

NUCLEAR REGULATORY COMMISSION

[NRC-2010-0281]

ARIZONA PUBLIC SERVICE COMPANY

DOCKET NO. STN 50-530

PALO VERDE NUCLEAR GENERATING STATION, UNIT 3

ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT

The U.S. Nuclear Regulatory Commission (NRC) is considering issuance of a temporary exemption from the requirements of Title 10 of the *Code of Federal Regulations*, Part 50 (10 CFR 50), Section 50.46, "Acceptance criteria for emergency core cooling systems for light-water nuclear power reactors," and 10 CFR 50, Appendix K, "ECCS Evaluation Models," for Facility Operating License No. NPF-74, issued to Arizona Public Service Company (APS, the licensee), for operation of Palo Verde Nuclear Generating Station (PVNGS), Unit 3, located in Maricopa County, Arizona. Therefore, as required by 10 CFR 51.21, the NRC has performed an environmental assessment. Based on the results of the environmental assessment, the NRC is issuing a finding of no significant impact.

ENVIRONMENTAL ASSESSMENT

Identification of the Proposed Action:

The proposed action would permit the use of fuel rods with Optimized ZIRLO™ cladding to be inserted into PVNGS, Unit 3's core for Operating Cycles 16, 17, and 18. Since the requirements in 10 CFR 50.46, specifically, and 10 CFR 50, Appendix K, implicitly, refer to the use of zircaloy or ZIRLO cladding, a temporary exemption is required to allow the use of fuel

rods clad with an advanced zirconium-based alloy that is neither zircaloy nor ZIRLO. The temporary exemption would allow up to eight lead fuel assemblies (LFAs) manufactured by Westinghouse with fuel rods clad with Optimized ZIRLO™ to be inserted into the PVNGS, Unit 3 core during the fall 2010 refueling outage. The temporary exemption would allow the LFAs to be used for up to three operating cycles (Cycles 16, 17, and 18).

The proposed action is in accordance with the licensee's application dated November 2, 2009 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML093160596), as supplemented by letter dated May 12, 2010 (ADAMS Accession No. ML101410262).

The Need for the Proposed Action:

The proposed temporary exemption is needed by APS, as explained in its application dated November 2, 2009, in order "to evaluate cladding for future fuel assemblies that may need to be of a more robust design than current fuel assemblies to allow for possible higher duty and/or extended burnup." The regulations specify standards and acceptance criteria only for fuel rods clad with zircaloy or ZIRLO. Consistent with 10 CFR 50.46, a temporary exemption is required to use fuel rods clad with an advanced alloy that is not zircaloy or ZIRLO. Therefore, the licensee needs a temporary exemption to insert up to eight LFAs containing Optimized ZIRLO™ cladding material into the PVNGS Unit 3 core for up to three cycles of operation.

Environmental Impacts of the Proposed Action:

The NRC has completed its evaluation of the proposed action and concludes that the proposed exemption will not present any undue risk to the public health and safety. The NRC-approved Westinghouse Electric Company LLC (Westinghouse) topical reports, WCAP-16500-P-A Revision 0, "CE [Combustion Engineering] 16x16 Next Generation Fuel Core Reference Report" (Proprietary), dated August 2007, and WCAP-12610-P-A and CENPD-404-P-A,

“Optimized ZIRLO™” (Proprietary), dated July 2006, have demonstrated that predicted chemical, mechanical, and material performance characteristics of the Optimized ZIRLO™ alloy cladding are bounded by those approved for zircaloy under anticipated operational occurrences (AOOs) and postulated accidents. The LFAs shall be placed in non-limiting core regions as required by PVNGS, Unit 3 Technical Specification 4.2.1, “Fuel Assemblies.” Also, APS and Westinghouse utilize NRC approved methods for the reload design process for the PVNGS reload cores containing Optimized ZIRLO™ fuel rod cladding. Therefore, the environmental impact, due to the unlikely event of an LFA clad failure, would be minimal and would be bounded by the environmental impacts associated with previous accident analyses.

The details of the NRC staff’s safety evaluation will be provided in the exemption that 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.

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.

Therefore, no changes or different types of non-radiological environmental impacts are expected as a result of 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 staff considered denial of the proposed action (i.e., the “no-action” alternative). Denial of the application would result in no change in current environmental impacts. The environmental impacts of the proposed action 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 Palo Verde Nuclear Generating Station, NUREG-0841, dated February 1982.

Agencies and Persons Consulted:

In accordance with its stated policy, on July 8, 2010, the NRC staff consulted with the Arizona State official, Aubrey Godwin of the Arizona Radiation Regulatory Authority 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 November 2, 2009, as supplemented by letter dated May 12, 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 records will be accessible electronically from the Agencywide Documents Access and Management System (ADAMS) Public Electronic Reading Room 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 August 2010.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Nageswaran Kalyanam, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation