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13 RESEARCH AND DEVELOPMENT

13.1 Research and Development

Chapter 13 of the Kemmerer Power Station Unit 1 (KU1) Preliminary Safety Analysis Report (PSAR) identifies those structures, systems, and components (SSCs) that require further research and development (R&D) to confirm their design requirements.

The applicable regulatory requirements for the evaluation of R&D are as follows:

- Title 10 of the *Code of Federal Regulations* (10 CFR) 50.34(a)(8),
- 10 CFR 50.35(a)(3) and (b), and
- 10 CFR 50.43(e).

10 CFR 50.34(a)(8) requires an applicant for a construction permit (CP) to identify those SSCs of the facility requiring R&D to confirm the adequacy of their design. The applicant must identify and describe the R&D program which will be conducted to resolve safety questions associated with any such SSCs and provide a schedule of the R&D program showing that the safety questions will be resolved at or before the latest date stated in the application for completion of construction of the facility.

10 CFR 50.35(a)(3) allows the U.S. Nuclear Regulatory Commission (NRC) to issue a CP if the Commission finds, in part, that safety features or components requiring R&D have been described and the applicant has identified, and there will be conducted, an R&D program reasonably designed to resolve any safety questions associated with such features or components. 10 CFR 50.35(b) specifies that the Commission may incorporate provisions into the CP requiring the applicant to furnish periodic reports of the progress and results of R&D programs designed to resolve safety questions.

In 10 CFR 50.43(e), the NRC lists performance demonstration requirements specific to certain applications under 10 CFR Part 50 and 10 CFR Part 52 that propose nuclear reactor designs that differ significantly from light water reactor designs licensed before 1997 or use simplified, inherent, passive, or other innovative means to accomplish their safety functions. The staff notes that while 10 CFR 50.43(e) is not applicable to a CP application, completion of the R&D activities discussed in the PSAR may be, in part, necessary for the required performance demonstrations at the operating license stage. As such, the NRC staff considered the R&D activities in contemplation of ensuring a clear path to demonstrating compliance with 10 CFR 50.43(e) at the operating license phase. The regulation in 10 CFR 50.43(e)(1) states that the NRC will approve applications for such a reactor design only if:

- (i) the performance of each safety feature of the design has been demonstrated through either analysis, appropriate test programs, experience, or a combination thereof;
- (ii) interdependent effects among the safety features of the design are acceptable, as demonstrated by analysis, appropriate test programs, experience, or a combination thereof; and

- (iii) sufficient data exist on the safety features of the design to assess the analytical tools used for safety analyses over a sufficient range of normal operating conditions, transient conditions, and specified accident sequences (including equilibrium core conditions).

Additionally, 10 CFR 50.43(e)(2) allows the testing of a prototype plant over a sufficient range of conditions to meet the testing requirements.

Applicable guidance on the NRC staff review of R&D activities can be found in DANU-ISG-2022-01, "Review of Risk-Informed, Technology-Inclusive Advanced Reactor Applications—Roadmap," Appendix C, "Construction Permit Guidance" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML23277A139). The guidance specifies that the staff should review identified R&D program plans necessary to resolve safety questions associated with safety features and components. In consideration of the requirements of 10 CFR 50.43(e), the guidance states that the staff's review should consider new safety or security features that differ from existing designs for operating reactors or that use simplified, inherent, or passive means to accomplish their safety functions. The staff should verify that the testing ensures the new features will perform as predicted, provide for the collection of sufficient data to validate computer codes, and show the effects of system interactions are acceptable.

Consistent with the requirements of 10 CFR 50.34 and 10 CFR 50.35, the staff's review should verify that the R&D activities are completed on a schedule to resolve safety questions at or before the latest date stated in the application for completion of construction of the facility. Also, the guidance further states that staff should ensure that the applicant has provided a summary description of preoperational and startup testing that is planned for each unique or first-of-a-kind principal design feature that may be included in the facility design. The staff may accept information, as applicable, that is sufficient to credit previously performed testing for identical unique or first-of-a-kind design features at other NRC-licensed production facilities. In addition, the staff should determine whether the R&D plans will permit the staff to make the findings required by 10 CFR 50.43(e), as discussed above.

