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SUBJECT: Forwards response to NRC 831019 request for submittal,to extent practical,of info requested in Generic Ltr 83-28, "Required Actions Based on Generic Implications of Salem ATWS Event."

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Iowa Electric Light and Power Company

November 7, 1983
NG-83-3824

Mr. Harold Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Duane Arnold Energy Center
Docket No: 50-331
Op. License No: DPR-49
Generic Letter 83-28: "Required Actions Based on Generic Implications of Salem ATWS Event"

Reference: Letter, D. Vassallo to L. Liu, "Clarification of Required Actions Based on Generic Implications of Salem ATWS Events (Generic Letter 83-28)," October 19, 1983.

Dear Mr. Denton:

This letter is in response to the referenced letter from Mr. Vassallo, which requested that Iowa Electric submit, to the extent practical, the information requested in NRC Generic Letter 83-28, and plans and schedules for developing programs for implementing the NRC positions in the Generic Letter, by November 5, 1983. This letter is being submitted pursuant to the 10 CFR 50.54(f) letter from Mr. Eisenhut, dated July 8, 1983.

The attachment to this letter provides our response to each of the items in the Generic Letter. Where the information is available, it has been provided. Where programs for implementation have been developed, plans and schedules have been included in our responses. For those programs still being developed, in particular for those items on which Iowa Electric is working with the BWR Owners' Group and INPO, we have provided the Owners' Group and INPO schedules for developing their programs. For convenience, the information is provided in a position and response format in which the NRC position is repeated, followed by our response.

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Mr. Harold Denton
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Please contact this office if you require further information as to our responses.

IOWA ELECTRIC LIGHT AND POWER COMPANY

BY Richard W McGaughy
Richard W. McGaughy
Manager, Nuclear Division

Subscribed and sworn to Before Me on
this 7th day of November 1983.

Kathleen M. Furman
Notary Public in and for the State of Iowa

RWM/RAB/dmh*
Attachment: Generic Letter 83-28 Response

cc: R. Browning
L. Liu
S. Tuthill
M. Thadani
NRC Resident Office
Commitment Control No. 83-0267

Generic Letter Item 1.1: Post-Trip Review (Program Description and Procedure)

NRC Position

"Licensees and applicants shall describe their program for ensuring that unscheduled reactor shutdowns are analyzed and that a determination is made that the plant can be restarted safely. A report describing the program for review and analysis of such unscheduled reactor shutdowns should include, as a minimum:"

Sub-Item 1: "The criteria for determining the acceptability of restart."

Iowa Electric Response

First and most importantly, any necessary equipment repairs must be completed and the cause of the reactor trip sufficiently determined to assure safe operation of the plant prior to any restart attempt. This involves completing the scram report and the determination as to whether any safety limits were exceeded. Once these activities are completed, the necessary reviews and management approvals must be obtained before the plant can be restarted.

Sub-Item 2: "The responsibilities and authorities of personnel who will perform the review and analysis of these events."

Iowa Electric Response

The Shift Technical Advisor (STA) has the responsibility to provide technical assistance to the operating staff and to evaluate plant conditions during and following plant transients or accidents. The Operations Shift Supervisor has the responsibility and authority to complete and file the scram report, as well as approve any necessary Maintenance Action Requests (MAR) prior to commencement of the repair work. The Operations Supervisor and Operations Shift Supervisor have the responsiblity to assure that all the necessary maintenance items are completed and that the cause of the reactor scram has been satisfactorily determined prior to plant restart. The final approval for restart is the responsibility of the Plant Superintendent-Nuclear or the Assistant Plant Superintendent-Operations.

Sub-Item 3: "The necessary qualifications and training for the responsible personnel."

Iowa Electric Response

DAEC Technical Specification 6.3.1 requires that the qualification of individual members on the plant staff meet or exceed the qualifications referenced in ANSI N.18.1-1971 for comparable positions. The STA shall have a bachelor degree or equivalent in a scientific or engineering discipline, with specific training in plant design and system response and analysis of plant transients and accidents, as required by Section 6.3.3 of the Technical Specifications. These requirements are based upon the NUREG-0737, Item I.A.1 guidelines.

