



PDR

October 6, 1986

Mr. M. Carrington, Project Manager
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

TRANSMITTAL OF FINAL REPORT, "CONFORMANCE TO GENERIC LETTER 83-28 ITEM
4.4 ARKANSAS NUCLEAR ONE UNIT 1, CRYSTAL RIVER UNIT 3, DAVIS-BESSE UNIT 1
OCONEE UNITS 1, 2, AND 3, RANCHO SECO, THREE MILE ISLAND UNIT 1,
WNP 1 - EWR-111-86

Ref: NRC Form 189, "Evaluation-Conformance to Generic Letter 83-28,
Required Actions Based on Generic Implications of Salem ATWS
Events" (FINS D6001 and D6002), September 1984

Dear Mr. Carrington:

Transmitted herewith is the above subject report.

The report documents EG&G Idaho's evaluation of the licensee actions in
response to the NRC Generic Letter 83-28, Item 4.4, Improvements in
Maintenance and Test Procedures for B&W Plants. Based on the licensees'
submittals, we conclude that the licensee conform to the generic letter on
this item.

Very truly yours,

E. W. Roberts, Manager
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FGF:acf

Enclosure:
As Stated

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EGG-NTA-7910
October 1986



**Idaho
National
Engineering
Laboratory**

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of Energy*

INFORMAL REPORT

TECHNICAL EVALUATION REPORT, CONFORMANCE TO
GENERIC LETTER 83-28 ITEM 4.4, ARKANSAS
NUCLEAR ONE UNIT 1, CRYSTAL RIVER UNIT 3,
DAVIS-BESSE UNIT 1, OCONEE UNITS 1, 2, AND 3,
RANCHO SECO, THREE MILE ISLAND UNIT 1, WNP 1

F. G. Farmer



Work performed under
DOE Contract
No. DE-AC07-76ID01570

Prepared for the
U. S. NUCLEAR REGULATORY COMMISSION

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TECHNICAL EVALUATION REPORT
CONFORMANCE TO GENERIC LETTER 83-28

ITEM 4.4

ARKANSAS NUCLEAR ONE, UNIT 1
CRYSTAL RIVER UNIT 3
DAVIS-BESSE UNIT 1
OCONEE UNITS 1, 2 AND 3
RANCHO SECO
THREE MILE ISLAND UNIT 1
WNP 1

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Published October, 1986

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Prepared for the
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555
Under DOE Contract No. DE-AC07-76ID01570
FIN No. D6001 and D6002

ABSTRACT

This EG&G Idaho, Inc. report provides a review of the submittals for Babcock & Wilcox (B&W) nuclear plants for conformance to Generic Letter 83-28, Item 4.4. The group includes the following plants:

<u>Plant</u>	<u>Docket Number</u>	<u>TAC Number</u>
Arkansas Nuclear One, Unit 1	50-313	53952
Crystal River Unit 3	50-302	53953
Davis-Besse Unit 1	50-346	53954
Oconee Unit 1	50-269	53955
Oconee Unit 2	50-270	53956
Oconee Unit 3	50-287	53957
Rancho Seco	50-312	53958
Three Mile Island Unit 1	50-289	53959
WNP 1	50-460	N/A

FOREWORD

This report is provided as part of the program for evaluating licensee/applicant conformance to Generic Letter 83-28, "Required Actions based on Generic Implications of Salem ATWS Events." This work is conducted for the U. S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Division of PWR Licensing-A, by EG&G Idaho, Inc.

The U. S. Nuclear Regulatory Commission funded the work under the authorization, B&R 20-19-19-11-3 and 20-19-40-41-3, FIN No. D6001 and D6002.

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CONFORMANCE TO GENERIC LETTER 83-28

ITEM 4.4

ARKANSAS NUCLEAR ONE, UNIT 1

CRYSTAL RIVER UNIT 1

DAVIS-BESSE UNIT 1

OCONEE UNITS 1, 2 AND 3

RANCHO SECO

THREE MILE ISLAND UNIT 1

WNP 1

1. INTRODUCTION

On July 8, 1983, Generic Letter 83-28¹ was issued by D. G. Eisenhut, Director of the Division of Licensing, Nuclear Reactor Regulation, to all licensees of operating reactors, applicants for operating licenses, and holders of construction permits. This letter included required actions based on generic implications of the Salem ATWS events. These requirements have been published in Volume 2 of NUREG-1000, "Generic Implications of ATWS Events at the Salem Nuclear Power Plant."²

This report documents the EG&G Idaho, Inc. review of the submittals from Arkansas Nuclear One, Unit 1, Crystal River Unit 3, Davis-Besse Unit 1, Oconee Units 1, 2 and 3, Rancho Seco, Three Mile Island Unit 1 and WNP 1 for conformance to Item 4.4 of Generic Letter 83-28. The submittals from the licensees utilized in these evaluations are referenced in Section 12 of this report.

