NUREG-0117
Supplement No. 6
to NUREG-75/034

Safety Evaluation Report

related to the operation of
Joseph M. Farley Nuclear Plant
Unit 2

Docket No. 50-364

Alabama Power Company
Supplement No. 6

U.S. Nuclear Regulatory Commission

Office of Nuclear Reactor Regulation

March 1981

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1 INTRODUCTION AND GENERAL DISCUSSION

1.1 Introduction

On May 2, 1975, the Nuclear Regulatory Commission (Commission) issued its Safety Evaluation Report in the matter of Alabama Power Company's application to operate the Joseph M. Farley Plant Units 1 and 2. The Safety Evaluation Report (SER) was supplemented by Supplement Nos. 1, 2, and 3 prior to issuance of the Unit 1 operating license.

On September 30, 1980, the Commission issued Supplement No. 4 to the Safety Evaluation Report related to the issuance of a fuel-loading and low-power testing license for Farley Unit 2.

On October 23, 1980, Facility License No. NPF-8 was issued to Alabama Power Company (licensee) to permit fuel loading, criticality, and testing at power levels not to exceed five percent of rated power.

On March 19, 1981, the Commission issued Supplement No. 5 to the Safety Evaluation Report, related to the issuance of a full-power license for Farley Unit 2. The purpose of this supplement is to update our Safety Evaluation Report by providing our evaluation of outstanding issues identified in SER Supplement No. 5, and providing errata to SER Supplement No. 5 (Appendix D).

There are three items which are addressed in this supplement.

- Conclusions of the staff regarding its review of the conformance of the environmental qualification of safety-related electrical equipment to NUREG-0588. (Section 7.7.2)

- Response of the licensee to Appendix R, "Fire Protection Program," in 10 CFR Part 50 (Section 9.5).

- Findings of the Federal Emergency Management Agency on the November 19 and 20, 1980 exercise of the emergency response by the licensee and by State and local emergency organizations. (Item III.A.1.1, Section 22.3)

We conclude that the Farley Unit 2 facility may be operated safely at full power in accordance with the facility license and Technical Specifications without undue risk to the health and safety of the general public.

7 INSTRUMENTATION AND CONTROLS

7.7 Environmental and Seismic Qualification

7.7.2 Environmental Qualification of Safety-Related Electrical Equipment

In Supplement 5 to the SER, we reported the results of our evaluation of licensee's review to determine the degree of conformance of qualification documentation with NUREG-0588, "Interim Staff Position on Environmental Qualification of Safety-Related Electrical Equipment." We stated that as a result of our evaluation, we identified deficiencies requiring additional information or corrective action by the licensee. The preliminary results of our review are contained in an equipment evaluation report which was provided to the licensee by our letter dated March 4, 1981. In that letter, we requested the licensee to provide its overall finding supporting the safe operation of Farley 2 with regard to compliance with General Design Criterion 4, "Environmental and Missile Design Basis" taking into account the preliminary results of our review presented in the equipment evaluation report.

By letter dated March 4, 1981, licensee provided its finding, as follows:

> "Alabama Power Company has reviewed the preliminary results of the NRC evaluation of the Farley Unit 2 response to NRC NUREG-0588 that was provided in your letter of March 4, 1981. Alabama Power Company has conducted a review of these potential deficiencies and has made an assessment of the impact on the safe operation of the Farley Nuclear Plant. We find that in the interim until detailed resolution, none of these potential deficiencies will significantly impact the safe operation of the Farley Nuclear Plant, and the plant continues to meet General Design Criterion 4. Based on the results of this review, we have concluded that Farley Unit 2 can operate safely.
>
> "In accordance with the provisions of your March 4, 1981 letter, it is our intention to provide an item-by-item reevaluation in a detailed documented manner at a later date."

We have considered licensee's response in our safety evaluation of environmental qualification in which we have finalized our conclusions and requirements. Our safety evaluation is included as Appendix B to this supplement. We conclude that there is reasonable assurance of safe operation of Farley 2, pending completion of the corrective actions identified in the safety evaluation in Appendix B to this supplement. We further conclude that the licensee meets the applicable requirements of General Design Criterion 4, "Environmental and Missile Design Bases" because our interim requirements have been met. The Commission Memorandum and Order CLI-80-21 requires that compliance with all aspects of NUREG-0588 by June 30, 1982 will be required to remain in conformance with General Design Criterion 4. We will include a condition in the license requiring a description of these corrective actions within 90 days of

licensee's receipt of this supplement and completion of these corrective actions by June 30, 1982.

9 AUXILIARY SYSTEMS

9.5 Fire Protection Systems

In Supplement 5 to the Safety Evaluation Report we concluded that the Farley 2 fire protection program will meet all the requirements of Appendix R to 10 CFR Part 50 when committed modifications have been completed. By letter dated March 19, 1981, licensee provided its response to requirements in § 50.48 and Appendix R to 10 CFR Part 50. We will include a license condition requiring the licensee to comply with Appendix R to 10 CFR Part 50 in accordance with the requirements of 10 CFR Part 50.48.

22 TMI-2 REQUIREMENTS

22.3 Full-Power Requirements

III.A.1.1 Upgrade Emergency Preparedness

In Supplement 5 to the SER, we concluded, subject to favorable Federal Emergency Management Agency (FEMA) findings, that licensee meets the emergency response plan requirements for a full-power license.

By letter dated March 11, 1981 from John W. McConnell, FEMA, to William J. Dircks, NRC, the FEMA found that subject to one condition, the plans and preparedness at and around the environs of the Farley facility provides reasonable assurance that appropriate protective measures for the public can and will be taken in the event of a radiological emergency. The condition, to require completion of the alerting and notification system by July 1, 1981, will be included as a condition in the license. The FEMA letter is included as Appendix C to this supplement.

23 CONCLUSIONS

Based on our evaluation of the application as set forth in our Safety Evaluation Report issued on May 2, 1975 and Supplement Nos. 1 through 5 and our evaluation as set forth in this supplement, we conclude, that the operating license can be issued to allow power operations at full rated power (2652 megawatts thermal) subject to license conditions which will require further Commission approval and license amendments before the stated condition can be removed.

We conclude that the construction of the facility has been completed in accordance with the requirements of Section 50.57(a)(1) of 10 CFR Part 50, and that construction of the facility has been monitored in accordance with the inspection program of the Commission's staff.

Subsequent to the issuance of the operating license for full rated power for the Joseph M. Farley Nuclear Plant, Unit 2, the facility may then be operated only in accordance with the Commission's regulations and the conditions of the operating license under the continuing surveillance of the Commission's staff.

We conclude that the activities authorized by the license can be conducted without endangering the health and safety of the public, and we reaffirm our conclusions as stated in our Safety Evaluation Report and its supplements.

APPENDIX A

SUPPLEMENT TO THE CHRONOLOGY OF THE RADIOLOGICAL SAFETY REVIEW

APPENDIX A

Supplement to the Chronology
of the
Radiological Safety Review

February 18, 1981	Letter from State of Alabama Department of Public Health to NRC staff requesting assistance in developing an improved dose calculation method.
February 20, 1981	Letter from licensee providing Revision 2 to the Physical Security Plan.
February 26, 1981	Letter from licensee stating modifications resulting from SQRT review have been completed.
March 4, 1981	Letter to licensee providing preliminary results of our review of environmental qualification of safety-related electric equipment and requesting licensee's finding supporting safe operation in light of our results.
March 4, 1981	Letter from licensee confirming basis for loss of flow trip setpoint.
March 4, 1981	Letter from licensee providing results of sound measurements in control room with air handling system modifications completed.
March 6, 1981	Letter from licensee providing its finding that potential deficiencies identified by staff's preliminary report on environmental qualification would not significantly impact safe operation of Farley 2.
March 19, 1981	Letter from licensee providing its response to 10 CFR 50.48 requirements on the fire protection program.
March 20, 1981	Letter from licensee providing its commitment to modify subcooling meter display by May 31, 1981.
March 24, 1981	Letter from licensee requesting temporary change to Technical Specifications to modify service water recirculation piping.
March 25, 1981	Letter from licensee transmitting FSAR Amendment No. 77 incorporating additional information provided during the operating license review.

APPENDIX B

SAFETY EVALUATION

OF

ENVIRONMENTAL QUALIFICATION

OF

SAFETY-RELATED

ELECTRICAL EQUIPMENT

CONTENTS

ENVIRONMENTAL QUALIFICATION OF SAFETY-RELATED ELECTRICAL EQUIPMENT

1 INTRODUCTION

General Design Criteria 1 and 4 specify that safety-related electrical equipment in nuclear facilities must be capable of performing its safety-related function under environmental conditions associated with all normal, abnormal, and accident plant operation. In order to ensure compliance with the criteria, the NRC staff required all licensees of operating reactors to submit a reevaluation of the qualification of safety-related electrical equipment which may be exposed to a harsh environment. The staff additionally required near-term operating license applicants to reassess and evaluate their environmental qualification documentation and/or test data for their safety-related electrical equipment.

2 BACKGROUND

By letters dated October 11, 1979 and February 19 and 21, 1980, the NRC Office of Nuclear Reactor Regulation (NRR) requested operating license applicants to review and evaluate the environmental qualification documentation for each item of safety-related electrical equipment and to identify the degree to which their qualification program complies with the staff position as described in NUREG-0588, "Interim Staff Position on Environmental Qualification of Safety-Related Electrical Equipment." The applicants were directed to provide a submittal reporting the results of this review.

On February 8, 1979, the NRC Office of Inspection and Enforcement (IE) issued to all licensees of operating plants (except those included in the systematic evaluation program (SEP)) IE Bulletin IEB 79-01, "Environmental Qualification of Class IE Equipment." This bulletin, together with IE Circular 78-08 (issued on May 31, 1978), required the licensees to perform reviews to assess the adequacy of their environmental qualification programs.

Subsequently, Commission Memorandum and Order CLI-80-21 (issued on May 23, 1980) states that the DOR guidelines and portions of NUREG-0588 (which were issued on January 14, 1980, as enclosures 4 and 5 to IEB-79-01B) form the requirements that licensees must meet regarding environmental qualification of safety-related electrical equipment in order to satisfy those aspects of 10 CFR 50, Appendix A, General Design Criterion (GDC)-4. This order also requires the staff to complete safety evaluation reports (SERs) for all operating plants by February 1, 1981. In addition, this order requires that the licensees have qualified safety-related equipment installed in their plants by June 30, 1982.

