April 22, 1998

Mr. J. P. O'Hanlon
Senior Vice President - Nuclear
Virginia Electric and Power Company
5000 Dominion Blvd.
Glen Allen, Virginia 23060

SUBJECT: NORTH ANNA POWER STATION, UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS REGARDING A PROPOSED TECHNICAL SPECIFICATION CHANGE MODIFYING INSPECTION REQUIREMENTS FOR THE REACTOR COOLANT PUMP FLYWHEEL AND LOOP FLOW STRAIGHTENER INSPECTIONS (TAC NOS. MA0870 AND MA0871)

Dear Mr. O'Hanlon:

The Commission has issued the enclosed Amendment Nos. 211 and 192 to Facility Operating License Nos. NPF-4 and NPF-7 for the North Anna Power Station, Units No. 1 and No. 2 (NAPS-1&2). The amendments consist of changes to the Technical Specifications (TS) in response to your letter dated February 3, 1998.

The amendments in the form of changes to the TS revise Surveillance Requirement 4.4.10.1.1, modifying the inspection requirements for the Reactor Coolant pump (RCP) flywheels for both units and eliminating the examination requirements for the flow straighteners in each steam generator to the RCP elbow on Unit 1.

A copy of the Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

Original signed by:
N. Kalyanam, Project Manager
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket Nos. 50-338 and 50-339

Enclosures:
1. Amendment No. 211 to NPF-4
2. Amendment No. 192 to NPF-7
3. Safety Evaluation

cc w/enclosures: See next page

DISTRIBUTION
See attached sheet

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OFFICE	PM:PDII-1	LA:PDII-1	D:PDII-1	OGC	EMCB/DE
NAME	NKalyanam	Dunnington	PTKuo	RBachmann	SE DATED
DATE	4/10/98	4/10/98	4/20/98	4/16/98	4/16/98
COPY	Yes/No	Yes/No	Yes/No	Yes/No	

Mr. J. P. O'Hanlon
Virginia Electric & Power Company

North Anna Power Station
Units 1 and 2

cc:
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Robert B. Strobe, M.D., M.P.H.
State Health Commissioner
Office of the Commissioner
Virginia Department of Health
P.O. Box 2448
Richmond, Virginia 23218

DATED: April 22, 1998

AMENDMENT NO. 211 TO FACILITY OPERATING LICENSE NO. NPF-4-NORTH ANNA UNIT 1
AMENDMENT NO. 192 TO FACILITY OPERATING LICENSE NO. NPF-7-NORTH ANNA UNIT 2

Docket File
PUBLIC
PDII-1 RF
J. Zwolinski, 14/E/4
G. Hill (4), TWFN 5/C/3
W. Beckner
ACRS
L. Plisco, RII

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

VIRGINIA ELECTRIC AND POWER COMPANY

OLD DOMINION ELECTRIC COOPERATIVE

DOCKET NO. 50-338

NORTH ANNA POWER STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 211
License No. NPF-4

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Virginia Electric and Power Company et al., (the licensee) dated February 3, 1998, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.D.(2) of Facility Operating License No. NPF-4 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 211 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

R. T. Kuo, Director
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: April 22, 1998

ATTACHMENT TO LICENSE AMENDMENT NO. 211

TO FACILITY OPERATING LICENSE NO. NPF-4

DOCKET NO. 50-338

Replace the following page of the Appendix "A" Technical Specifications with the enclosed page as indicated. The revised page is identified by amendment number and contains a vertical line indicating the area of change. Overleaf page 3/4 4-33 is included for document completeness.

Remove Page	Insert Page
3/4 4-34	3/4 4-34

REACTOR COOLANT SYSTEM

3/4.4.10 STRUCTURAL INTEGRITY

ASME CODE CLASS 1, 2 & 3 COMPONENTS

LIMITING CONDITION FOR OPERATION

3.4.10.1 The structural integrity of ASME Code Class 1, 2 and 3 components shall be maintained in accordance with Specification 4.4.10.1.

APPLICABILITY: ALL MODES.

ACTION:

a. With the structural integrity of any ASME Code Class 1 component(s) not conforming to the above requirements, restore the structural integrity of the affected component(s) to within its limit or isolate the affected component(s) prior to increasing the Reactor Coolant System temperature more than 50°F above the minimum temperature required by NDT considerations.

b. With the structural integrity of any ASME Code Class 2 component(s) not conforming to the above requirements, restore the structural integrity of the affected component(s) to within its limit or isolate the affected component(s) prior to increasing the Reactor Coolant System temperature above 200°F.

c. With the structural integrity of any ASME Code Class 3 component(s) not conforming to the above requirements, restore the structural integrity of the affected component(s) to within its limit or isolate the affected component(s) from service.

d. With any RCP shaft deflection indication greater than 20 mils, the reactor shall be placed in at least HOT STANDBY within 1 hour, the affected RCP(s) tripped and then affected flow straightener plate(s) ultrasonically examined.

e. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.4.10.1.1 In addition to the requirements of Specification 4.0.5, the Reactor Coolant pump flywheels shall be inspected once every 10 years by a qualified inplace UT examination over the volume from the inner bore of the flywheel to the circle of one-half the outer radius or a surface examination (MT and/or PT) of exposed surfaces defined by the volume of disassembled flywheels.

