



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

SAFETY EVALUATION
FORT CALHOUN NUCLEAR POWER STATION, UNIT 1
DOCKET NO. 50-285
GENERIC LETTER 83-28, ITEM 2.2.1
EQUIPMENT CLASSIFICATION
PROGRAMS FOR ALL SAFETY-RELATED COMPONENTS

1.0 INTRODUCTION

Generic Letter 83-28 was issued by the NRC on July 8, 1983 to indicate actions to be taken by licensees and applicants based on the generic implications of the Salem ATWS events. Item 2.2.1 of that letter states that licensees and applicants shall describe in considerable detail their program for classifying all safety-related components other than RTS components as safety-related on plant documents and in information handling systems that are used to control plant activities that may affect these components. Specifically, the licensee/applicant's submittal was required to contain information describing (1) The criteria used to identify these components as safety-related; (2) the information handling system which identifies the components as safety-related; (3) the manner in which station personnel use this information handling system to control activities affecting these components; (4) management controls that are used to verify that the information handling system is prepared, maintained, validated, and used in accordance with approved procedures; and (5) design verification and qualification testing requirements that are part of the specifications for procurement of safety-related components.

The licensee for the Fort Calhoun Nuclear Power Station, Unit 1, submitted a response to Generic Letter 83-28, Item 2.2.1, in a submittal dated November 4, 1983. We have evaluated this response and find it acceptable.

BB05190199 BB0510
PDR ADDCK 05000285
P PDR

Evaluation

In these sections the licensee's responses to the program and each of five sub-items are individually evaluated against guidelines developed by the staff and conclusions are drawn regarding their individual and collective acceptability.

1. Identification Criteria

Guideline: The licensee's response should describe the criteria used to identify safety-related equipment and components. (Item 2.2.1.1)

Evaluation The licensee's response provides a description and supporting information on the criteria used to determine whether a structure, system, or component is safety-related. For the electrical and instrumentation equipment, the response specifies that the criteria used is based on the station FSAR, station QA manual, station diagrams and IEEE standards. For mechanical criteria, the response identifies a special class which corresponds to a safety-class 3 in ANSI N18.2 and other components under ASME Section III code.

Conclusion: The licensee's response meets the staff requirements for this item and is acceptable.

2. Information Handling System

Guideline: The licensee's response should confirm that the equipment classification program includes an information handling system that is used to identify safety-related equipment and components. Approved procedures which govern its development, maintenance, and validation should exist. (Item 2.2.1.2)

Evaluation: The licensee states that the present method for identifying safety-related components is by using the interim electrical CQE list, the station piping and instrumentation diagrams, station structural drawings, technical specifications and updated SAR. The licensee also stated that they are in the process of implementing a program to provide a computerized maintenance control and equipment history.

Conclusion: The licensee's response on this item meets staff requirements and is acceptable.

3. Use of Information Handling System

Guideline: The licensee response should confirm that their equipment classification program includes criteria and procedures which govern the use of the information handling system to determine that an activity is safety-related and the safety-related procedures for maintenance, surveillance, parts replacement and other activities defined in the introduction to 10FR50, Appendix B, are applied to safety related components. (Item 2.2.1.3)

Evaluation: The licensee states that station personnel utilize the CQE list, station diagrams and drawings, Technical Specifications, and updated Safety Analysis Report as required by procedure orders, Operating Manual, QA Manual, Purchase Manual, Generating Station Engineering Manual, and Technical Service Manuals. Collectively, these documents define programs, record handling systems, administrative controls and procedures used to control activities relating to safety-related equipment.

Conclusion: The licensee's response meets staff requirements for this item and is acceptable.

4. Management Controls

Guideline: The licensee/applicant should confirm that management controls used to verify that the procedures for preparation, validation, and routine utilization of the information handling system have been and are being followed. (Item 2.2.1.4)

Evaluation: The licensee's response states that management controls to verify the proper preparation, validation, and use of the CQE list are on two levels. These levels are direct management interaction with the day-to-day procedures and independent audits to verify compliance with the various governing documents. The licensee states that procedures controlling maintenance, surveillance testing, modification and purchasing are reviewed by supervisory and management personnel.

Conclusion: The licensee's response to this item, meets the staff requirements and is acceptable.