2. REVIEW REQUIREMENTS

Item 4.4 (Reactor Trip System Reliability - Improvements in Maintenance and Test Procedures for B&W Plants) requires licensees and applicants with B&W reactors to apply safety-related maintenance and test procedures to the diverse reactor trip feature provided by interrupting power to control rods through the silicon controlled rectifiers (SCRs). The Item does not require any hardware changes nor additional environmental or seismic qualification of these components, but it does require inclusion of safety related maintenance and test procedures for the SCRs in the appropriate surveillance and test sections of the Technical Specifications.

Responses from the included B&W plants were evaluated against a minimum description of how safety related maintenance and test procedures can be applied to the SCRs in the Control Rod Drive Control System. Each response should:

1. Confirm that the required action has been implemented.
2. Include a brief description of the safety related procedures used to conduct periodic surveillance, testing and maintenance of the SCR diverse reactor trip feature, that includes degating the SCRs and verifies that they have opened the power supply circuit to the control rod drive holding coils.
3. Confirm that Technical Specification changes which include requirements for safety related surveillance and tests of the SCRs to be performed at intervals commensurate with existing test intervals for other safety related portions of the reactor trip system are submitted to the NRC, or verify that these requirements are included in the existing plant Technical Specifications.

3. GROUP REVIEW RESULTS

The relevant submittals from each of the B&W reactor plants were reviewed to determine compliance with Item 4.4. First, the submittals from each plant were reviewed to establish that Item 4.4 was specifically addressed. Second, the submittals were evaluated to determine the extent to which each of the B&W plants complies with the staff guidelines for Item 4.4.

4. REVIEW RESULTS FOR ARKANSAS NUCLEAR ONE, UNIT 1

4.1 Evaluation

Arkansas Power and Light Company (AP&L), the licensee for Arkansas Nuclear One, provided their response to Item 4.4 of the Generic Letter in submittals dated November 5, 1983, and April 24, 1985. In the first response, the licensee states that AP&L supports the B&W Owners Group generic guidelines for SCRs, is evaluating those guidelines and will incorporate those guidelines into procedures "as applicable." That response also states that the safety related Reactor Protection System channel functional test provides for monthly testing of the SCRs with the exception of verification of actual degating. Their response of April 24, 1985, states that testing of the SCRs is conducted using safety related test procedures; verification of degating of the SCRs was added to the procedures and the test procedures now meet the B&W guidelines.

4.2 Conclusion

The licensee's submittals confirm implementation of Item 4.4 of the Generic Letter: testing of the SCRs is conducted using safety related procedures, verification of degating of the SCRs is included in those procedures, and the procedures comply with the BWOG guidelines for this testing. The staff finds this acceptable.

5. REVIEW RESULTS FOR CRYSTAL RIVER UNIT 3

5.1 Evaluation

Florida Power Corporation (FPC), the licensee for Crystal River Unit 3, provided responses to Item 4.4 of the Generic Letter on November 4, 1983, January 16, 1984, and July 31, 1984. In those responses FPC confirmed implementation of Item 4.4, identified the Crystal River Surveillance and Maintenance procedures and requested an amendment to the Crystal River Technical Specifications to explicitly include SCR operability and SCR degating.

5.2 Conclusion

The licensee submittal confirms implementation of Item 4.4 of the Generic Letter, complete with verification of SCR degating. The staff finds that this is acceptable.

6. REVIEW RESULTS FOR DAVIS-BESSE UNIT 1

6.1 Evaluation

Toledo Edison, the licensee for Davis-Besse Unit 1, responded to Item 4.4 of the Generic Letter on December 9, 1983, and on July 9, 1985. The latter response states that Davis-Besse 1 has installed the capability to test the ability of the SCRs to trip the reactor, and that he does intend to apply safety related maintenance and test procedures to the SCRs.

