

**NUCLEAR REGULATORY COMMISSION**  
**[Docket Nos. 50-498 and 50-499; NRC-2011-0238]**  
**STP Nuclear Operating Company**  
**South Texas Project, Units 1 and 2**  
**Environmental Assessment and Finding**  
**of No Significant Impact**

The U.S. Nuclear Regulatory Commission (NRC) is considering issuance of an exemption from Title 10 of the *Code of Federal Regulations* (10 CFR), Part 50, Section 50.46 “Acceptance criteria for emergency core cooling systems [ECCSs] for light-water nuclear power reactors,” and Appendix K to 10 CFR Part 50, “ECCS EVALUATION MODELS,” to allow the use of Optimized ZIRLO™ fuel rod cladding in future core reload applications for South Texas Project (STP), Units 1 and 2, Facility Operating License Nos. NPF-76 and NPF-80, respectively, issued to STP Nuclear Operating Company (the licensee) for operation of STP, Units 1 and 2, located Matagorda County, Texas. Therefore, as required by 10 CFR 51.21, the NRC is issuing this environmental assessment and finding of no significant impact.

**ENVIRONMENTAL ASSESSMENT**

**Identification of the Proposed Action:**

The proposed action would issue an exemption from Section 50.46 and Appendix K to 10 CFR 50, regarding fuel cladding material, and revise the Technical Specifications document, which is part of the Facility Operating Licenses for STP, Units 1 and 2, to permit use of Optimized ZIRLO™ fuel. The NRC staff has previously issued an exemption to STP, Units 1 and 2, to allow use of up to eight lead test assemblies (LTAs) containing fuel rods with

Optimized ZIRLO™ cladding (69 FR 64113; November 3, 2004). Westinghouse has provided the NRC staff with information related to test data and models for the LTAs. LTA measured data and favorable results from visual examinations of once, twice, and thrice-burned LTAs confirm, for three cycles of operation, that the current performance models are applicable for Optimized ZIRLO™ clad fuel rods. The purpose of this exemption request is to allow fuel rods with Optimized ZIRLO™ cladding to be used in future core reloads for STP, Units 1 and 2.

The proposed action is in accordance with the licensee's application dated December 21, 2010, which is publicly available in the Agencywide Documents Access and Management System (ADAMS) under Accession No. ML103630408.

The Need for the Proposed Action:

The proposed action is needed because the regulation in 10 CFR 50.46 contains acceptance criteria for the ECCS for reactors that have fuel rods clad either with Zircaloy or ZIRLO. Appendix K to 10 CFR Part 50, paragraph I.A.5, requires the Baker-Just equation to be used to predict the rates of energy release, hydrogen concentration, and cladding oxidation for the metal-water reaction. The Baker-Just equation assumed the use of a zirconium alloy different than Optimized ZIRLO™; therefore, an exemption is required.

Environmental Impacts of the Proposed Action:

The NRC has completed its evaluation of the proposed action and concludes that the exemption does not present undue risk to public health and safety, and is consistent with common defense and security.

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.

Based on the nature of the exemption, the proposed action does not result in changes to land use or water use, or result in changes to the quality or quantity of non-radiological 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-Stevens Act are expected. There are no impacts to the air or ambient air quality. There are no impacts to historic and cultural resources. There would be no noticeable effect on socioeconomic conditions in the region.

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 actions (i.e., the “no-action” alternative). Denial of the application would result in no change in current environmental impacts. Thus, the environmental impacts of the proposed actions and the alternative action are similar.

Alternative Use of Resources:

The action does not involve the use of any different resources than those previously considered in the Final Environmental Statement for the STP, Units 1 and 2, NUREG-1171, dated August 1986.

Agencies and Persons Consulted:

In accordance with its stated policy, on September 1, 2011, the staff consulted with the Texas State official regarding the environmental impact of the proposed action. The State official had no comments.

FINDING OF NO SIGNIFICANT IMPACT

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 December 21, 2010. Documents 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 documents created or received at the NRC are accessible electronically through ADAMS in the NRC Library at <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](mailto:pdr.resource@nrc.gov).

Dated at Rockville, Maryland, this 4<sup>th</sup> day of October 2011.

FOR THE NUCLEAR REGULATORY COMMISSION

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