5. Design Verification and Procurement

Guideline: The licensee/applicant's response should document that past usage demonstrates that appropriate design verification and qualification testing is specified for the procurement of safety-related components and parts. The specifications should include qualification testing for expected safety service conditions and provide support for licensee's receipt of testing

documentation which supports the limits of life recommended by the supplier. If such documentation is not available, confirmation that the present program meets these requirements should be provided. (Item 2.2.1.5)

Evaluation: The licensee states that all purchasing is done in accordance with their purchasing manual. They further state that the individual initiating the purchase order is responsible for identifying the qualification requirements necessary. These purchase documents are reviewed by QA and appropriate supervisory and management personnel.

Conclusion: The licensee's submittal for this item, meets staff requirements and is acceptable.

6. "Important To Safety" Components

Guideline: Generic Letter 83-28 states that licensee/applicant equipment classification programs should include (in addition to the safety-related components) a broader class of components designated as "Important to Safety." However, since the generic letter does not require licensee/applicant to furnish this information as part of their response, staff review of this sub-item will not be performed. (Item 2.2.1.6)

7. Program

Guideline: Licensee/applicants should confirm that an equipment classification program exists which provides assurance that all safety-related components are designated as safety-related on plant documents such as drawings, procedures, system descriptions, test and maintenance instructions, operating procedures, and information handling systems so that personnel who perform activities that affect

such safety-related components are aware that they are working on safety-related components and are guided by safety-related procedures and constraints. (Item 2.2.1)

Evaluation: The licensee's response to these requirements was contained in a submittal dated November 4, 1983. This submittal describes the licensee's program for identifying and classifying safety-related equipment which meets the staff's requirements as indicated in the preceding sub-item evaluations.

Conclusion: We conclude that the licensee's program addresses the staff concerns regarding equipment classification and is acceptable.

8. References

1. NRC Letter, D.G. Eisenhut to all Licensees of Operating Reactors, Applicants for Operating License, and Holders of Construction Permits, "Required Actions Based on Generic Implication of Salem ATWS Events (Generic Letter 83-28)," July 8, 1983.
2. Omaha Public Power District letter, W.C. Jones, to D.G. Eisenhut, NRC, November 4, 1983, LIC-83-267.

TECHNICAL EVALUATION REPORT

CONFORMANCE TO GENERIC LETTER 83-28, ITEM 2.2.1--
EQUIPMENT CLASSIFICATION FOR ALL OTHER SAFETY-RELATED COMPONENTS:
FORT CALHOUN-1

Docket No. 50-285

R. VanderBeek

Published April 1987

Idaho National Engineering Laboratory
EG&G Idaho, Inc.
Idaho Falls, Idaho 83415

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

~~8706050225~~ 13P

ABSTRACT

This EG&G Idaho, Inc. report provides a review of the submittal for the Fort Calhoun Nuclear Station for conformance to Generic Letter 83-28, Item 2.2.1.

Docket No. 50-285

TAC No. 53673

FOREWORD

This report is supplied 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 being 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 this work under the authorization B&R 20-19-10-11-3, FIN No. D6001.

Docket No. 50-285

TAC No. 53673

CONTENTS

ABSTRACT	11
FOREWORD	111
1. INTRODUCTION	1
2. REVIEW CONTENT AND FORMAT	2
3. ITEM 2.2.1 - PROGRAM	3
3.1 Guideline	3
3.2 Evaluation	3
3.3 Conclusion	4
4. ITEM 2.2.1.1 - IDENTIFICATION CRITERIA	5
4.1 Guideline	5
4.2 Evaluation	5
4.3 Conclusion	5
5. ITEM 2.2.1.2 - INFORMATION HANDLING SYSTEM	6
5.1 Guideline	6
5.2 Evaluation	6
5.3 Conclusion	6
6. ITEM 2.2.1.3 - USE OF EQUIPMENT CLASSIFICATION LISTING	7
6.1 Guideline	7
6.2 Evaluation	7
6.3 Conclusion	7
7. ITEM 2.2.1 4 - MANAGEMENT CONTROLS	8
7.1 Guideline	8
7.2 Evaluation	8
7.3 Conclusion	9

8.	ITEM 2.2.1.5 - DESIGN VERIFICATION AND PROCUREMENT	10
8.1	Guideline	10
8.2	Evaluation	10
8.3	Conclusion	10
9.	ITEM 2.2.1.6 - "IMPORTANT TO SAFETY" COMPONENTS	11
9.1	Guideline	11
10.	CONCLUSION	12
11.	REFERENCES	13