6.2 Conclusion

The licensee submittal confirms implementation of Item 4.4 of the Generic Letter. We have reviewed information describing the testing of the SCR trip feature that is classified as safety related and that includes verification that the SCRs degate and interrupt power to their holding coils. The staff finds this acceptable.

7. REVIEW RESULTS FOR OCONEE UNITS 1, 2 AND 3

7.1 Evaluation

Duke Power Company, the licensee for Oconee units 1, 2 and 3, responded to Item 4.4 of the Generic Letter on November 4, 1983, and August 9, 1985. In those responses, the licensee concurs with the contents of the B&W Owners Group position. The responses also confirm that surveillance and maintenance of the SCRs will be performed under procedures which comply with all requirements of safety related procedures, and state that the surveillance test will be revised to include adequate documentation of verification that the SCRs have appropriately responded to a RPS signal.

7.2 Conclusion

The licensee's response does confirm that the procedures used for maintenance and testing of the SCR trip feature comply with all the requirements of safety related procedures, that the testing of the SCRs is included in Technical Specifications, and that the testing will verify that the SCRs respond to a trip signal. The staff finds that this is acceptable.

8. REVIEW RESULTS FOR RANCHO SECO

8.1 Evaluation

Sacramento Municipal Utility District (SMUD), the licensee for Rancho Seco, provided a response to Item 4.4 of the Generic Letter on November 4, 1983. That response states that SMUD has satisfactorily tested the SCRs using the test procedure prepared by B&W for the B&W Owners Group, and that the SCR test procedure will be incorporated into the monthly Reactor Protection System instrument test procedure. The response did not include the test procedure prepared by B&W, nor did it include a description of the procedure. We have reviewed the BWOG proposed test procedure which provides for the verification of degating of the SCRs by noting a decrease in output current of the affected power supply.

8.2 Conclusion

The licensee response does confirm that the B&W Owners Group recommended test procedures will be used for testing the SCRs and will be incorporated in the RPS monthly test procedure. The staff finds that this is acceptable.

9. REVIEW RESULTS FOR THREE MILE ISLAND UNIT 1

9.1 Evaluation

GPU Nuclear Corporation, the licensee for Three Mile Island Unit 1 (TMI-1), responded to Item 4.4 of the Generic Letter on November 8, 1983. That response states that the SCRs are classified as Nuclear Safety Related at TMI-1, and that, while the trip function of the SCRs was not previously verified, the Reactor Protection System test procedure has been revised to include confirmation of the trip function by verifying a reduction in current from the affected power supply. Administrative Technical Specification changes were submitted to provide explicit inclusion of the SCRs on September 30 and October 9, 1985.

9.2 Conclusion

The licensee's response does confirm that the SCR trip feature is safety related and that procedures would be revised to confirm that the SCRs will open the holding coil circuit when degated. Review of the licensee's safety related procedure confirms that his test procedure includes verification of degating of the SCRs. The staff finds this acceptable.

10. REVIEW RESULTS FOR WNP 1

10.1 Evaluation

Washington Public Power Supply System, the applicant for WNP 1, responded to Item 4.4 of the Generic Letter on March 30, 1984. The response states that the applicant intends to apply safety related maintenance and test procedures to the SCRs.

10.2 Conclusion

The applicant submittal confirms implementation of Item 4.4 of the Generic Letter. However, the licensee's submittal does not include a description of the procedures used. It is evident that the concern of Item 4.4 of Generic Letter 83-28 will be resolved on an industry-wide basis prior to completion of the technical specifications for WNP-1 and will be resolved for this plant during the review and approval process of its technical specifications. Therefore, the staff considers this Item to be closed for this evaluation.

11. GROUP CONCLUSION

The staff concludes that the licensee responses for Item 4.4 of Generic Letter 83-28 are acceptable.

