

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

January 9, 2001

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Serial No. 01-018
NLOS/ETS R
Docket No. 50-338
License No. NPF-4

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA POWER STATION UNIT 1
PROPOSED OPERATING LICENSE AND TECHNICAL SPECIFICATIONS CHANGES
DELETION OF OBSOLETE LICENSE CONDITIONS

Pursuant to 10CFR50.90, Virginia Electric and Power Company requests amendments in the form of revisions to Facility Operating License Number NPF-4 for North Anna Power Station Unit 1 and to the Unit 1 Technical Specifications. The proposed administrative changes will remove obsolete license conditions from the Operating Licenses and implement associated changes to the Technical Specifications. These changes will facilitate our planned conversion to Improved Technical Specifications and submittal of a license renewal application. The proposed changes can be categorized as follows:

- Editorial changes
- Relocation of license conditions
- Removal of redundant license conditions covered elsewhere in the license
- Removal of license conditions and Technical Specifications associated with completed modifications
- Removal of expired license conditions

A discussion of the proposed changes to the Operating Licenses and Technical Specifications is provided in Attachment 1. The proposed changes have been reviewed and approved by the Station Nuclear Safety and Operating Committee and the Management Safety Review Committee. Marked-up Operating Licenses and Technical Specifications pages that reflect the proposed changes are provided in Attachment 2. Revised Operating Licenses and Technical Specifications pages that incorporate the proposed changes are provided in Attachment 3. The basis for our determination that the proposed changes to the Operating Licenses and Technical Specifications do not involve a significant hazards consideration, as defined in 10CFR50.92, is provided in Attachment 4.

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Due to the extensive procedure changes necessary to implement this change, a sixty-day implementation period is requested. Should you have any questions or require additional information, please contact us.

Very truly yours,



William R. Matthews
Vice President – Nuclear Operations

Attachments:

1. Discussion of Change
2. Mark-up of Operating Licenses and Technical Specifications Pages
3. Proposed Operating Licenses and Technical Specifications Pages
4. Significant Hazards Consideration Determination

Commitments made in this letter: None.

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ATTACHMENT 1

DISCUSSION OF CHANGES

**VIRGINIA ELECTRIC AND POWER COMPANY
(DOMINION)
NORTH ANNA POWER STATION UNIT 1**

DISCUSSION OF CHANGE

INTRODUCTION

Since the original issuance of the North Anna Unit 1 Facility Operating License, NPF-4, several additional requirements (license conditions) have been incorporated into the license via the license amendment process pursuant to 10 CFR 50.90. In some cases, subsequent license amendments have removed certain license conditions when they were no longer applicable. In other cases, license conditions have been left intact even though they are no longer required.

Virginia Electric and Power Company (Dominion) is proposing an administrative change to the North Anna Unit 1 Facility Operating License (FOL) to remove those license conditions that no longer apply or that could be relocated within the FOL to provide a more consistent and concise license format. This proposed Facility Operating License (FOL) "cleanup" activity also includes minor editorial changes for consistency. A similar effort was initiated by the NRC in 1981 for FOL NPF-4 as a "consistency check" and was subsequently issued as License Amendment No. 31 dated May 28, 1981.

Revision of the North Anna Unit 1 FOL is being proposed to retain only those license conditions that remain pertinent to current station operations. The intent is to provide a North Anna Unit 1 license document for license renewal and conversion to the Improved Technical Specifications (ITS) that does not contain unnecessary or obsolete requirements and that is directly applicable to the current plant design and licensing bases. A comparable "cleanup" effort for Unit 2 is being submitted jointly with this proposed change.

DISCUSSION

The proposed changes to the Facility Operating License for North Anna Unit 1 can be divided into five groups based on commonality. Subsequent discussions presented herein are based on this categorization. Additionally, the applicable change group is specifically identified on each of the mark-ups associated with these proposed changes. The five groups are as follows:

1. Purely editorial changes to the Unit 1 FOL,
2. Relocation of existing Unit 1 FOL license conditions,
3. Removal of redundant requirements covered elsewhere in the Unit 1 FOL,

4. Removal of license conditions associated with completed Unit 1 modifications,
5. Removal of expired or no longer required license conditions in the Unit 1 FOL.

Group 4 has associated Technical Specification (TS) changes which correspond to the changes to the license conditions.

1. Editorial Changes: (License Conditions Sections 1.A, F, G, and H: Sections 2, 2.A, 2.C(1) through 2.C(4), and 2.D, 2.D(2), 2.D(3), 2.D(3)d, e, s, t, and u, 2.G, and 2.F)

The original Facility Operating License for North Anna Unit 1 was issued on November 26, 1977 and provided the authorization for fuel loading and cold shutdown conditions (Modes 6 and 5). FOL Amendment No. 1 dated January 26, 1978 provided the authorization for the unit to heatup and maintain a hot standby condition (Modes 4 and 3). Amendment No. 2 dated March 17, 1978 provided the authorization to be in hot standby (Mode 3) without having the Outside Recirculation Spray Pumps operable. Finally, Amendment No. 3 dated April 1, 1978 provided the authorization for North Anna Unit 1 to go critical and proceed to 100% power (Modes 2 and 1). This process of incremental approval of the full power license introduced verbiage into the FOL relating to these various amendments. Each of the amendments just listed (except Amendment No. 2) provided a complete re-issue of the FOL. Each made minor adjustment to the original FOL wording dealing with the interim restrictions associated with that amendment. When Amendment No. 3 was issued as the full power license, this practice was continued and multiple references were again in the FOL regarding "...the amended license...", "...Amendment No. 3...", etc. Amendment No. 3 superceded "in its entirety" the previous issues of the North Anna Unit 1 FOL. There is no practical need to refer to the FOL as the "amended license". There are several locations within the FOL where the term "amendment" is appropriately used, but it is unnecessary to refer generically to the license as the amended license. Therefore, the proposed changes to the North Anna Unit 1 FOL Sections 1.A, 1.C, 1.D, 1.F, 1.G, 1.H, 2., 2.A, 2.C(1), and 2.D removes these unnecessary uses of the term "amendment" or its derivatives and simply refers instead to the "license".

Additionally, License Amendment Nos. 49 and 33 for Units 1 and 2, respectively, dated November 18, 1983 added text to reflect the partial ownership of the North Anna Power Station by Old Dominion Electric Cooperative (ODEC). The Unit 2 amendment added "ODEC" to the introductory paragraph (Section 2.) regarding the issuance of the license to Virginia Electric and Power Company and "ODEC". The Unit 1 amendment did not reference ODEC in the same location. Therefore, for consistency, the ODEC reference is added to Section 2 for the Unit 1 FOL.

The Final Safety Analysis Report (FSAR) originally served as the principal reference document in support of the North Anna Part 50 license applications. The original FSAR described methods for conforming with applicable NRC regulations and contains the technical information required by 10 CFR 50.34(b), including "information that describes the facility, presents the design bases and the limits on its operation, and presents the safety analyses of the structures, systems and components and of the facility as a whole." In 1980, the NRC issued the FSAR update rule, 10 CFR 50.71(e), which required all licensees to update their FSARs periodically to assure that the information provided is the latest material developed. Therefore, the Updated FSAR (UFSAR) represents the most current document available to describe the North Anna site and facility. The proposed changes to Sections 2.A, 2.C(2), and 2.D(3)u of the Unit 1 FOL utilizes the UFSAR as the reference document for the North Anna site description, fire protection program description, and for the limitations on storage and amounts of special nuclear material used as reactor fuel.

Section 2.D(2) of the original FOL referred to the Technical Specifications contained in Appendices A and B. At that time Appendix B was titled the "Environmental Technical Specifications" (ETS). License Amendment No. 48, which was associated with the Radiological Effluent Technical Specifications, (RETS) removed Part I of the ETS and renamed Part II as the Environmental Protection Plan (EPP). The EPP dealt with the non-radiological aspects of the original ETS. Because of the name change, FOL Section 2.D(2) is no longer correctly stated. As an administrative correction for this inconsistency, Section 2.D(2) has been split by this proposed change such that the current section only refers to the Technical Specifications of Appendix A. A new section is added which addresses the EPP contained in Appendix B. The new section, 2.C(5), is identical to Section 2.D(2) except for the exchange of the EPP for the Technical Specifications as the subject of the section.

The identification of the individual amendments associated with the previous deletion of license conditions (Amendment 162 for FOL Sections 2.D(3)s and 2.D(3)t) are not retained and the proposed change re-numbers all license conditions excluding these "deleted" items. The content of a deleted licensing condition and the basis for its deletion is historical information available in station records and is not necessary nor appropriate in the text of the operating license.

No other specific background is provided for the rest of the editorial changes proposed. Cause and basis for change associated with typographical errors, punctuation, and grammatical inconsistencies are self evident.

