

Executive Summary

By letter dated January 9, 2002, the Omaha Public Power District (OPPD) submitted an application to the U.S. Nuclear Regulatory Commission (NRC) to renew the operating license (OL) for Fort Calhoun Station, Unit 1 for an additional 20-year period. This application was subsequently revised by the OPPD by letter dated January 18, 2002. If the OL is renewed, State regulatory agencies and the OPPD will ultimately decide whether the plant will continue to operate based on factors such as the need for power or other matters within the State's jurisdiction or the purview of the owners. If the OL is renewed, the schedule is to issue the renewed license by November 2003. The renewed license would supercede the current license. The renewed license would expire on August 9, 2033, which is 20 years after the original license expiration date. If the OL is not renewed, then the plant must be shut down at or before the expiration date of the current OL, which is August 9, 2013.

Section 102 of the National Environmental Policy Act of 1969 (NEPA) (42 USC 4321) directs that an environmental impact statement (EIS) is required for major Federal actions that significantly affect the quality of the human environment. The NRC has implemented Section 102 of NEPA in 10 CFR Part 51, Subpart A. In 10 CFR 51.20(b)(2), the Commission requires the preparation of an EIS or a supplement to an EIS for the renewal of a reactor OL; 10 CFR 51.95(c) states that the EIS prepared at the OL renewal stage will be a supplement to the *Generic Environmental Impact Statement for License Renewal of Nuclear Plants* (GEIS), NUREG-1437, Volumes 1 and 2.^(a)

Upon acceptance of the OPPD application, the NRC began the environmental-review process described in 10 CFR Part 51 by publishing a notice of intent to prepare an EIS and conduct scoping. The staff visited Fort Calhoun Station in June 2002 and held public scoping meetings on June 18, 2002, in Omaha, Nebraska. In preparing this supplemental environmental impact statement (SEIS) for Fort Calhoun Station, Unit 1, the staff reviewed the OPPD Environmental Report (ER) and compared it to the GEIS; consulted with other agencies; conducted an independent review of the issues following the guidance set forth in the *Standard Review Plans for Environmental Reviews for Nuclear Power Plants, Supplement 1: Operating License Renewal*, NUREG-1555, Supplement 1; and considered the public comments received during the scoping process. The public comments received during the scoping process that were considered to be within the scope of the environmental review are provided in Appendix A, Part I, of this SEIS.

On January 14, 2003, the Notice of Availability of the draft SEIS and notice of public meetings to discuss the draft SEIS was published in the Federal Register (68FR1873). A 75-day

(a) The GEIS was originally issued in 1996. Addendum 1 to the GEIS was issued in 1999. Hereafter, all references to the "GEIS" include the GEIS and its Addendum 1.

comment period began on that date, during which members of the public could comment on the preliminary results of the staff's review. The staff held two public meetings in Omaha, Nebraska, on February 26, 2003, to describe the preliminary results of the NRC environmental review, answer questions, and provide members of the public with information to assist them in formulating comments on the draft SEIS. All of the comments received on the draft SEIS were considered in developing the final SEIS and are presented in Appendix A, Part II.

This SEIS includes the NRC staff's analysis that considers and weighs the environmental effects of the proposed action, the environmental impacts of alternatives to the proposed action, and mitigation measures for reducing or avoiding adverse effects. It also includes the staff's recommendation regarding the proposed action.

The Commission has adopted the following statement of purpose and need for license renewal from the GEIS:

The purpose and need for the proposed action (renewal of an operating license) is to provide an option that allows for power generation capability beyond the term of a current nuclear power plant operating license to meet future system generating needs, as such needs may be determined by State, utility, and, where authorized, Federal (other than NRC) decisionmakers.

The goal of the staff's environmental review, as defined in 10 CFR 51.95(c)(4) and the GEIS, is to determine

... whether or not the adverse environmental impacts of license renewal are so great that preserving the option of license renewal for energy planning decisionmakers would be unreasonable.

Both the statement of purpose and need and the evaluation criterion implicitly acknowledge that there are factors, in addition to license renewal, that will ultimately determine whether an existing nuclear power plant continues to operate beyond the period of the current OL.

NRC regulations [10 CFR 51.95(c)(2)] contain the following statement regarding the content of SEISs prepared at the license renewal stage:

The supplemental environmental impact statement for license renewal is not required to include discussion of need for power or the economic costs and economic benefits of the proposed action or of alternatives to the proposed action except insofar as such benefits and costs are either essential for a determination regarding the inclusion of an alternative in the range of alternatives considered or relevant to mitigation. In addition, the supplemental environmental impact statement prepared at the license renewal stage need not discuss other issues not related to the environmental effects of the proposed

Executive Summary

action and the alternatives, or any aspect of the storage of spent fuel for the facility within the scope of the generic determination in § 51.23(a) ["Temporary storage of spent fuel after cessation of reactor operation—generic determination of no significant environmental impact"] and in accordance with § 51.23(b).

The GEIS contains the results of a systematic evaluation of the consequences of renewing an OL and operating a nuclear power plant for an additional 20 years. It evaluates 92 environmental issues using the NRC's three-level standard of significance—SMALL, MODERATE, or LARGE—developed using the Council on Environmental Quality guidelines. The following definitions of the three significance levels are set forth in a footnote to Table B-1 of 10 CFR Part 51, Subpart A, Appendix B:

SMALL – Environmental effects are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute of the resource.

MODERATE – Environmental effects are sufficient to alter noticeably, but not to destabilize, important attributes of the resource.

