

May 7, 1987

Docket No. 50-338

Mr. W. L. Stewart
Vice President - Nuclear Operations
Virginia Electric and Power Company
Post Office Box 26666
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Dear Mr. Stewart:

Subject: Notice of Environmental Assessment and Finding of No Significant Impact Relating to Exemption from the Provisions of 50.46 Limiting Application of Fuel Assemblies to "Zircalloy" Clad Fuel - North Anna Power Station, Unit No. 1

Enclosed is a "Notice of Environmental Assessment and Finding of No Significant Impact" for your information. This notice relates to your application for amendment dated February 20, 1987, which would add a license condition to the North Anna, Unit No. 1 license concerning the use of two fuel assemblies containing fuel rods clad with advanced zirconium base alloy.

The staff has determined that an exemption is needed from the provision of 10 CFR 50.46 requiring the use of an approved ECCS evaluation model for reactors with zircalloy clad fuel with respect to the use of two lead test assemblies using advanced fuel cladding material (zirconium base alloy).

This notice is being forwarded to the Office of the Federal Register for publication.

Sincerely,

/s/

Leon B. Engle, Project Manager
Project Directorate II-2
Division of Reactor Projects-I/II

Enclosure:
As stated

cc w/enclosure:
See next page

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Mr. W. L. Stewart
Virginia Electric & Power Company

North Anna Power Station
Units 1 and 2

cc:

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UNITED STATES NUCLEAR REGULATORY COMMISSIONVIRGINIA ELECTRIC AND POWER COMPANYOLD DOMINION ELECTRIC COOPERATIVENORTH ANNA POWER STATION, UNIT 1DOCKET NO. 50-338NOTICE OF ENVIRONMENTAL ASSESSMENT ANDFINDING OF NO SIGNIFICANT IMPACT

The U.S. Nuclear Regulatory Commission is considering the issuance of an exemption from the requirements of 10 CFR 50.46 to Virginia Electric and Power Company and Old Dominion Electric Cooperative (the licensee) for the North Anna Power Station, Unit No. 1, located in Louisa County, Virginia.

ENVIRONMENTAL ASSESSMENT:Identification of Proposed Action and Need for Proposed Action:

The licensee proposes to use two lead test assemblies in the North Anna facilities. These assemblies are clad with an advanced cladding material, a zirconium based alloy. Although the new zirconium based alloy is very similar in composition to "Zircalloy," it is not clear that the new alloy falls within the scope of 10 CFR 50.46 which applies to "Zircalloy" clad fuel. Resolution of this question will involve a substantial effort in checking into the rulemaking record on which 50.46 was based. In the absence of such resolution, an exemption from the provision of 50.46 limiting its application to "Zircalloy" clad fuel is needed to permit authorization of the use of the new fuel. Test experience with a limited number of assemblies for design development purposes provides important data to determine whether new designs can provide performance improvement while maintaining a high standard of safety performance.

Environmental Impact of the Proposed Action:

Operation with the new cladding will not be significantly affected. The composition of the zirconium based alloy is very similar to "Zircalloy" in all significant respects; moreover, the test assemblies are not located in the portions of the core expected to experience highest burnup and highest power density. The safety assessments performed by the licensee and the NRC staff demonstrate that performance of these assemblies in the event of a LOCA will be bounded by the performance previously calculated for the other zircalloy clad assemblies in the core, which was based on accepted ECCS evaluation models.

Further, the staff has concluded that use of two test assemblies containing the new alloy in the North Anna 1 reactor would conform to all current fuel design bases, would not change the existing reload design and safety analysis limits, and would satisfy the guidelines for lead test assemblies.

As a result, the use of the 2 lead test assemblies would not affect the probability or consequences of potential reactor accidents; nor does the proposed exemption otherwise affect radiological plant effluents. Therefore, the Commission concludes that there are no significant radiological impacts associated with the proposed exemption.

With regard to potential non-radiological impacts, the proposed exemption involves features located entirely within the restricted area as defined in 10 CFR Part 20. It does not affect non-radiological plant effluents and has no other significant non-radiological environmental impact associated with the proposed exemption.

Alternatives to the Proposed Action:

Since we have concluded that the environmental effects of the proposed action are not significant, any alternatives with equal or greater environmental impacts need not be evaluated.

The principal alternative would be to deny the requested exemption. This would not reduce the environmental impacts associated with the provisions of 50.46 limiting application of fuel assemblies to "Zircalloy" clad fuel and compliance with the rule would negate design development purposes which provide important data to determine whether new fuel assemblies with advanced cladding material (zirconium base alloy) can provide performance improvement while maintaining a high standard of safety performance.

Alternative Use of Resources:

This action does not involve the use of resources not previously considered in the Final Environmental Statement (as amended) for the North Anna Power Station, Units No. 1 and No. 2.

Agencies and Persons Contacted:

The NRC staff reviewed the licensee's request and did not consult other agencies or persons.

FINDING OF NO SIGNIFICANT IMPACT

The Commission has determined not to prepare an environmental impact statement for the proposed exemption.

Based upon the foregoing environmental assessment, we conclude that the proposed action will not have a significant effect on the quality of the human environment.

For further details with respect to this action, see the licensee's application for using two lead test assemblies with advanced cladding material dated February 20, 1987, which is available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C., and at the Board of Supervisors Office, Louisa County Courthouse, Louisa, Virginia 23093, and the Alderman Library, Manuscripts Department, University of Virginia, Charlottesville, Virginia 22901.

Dated at Bethesda, Maryland, this 7th day of May, 1987.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in cursive script, appearing to read "L. S. Rubenstein".

Lester S. Rubenstein, Director
Project Directorate II-2
Division of Reactor Projects-I/II
Office of Nuclear Reactor Regulation