Supplements to IEB 79-01B were issued for further clarification and definition of the staff's needs. These supplements were issued on February 29, September 30, and October 24, 1980.

In addition, the staff issued orders dated August 29, 1980 (amended in September 1980) and October 24, 1980 to all licensees. The August order required that the licensees provide a report, by November 1, 1980, documenting the qualification of safety-related electrical equipment. The October order required the establishment of a central file location for the maintenance of all equipment-qualification records. The central file was mandated to be established by December 1, 1980. The order also required that all safety-related electrical equipment be qualified by June 30, 1982. In response, the licensee submitted information through letters dated September 12 and October 10 and 30, 1980.

2.1 Purpose

The purpose of this SER is to identify equipment whose qualification program does not provide sufficient assurance that the equipment is capable of performing the design function in hostile environments. The staff position relating to any identified deficiencies is provided in this report.

2.2 Scope

The scope of this report is limited to an evaluation of the equipment which must function in order to mitigate the consequences of a loss-of-coolant accident (LOCA) or a high-energy-line-break (HELB) accident, inside or outside containment, while subjected to the hostile environments associated with these accidents.

3 STAFF EVALUATION

The staff evaluation of the licensee's response included an onsite inspection of selected Class IE equipment, an audit of environmental qualification documentation, and an examination of the licensee's report for completeness and acceptability. The criteria described in the DOR guidelines and in NUREG-0588, in part, were used as a basis for the staff evaluation of the adequacy of the licensee's qualification program.

The NRC Office of Inspection and Enforcement performed an onsite verification inspection (December 2-5, 1980) of selected safety-related electrical equipment. Selected components in the reactor coolant, reactor cavity post-LOCA dilution, containment post-LOCA air mixing, hydrogen recombiner, chemical and volume control, and containment cooling and purge systems were inspected at Unit 2. The inspection verified proper installation of equipment, overall interface integrity, and manufacturers' nameplate data. The manufacturer's name and model number from the nameplate data were compared to information given in the component evaluation work sheets (CES) of the licensee's report. The site inspection is documented in report IE 50-364/80-49. No deficiencies were noted. For this review, the documents referenced above have been factored into the overall staff evaluation.

NRR performed audits on August 5 and 6, 1980 and December 17-19, 1980 of environmental qualification documentation and/or test data for 14 items. No

significant concerns were identified during the IE inspection or the NRC audits.

3.1 Completeness of Safety-Related Equipment

In accordance with IEB 79-01B and NUREG-0588, the licensee was directed to (1) establish a list of systems and equipment that are required to mitigate a LOCA and an HELB and (2) identify components needed to perform the function of safety-related display information, post-accident sampling and monitoring, and radiation monitoring.

The staff developed a generic master list based upon a review of plant safety analyses and emergency procedures. The instrumentation selected includes parameters to monitor overall plant performance as well as to monitor the performance of the systems on the list. The systems list was established on the basis of the functions that must be performed for accident mitigation (without regard to location of equipment relative to hostile environments). The list of safety-related systems provided by the licensee was reviewed against the staff-developed master list.

Based upon information in the licensee's submittal, the equipment location references, and in some cases subsequent conversations with the licensee, the staff has verified and determined that the systems included in the licensee's submittal are those required to achieve or support: (1) emergency reactor shutdown, (2) containment isolation, (3) reactor core cooling, (4) containment heat removal, (5) core residual heat removal, and (6) prevention of significant release of radioactive material to the environment. The staff therefore concludes that the systems identified by the licensee (listed in Appendix D) are acceptable, with the exception of those items discussed in Section 5 of this report.

Display instrumentation which provides information for the reactor operators to aid them in the safe handling of the plant was not specifically identified by the licensee. A complete list of all display instrumentation mentioned in the LOCA and HELB emergency procedures must be provided. Equipment qualification information in the form of summary sheets should be provided for all components of the display instrumentation exposed to harsh environments. Instrumentation which is not considered to be safety related but which is mentioned in the emergency procedure should appear on the list. For these instruments, (1) justification should be provided for not considering the instrument safety related and (2) assurance should be provided that its subsequent failure will not mislead the operator or adversely affect the mitigation of the consequences of the accident. The environmental qualification of post-accident sampling and monitoring and radiation monitoring equipment is closely related to the review of the TMI Lessons-Learned modifications and will be performed in conjunction with that review.

The licensee identified 661 items of equipment which were assessed by the staff.

3.2 Service Conditions

Commission Memorandum and Order CLI-80-21 requires that the DOR guidelines and the "For Comment" NUREG-0588 are to be used as the criteria for establishing the adequacy of the safety-related electrical equipment environmental qualification program. These documents provide the option of establishing a bounding pressure and temperature condition based on plant-specific analysis identified in the licensee's Final Safety Analysis Report (FSAR) or based on generic profiles using the methods identified in these documents.

The licensee has performed plant-specific analyses for the loss-of-coolant accident (LOCA) and the main steam line break (MSLB) accident. The staff has reviewed these analyses and found them acceptable (see Section 6.2.1 of the Safety Evaluation Report (SER) and Section 6.2.1 of Supplement 5 to the SER). The maximum pressure and temperature conditions for the postulated LOCA and MSLB accident from these plant-specific analyses are tabulated in Section 3.3, below.

Equipment submergence has also been addressed where the possibility exists that flooding of equipment may result from HELBs.

3.3 Temperature, Pressure, and Humidity Conditions Inside Containment

The licensee has provided the results of accident analyses as follows:

	Max Temp (°F)	Max Press (psig)	Humidity (%)
LOCA	300	47.5	100
MSLB	381	44.8	100

The staff concludes that there is reasonable assurance that the actual temperatures and pressures in the plant will not exceed the curves provided for locations anywhere within the containment for these postulated events. Margins for the test conditions are addressed in Section 3.9 of this evaluation.

The licensee has provided the results of the analysis, which was performed based on the NUREG-0588, to predict the equipment surface temperature during the MSLB event. Furthermore, the licensee has also provided information to show that equipment qualification temperature is higher than expected equipment surface temperature during the MSLB event. The licensee must provide supporting information for the staff to agree with this judgement. The staff needs the sample calculation including bases and assumptions and the confirmation that the temperature measured during the qualification testing was the surface temperature and not the ambient temperature. The licensee is also requested to update the Component Evaluation Worksheets to reflect the higher equipment surface temperature expected due to the MSLB event as the required temperature.

3.4 Temperature, Pressure, and Humidity Conditions Outside Containment

The licensee has provided the temperature, pressure, humidity and applicable environment associated with an HELB outside containment. The following areas outside containment have been addressed:

(1) Auxiliary building
(2) Main steam room

The staff has verified that the parameters identified by the licensee for the MSLB are acceptable.

3.5 Submergence

The maximum submergence levels have been established and assessed by the licensee. Unless otherwise noted, the staff assumed for this review that the methodology employed by the licensee is in accordance with the appropriate criteria as established by Commission Memorandum and Order CLI-80-21.

The licensee's values for maximum submergence are 115 ft 0 in. in the containment and 130 ft 5 in. in the main steam room. Equipment below these levels has been identified by the licensee, along with some justifications. The licensee identified 51 safety-related electrical components for Unit 2 as having the potential for becoming submerged after a postulated event.

In these instances, the licensee stated that the components in question perform their function before becoming submerged and are not required to operate after an HELB. In each of these cases, the licensee should provide an assessment of the failure modes associated with submergence. The licensee should also provide assurance that the subsequent failure of these components will not adversely affect any other safety functions or mislead an operator. Additionally, the licensee should discuss operating time, across the spectrum of events, in relation to the time of submergence. If the results of the licensee's assessment are acceptable, then these components may be exempt from the submergence parameter of qualification.

3.6 Chemical Spray

The licensee's FSAR value for the chemical concentration is 2000 ppm boric acid solution; the exact volume percent used by the vendor for qualification testing should be verified by the licensee. Therefore, for the purpose of this review, the effects of chemical spray will be considered unresolved. The staff will review the licensee's response when it is submitted and discuss the resolution in a supplemental report.

3.7 Aging

NUREG-0588 Category II delineates two aging program requirements. Valve operators committed to IEEE Standard 382-1972 and motors committed to IEEE

Standard 334-1971 must meet the Category I requirements of the NUREG. This requires the establishment of a qualified life, with maintenance/replacement schedules based on the findings. All other equipment must be subjected to an aging program which identifies aging-susceptible materials within the component. Additionally, the staff requires that the licensee

(1) establish an ongoing program to review surveillance and maintenance records to identify potential age-related degradations;

(2) establish component maintenance and replacement schedules which include considerations of aging characteristics of the installed components.

The licensee identified a number of equipment items for which a specified qualified life was established (for example, 5 years, 15 years, or 40 years). In its assessment of these submittals, the staff did not review the adequacy of the methodology nor the basis used to arrive at these values; the staff has assumed that the established values are based on state-of-the-art technology and are acceptable.

For this review, however, the staff requires that the licensee submit supplemental information to verify and identify the degree of conformance to the above requirements. The response should include all the equipment identified as required to maintain functional operability in harsh environments.

The licensee indicated that this phase of the response is outstanding and that the review is in progress. The staff will review the licensee's response when it is submitted and discuss its evaluation in a supplemental report.

3.8 Radiation (Inside and Outside Containment)

The licensee has provided values for the radiation levels postulated to exist following a LOCA. The application and methodology employed to determine these values were presented to the licensee as part of the NRC staff criteria contained in the DOR guidelines, in NUREG-0588, and in the guidance provided in IEB-79-01B, Supplement 2. Therefore, for this review, the staff has assumed that, unless otherwise noted, the values provided have been determined in accordance with the prescribed criteria. The staff review determined that the values to which equipment was qualified enveloped the requirements identified by the licensee.

The value required by the licensee inside containment is an integrated dose of 5×10^7 rads to 1×10^8 rads. This value envelopes the minimum requirements of NUREG-0588 and is therefore acceptable.

The licensee has not provided the range of required values outside containment used to specify limiting radiation levels within the auxiliary building. These values must be provided, and they should consider the radiation levels influenced by the source term methodology associated with post-LOCA recirculation fluid lines. The licensee must provide this range along with any corrections necessary for the associated summary sheets.

3.9 Margin

The staff in its review has determined that the licensee did not in all cases appropriately consider margin. Therefore, the licensee should review the margin requirements of NUREG-0588, Category II, and upgrade the environmental qualification submittal and component works sheets accordingly, or provide adequate justification for not considering margin.