LARGE – Environmental effects are clearly noticeable and are sufficient to destabilize important attributes of the resource.

For 69 of the 92 issues considered in the GEIS, the analysis in the GEIS led to the following conclusions:

- (1) The environmental impacts associated with the issue have been determined to apply either to all plants or, for some issues, to plants having a specific type of cooling system or other specified plant or site characteristic.
- (2) A single significance level (i.e., SMALL, MODERATE, or LARGE) has been assigned to the impacts (except for collective offsite radiological impacts from the fuel cycle and from high-level waste and spent fuel disposal).
- (3) Mitigation of adverse impacts associated with the issue has been considered in the analysis, and it has been determined that additional plant-specific mitigation measures are likely not to be sufficiently beneficial to warrant implementation.

These 69 issues were identified in the GEIS as Category 1 issues. In the absence of new and significant information, the staff relied on conclusions as amplified by supporting information in the GEIS for issues designated as Category 1 in Table B-1 of 10 CFR Part 51, Subpart A, Appendix B.

Of the 23 issues that do not meet the criteria set forth above, 21 are classified as Category 2 issues requiring analysis in a plant-specific supplement to the GEIS. The remaining two issues, environmental justice and chronic effects of electromagnetic fields, were not categorized. Environmental justice was not evaluated on a generic basis and must be addressed in a plant-specific supplement to the GEIS. Information on the chronic effects of electromagnetic fields was not conclusive at the time the GEIS was prepared.

This SEIS documents the staff's evaluation of all 92 environmental issues considered in the GEIS. The staff considered the environmental impacts associated with alternatives to license renewal and compared the environmental impacts of license renewal and the alternatives. The alternatives to license renewal that were considered include the no-action alternative (not renewing the OL for Fort Calhoun Station, Unit 1) and alternative methods of power generation. Based on projections made by the U.S. Department of Energy's Energy Information Administration, natural-gas- and coal-fired generation appear to be the most likely power-generation alternatives if the power from Unit 1 is replaced. These alternatives are evaluated assuming that the replacement power-generation plant is located at either the Fort Calhoun Station site, the OPPD's existing Nebraska City site for coal-fired generation, or the OPPD's existing Cass County site for natural-gas-fired generation.

The OPPD and the staff have established independent processes for identifying and evaluating the significance of any new information on the environmental impacts of license renewal. Neither the OPPD nor the staff has identified information that is both new and significant related to Category 1 issues that would call into question the conclusions in the GEIS. Similarly, neither the scoping process nor the staff has identified any new issue applicable to Fort Calhoun Station, Unit 1 that has a significant environmental impact. These determinations included consideration of public comments. Therefore, the staff relies upon the conclusions of the GEIS for all of the Category 1 issues that are applicable to Fort Calhoun Station, Unit 1.

The OPPD's license renewal application presents an analysis of the Category 2 issues that are applicable to Fort Calhoun Station, Unit 1 plus environmental justice. The staff has reviewed the OPPD analysis for each issue and has conducted an independent review of each issue plus the chronic effects of electromagnetic fields. Five Category 2 issues are not applicable, because they are related to plant design features or site characteristics not found at Fort Calhoun Station. Four Category 2 issues are not discussed in this SEIS, because they are specifically related to refurbishment. The OPPD has stated that its evaluation of structures and components, as required by 10 CFR 54.21, did not identify any major plant refurbishment activities or modifications as necessary to support the continued operation of Fort Calhoun Station, Unit 1 for the license renewal period.

Twelve Category 2 issues related to operational impacts and postulated accidents during the renewal term, as well as environmental justice and chronic effects of electromagnetic fields, are discussed in detail in this SEIS. Five of the Category 2 issues and environmental justice apply

Executive Summary

to both refurbishment and to operation during the renewal term and are only discussed in this SEIS in relation to operation during the renewal term. For all 12 Category 2 issues and environmental justice, the staff concludes that the potential environmental effects are of SMALL significance in the context of the standards set forth in the GEIS. In addition, the staff determined that the appropriate Federal health agencies have not reached a consensus on the existence of chronic adverse effects from electromagnetic fields. Therefore, no further evaluation of this issue is required. For severe accident mitigation alternatives (SAMAs), the staff concludes that a reasonable, comprehensive effort was made to identify and evaluate SAMAs. Based on its review of the SAMAs for Fort Calhoun Station, Unit 1 and the plant improvements already made, the staff concludes that, with the exception of the seven candidate SAMAs identified for implementation, none of the remaining candidate SAMAs are cost-beneficial.

Mitigation measures were considered for each Category 2 issue. Current measures to mitigate the environmental impacts of plant operation were found to be adequate, and no additional mitigation measures were deemed sufficiently beneficial to be warranted.

If the Fort Calhoun Station, Unit 1 OL is not renewed and the unit ceases operation on or before the expiration of the current OL, then the adverse impacts of likely alternatives will not be smaller than those associated with continued operation of Fort Calhoun Station, Unit 1. The impacts may, in fact, be greater in some areas.

The recommendation of the NRC staff is that the Commission determine that the adverse environmental impacts of license renewal for Fort Calhoun Station, Unit 1 are not so great that preserving the option of license renewal for energy-planning decision makers would be unreasonable. This recommendation is based on (1) the analysis and findings in the GEIS; (2) the ER submitted by the OPPD; (3) consultation with other Federal, State, and local agencies; (4) the staff's own independent review; and (5) the staff's consideration of the public comments.