CONFORMANCE TO GENERIC LETTER 83-28, ITEM 2.2.1--
EQUIPMENT CLASSIFICATION FOR ALL OTHER SAFETY-RELATED COMPONENTS:
FORT CALHOUN-1

1. INTRODUCTION

On February 25, 1983, both of the scram circuit breakers at Unit 1 of the Salem Nuclear Power Plant failed to open upon an automatic reactor trip signal from the reactor protection system. This incident was terminated manually by the operator about 30 seconds after the initiation of the automatic trip signal. The failure of the circuit breakers was determined to be related to the sticking of the undervoltage trip attachment. Prior to this incident, on February 22, 1983, at Unit 1 of the Salem Nuclear Power Plant, an automatic trip signal was generated based on steam generator low-low level during plant startup. In this case, the reactor was tripped manually by the operator almost coincidentally with the automatic trip.

Following these incidents, on February 28, 1983, the NRC Executive Director for Operations (EDO), directed the staff to investigate and report on the generic implications of these occurrences at Unit 1 of the Salem Nuclear Power Plant. The results of the staff's inquiry into the generic implications of the Salem unit incidents are reported in NUREG-1000, "Generic Implications of the ATWS Events at the Salem Nuclear Power Plant." As a result of this investigation, the Commission (NRC) requested (by Generic Letter 83-28 dated July 8, 1983¹) all licensees of operating reactors, applicants for an operating license, and holders of construction permits to respond to generic issues raised by the analyses of these two ATWS events.

This report is an evaluation of the response submitted by the Omaha Public Power District for Fort Calhoun Nuclear Station for Item 2.2.1 of Generic Letter 83-28. The actual document reviewed as a part of this evaluation is listed in the references at the end of this report.

2. REVIEW CONTENT AND FORMAT

Item 2.2.1 of Generic Letter 83-28 requests the licensee/applicant to submit, for staff review, a description of their programs for classification of their safety-related equipment including supporting information, in considerable detail, as indicated in the guidelines preceding the evaluation of each item.

As previously stated, each of the six items of Item 2.2.1 is evaluated in a separate section in which the guideline is presented; an evaluation of the licensee's/applicant's response is made; and conclusions about its acceptability are drawn.

3. ITEM 2.2.1 - PROGRAM

3.1 Guideline

Licensee and applicants should confirm that an equipment classification program is in place which will provide assurance that all safety-related components are designated as safety-related on plant documentation such as procedures, system descriptions, test and maintenance instructions and in information handling systems so that personnel performing activities that affect such safety-related components are aware that they are working on safety-related components and are guided by safety-related procedures and constraints. Licensee and applicant responses which address the features of this program are evaluated in the remainder of this report.

3.2 Evaluation

The licensee for Fort Calhoun Nuclear Station provided a response to Generic Letter 83-28 on November 4, 1983.² This submittal included information that describes their safety-related equipment classification program. In the review of the licensee's response to this item, it was assumed that the information and documentation supporting this program is available for audit upon request.

The licensee has provided a description of the equipment classification program for the identification of safety-related components and activities for repair, maintenance, and procurement. However, the response does not directly confirm that all components designated as safety-related in the Q-list are also properly designated on plant documents, procedures and in the information handling systems used for safety-related activities. However, the licensee's response to Item 2.2.1.2 and 2.2.1.3 indicate that the documents used to control safety-related activities from start to finish are marked as safety-related. This is discussed in Sections 5.2 and 6.2 of this report. We consider this to be acceptable.

3.3 Conclusion

We have reviewed the licensee's information and, in general, find that the licensee's response is adequate.

4. ITEM 2.2.1.1 - IDENTIFICATION CRITERIA

4.1 Guideline

The applicant or licensee should confirm that their program used for equipment classification includes criteria used for identifying components as safety-related.

4.2 Evaluation

The licensee's response provides a description and supporting information on the criteria used to determine whether a structure, system, or component is safety-related. For the electrical and instrumentation equipment, the response specifies that the criteria used are based on (1) the station FSAR, (2) the station QA Manual, (3) the station piping and instrumentation diagrams, elementary diagrams, loop diagrams and logic diagrams, and (4) IEEE Standards IEEE-Std-279, 308, 328, 344, 379, 384, and 420.

For the mechanical equipment and component criteria, the response indicates that the ASME Section III code applies. The response also states that the ASME Section III code is in transition from a component concept to a system concept. For the mechanical criteria, the response identifies a special safety class which corresponds to a safety-class 3 in ANSI N18.2 for items which do not fall within the guidelines of the ASME Section III code.

