



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

October 17, 2011

Mr. Robert J. Duncan II, Vice President
H.B. Robinson Steam Electric Plant
Carolina Power & Light Company
3581 West Entrance Road
Hartsville, SC 29550

SUBJECT: H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2 – ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT REGARDING USE OF M5 ALLOY IN FUEL ROD CLADDING (TAC NO. ME4912)

Dear Mr. Duncan:

Enclosed is a copy of the Environmental Assessment and Finding of No Significant Impact related to the exemption request dated October 19, 2010, for H. B. Robinson Steam Electric Plant (HBRESP), Unit 2, for the Carolina Power & Light Company (the licensee). The proposed action would exempt the licensee from certain requirements of Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 50.46, "Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors," and Appendix K to 10 CFR 50, "ECCS [Emergency Core Cooling System] Evaluation Models," to allow for the use of M5 alloy fuel rod cladding." Specifically, 10 CFR 50.46, paragraph (a)(1)(i) provides requirements for reactors containing uranium oxide fuel pellets clad in either zircaloy or ZIRLO. Additionally, Appendix K to 10 CFR 50 presumes the use of zircaloy or ZIRLO fuel cladding when doing calculations for energy release, cladding oxidation, and hydrogen generation after a postulated loss-of-coolant accident. Therefore, both of these regulations either state or assume that either zircaloy or ZIRLO is used as the fuel rod cladding material. The proposed exemption would allow the licensee use of M5 cladding fuel assemblies into the core of HBRESP, Unit 2.

The assessment is being forwarded to the Office of the Federal Register for publication. If you have any questions, please contact me at (301) 415-2020 or via e-mail to brenda.mozafari@nrc.gov.

Sincerely,

A handwritten signature in black ink that reads "Brenda Mozafari".

Brenda Mozafari, Senior Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-261

Enclosure: Environmental Assessment

cc w/encl: Distribution via Listserv

NUCLEAR REGULATORY COMMISSION

CAROLINA POWER & LIGHT COMPANY

DOCKET NO. 50-261

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

ENVIRONMENTAL ASSESSMENT AND FINDING OF

NO SIGNIFICANT IMPACT

The U.S. Nuclear Regulatory Commission (NRC) is considering issuance of an exemption pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.46, "Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors," and 10 CFR Part 50, Appendix K, "ECCS [Emergency Core Cooling System] Evaluation Models," to allow for the use of M5 alloy fuel rod cladding for Facility Operating License No. DPR-23, issued to Carolina Power & Light Company (the licensee), for operation of the H. B. Robinson Steam Electric Plant, Unit 2 (HBRSEP), located in Darlington County, South Carolina. In accordance with 10 CFR 51.21, "Criteria for and identification of licensing and regulatory actions requiring environmental assessments," the NRC staff prepared an environmental assessment documenting its finding. The NRC staff concluded that the proposed action will have no significant environmental impact.

ENVIRONMENTAL ASSESSMENT

Identification of the Proposed Action:

The proposed action would exempt the licensee from certain requirements of 10 CFR 50.46 and Appendix K to 10 CFR Part 50. Specifically, 10 CFR 50.46, paragraph (a)(1)(i) provides requirements for reactors containing uranium oxide fuel pellets clad in either zircaloy or

ZIRLO. Additionally, Appendix K to 10 CFR 50 specifies the use of zircaloy or ZIRLO fuel cladding when doing calculations for energy release, cladding oxidation, and hydrogen generation after a postulated loss-of-coolant accident. Therefore, both of these regulations either state that either zircaloy or ZIRLO is used as the fuel rod cladding material. The proposed exemption would allow the licensee use of M5 cladding fuel assemblies into the core of HBRESP, Unit 2. The proposed action is in accordance with the licensee's application dated October 19, 2010.

The Need for the Proposed Action:

The proposed exemption is needed to allow the licensee to allow for the use of M5 alloy fuel rod cladding at HBRSEP, Unit No. 2. The licensee has requested an exemption from the requirements of 10 CFR 50.46 and 10 CFR 50, Appendix K to allow for loading of M5 cladding fuel assemblies, in lieu of zircaloy or ZIRLO, into the core during Refueling Outage 27 that is currently scheduled to begin on October 29, 2011.

