

TECHNICAL EVALUATION REPORT

CONFORMANCE TO GENERIC LETTER 83-28 ITEM 2.2.1--
EQUIPMENT CLASSIFICATION FOR ALL OTHER SAFETY-RELATED COMPONENTS:
DUANE ARNOLD

Docket No. 50-331

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Published August 1989

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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
TAC No. 53669

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SUMMARY

This EG&G Idaho, Inc., report provides a review of the submittals from the Duane Arnold Energy Center for conformance to Generic Letter 83-28, Item 2.2.1. Item 2.2.1 of Generic Letter 83-28 requires licensees and applicants to submit a detailed description of their programs for safety-related equipment classification for staff review. It also describes guidelines that the licensee's or applicant's programs should encompass. This review concludes that the licensee complies with the requirements of this item.

FIN No. D6001

BSR No. 20-19-10-11-3

Docket No. 50-331

TAC No. 53669

PREFACE

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 was conducted for the U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Division of Engineering and System Technology, by EG&G Idaho, Inc., Regulatory and Technical Assistance Unit.

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1. INTRODUCTION

On February 25, 1983, both of the scram circuit breakers at Unit 1 of the Salem Generating Station 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 Generating Station, an automatic trip signal was generated based on steam generator low-low level during plant start-up. 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 NRC staff to investigate and report on the generic implications of these occurrences at Unit 1 of the Salem Generating Station. The results of the staff's inquiry into the generic implications of the Salem Unit 1 incidents are reported in NUREG-1000, "Generic Implications of the ATWS Events at the Salem Generating Station." As a result of this investigation, the Commission (NRC) requested (by Generic Letter 83-28 dated July 8, 1983¹) that all licensees of operating reactors, applicants for an operating license, and holders of construction permits respond to the generic issues raised by the analyses of these two ATWS events.

This report is an evaluation of the responses submitted by the Iowa Electric Light and Power Company, the licensee for the Duane Arnold Energy Center, for Item 2.2.1 of Generic Letter 83-28. The documents reviewed as a part of this evaluation are listed in the References (Section 11) at the end of this report.

2. REVIEW CONTENT AND FORMAT

Item 2.2.1 of Generic Letter 83-28 requests the licensee to submit a description of their programs for safety-related equipment classification for staff review. Detailed supporting information should also be included in the description, as indicated in the guideline section for each item within this report.

As previously indicated, 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 response is made; and conclusions about the programs of the licensee for safety-related equipment classification are drawn.

3. ITEM 2.2.1 - PROGRAM

3.1 Guideline

Licensees should confirm that an equipment classification program is in place that will provide assurance that safety-related components are designated as safety-related on plant documentation. The program should provide assurance that the equipment classification information handling system is used so that activities that may affect safety-related components are designated safety-related. By using the information handling system, personnel are made aware that they are working on safety-related components and are directed to, and are guided by, safety-related procedures and constraints. Licensee responses that address the features of this program are evaluated in the remainder of this report.

3.2 Evaluation

The licensee for the Duane Arnold Energy Center provided a response to Generic Letter 83-28 on February 29, 1984². Additional information was provided in a letter dated June 15, 1989³. These submittals describe the licensee's safety-related equipment classification program. The licensee's Q-200 list is a part of their computerized Equipment Data Base (EDB), which is accessed by the Computerized History and Maintenance Planning System (CHAMPS). CHAMPS is the information handling system referred to.

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.

3.3 Conclusion

We have reviewed the licensee's submittals and, in general, find that the licensee's responses are acceptable.

4. ITEM 2.2.1.1 - IDENTIFICATION CRITERIA

4.1 Guideline

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

4.2 Evaluation

The licensee's response states that Section 2 of the Iowa Electric Corporate Quality Assurance Manual defines the criteria for identifying components as safety-related. The licensee further states (Reference 2) that a new Quality Assurance Program has been implemented and that a new set of equipment classification has been developed, along with procedures that provide guidelines to be used by all organizations. The criteria found in Section 2.4.1 of the Quality Assurance Manual encompass the criteria given in the footnote to Section 2.2.1 of the generic letter.

4.3 Conclusion

The licensee's responses to this item are complete and address the staff's concern. Therefore, we find the licensee's responses for this item acceptable.

5. ITEM 2.2.1.2 - INFORMATION HANDLING SYSTEM

5.1 Guideline

The licensee 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 to govern its development and validation.

