VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

October 25, 1994

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

Serial No. 94-561
NL&P/MAE: R2
Docket Nos. 50-338
50-339
License Nos. NPF-4
NPF-7

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY
NORTH ANNA POWER STATION UNITS 1 and 2
PROPOSED TECHNICAL SPECIFICATIONS CHANGES
HYDROGEN RECOMBINER SURVEILLANCE

Pursuant to 10 CFR 50.90, the Virginia Electric and Power Company (Virginia Power) requests amendments, in the form of changes to the Technical Specifications, to Facility Operating License Nos. NPF-4 and NFF-7 for North Anna Power Station Units 1 and 2, respectively. The proposed changes will extend the functional surveillance testing frequency for the hydrogen recombiners from once per 6 months to once per 18 months. The extension of the surveillance requirement is consistent with Generic Letter 93-05, "Line-Item Technical Specifications Improvements To Reduce Surveillance Requirements For Testing During Power Operation." These changes in the surveillance requirements do not affect plant or Hydrogen Recombiner System operations.

The proposed changes also delete the surveillance requirement to operate the containment purge blowers. Virginia Power received a Severity Level V violation because our interpretation of the Technical Specification surveillance requirement did not include the containment purge blowers [Reference NRC letters dated June 3, 1993 and February 11, 1994, and Virginia Power letters dated July 2, 1993 and March 11, 1994 (Serial Nos. 93-363 and 93-363A, respectively)]. The proposed changes are to clarify that the Technical Specification surveillance requirement applies only to the hydrogen recombiner purge blowers. Minor editorial changes to improve the readability and consistency between units are also included.

A discussion of the proposed Technical Specifications changes is provided in Attachment 1. The proposed Technical Specifications changes are provided in Attachment 2. It has been determined that the proposed Technical Specifications changes do not involve an unreviewed safety question as defined in 10 CFR 50.59 or a significant hazards consideration as defined in 10 CFR 50.92. The basis for our determination that these changes do not involve a significant hazards consideration is provided in Attachment 3. The proposed Technical Specifications changes have been

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reviewed and approved by the Station Nuclear Safety and Operating Committee and the Management Safety Review Committee.

Should you have any questions or require additional information, please contact us.

Very truly yours,

James P. O'Hanlon

James P. O' Hanlon
Senior Vice President - Nuclear

Attachments

cc: U.S. Nuclear Regulatory Commission
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Mr. R. D. McWhorter
NRC Senior Resident Inspector
North Anna Power Station

Commissioner
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COMMONWEALTH OF VIRGINIA)
)
COUNTY OF HENRICO)

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by J. P. O'Hanlon, who is Senior Vice President - Nuclear, of Virginia Electric and Power Company. He is duly authorized to execute and file the foregoing document in behalf of that Company, and the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 25 day of October, 1994.

My Commission Expires: May 31, 1998.

Vicki L. Hull
Notary Public

(SEAL)

Attachment 1

Discussion of Changes

Discussion of Changes

Introduction

The NRC has completed a comprehensive examination of surveillance requirements in Technical Specifications that require testing at power. The evaluation is documented in NUREG-1366, "Improvements to Technical Specification Surveillance Requirements," dated December 1992. The NRC staff found, that while the majority of testing at power is important, safety can be improved, equipment degradation decreased, and an unnecessary burden on personnel resources eliminated by reducing the amount of testing at power that is required by Technical Specifications. Based on the results of the evaluations documented in NUREG-1366, the NRC issued Generic Letter 93-05, "Line-Item Technical Specifications Improvements to Reduce Surveillance Requirements for Testing During Power Operation," dated September 27, 1993.

Using the guidelines provided by Generic Letter 93-05, Item 8.5 and NUREG-1366, we are requesting a change to the functional surveillance testing frequency for the hydrogen recombiners from once per 6 months to once per 18 months. These changes in the surveillance requirements do not affect plant or Hydrogen Recombiner System operations.

The current Surveillance Requirement 4.6.4.2.a requires the operation of the containment purge blowers as well as the hydrogen recombiner purge blowers. The proposed changes would delete the requirement to operate the containment purge blowers and specify that the requirement only applies to the hydrogen recombiner purge blowers. In addition, several other changes are being requested for clarity and consistency between Unit 1 and Unit 2 Technical Specifications.

Background

The Hydrogen Recombiner System removes the hydrogen gasses that accumulate in the containment atmosphere following a design-basis loss-of-coolant accident (LOCA). The Hydrogen Recombiner System consists of two electric hydrogen recombiners each of which may be powered from either unit's emergency busses and

each hydrogen recombiner is capable of being aligned to either unit's containment atmosphere.