Sub-Item 4: "The sources of plant information necessary to conduct the review and analysis. The sources of information should include the measures and equipment that provide the necessary detail and type of information to reconstruct the event accurately and in sufficient detail for proper understanding. (See Action 1.2)"

Iowa Electric Response

The scram report outlines the required information for assessing the plant status prior to and following the event. The information contained in the NSSS and Balance-of-Plant (BOP) Post Trip Logs is obtained from the appropriate control room and in-plant instrumentation. These will be described in detail in our response to Generic Letter Item 1.2.

Sub-Item 5: "The methods and criteria for comparing the event information with known or expected plant behavior (e.g., that safety-related equipment operates as required by the Technical Specifications or other performance specifications related to the safety function)."

Iowa Electric Response

The methods for making these comparisons is not proceduralized at this time and is performed on an informal basis only.

The DAEC operators are trained to recognize and respond to abnormal operating transients and accidents. Their training includes transient and accident analysis, as well as computer simulator training on transient and accident mitigation. Procedures are written to ensure proper operator action is taken in these situations and form the bases for the above training. The training and experience of plant operators and their proven ability to recognize and deal with abnormal events serves as the primary method by which actual plant behavior is compared to expected plant behavior (e.g., that safety-related equipment performed as required).

Sub-Item 6: "The criteria for determining the need for independent assessment of an event (e.g., a case in which the cause of the event cannot be positively identified, a competent group such as the Plant Operations Review Committee, will be consulted prior to authorizing restart) and guidelines on the preservation of physical evidence (both hardware and software) to support independent analysis of the event."

Iowa Electric Response

If the cause of the reactor trip cannot be satisfactorily determined by the Operations, Maintenance and STA personnel, then additional Nuclear Generation Division support is requested. For complex equipment problems which cannot be successfully diagnosed or repaired by the plant maintenance staff, the equipment manufacturer's service organization is contacted. If a Technical Specification Safety Limit is determined to be exceeded during the event then the Plant Operations Committee and the Iowa Electric Safety Committee will perform independent assessments of the event prior to plant restart. In such cases, the NRC, itself, must authorize restart as required by Technical Specification Section 6.7.

Pertinent documentation, such as the scram report, NSSS and BOP Logs, Strip Chart Recorder records, MARs, etc, are maintained by Plant Support Services in accordance with Administrative Control Procedure (ACP) 1402.1, "Records Management," and can be retrieved at a later date. The STA also prepares a report after the event, which can be used to reconstruct the event later. This report includes such information as the initial plant conditions, a detailed description of the event, itself, the determined cause of the event, the operator actions taken, any maintenance performed and any recommendations for future actions.

Sub-Item 7: "Items 1 through 6 above are considered to be the basis for the establishment of a systematic method to assess unscheduled reactor shutdowns. The systematic safety assessment procedures compiled from the above items, which are to be used in conducting the evaluation, should be in the report."

Iowa Electric Response

Iowa Electric currently does not have a systematic safety assessment procedure as described in the NRC position above. We are currently working to develop such a procedure using the INPO "Good Practice" on Post-Trip Review as a guideline. Also, Iowa Electric is a member of the BWR Owners' Group (BWROG) committee addressing those items in the Generic Letter which are viewed as being generic to all BWR's. One of the areas the committee is working on is to prepare guidelines for utilities to use to develop a systematic procedure for assessing reactor shutdowns. Iowa Electric will also make use of the BWROG guidelines in writing its procedures. The BWROG committee expects to have its final report ready to issue to the member utilities by the end of February, 1984. Iowa Electric will provide its plans and schedule for submitting its response to the Generic Letter item at that time.

Further, we note that 10 CFR 50.73 (effective 1/1/84) requires reporting of reactor scrams to the NRC, as well as an evaluation of the event. Work is currently underway to revise the necessary procedures to address these new NRC regulations.

Generic Letter Item 1.2: Post-Trip Review - Data and Information Capability

NRC Position

"Licensees and applicants shall have or have planned a capability to record, recall and display data and information to permit diagnosing the causes of unscheduled reactor shutdowns prior to restart and for ascertaining the proper functioning of safety-related equipment.

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A report shall be prepared which describes and justifies the adequacy of equipment for diagnosing an unscheduled reactor shutdown."

Iowa Electric Response

The information display and recording instrumentation systems installed at the DAEC are described in the Updated FSAR. These instrumentation systems were designed for the licensing requirements that existed at the time the original operating license was granted for the DAEC. This instrumentation has been expanded since the original licensing reviews as needed to meet the necessary licensing requirements, for example, NUREG-0737.