4.3 Conclusion

The licensee's response to this item is considered to be complete and is acceptable.

5. ITEM 2.2.1.2 - INFORMATION HANDLING SYSTEM

5.1 Guideline

The licensee or applicant should confirm that the program for equipment classification includes an information handling system that is used to identify safety-related components. The response should confirm that this information handling system includes a list of safety-related equipment and that procedures exist which govern its development and validation.

5.2 Evaluation

The licensee response states that the Omaha Public Power District's present methods for identifying safety-related components involve the proper utilization and application of five documents. These are (1) the interim electrical CQE list, (2) the station piping and instrumentation diagrams, (3) the station structural drawings, (4) the Fort Calhoun Station Unit No. 1 Technical Specifications, and (5) the Fort Calhoun Station Unit 1 updated Safety Analysis Report. Item 1, 2, and 3 are controlled by the station engineering procedure A-9, "Document Control".

The licensee's response states that the Omaha Public Power District is in the process of implementing a program to provide a computerized maintenance control and equipment history.

5.3 Conclusion

The licensee's response to this item is considered to be complete and is acceptable.

6. ITEM 2.2.1.3 - USE OF EQUIPMENT CLASSIFICATION LISTING

6.1 Guideline

The licensee's description should show how station personnel use the equipment classification information handling system to determine:

(a) when an activity is safety-related, and (b) what procedures are to be used for maintenance work, routine surveillance testing, accomplishment of design changes, and performance of special tests or studies. We should be able to gain confidence from our review that there will be no confusion about when activity is safety-related.

6.2 Evaluation

The licensee's response states that Omaha Public Power district personnel utilize (1) the interim electrical CQE list, (2) the station piping and instrumentation diagrams, (3) the station structural drawings, (4) the Fort Calhoun Station Unit No. 1 Technical Specifications, and (5) the Fort Calhoun Station Unit No. 1 updated Safety Analysis Report as required by procedures, Station Standing Orders, Fort Calhoun Station Operating Manual, Quality Assurance Department Manual, Purchasing Manual, Generating Station Engineering Manual, and Technical Services Manual. Collectively, these documents define programs, record handling systems, administrative controls and procedures to permit District personnel to perform necessary plant functions and maintain a high level of quality at all times. Included in these functions are maintenance, preventive maintenance, testing, modifications, purchasing, records, requirements, audits, equipment storage, reviews, and approvals. Collectively, these processes contain controls to ensure that safety-related equipment is identified as such and handled in an appropriate manner.

6.3 Conclusion

The licensee's response to this item is considered to be complete and is acceptable.

7. ITEM 2.2.1.4 - MANAGEMENT CONTROLS

7.1 Guidelines

Managerial controls that will be used by the licensee to verify that the information handling system for equipment classification has been prepared according to the approved procedures, that its contents have been validated, that it is being maintained current, and that it is being used to determine equipment classification as intended shall be described. The description of these controls shall be in sufficient detail for the staff to determine that they are in place and are workable.

7.2 Evaluation

The licensee's response states that the management controls to verify the proper preparation, validation, and use of the CQE list are on two levels. These two levels are (1) direct management interaction with the day-to-day procedures and (2) independent audits to verify compliance with the various District-governing documents. The four areas of maintenance, surveillance testing, station modification, and purchasing are adequately controlled. Each of these areas has included in the governing procedures required involvement of District supervisory and management personnel in the review cycle to ensure compliance. New surveillance test procedures are reviewed by the Plant Review Committee (PRC) and approval by the Plant Manager. Modification Requests require both Generating Station Engineering (GSE) management and plant staff review. Purchasing requires quality review and management approval.

Independent audits serve to reinforce the management controls. Audits are performed by QA, the SARC (Safety Audit and Review Committee), INPO, American Nuclear Insurers and the NRC. These provide management with information to judge compliance with controlling documents and proper application of these documents.

7.3 Conclusion

The licensee's response for this item is considered to be complete and is acceptable.

8. ITEM 2.2.1.5 DESIGN VERIFICATION AND PROCUREMENT

8.1 Guideline

The applicant's or licensee's submittal should document that past usage demonstrates that appropriate design verification and qualification testing is specified for the procurement of safety-related components and parts. The specifications should include qualification testing for expected safety service conditions and provide support for the applicant's/licensee's receipt of testing documentation to support the limits of life recommended by the supplier. If such documentation is not available, confirmation that the present program meets these requirements should be provided.