4 QUALIFICATION OF EQUIPMENT

The following subsections present the staff's assessment, based on the licensee's submittal and related staff audits, of the qualification status of safety-related electrical equipment.

The staff has separated the safety-related equipment into three categories: (1) equipment requiring immediate corrective action, (2) equipment requiring additional qualification information and/or corrective action, and (3) equipment considered acceptable if the staff's concern identified in Section 3.7 is satisfactorily resolved.

In its assessment of the licensee's submittal, the NRC staff did not review the methodology employed to determine the values established by the licensee. However, in reviewing the data sheets, the staff made a determination as to the stated conditions presented by the licensee. Additionally, the staff has not completed its review of supporting documentation referenced by the licensee (for example, test reports). It is expected that when the review of test reports is complete, the environmental qualification data bank established by the staff will provide the means to cross reference each supporting document to the referencing licensee.

If supporting documents are found to be unacceptable, the licensee will be required to take additional corrective actions to either establish qualification or replace the item(s) of concern. This effort will begin in early 1981.

An appendix for each subsection of this report provides a list of equipment for which additional information and/or corrective action is required. Where appropriate, a reference is provided in the appendices to identify deficiencies. It should be noted, as in the Commission Memorandum and Order, that the deficiencies identified do not necessarily mean that equipment is unqualified. However, they are cause for concern and may require further case-by-case evaluation.

4.1 Equipment Requiring Immediate Corrective Action

Appendix A identifies equipment (if any) in this category. The licensee was asked to review the facility's safety-related electrical equipment. The licensee's review of this equipment has not identified any equipment requiring immediate corrective action; therefore, no licensee event reports (LERs) were submitted. In addition, in this review, the staff has not identified any safety-related electrical equipment which is not able to perform its intended safety function during the time in which it must operate.

4.2 Equipment Requiring Additional Information and/or Corrective Action

Appendix B identifies equipment in this category, including a tabulation of deficiencies. The deficiencies are noted by a letter relating to the legend (identified below), indicating that the information provided is not sufficient for the qualification parameter or condition.

Legend

R - radiation
T - temperature
QT - qualification time
RT - required time
P - pressure
H - humidity
CS - chemical spray
A - material-aging evaluation; replacement schedule; ongoing equipment surveillance
S - submergence
M - margin
I - HELB evaluation outside containment not completed
QM - qualification method
RPN - equipment relocation or replacement; adequate schedule not provided
EXN - exempted equipment justification inadequate
SEN - separate-effects qualification justification inadequate
QI - qualification information being developed
RPS - equipment relocation or replacement schedule provided

As noted in Section 4, these deficiencies do not necessarily mean that the equipment is unqualified. However, the deficiencies are cause for concern and require further case-by-case evaluation. The staff has determined that an acceptable basis to exempt equipment from qualification, in whole or part, can be established provided the following can be established and verified by the licensee:

(1) Equipment does not perform essential safety functions in the harsh environment, and equipment failure in the harsh environment will not impact safety-related functions or mislead an operator;

(2a) Equipment performs its function before its exposure to the harsh environment, and the adequacy for the time margin provided is adequately justified; and

(2b) Subsequent failure of the equipment as a result of the harsh environment does not degrade other safety functions or mislead the operator;

(3) The safety-related function can be accomplished by some other designated equipment that has been adequately qualified and satisfies the single-failure criterion;

(4) Equipment will not be subjected to a harsh environment as a result of the postulated accident.

The licensee is, therefore, required to supplement the information presented by providing resolutions to the deficiencies identified; these resolutions should include a description of the corrective action, schedules for its completion (as applicable), and so forth. The staff will review the licensee's response, when it is submitted, and discuss the resolution in a supplemental report.

It should be noted that in cases where testing is being conducted, a condition may arise which results in a determination by the licensee that the equipment does not satisfy the qualification test requirements. For that equipment, the licensee will be required to provide the proposed corrective action, on a timely basis, to ensure that qualification can be established by June 30, 1982.

4.3 Equipment Considered Acceptable or Conditionally Acceptable

Based on the staff review of the licensee's submittal, the staff identified the equipment in Appendix C as (1) acceptable on the basis that the qualification program adequately enveloped the specific environmental plant parameters, or (2) conditionally acceptable subject to the satisfactory resolution of the staff concern identified in Section 3.7.

For the equipment identified as conditionally acceptable, the staff determined that the licensee did not clearly

(1) state that an equipment material evaluation was conducted to ensure that no known materials susceptible to degradation because of aging have been used,

(2) establish an ongoing program to review the plant surveillance and maintenance records in order to identify equipment degradation which may be age related, and/or

(3) propose a maintenance program and replacement schedule for equipment identified in item 1 or equipment that is qualified for less than the life of the plant.

The licensee is, therefore, required to supplement the information presented for equipment in this category before full acceptance of this equipment can be established. The staff will review the licensee's response when it is submitted and discuss the resolution in a supplemental report.

5 DEFERRED REQUIREMENTS

IEB 79-01B, Supplement 3 has relaxed the time constraints for the submission of the information associated with cold shutdown equipment and TMI lessons-learned modifications. The staff has required that this information be provided by February 1, 1981. The staff will provide a supplemental safety evaluation addressing these concerns.

6 CONCLUSIONS

The staff has determined that the licensee's listing of safety-related systems and associated electrical equipment whose ability to function in a harsh environment following an accident is required to mitigate a LOCA or HELB is complete and acceptable, except as noted in Section 3 of this report. The staff has also determined that the environmental service conditions to be met by the electrical equipment in the harsh accident environment are appropriate, except as noted in Section 3 of this report. Outstanding information identified in Section 3 should be provided within 90 days of receipt of this SER.

The staff has reviewed the qualification of safety-related electrical equipment to the extent defined by this SER and has found no outstanding items which would require immediate corrective action to ensure the safety of plant operation. However, the staff has determined that many items of safety-related electrical equipment identified by the licensee for this review do not have adequate documentation to ensure that they are capable of withstanding the harsh environmental service conditions. This review was based on a comparison of the qualification values with the specified environmental values required by the design, which were provided in the licensee's summary sheets.

Subsection 4.2 identified deficiencies that must be resolved to establish the qualification of the equipment; the staff requires that the information lacking in this category be provided within 90 days of receipt of this SER. Within this period, the licensee should either provide documentation of the missing qualification information which demonstrates that such equipment meets the DOR guidelines or NUREG-0588 or commit to a corrective action (requalification, replacement, relocation, and so forth) consistent with the requirements to establish qualification by June 30, 1982. If the latter option is chosen, the licensee must provide justification for operation until such corrective action is complete.

Subsection 4.3 identified acceptance and conditional acceptance based on noted deficiencies. Where additional information is required, the licensee should respond within 90 days of receipt of this SER by providing assurance that these concerns will be satisfactorily resolved by June 30, 1982.

The staff issued to the licensee Sections 3 and 4 of this report and requested, by letter dated March 4, 1981, that the licensee review the deficiencies enumerated and the ramifications thereof to determine whether safe operation of the facility would be impacted in consideration of the deficiencies. The licensee has completed a preliminary review of the identified deficiencies and has determined that, after due consideration of the deficiencies and their ramifications, continued safe operation would not be adversely affected.

Based on these considerations, the staff concludes that conformance with the above requirements and satisfactory completion of the corrective actions by June 30, 1982 will ensure compliance with the Commission Memorandum and Order of May 23, 1980. The staff further concludes that there is reasonable assurance of continued safe operation of this facility pending completion of these corrective actions. This conclusion is based on the following:

(1) that there are no outstanding items which would require immediate corrective action to assure safety of plant operation;

(2) some of the items found deficient have been or are being replaced or relocated, thus improving the facility's capability to function following a LOCA or HELB;

(3) the harsh environmental conditions for which this equipment must be qualified result from low-probability events; events which might reasonably be anticipated during this very limited period would lead to less demanding service conditions for this equipment.

In addition, the staff concludes that Alabama Power Company meets the applicable requirements of General Design Criterion 4, "Environmental and Missile Design Bases," since the above interim requirements have been met. The Commission Memorandum and Order CLI-80-21 requires that compliance with all aspects of NUREG-0588 by June 30, 1982 will be required to remain in conformance with General Design Criterion 4.

APPENDIX A

Equipment Requiring Immediate Corrective Action

(Category 4.1)

No equipment in this category.

APPENDIX B

Equipment Requiring Additional Information
and/or Corrective Action
(Category 4.2)

LEGEND:

Designation for Deficiency

R - Radiation
T - Temperature
QT - Qualification Time
RT - Required Time
P - Pressure
H - Humidity
CS - Chemical spray
A - Material aging evaluation, replacement schedule, ongoing equipment surveillance
S - Submergence
M - Margin
I - HELB evaluation outside containment not completed
QM - Qualification method
RPN - Equipment relocation or replacement, adequate schedule not provided
EXN - Exempted equipment justification inadequate
SEN - Separate effects qualification justification inadequate
QI - Qualification information being developed
RPS - Equipment relocation or replacement schedule provided

Equipment Description	Manufacturer	Component No.	Deficiency
Resistance Temperature Detector	Rosemount	N2B13TE412B	QT,CS,A,M
Resistance Temperature Detector	Rosemount	N2B13TE412D	QT,CS,A,M
Resistance Temperature Detector	Rosemount	N2B13TE422B	QT,CS,A,M
Resistance Temperature Detector	Rosemount	N2B13TE422D	QT,CS,A,M
Resistance Temperature Detector	Rosemount	N2B13TE432B	QT,CS,A,M
Resistance Temperature Detector	Rosemount	N2B13TE432D	QT,CS,A,M

Equipment Description	Manufacturer	Component No.	Deficiency
Penetration	General Electric	Q2T52B012	QT,CS,A,M
Penetration	General Electric	Q2T52B028	QT,CS,A,M
Penetration	General Electric	Q2T52B030	QT,CS,A,M
*Terminal Block	States Co.	12TB005	CS,A
Terminal Block	States Co.	12TB002	CS,A
Terminal Block	States Co.	22TB003	CS,A
Terminal Block	States Co.	22TB004	CS,A
Terminal Block	States Co.	32TB001	CS,A
Terminal Block	States Co.	32TB002	CS,A
Instrument Cables	Boston Insulated Wire	2V1V5002B,D	QT,CS,A,M
Instrument Cables	Boston Insulated Wire	2V2V5002B,D	QT,CS,A,M
Instrument Cables	Boston Insulated Wire	2V3V5002B,D	QT,CS,A,M
Pressure Transmitter	Barton	N2B21PT402	QT,CS,A,M
Pressure Transmitter	Barton	N2B21PT403	QT,CS,A,M
Resistance Temperature Detector	Rosemount	N2B21TE410	QT,CS,A,M
Resistance Temperature Detector	Rosemount	N2B21TE413	QT,CS,A,M
Resistance Temperature Detector	Rosemount	N2B21TE420	QT,CS,A,M

*Items for which NRR conducted audit of environmental qualification documentation and/or test data.