Environmental Impacts of the Proposed Action:

The NRC has completed its evaluation of the proposed action and concludes that there are no environmental impacts associated with the proposed exemption. The details of the NRC staff's safety evaluation will be provided in the exemption that, if approved by the NRC, will be issued as part of the letter to the licensee approving the exemption to the regulation.

The proposed action will not significantly increase the probability or consequences of accidents. No changes are being made in the types of effluents that may be released offsite. There is no significant increase in the amount of any effluent released offsite. There is no significant increase in occupational or public radiation exposure. Therefore, there are no significant radiological environmental impacts associated with the proposed action.

With regard to potential nonradiological impacts, the proposed action does not result in changes to land use or water use, or result in changes to the quality or quantity of nonradiological effluents. No changes to the National Pollution Discharge Elimination system permit are needed. No effects on the aquatic or terrestrial habitat in the vicinity of the plant, or to threatened, endangered, or protected species under the Endangered Species Act, or impacts to essential fish habitat covered by the Magnuson-Steven's Act are expected. There are no impacts to the air or ambient air quality. There are no impacts to historical and cultural resources. In addition, there are also no known socioeconomic or environmental justice impacts associated with such proposed action. Therefore, there are no significant nonradiological environmental impacts associated with the proposed action.

Accordingly, the NRC concludes that there are no significant environmental impacts associated with the proposed action.

Environmental Impacts of the Alternatives to the Proposed Action:

As an alternative to the proposed action, the NRC staff considered denial of the proposed action (i.e., the "no action" alternative). Denial of the exemption request would result in no change in current environmental impacts. If the proposed action was denied, the licensee would have to comply with the ECCS rules in 10 CFR 50.46 and Appendix K to 10 CFR Part 50 regarding use of M5 cladding into the HBRSEP, Unit 2 core during the upcoming refueling outage. This would cause unnecessary burden on the licensee, without a significant benefit in environmental impacts. The environmental impacts of the proposed exemption and the "no action" alternative are similar.

Alternative Use of Resources:

The action does not involve the use of any different resources than those considered in the Final Environmental Statement for the HBRSEP, dated April 1975, as supplemented through

the "Generic Environmental Impact Statement for License Renewal of Nuclear Plants: H.B. Robinson Steam Electric Plant, Unit 2 - Final Report (NUREG - 1437, Supplement 13)."

Agencies and Persons Consulted:

In accordance with its stated policy, on October 17, 2011, the NRC staff consulted with the South Carolina State official, Mark Yeager of the South Carolina Bureau of Land and Waste Management, regarding the environmental impact of the proposed action. The State official had no comments.

FINDING OF NO SIGNIFICANT IMPACT

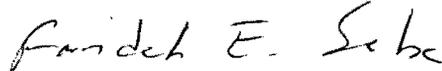
Pursuant to 10 CFR 51.32, "Finding of No Significant Impact," and on the basis of the environmental assessment, the NRC concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the NRC has determined not to prepare an environmental impact statement for the proposed action.

For further details with respect to the proposed action, see the licensee's letter dated October 19, 2010 (Agencywide Documents Access and Management System (ADAMS), Accession No. ML102980142). This document may be examined, and/or copied for a fee, at the NRC's Public Document Room (PDR), located at One White Flint North, Public File Area O1 F21, 11555 Rockville Pike (first floor), Rockville, Maryland. Publicly available records are accessible electronically through ADAMS in the NRC Library on the internet at the NRC Web site, <http://www.nrc.gov/reading-rm/adams.html>.

Persons who do not have access to ADAMS or who encounter problems in accessing the documents located in ADAMS should contact the NRC PDR Reference staff by telephone at 1-800-397-4209 or 301-415-4737, or send an e-mail to pdr.resource@nrc.gov.

Dated at Rockville, Maryland, this 17th day of October 2011.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink that reads "Farideh E. Saba". The signature is written in a cursive style with a large initial 'F' and 'S'.

Farideh E. Saba, Senior Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

October 17, 2011

Mr. Robert J. Duncan II, Vice President
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The assessment is being forwarded to the Office of the Federal Register for publication. If you have any questions, please contact me at (301) 415-2020 or via e-mail to brenda.mozafari@nrc.gov.

Sincerely,

/RA/

Brenda Mozafari, Senior Project Manager
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-261

Enclosure: Environmental Assessment

cc w/encl: Distribution via Listserv

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