13.1.1 Technical Evaluation

13.1.1.1 R&D Program and Scope

PSAR section 13.1 states that the R&D program is implemented consistent with the Sodium reactor testing program, which was submitted by TerraPower to the NRC on September 30, 2022, as a white paper "TerraPower, LLC, Submittal of Testing Programs," Revision 0 (ML22273A073). NRC staff feedback on the testing program was provided on March 17, 2023 (ML23074A347).

R&D activities included in the PSAR were identified using a process that considered the maturity of different SSCs and safety functions using techniques developed by the Department of Energy and Government Accountability Office, resulting in technology readiness levels (TRLs). The staff is familiar with the TRL concept and notes it is an established methodology that can be a reasonable, if somewhat subjective, indicator of the maturity of a given SSC. However, not all safety questions that must be answered through testing, analysis, etc., are reasonably addressed by the TRL concept, particularly those with cross-cutting applicability like material performance. Consistent with the limitations of the TRL concept, PSAR section 13.1 indicates that while TRL played a significant role in the determination of R&D items for inclusion

in the PSAR, it was not the sole factor considered. The applicant uses technology maturation plans (TMPs) to guide R&D activities. The PSAR indicates these TMPs are designed to prove adequate performance of critical technology elements (which can include design features, performance characteristics, materials of construction, or software) through testing, analysis, modeling, calculation, verification and validation, etc.

The staff reviewed the scope of R&D activities identified in the PSAR and determined, based on a holistic review of the SSCs and their role in plant safety documented in chapters 7 and 3 of this SE, that the applicant appropriately identified those SSCs requiring R&D to confirm the adequacy of their design pursuant to the requirements of 10 CFR 50.34(a)(8). The staff audited several TMPs as part of the review to confirm that they appropriately identified activities necessary to resolve safety questions. All R&D activities identified in the PSAR are evaluated in detail in the sections that follow.

13.1.1.2 Reactor Air Cooling Heat Transfer Performance

PSAR section 13.2.1 describes R&D activities associated with the performance of the reactor air cooling system. As discussed in section 7.2.1 of this SE, the reactor air cooling system (RAC) provides a fully passive means of heat removal. As such, the staff notes that RAC performance is one of the features that must be adequately demonstrated pursuant to 10 CFR 50.43(e) at the operating license stage.

RAC heat transfer performance depends on a number of critical characteristics, including but not limited to the reactor vessel (RV) surface temperature and emissivity, the emissivity on the inside and outside of the guard vessel (GV), and the design of the collector cylinder. The R&D activities identified in the PSAR related to this topic include design features to improve heat transfer performance (such as coatings or surface treatments, which enhance emissivity) and refinement of the analyses involving RAC, such as crediting RV liner overflow from the hot pool into the cold pool annulus during accident conditions. Based on PSAR sections 7.1.2, 7.2.1, and 13.2.1 and the letter dated October 1, 2025 (ML25274A124) (R&D supplement), the applicant states that surface roughening of the RV outer surface, GV inner and outer surface, and RAC collector cylinder will be used to increase surface emissivity to ensure the necessary heat transfer performance in a RAC-only cooling event (section 7.1.2.1.10 of this SE discusses the impact of roughening on fatigue performance of the RV and GV). The R&D activities include [[REDACTED]]

The R&D supplement also identifies future work involving sensitivity analysis, methods validation, and establishing a final emissivity value. The staff reviewed the information provided on the docket and noted that the plan covers important parameters associated with [[REDACTED]] to address related safety questions tied to RAC heat transfer performance.

The staff also identified several separate effects tests related to RAC performance discussed in NAT-9390-A, "Design Basis Accident Methodology for In-Vessel Events without Radiological Release", Revision 2 (ML25211A127) which are essential to ensuring codes used to analyze RAC performance are adequately validated. Beyond these activities, the staff identified that aspects of the RAC design, including the inlet and outlet ducting (particularly in the vicinity of the RV) and the collector cylinder, must be completed before RAC performance can be demonstrated; the staff interprets the action in PSAR section 13.2.1 of "selection of final design solution" to include the completion of these aspects of the design. The PSAR states that the

R&D activities associated with RAC system performance are expected to be completed prior to completion of construction activities.

