

Mailing Address  
Alabama Power Company  
600 North 18th Street  
Post Office Box 2641  
Birmingham, Alabama 35291  
Telephone 205 783-6081

F. L. Clayton, Jr.  
Senior Vice President  
Flintridge Building



October 8, 1982

Docket No. 50-364

Director, Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Attention: Mr. S. A. Varga

Joseph M. Farley Nuclear Plant - Unit 2  
Turbine Valve Technical Specification Deletion Request

Gentlemen:

In accordance with the Unit 2 Technical Specification 3/4.3.4, Alabama Power Company is required to perform periodic surveillance testing and inspection of turbine valves to demonstrate the operability of the turbine overspeed protection system. These surveillance requirements are intended to provide protection from excessive turbine overspeed conditions and thereby minimize the potential for the generation of missiles.

Alabama Power Company, in conjunction with Westinghouse Electric Corporation, has undertaken a comprehensive review of the effectiveness of the required surveillance testing of the turbine valves as related to the potential for turbine missile generation. This evaluation has determined that the operability of the turbine overspeed protection system is not dependent on periodic valve testing. Additionally, the reliability of the turbine overspeed protection system is sufficient to ensure a low risk of turbine missile generation without conforming to Technical Specification 3/4.3.4 and thereby satisfies the bases of the current surveillance requirements. Consequently, due to unnecessarily subjecting the nuclear steam supply system to cyclical power transients, the cost to perform the surveillance test without concomitant safety benefits, and the potential for turbine missile generation being below that for which technical specification surveillance is required, Alabama Power Company respectfully requests that Technical Specification 3/4.3.4 be deleted.

The current technical specification surveillance requirements can be summarized as follows:

- 1) Test all the turbine stop, governor, reheat stop and reheat intercept valves and observe their movement through the cycle.

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- 2) Perform a channel calibration of the turbine overspeed protection system.
- 3) Disassemble and perform a visual and surface inspection of at least one of each of the turbine stop, governor, reheat stop and reheat intercept valves.

#### Low Potential For Missile Generation

The enclosed WCAP-10161 evaluates the demonstrated reliability of the turbine overspeed protection system and the potential for turbine missile generation. The evaluation considered three cases of turbine overspeed; each overspeed case was viewed with respect to the ability to generate a missile assuming the occurrence of the particular overspeed case.

The probability of an overspeed event is not dependent on the performance of channel calibration or the disassembly and inspection of the turbine valves in accordance with the current technical specification. The failure data used in this study, however, assumed nominal industry preventive maintenance was performed by the surveyed utilities. The promulgation of this proposed technical specification change will in no way compromise the responsibility of Alabama Power Company to satisfy the Farley Nuclear Plant comprehensive preventive maintenance program recommended by the turbine-generator manufacturer.

The evaluation determined the low probability for missile generation to be below that requiring technical specification surveillance based on an annual cycle test of the turbine valves and a five-year inspection interval of the low-pressure turbine discs. Alabama Power Company satisfies the bases for the low probability for missile generation by the following:

- 1) In letter dated September 21, 1981, Alabama Power Company committed to inspect turbine discs in accordance with the criteria delineated in NRC letter dated August 24, 1981. The inspection interval is 5 years or less and satisfies the recommendations of the turbine-generator manufacturer.
- 2) As discussed in the evaluation, WCAP-10161, the only significant difference between turbine trip and a typical turbine valve test is the absence of an observer at the turbine valves. Full turbine valve operation is also evident when unobserved turbine trips occur and the valves are verified to be closed. Verification that all turbine valves are closed following a turbine trip is required by present Farley system operating procedures. Historically for the industry, the average nuclear plant shuts down six (6) times a year. Even if a plant shuts down only to refuel, the average refueling period is one (1) year and the annual cycle test of the turbine valves is satisfied independently of the technical specification requirements.

Therefore, Alabama Power Company has determined that the assumptions used to determine the probability to generate a turbine missile contained in WCAP-10161 are specifically applicable to Farley Nuclear Plant - Unit 2.

The enclosed evaluation, WCAP-10161, shows that the combined worst-case probability for turbine missile generation for all three turbine overspeed cases is less than  $1.4 \times 10^{-5}$  per year which is well below the missile generation probability guidelines of  $10^{-4}$  incidents per year established by Spenser H. Bush and Regulatory Guide 1.115. Consequently, the demonstrated reliability of the turbine overspeed protection system has accomplished the objective of the technical specification surveillance requirements to ensure a low risk of turbine missile generation and therefore justifies the deletion of Technical Specification 3/4.3.4.