2. Relocation of License Conditions:

License Conditions 2.D(3)f and Appendix C - Relocation of license conditions within the FOL has no impact on the technical aspects of the item being moved. FOL Section 2.D(3) contains various "Additional Conditions" pertaining to the requirements of the operating license. Currently, Item 2.D(3)f references FOL Appendix C to identify such an additional condition. Appendix C was added by License Amendment No. 214 dated August 26, 1998. In an effort to construct a clean and concise FOL document, the proposed change would move the single Appendix C requirement (identified as an additional condition) to within the existing "Additional Conditions" section of the FOL. The content and applicability of this additional condition would be unchanged. This will eliminate the need for Appendix C and place all "additional conditions" in a common section of the FOL. This proposed change is consistent with the internal NRR Office Letter No. 803 dated December 30, 1999 which recommends the removal of a separate appendix for license conditions.

License Condition 2.D(3)u – This license condition regarding fire protection is relocated/renumbered to FOL Section 2.D. No technical changes are proposed. Since the fire protection program is specifically a requirement according to 10 CFR Part 50, Appendix R, it does not fit the definition of "Additional Conditions" and is relocated (and titled) to its own license section. This is consistent with the treatment of the security requirements of 10 CFR Part 73 given in FOL Section 2.E, Physical Protection.

3. Redundant Requirements:

License Condition 2.D(3)c – Amendment No. 3 to the North Anna Unit 1 FOL authorized full power operation of the facility. Section 2.D(3)c was one of the license conditions included in Amendment No. 3 and it placed the limitation on facility operation that all three reactor coolant loops must be in operation or the plant must shutdown. Subsequent to Amendment No. 3, Amendment No. 32 dated June 2, 1981 was issued. Amendment No. 32 revised TS 3.4.1.1 such that, without exception, all three reactor coolant loops were required to be operable in Modes 1 and 2 or the plant was required to be in hot standby within one hour. This revision to TS 3.4.1.1 imposes the same requirement that License Condition 2.D(3)c does, therefore, the license condition is redundant and is deleted by this proposed change to North Anna Unit 1 FOL.

License Condition 2.D(3)r – This license condition requires the licensee to provide a program to monitor the secondary water chemistry as a means of inhibiting SG tube degradation. The Technical Specifications issued with the original FOL contained secondary water chemistry requirements in TS 3.7.1.6. Amendment No. 16 dated December 28, 1979 deleted the requirements of TS 3.7.1.6 and substituted it with License Condition 2.D(3)o. This license condition was later renumbered to 2.D(3)r. The switch was made because the NRC

agreed with an industry position that the Technical Specification requirements for water chemistry were inflexible and overly restrictive and did not address all potential SG tube degradation mechanisms, particularly denting. Therefore, secondary water chemistry monitoring programs were required by a license condition, but the specifics of the program were left to the individual facilities.

Amendment 32 dated June 2, 1981, incorporated several new TS items for North Anna Unit 1 which addressed TMI-2 Lessons Learned. One of these was the addition of TS 6.8.4.c, Secondary Water Chemistry. This new section is the same as the corresponding requirement in the North Anna Unit 2 Technical Specifications and contains the requirements of a secondary water chemistry monitoring program. The requirements of TS 6.8.4.c encompass all elements of License Condition 2.D(3)r and the verbiage used in TS 6.8.4.c is essentially identical to the license condition. Therefore, License Condition 2.D(3)r is redundant and is deleted by this proposed change to the North Anna Unit 1 FOL.

4. Completed Facility Modifications:

License Condition 2.D(1) and Technical Specifications TS 2.1 and TS 2.2 – North Anna Unit 1 License Amendments 153 and 154 dated March 3, 1992 approved Technical Specification changes associated with reduced reactor coolant flow due to steam generator (SG) tube plugging. The changes imposed a reduced power level and various safety setting reductions for the reactor protection system and included an alternate TS Figure 2.1-1a for core safety limits. The implemented changes were unique in that they retained the previous Technical Specification parameters and provided the new parameters via footnotes. These footnotes were applicable only up to the replacement of the Unit 1 steam generators (SGs). Amendment No. 153 also modified the Unit 1 License Condition 2.D(1) regarding the reduced power level in the pre-SG replacement time period. North Anna Unit 1 completed the replacement of the SGs in the spring of 1993. Documentation of the NRC concurrence of a successful replacement of the Unit 1 SGs is provided in the IE Inspection Report 50-338-93-11 dated April 9, 1993.

In like manner, some of the Technical Specification changes implemented by License Amendment Nos. 153 and 154 were subsequently removed in License Amendment Nos. 189 and 201. The basis for the removal of these interim specifications was that the Unit 1 steam generator replacement was complete. Therefore, the footnotes applied to License Condition 2.D(1), TS 2.1.1, TS Table 2.2-1 and the alternate TS Figure 2.1-1a are no longer required and are deleted by this proposed change to the North Anna Unit 1 FOL.

License Condition 2.D(3j) – License Amendment No. 3 established the initial license condition to deal with the long term qualification of pressure transmitters inside containment. The availability of qualified replacement transmitters was an issue that revised License Condition 2.D(3j) several times, the last time being

License Amendment 21 dated November 19, 1980. Amendment No. 21 required the pressure transmitters inside containment to be replaced prior to June 30, 1982. This date was associated with the third refueling outage for North Anna Unit 1. However, the transmitters were not replaced by the stated date, but were replaced before the unit was restarted in early December 1982. The replacement was performed under the Design Change Package 81-S08A. Qualification of the replacement Rosemount transmitters was provided as part of the North Anna responses to IE Bulletin 79-01B and NUREG-0588.

In 1987, an NRC inspection was performed at North Anna regarding implementation of the requirements of 10 CFR 50.49, Environmental Qualification of Electrical Equipment Important to Safety for Nuclear Power Plants. One of the areas reviewed was the qualification of the Rosemount transmitters used to replace the original Barton Lot 1 transmitters. In the associated inspection report, 50-338/87-32, dated November 25, 1987, the inspector acknowledged the completion of the pressure transmitter replacement and the acceptable qualification of the Rosemount transmitters. Therefore, since the Barton Lot 1 transmitters have been replaced and continued qualification of the pressure transmitters inside containment are maintained through programs established to comply with 10 CFR 50.49, License Condition 2.D(3j) is no longer necessary and is deleted by this proposed change to the North Anna Unit 1 FOL.

License Condition 2.F - License Amendment 107 dated December 5, 1988 incorporated License Condition 2.F into the North Anna Unit 1 Facility Operating License, NPF-4. License Condition 2.F authorizes the modification of the design of the reactor coolant pump (RCP) and steam generator supports in accordance with a submittal dated November 6, 1985, and supplemented by letters dated February 24, 1987, March 12, 1987, March 8, 1988, and June 10, 1988. These submittals provided the basis and supporting evaluation for the re-design of the primary coolant loop piping to remove eighteen large bore and six small bore snubbers associated with the RCPs and SGs. The re-design was implemented to take advantage of the then approved advanced fracture mechanics methods associated with Leak-Before-Break Technology as permitted by the General Design Criteria 4 (GDC 4) of Appendix A to 10 CFR Part 50. The amendment request was submitted since a revision to the primary coolant loop supports system was considered to be an Unreviewed Safety Question requiring NRC review and approval. The issuance of Amendment No. 107 documented the NRC review and approval of this facility modification.

Following the issuance of Amendment 107, the eighteen large bore and six small bore snubbers were removed during the 1989 spring refueling outage. Revision 11 to the UFSAR dated October 1, 1990 reflected the change in the design of the RCP and SG supports and the basis for the use of Leak-Before-Break in the re-design. Since the snubber modifications are complete, documented in the UFSAR, and are based on approved methods that are in compliance with the requirements of 10 CFR 50, Appendix A, GDC 4, License Condition 2.F is no longer necessary and is deleted by this proposed change to the North Anna Unit 1 FOL.

FOL Attachment 1 – Attachment 1 was added to the North Anna Unit 1 FOL via License Amendment No. 3 and contains a list of construction items that were to be completed prior to initial criticality. As part of the “consistency check” that the NRC performed in the development of License Amendment No. 31, the NRC acknowledged the fact that these items were complete and the license condition that referenced Attachment 1 and the attachment should be removed from the FOL. However, Attachment 1 was not removed at that time. Therefore, since all items are completed, the current FOL has no reference to this attachment, and License Amendment No. 31 authorizes its removal, Attachment 1 is deleted by this proposed change to the North Anna Unit 1 FOL.

FOL Attachment 3 - Attachment 3 was added to the North Anna Unit 1 FOL via License Amendment No. 3 and contained Figure 1 which provided limitations on containment air partial pressure. These limitations were related to evaluations and modifications needed to address the Net Positive Suction Head in the containment sumps. License Amendment No, 13 dated August 3, 1979 removed the license condition that referenced Figure 1 (Attachment 3). The SER for License Amendment No. 13 stated that an IE inspection had verified that all necessary actions had been completed and that the license condition containing the reference to Figure 1 was complete. This inspection was documented in IE Inspection Report 50-338/78-17. Therefore, Attachment 3 is deleted by this proposed change to the North Anna Unit 1 FOL.