As the information requested in the NRC position is beyond the original licensing requirements, Iowa Electric has initiated a review to specifically identify information capability that assists in assessing the causes of reactor trips. Our current schedule for submitting our report is the end of February, 1984. Part of this effort includes working with GE, through the BWROG, to develop the requested information.

Generic Letter Item 2.1: Equipment Classification and Vendor Interface (Reactor Trip System Components)

NRC Position:

Sub-Item 1: "Licensees and applicants shall confirm that all components whose functioning is required to trip the reactor are identified as safety-related on documents, procedures, and information handling systems used in the plant to control safety-related activities, including maintenance, work orders, and parts replacement."

Iowa Electric Response:

Iowa Electric is working with the BWROG and GE to obtain the necessary information on classification of components in order to perform the required reverification of the existing Iowa Electric component classifications. The BWROG program is still under development at this time. The Committee plans to have the program defined and a schedule developed for completing the work as part of its final report due to be issued at the end of February, 1984. As Iowa Electric's program for this reverification effort is completely dependent upon the BWROG program, we cannot commit to a definitive schedule until after reviewing the BWROG report.

Sub-Item 2: "In addition, for these components, licensees and applicants shall establish, implement and maintain a continuing program to ensure that vendor information is complete, current and controlled throughout the life of the plant, and appropriately referenced or incorporated in plant instructions and procedures."

Iowa Electric Response:

Iowa Electric currently primarily relies upon the GE Customer Services Organization to obtain vendor information on the RTS, as well as the remaining systems within the GE scope of supply. The process by which this information is made available to utility personnel for review is described in Nuclear Generation Division (NGD) procedure 102.1, "Review of Industry-Related Documents." This also covers the handling of technical information from other key sources as well, such as INPO/NSAC Significant Operating Experience Reports (SOER) and NRC IE Bulletins, Circulars, and Information Notices.

In order to determine that we have GE's latest information regarding the RTS, Iowa Electric is working with GE through the BWROG to develop a program to obtain this information. This program will be described in the committee's final report due to be issued at the end of February, 1984. Once the information is obtained from GE, it will be reviewed per procedure NGD 102.1, described above.

Generic Letter Item 2.2.1: Equipment Classification (Programs for All Safety-Related Components)

NRC Position

"For equipment classification, licensees and applicants shall describe their program for ensuring that all components of safety-related systems necessary for accomplishing required safety functions are identified as safety-related on documents, procedures, and information handling systems used in the plant to control safety-related activities, including maintenance, work orders and replacement parts."

Sub-Item 1: "The criteria for identifying components as safety-related within systems currently classified as safety-related."

Iowa Electric Response

The current criteria used for identifying components as safety-related are defined in the Iowa Electric Corporate Quality Assurance Manual, Chapter 2, Section 2.2.1, "Quality Level I."

Equipment purchased as part of the original plant were procured and classified in accordance with the updated FSAR criteria.

Sub-Item 2: "A description of the information handling system used to identify safety-related components (e.g., computerized equipment list) and the methods used for its development and validation."

Iowa Electric Response

The Iowa Electric information handling system used to identify safety-related components is a computerized equipment list known as the "Q-200" list. The Design Engineering Department has the responsibility for developing and maintaining this list. Administrative Control Procedure (ACP) 1202.6 Section 6.2 "Safety Evaluations" describes the process for making modifications to the Q-200 List, while ACP 1202.8 "Safety-Related Classification List" details the process for making changes to the information handling system.

Iowa Electric has recently implemented a new Quality Assurance Program. As part of this program a new set of equipment classifications has been developed. We are currently working to develop a procedure, (NGD 102.4, "Quality Level Designation"), which will provide guidelines to be used by all organizations which support the DAEC in determining the Quality Level of systems, structures and components. We expect to have this procedure written and issued for use by the end of 1983. This will necessitate that the Q-200 List be updated to correspond to these new Quality Level definitions. As part of this update process, the current Q-200 List of safety-related components will undergo reverification. This update program is currently scheduled to begin May 1984 and tentatively scheduled to be completed by the end of the year.