APPENDIX B (Continued)

Equipment Description	Manufacturer	Component No.	Deficiency
Resistance Temperature Detector	Rosemount	N2B21TE423	QT,CS,A,M
Resistance Temperature Detector	Rosemount	N2B21TE430	QT,CS,A,M
Resistance Temperature Detector	Rosemount	N2B21TE433	QT,CS,A,M
Penetration	General Electric	Q2T52B040	QT,CS,A,M
Terminal Block	States Co.	12TB001	CS,A
Terminal Block	States Co.	12TB003	CS,A
Terminal Block	States Co.	12TB004	CS,A
Terminal Block	States Co.	22TB001	CS,A
Terminal Block	States Co.	22TB002	CS,A
Terminal Block	States Co.	22TB005	CS,A
Instrument Cables	Boston Insulated Wire	2VYV5031B	QT,CS,A,M
Instrument Cables	Boston Insulated Wire	2VYV5033B	QT,CS,A,M
Instrument Cables	Boston Insulated Wire	2V1V5002E,F,G	QT,CS,A,M
Instrument Cables	Boston Insulated Wire	2V2V5002E,F,G	QT,CS,A,M
Solenoid Valve	ASCO	Q2B31SV8047	CS,A
Limit Switch	NAMCO	N2B31ZS8047	CS,A
Penetration	General Electric	Q2T52B002	QT,CS,A,M
Penetration	General Electric	Q2T52B038	QT,CS,A,M
Junction Box	General Electric	N2B31SV8047-B/JB	R,T,QT,RT,P, H,CS,A,M,QM

Equipment Description	Manufacturer	Component No.	Deficiency
*Level Transmitter	Barton	Q2B31LT459	QT,A,M
Level Transmitter	Barton	Q2B31LT460	QT,A,M
Level Transmitter	Barton	Q2B31LT461	QT,A,M
Pressure Transmitter	Barton	Q2B31PT455	QT,A,M
Pressure Transmitter	Barton	Q2B31PT456	QT,A,M
Pressure Transmitter	Barton	Q2B31PT457	QT,A,M
Control Cable	Okonite	2VBL5078C	QT,CS,A,M
Control Cable	Okonite	2VBQ5021E	QT,CS,A,M
*Instrument Cable	Boston Insulated Wire	2VYV5031D	QT,CS,A,M
Instrument Cable	Boston Insulated Wire	2V1V5002U	QT,CS,A,M
Instrument Cables	Boston Insulated Wire	2V2V5002T,U	QT,CS,A,M
Instrument Cables	Boston Insulated Wire	2V3V5002T,U	QT,CS,A,M
Limit Switch	NAMCO	N2C22ZS0478	A,M,RPN,QT,P,H
Solenoid Valve	ASCO	N2C22SV0478A	A,M,RPN,QT,P,H
Solenoid Valve	ASCO	N2C22SV0478B	A,M,RPN,QT,P,H
Limit Switch	NAMCO	N2C22ZS0488	A,M,RPN,QT,P,H
Solenoid Valve	ASCO	N2C22SV0488A	A,M,RPN,QT,P,H
Solenoid Valve	ASCO	N2C22SV0488B	A,M,RPN,QT,P,H
Limit Switch	NAMCO	N2C22ZS0498	A,M,RPN,QT,P,H
Solenoid Valve	ASCO	N2C22SV0498A	A,M,RPN,QT,P,H

*Items for which NRR conducted audit of environmental qualification documentation and/or test data.

Equipment Description	Manufacturer	Component No.	Deficiency
Solenoid Valve	ASCO	N2C22SV0498B	A,M,RPN,QT,P,H
Limit Switch	NAMCO	N2C22ZS0479	A,M,RPN,QT,P,H
Solenoid Valve	ASCO	N2C22SV0479A	A,M,RPN,QT,P,H
Solenoid Valve	ASCO	N2C22SV0479B	A,M,RPN,QT,P,H
Limit Switch	NAMCO	N2C22ZS0489	A,M,RPN,QT,P,H
Solenoid Valve	ASCO	N2C22SV0489A	A,M,RPN,QT,P,H
Solenoid Valve	ASCO	N2C22SV0489B	A,M,RPN,QT,P,H
Limit Switch	NAMCO	N2C22ZS0499	A,M,RPN,QT,P,H
Solenoid Valve	ASCO	N2C22SV0499A	A,M,RPN,QT,P,H
Solenoid Valve	ASCO	N2C22SV0499B	A,M,RPN,QT,P,H
Terminal Block	States Co.	N2C22SV0478A-A/JB	A,M,T
Terminal Block	States Co.	N2C22SV0488A-A/JB	A,M,T
Terminal Block	States Co.	N2C22SV0498A-A/JB	A,M,T
*Penetration	General Electric	Q2T52B010	QT,CS,A,M
Instrument Cable	Boston Insulated Wire	2V1V5002L,M,N	CS,A
Instrument Cable	Boston Insulated Wire	2V2V5002L,M,N	CS,A
Instrument Cable	Boston Insulated Wire	2V3V5002H,J,K L,M,N	CS,A
Instrument Cable	Boston Insulated Wire	2V4V5002A,B,C	CS,A
*Level Transmitter	Gems	Q2E11LT3594A	QT,CS,A,M
Level Transmitter	Gems	Q2E11LT3594B	QT,CS,A,M

*Items for which NRR conducted audit of environmental qualification documentation and/or test data.

Equipment Description	Manufacturer	Component No.	Deficiency
Penetration	General Electric	Q2T52B006	QT,CS,A,M
Penetration	General Electric	Q2T52B020	QT,CS,A,M
*Control Cable	Okonite	2VAI5009F	QT,CS,A,M
Control Cable	Okonite	2VBI5008C	QT,CS,A,M
Motor Operated Valve	Limitorque	Q2E14V002	CS,A
Motor Operated Valve	Limitorque	Q2E14V004	CS,A
Solenoid Valve	ASCO	Q2P12SV3196	R,T,P,H,QT,CS, A,S,M,RPN
Limit Switch	NAMCO	Q2P13ZS3196	CS,A
Solenoid Valve	ASCO	Q2P13SV2867B	R,T,P,H,QT,CS, A,S,M,RPN
Limit Switch	NAMCO	Q2P13ZS2867B	CS,A
Solenoid Valve	ASCO	Q2P13SV3197	R,T,P,H,QT,CS, A,S,M,RPN
Limit Switch	NAMCO	Q2P13ZS3197	CS,A
Solenoid Valve	ASCO	Q2P13SV2866B	R,T,P,H,QT,CS, A,S,M,RPN
Limit Switch	NAMCO	Q2P13ZS2866B	CS,A
Solenoid Valve	ASCO	Q2E12SV3999A	R,T,P,H,QT,CS, A,S,M,RPN
Limit Switch	NAMCO	Q2E12ZS3999A	CS,A
Solenoid Valve	ASCO	Q2E12SV3999B	R,T,P,H,QT,CS, A,S,M,RPN
Limit Switch	NAMCO	Q2E12ZS3999B	CS,A

*Items for which NRR conducted audit of environmental qualification documentation and/or test data.

Equipment Description	Manufacturer	Component No.	Deficiency
*CTMT Clr. Fan Motor	Joy Mfg. Co.	Q2E12M001A	QT,CS,A,M
CTMT Clr. Fan Motor	Joy Mfg. Co.	Q2E12M001B	QT,CS,A,M
CTMT Clr. Fan Motor	Joy Mfg. Co.	Q2E12M001C	QT,CS,A,M
CTMT Clr. Fan Motor	Joy Mfg. Co.	Q2E12M001D	QT,CS,A,M
Penetration	General Electric	Q2T52B005	QT,CS,A,M
Penetration	General Electric	Q2T52B002	QT,CS,A,M
Penetration	General Electric	Q2T52B006	QT,CS,A,M
Penetration	General Electric	Q2T52B041	QT,CS,A,M
Terminal Block	States Co.	Q2P13SV3196-B/JB	CS,A
Penetration	General Electric	Q2T52B022	QT,CS,A,M
Terminal Block	States Co.	Q2P13SV2867B-B/JB	CS,A
Terminal Block	States Co.	Q2P13SV3197-B/JB	CS,A
Terminal Block	States Co.	Q2P13SV2866B-B/JB	CS,A
Terminal Block	States Co.	Q2E12SV3999A-A/JB	CS,A
Terminal Block	States Co.	Q2T52B025	CS,A
Terminal Block	States Co.	Q2E12SV3999B-B/JB	CS,A
Penetration	General Electric	Q2T52B001	QT,CS,A,M
Penetration	General Electric	Q2T52B023	QT,CS,A,M
Power Cable	Okonite	2VAFU-R5Q	QT,CS,A,M

*Items for which NRR conducted audit of environmental qualification documentation and/or test data.