Based on the above, the staff determined that the R&D activities associated with RAC performance are consistent with the requirements of 10 CFR 50.34(a)(8) and 10 CFR 50.35(a)(3) in that they are reasonably designed to address safety questions associated with the adequacy of heat removal using RAC and are scheduled to be completed prior to completion of construction. The R&D activities discussed in PSAR section 13.2.1 are also necessary to demonstrate compliance with 10 CFR 50.43(e), which will be reviewed at the OL stage.

13.1.1.3 In-Vessel Fuel Handling System In-Vessel Transfer Machine Grapple Finger Operation

PSAR section 13.2.2 describes R&D activities associated with the in-vessel transfer machine (IVTM) grapple finger. The IVTM is part of the in-vessel fuel handling system (FHI), which is evaluated in section 7.3.3 of this SE. The specific R&D items relate to the performance of the IVTM grapple finger, which is the part of the IVTM that interfaces with the core assembly handling socket to lift core assemblies and move them around the core.

Because the gripper forms a critical portion of the load path used to transport assemblies around the core, it is necessary to demonstrate that it is sufficiently reliable in a prototypical environment. PSAR section 13.2.2 states that the R&D testing will test the integrated performance and reliability of the grapple fingers in a representative sodium environment. A variety of tests will be conducted, including full-scale prototype testing in a sodium environment, prior to completion of construction activities. The staff concluded that the testing described will reasonably determine the integrated performance and reliability of the IVTM grapple finger because it includes full-scale testing under prototypic conditions.

Based on the above, the staff determined that the R&D activities associated with the IVTM grapple finger are reasonably designed to address safety questions associated with the performance and reliability of the IVTM grapple finger. The PSAR states that R&D activities are scheduled to be completed prior to completion of construction. As such, the staff determined the R&D activities are consistent with the requirements of 10 CFR 50.34(a)(8) and 10 CFR 50.35(a)(3).

13.1.1.4 Intermediate Heat Transport System Sodium-Salt Heat Exchanger Interaction

PSAR section 13.2.3 describes R&D activities associated with potential interactions between sodium and salt in the Intermediate Heat Transport System Sodium-Salt Heat Exchangers (SHXs). This R&D item includes improving the understanding of sodium-salt reactions and how the SHX design should be adjusted to appropriately prevent and mitigate such reactions. Partly informed by lab testing completed in 2024, PSAR section 13.2.3 identifies that an etched diffusion bonded heat exchanger design has been selected for the SHXs. The PSAR states that this heat exchanger design and the associated R&D activities are expected to demonstrate that there are no credible failures that could result in a sodium-salt reaction or that any credible failures will result in a negligible amount of sodium and salt interacting with no credible safety impacts. The R&D activities include characterizing the sodium-salt reaction, improving understanding of the design leak prevention measure impact on heat transfer, and developing and qualifying methods of leak detection. Sodium-salt reaction characterization covers assessing the reaction rate and associated heat and gas generation. It also will cover identifying

the expected reaction byproducts, quantifying the amount of oxide generated from the reaction and quantifying the impacts of the reaction byproducts on material corrosion.

The R&D supplement describes the applicant's R&D activities and plans for the SHX design to prevent sodium-salt interactions in greater detail. The primary leak prevention measure is the

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[REDACTED]
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The R&D supplement also provides additional detail on the materials of construction and plans to demonstrate adequate materials performance of the SHXs. The SHXs are identified as non-safety related with special treatment (NSRST) SSCs and will be fabricated to American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code Section VIII. The SHXs will be fabricated by diffusion bonding of chemically etched plates made from 316L stainless steel (SS) [[

Further details on fabrication and design and construction codes and standards have not been provided given the current status of the SHXs in the conceptual design phase. [[

]] During audit discussion, the applicant confirmed that the reliability and integrity management (RIM) program will address the final SHX design, materials of construction, and consideration of the exposure of portions of the SHX to the salt environment, including a degradation mechanism assessment (DMA). [[