As part of the BWROG effort previously described, the committee has contracted GE to help develop guidelines for classifying equipment as safety-related. These guidelines can be used as an educational tool for instructing utility personnel in the classification of components. The committee plans to make this information available to the utilities in its generic report, which is scheduled to be completed by the end of February, 1984. Iowa Electric will review this information and incorporate it into the above procedures, as deemed appropriate.

Sub-Item 3: "A description of the process by which station personnel use this information handling system to determine that an activity is safety-related and what procedures for maintenance, surveillance, parts replacement and other activities defined in the introduction to 10 CFR 50, Appendix B, apply to safety-related components."

Iowa Electric Response

Determination of safety-related activities is based upon the component's classification on the Q-200 List. If a component is classified as safety-related, then testing and maintenance activities on that component, if the activity is determined to affect the safety-related function of the component, are classified as safety-related.

The control of plant work on safety-related components is described by DAEC procedure 1408.1, "Corrective Maintenance." This procedure addresses the controls for the use of maintenance instructions, parts replacement, quality control, testing, and return to service for safety-related corrective maintenance. Preventative maintenance activities are controlled by ACP 1406.1, "Preventative Maintenance Program."

The Q-200 update program described previously is part of a larger program for installing an equipment database management system called the Computerized History and Maintenance Planning System (CHAMPS) at the DAEC. CHAMPS will use the updated Q-200 List as part of its engineering database for scheduling the maintenance and surveillance testing of safety-related components. CHAMPS will be an improvement in the current information handling system for safety-related activities, in that all the required information for performing maintenance and surveillance testing of safety-related components will be included in the CHAMPS database and thus more readily available to plant personnel.

Sub-Item 4: "A description of the management controls utilized to verify that the procedures for preparation, validation and routine utilization of the information handling system have been followed."

Iowa Electric Response

DAEC procedure 1408.1 and ACP 1406.1, described above, contain the management controls for "the routine utilization of the information handling system." The Quality Control group has the responsibility for independently reviewing all safety-related requests for corrective maintenance, as well as the assigned maintenance and post-maintenance test prior to performance of the work.

A Supervising Engineer, Nuclear Projects has the responsiblity for reviewing and approving all changes to the Q-200 List as described in ACP 1202.8, (see Sub-Item 2).

The overall management control for verifying that all procedures dealing with safety-related activities have been followed correctly is performed by the Quality Assurance Department's Audit program, as described in Section 17.2.18 of the Updated FSAR (UFSAR), attached.

The CHAMPS program described earlier will augment management control over the routine utilization of the information handling system.

Sub-Item 5: "A demonstration that appropriate design verification and qualification testing is specified for procurement of safety-related components. The specifications shall include qualification testing for expected safety service conditions and provide support for the licensees' receipt of testing documentation to support the limits of life recommended by the supplier."

Iowa Electric Response

Nuclear Generation Division procedure 104.1, "Preparation, Review and Approval of Purchase Requisitions" requires that the appropriate vendor documentation be specified when procuring safety-related equipment. The Design Engineering Department, through procedure 1204.1, "Preparation and Approval of Engineering Procurement Specification" is responsible for requesting the necessary quality verification and test results documents from the equipment vendor. Once these documents are received from the vendor they are reviewed by Design Engineering for adequacy, prior to their inclusion in the Master Document List; per Nuclear Generation Division procedure 104.3, "Review of Supplier Technical Documents."

Generic Letter Item 2.2.2: Vendor Interface (Programs for All Safety-Related Components)

NRC Position

"For vendor interface, licensees and applicants shall establish, implement and maintain a continuing program to ensure that vendor information for safety-related components is complete, current and controlled throughout the life of their plants, and appropriately referenced or incorporated in plant instructions and procedures, etc."

Iowa Electric Response

Iowa Electric currently does not have a vendor interface program as described by the NRC position above except for the program outlined in our response to Generic Lettter Item 2.1. Vendor technical information is generally solicited as part of the equipment procurement process previously described. Upon receipt of such information, it is reviewed per Nuclear Generation Division procedure 104.3, "Review of Supplier Technical Documents," prior to its incorporation into the Master Document List. This information is used to write the necessary test and maintenance procedures for that equipment, per ACP 1406.2, "Maintenance Procedures," and the DAEC Surveillance Manual as controlled by ACP 1408.3, "Surveillance Program."