5. Expired or No Longer Needed License Conditions:

License Condition 2.B - FOL Section 2.B is a licensing condition authorizing North Anna to perform steam generator moisture carryover testing which involves the use of a radioactive tracer element, Sodium-24. There are no planned moisture carryover tests for the Unit 1 steam generators. In the event that such a test is deemed necessary in the future, a non-radioactive chemical tracer would be used. The acceptability of the chemical tracer techniques has been demonstrated at North Anna. Therefore, this specific authorization for use of Sodium-24 is no longer needed and is removed by this proposed change.

License Condition 2.D(3)o – License Amendment No. 11 provided an exception to the requirements of TS 4.0.4 for the surveillance intervals associated with the batteries on the Emergency Diesel Generators. The exception applies to the 4 separate intervals identified in TS 4.8.1.1.3. Subsequently in Amendment No. 31, three of the four time intervals had been met, leaving only the longest (60-month) still open. At that time, the license condition 2.D(3)o was revised to refer specifically to this remaining interval in TS 4.8.1.1.3.d. The initial surveillance interval for the EDG battery performance test was completed in 1983. Therefore, License Condition 2.D(3)o no longer applies and is deleted by this proposed change to the FOL.

License Condition 2.D(3)v – License Amendment No. 162 dated June 1, 1992 provided for a one time extension of the 18-month interval of various surveillance tests in order to extend to the scheduled outage for steam generator replacement. A listing of the affected surveillance tests was provided in the license amendment request dated January 20, 1992. As stated in the paragraphs above, the SG replacement outage was completed in the spring of 1993. Therefore, since the timeframe of the extension expired when the North Anna Unit 1 SGs were replaced, License Condition 2.D(3)v no longer applies and is deleted by this proposed change to the FOL.

SPECIFIC CHANGES

As previously specified, the proposed administrative changes to the North Anna Unit 1 Facility Operating License, NPF-4, are to remove license conditions that no longer apply or that could be relocated within the FOL to more appropriate locations. Various Technical Specification (TS) sections that are explicitly associated with license conditions that are to be removed are revised accordingly. Additionally, various editorial changes to the FOL are proposed for consistency.

The specific changes proposed are as follows:

- Delete the words “amendment issued” in FOL Section 1.A to facilitate concise reference to the revised document as the “license”.
- Delete the words “amendment to the” in FOL Sections 1.C, 1.D, and 1.F to facilitate concise reference to the revised document as the “license”.
- Delete the words “Amendment No. 3” in FOL Section 1.G to facilitate concise reference to the revised document as the “license”. Commas are added to separate the parenthetical expression within the sentence.
- Delete the words “amendment to the” in FOL Section 1.H to facilitate concise reference to the revised document as the “license”. A comma is added to correct punctuation.

- Delete the words “Amendment No. 3 hereby amends” in FOL Section 2 in order to facilitate a concise reference to the revised document as the “license”. Additionally, add the phrase “is hereby issued” in reference to Virginia Electric and Power Company which makes the verbiage similar to the original license issue. Replace “(licensee)” with the phrase “(VEPCO) and Old Dominion Electric Cooperative (ODEC).” Remove the phrase “in its entirety” since it will no longer be necessary after the reference to Amendment 3 is deleted.
- Delete the words “amendment to the” in FOL Section 2.A to facilitate concise reference to the revised document as the “license”.
- The references to the Final Safety Analysis Report in FOL Sections 2.A, 2.C(2), and 2.D(3) are changed to the Updated Final Safety Analysis Report. This also removes the reference to FSAR Amendment Nos. 17-64 in FOL Section 2.A and the reference to supplements and amendments in FOL Section 2.C(2).
- FOL Section 2.B is deleted.
- FOL Section 2.C is renumbered to FOL Section 2.B.
- Delete the words “amendment to the” in FOL Section 2.C(1) to facilitate concise reference to the revised document as the “license”. A comma and space are added to correct punctuation and typing, respectively. This section is renumbered to FOL Section 2.B(1).
- Replace the word “of” with “and” following the word “Act” in Section 2.C(2). A comma is added to correct punctuation. FSAR is changed to UFSAR (see above). This section is renumbered to FOL Section 2.B(2).
- Replace the word “of” with “and” following the word “Act” in Section 2.C(3). Two commas are added to correct punctuation. This section is renumbered to FOL Section 2.B(3).
- Three commas are added to correct punctuation in Section 2.C(4). This section is renumbered to FOL Section 2.B(4).
- Renumber FOL Section 2.C(5) to FOL Section 2.B(5).
- Delete the words “amendment to the” in FOL Section 2.D to facilitate concise reference to the revised document as the “license”. This section is renumbered to FOL Section 2.C.

- FOL Section 2.D(1) is renumbered as 2.C(1). The asterisk and related footnote regarding limitations on maximum power level are deleted.
- Delete the reference to Appendix B in Section 2.D(2). This section is renumbered to FOL Section 2.C(2).
- Replace the words “issuance of this amendment” with the words “issuance of the condition” in FOL Section 2.D(3). This section is renumbered to FOL Section 2.C(3).
- FOL Section 2.D(3)c is deleted.
- FOL Section 2.D(3)d is renumbered as 2.C(3)a. The formal company title of “Virginia Electric and Power Company” is replaced by “VEPCO” for consistency with the rest of the license.
- FOL Section 2.D(3)e is renumbered as 2.C(3)b. The formal company title of “Virginia Electric and Power Company” is replaced by “VEPCO” for consistency with the rest of the license.
- FOL Section 2.D(3)f is renumbered as 2.C(3)c. The text of this item is replaced by the text of the additional condition stated in Appendix C of the FOL.
- FOL Section 2.D(3)j is removed since the transmitter replacements have been completed. Safety Related transmitters are addressed by the Environmental Qualification Programs of 10 CFR 50.49 and documented in the UFSAR.
- FOL Section 2.D(3)o is removed since the exception to Specification 4.0.4 has expired since the initial 5-year surveillance interval for the emergency diesel generator batteries (TS 4.8.1.1.3.d) has been completed.
- FOL Section 2.D(3)r is removed since it is redundant to Section 6.8.4b.
- FOL Section 2.D(3)s was previously deleted and is removed in this change to facilitate FOL renumbering.
- FOL Section 2.D(3)t was previously deleted and is removed in this change to facilitate FOL renumbering.
- FOL Section 2.D(3)u is relocated and renumbered as Section 2.D. FSAR is changed to UFSAR (see above).

- FOL Section 2.D(3)v is removed since the extension of the performance interval for certain surveillance test has expired since the steam generator replacement project on Unit 1 has been completed.
- A New FOL Section 2.C(5) is added to account for Appendix B of the license. The reference to Appendix B was removed from Section 2.D(2) but is relocated here under its proper reference as the Environmental Protection Plan.
- FOL Section 2.F is removed since the reactor coolant pump and steam generator support modifications have been completed and documented in the UFSAR.
- FOL Section 2.G is removed to facilitate renumbering.
- FOL Section 2.H is renumbered as Section 2.F.
- The listing of attachments at the end of the FOL is replaced with the following list:
 1. Appendix A, Technical Specifications
 2. Appendix B, Environmental Protection Plan
- Attachment 1 to the FOL is deleted since all “construction related items” have been completed.
- The asterisk and the footnote in TS 2.1.1 regarding TS Figure 2.1-1a are deleted since they are no longer applicable following replacement of the Unit 1 steam generators.
- The alternate Reactor Core Safety Limits figure, TS Figure 2.1-1a, is deleted since it is no longer applicable following replacement of the Unit 1 steam generators.
- The asterisks and the footnotes in TS Table 2.2-1, Item 2, are deleted since they are no longer applicable following replacement of the Unit 1 steam generators.
- The asterisk and the footnote in TS Table 2.2-1, Note 1 regarding the K_1 constant, are deleted since they are no longer applicable following replacement of the Unit 1 steam generators.
- The asterisk and the footnote in TS Table 2.2-1, Note 2 regarding the K_4 constant, are deleted since they are no longer applicable following replacement of the Unit 1 steam generators.

- FOL Appendix C is deleted since the content has been relocated into the “Additional Conditions” of FOL Section 2.C(3).
- Attachment 3 (Figure 1) is deleted since it is no longer applicable.

SAFETY SIGNIFICANCE

The proposed administrative change to the North Anna Unit 1 Facility Operating License and associated Technical Specifications makes minor editorial corrections, relocates two license conditions within the FOL, and removes completed, redundant, expired, or otherwise non-applicable license conditions and related Technical Specification requirements. This proposed change provides a resulting license document that does not contain unnecessary or obsolete requirements and that is directly applicable in all aspects to the current plant design and licensing bases. There is no safety significance associated with this proposed change since the change does not alter any currently applicable Facility Operating License requirements. Accordingly, the current North Anna Unit 1 licensing and design bases are unchanged, and an unreviewed safety question does not exist.

