

December 5, 1988

Docket No. 50-338

Mr. W. R. Cartwright
Vice President - Nuclear
Virginia Electric and Power Company
5000 Dominion Blvd.
Glen Allen, Virginia 23060

Dear Mr. Cartwright:

SUBJECT: NOTICE OF ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT
IMPACT RELATING TO EXEMPTION FROM THE PROVISIONS OF 10 CFR 50.46 LIMITING
APPLICATION OF FUEL ASSEMBLIES TO "ZIRCALLOY" CLAD FUEL - NORTH ANNA
POWER STATION, UNIT NO. 1 (NA-1) (TAC NO. 69797)

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 September 30, 1988, which would revise a license
condition for NA-1 concerning the use of two fuel assemblies containing fuel
rods clad with advanced zirconium-based alloy.

The staff has determined that an exemption is needed from the provisions 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-based alloy).

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

Sincerely,

ORIGINAL SIGNED BY:

Leon B. Engle, Project Manager
Project Directorate II-2
Division of Reactor Projects-II
Office of Nuclear Reactor Regulation

Enclosure:
As stated

cc w/enclosure:
See next page

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Mr. W. R. Cartwright
Virginia Electric & Power Company

North Anna Power Station
Units 1 and 2

cc:

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Senior Resident Inspector
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UNITED STATES NUCLEAR REGULATORY COMMISSIONVIRGINIA ELECTRIC AND POWER COMPANYOLD DOMINION ELECTRIC COMPANYDOCKET NO. 50-338NOTICE OF ISSUANCE 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 1, located in Louisa County, Virginia.

ENVIRONMENTAL ASSESSMENTIdentification of Proposed Action and Need for Proposed Action:

NA-1 is currently operating in Cycle 7 with two assemblies containing fuel rods clad with an advanced zirconium-based material as approved by the NRC letter of May 13, 1987. The licensee is proposing to use additional zirconium-based advanced cladding material in the same two fuel assemblies starting with NA-1 Cycle 8. These assemblies will contain fuel rods clad with an additional zirconium-based advanced alloy. Although this new zirconium-based alloy is very similar to "Zircaloy," whether or not this new alloy falls within the scope of 10 CFR 50.46 which applies to "Zircaloy" clad fuel is unclear. In the absence of a clear definition of the actual compound "Zircaloy" as stated in 10 CFR 50.46, an exemption from the provisions of 10 CFR 50.46 limiting its application to "Zircaloy" clad fuel is needed to permit authorization of the use of the new clad material.

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Furthermore, 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 Impacts of the Proposed Action:

Reactor operation with the additional new cladding material will not be significantly affected. The composition of this zirconium-based alloy is very similar to "Zircaloy" in essential 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 Loss of Coolant Accident (LOCA) will be bounded by the performance previously calculated for other zircaloy clad assemblies in the core, which was based on accepted ECCS evaluation models. Further, the staff has concluded that the use of two test assemblies containing the additional new alloy in the NA-1 reactor would conform to all current fuel design bases, would not change the existing reload design safety analysis limits, and would satisfy the NRC guidelines for lead test assemblies. As a result, the use of the two lead test assemblies would not affect the probability or consequences of potential reactor accidents. In addition, this proposed exemption does not otherwise affect radiological plant effluents. Accordingly, the staff 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. Implementation of the proposed exemption will not affect non-radiological plant effluents and will have no other significant non-radiological environmental impacts associated with the proposed exemption.

Alternative 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 environmental impacts associated with operation of the facility and requiring compliance with the rule would negate design development purposes which provide important data to determine whether new fuel assemblies with advanced cladding material (zirconium-based 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 any 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 Consulted:

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

FINDING OF NO SIGNIFICANT IMPACT

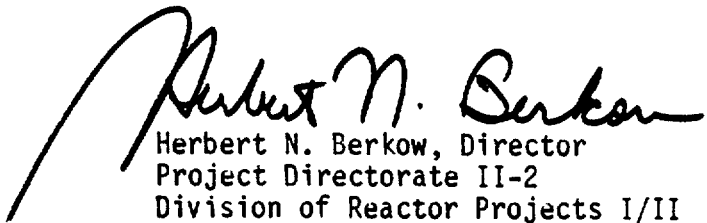
The Commission has determined not to prepare an environmental impact statement for the proposed exemption.

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 September 30, 1988, which is available for public inspection at the Commission's Public Document Room, the Gelman Building, 2120 L Street, N.W., Washington, D.C., and the Alderman Library, Manuscripts Department, University of Virginia, Charlottesville, Virginia 22901.

Dated at Rockville, Maryland, this 5th day of December, 1988.

FOR THE NUCLEAR REGULATORY COMMISSION

A handwritten signature in black ink, appearing to read "Herbert N. Berkow", is written over the typed name and title.

Herbert N. Berkow, Director
Project Directorate II-2
Division of Reactor Projects I/II
Office of Nuclear Reactor Regulation