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The staff reviewed the information provided on the docket in the PSAR and the R&D supplement as well as supporting additional information under audit. The staff notes significant uncertainty with the SHX design still being at a conceptual design level of maturity and many details needing to be identified and resolved to reach a final design. The staff also notes the identified R&D activities cover a range of important aspects to ensure a safe SHX design for managing the risk of sodium-salt reaction. The R&D plan includes characterizing the sodium-salt reaction and its impacts, which is important to determine what level of sodium-salt interaction (if any) may be able to be justified as causing negligible impacts from a safety perspective. Given the level of uncertainty associated with sodium-salt reactions, at the OL stage the staff will closely evaluate the results of the R&D activities and how they may be used to justify impacts as being negligible in light of potential cliff-edge effects given the severity of the sodium-salt reaction observed in the literature (Csejka, et al., 1989) [[

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[[[REDACTED]]]

Another important aspect of the plan is addressing materials performance through [[[REDACTED]]] as well as a DMA under the RIM program. In addition to monitoring for leaks, an important aspect to ensuring SHX integrity and reliability and preventing sodium-salt reaction is demonstrating environmental compatibility with the sodium and salt environments for diffusion bonded 316L to reduce the frequency and degree of degradation in service. The staff notes there are many details associated with the physical design of the SHXs and the design and construction codes and standards and special treatments that will need to be developed and justified as appropriate. Plans for [[[REDACTED]]] and a DMA on the SHX are an important activity to satisfy PDC 4, which requires safety-significant SSCs to be designed to accommodate environmental effects. The staff also notes that the SHXs will be fabricated using 316L SS, which has poorer high temperature creep properties than 316H and 304H SS specified for use in many other high temperature SSCs in the design. The staff will review the approach to high temperature long-term service of 316L (diffusion bonded or plate), including final design, construction, and performance monitoring, to ensure reasonable confidence of SHX integrity over its design life at the OL stage.

[[[REDACTED]]]

10 CFR 50.35(b) states, in part: "The Commission may, in its discretion, incorporate in any CP provisions requiring the applicant to furnish periodic reports of the progress and results of R&D programs designed to resolve safety questions." Given the significant ongoing and planned

R&D work, and the current level of design maturity of the SHXs, the staff recommends the inclusion of a condition associated with this R&D item in the KU1 CP. This condition is a general update on activities associated with this R&D item:

Until USO submits an operating license application, 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 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.

Based on the above, the staff determined that the R&D activities associated with potential interactions between sodium and salt and the design of the SHXs are consistent with the requirements of 10 CFR 50.34(a)(8) and 10 CFR 50.35(a)(3) in that they are reasonably designed to address safety questions associated with the design of the SHXs to appropriately prevent and mitigate sodium-salt reactions and are scheduled to be completed prior to completion of construction as stated in the PSAR.

13.1.1.5 Core Restraint System Compressive Assembly

Section 13.2.4 of the PSAR identifies R&D activities associated with the core restraint system compressive assemblies, which support the core restraint function and enhance the core lock-up behavior as described in PSAR section 7.1.1. During audit discussions, the applicant described how the compressive assemblies enable the core to be designed such that core assemblies can be removed without excessive force during shut down, but ensure core lock-up (i.e., contact between core assemblies), as the core is brought up in power. This is necessary for the core restraint system to function as designed over the range of power operations as described in the PSAR.

The safety questions associated with the compressive assemblies relate to ensuring they can achieve the capability and reliability needed in a sodium environment. The R&D activities defined in PSAR section 13.2.4 for the compressive assemblies are to develop specific requirements and perform testing in a relevant environment. The PSAR states these R&D activities will be completed prior to the completion of construction.

Because further developing the design of the compressive assemblies and testing them in a prototypic environment would reasonably resolve the safety questions, and because the work will be completed prior to the completion of construction, the staff determined that the R&D activities are consistent with the requirements of 10 CFR 50.34(a)(8) and 10 CFR 50.35(a)(3).