5.2 Evaluation

The licensee's Q-200 list is a part of their computerized Equipment Data Base (EDB), which is accessed by the Computerized History and Maintenance Planning System (CHAMPS). CHAMPS is the information handling system referred to. The Q-200 list is the list of safety-related equipment referred to. The licensee states that all documents and procedures, including those related to maintenance, work orders, and parts replacement activities, rely on the Q-200 list for the safety classification of components. The licensee has identified procedures that provide controls and govern the development, validation, verification, and maintenance of the Q-200 list and the CHAMPS. These procedures include Design Engineering Department Procedure 1203.05, "DAEC Safety-related List (Classification of Systems, Structures and Components)," Nuclear Generation Division Procedures 106.13, "Equipment Data Base Control," and 106.16, "Data Base and Data Base Software Control," and Duane Arnold Energy Center Procedure 1406.11, "CHAMPS Software Control."

5.3 Conclusion

The licensee's responses describe a system that meets the recommendations of this item. Therefore, we find the licensee's responses for this item acceptable.

6. ITEM 2.2.1.3 - USE OF THE EQUIPMENT CLASSIFICATION LISTING

6.1 Guideline

The licensee's description should confirm that the program for equipment classification includes criteria and procedures that govern how station personnel use the equipment classification information handling system to determine that an activity is safety-related. The description should also include the procedures for maintenance, surveillance, parts replacement, and other activities defined in the introduction to 10 CFR 50, Appendix B.

6.2 Evaluation

The licensee's responses state that the CHAMPS is used to determine if an activity is safety-related. The CHAMPS is consulted for the preparation of purchase orders, maintenance action requests, design change packages, and special engineering tests.

6.3 Conclusion

We find that the licensee's description of plant administrative controls and procedures meets the requirements of this item. Therefore, we find the licensee's responses for this item acceptable.

7. ITEM 2.2.1.4 - MANAGEMENT CONTROLS

7.1 Guideline

The licensee should briefly describe the management controls that are used to verify that the procedures for preparation, validation, and routine utilization of the information handling system have been, and are being, followed.

7.2 Evaluation

The licensee states (Reference 3) that the responsibility for the development, validation, verification, and maintenance of the Q-200 list and its incorporation into the EDB are the procedural responsibility of the Design Engineering Department. Procedures also place the responsibility for the development, validation, verification, and maintenance of the CHAMPS programs on the Maintenance Engineering Department. The Q-200 list, the EDB, and the CHAMPS have built-in security systems. The Quality Group is responsible for the independent review of all safety-related requests for corrective maintenance, assigned maintenance, and post-maintenance testing. The Quality Assurance Department has an audit program to verify that all procedures that deal with safety-related activities have been followed correctly. The licensee states (Reference 2) that procedures DAEC 1408.1, "Corrective Maintenance," and ACP 1406.1, "Preventative Maintenance Program," contain the management controls for the routine use of the CHAMPS. The licensee states that the CHAMPS augments management control of the information handling system.

7.3 Conclusion

We find that the management controls used by the licensee assure that the information handling system is maintained, is current, and is used as intended. Therefore, we find the licensee's responses for this item acceptable.

8. ITEM 2.2.1.5 DESIGN VERIFICATION AND PROCUREMENT

8.1 Guideline

The licensee's submittals should document that past usage demonstrates that appropriate design verification and qualification testing are specified for the procurement of safety-related components and parts. The specification should include qualification testing for expected safety service conditions and provide support for the 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 specifies that the preparation, review, and approval of safety-related equipment procurement is controlled by Nuclear Generation Division Procedure 104.1, "Preparation, Review and Approval of Purchase Requisitions". Reference 2 describes the necessary qualification verification and test documentation for safety-related equipment that is controlled by the Design Engineering Department Procedure 1204.1, "Preparation and Approval of Engineering Procurement Specification". Review of vendor documentation for adequacy is governed by the Nuclear Generation Division Procedure 104.3, "Review of Supplier Technical Documents".

8.3 Conclusion

We conclude that the licensee has addressed to concerns of this item. Therefore, we find the licensee's responses for this item acceptable.

9. ITEM 2.2.1.6 - "IMPORTANT TO SAFETY" COMPONENTS

9.1 Guideline

Generic Letter 83-28 states that the licensee'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 to furnish this information as part of their response, this item will not be reviewed.

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 these concerns meets the requirements of Generic Letter 83-28 and is acceptable. Item 2.2.1.6 was not reviewed as noted in Section 9.

11. REFERENCES

1. Letter, NRC (D. G. Eisenhut) 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 B3-28)," July 8, 1983.
2. Letter, Iowa Electric Light and Power Company (R. W. McGaughy) to NRC, (H. Denton), February 29, 1984, NG-84-0825.
3. Letter, Iowa Electric Light and Power Company (D. L. Mineck) to NRC, (T. E. Murley), "Response to Request for Additional Information Regarding Iowa Electric's Response to Generic Letter 83-28: 'Required Actions Based on Generic Implications of Salem ATWS Events'," June 15, 1989, NG-89-1705.

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