ATTACHMENT 2

MARK-UP OF OPERATING LICENSES AND TECHNICAL SPECIFICATIONS PAGES

**VIRGINIA ELECTRIC AND POWER COMPANY
(DOMINION)
NORTH ANNA POWER STATION UNIT 1**

VIRGINIA ELECTRIC AND POWER COMPANY

OLD DOMINION ELECTRIC COOPERATIVE

DOCKET NO. 50-338

NORTH ANNA POWER STATION, UNIT NO. 1

FACILITY OPERATING LICENSE

~~Amendment No. 49~~
License No. NPF-4

1. The Nuclear Regulatory Commission (the Commission) having found that:
 - A. The issuance of this license ~~amendment issued~~ to the Virginia Electric and Power Company (VEPCO) and the Old Dominion Electric Cooperative (ODEC) for the North Anna Power Station, Unit No. 1 (facility) 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, as amended, 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 to the~~ operating license can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the rules and regulations of the Commission;
 - D. VEPCO is technically and financially qualified to engage in the activities authorized by this ~~amendment to the~~ operating license in accordance with the rules and regulations of the Commission;
 - E. VEPCO and the Old Dominion Electric Cooperative (ODEC) have satisfied the applicable provisions of 10 CFR Part 140, "Financial Protection Requirements and Indemnity Agreements," of the Commission's regulations;
 - F. The issuance of this ~~amendment to the~~ operating license will not be inimical to the common defense and security or to the health and safety of the public;

- G. After weighing the environmental, economic, technical, and other benefits of the facility against environmental and other costs and considering available alternatives, the issuance of ~~Amendment No. 3 to~~ Facility Operating License No. NPF-4, subject to the conditions for protection of the environment set forth herein, is in accordance with Appendix D to 10 CFR Part 50 of the Commission's regulations and all applicable requirements have been satisfied;
- H. The receipt, possession, and use of source, byproduct, and special nuclear material as authorized by this ~~amendment to the~~ license will be in accordance with the Commission's regulations in 10 CFR Part 30, 40, and 70, including 10 CFR Section 30.33, 40.32, and 70.23 and 70.31; and
- I. The Old Dominion Electric Cooperative is a partial financial owner of the facility and will not operate the facility.

2. ~~Amendment No. 3 hereby amends~~ Facility Operating License No. NPF-4 to the Virginia Electric and Power Company (~~licensee~~) *is hereby issued* in its entirety to read as follows: (VEPCO) and Old Dominion Electric Cooperative (ODEC)

Updated

A. This ~~amendment to the~~ license applies to the North Anna Power Station, Unit No. 1, a pressurized water reactor and associated equipment (the facility), owned by the Virginia Electric and Power Company and the Old Dominion Electric Cooperative. The facility is located near Mineral, in Louisa County, Virginia, and is described in the "Final Safety Analysis Report" ~~as supplemented and amended (Amendments 17 through 64)~~ and the Environmental Report as supplemented and amended (Supplements 1 through 4, Appendix L).

B. VEPCO is authorized to perform steam generator moisture carryover studies at the North Anna Power Station. These studies involve the use of an aqueous tracer solution of two (2) curies of sodium-24. VEPCO personnel will be in charge of conducting these studies and be knowledgeable in the procedures. VEPCO will impose personnel exposure limits, posting, and survey requirements in conformance with those in 10 CFR Part 20 to minimize personnel exposure and contamination during the studies. Radiological controls will be established in the areas of the chemical feed, feedwater, steam, condensate and sampling systems where the presence of the radioactive tracer is expected to warrant such controls. VEPCO will take special precautions to minimize radiation exposure and contamination during both the handling of the radioactive tracer prior to injection and the taking of system samples following injection of the tracer. VEPCO will insure that all regulatory requirements for liquid discharge are met during disposal of all sampling effluents and when reestablishing continuous blowdown from the steam generators after completion of the studies.

B. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses:

- (1) Pursuant to Section 103 ^{and} of the Act and 10 CFR Part 50, "Licensing of Production and Utilization Facilities," ~~VEPCO AND ODEC~~ to possess ^{and} VEPCO to use and operate the facility at the designated location in Louisa County, Virginia in accordance with the procedures and limitations set forth in this ~~amendment to the~~ license;
- (2) Pursuant to the Act ^{and} of 10 CFR Part 70, VEPCO to receive, possess, and use at any time special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the ^{Final Safety Analysis Report}, ~~as supplemented and amended~~;
- (3) Pursuant to the Act ^{and} of 10 CFR Parts 30, 40 and 70 VEPCO to receive, possess, and use at any time any byproduct, source, and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;
- (4) Pursuant to the Act and 10 CFR Parts 30, 40 and 70, VEPCO to receive, possess, and use in amounts as required any byproduct, source, or special nuclear material, without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and
- (5) Pursuant to the Act and 10 CFR Parts 30, 40 and 70, VEPCO to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This ~~amendment to the~~ license shall be deemed to contain and is subject to the condition specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

VEPCO is authorized to operate the North Anna Power Station, Unit No. 1, at reactor core power levels not in excess of 2893 megawatts (thermal). *Qy*

14

(2) Technical Specifications

The Technical Specifications contained in ~~Appendices A and B~~ ^{Appendix A}, as revised through Amendment No. ~~224~~, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

11

(3) Additional Conditions

the condition

The matters specified in the following conditions shall be completed to the satisfaction of the Commission within the stated time periods following the issuance of ~~this amendment~~ or within the operational restrictions indicated. The removal of these conditions shall be made by an amendment to the license supported by a favorable evaluation by the Commission:

11

~~c. Virginia Electric and Power Company shall not operate the reactor in operational modes 1 and 2 with less than three reactor coolant pumps in operation.~~

3

VEPCO

~~a. Virginia Electric and Power Company~~ may use up to four (4) fuel assemblies containing advanced zirconium based alloys as described in the licensee's submittal dated September 4, 1996, as supplemented February 3, 1997.

11

~~b. If Virginia Electric and Power Company~~ plans to remove or to make significant changes in the normal operation of equipment that controls the amount of radioactivity in effluents from the North Anna Station, the Commission shall be notified in writing regardless of whether the change affects the amount of radioactivity in the effluents.

11

Replace with old Appendix C "Additional Condition" text.

~~c. The Additional Conditions contained in Appendix C, as revised through Amendment No. 214, are hereby incorporated into this license. Virginia Electric and Power Company shall operate the facility in accordance with the Additional Conditions.~~

2

~~* The maximum reactor power level shall be limited to 2748 megawatts (thermal) which is 95% of RATED THERMAL POWER in accordance with the licensee's submittal dated January 28, 1992 (Serial No. 92-042) for the period of operation until the steam generator replacement.~~

4

j. The Virginia Electric and Power Company shall modify or replace the presently installed Barton Models No. 763 and No. 764 Lot 1 Transmitters used in safety related circuits inside containment with transmitters that have been demonstrated to provide a greater tolerance to harsh environments. The modifications or replacement of these transmitters shall be completed as soon as practicable but not later than June 30, 1982.

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o. The provisions of Specification 4.0.4 are not applicable to the performance of surveillance activities associated with diesel generator battery Technical Specification 4.8.1.1.3.d until the completion of the initial surveillance interval associated with that specification.

5

r. The Virginia Electric and Power Company shall perform a secondary water chemistry monitoring program to inhibit steam generator tube degradation. This program shall include:

1. Identification of a sampling schedule for the critical parameters and control points for these parameters;
2. Identification of the procedures used to quantify parameters that are critical to control points;
3. Identification of process sampling points;
4. Procedures for the recording and management of data;
5. Procedures defining corrective actions for off control point chemistry conditions; and
6. A procedure for identifying the authority responsible for the interpretation of the data and the sequence and timing of administrative events required to initiate corrective action.

3

~~s. Deleted by Amendment 162~~

~~t. Deleted by Amendment 162~~

~~X~~ Fire Protection (Updated)

VEPCO shall implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report for the facility and as approved in the SER dated February 1979 subject to the following provision:

The licensee may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

1,2

Move to 2.D

~~Amendment No. 31, 162~~
~~140~~

D. Fire Protection

Insert old 2.D(3)u

v. The performance interval for surveillance tests specifically identified in the licensee's letter dated January 20, 1992, normally 18 months to coincide with the normal 18 month refueling cycle, shall be extended to coincide with the Steam Generator Replacement Project and Cycle 9 Refueling Outage for North Anna Unit 1. The extended interval shall not exceed a total of 24 months.

