

NOV 27 1984

Docket Nos. 50-338  
and 50-339

Mr. W. L. Stewart  
Vice President - Nuclear Operation  
Virginia Electric and Power Company  
Post Office Box 26666  
Richmond, Virginia 23261

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Dear Mr. Stewart:

SUBJECT: NRR TASK FORCE REPORT ON THE SEVEN MAIN TRANSFORMER FAILURES  
AT THE NORTH ANNA POWER STATION, UNITS NO. 1 & NO. 2 (NA-1&2)

We have completed our review of the main transformer failures which occurred at NA-1&2 in the time interval November 29, 1980 to December 5, 1982.

The NRR Task Force obtained the services of the Lawrence Livermore National Laboratory (consultant) which was designated to evaluate the technical aspects of the transformer failures with respect to Probability Risk Assessment (PRA), Failure Modes and Effect Analysis (FMEA), Root Causes, Protection Systems, Modifications Failure Statistics, and Generic Aspects. A copy of the consultant's report on these matters is enclosed. The NRC Task Force concurs with the consultant's findings and conclusions.

In summary, the task force has concluded the following:

- (1) The PRA determined that the contribution from a main transformer failure to plant safety systems which might increase the risk to the public health and safety is negligible.
- (2) The FMEA determined that a main transformer failure can have primary and secondary effects and the extent of those effects depends upon the adequacy of the protection systems for isolating the faulted transformer.
- (3) The evaluation of the Root Causes found no single common cause contributed to the seven failures. Each failure was found to have specific circumstances for initiating the failure.
- (4) The transformer/generator protection systems were found to perform correctly. The design of the protection systems follows good engineering practice.

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- 2 -

- (5) Modifications (as proposed by VEPCO) resulting from the analyses of the transformer failures will improve system reliability and integrity.
- (6) The failure statistics survey found a limited data base from which any meaningful correlation could be ascertained. The statistical comparison found no appreciable anomalies with the NA-1&2 failures.
- (7) The evaluation of all available information and the results of the separate reports on main transformer failures found that several generic concerns may exist. These generic concerns are now being evaluated.

Therefore, based on the above, we are closing out plant specific technical assessment control (TAC) numbers 49525 and 46734 for NA-1&2, respectively. Should any further staff concerns be identified with respect to main transformer failures, they will be initiated on a generic basis.

Finally, the staff wishes to extend its thanks to the Virginia Electric and Power Company for its cooperation in providing the staff with a large amount of documentation (reports, analyses and requests for information) in a most timely manner. In addition, VEPCO personnel were most helpful in assisting the NRR task force during site visits and meetings.

Sincerely,

Original signed by:

James R. Miller, Chief  
Operating Reactors Branch #3  
Division of Licensing

Enclosure:  
As stated

cc: See next page

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