



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 43 TO FACILITY OPERATING LICENSE NO. NPF-4

VIRGINIA ELECTRIC AND POWER COMPANY

NORTH ANNA POWER STATION, UNIT NO. 1

DOCKET NO. 50-338

Introduction:

By letter dated June 25, 1982 (Serial No. 373), the Virginia Electric and Power Company (the licensee) requested a change to the Technical Specifications (TS) for the North Anna Power Station, Unit No. 1 (NA-1).

The requested change would add and delete certain containment isolation valves to improve post-accident sampling activities. Also, presently installed manual isolation valves would be replaced with remote operated isolation valves for post-accident containment hydrogen analysis and control equipment. In addition, one manual isolation valve and one check valve have been added to provide increased isolation for the Interior Fire Protection System. And finally, six manual isolation valves have been added to provide forced circulation capabilities for the Steam Generator Wet Layup Circulation System.

A discussion and our evaluation and conclusion regarding the licensee's requested change are provided below.

Discussion:

The proposed change would revise the NA-1 TS 3/4.6.3.1, Table 3.6-1 to reflect the addition and deletion of containment isolation valves.

The addition of two (2) direct-acting solenoid valves (TV-SS103A and TV-SS103B) will be used to replace two (2) air-operated trip valves (TV-SS107A and TV-SS107B) in the Residual Heat Removal System Sample Lines. The double isolation direct-acting solenoid valves are being installed to provide increased assurance of reliable operation during accident conditions. The valves will be normally closed and receive a Phase A signal to assure they are tripped closed on a safety injection signal. These modifications are required to meet the provisions of NUREG-0737, II.B.3, Post-Accident Sampling.

Two air-operated Phase A trip valves (TV-DA103A and TV-DA103B) are being installed on the Post-Accident Sampling System return lines. These valves will reduce radiation levels outside containment should post-accident samples be required to be withdrawn from the reactor coolant system and containment sump. These modifications are required to meet the provisions of NUREG-0737 Item II.B.3, Post-Accident Sampling.

Four (4) manual isolation valves (1-HC-12, 1-HC-31, 1-HC-16, and 1-HC-28) in the hydrogen-recombiner and analyzer system are being replaced with sixteen (16) remote-manual valves (HC-series valves) to upgrade the hydrogen re-combiner and analyzer system. The addition of these remote-manual isolation valves will reduce radiation levels outside the containment should the hydrogen analyzer and recombiner be required to be in service for post-accident conditions.

Eight of these valves are in the suction and return lines for the hydrogen analyzers. These remote-manual valves are TV-HC-100 A&B (in series), TV-HC-101 A&B (in series), TV-HC-102 A&B (in series) and TV-HC-103 A&B (in series).

Eight of these valves are in the suction and discharge lines for the hydrogen recombiners. These remote-manual valves are TV-HC-104 A&B (in series) TV-HC-105 A&B (in series), TV-HC-106 A&B (in series) and TV-HC-107 A&B (in series).

The above modifications are required to meet the provisions of NUREG-0737, Item II.B.2, Post-Accident Shielding.

The Fire Hose Rack Standpipe System is an extension of the Interior Fire Protection System. The fire hose rack standpipe is routed through the Auxiliary Building to penetration no. 34 of Unit 1 Containment. Containment isolation is provided by one manual isolation valve (1-FP-274) and one check valve (1-FP-272).

The Steam Generator Wet Layup Circulation (SGWLC) system is being implemented at NA-1 to augment secondary chemistry control by adding forced circulation capabilities to each of the three steam generators. Each steam generator will have a new two (2) inch penetration installed through the upper shell wall with piping running to existing spare containment penetrations. Return flow to each steam generator will be provided through existing steam generator blowdown lines. The installation of a new piping line from each of the three steam generator shells to a containment penetration requires the installation of six manual isolation valves (1-WT-465, 1-WT-468, 1-WT-488, 1-WT-491, 1-WT-511 and 1-WT-514).

The installation of the SGWLC system for NA-2 was completed prior to initial power operations and the listing and inclusion of the appropriate SGWLC system isolation valves was included in the NA-2 TS (Table 3.6-1) at the time NA-2 was issued a full power license on August 20, 1980.

The Fire Hose Rack Standpipe System is an extension of the Interior Fire Protection System. The fire hose rack standpipe piping is routed through the Auxiliary Building to penetration no. 34 of the NA-1 Containment. Containment isolation is provided by one manual isolation valve (1-FP-274) and one check valve (1-FP-272). These modifications and listing of the appropriate isolation valves in the NA-2 TS (Table 3.6-1) were completed prior to issuance of the full power license for NA-2 on August 20, 1980.

Evaluation:

The upgrading and installation of the above containment isolation valves meets the requirements for Category 1 Containment Isolation Valves specified in the NA-1&2 Final Safety Analysis Report (FSAR). Double barrier protection is provided by two (2) valves to assure that no single failure will result in the loss of containment integrity. Containment penetration piping including the isolation valves is designed to Seismic Category I Requirements.

As stated above, isolation valves TV-SS103A, TV-SS103B, TV-DA103A and TV-DA103B are normally closed and receive a Phase A signal to assure they are tripped closed on a safety injection signal. Maximum isolation time for these valves is specified to be 60 seconds. We have already reviewed Phase A isolation as specified in the NA-1&2 FSAR and found it to be acceptable as well as a maximum closure time of 60 seconds for containment isolation.

The remote-manual valves (HC series) being added for the post-accident containment hydrogen and control equipment and numbered 100 A&B through 107 A&B (sixteen valves in all) will be closed at all times and can be opened only upon remote-manual activation from the control room. Opening of these valves will take place only under specific administrative control as specified in post-accident procedures.

Based on the above, we find the licensee's request to add the above specified valves to the NA-1 TS 3/4.6.3.1, Table 3.6-1, to be acceptable. Also, these valves are necessary to meet the provisions of NUREG-0737, Item II.B.2, Post-Accident Shielding and Item II.B.3, Post-Accident Sampling.

The addition of seven manual isolation and one check valve required to complete the NA-1 modifications for the SGWLC system and the Interior Fire Protection system have already been reviewed and approved for NA-2. Therefore, we find the licensee's request to add the above specified valves to the NA-1 TS 3/4.6.3.1, Table 3.6-1, to be acceptable.

Environmental Consideration

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated, does not create the possibility of an accident of a type different from any evaluated previously, and does not involve a significant reduction in a margin of safety, the amendment does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Date: October 20, 1982

Principal Contributor:

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