#### Ineffectiveness of Turbine Valve Testing

The weekly requirement to test turbine valves, which is now a portion of technical specification surveillance requirements, originated in the mid-50's as a result of engineering judgement associated with fossil plant experience and recognition of the economic importance of the reliable turbine-generation operation. There has never been any safety implication associated with this recommendation.

The effectiveness of turbine valve testing and observation of the valve movement as currently required by Technical Specification 3/4.3.4 is considered by the evaluation. Again, the evaluation addressed the three cases of turbine overspeed. The evaluation concluded that valve failure (i.e., nonoperability) is not dependent on periodic valve testing.

This conclusion is based on the undemonstrated ability of valve testing/observation to influence valve lifetime by identifying necessary repairs or to identify failure precursors (i.e., identification of equipment conditions that could eventually lead to valve failure if not corrected). In other words, valve testing/observation does not preclude degradation leading to a valve failure mode and has little recognized value in detecting an incipient condition leading to failure. Turbine valve testing does not influence valve reliability or failure rates. The primary benefit of valve testing/observation is the potential for detection of failed valves. Consequently, the deletion of turbine valve testing/observation surveillance requirements from Technical Specification 3/4.3.4 would have no adverse impact on the reliability of the turbine overspeed protection system nor reduce overall plant safety.



### No Cost/Safety Benefits

Moreover, the performance of the ineffective valve testing/observation represents unjustified loss of electric generation and unnecessarily subjects the nuclear steam supply system to cyclical power transients. The performance of the weekly technical specification valve test requires power reduction to approximately 85%. The estimated cost of replacement power to perform this weekly turbine valve test is \$54,000 per month or \$650,000 per year. This inability of the valve testing/observation to provide increased assurance of the operability of the turbine overspeed protection system coupled with the unnecessary cyclical power transients and the economic loss associated with its performance justify the deletion of valve testing/observation from Technical Specification 3/4.3.4.

### Conclusion

In conclusion, WCAP-10161 has determined that the potential to generate a turbine missile from a turbine overspeed condition is well below that established by Spenser H. Bush and Regulatory Guide 1.115 and that the current surveillance requirement for turbine valve testing/observation is ineffective and without cost benefits. These conclusions are based on an analysis that is not specifically dependent on the disassembly and inspection of the turbine valves or channel calibration of the turbine overspeed protection system. Therefore, Technical Specification 3/4.3.4 can be deleted without an adverse impact on the reliability of the turbine overspeed protection system or without a reduction in overall plant safety.

Due to the cost of performing the current technical specification surveillance requirements, approval of this proposed technical specification change is respectfully requested by the return to power from the first refueling outage which is currently scheduled for December 1, 1982.

Alabama Power Company's Plant Operations Review Committee has reviewed this proposed Technical Specification change (Attachment 2) and has determined that this change does not involve an unreviewed safety question as shown in the attached safety evaluation (Attachment 1). The Nuclear Operations Review Board is scheduled to review this change at the next meeting.

This submittal contains proprietary information of Westinghouse Electric Corporation. In conformance with the requirements of 10CFR Section 2.790, as amended, of the Commission's regulations, enclosed with this submittal is an application for withholding from public disclosure and an affidavit. The affidavit sets forth the basis on which the information may be withheld from public disclosure by the Commission.

Mr. S. A. Varga  
U. S. Nuclear Regulatory Commission

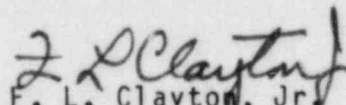
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Correspondence with respect to the affidavit or application for withholding should reference AW-82-51 and should be addressed to R. A. Wiesenmann, Manager, Regulatory and Legislative Affairs, Westinghouse Electric Corporation, P. O. Box 355, Pittsburgh, Pennsylvania 15230.

This proposed amendment is designated as Class III for Unit 2 in accordance with 10 CFR 170.22 requirements. Enclosed is a check for \$4,000.00 to cover the total amount of fees required.

In accordance with 10 CFR 50.30(c)(1)(i) three signed originals and forty (40) additional copies of the proposed changes are enclosed.

Yours truly,

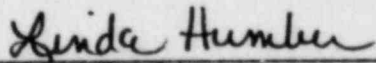
  
F. L. Clayton, Jr.

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Attachments

cc: Mr. R. A. Thomas  
Mr. G. F. Trcwbridge  
Mr. J. P. O'Reilly  
Mr. E. A. Reeves  
Mr. W. H. Bradford

SWORN TO AND SUBSCRIBED BEFORE ME  
THIS 8th DAY OF October 1982

  
\_\_\_\_\_  
Notary Public

My Commission Expires:

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