12. REFERENCES

1. NRC Letter, D. G. Eisenhower to all licensees of Operating Reactors, Applicants for Operating License, and Holders of Construction Permits, "Required Actions Based on Generic Implications of Salem ATWS Events (Generic letter 83-28)," July 8, 1983.
2. Generic Implications of ATWS Events at the Salem Nuclear Power Plant NUREG-1000, Volume 1, April 1983; Volume 2, July 1983.
3. Arkansas Power and Light Company letter to NRC, J. Ted Enos to D. G. Eisenhower, Director, Division of Licensing, NRC, "B&W Owners Group Response to Generic Letter 83-28," November 4, 1983.
4. Arkansas Power and Light Company letter to NRC, J. R. Marshall to D. G. Eisenhower, Director, Division of Licensing, NRC, "Arkansas Nuclear One Response to Generic Letter 83-28," November 5, 1983.
5. Arkansas Power and Light Company letter to NRC, J. Ted Enos to Director of Nuclear Reactor Regulation, NRC, "Response to RFI - Items 4.4 and 4.5.3," April 24, 1985.
6. Florida Power Corporation letter to NRC, G. R. Westafer to D. G. Eisenhower, Director, Division of Licensing, NRC, "Crystal River Unit 3 Response to Generic Letter 83-28," November 4, 1983.
7. Florida Power Corporation letter to NRC, G. R. Westafer to D. G. Eisenhower, Director, Division of Licensing, NRC, "Crystal River Unit 3 Technical Specification Change Request No. 111," January 16, 1984.
8. Florida Power Corporation letter to NRC, G. R. Westafer to D. G. Eisenhower, Director, Division of Licensing, NRC, "Crystal River Unit 3 Updated Response to Generic Letter 83-28," July 31, 1984.
9. Toledo Edison letter to NRC, R. P. Crouse to Director of Nuclear Reactor Regulation, NRC, December 9, 1983.
10. Toledo Edison letter to NRC, Joe Williams to Director of Nuclear Reactor Regulation, NRC, July 9, 1985.
11. Duke Power Company letter to NRC, H. B. Tucker to H. R. Denton, Director, Office of Nuclear Reactor Regulation, November 4, 1983.
12. Duke Power Company letter to NRC, H. B. Tucker to H. R. Denton, Director, Office of Nuclear Reactor Regulation, August 9, 1985.
13. Sacramento Municipal Utility District letter to NRC, R. J. Rodriguez to D. G. Eisenhower, Director, Division of Licensing, NRC, "Required Actions Based on Generic Implications of Salem ATWS Events (Generic Letter 83-28)," November 4, 1983.

14. GPU Nuclear Corporation letter to NRC, H. D. Hukill to D. G. Eisenhut, Director, Division of Licensing, NRC, "Required Actions Based on Generic Implications of Salem/ATWS Events," November 8, 1983.
15. Washington Public Power Supply System letter to NRC, G. C. Sorenson to Director of Nuclear Reactor Regulation, "Nuclear Project No. 1, Response to Generic Letter 83-28, Salem ATWS Event," March 30, 1984.

BIBLIOGRAPHIC DATA SHEET

EGG-NTA-7910

SEE INSTRUCTIONS ON THE REVERSE

2. TITLE AND SUBTITLE

Technical Evaluation Report Conformance to Generic Letter 83-28 Item 4.4, Arkansas Nuclear One, Unit 1, Crystal River Unit 3, Davis-Besse Unit 1, Oconee Units 1, 2 and 3, Rancho Seco, Three Mile Island Unit 1, WNP 1

3. LEAVE BLANK

4. DATE REPORT COMPLETED

MONTH

YEAR

October

1986

5. AUTHOR(S)

F. G. Farmer

6. DATE REPORT ISSUED

MONTH

YEAR

October

1986

7. PERFORMING ORGANIZATION NAME AND MAILING ADDRESS (Include Zip Code)

EG&G Idaho, Inc.
Idaho Falls, ID 83415

3. PROJECT/TASK/WORK UNIT NUMBER

9. FIN OR GRANT NUMBER

A6814

10. SPONSORING ORGANIZATION NAME AND MAILING ADDRESS (Include Zip Code)

Division of PWR Licensing A
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, DC 20555

11a. TYPE OF REPORT

b. PERIOD COVERED (Inclusive dates)

12. SUPPLEMENTARY NOTES

13. ABSTRACT (200 words or less)

This EG&G Idaho, Inc. report presents the results of our evaluation of the submittals of the Babcock & Wilcox nuclear plants (except for Bellefonte) for conformance to Generic Letter 83-28, Item 4.4.

14. DOCUMENT ANALYSIS - a. KEYWORDS/DESCRIPTORS

b. IDENTIFIERS/OPEN-ENDED TERMS

15. AVAILABILITY STATEMENT

Unlimited

16. SECURITY CLASSIFICATION

(This page)

Unclassified

(This report)

Unclassified

17. NUMBER OF PAGES

18. PRICE