4.4.10.1.2 In addition to the requirements of Specification 4.0.5, at least one third of the main member to main member welds, joining A572 material, in the steam generator supports, shall be visually examined during each 40 month inspection interval.

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

VIRGINIA ELECTRIC AND POWER COMPANY

OLD DOMINION ELECTRIC COOPERATIVE

DOCKET NO. 50-339

NORTH ANNA POWER STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 192
License No. NPF-7

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Virginia Electric and Power Company et al., (the licensee) dated February 3, 1998, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-7 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 192 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

P. T. Kuo, Director
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: April 22, 1998

ATTACHMENT TO LICENSE AMENDMENT NO. 192

TO FACILITY OPERATING LICENSE NO. NPF-7

DOCKET NO. 50-339

Replace the following page of the Appendix "A" Technical Specifications with the enclosed page as indicated. The revised page is identified by amendment number and contain vertical line indicating the area of change.

Remove Page	Insert Page
3/4 3-32	3/4 3-32

3/4.4.10 STRUCTURAL INTEGRITY

ASME CODE CLASS 1, 2 & 3 COMPONENTS

LIMITING CONDITION FOR OPERATION

3/4.10.1 The structural integrity of ASME Code Class 1, 2 and 3 components shall be maintained in accordance with Specification 4.4.10.1.

APPLICABILITY: ALL MODES.

ACTION:

a. With the structural integrity of any ASME Code Class 1 component(s) not conforming to the above requirements, restore the structural integrity of the affected component(s) to within its limits or isolate the affected component(s) prior to increasing the Reactor Coolant System temperature more than 50°F above the minimum temperature required by NDT considerations.

b. With the structural integrity of any ASME Code Class 2 component(s) not conforming to the above requirements, restore the structural integrity of the affected component(s) to within its limit or isolate the affected component(s) prior to increasing the Reactor Coolant System temperature above 200°F.

c. With the structural integrity of any ASME Code Class 3 component(s) not conforming to the above requirements, restore the structural integrity of the affected component(s) to within its limit or isolate the affected component(s) from service.

d. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.4.10.1.1 In addition to the requirements of Specification 4.0.5, the Reactor Coolant pump flywheels shall be inspected once every 10 years by a qualified inplace UT examination over the volume from the inner bore of the flywheel to the circle of one-half the outer radius or a surface examination (MT and/or PT) of exposed surfaces defined by the volume of disassembled flywheels.

4.4.10.1.2 In addition to the requirements of Specification 4.0.5, at least one third of the main member to main member welds, joining A572 material, in the steam generator supports, shall be visually examined during each 40 month inspection interval.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION RELATED TO AMENDMENT NOS. 211 AND 192 TO FACILITY OPERATING LICENSE NOS. NPF-4 AND NPF-7 VIRGINIA ELECTRIC AND POWER COMPANY OLD DOMINION ELECTRIC COOPERATIVE NORTH ANNA POWER STATION, UNITS NO. 1 AND NO. 2 DOCKET NOS. 50-338 AND 50-339

1.0 INTRODUCTION

By letter dated February 3, 1998, Virginia Electric and Power Company (the licensee) submitted for staff review its proposed Technical Specifications (TS) change for North Anna Power Station, Units 1 and 2 (North Anna 1 and 2) regarding inspection requirements for the reactor coolant pump (RCP) flywheels. The TS change also includes the elimination of the inspection requirements for the Unit 1 RCP flow straighteners. The main subject of the submittal is related to the Westinghouse topical report, WCAP-14535, "Topical Report on Reactor Coolant Pump Flywheel Inspection Elimination," which was approved on September 12, 1996, by the United States Nuclear Regulatory Commission (USNRC) with certain conditions. The licensee intended to change the RCP flywheels inspection intervals in accordance with the conclusion of the safety evaluation report (SER) on WCAP-14535.