8.2 Evaluation

The licensee's response states that the District has defined requirements for purchasing in the Purchasing Manual. The individual initiating the purchase order is responsible for identifying the quality (qualification requirements) data necessary. These purchasing documents are reviewed by QA and appropriate supervisory and management personnel. Appropriate specifications are included with the purchasing document(s).

For electrical equipment located in a harsh environment the District is complying with 10 CFR 50.49 by the guidelines outlined in Standing Order G-17A. As part of this work, the District will also implement a qualified life program by December 1, 1983 for harsh environment electrical equipment.

8.3 Conclusion

We consider the licensee's response for this item to be complete and is acceptable.

9. ITEM 2.2.1.6 - "IMPORTANT TO SAFETY" COMPONENTS

9.1 Guideline

Generic Letter 83-28 states that the licensee's or applicant's equipment classification program should include (in addition to the safety-related components) a broader class of components designated as "Important to Safety." However, since the generic letter does not require the licensee or applicant to furnish this information as part of their response, review of this item will not be performed.

10. CONCLUSION

Based on our review of the licensee's response to the specific requirements of Item 2.2.1, we find that the information provided by the licensee to resolve the concerns of Item 2.2.1 meets the requirements of Generic Letter 83-28 and is acceptable. Item 2.2.1.6 was not reviewed by the staff as noted in Section 9 of this report.

11. REFERENCES

1. NRC Letter, D. G. Eisenhut to all Licensees of Operating Reactors, Applicants for Operating License, and Holders of Construction Permits, "Required Actions Based on Generic Implication of Salem ATWS Events (Generic Letter 83-28)," July 8, 1983.
2. Omaha Public Power District letter, W. C. Jones, to D. G. Eisenhut, NRC, November 4, 1983, LIC-83-267.

38473

NRC FORM 338 (2-84) NRCM 1102 3201, 3202 SEE INSTRUCTIONS ON THE REVERSE	U.S. NUCLEAR REGULATORY COMMISSION BIBLIOGRAPHIC DATA SHEET	1 REPORT NUMBER (Assigned by TIDC add Vol No. if any) <p style="text-align: center;">EGG-NTA-7425</p>								
2 TITLE AND SUBTITLE CONFORMANCE TO GENERIC LETTER 83-28, ITEM 2.2.1-- EQUIPMENT CLASSIFICATION FOR ALL OTHER SAFETY-RELATED COMPONENTS: FORT CALHOUN-1	3 LEAVE BLANK <hr/> 4 DATE REPORT COMPLETED <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; width: 50%;">MONTH</td> <td style="text-align: center; width: 50%;">YEAR</td> </tr> <tr> <td style="text-align: center;">April</td> <td style="text-align: center;">1987</td> </tr> </table> <hr/> 5 DATE REPORT ISSUED <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; width: 50%;">MONTH</td> <td style="text-align: center; width: 50%;">YEAR</td> </tr> <tr> <td style="text-align: center;">April</td> <td style="text-align: center;">1987</td> </tr> </table>		MONTH	YEAR	April	1987	MONTH	YEAR	April	1987
MONTH	YEAR									
April	1987									
MONTH	YEAR									
April	1987									
5 AUTHOR(S) R. VanderBeek	6 PROJECT/TASK/WORK UNIT NUMBER <hr/> 7 FIN OR GRANT NUMBER <p style="text-align: center;">D6001</p>									
8 PERFORMING ORGANIZATION NAME AND MAILING ADDRESS (Include Zip Code) EG&G Idaho, Inc. P. O. Box 1625 Idaho Falls, ID 83415	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									
12 SUPPLEMENTARY NOTES	11a TYPE OF REPORT <hr/> 11b PERIOD COVERED (Inclusive dates)									
13 ABSTRACT (200 words or less)										
<p style="text-align: center;">This EG&G Idaho, Inc., report provides a review of the submittal from the Omaha Public Power District regarding conformance to Generic Letter 83-28, Item 2.2.1 for the Fort Calhoun Nuclear Station.</p>										
14 DOCUMENT ANALYSIS & KEYWORDS DESCRIPTORS <hr/> 15 IDENTIFIERS/OPEN ENDED TERMS	15 AVAILABILITY STATEMENT Unlimited Distribution <hr/> 16 SECURITY CLASSIFICATION (This paper) Unclassified (This report) Unclassified <hr/> 17 NUMBER OF PAGES <hr/> 18 PRICE									