Equipment Description	Manufacturer	Component No.	Deficiency
Control Cable	Okonite	2VAFU-R5D	QT,CS,A,M
Control Cable	Okonite	2VAQ5048F	QT,CS,A,M
Control Cable	Okonite	2VXR5005H	QT,CS,A,M
Power Cable	Okonite	2VAFU-J4Q	QT,CS,A,M
Control Cable	Okonite	2VAFU-J4D	QT,CS,A,M
Control Cable	Okonite	2VAQ5009C	QT,CS,A,M
Instrument Cable	Boston Insulated Wire	2VYR5066B	RT,QT,CS,A,M
Control Cables	Okonite	2VBL5008C,D,K,L	QT,CS,A,M
Control Cable	Okonite	2VBQ5010J	QT,CS,A,M
Control Cable	Okonite	2VYR5035D	QT,CS,A,M
Control Cables	Okonite	2VBL5008X,W	QT,CS,A,M
Control Cable	Okonite	2VBQ5012F	QT,CS,A,M
Control Cable	Okonite	2VYR5035F	QT,CS,A,M
Control Cable	Okonite	2VAL5122C	QT,CS,A,M
Control Cable	Okonite	2VAQ5029E	QT,CS,A,M
Control Cable	Okonite	2VBL5094C	QT,CS,A,M
Control Cable	Okonite	2VBQ5029E	QT,CS,A,M
Power Cable	Okonite	2VAED15Q	QT,CS,A,M
Power Cable	Okonite	2VAED16Q	QT,CS,A,M
Power Cable	Okonite	2VBEE08Q	QT,CS,A,M
Power Cable	Okonite	2VBEE16Q	QT,CS,A,M
*H_2 Recombiner Heater	Westinghouse	Q2E17G001A	QT,A,M

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Equipment Description	Manufacturer	Component No.	Deficiency
H_2 Recombiner Heater	Westinghouse	Q2E17G001B	QT,A,M
Penetration	General Electric	Q2T52B024	QT,CS,A,M
Penetration	General Electric	Q2T52B042	QT,CS,A,M
Power Cable	Okonite	2VAFALL3T	QT,CS,A,M
Power Cable	Okonite	2VBFBRH6T	QT,CS,A,M
Instrument Cables	Boston Insulated Wire	2VXQ5009B,D,F	QT,CS,A,M
Instrument Cables	Boston Insulated Wire	2VYQ5017B,D,F	QT,CS,A,M
Mixing Fan Motor	Joy Mfg. Co.	Q2E19M001A	QT,CS,A,M
Mixing Fan Motor	Joy Mfg. Co.	Q2E19M001B	QT,CS,A,M
Mixing Fan Motor	Joy Mfg. Co.	Q2E19M001C	QT,CS,A,M
Mixing Fan Motor	Joy Mfg. Co.	Q2E19M001D	QT,CS,A,M
Penetration	General Electric	Q2T52B014	QT,CS,A,M
Penetration	General Electric	Q2T52B015	QT,CS,A,M
Power Cable	Okonite	2VAFA-J5Q	QT,CS,A,M
Power Cable	Okonite	2VAFA-I5Q	QT,CS,A,M
Power Cable	Okonite	2VAFA-I4Q	QT,CS,A,M
Power Cable	Okonite	2VAFA-I3Q	QT,CS,A,M
Motor Operated Valve	Limitorque	Q2E21V038A	CS,A,S
Motor Operated Valve	Limitorque	Q2E21V038B	CS,A,S
Motor Operated Valve	Limitorque	Q2E21V038C	CS,A,S
Solenoid Operated Valve	ASCO	Q2E21SV8871	CS,A,S

Equipment Description	Manufacturer	Component No.	Deficiency
Limit Switch	NAMCO	Q2E21ZS8871	CS,A,S
Motor Operated Valve	Limitorque	Q2E21V249A	CS,A
Limit Switch	NAMCO	N2E21ZS8149A	CS,A,S
*Solenoid Valve	ASCO	Q2E21SV8149AB	CS,A,S
Limit Switch	NAMCO	N2E21ZS8149B	CS,A,S
Solenoid Valve	ASCO	Q2E21SV8149BB	CS,A,S
Limit Switch	NAMCO	N2E21ZS8149C	CS,A,S
Solenoid Valve	ASCO	Q2E21SV8149CB	CS,A,S
Penetration	General Electric	Q2T52B016	QT,CS,A,M
Penetration	General Electric	Q2T52B006	QT,CS,A,M
Penetration	General Electric	Q2T52B019	QT,CS,A,M
Junction Box	General Electric	N2E21SV8871-A/JB	R,T,QT,RT,P,H, CS,A,S,M,QM
Limit Switch	NAMCO	Q2E21ZS8808AB	CS,A,S
Limit Switch	NAMCO	Q2E21ZS8808BB	CS,A,S
Limit Switch	NAMCO	Q2E21ZS8808CB	CS,A,S
Penetration	General Electric	Q2T52B014	QT,CS,A,M
Terminal Block	States Co.	N2E21SV8149AA-A/JB	CS,A
lerminal Box	States Co.	N2E21SV8149BA-A/JB	CS,A
Terminal Block	States Co.	N2E21SV8149CA-A/JB	CS,A

*Items for which NRR conducted audit of environmental qualification documentation and/or test data.

Equipment Description	Manufacturer	Component No.	Deficiency
Power Cable	Okonite	2VAFU-Z2Q	QT,CS,A,M
Control Cables	Okonite	2VAFU-Z2D,G	QT,CS,A,M
Control Cable	Okonite	2VAQ5023E	QT,CS,A,M
Control Cable	Okonite	2VXKA163B	QT,CS,A,M
Power Cable	Okonite	2VBFV-S2Q	QT,CS,A,M
Control Cables	Okonite	2VBFV-S2D,G	QT,CS,A,M
Control Cable	Okonite	2VBQ5024C	QT,CS,A,M
Control Cable	Okonite	2VYKA163B	QT,CS,A,M
Power Cable	Okonite	2VAFU-Z3Q	QT,CS,A,M
Control Cables	Okonite	2VAFU-Z3D,G	QT,CS,A,M
Control Cable	Okonite	2VAQ5024E	QT,CS,A,M
Control Cable	Okonite	2VXA163D	QT,CS,A,M
Control Cable	Okonite	2VAL5049C	QT,CS,A,M
Control Cable	Okonite	2VAQ5022H	QT,CS,A,M
Power Cable	Okonite	2VAFU-T4Q	QT,CS,A,M
Control Cable	Okonite	2VAFU-T4D	QT,CS,A,M
Control Cable	Okonite	2VAQ5018E	QT,CS,A,M
Control Cable	Okonite	2VAL5042F	QT,CS,A,M
Control Cable	Okonite	2VAL5042G	QT,CS,A,M
Control Cable	Okonite	2VAQ5022F	QT,CS,A,M
Control Cable	Okonite	2VAL5043F	QT,CS,A,M
Control Cable	Okonite	2VAL5043G	QT,CS,A,M
Control Cable	Okonite	2VAQ5023C	QT,CS,A,M
Control Cable	Okonite	2VAL5044F	QT,CS,A,M

Equipment Description	Manufacturer	Component No.	Deficiency
Control Cable	Okonite	2VAL5044G	QT,CS,A,M
Control Cable	Okonite	2VAQ5024C	QT,CS,A,M
Dilution Fan Motor	Joy Mfg. Co.	Q2E22M001A	QT,CS,A,M
Dilution Fan Motor	Joy Mfg. Co.	Q2E22M001B	QT,CS,A,M
Motor Operated Valve	Limitorque	Q2E22V001A	CS,A
Motor Operated Valve	Limitorque	Q2E22V001B	CS,A
Penetration	General Electric	Q2T52B023	QT,CS,A,M
Power Cable	Okonite	2VAED06Q	QT,CS,A,M
Control Cable	Okonite	2VAED06E	QT,CS,A,M
Power Cable	Okonite	2VBEE09Q	QT,CS,A,M
Control Cable	Okonite	2VBEE09E	QT,CS,A,M
Motor Operated Valve	Limitorque	Q2E23V021	CS,A
Motor Operated Valve	Limitorque	Q2E23V003	CS,A
Motor Operated Valve	Limitorque	Q2E23V022A	CS,A
Motor Operated Valve	Limitorque	Q2E23V022B	CS,A
Motor Operated Valve	Limitorque	Q2E23V022C	CS,A
Motor Operated Valve	Limitorque	Q2E23V022D	CS,A
Motor Operated Valve	Limitorque	Q2E23V025A	CS,A
Motor Operated Valve	Limitorque	Q2E23V025B	CS,A
Penetration	General Electric	Q2T52B017	QT,CS,A,M
Penetration	General Electric	Q2T52B007	QT,CS,A,M
Penetration	General Electric	Q2T52B020	QT,CS,A,M

Equipment Description	Manufacturer	Component No.	Deficiency
Power Cable	Okonite	2VAFU-W4Q	QT,CS,A,M
Power Cable	Okonite	2VBFU-N2Q	QT,CS,A,M
Control Cable	Okonite	2VAFU-W4C	QT,CS,A,M
Control Cable	Okonite	2VAED06E	QT,CS,A,M
Control Cable	Okonite	2VBFV-N2C	QT,CS,A,M
Control Cable	Okonite	2VBEE09E	QT,CS,A,M
Power Cable	Okonite	2VBFV-Y5Q	QT,CS,A,M
Control Cable	Okonite	2VBFV-Y5C	QT,CS,A,M
Power Cable	Okonite	2VBFV-Y4Q	QT,CS,A,M
Control Cable	Okonite	2VBFV-Y5C	QT,CS,A,M
Power Cable	Okonite	2VAFU-L4Q	QT,CS,A,M
Power Cable	Okonite	2VAFU-L5Q	QT,CS,A,M
Power Cable	Okonite	2VBFV-H4Q	QT,CS,A,M
Power Cable	Okonite	2VBFV-H5Q	QT,CS,A,M
Control Cable	Okonite	2VAFU-L4C	QT,CS,A,M
Control Cable	Okonite	2VAFU-L5C	QT,CS,A,M
Control Cable	Okonite	2VBFV-H4C	QT,CS,A,M
Control Cable	Okonite	2VBFV-H5C	QT,CS,A,M
Power Cable	Okonite	2VAFU-M4Q	QT,CS,A,M
Power Cable	Okonite	2VBFV-M3Q	QT,CS,A,M
Control Cable	Okonite	2VAFU-M4C	QT,CS,A,M
Control Cable	Okonite	2VBFV-M3C	QT,CS,A,M
*Solenoid Valve	ASCO	Q2G21SV3376	CS,A

*Items for which NRR conducted audit of environmental qualification documentation and/or test data.