The function of the RCP in the reactor coolant system (RCS) of a pressurized water reactor (PWR) plant is to maintain an adequate cooling flow rate by circulating a large volume of primary coolant water at high temperature and pressure through the RCS. A concern over overspeed of the RCP and its potential for failure led to the issuance of Regulatory Guide (RG) 1.14 in 1971. Since then, all licensees for PWR plants, with very few exceptions, have adopted the guidelines of RG 1.14 to conduct their RCP flywheel examinations. These requirements are normally specified in the individual plant's TS as is the case for North Anna 1 and 2.

Initial cracking of RCP flow straighteners (splitter plates) was first detected at Unit 2 in 1979. These straighteners were removed prior to Unit 2 power operations. Subsequent ultrasonic testing (UT) inspections on Unit 1 straighteners conducted in 1981 and 1982 disclosed similar

indications. The licensee removed all Unit 1 straighteners in 1982, and since then had performed UT inspections on the remaining straightener stub ends at the 5th, 6th, 7th, and 8th refueling outages. The straightener stub ends project approximately 1.5 inches beyond the pipe inside wall.

2.0 EVALUATION

In the SER to the Westinghouse topical report WCAP-14535, the staff stated that the evaluation methodology for RCP flywheels in WCAP-14535 is appropriate and the criteria are in accordance with the design criteria of RG 1.14. In addition, the staff specified:

"(1) Licensees who plan to submit a plant-specific application of this topical report for flywheels made of SA 533 B material need to confirm that their flywheels are made of SA 533 B material. Further, licensees having Group-15 flywheels need to demonstrate that material properties of their A516 material is equivalent to SA 533 B material, and its reference temperature, RT_{NDT}, is less than 30°F.

"(2) Licensees who plan to submit a plant-specific application of this topical report for their flywheels not made of SA 533 B or A516 material need to either demonstrate that their flywheel material properties are bounded by those of SA 533 B material, or provide the minimum specified ultimate tensile stress, S_u, the fracture toughness, K_{Ic}, and the reference temperature, RT_{NDT}, for that material. For the latter, the licensees should employ these material specific properties, and use the methodology in the topical report, as extended in the two responses to the staff's request for additional information (RAI), to provide an assessment to justify a change in inspection schedule for their plants.

"(3) Licensees meeting either (1) or (2) above should either conduct a qualified in-place ultrasonic testing (UT) examination of the volume from the inner bore of the flywheel to the circle of one-half the outer radius or conduct a surface examination (magnetic particle and/or liquid penetrant, MT and/or PT) of exposed surfaces defined by the volume of the disassembled flywheels once every 10 years. The staff considers this 10-year inspection requirement not burdensome when the flywheel inspection is conducted during scheduled ISI inspection or RCP motor maintenance. This would provide an appropriate level of defense in depth."

The licensee confirmed in its submittal that the flywheels for North Anna 1 and 2 are made of SA 533 B material. Hence, only (1) and (3) apply. The staff further verified that the flywheels for North Anna 1 and 2 do not belong to either Group 10 or Group 15 flywheels, for which additional analyses need to be performed. Therefore, the plant-specific applicability of WCAP-14535 to North Anna 1 and 2 has been established, and the 10-year inspection requirement with details specified in (3) is acceptable.

Since the RCP flow straighteners in Unit 1 are no longer in the RCP flow system after their removal in 1982, the TS requirement of UT examination of the straighteners should be revised. The USNRC SER dated December 6, 1982, required the licensee to perform UT inspections on the remaining straightener stub ends at the 5th, 6th, 7th, and 8th refueling outages. The inspection results indicated that the baseline defects in the straightener stub ends had not increased. Hence, the staff determined not to impose additional UT inspection requirement on the straightener stub ends and determined to accept the elimination of the inspection requirements for the RCP flow straighteners from the Unit 1 TS.

3.0 SUMMARY

The Materials and Chemical Engineering Branch of the Division of Engineering has reviewed this submittal. The staff has determined that the analysis in the Westinghouse topical report WCAP-14535 is applicable to North Anna 1 and 2. Hence, the staff accepts the licensee's proposed changes, i.e., 10-year inspection intervals for RCP flywheels, to Surveillance Requirement (SR) 4.4.1.0.1.1 for both units. The staff also accepted the proposed elimination of the inspection requirements for the RCP flow straighteners from the Unit 1 TS since the straighteners are no longer in the RCP flow system after their removal in 1982 and the results from UT examinations of the remaining straightener stub ends during four consecutive outages showed no change in indications.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Virginia State official was notified of the proposed issuance of the amendments. The State official had no comment.

5.0 ENVIRONMENTAL CONSIDERATION

These amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and change a surveillance requirement. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluent that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that these amendments involve no significant hazards consideration and there has been no public comment on such finding (63 FR 11924). Accordingly, these amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Reviewer: Simon Sheng

Date: April 22, 1998