In the past, the Technical Specifications have required functional testing of the hydrogen recombiners every six months. However, as specified in NUREG-1366, "Improvements to Technical Specifications Surveillance Requirements" of December 1992 and NRC Generic Letter 93-05 dated September 27, 1993, operating and testing experience has indicated that, because of the redundancy and apparent high reliability, the surveillance test interval should be changed to once each refueling interval. North Anna's design and experience with the Hydrogen Recombiner System is consistent with the findings in Generic Letter 93-05. These proposed Technical Specification changes will require that the hydrogen recombiners be tested once per 18 months which is the normal refueling cycle for North Anna.

The proposed changes also revise the current surveillance requirement to operate the containment purge blowers and the hydrogen recombiner purge blowers for at least 15 minutes. (This interpretation is documented in our response to a Notice of Violation, dated March 11, 1994.) The proposed changes would delete the requirement to operate the containment purge blowers and specify that the requirement only applies to the hydrogen recombiner purge blowers.

The containment purge blowers are not part of the Hydrogen Recombiner System since they cannot provide a suction source for the hydrogen recombiners. In addition, testing of the containment purge blowers does not contribute to establishing the operability of the hydrogen recombiners. Technical Specification 3.6.4.2 and its associated surveillance requirements specifically address only the Hydrogen Recombiner System.

The North Anna UFSAR describes the Hydrogen Recombiner System. Each hydrogen recombiner consists of a blower, an electric preheater, a reaction chamber and cooler, instrumentation, and piping, all of which are mounted on a skid. The piping associated with the hydrogen recombiner blowers is seismically qualified. Each of the skid-mounted hydrogen recombiner blowers is also designed to provide containment purge if necessary to maintain the hydrogen concentration at safe levels in the unlikely event that it is required.

The North Anna UFSAR also provides a description of the containment purge blowers as a permanently installed, 50 standard cubic foot per minute, positive-displacement, purge blower in parallel with the containment vacuum pumps for each unit. This purge blower can draw air from the containment after a LOCA and discharge it to the Gaseous Waste Disposal System. It can be operated in parallel with the Hydrogen Recombiner System blowers when the containment is to be purged, ensuring that a failure of both recombiner systems will not leave the containment without purge capability.

The piping for the containment purge blowers is not totally seismically qualified. Therefore, these purge blowers are not used to take suction from the containment and discharge to the process vents when operating. Therefore, it is not appropriate to apply a surveillance requirement to test this system while in Modes 1 or 2.

This is also supported by our response and NRC's acceptance of a TMI "lessons learned" item. Our response to NUREG-0737, Item II.E.4.1 describes our redundant external Hydrogen Recombiner System. It also describes the Containment Purge System, also referred to as our backup Hydrogen Purge System. The response states "The backup Hydrogen Purge System is presently isolated from the hydrogen analyzers and recombiners by an administratively locked closed valve. This system is not operated during normal plant operations. Its use would only be contemplated if both hydrogen recombiners fail and after a radiation survey had been made to determine personnel accessibility to the manual isolation valves."

NRC Inspection Report 50-338/339 82-04 dated March 5, 1982 closed NUREG-0737, Item II.E.4.1 from a design modification view and NRC Inspection Report 50-338/339 83-05 dated April 1, 1983 closed NUREG-0737, Item II.E.4.1 from a procedure and testing view.

Discussion

North Anna's design and experience with the Hydrogen Recombiner System is consistent with the findings in Generic Letter 93-05. These proposed Technical Specification changes will require that the hydrogen recombiners be tested once per 18 months which is the normal refueling cycle for North Anna.

A statement will be added to the Unit 1 Technical Specification 3.6.4.2 Action that the provisions of Specification 3.0.4 are not applicable. This allows operational flexibility to change modes prior to completion of surveillance requirements to prove operability. The addition of this statement is in accordance with NUREG-1431, "Standard Technical Specifications - Westinghouse Plants." This exemption from Specification 3.0.4 is already contained in Unit 2 Technical Specification 3.6.4.2.

North Anna Technical Specification Surveillance Requirement 4.6.4.2.a states in part that "... each purge blower operates for 15 minutes." The North Anna units are equipped with two different types of "purge blowers." One type of purge blowers are an integral part of the Hydrogen Recombiner System. These hydrogen recombiner purge blowers are capable of exhausting containment gasses directly to atmosphere even with the recombiner incapable of removing hydrogen gas. The second type of purge blowers are the containment purge blowers which exhaust directly from the containment to atmosphere and are not associated with the hydrogen recombiners. Surveillance Requirement 4.6.4.2.a will be modified to state that the purge blowers are being referred to in this surveillance requirement are the hydrogen recombiner purge blowers.