Equipment Description	Manufacturer	Component No.	Deficiency
Limit Switch	NAMCO	Q2G21ZS3376	CS,A,S
Limit Switch	NAMCO	N2G21ZS1003	CS,A,S
Solenoid Valve	ASCO	N2G21SV1003B	CS,A,S
Solenoid Valve	ASCO	Q2G21SV7126	CS,A
Limit Switch	NAMCO	Q2G21ZS7126	CS,A,S
Penetration	General Electric	Q2T52B038	QT,CS,A,M
Penetration	General Electric	Q2T52B041	QT,CS,A,M
Terminal Block	States Co.	Q2G21SV3376-B/JB	CS,A
Terminal Block	States Co.	N2G21SV1003A-A/JB	CS,A
Terminal Block	States Co.	N2G21SV7126-A/JB	CS,A
Control Cable	Okonite	2VBL5045C	QT,CS,A,M
Control Cable	Okonite	2VBQ5030J	QT,CS,A,M
Instrument Cable	Boston Insulated Wire	2VYR5066G	QT,CS,A,M
Control Cable	Okonite	2VAL5037D	QT,CS,A,M
Control Cable	Okonite	2VAQ5021J	QT,CS,A,M
Control Cable	Okonite	2VAL5036C	QT,CS,A,M
Limit Switch	NAMCO	Q2N11ZS3369A	R,T,QT,P,H,QM, A,S,M,RPN
Solenoid Valve	ASCO	Q2N11SV3369AA	R,T,QT,P,H,QM, A,M,RPN
Solenoid Valve	ASCO	Q2N11SV3369AC	R,T,QT,P,H,QM, A,M,RPN
Limit Switch	NAMCO	Q2N11ZS3369B	R,T,QT,P,H,QM, A,S,M,RPN

Equipment Description	Manufacturer	Component No.	Deficiency
Solenoid Valve	ASCO	Q2N11SV3369BA	R,T,QT,P,H,QM, A,M,RPN
Solenoid Valve	ASCO	Q2N11SV3369BC	R,T,QT,P,H,QM, A,M,RPN
Limit Switch	NAMCO	Q2N11ZS3369C	R,T,QT,P,H,QM, A,S,M,RPN
Solenoid Valve	ASCO	Q2N11SV3369CA	R,T,QT,P,H,QM, A,S,M,RPN
Solenoid Valve	ASCO	Q2N11SV3369CC	R,T,QT,P,H,QM, A,S,M,RPN
Limit Switch	NAMCO	Q2N11ZS3370A	R,T,QT,P,H,QM, A,S,M,RPN
Solenoid Valve	ASCO	Q2N11SV3370AA	R,T,QT,P,H,QM, A,S,M,RPN
Solenoid Valve	ASCO	Q2N11SV3370AC	R,T,QT,P,H,QM, A,S,M,RPN
Limit Switch	NAMCO	Q2N11ZS3370B	R,T,QT,P,H,QM, A,S,M,RPN
Solenoid Valve	ASCO	Q2N11SV3370BA	R,T,QT,P,H,QM, A,S,M,RPN
Solenoid Valve	ASCO	Q2N11SV3370BC	R,T,QT,P,H,QM, A,S,M,RPN
Limit Switch	NAMCO	Q2N11ZS3370C	R,T,QT,P,H,QM, A,S,M,RPN
Solenoid Valve	ASCO	Q2N11SV3370CA	R,T,QT,P,H,QM, A,S,M,RPN
Solenoid Valve	ASCO	Q2N11SV3370CC	R,T,QT,P,H,QM, A,S,M,RPN
Limit Switch	Microswitch	Q2N11ZS3368A	R,T,QT,P,H,QM, A,M,RPN
Solenoid Valve	ASCO	Q2N11SV3368AA	R,T,QT,P,H,QM, A,M,RPN

Equipment Description	Manufacturer	Component No.	Deficiency
Limit Switch	Microswitch	Q2N11ZS3368B	R,T,QT,P,H,QM, A,M,RPN
Solenoid Valve	ASCO	Q2N11SV3368BA	R,T,QT,P,H,QM, A,M,RPN
Limit Switch	Microswitch	Q2N11ZS3368C	R,T,QT,P,H,QM, A,M,RPN
Solenoid Valve	ASCO	Q2N11SV3368CA	R,T,QT,P,H,QM, A,M,RPN
Solenoid Valve	ASCO	Q2N11SV3976A	R,T,QT,P,H,QM, A,M,RPN
Limit Switch	Microswitch	Q2N11ZS3976A	R,T,QT,P,H,QM, A,M,RPN
Solenoid Valve	ASCO	Q2N11SV3976B	R,T,QT,P,H,QM, A,M,RPN
Limit Switch	Microswitch	Q2N11ZS3976B	R,T,QT,P,H,QM, A,M,RPN
Solenoid Valve	ASCO	Q2N11SV3976C	R,T,QT,P,H,QM, A,M,RPN
Limit Switch	Microswitch	Q2N11ZS3976C	R,T,QT,P,H,QM, A,M,RPN
Terminal Block	States Co.	Q2N11SV3369AA-A/JB	A,M,T
Terminal Block	States Co.	Q2N11SV3369BA-A/JB	A,M,T
Terminal Block	States Co.	Q2N11SV3369CA-A/JB	A,M,T
Limit Switch	NAMCO	Q2N11ZS3369AJ	R,T,QT,P,H,QM, A,S,M,RPN
Limit Switch	NAMCO	Q2N11ZS3369BJ	R,T,QT,P,H,QM, A,S,M,RPN
Limit Switch	NAMCO	Q2N11ZS3369CJ	R,T,QT,P,H,QM, A.S,M,RPN

Equipment Description	Manufacturer	Component No.	Deficiency
Terminal Block	States Co.	Q2N11SV3370AA-B/JB	A,M,T
Terminal Block	States Co.	Q2N11SV3370BA-B/JB	A,M,T
Terminal Block	States Co.	Q2N11SV3370CA-B/JB	A,M,T
Limit Switch	NAMCO	Q2N11ZS3370AJ	R,T,QT,P,H,QM, A,S,M,RPN
Limit Switch	NAMCO	Q2N11ZS3370BJ	R,T,QT,P,H,QM, A,S,M,RPN
Limit Switch	NAMCO	Q2N11ZS3370CJ	R,T,QT,P,H,QM, A,S,M,RPN
Terminal Block	States Co.	Q2N11SV3368AA-A/JB	A,M,T
Terminal Block	States Co.	Q2N11SV3368BA-A/JB	A,M,T
Terminal Block	States Co.	Q2N11SV3368CA-A/JB	A,M,T
Terminal Block	States Co.	Q2N11SV3976B-B/JB	A,M,T
Terminal Block	States Co.	Q2N11SV3976C-B/JB	A,M,T
Penetration	General Electric	Q2T52B040	QT,CS,A,M
Instrument Cable	Boston Insulated Wire	2VXV5013L	QT,CS,A,M
Instrument Cable	Boston Insulated Wire	2VXV5014H,J	QT,CS,A,M
Terminal Block	States Co.	Q2N11SV3976A-B/JB	A,M,T

Equipment Description	Manufacturer	Component No.	Deficiency
Solenoid Valve	ASCO	Q2N12SV3234A	R,T,QT,P,H,A M,QM,RPN
Limit Switch	NAMCO	Q2N12ZS3234A	R,T,QT,P,H,A M,QM,RPN
Solenoid Valve	ASCO	Q2N12SV3234B	R,T,QT,P,H,A M,QM,RPN
Limit Switch	NAMCO	Q2N12ZS3234B	R,T,QT,P,H,A M,QM,RPN
Solenoid Valve	ASCO	Q2N12SV3235A	R,T,QT,P,H,A M,QM,RPN
Limit Switch	Microswitch	Q2N12ZS3235A	R,T,QT,P,H,A M,QM,RPN
Solenoid Valve	ASCO	Q2N12SV3235B	R,T,QT,P,H,A M,QM,RPN
Limit Switch	Microswitch	Q2N12ZS3235B	R,T,QT,P,H,A M,QM,RPN
Terminal Block	States Co.	Q2N12SV3234A-A/JB	A,S,M,T
Terminal Block	States Co.	Q2N12SV3234B-B/JB	A,S,M,T
Terminal Block	States Co.	Q2N12SV3235A-A/JB	A,S,M,T
Terminal Block	States Co.	Q2N12SV3235B-B/JB	A,S,M,T
Instrument Cables	Boston Insulated Wire	2VYR5064A,B	A,S
*Level Switch	Gems	Q2N21LSH2828A	QT,A,M

*Items for which NRR conducted audit of environmental qualification documentation and/or test data.

Equipment Description	Manufacturer	Component No.	Deficiency
Level Switch	Gems	Q2N21LSH2828B	QT,A,M
Level Switch	Gems	Q2N21LSH2828C	QT,A,M
Level Switch	Gems	Q2N21LSH2829A	QT,A,M
Level Switch	Gems	Q2N21LSH2829B	QT,A,M
Level Switch	Gems	Q2N21LSH2829C	QT,A,M
Terminal Block	States Co.	A2TB034	A,M,T
Limit Switch	NAMCO	Q2N23ZS3228A	R,T,QT,P,H, A,M,QM,RPN
Solenoid Valve	ASCO	Q2N23SV3228AA	R,T,QT,P,H, A,M,QM,RPN
Limit Switch	NAMCO	Q2N23ZS3228B	R,T,QT,P,H, A,M,QM,RPN
Solenoid Valve	ASCO	Q2N23SV3228BA	R,T,QT,P,H, A,M,QM,RPN
Limit Switch	NAMCO	Q2N23ZS3228C	R,T,QT,P,H, A,M,QM,RPN
Solenoid Valve	ASCO	Q2N23SV3228CA	R,T,QT,P,H, A,M,QM,RPN
Limit Switch	NAMCO	Q2N23ZS3227A	R,T,QT,P,H, A,M,QM,RPN
Solenoid Valve	ASCO	Q2N23SV3227AA	R,T,QT,P,H, A,M,QM,RPN
Limit Switch	NAMCO	Q2N23ZS3227B	R,T,QT,P,H, A,M,QM,RPN
Solenoid Valve	ASCO	Q2N23SV3227BA	R,T,QT,P,H, A,M,QM,RPN
Limit Switch	NAMCO	Q2N23ZS3227C	R,T,QT,P,H, A,M,QM,RPN
Solenoid Valve	ASCO	Q2N23SV3227CA	R,T,QT,P,H, A,M,QM,RPN

Equipment Description	Manufacturer	Component No.	Deficiency
Terminal Block	States Co.	Q2N23SV3228AA-A/JB	A,M,T
Terminal Block	States Co.	Q2N23SV3228BA-A/JB	A,M,T
Terminal Block	States Co.	Q2N23SV3228CA-A/JB	A,M,T
Terminal Block	States Co.	Q2N23SV3227AA-A/JB	A,M,T
Terminal Block	States Co.	Q2N23SV3227BA-A/JB	A,M,T
Terminal Block	States Co.	Q2N23SV3227CA-A/JB	A,M,T
Solenoid Valve	ASCO	Q2N25SV3772A	R,T,QT,P,H, A,M,QM,RPN
Limit Switch	NAMCO	Q2N25ZS3772A	R,T,QT,P,H, A,M,QM,RPN
Solenoid Valve	ASCO	Q2N25SV3772B	R,T,QT,P,H, A,M,QM,RPN
Limit Switch	NAMCO	Q2N25ZS3772B	R,T,QT,P,H, A,M,QM,RPN
Solenoid Valve	ASCO	Q2N25SV3772C	R,T,QT,P,H, A,M,QM,RPN
Limit Switch	NAMCO	Q2N25ZS3772C	R,T,QT,P,H, A,M,QM,RPN
Terminal Block	States Co.	Q2N25SV3772A-A/JB	A,M,T
Junction Box	States Co.	Q2N25SV3772B-A/JB	A,M,T
Junction Box	States Co.	Q2N25SV3772C-A/JB	A,M,T
Solenoid Valve	ASCO	Q2P15SV3103	R,T,QT,P,H,CS, A,M,QM,RPN