5

- (4) The licensee is authorized to receive from the Surry Nuclear Power Station Units No. 1 and 2, possess, and store irradiated Surry fuel assemblies containing special nuclear material, enriched to not more than 4.1% by weight U-235 subject to the following conditions:
 - a. Surry fuel assemblies may not be placed in North Anna Power Station Units No. 1 and 2 reactors.
 - b. Irradiated fuel shipped to North Anna shall have been removed from the Surry reactors no less than 730 days prior to shipment.
 - c. No more than 500 Surry irradiated fuel assemblies shall be received for storage at the North Anna Units No. 1 and 2 spent fuel pool.

1,2

E. Physical Protection

The licensee shall fully implement and maintain in effect all provisions of the Commission-approved physical security, guard training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54 (p). The plans, which contain Safeguards Information protected under 10 CFR 73.21 are entitled: "North Anna Power Station Security Plan," with revisions submitted through February 24, 1988; "North Anna Power Station Guard Training and Qualification Plan," with revisions submitted through May 14, 1987; and "North Anna Power Station Safeguard Contingency Plan," with revisions submitted through January 9, 1987. Changes made in accordance with 10 CFR 73.55 shall be implemented in accordance with the schedule set forth therein.

(5) Environmental Protection Plan

The Environmental Protection Plan contained in Appendix B, as revised through Amendment No. —, is hereby incorporated in the license. The licensee shall operate the facility in accordance with the Environmental Protection Plan.

~~F. The design of the reactor coolant pump and steam generator supports may be revised in accordance with the licensee's submittal dated November 6, 1986 (Serial No. 86-477A).~~

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1

~~G. Deleted.~~

F H. This license is effective as of the date of issuance and shall expire at midnight on April 1, 2018.

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by:
R. C. DeYoung, for

Roger S. Boyd, Director
Division of Project Management
Office of Nuclear Reactor Regulation

Attachments:

- ~~1. Construction Related Items to be completed prior to Initial Criticality~~
- ~~2. Appendices A, B, and C~~
- ~~3. Figure 1~~

§ 1,4
§

Date of Issuance: APR 1 1978

1. Appendix A, Technical Specifications
2. Appendix B, Environmental Protection Plan

ATTACHMENT 1

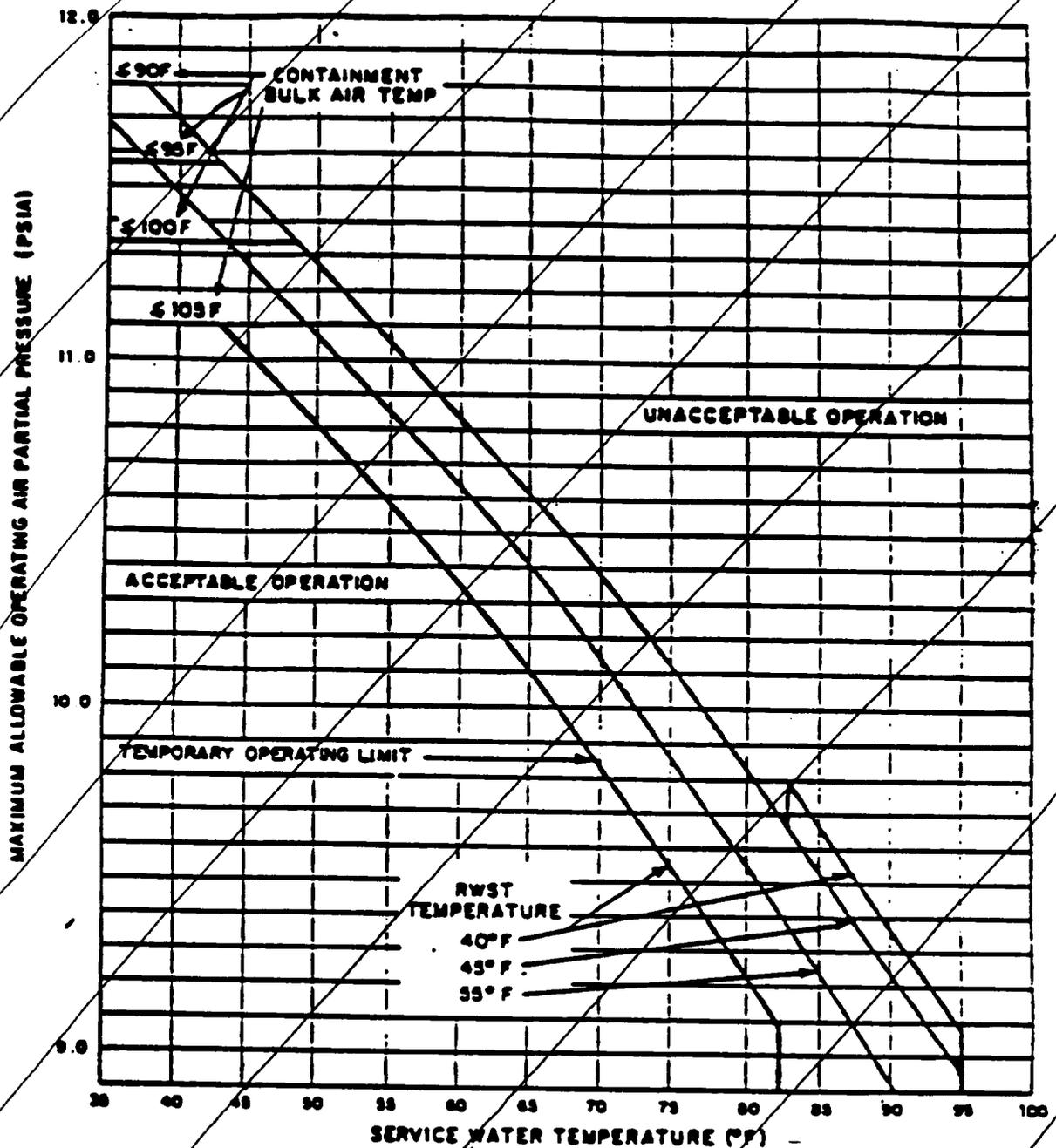
CONSTRUCTION RELATED ITEMS TO BE COMPLETED

This attachment identifies certain items which must be completed to the Commission's satisfaction in accordance with the schedule listed below. The Virginia Electric and Power Company shall not proceed beyond the authorized events without prior written authorization from the Commission.

- A. Prior to initial criticality, the Virginia Electric and Power Company shall operate Unit 1 in the cold shutdown and hot standby conditions only under the following conditions:
1. The reactor shall be maintained at a K_{eff} of no greater than 0.90 when in a cold shutdown condition (Operational Mode 5 condition).
 2. The reactor shall be maintained at an average reactor coolant temperature at or above 350 degrees Fahrenheit with a K_{eff} of 0.90 or less and a reactor coolant system minimum boron concentration of 2000 parts per million when in a hot standby condition. This mode of operation is a modification of Operational Mode 3 stated in the Technical Specifications, Appendix A.
- B. The following item must be completed prior to entry into operational Mode 2 for initial criticality:
1. Reverification of reactor coolant and other Class I systems expansion and restraint measurements at normal temperature and pressure.
- C. The following item must be completed one week following entry into operational Mode 2:
1. Completion of the handwheel extension to the cross connect valves associated with the recirculation spray system.

4

ATTACHMENT 3



SET POINT VALUE IN CONTAINMENT VACUUM SYSTEM INSTRUMENTATION SHOULD BE AT LEAST 0.25 PSI BELOW APPLICABLE RWST TEMPERATURE LIMIT CURVE
 THESE OPERATING CURVES REQUIRE THAT THE AVERAGE CONTAINMENT TEMPERATURE DOES NOT BE BELOW 66°F AS THE LOWER BOUND THE UPPER BOUND IS 106°F EXCEPT AS NOTED

FIGURE 1
MAXIMUM ALLOWABLE PRIMARY CONTAINMENT AIR PARTIAL PRESSURE VS SERVICE WATER TEMPERATURE AND RWST WATER TEMPERATURE
NORTH ANNA POWER STATION UNIT 1

2.0 SAFETY LIMITS AND LIMITING SAFETY SYSTEM SETTINGS

2.1 SAFETY LIMITS

REACTOR CORE

2.1.1 The combination of THERMAL POWER, pressurizer pressure, and the highest operating loop coolant temperature (T_{avg}) shall not exceed the limits shown in Figures 2.1-1 for 3 loop operation and 2.1-2 and 2.1-3 for 2 loop operation. §14

APPLICABILITY: MODES 1 and 2.

ACTION:

Whenever the point defined by the combination of the highest operating loop average temperature and THERMAL POWER has exceeded the appropriate pressurizer pressure line, be in HOT STANDBY within 1 hour.

REACTOR COOLANT SYSTEM PRESSURE

2.1.2 The Reactor Coolant System pressure shall not exceed 2735 psig.

APPLICABILITY: MODES 1, 2, 3, 4 and 5.

ACTION:

MODES 1 and 2

Whenever the Reactor Coolant System pressure has exceeded 2735 psig, be in HOT STANDBY with the Reactor Coolant System pressure within its limit within 1 hour.