13.1.1.6 Code Validation Testing

PSAR section 13.2.5 summarizes that the topical and technical reports incorporated by reference, as discussed in PSAR chapter 1, include descriptions of testing and analyses necessary to validate the analytic methodologies. In the case of the topical reports (TRs), these plans to conduct testing and analyses in support of methodology validation were found to be acceptable in the staff's review as documented in the safety evaluations enclosed in the

approved versions of the TRs. The technical report, TP-LIC-RPT-0011, “Core Design and Thermal Hydraulic Technical Report,” Revision 1, (ML25276A289), which is evaluated in sections 3.11 and 3.12 of this SE, also discusses validation activities expected prior to the OL. Validation of the analytic methodologies is key to ensuring that performance of the plant safety systems is adequate, so the staff considers it appropriate to identify these activities as R&D items pursuant to 10 CFR 50.34(a)(8). The activities identified in the topical and technical reports also serve to provide confidence that the applicant would be able to demonstrate compliance with 10 CFR 50.43(e) at the OL stage.

Between the evaluation of the testing in the approved TRs and the validation activities discussed in sections 3.11 and 3.12 of this SE, the staff determined that the R&D activities associated with code validation are reasonably designed to address safety questions associated with the various analytic methodologies. The PSAR states these R&D activities are scheduled to be completed prior to completion of construction. As such, the staff finds the R&D activities are consistent with the requirements of 10 CFR 50.34(a)(8) and 10 CFR 50.35(a)(3). These activities also provide confidence that the applicant would be able to demonstrate compliance with 10 CFR 50.43(e), which will be reviewed at the OL stage.

13.1.1.7 In-Service Structural Materials Performance

PSAR section 13.3.1 identifies R&D activities associated with assuring adequate in-service structural materials performance for safety-significant SSCs included in the RIM program. This R&D item includes research activities to improve the understanding of environmental effects on materials, determination of requirements for additional materials testing for environmental compatibility, and the development of performance monitoring methods, such as material surveillance programs, inspection methods and means of access, and monitoring approaches.

The staff evaluated various aspects of this R&D item in chapters 7 and 8 of this SE and relied on this R&D item as part of the basis for the findings made in those respective sections of the SE. Section 7.1.2.1.4 of this SE evaluates the approach to address environmental effects on components in contact with sodium or cover gas as well as the preliminary DMA. Sections 7.1.2.1.6 and 7.1.2.1.10 of this SE evaluate the potential monitoring and non-destructive examination practices being considered by the applicant to ensure passive component integrity. Finally, section 8.1.3 of this SE evaluates the RIM program scope, process, use of reliability targets, and preliminary RIM strategy development.

Given the significant ongoing R&D work to ensure in-service materials performance through the RIM program, the staff recommends the inclusion of two conditions associated with this R&D item in the KU1 CP. The first condition is a general update on activities associated with this R&D item:

Until USO submits an operating license application, 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 SSCs included in the 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.

The second proposed condition is tied specifically to the DMA for environmental compatibility of safety-significant SSCs. At the CP stage, the applicant provided a preliminary DMA that partially addressed environmental effects for safety-significant SSCs in contact with sodium and did not provide a DMA to address safety-significant SSCs in contact with molten salt (partly due to the design evolution of the sodium-salt heat exchangers as discussed in sections 7.1.4 and 13.1.1.4 of this SE). Therefore, the staff recommends including a condition that the applicant provide a complete DMA, which may be based on preliminary design information, by the end of calendar year 2026:

By December 31, 2026, USO shall submit a report with a complete degradation mechanism assessment (DMA) for the reliability and integrity management program (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 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 KU1 design life.

Based on the evaluation of topics associated with this R&D item in chapters 7 and 8 of this SE, the staff determined that the R&D activities associated with assuring adequate in-service structural materials performance are reasonably designed to address associated safety questions. The PSAR states these R&D activities are scheduled to be completed prior to completion of construction. As such, the staff determined the R&D activities are consistent with the requirements of 10 CFR 50.34(a)(8) and 10 CFR 50.35(a)(3). The staff will track the progression of these activities towards the final design as part of the updates provided in the associated permit conditions, and evaluate them during the OL review.