Equipment Description	Manufacturer	Component No.	Deficiency
Limit Switch	NAMCO	Q2P15ZS3103	CS,A
Solenoid Valve	ASCO	Q2P15SV3765	CS,A,M,RT
Limit Switch	NAMCO	Q2P15ZS3765	CS,A
Solenoid Valve	ASCO	Q2P15SV3766	R,T,QT,P,H,CS, A,M,QM,RPN
Limit Switch	NAMCO	Q2P15ZS3766	CS,A
Solenoid Valve	ASCO	Q2P15SV3179A	R,T,QT,P,H,CS, A,M,QM,RPN
Limit Switch	NAMCO	Q2P15ZS3179A	CS,A
Solenoid Valve	ASCO	Q2P15SV3179B	R,T,QT,P,H,CS, A,M,QM,RPN
Limit Switch	NAMCO	Q2P15ZS3179B	CS,A
Solenoid Valve	ASCO	Q2P15SV3179C	R,T,QT,P,H,CS, A,M,QM,RPN
Limit Switch	NAMCO	Q2P15ZS3179C	CS,A
Solenoid Valve	ASCO	Q2P15SV3180A	R,T,QT,P,H,CS, A,M,QM,RPN
Limit Switch	NAMCO	Q2P15ZS3180A	CS,A
Solenoid Valve	ASCO	Q2P15SV3180B	R,T,QT,P,H,CS, A,M,QM,RPN
Limit Switch	NAMCO	Q2P15ZS3180B	CS,A
Solenoid Valve	ASCO	Q2P15SV3180C	R,T,QT,P,H,CS, A,M,QM,RPN
Limit Switch	NAMCO	Q2P15ZS3180C	CS,A
Solenoid Valve	ASCO	Q2P15SV3181A	R,T,QT,P,H,CS, A,M,QM,RPN
Limit Switch	NAMCO	Q2P15ZS3181A	CS,A
Solenoid Valve	ASCO	Q2P15SV3181B	R,T,QT,P,H,CS, A,M,QM,RPN

Equipment Description	Manufacturer	Component No.	Deficiency
Limit Switch	NAMCO	Q2P15ZS3181B	CS,A
Solenoid Valve	ASCO	Q2P15SV3181C	R,T,QT,P,H,CS, A,M,QM,RPN
Limit Switch	NAMCO	Q2P15ZS3181C	CS,A
Solenoid Valve	ASCO	Q2P15SV3104	R,T,QT,P,H,CS, A,M,QM,RPN
Limit Switch	NAMCO	Q2P15ZS3104	CS,A
Penetration	General Electric	Q2T52B019	QT,CS,A,M
Terminal Block	States Co.	Q2P15SV3103-A/JB	CS,A
Junction Box	States Co.	Q2P15SV375-A/JB	CS,A
Terminal Block	States Co.	Q2P15SV3766-A/JB	CS,A
Terminal Block	States Co.	Q2P15SV3179A-A/JB	CS,A
Terminal Block	States Co.	Q2P15SV3179B-A/JB	CS,A
Terminal Block	States Co.	Q2P15SV3179C-B/JB	CS,A
Terminal Block	States Co.	Q2P15SV3180A-A/JB	CS,A
Terminal Block	States Co.	Q2P15SV3180B-A/JB	CS,A
Terminal Block	States Co.	Q2P15SV3180C-B/JB	CS,A
Terminal Block	States Co.	Q2P15SV3181A-A/JB	CS,A
Terminal Block	States Co.	Q2P15SV3181B-A/JB	CS,A
Terminal Block	States Co.	Q2P15SV3181C-A/JB	CS,A

Equipment Description	Manufacturer	Component No.	Deficiency
Terminal Block	States Co.	Q2P15SV3104-A/JB	CS,A
Control Cable	Okonite	2VAL5063B	QT,CS,A,M
Control Cable	Okonite	2VAQ5049H	QT,CS,A,M
Control Cable	Okonite	2VXR5010B	QT,CS,A,M
Control Cable	Okonite	2VAL5065B	QT,CS,A,M
Control Cable	Okonite	2VAQ5032J	QT,CS,A,M
Control Cable	Okonite	2VXR5010F	QT,CS,A,M
Control Cable	Okonite	2VAL5066A	QT,CS,A,M
Control Cable	Okonite	2VAQ5033J	QT,CS,A,M
Control Cable	Okonite	2VXR5010H	QT,CS,A,M
Control Cable	Okonite	2VAL5084B	QT,CS,A,M
Control Cable	Okonite	2VAL5085B	QT,CS,A,M
Control Cable	Okonite	2VBL5074B	QT,CS,A,M
Control Cable	Okonite	2VAL5086B	QT,CS,A,M
Control Cable	Okonite	2VAL5087B	QT,CS,A,M
Control Cable	Okonite	2VBL5075B	QT,CS,A,M
Control Cable	Okonite	2VAL5088B	QT,CS,A,M
Control Cable	Okonite	2VAL5089B	QT,CS,A,M
Control Cable	Okonite	2VBL5076B	QT,CS,A,M
Control Cable	Okonite	2VAL5064B	QT,CS,A,M
Control Cable	Okonite	2VAQ5047H	QT,CS,A,M
Control Cable	Okonite	2VXR5010D	QT,CS,A,M
Motor Operated Valve	Limitorque	Q2P16V207A	CS,A
Motor Operated Valve	Limitorque	Q2P16V207B	CS,A

Equipment Description	Manufacturer	Component No.	Deficiency
Motor Operated Valve	Limitorque	Q2P16V207C	CS,A
Motor Operated Valve	Limitorque	Q2P16V207D	CS,A
Motor Operated Valve	Limitorque	Q2P16V081	CS,A
Power Cable	Okonite	2VBFV-J4Q	QT,CS,A,M
Control Cable	Okonite	2VBFV-J4D	QT,CS,A,M
Control Cable	Okonite	2VBQ5007D	QT,CS,A,M
Control Cables	Okonite	2VYR4006B,D	QT,CS,A,M
Control Cables	Okonite	2VYKB164B,C	QT,CS,A,M
Power Cable	Okonite	2VBFV-J5Q	QT,CS,A,M
Control Cable	Okonite	2VBFV-J5D	QT,CS,A,M
Control Cable	Okonite	2VBQ5009D	QT,CS,A,M
Power Cable	Okonite	2VAFU-K6Q	QT,CS,A,M
Control Cable	Okonite	2VAFU-K6D	QT,CS,A,M
Control Cable	Okonite	2VAQ5007D	QT,CS,A,M
Control Cables	Okonite	2VXR5005B,D,F	QT,CS,A,M
Control Cables	Okonite	2VXKB164B,C	QT,CS,A,M
Power Cable	Okonite	2VAFU-W2Q	QT,CS,A,M
Control Cable	Okonite	2VAFU-W2D	QT,CS,A,M
Power Cable	Okonite	2VAFU-H4Q	QT,CS,A,M
Control Cable	Okonite	2VAFU-H4A	QT,CS,A,M
Control Cable	Okonite	2VAQ5002F	QT,CS,A,M
Motor Operated Valve	Limitorque	Q2P17V097	CS,A
Solenoid Valve	ASCO	Q2P17SV3184	CS,A
Limit Switch	NAMCO	Q2P17ZS3184	CS,A

Equipment Description	Manufacturer	Component No.	Deficiency
Solenoid Valve	ASCO	Q2P17SV3443	R,T,QT,P,H,CS, A,M,QM,RPN
Limit Switch	NAMCO	Q2P17ZS3443	CS,A
Terminal Block	States Co.	Q2P17SV3184-B/JB	CS,A
Penetration	General Electric	Q2T52B041	QT,CS,A,M
Terminal Block	States Co.	Q2P17SV3443-A/JB	CS,A
Power Cable	Okonite	2VBFV-C3Q	QT,CS,A,M
Control Cable	Okonite	2VBFV-C3D	QT,CS,A,M
Control Cable	Okonite	2VBQ5017C	QT,CS,A,M
Control Cable	Okonite	2VYR5006F	QT,CS,A,M
Control Cables	Okonite	2VBL5009C,D,E,F	QT,CS,A,M
Control Cable	Okonite	2VBQ5017H	QT,CS,A,M
Control Cable	Okonite	2VYR5035B	QT,CS,A,M
Control Cable	Okonite	2VAL5055C	QT,CS,A,M
Control Cable	Okonite	2VAQ5029H	QT,CS,A,M
Instrument Cable	Okonite	2VYR5064F	QT,CS,A,M

APPENDIX C

Equipment Considered Acceptable or Conditionally Acceptable
(Category 4.3)

Equipment Description	Manufacturer	Component No.	Deficiency
Control Cables	Okonite	2VAQ5008C,H	A
Control Cables	Okonite	2VXR5007G,H,J	A
Control Cable	Okonite	2VAL5076A	A
Control Cable	Okonite	2VAL5077A	A
Control Cable	Okonite	2VAL5078A	A
Control Cable	Okonite	2VAQ5030E	A
Control Cable	Okonite	2VAQ5031E	A
Control Cable	Okonite	2VAQ5032E	A
Control Cable	Okonite	2VXR5008G,H,J	A
Control Cables	Okonite	2VAFU-U4A,D	A
Control Cables	Okonite	2VAFU-U5A,D	A
Control Cables	Okonite	2VAFU-I2A,D	A
Control Cable	Okonite	2VAL5007B	A
Control Cable	Okonite	2VAL5008B	A
Control Cable	Okonite	2VAL5009B	A
Instrument Cable	Boston Insulated Wire	2VAL5007C	A
Instrument Cable	Boston Insulated Wire	2VAL5008C	A
Instrument Cables	Boston Insulated Wire	2VAL5009C	A
Control Cables	Okonite	2VAQ5010E,K	A
Control Cables	Okonite	2VAQ5012E,K	A