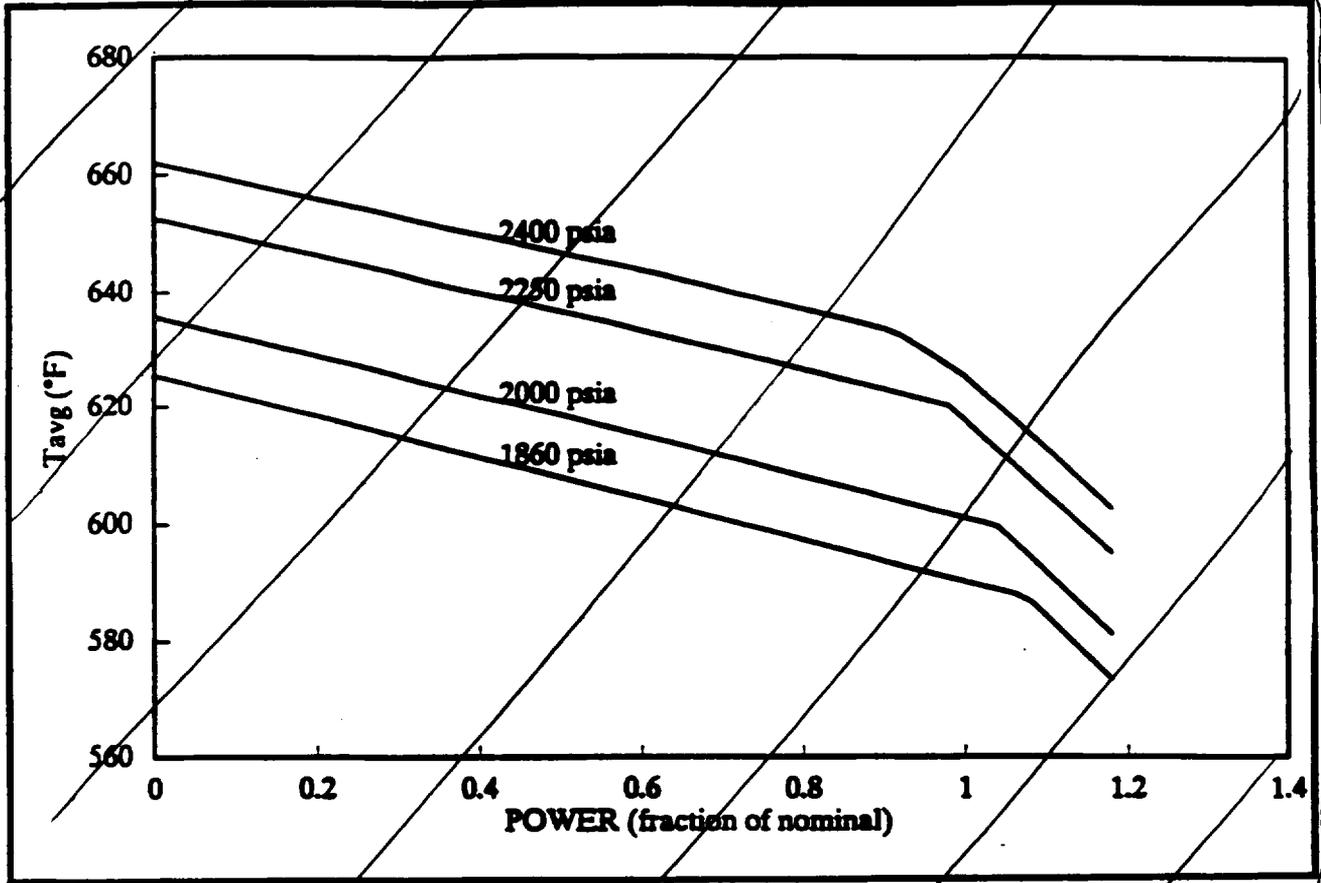
MODES 3, 4 and 5

Whenever the Reactor Coolant System pressure has exceeded 2735 psig, reduce the Reactor Coolant System pressure to within its limit within 5 minutes.

§
For the period of operation until steam generator replacement, the combination of THERMAL POWER, pressurizer pressure, and the highest operating loop coolant temperature (T_{avg}) shall not exceed the limits shown in Figure 2.1-1a. 4

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Nominal T_{avg} = 586.8°F
Nominal RCS flow = 268,500 GPM



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Figure 2.1-1a REACTOR CORE SAFETY LIMITS FOR THREE LOOP OPERATION FOR THE PERIOD OF OPERATION UNTIL STEAM GENERATOR REPLACEMENT

TABLE 2.2-1
REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
1. Manual Reactor Trip	Not Applicable	Not Applicable
2. Power Range, Neutron Flux	Low Setpoint - $\leq 25\%$ of RATED THERMAL POWER High Setpoint - $\leq 109\%$ of RATED THERMAL POWER	Low Setpoint - $\leq 26\%$ of RATED THERMAL POWER High Setpoint - $\leq 110\%$ of RATED THERMAL POWER
3. Power Range, Neutron Flux, High Positive Rate	$\leq 5\%$ of RATED THERMAL POWER with a time constant ≥ 2 seconds	$\leq 5.5\%$ of RATED THERMAL POWER with a time constant ≥ 2 seconds
4. Power Range, Neutron Flux, High Negative Rate	$\leq 5\%$ of RATED THERMAL POWER with a time constant ≥ 2 seconds	$\leq 5.5\%$ of RATED THERMAL POWER with a time constant ≥ 2 seconds
5. Intermediate Range, Neutron Flux	$\leq 35\%$ of RATED THERMAL POWER	$\leq 40\%$ of RATED THERMAL POWER
6. Source Range, Neutron Flux	$\leq 10^5$ counts per second	$\leq 1.3 \times 10^5$ counts per second
7. Overtemperature ΔT	See Note 1	See Note 3
8. Overpower ΔT	See Note 2	See Note 3
9. Pressurizer Pressure - Low	≥ 1870 psig	≥ 1860 psig
10. Pressurizer Pressure - High	≤ 2360 psig	≤ 2370 psig
11. Pressurizer Water Level - High	$\leq 92\%$ of instrument span	$\leq 93\%$ of instrument span
12. Loss of Flow	$\geq 90\%$ of design flow per loop*	$\geq 89\%$ of design flow per loop*

* Design flow per loop is one-third of the minimum allowable Reactor Coolant System Total Flow Rate as specified in Table 3.2-1.

** The high trip setpoint for Power Range, Neutron Flux, shall be $\leq 103\%$ RATED THERMAL POWER for the period of operation until steam generator replacement.

*** The allowable value for the high trip setpoint for Power Range, Neutron Flux, is required to be $\leq 104\%$ RATED THERMAL POWER for the period of operation until steam generator replacement.

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07-30-97

TABLE 2.2-1 (Continued)
REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS
NOTATION (Continued)

Operation with 3 Loops	Operation with 2 Loops (no loops isolated) *	Operation with 2 Loops (1 loop isolated) *
K ₁ = 1.264 	K ₁ = ()	K ₁ = ()
K ₂ = 0.0220	K ₂ = ()	K ₂ = ()
K ₃ = 0.001152	K ₃ = ()	K ₃ = ()

3/4

and $f_1(\Delta I)$ is a function of the indicated difference between top and bottom detectors of the power-range nuclear ion chambers; with gains to be selected based on measured instrument response during plant startup tests such that:

- (I) for $q_t - q_b$ between -44 percent and +3 percent, $f_1(\Delta I) = 0$ (where q_t and q_b are percent RATED THERMAL POWER in the top and bottom halves of the core respectively, and $q_t + q_b$ is total THERMAL POWER in percent of RATED THERMAL POWER).
- (II) for each percent that the magnitude of $(q_t - q_b)$ exceeds -44 percent, the ΔT trip setpoint shall be automatically reduced by 1.67 percent of its value at RATED THERMAL POWER.
- (III) for each percent that the magnitude of $(q_t - q_b)$ exceeds +3 percent, the ΔT trip setpoint shall be automatically reduced by 2.00 percent of its value at RATED THERMAL POWER.

* Values dependent on NRC approval of ECCS evaluation for these operating conditions.

** ~~The value for K₁ shall be equal to 1.132 for the period of operation until steam generator replacement.~~

3/4

TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

NOTATION (Continued)

Note 2:
$$\text{Overpower } \Delta T \leq \Delta T_o \left[K_4 - K_5 \left(\frac{\tau_3 S}{1 + \tau_3 S} \right) T - K_6 (T - T') - I_2(\Delta I) \right]$$

- Where:
- ΔT_o - Indicated ΔT at RATED THERMAL POWER
 - T - Average temperature, °F
 - T' - Indicated T_{avg} at RATED THERMAL POWER $\leq 586.8^\circ\text{F}$
 - K_4 - 1.079 
 - K_5 - 0.02/°F for increasing average temperature
 - K_5 - 0 for decreasing average temperatures 
 - K_6 - 0.00164 for $T > T'$; $K_6 = 0$ for $T \leq T'$
 - $\frac{\tau_3 S}{1 + \tau_3 S}$ - The function generated by the rate lag controller for T_{avg} dynamic compensation
 - τ_3 - Time constant utilized in the rate lag controller for T_{avg}
 $\tau_3 = 10$ secs.
 - S - Laplace transform operator (sec^{-1})
 - $I_2(\Delta I)$ - 0 for all ΔI

Note 3: The channel's maximum trip point shall not exceed its computed trip point by more than 2 percent span.

