

January 29, 2003

Dr. Mario V. Bonaca, Chairman
Advisory Committee on Reactor Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: REPORT ON THE SAFETY ASPECTS OF THE LICENSE RENEWAL
APPLICATION FOR THE NORTH ANNA POWER STATION (NAPS),
UNITS 1 AND 2, AND THE SURRY POWER STATION (SPS), UNITS 1 AND 2

Dear Dr. Bonaca:

In your letter to Chairman Meserve dated December 18, 2002, you summarized the results of the review by the Advisory Committee on Reactor Safeguards (ACRS) of Virginia Electric and Power Company's (Dominion's) license renewal application (LRA) for the NAPS, Units 1 and 2, the SPS, Units 1 and 2, and the NRC staff's final safety evaluation report (SER) on the application. On the basis of its review, the ACRS concluded that all open and confirmatory items had been resolved and that there was reasonable assurance that NAPS, Units 1 and 2, and SPS, Units 1 and 2, could be operated safely in accordance with their current licensing bases for the period of extended operation without undue risk to the health and safety of the public. The ACRS' timely review helped the staff maintain the review schedule. The staff has prepared a recommendation to the Director of the Office of Nuclear Reactor Regulation for the issuance of the NAPS, Units 1 and 2, and SPS, Units 1 and 2, renewed licenses. We appreciate the ACRS' effort in supporting the license renewal activities.

Your December 18, 2002, letter also contains a background discussion section. In the following we address certain comments from this section.

Your Comment:

"We questioned the method by which reactor coolant piping is to be inspected in light of the failure of the initial volumetric inservice inspection to detect vessel nozzle cracking at V.C. Summer. Although continued improvement in the inspection methodology is warranted, the staff considers current methods adequate to detect primary water stress corrosion cracking. This is a generic issue and we remain concerned with the effectiveness of inspection techniques. Dominion has committed to employ best industry practices as they are developed."

Response:

In investigating the V.C. Summer incident, the NRC formed a special inspection team to review activities associated with the weld leakage and cracking and determine if any potential generic issues contributed to the cracking and the failure of the required inservice inspection (ISI) program to detect the cracking. The primary issue identified by the team with potential generic implications was the inability to reliably detect cracks of all sizes using the Code-required

ultrasonic (UT) inspection method. Although the crack that resulted in the leak of boric acid at V.C. Summer was identified by current technology UT inspection, a number of smaller cracks identified by subsequent eddy current (ET) inspections were not previously identified by the code-required UT inspection method.

In an industry initiative under Project No. 689, the Materials Reliability Project (MRP) of the Electric Power Research Institute (EPRI), is currently pursuing a study of any generic implications of primary water stress-corrosion cracking (PWSCC) (NEI letter dated December 14, 2000, ADAMS ML003779569). The MRP is a utility-directed oversight organization of the Pressurized Water Reactor (PWR) Owners Group. The purpose of the MRP is to address and resolve, on a consistent industry-wide basis, PWR material-related issues. This effort is ongoing and the staff is continuing its interactions with the MRP. In addition, when licensees perform ultrasonic examinations of dissimilar metal welds, they are now required to use the more reliable performance demonstration methods stipulated in the ASME code. Dominion has committed to employ the best industry practices as they become available as a result of this study.

Your Comment:

"During the discussion of time-limited aging analyses, we expressed a concern that the applicant had not submitted its evaluations of the reactor vessel margins for pressurized thermal shock and upper shelf energy. . . . We believe that in the future such critical parameters should be reviewed by the staff. The staff agreed to require that these data be provided with future license renewal applications."

Response:

This comment relates to the level of detail for the time-limited aging analyses (TLAAs) in an LRA. The staff agrees with the ACRS' recommendation. In the near term, the staff will obtain more TLAA data from the applicants through requests for additional information (RAIs), as appropriate. For the long term, the staff is discussing with NEI a revision of NEI 95-10, the industry guidance document.

Your Comment:

"In several situations, Dominion and other applicants have committed to actions based on future technology development. In Dominion's case, two examples are (1) the method for inspecting reactor coolant piping, and (2) the method for testing of medium-voltage cables exposed to moisture. The NRC staff needs to continue to keep abreast of these developing technologies and review and approve methodologies at the appropriate time."

Response:

We addressed the inspection of PWSCC in reactor cooling piping, as mentioned above. Regarding the testing of the cables, the industry, through the Institute of Electrical and Electronic Engineers (IEEE), is developing a suitable testing method (e.g., a partial discharge test) for detecting any defects and abnormalities in medium-voltage cables exposed to moisture. The purpose of this test is to determine the adequacy of cables to perform their

intended function. Also, the Office of Nuclear Regulatory Research recently completed an aging assessment of safety-related power cables (NUREG/CR-6794). The assessment identifies other condition-monitoring techniques. The NRC staff will keep abreast of these developing technologies and will review and approve methodologies, as appropriate.

Your Comment:

"License renewal applications include a number of activities and commitments, for example one-time inspections, that will not be accomplished until near the end of the current license period. There is a large amount of inspection activity that needs to be conducted at that time period. The staff is aware of this future work load and is working on a plan to properly manage this significant effort."

Response:

The staff agrees with the ACRS that verifying the implementation of renewal commitments before the end of the current license period will be a significant inspection effort. On December 9, 2002, the staff issued Inspection Procedure (IP) 71003, "Post-Approval Site Inspection for License Renewal," to specify the scope of this inspection. In accordance with the ACRS' recommendation, the staff also plans to include a list of plant-specific comments in IP 71003 to focus the activities of future inspections. Headquarters staff will be working with regional staff to plan and manage the inspection effort.

I hope this responds to the comments in your December 18, 2002 letter.

Sincerely,

/RA/

William D. Travers
Executive Director
for Operations

cc: Chairman Meserve
Commissioner Dicus
Commissioner Diaz
Commissioner McGaffigan
Commissioner Merrifield
SECY

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