13.1.1.8 Tribological Coatings

PSAR section 13.3.2 describes R&D activities associated with the development, application, and qualification of coatings and surface treatments for tribological purposes to reduce wear, friction, and self-welding. The coating R&D plan covers a range of activities, including optimizing coating deposition procedures from historical data, testing of coating performance subject to environmental conditions, functional testing, evaluation of the impact of coating failure or delamination, and ultimately the development of specifications for coating production and post-production inspection.

Section 11 of the supplemental materials report (ML25274A130) describes the applicant's R&D activities for coating development and qualification in greater detail. Tables 11.1 and 11.2 describe the planned application of coatings on core components, while table 11.3 covers the expected environmental conditions based on normal operation and design basis events. These applications to core components build off prior work and experience in support of applications for the Fast Flux Test Facility. The applicant stated that the core component coatings have been preliminarily classified as safety-related (QL-1) and subject to ASME NQA-1 requirements for all work to qualify and develop coating parameters. In addition to plans for coatings on core components, the applicant is also considering the use of coatings for other SSCs in contact with

sodium, such as bearings, sealing surfaces, and wear surfaces in the primary sodium pump, fuel handling equipment, in-vessel storage racks rings, the reactor head, and the intermediate heat exchanger.

The staff reviewed the information provided on the docket and noted that the plan covers important parameters associated with developing and qualifying coatings for use in the Sodium primary system environment. Additional information reviewed during the audit confirmed and provided greater detail than the docketed information. An important consideration for the staff's review is the coating safety function and consequences of coating failure. The supplemental materials report states that the coatings of core components are considered safety-related in the preliminary design, but the applicant indicated in audit discussions that this was a conservative approach that may change with the final design. The PSAR states that the R&D item will also characterize the impact of coating failure or delamination on other systems to determine the safety consequences. The level of assurance of coating performance necessary depends on the coating function and the potential consequence of coating failure, which may vary depending on the particular SSC being coated. This will be accounted for in the staff's review at the OL stage.

For environmental effects, the staff notes USO has a reasonable testing plan to characterize separate effects, but combined effects of exposure to irradiation, sodium, and thermal cycling create more uncertainty in how the coatings will perform. For potential ex-core applications on long-lived components, longer operating times in safety-significant functions make these combined environmental effects more important to consider when determining appropriate qualification activities and performance monitoring (e.g. in-service inspection) approaches. Therefore, the staff will appropriately consider the planned operating life and service conditions, along with coating function and consequence of failure, in its review of the qualification and performance monitoring of coatings at the OL stage.

Based on the above, the staff determined that the R&D activities associated with coating development and qualification are consistent with the requirements of 10 CFR 50.34(a)(8) and 10 CFR 50.35(a)(3) in that they are reasonably designed to address safety questions associated with the use of these coatings in various applications and are scheduled to be completed prior to completion of construction.

13.1.2 Conclusion

The staff finds that the applicant meets the requirements of 10 CFR 50.34(a)(8) because the applicant appropriately identified those SSCs of the facility requiring R&D to confirm the adequacy of their design, identified R&D activities needed to resolve the safety questions, and identified that the activities support the resolution of the safety questions prior to completion of the construction of the facility. The staff notes that the R&D activities are described in PSAR chapter 13, the docketed supplements, and referenced TRs. Because the scope of several R&D items is extensive, the staff recommended incorporation of three permit conditions pursuant to 10 CFR 50.35(b). Based on these considerations, the staff determined that the R&D activities are sufficient to support issuance of a CP pursuant to the requirements of 10 CFR 50.35(a)(3). Finally, the staff notes that while compliance with 10 CFR 50.43(e) is not required for a CP applicant, compliance with 10 CFR 50.43(e) at the OL stage depends on some of the activities described in this section of the SE as described in greater detail above.

13.2 References

D.A. Csejka, et al. "The Interaction of Elemental Sodium with Molten $\text{NaNO}_3\text{-KNO}_3$ at 873 K," J. Materials Engineering, Vol. 11, No. 4, 1989.

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