~~The value for K_4 shall be equal to 1.016 for the period of operation until steam generator replacement.~~

0

APPENDIX C
TO FACILITY OPERATING LICENSE NO. NPF-4
NORTH ANNA POWER STATION, UNIT NO. 1

VIRGINIA ELECTRIC AND POWER COMPANY
DOCKET NO. 50-338

ADDITIONAL CONDITIONS

2

~~ADDITIONAL CONDITIONS~~

Amendment Number	Additional Condition	Implementation Date
214 NEPCO	The licensee shall implement a procedure that will prohibit entry into an extended Emergency Diesel Generator Outage Time (14 days), for scheduled maintenance purposes, if severe weather conditions are expected, as described in the licensee's application dated June 25, 1998, and evaluated in the staff's Safety Evaluation dated August 26, 1998.	Prior to implementation of Amendment No. 214

2

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2. C (3) c

ATTACHMENT 3

PROPOSED OPERATING LICENSES AND TECHNICAL SPECIFICATIONS PAGES

**VIRGINIA ELECTRIC AND POWER COMPANY
(DOMINION)
NORTH ANNA POWER STATION UNIT 1**

TABULATION OF CHANGES

License No. NPF-4 / Docket No. 50-338

Summary of change:

This proposed change to the Technical Specifications is being made to remove obsolete license conditions from the Operating License and associated changes to the Technical Specifications.

<u>DELETE</u>	<u>DATED</u>	<u>SUBSTITUTE</u>
License Page 1	11-18-83	License Page 1
License Page 2	11-18-83	License Page 2
License Page 3	11-18-83	License Page 3
License Page 4	11-20-00	License Page 4
License Page 5	06-01-92	License Page 5
License Page 6	06-01-92	---
License Page 7	08-26-98	---
Attachment 1	---	---
Attachment 3	---	---
2-1	03-03-92	2-1
2-2	03-03-92	---
2-6	07-30-97	2-6
2-9	03-03-92	2-9
2-10	03-03-92	2-10
Appendix C	08-26-98	---
AC 1	08-26-98	---

VIRGINIA ELECTRIC AND POWER COMPANY

OLD DOMINION ELECTRIC COOPERATIVE

DOCKET NO. 50-338

NORTH ANNA POWER STATION, UNIT NO. 1

FACILITY OPERATING LICENSE

License No. NPF-4

1. The Nuclear Regulatory Commission (the Commission) having found that:
 - A. The issuance of this license to the Virginia Electric and Power Company (VEPCO) and the Old Dominion Electric Cooperative (ODEC) for the North Anna Power Station, Unit No. 1 (facility) 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, as amended, 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 operating license can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the rules and regulations of the Commission;
 - D. VEPCO is technically and financially qualified to engage in the activities authorized by this operating license in accordance with the rules and regulations of the Commission;
 - E. VEPCO and the Old Dominion Electric Cooperative (ODEC) have satisfied the applicable provisions of 10 CFR Part 140, "Financial Protection Requirements and Indemnity Agreements," of the Commission's regulations;
 - F. The issuance of this operating license will not be inimical to the common defense and security or to the health and safety of the public;
 - G. After weighing the environmental, economic, technical, and other benefits of the facility against environmental and other costs and considering available alternatives, the issuance of Facility Operating License No. NPF-4, subject to the conditions for protection of the environment set forth herein, is in accordance with Appendix D to 10 CFR Part 50 of the Commission's regulations and all applicable requirements have been satisfied;
 - H. The receipt, possession, and use of source, byproduct, and special nuclear material as authorized by this license will be in accordance with the Commission's regulations in 10 CFR Part 30, 40, and 70, including 10 CFR Section 30.33, 40.32, and 70.23 and 70.31; and

- I. The Old Dominion Electric Cooperative is a partial financial owner of the facility and will not operate the facility.
2. Facility Operating License No. NPF-4 is hereby issued to the Virginia Electric and Power Company (VEPCO) and Old Dominion Electric Cooperative (ODEC) to read as follows:
 - A. This license applies to the North Anna Power Station, Unit No. 1, a pressurized water reactor and associated equipment (the facility), owned by the Virginia Electric and Power Company and the Old Dominion Electric Cooperative. The facility is located near Mineral, in Louisa County, Virginia, and is described in the "Updated Final Safety Analysis Report" and the Environmental Report as supplemented and amended (Supplements 1 through 4, Appendix L).
 - B. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses:
 - (1) Pursuant to Section 103 of the Act and 10 CFR Part 50, "Licensing of Production and Utilization Facilities," VEPCO and ODEC to possess and VEPCO to use and operate the facility at the designated location in Louisa County, Virginia in accordance with the procedures and limitations set forth in this license;
 - (2) Pursuant to the Act and 10 CFR Part 70, VEPCO to receive, possess, and use at any time special nuclear material as reactor fuel, in accordance with the limitations for storage and amounts required for reactor operation, as described in the Updated Final Safety Analysis Report;
 - (3) Pursuant to the Act and 10 CFR Parts 30, 40 and 70 VEPCO to receive, possess, and use at any time any byproduct, source, and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;
 - (4) Pursuant to the Act and 10 CFR Parts 30, 40 and 70, VEPCO to receive, possess, and use in amounts as required any byproduct, source, or special nuclear material, without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and
 - (5) Pursuant to the Act and 10 CFR Parts 30, 40 and 70, VEPCO to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This license shall be deemed to contain and is subject to the condition specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

VEPCO is authorized to operate the North Anna Power Station, Unit No. 1, at reactor core power levels not in excess of 2893 megawatts (thermal).

(2) Technical Specifications

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

(3) Additional Conditions

The matters specified in the following conditions shall be completed to the satisfaction of the Commission within the stated time periods following the issuance of the condition or within the operational restrictions indicated. The removal of these conditions shall be made by an amendment to the license supported by a favorable evaluation by the Commission:

- a. VEPCO may use up to four (4) fuel assemblies containing advanced zirconium based alloys as described in the licensee's submittal dated September 4, 1996, as supplemented February 3, 1997.
- b. If VEPCO plans to remove or to make significant changes in the normal operation of equipment that controls the amount of radioactivity in effluents from the North Anna Station, the Commission shall be notified in writing regardless of whether the change affects the amount of radioactivity in the effluents.
- c. VEPCO shall implement a procedure that will prohibit entry into an extended Emergency Diesel Generator Outage Time (14 days), for scheduled maintenance purposes, if severe weather conditions are expected, as described in the licensee's application dated June 25, 1998, and evaluated in the staff's Safety Evaluation dated August 26, 1998.

- (4) The licensee is authorized to receive from the Surry Nuclear Power Station Units No. 1 and 2, possess, and store irradiated Surry fuel assemblies containing special nuclear material, enriched to not more than 4.1% by weight U-235 subject to the following conditions:
- a. Surry fuel assemblies may not be placed in North Anna Power Station Units No. 1 and 2 reactors.
 - b. Irradiated fuel shipped to North Anna shall have been removed from the Surry reactors no less than 730 days prior to shipment.
 - c. No more than 500 Surry irradiated fuel assemblies shall be received for storage at the North Anna Units No. 1 and 2 spent fuel pool.
- (5) Environmental Protection Plan

The Environmental Protection Plan contained in Appendix B, as revised through Amendment No. , is hereby incorporated in the license. The licensee shall operate the facility in accordance with the Environmental Protection Plan.

D. Fire Protection

VEPCO shall implement and maintain in effect all provisions of the approved fire protection program as described in the Updated Final Safety Analysis Report for the facility and as approved in the SER dated February 1979 subject to the following provision:

The licensee may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

E. Physical Protection

The licensee shall fully implement and maintain in effect all provisions of the Commission-approved physical security, guard training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and the authority of 10 CFR 50.90 and 10 CFR 50.54 (p). The plans, which contain Safeguards Information protected under 10 CFR 73.21 are entitled: "North Anna Power Station Security Plan," with revisions submitted through February 24, 1988; "North Anna Power Station Guard Training and Qualification Plan." with revisions submitted through May 14, 1987; and "North Anna Power Station Safeguard Contingency Plan," with revisions submitted through January 9, 1987. Changes made in accordance with 10 CFR 73.55 shall be implemented in accordance with the schedule set forth therein.