Iowa Electric is a member of the INPO Nuclear Utility Task Action Committee (NUTAC) working to develop a vendor interface program (VIP). The NUTAC is currently investigating several proposals for their VIP. The final report outling the committee's recommendation is scheduled to be issued in early February 1984. Iowa Electric will submit its plans and schedules for implementing a VIP after reviewing the NUTAC report.

Generic Letter Item 3.1: Post-Maintenance Testing (Reactor Trip System Components)

NRC Position

"The following actions are applicable to post-maintenance testing:"

Sub-Item 1: "Licensees and applicants shall submit the results of their review of test and maintenance procedures and Technical Specifications to assure that post-maintenance operability testing of safety-related components in the reactor trip system is required to be conducted and that the testing demonstrates that the equipment is capable of performing its safety functions before being returned to service."

Iowa Electric Response

DAEC procedure 1408.1, "Corrective Maintenance," requires appropriate post-maintenance testing be assigned during the initial review and acceptance of a maintenance request on all safety-related equipment. Sometimes post-maintenance testing is not required to be performed, based upon the nature of the maintenance activity. The assigned test is reviewed and approved for applicability prior to the performance of the maintenance activity. It is required that the approved test be satisfactorily performed prior to the system or component being declared operable. Where applicable, the post-maintenance test often consists of performing the regular Surveillance Test Procedure (STP) for that system or component. The review of STP's for adequacy is an on-going effort at Iowa Electric as part of our plant surveillance program, as described in ACP 1408.3, "Surveillance Program."

Sub-Item 2: "Licensees and applicants shall submit the results of their check of vendor and engineering recommendations to ensure that any appropriate test guidance is included in the test and maintenance procedures or the Technical Specifications, where required."

Iowa Electric Response

Iowa Electric is presently working with the BWROG to obtain the latest recommendations from GE regarding the RTS, as described in our response to Item 2.1. This information will be reviewed, per procedure NGD 102.1, "Review of Industry-Related Documents," for inclusion in the appropriate procedures, as it is made available to us.

Sub-Item 3: "Licensees and applicants shall identify, if applicable, any post-maintenance test requirements in existing Technical Specifications which can be demonstrated to degrade rather than enhance safety. Appropriate changes to these test requirements, with supporting justification, shall be submitted for staff approval. (Note that action 4.5 discusses on-line system functional testing.)"

Iowa Electric Response

Iowa Electric has completed its review of the existing post-maintenance test requirements in the Technical Specifications and have found none which we believe degrade plant safety.

Generic Letter Item 3.2: Post-Maintenance Testing (All Other Safety-Related Components)

NRC Position

"The following actions are applicable to post-maintenance testing:"

Sub-Item 1: "Licensees and applicants shall submit a report documenting the extending of test and maintenance procedures and Technical Specifications review to assure that post-maintenance operability testing of all safety-related equipment is required to be conducted and that the testing demonstrates that the equipment is capable of performing its safety functions before being returned to service."

Iowa Electric Response

As previously described in our response to Generic Letter Item 3.1, appropriate post-maintenance testing of all safety-related equipment is conducted and such tests are reviewed for adequacy. In addition, Section 4.6.G.2 of the DAEC Technical Specifications requires that appropriate inservice testing of major pumps and valves be conducted in accordance with Section XI of the ASME Boiler and Pressure Vessel Code (except where NRC relief has been granted). This requirement is administered by procedure ACP 1408.7, "ASME Pump and Valve Testing."

Sub-Item 2: "Licensees and applicants shall submit the results of their check of vendor and engineering recommendations to ensure that any appropriate test guidance is included in the test and maintenance procedures or the Technical Specifications where required."

Iowa Electric Response

Iowa Electric is currently developing its program for responding to this item. This program is dependent upon the results of the NUTAC Vendor Interface Program being developed in response to Generic Letter Item 2.2.2. The NUTAC currently expects to have its final report issued early in February, 1984. Therefore, we will submit our program outline and implementation schedule after reviewing the NUTAC report.

Sub-Item 3: "Licensees and applicants shall identify, if applicable, any post-maintenance test requirements in existing Technical Specifications which are perceived to degrade rather than enhance safety. Appropriate changes to these test requirements, with supporting justification, shall be submitted for staff approval."

