date of Issuance: March 09, 2026

APPENDIX A

TO CONSTRUCTION PERMIT NO. CPAR-1
US SFR OWNER, LLC
KEMMERER POWER STATION, UNIT 1
DOCKET NO. 50-613

ENVIRONMENTAL PROTECTION PLAN (NONRADIOLOGICAL)
March 09, 2026

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1.0 Objective of the Environmental Protection Plan

The objective of the Environmental Protection Plan (EPP) is to ensure compliance with the Endangered Species Act of 1973, as amended (ESA), and to ensure that the U.S. Nuclear Regulatory Commission (NRC) is kept informed of other environmental matters. The EPP is intended to be consistent with Federal, State, and local requirements for environmental protection.

2.0 Environmental Protection Issues

In the final environmental impact statement issued October 2025, the NRC considered the environmental impacts associated with the issuance of a construction permit, including consideration of the impacts of construction of a new nuclear reactor at the Kemmerer Power Station, Unit 1, site. This EPP applies to the permit holder's actions affecting the environmental resources evaluated in the final environmental impact statement and that may affect any newly discovered environmental resources.

2.1 Aquatic Resources Issues

Federal agencies other than the NRC, such as the U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers, have jurisdiction to regulate aquatic resources under the Federal Water Pollution Control Act and the Rivers and Harbors Appropriation Act of 1899.

Nothing within this EPP shall be construed to place additional requirements on the regulation of aquatic resources except the imposition of requirements in a biological opinion under the ESA (see section 2.3).

2.2 Terrestrial Resources Issues

Several statutes govern the regulation of terrestrial resources. For example, the U.S. Fish and Wildlife Service regulates matters involving migratory birds and their nests in accordance with the Migratory Bird Treaty Act. Activities affecting migratory birds or their nests may require permits under the Migratory Bird Treaty Act. The U.S. Fish and Wildlife Service also regulates matters involving the protection and taking of bald and golden eagles in accordance with the Bald and Golden Eagle Protection Act. Nothing within this EPP shall be construed to place additional requirements on the regulation of terrestrial resources except the imposition of requirements in a biological opinion under the ESA (see section 2.3).

2.3 Endangered Species Act of 1973, as Amended

The NRC may be required to protect some aquatic resources and terrestrial resources in accordance with the ESA. If a biological opinion is issued to the NRC in accordance with ESA section 7 before the issuance of an operating license or other NRC license or approval over the life of the Kemmerer Power Station, Unit 1, project, the permit holder shall comply with the terms and conditions set forth in the incidental take statement of such biological opinion.

If any federally listed species or critical habitats occur in an area affected by construction that were not previously identified as occurring in such areas, including species and critical

habitats that were not previously federally listed, the permit holder shall inform the NRC within 4 hours of discovery. Similarly, the permit holder shall inform the NRC within 4 hours of discovery of any take, as defined in the ESA, of a federally listed species or destruction or adverse modification of a critical habitat. These notifications shall be made to the NRC Operations Center. The permit holder shall provide any necessary information to the NRC if the NRC initiates or reinitiates consultation under the ESA.

In the event of an unusual ESA-related events, the permit holder shall inform the NRC of any onsite mortality, injury, or unusual occurrence of any species protected by the ESA within 4 hours of discovery, followed by a written report in accordance with section 4.1. Such incidents shall be reported regardless of causal relation to construction.

2.4 National Historic Preservation Act of 1966

In accordance with the conclusion of the review under section 106 of the National Historic Preservation Act, US SFR Owner, LLC (USO), is committed to involving a Tribal monitor during one portion of construction activity. USO plans to include long-term management of archaeological sites as part of its sitewide environmental management policies for the facility.

3.0 Consistency Requirements

The permit holder shall notify the NRC of proposed changes to permits or certifications concerning aquatic or terrestrial resources by providing the NRC with a copy of the proposed change at the same time it is submitted to the permitting agency. The permit holder shall provide the NRC with a copy of the application for renewal of permits or certifications at the same time the application is submitted to the permitting agency.

Changes to or renewals of these permits or certifications shall be reported to the NRC within 30 days following the later of the following two dates: the date that the change or renewal is approved, or the date that the change or renewal becomes effective. If a permit or certification, in part or in its entirety, is appealed, the report shall be made within 30 days following the date that the stay is granted.

4.0 Administrative Procedures

4.1 Plant Reporting Requirements: Nonroutine Reports

A written report shall be submitted to the NRC within 30 days of occurrence of any unusual ESA-related event described in section 2.3 of this EPP. The report shall (1) describe, analyze, and evaluate the event, including the extent and magnitude of the impact and plant characteristics at the time of the event, (2) describe the probable cause of the event, (3) indicate the action taken to correct the reported event, (4) indicate the corrective action taken to preclude repetition of the event and to prevent similar occurrences involving similar components or systems, and (5) indicate the agencies notified and their preliminary responses.

Events reportable under this subsection, which also require reports to other Federal, State, or local agencies, shall be reported in accordance with those reporting requirements, in lieu of the requirements of this subsection. The NRC shall be provided with a copy of such report at the same time as it is submitted to the other agency.

Review and Audit

The permit holder shall provide for the review and audit of compliance with section 2.3 of this EPP. These audits shall be conducted independently of the individual or groups responsible for performing the specific activity. A description of the organizational structure utilized to achieve the independent review and audit function and results of the audit activities shall be maintained and made available for inspection.

4.2 Records Retention

Records required by this EPP shall be made and retained in a manner convenient for review and inspection. These records shall be made available to the NRC upon request. The records, data, and logs relating to this EPP shall be retained for 5 years or, where applicable, in accordance with the requirements of other agencies.

4.3 Changes in Environmental Protection Plan

A request for a change in this EPP shall include an assessment of the environmental impact of the proposed change and a supporting justification. Implementation of such changes in the EPP shall not commence before NRC approval of the proposed changes in the form of a license amendment incorporating the appropriate revision to the EPP.