Equipment Description	Manufacturer	Component No.	Deficiency
Control Cables	Okonite	2VAQ5014E,K	A
Control Cables	Okonite	2VXR5007K,L,M	A
Control Cable	Okonite	2VAL5013C	A
Control Cable	Okonite	2VAL5014C	A
Control Cable	Okonite	2VAL5015C	A
Instrument Cable	Boston Insulated Wire	2VAL5013D	A
Instrument Cable	Boston Insulated Wire	2VAL5014D	A
Instrument Cable	Boston Insulated Wire	2VAL5015D	A
Control Cables	Okonite	2VAQ5048H,K	A
Control Cables	Okonite	2VAQ5006C,H	A
Power Cable	Okonite	2VAFU-U4Q	A
Power Cable	Okonite	2VAFU-U5Q	A
Power Cable	Okonite	2VAFU-I2Q	A
Control Cable	Okonite	2VAL5120A,B,C,D	A
Control Cable	Okonite	2VBL5092A, B, C	A
Power Cable	Okonite	2VBFV-K2Q	A
Power Cable	Okonite	2VBFV-K3Q	A
Power Cable	Okonite	2VBFV-L2Q	A
Control Cable	Okonite	2VBFV-K2A	A
Control Cable	Okonite	2VBFV-K3A	A

Equipment Description	Manufacturer	Component No.	Deficiency
Control Cable	Okonite	2VBFV-L2A	A
*Motor Operated Globe Valve	Limitorque	Q2N23V011A	A
Motor Operated Globe Valve	Limitorque	Q2N23V001B	A
Motor Operated Globe Valve	Limitorque	Q2N23V001C	A
Control Cable	Okonite	2VAL5003B	A
Control Cable	Okonite	2VAQ5011A	A
Control Cable	Okonite	2VXR5007F	A
Control Cable	Okonite	2VBL5007B	A
Control Cable	Okonite	2VBQ5013B	A
Control Cable	Okonite	2VYR5033E	A
Control Cable	Okonite	2VAL5004C	A
Control Cable	Okonite	2VAQ5010D	A
Control Cable	Okonite	2VBL5005C	A,
Control Cable	Okonite	2VBQ5011B	A,
Control Cables	Okonite	2VXKJ183C,D,G,H	A
*Motor Operated Valve	Limitorque	Q2N21V001A-B	A
Motor Operated Valve	Limitorque	Q2N21V001B-B	A
Motor Operated Valve	Limitorque	Q2N21V001C-B	A
Control Cable	Okonite	2VAL5047C	A
Control Cable	Okonite	2VAQ5017A	A
Control Cable	Okonite	2VBL5010E,D	A

Equipment Description	Manufacturer	Component No.	Deficiency
Control Cable	Okonite	2VBL5021C	A
Control Cable	Okonite	2VBQ5013D	A
Control Cable	Okonite	2VBT0001F,G,H	A
Control Cable	Okonite	2VBL5011E,D	A
Control Cable	Okonite	2VBL5022C	A
Control Cable	Okonite	2VBQ5015D	A
Control Cable	Okonite	2VBL5012E,D	A
Control Cable	Okonite	2VBL5023C	A
Control Cable	Okonite	2VBQ5017E	A
Control Cable	Okonite	2VAL5045B	A
Control Cable	Okonite	2VAQ5013B	A
Control Cable	Okonite	2VXR5008A	A
Control Cable	Okonite	2VAL5046B	A
Control Cable	Okonite	2VAQ5015B	A
Control Cable	Okonite	2VXR5008B	A
Control Cable	Okonite	2VAL5047B	A
Control Cable	Okonite	2VAQ5017B	A
Control Cable	Okonite	2VXR5008C	A
Control Cable	Okonite	2VBL5021B	A
Control Cable	Okonite	2VBQ5013E	A
Control Cable	Okonite	2VBL5022B	A

Equipment Description	Manufacturer	Component No.	Deficiency
Control Cables	Okonite	2VAL5019E,F	A
Control Cable	Okonite	2VAL5045C	A
Control Cable	Okonite	2VAQ5013A	A
Control Cable	Okonite	2VAT0001C,D,E	A
Control Cable	Okonite	2VAL5020E,F	A
Control Cable	Okonite	2VAL5046C	A
Control Cable	Okonite	2VAQ5015A	A
Control Cable	Okonite	2VAL5021E,F	A
Control Cable	Okonite	2VAL5060B	A
Control Cable	Okonite	2VBL4025B	A
Control Cable	Okonite	2VXL5071A	A
Control Cable	Okonite	2VAL5061C	A
Control Cables	Okonite	2VBL5034C,D	A
Control Cable	Okonite	2VXL5072B	A
Control Cable	Okonite	2VAL5062B	A
Control Cables	Okonite	2VBL5035B,D	A
Control Cable	Okonite	2VXL5073A	A
Level Transmitter	Barton	Q2C22LT474	A
Level Transmitter	Barton	Q2C22LT475	A
Level Transmitter	Barton	Q2C22LT476	A
Level Transmitter	Barton	Q2C22LT484	A

Equipment Description	Manufacturer	Component No.	Deficiency
Level Transmitter	Barton	Q2C22LT485	A
Level Transmitter	Barton	Q2C22LT486	A
Level Transmitter	Barton	Q2C22LT494	A
Level Transmitter	Barton	Q2C22LT495	A
Level Transmitter	Barton	Q2C22LT496	A
Flow Transmitter	Barton	Q2C22FT474	A
Flow Transmitter	Barton	Q2C22FT475	A
Flow Transmitter	Barton	Q2C22FT484	A
Flow Transmitter	Barton	Q2C22FT485	A
Flow Transmitter	Barton	Q2C22FT494	A
Flow Transmitter	Barton	Q2C22FT495	A
Control Cable	Okonite	2VBQ5015E	A
Control Cable	Okonite	2VBL5023B	A
Control Cable	Okonite	2VBQ5017F	A
Level Transmitter	Barton	Q2N11LT477	A
Level Transmitter	Barton	Q2N11LT487	A
Level Transmitter	Barton	Q2N11LT497	A

APPENDIX D

Safety-Related Systems List[1]

Function	System
Emergency Reactor Shutdown	Reactor Protection Engineered Safeguards Actuation Reactor Coolant Chemical and Volume Control
Containment Isolation	Main Feedwater and Condensate Auxiliary Feedwater Main and Auxiliary Steam Residual Heat Removal Chemical Injection Chemical and Volume Control Liquid Waste Disposal Component Cooling Water Service Water Containment Spray Sampling Containment Cooling and Purge
Reactor Core Cooling	Chemical and Volume Control/Safety Injection Safeguards System, RHR/LHSI
Containment Heat Removal	Containment Spray Containment Cooling and Purge Residual Heat Removal
Core Residual Heat Removal	Auxiliary Feedwater Main Feedwater and Condensate Main Steam Residual Heat Removal (1) Component Cooling Water Service Water Chemical and Volume Control

[1]The NRC staff recognized that there are differences in nomenclature of systems because of plant vintage and engineering design; consequently, some systems performing identical or similar functions may have different names. In those instances it was necessary to verify the system(s) function with the responsible IE regional reviewer and/or the licensee.

(1)Only equipment required to achieve hot shutdown following an accident is included in the master list submitted by licensee. Cold shutdown equipment is to be addressed later.

Function	System
Prevention of Significant Release of Radioactive Material to Environment	Containment Spray (Iodine Removal) Containment Post-LOCA Air Mixing Reactor Cavity Post-LOCA Dilution Hydrogen Recombiner Radiation Monitoring Sampling
Supporting Systems	Emergency Power Control Room Habitability Safety Equipment Area Ventilation

APPENDIX C

FINDINGS OF
FEDERAL EMERGENCY MANAGEMENT AGENCY

FEDERAL EMERGENCY MANAGEMENT AGENCY
Washington, D.C. 20472

11 MAR 1981

Mr. William J. Dircks
Executive Director
for Operations
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Dircks:

On November 10, 1980, in accordance with the Federal Emergency Management Agency (FEMA) Rule 44 CFR 350 (proposed), the State of Alabama submitted its plan and associated local plans related to the J. M. Farley nuclear power facility to the Regional Director of FEMA Region IV for FEMA review and approval. The Regional Director forwarded his evaluation dated January 26, 1981, to me in accordance with paragraph 350.11 of the proposed Rule. His submission included a critique of the exercise conducted on November 19-20, 1980, at the Farley facility and a report of the public meeting held on November 18, 1980, to explain the site-specific aspects of the State and local plans. His evaluation also included those aspects of the Georgia State and local plans as they relate to the Farley facility.

Based on this evaluation and a review by the FEMA Headquarters staff, I find and determine that subject to the condition stated below, the plans and preparedness for the Farley facility are adequate to protect the health and safety of the public living in the vicinity of the facility by providing reasonable assurance that appropriate protective measures can and will be taken off-site in the event of a radiological emergency and are capable of being implemented.

Accordingly, I approve the Alabama State and local plans relative to the Farley facility subject to the requirement that by July 1, 1981, the public alerting and notification system meets FEMA/Nuclear Regulatory Commission criteria as stated in NUREG-0654/FEMA-REP-1, Revision 1.

Sincerely yours,

John W. McConnell
Acting Associate Director for
Plans and Preparedness

APPENDIX D

Errata to SER Supplement 5

SER Supplement 5 Page No.	Line No.	
6-6	8	Add after indicated "based on information from the vendor,"
	9	Delete sentence "This has been confirmed by a vendor representative."
6-7	35	Delete "for our review"
	36	Change date from "July 1, 1981" to "October 1, 1981"
6-16	28	Change item (2) to read "(2) provisions (or modifications) as necessary to assure that the safety grade backup means of reactor coolant system depressurization is in accordance with Table 1 in Branch Technical Position RSB 5-1, Rev. 1, and".
22.3-3	36	Delete "for review and approval"
	39	Change "for review and approval within 60 days after burnup sufficient to produce meaningful test results and training." to "within 60 days after operation for 25,000 MW(e) - days."
	46	Delete "and approved".

NRC FORM 335 (7 77)

U.S. NUCLEAR REGULATORY COMMISSION

BIBLIOGRAPHIC DATA SHEET

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16. ABSTRACT *(200 words or less)*

Supplement No. 6 to the Safety Evaluation Report of Alabama Power Company's application for licenses to operate its Joseph M. Farley Nuclear Plant, Unit 2, located in Houston County, Alabama, has been prepared by the Office of Nuclear Reactor Regulation of the U. S. Nuclear Regulatory Commission. This Supplement reports on matters completed since issuance of Supplement No. 5. Supplement No. 6 supports issuance of the full power operating license.

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