Iowa Electric Response

Iowa Electric has completed its review of the existing post-maintenance test requirements in the Technical Specifications and have found none which are perceived to degrade plant safety.

Generic Letter Item 4.1: Reactor Trip System Reliability (Vendor-Related Modifications)

NRC Position

"All vendor-recommended reactor trip breaker modifications shall be reviewed to verify that either: (1) each modification has, in fact, been implemented; or (2) a written evaluation of the technical reasons for not implementing a modification exists.

For example, the modifications recommended by Westinghouse in NCD-Elec-18 for the DB-50 breakers and a March 31, 1983, letter for the DS-416 breakers shall be implemented or a justification for not implementing shall be made available. Modifications not previously made shall be incorporated or a written evaluation shall be provided."

Iowa Electric Response

This Generic Letter Item applies only to PWR licensees and OL applicants. The Duane Arnold Energy Center is a boiling water type reactor and, thus, the above position is not applicable to Iowa Electric.

Generic Letter Item 4.2: Reactor Trip System Reliability (Preventative Maintenance and Surveillance Program for Reactor Trip Breakers)

NRC Position

"Licensees and applicants shall describe their preventative maintenance and surveillance program to ensure reliable reactor trip breaker operation. The program shall include the following:

1. A planned program of periodic maintenance, including lubrication, housekeeping, and other items recommended by the equipment supplier.

2. Trending of parameters affecting operation and measured during testing to forecast degradation of operability.

3. Life testing of the breakers (including the trip attachments) on an acceptable sample size.

4. Periodic replacement of breakers or components consistent with demonstrated life cycles."

Iowa Electric Response

As with Generic Letter Item 4.1, this position applies only to PWR licensees and OL applicants and, therefore, is not applicable to Iowa Electric.

Generic Letter Item 4.3: Reactor Trip System Reliability (Automatic Actuation of Shunt Trip Attachment for Westinghouse and B&W Plants)

NRC Position

"Westinghouse and B&W reactors shall be modified by providing automatic reactor trip system actuation of the breaker shunt trip attachments. The shunt trip attachment shall be considered safety-related (Class IE)."

Iowa Electric Response

The Duane Arnold Energy Center is a Boiling Water Reactor manufactured by the General Electric Company and, therefore, the above position is not applicable to Iowa Electric.

Generic Letter Item 4.4: Reactor Trip System Reliability (Improvements in Maintenance and Test Procedures for B&W Plants)

NRC Position

"Licensees and applicants with B&W reactors shall 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."

Iowa Electric Response

As stated in our response to Generic Letter Item 4.3, the Duane Arnold Energy Center was manufactured by the General Electric Company and, therefore, the above position does not apply to Iowa Electric.

Generic Letter Item 4.5: Reactor Trip System Reliability (System Functional Testing)

NRC Position

"On-line functional testing of the reactor trip system, including independent testing of the diverse trip features, shall be performed on all plants."

Sub-Item 1: "The diverse trip features to be tested include the breaker undervoltage and shunt trip features on Westinghouse, B&W (see Action 4.3 above) and CE plants; the circuitry used for power interruption with the silicon controlled rectifiers on B&W plants (see Action 4.4 above); and the scram pilot valve and backup scram valves (including all initiating circuitry) on GE plants."

Sub-Item 2: "Plants not currently designed to permit periodic on-line testing shall justify not making modifications to permit such testing. Alternatives to on-line testing proposed by licensees will be considered where special circumstances exist and where the objective of high reliability can be met in another way."

Iowa Electric Response

Iowa Electric is working with the BWROG and GE to develop a report describing the on-line functional testing capability of the RTS in BWRs. The report will also include justification that the current testing capability is adequate for assuring high system reliability and, therefore, no modifications to the system will be required. This report will be included in the BWROG final report currently scheduled to be issued at the end of February, 1984.

Sub-Item 3: "Existing intervals for on-line functional testing required by Technical Specifications shall be reviewed to determine that the intervals are consistent with achieving high reactor trip system availability when accounting for considerations such as:

1. uncertainties in component failure rates
2. uncertainty in common mode failure rates
3. reduced redundancy during testing
4. operator errors during testing
5. component "wear-out" caused by the testing

Iowa Electric Response

Iowa Electric is working with the BWROG to address this item. The BWROG expects to have its program defined and schedule for completing the assessment in its February, 1984 final report.