Unit 1 Surveillance Requirement 4.6.4.2.a.4 requires that the integrity of all heater circuits be verified by performance of a continuity and resistance to ground test following a functional test. The requirement for a continuity test is not required in Unit 2 Technical Specifications nor in NUREG-1431, "Standard Technical Specifications - Westinghouse Plants." The performance of a continuity test of the heaters following the recombiner functional test is unnecessary. The functional test verifies the ability of the recombiner heaters to increase the recombiner temperature to the required value. The satisfactory completion of the functional test verifies proper heater continuity. Therefore, the requirement for continuity testing of recombiner heaters will be deleted from Unit 1 Technical Specifications.

Specific Changes

These Technical Specification (TS) changes apply to both Unit 1 and Unit 2 except as otherwise noted.

TS 3.6.4.2 - Unit 1

The existing Action will be designated as "a." Action "b" will be added stating "The provisions of Specification 3.0.4 are not applicable."

Surveillance Requirement (SR) 4.6.4.2

Add the words "once per 18 months by" following OPERABLE.

SR 4.6.4.2 - Unit 1

All "≥" symbols will be replaced with "greater than or equal to" in order to maintain consistency between both units' Technical Specifications.

SR 4.6.4.2.a

The words "At least once per 6 months by" are deleted and the words "hydrogen recombiner" will be inserted in front of "purge blower."

SR 4.6.4.2.a - Unit 1

The words " at least" have been added before "15 minutes" for consistency between units.

SR 4.6.4.2.b

The existing heading for SR items 1 through 4 will be deleted.

SR 4.6.4.2.b.2 - Unit 1

The word " enclosure" has been added after "recombiner" for consistency between units.

SR 4.6.4.2.b.4 - Unit 1

The words "continuity and" will be deleted. This SR will read "Verifying the integrity of all heater electrical circuits by performing a resistance to ground test following the above required functional test. The resistance to ground for any heater phase shall be greater than or equal to 10,000 ohms."

SR 4.6.4.2.b.1 through 4.6.4.2.b.4

These items will be designated alphabetically and rearranged.

In addition, minor editorial changes have been made to these Technical Specification sections to improve the readability and consistency between units.

Safety Significance

The proposed changes to the surveillance frequency for the Hydrogen Recombiner System is consistent with the intent of Generic Letter 93-05, "Line-Item Technical Specifications Improvement to Reduce Surveillance Requirements for Testing During Power Operation," dated September 27, 1993. The proposed changes will require the hydrogen recombiners to be tested once per 18 months.

The proposed changes do not affect the probability of occurrence or the consequences of the accidents identified in the UFSAR. No new accident precursors are being generated by these proposed changes. The containment purge blowers are not part of the Hydrogen Recombiner System and no credit for their operation is assumed in the accident analysis. Further, testing the Hydrogen Recombiner System once per 18 months provides assurance that the system is capable of performing its intended safety function. Therefore, the consequences of a postulated accident are not increased by this change in the surveillance of the Hydrogen Recombiner System.

The proposed changes will not increase the probability of a malfunction of the system to perform its intended safety function. Not testing the containment purge blowers will not affect any functional capabilities of the Hydrogen Recombiner System. The reduction in the surveillance frequency of the Hydrogen Recombiner System at power has been examined and accepted by the NRC staff in Generic Letter 93-05, Item 8.5. The staff found that while the majority of the testing at power is important, safety can be improved, equipment degradation decreased, and an unnecessary burden on personnel resources eliminated by reducing the amount of testing at power that is required by Technical Specifications.

The proposed changes will not affect plant or Hydrogen Recombiner System operations. Therefore, no new accident precursors are being generated by these proposed changes for the Hydrogen Recombiner System.

The containment purge blowers are not assumed to operate in any analyzed accident. Testing of the Hydrogen Recombiner System once per 18 months is adequate to ensure that the Hydrogen Recombiner System will be capable of performing its intended function. Adding the statement that Specification 3.0.4 is not applicable to Unit 1 is in accordance with Standard Technical Specifications (NUREG-1431). Therefore, these changes to the Hydrogen Recombiner System Technical Specifications do not reduce the margin of safety as described in the Technical Specifications.

Attachment 2

Technical Specifications Changes