F. This license is effective as of the date of issuance and shall expire at midnight on April 1, 2018. |

FOR THE NUCLEAR REGULATORY COMMISSION

Original signed by:
R. C. DeYoung, for

Roger S. Boyd, Director
Division of Project Management
Office of Nuclear Reactor Regulation

Attachments:

1. Appendix A, Technical Specifications
2. Appendix B, Environmental Protection Plan |

Date of Issuance: APR 1 1978

2.0 SAFETY LIMITS AND LIMITING SAFETY SYSTEM SETTINGS

2.1 SAFETY LIMITS

REACTOR CORE

2.1.1 The combination of THERMAL POWER, pressurizer pressure, and the highest operating loop coolant temperature (T_{avg}) shall not exceed the limits shown in Figures 2.1-1 for 3 loop operation and 2.1-2 and 2.1-3 for 2 loop operation.

APPLICABILITY: MODES 1 and 2.

ACTION:

Whenever the point defined by the combination of the highest operating loop average temperature and THERMAL POWER has exceeded the appropriate pressurizer pressure line, be in HOT STANDBY within 1 hour.

REACTOR COOLANT SYSTEM PRESSURE

2.1.2 The Reactor Coolant System pressure shall not exceed 2735 psig.

APPLICABILITY: MODES 1, 2, 3, 4 and 5.

ACTION:

MODES 1 and 2

Whenever the Reactor Coolant System pressure has exceeded 2735 psig, be in HOT STANDBY with the Reactor Coolant System pressure within its limit within 1 hour.

MODES 3, 4 and 5

Whenever the Reactor Coolant System pressure has exceeded 2735 psig, reduce the Reactor Coolant System pressure to within its limit within 5 minutes.

TABLE 2.2-1
REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

<u>FUNCTIONAL UNIT</u>	<u>TRIP SETPOINT</u>	<u>ALLOWABLE VALUES</u>
1. Manual Reactor Trip	Not Applicable	Not Applicable
2. Power Range, Neutron Flux	Low Setpoint - $\leq 25\%$ of RATED THERMAL POWER High Setpoint - $\leq 109\%$ of RATED THERMAL POWER	Low Setpoint - $\leq 26\%$ of RATED THERMAL POWER High Setpoint - $\leq 110\%$ of RATED THERMAL POWER
3. Power Range, Neutron Flux, High Positive Rate	$\leq 5\%$ of RATED THERMAL POWER with a time constant ≥ 2 seconds	$\leq 5.5\%$ of RATED THERMAL POWER with a time constant ≥ 2 seconds
4. Power Range, Neutron Flux, High Negative Rate	$\leq 5\%$ of RATED THERMAL POWER with a time constant ≥ 2 seconds	$\leq 5.5\%$ of RATED THERMAL POWER with a time constant ≥ 2 seconds
5. Intermediate Range, Neutron Flux	$\leq 35\%$ of RATED THERMAL POWER	$\leq 40\%$ of RATED THERMAL POWER
6. Source Range, Neutron Flux	$\leq 10^5$ counts per second	$\leq 1.3 \times 10^5$ counts per second
7. Overtemperature ΔT	See Note 1	See Note 3
8. Overpower ΔT	See Note 2	See Note 3
9. Pressurizer Pressure – Low	≥ 1870 psig	≥ 1860 psig
10. Pressurizer Pressure – High	≤ 2360 psig	≤ 2370 psig
11. Pressurizer Water Level – High	$\leq 92\%$ of instrument span	$\leq 93\%$ of instrument span
12. Loss of Flow	$\geq 90\%$ of design flow per loop*	$\geq 89\%$ of design flow per loop*

* Design flow per loop is one-third of the minimum allowable Reactor Coolant System Total Flow Rate as specified in Table 3.2-1.

TABLE 2.2-1 (Continued)
REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

NOTATION (Continued)

Operation with 3 Loops	Operation with 2 Loops (no loops isolated)*	Operations with 2 Loops (1 loop isolated)*
$K_1 = 1.264$	$K_1 = (\quad)$	$K_1 = (\quad)$
$K_2 = 0.0220$	$K_2 = (\quad)$	$K_2 = (\quad)$
$K_3 = 0.001152$	$K_3 = (\quad)$	$K_3 = (\quad)$

and $f_1(\Delta I)$ is a function of the indicated difference between top and bottom detectors of the power-range nuclear ion chambers; with gains to be selected based on measured instrument response during plant startup tests such that:

- (i) for $q_t - q_b$ between -44 percent and +3 percent, $f_1(\Delta I) = 0$ (where q_t and q_b are percent RATED THERMAL POWER in the top and bottom halves of the core respectively, and $q_t + q_b$ is total THERMAL POWER in percent of RATED THERMAL POWER).
- (ii) for each percent that the magnitude of $(q_t - q_b)$ exceeds -44 percent, the ΔT trip setpoint shall be automatically reduced by 1.67 percent of its value at RATED THERMAL POWER.
- (iii) for each percent that the magnitude of $(q_t - q_b)$ exceeds +3 percent, the ΔT trip setpoint shall be automatically reduced by 2.00 percent of its value at RATED THERMAL POWER.

* Values dependent on NRC approval of ECCS evaluation for these operating conditions.

TABLE 2.2-1 (Continued)
REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS
NOTATION (Continued)

NOTE 2: Overpower $\Delta T \leq \Delta T_o \left[K_4 - K_5 \left(\frac{\tau_3 S}{1 + \tau_3 S} \right) T - K_6 (T - T') - f_2 (\Delta I) \right]$

Where: ΔT_o = Indicated ΔT at RATED THERMAL POWER

T = Average temperature, °F

T' = Indicated T_{avg} at RATED THERMAL POWER $\leq 586.8^\circ\text{F}$

K_4 = 1.079

K_5 = 0.02/°F for increasing average temperature

K_5 = 0 for decreasing average temperature

K_6 = 0.00164 for $T > T'$; $K_6 = 0$ for $T \leq T'$

$\frac{\tau_3 S}{1 + \tau_3 S}$ = The function generated by the rate lag controller for T_{avg} dynamic compensation

τ_3 = Time constant utilized in the rate lag controller for T_{avg}
 $\tau_3 = 10$ secs.

S = Laplace transform operator (sec^{-1})

$f_2 (\Delta I)$ = 0 for all ΔI

NOTE 3: The channel's maximum trip point shall not exceed its computed trip point by more than 2 percent span.

ATTACHMENT 4

SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

**VIRGINIA ELECTRIC AND POWER COMPANY
(DOMINION)
NORTH ANNA POWER STATION UNIT 1**

SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

Virginia Electric and Power Company has reviewed the requirements of 10 CFR 50.92 as they relate to the proposed administrative change to the Facility Operating License (FOL), NPF-4, for North Anna Unit 1 and determined that a significant hazards consideration is not involved. The proposed administrative change to the North Anna Unit 1 FOL makes minor editorial corrections, relocates various license conditions within the license, and removes outdated, superceded or otherwise non-applicable license conditions. Minor restructuring and renumbering of certain sections of the Facility Operating License to facilitate consistency between the two units at North Anna is also included in this administrative change. The result is a license document that is directly applicable to the current plant licensing and design bases. There is no significant hazard consideration associated with this proposed change since the change does not alter any currently applicable FOL requirements. Accordingly, the current North Anna Unit 1 licensing and design bases are unchanged. In support of this conclusion, the following evaluation is provided.

Criterion 1 - The proposed license amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed change to the North Anna Unit 1 Facility Operating License, NPF-4, is administrative (and in part editorial) in nature. The removal of license conditions regarding completed, no longer needed, and expired requirements has no impact on plant operations since these requirements no longer have meaningful applications. The renumbering and/or relocation within the FOL of various license conditions in this proposed administrative change does not alter the technical basis, requirements or the implementation of the affected items. The proposed change is within the current design and licensing bases of the facility. Since this change is administrative only and neither station operations nor design are affected by the change, it does not involve any significant increase in the probability or the consequences of any accident or malfunction of equipment important to safety previously evaluated.

Criterion 2 - The proposed license amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed change is administrative (and in part editorial) in nature. The license conditions that are being removed or relocated by this proposed change do not impact station operations or station equipment in any manner. The proposed change does not involve a physical alteration of the plant, nor a change in the methods used to respond to plant transients that has not been previously

analyzed. No new or different equipment is being installed and no installed equipment is being removed or operated in a different manner. Consequently, no new failure modes are introduced and the proposed administrative change to the North Anna Unit 1 Facility Operating License does not create the possibility of a new or different kind of accident or malfunction of equipment important to safety from any previously evaluated.

Criterion 3 - The proposed license amendment does not involve a significant reduction in a margin of safety.

The proposed change is administrative (and in part editorial) in nature and neither station operations nor design are affected by the change. Since station operations are not affected by the proposed administrative change and no physical change is being made to the station, the change does not impact the condition, design, or performance of any station structure, system or component. Therefore, the proposed administrative change to the North Anna Unit 1 Facility Operating License does not involve a significant reduction in any margin of safety described in the bases of the Technical Specifications.