DMB 016

JUNE 15 1981

Docket Nos. 50-313/368

MEMORANDUM FOR: E. L. Jordan, Deputy Director, Division of Resident and Regional Reactor Inspection, IE

FROM: Thomas M. Novak, Assistant Director for Operating Reactors

SUBJECT: ANO-1&2 - ESF RESET CONTROL DESIGN DEFICIENCY - I&E BULLETIN 80-06

Task Interface agreement ROI-80-15, assigned the responsibility to the Office of Nuclear Reactor Regulation for reviewing the licensee's responses to Items 1 and 3 of I&E Bulletin 80-06. Our review of Arkansas Power and Light Company responses to the bulletin for the Arkansas Nuclear One Unit Nos. 1 and 2 are complete. The Technical Evaluation Report (TER) prepared by our contractor EG&G and our Safety Evaluation Report (SER) are attached.

Please note that except for the Auxiliary Feedwater System we found that for all systems serving Safety related functions that the associated Safety related equipment remained in their emergency mode. In the Main Feedwater systems the control valves opened on reset action. The emergency mode is closed. In response to our request the licensee by letter dated June 18, 1980, supplemented by letter dated January 26, 1981, committed to revise design to keep the control valves closed. We therefore found the licensees response to Items 1 and 3 of the I&E Bulletin 80-06 acceptable.

Original signed by:
Thomas M. Novak

Thomas M. Novak, Assistant Director for Operating Reactors

Attachment:
As stated

cc:
JStolz
GVissing
RClark
RMartin

DISTRIBUTION
~~Central~~ File
ORB#4 Rdg
DEisenhut
JStolz
GVissing
RIngram
ECase
Memo. File
RMartin
RClark
PKreutzer-3
TNovak

OFFICE	ORB#4:DL	ORB#3:DL	C-ORB#3:DL	C-ORB#4:DL	AD:OR:DL		
SURNAME	GVissing;cf	RMartin	RClark	JStolz	TNovak		
DATE	6/11/81	6/11/81	6/11/81	6/12/81	6/15/81		

central file-2

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

June 15, 1981

Docket Nos. 50-313/368

MEMORANDUM FOR: E. L. Jordan, Deputy Director, Division of Resident and Regional Reactor Inspection, IE

FROM: Thomas M. Novak, Assistant Director for Operating Reactors

SUBJECT: ANO-1&2 - ESF RESET CONTROL DESIGN DEFICIENCY - I&E BULLETIN 80-06

Task Interface agreement ROI-80-15, assigned the responsibility to the Office of Nuclear Reactor Regulation for reviewing the licensee's responses to Items 1 and 3 of I&E Bulletin 80-06. Our review of Arkansas Power and Light Company responses to the bulletin for the Arkansas Nuclear One Unit Nos. 1 and 2 are complete. The Technical Evaluation Report (TER) prepared by our contractor EG&G and our Safety Evaluation Report (SER) are attached.

Please note that except for the Auxiliary Feedwater System we found that for all systems serving Safety related functions that the associated Safety related equipment remained in their emergency mode. In the Main Feedwater systems the control valves opened on reset action. The emergency mode is closed. In response to our request the licensee by letter dated June 18, 1980, supplemented by letter dated January 26, 1981, committed to revise design to keep the control valves closed. We therefore found the licensees response to Items 1 and 3 of the I&E Bulletin 80-06 acceptable.

T M Novak

Thomas M. Novak, Assistant Director for Operating Reactors

Attachment:
As stated

cc:
JStolz
GVissing
RClark
RMartin

SAFETY EVALUATION REPORT
ARKANSAS NUCLEAR ONE-UNITS 1&2
LICENSEE RESPONSE TO I&E BULLETIN 80-06,
ENGINEERED SAFETY FEATURES (ESF) RESET CONTROLS

INTRODUCTION

Instances have been reported at operating nuclear power plants where it had been found that following the reset of an ESF actuated signal, certain equipment (e.g., ventilation dampers, motors, and valves) would return to its normal mode which could compromise the protective actions of the affected systems. As a result, on March 13, 1980 the NRC issued I&E Bulletin 80-06 requesting certain actions to be taken by licensees for all PWR and BWR facilities with operating licenses.

EVALUATION

The enclosed report (EGG 1183-4200) was prepared for us by E G & G, Inc., San Ramon, California as part of our technical assistance contractor program. It provides their technical evaluation of the licensee's response to I&E Bulletin 80-06 in accordance with NRC-provided guidance.

For all safety systems, E G & G concluded that safety-related equipment remains in its emergency mode upon reset of the ESF actuated signals, except for the seventeen (17) valves identified in Unit 1 and the eighteen (18) valves identified in Unit 2 found to change position upon ESFAS reset. The licensee provided detailed system modification schemes for each of these devices which E G & G concluded will assure that the identified devices will remain in their emergency mode position upon ESFAS reset. Further, the licensee committed to modify and test Unit 1 systems during the May 1980 refueling outage and to modify and test Unit 2 systems during the April 1981 refueling outage, to demonstrate compliance. Therefore, E G & G found the plant to satisfy the requirements of I&E Bulletin 80-06.

CONCLUSION

Based on the information and documents provided by the licensee, and on our review of the contractor's report, we conclude that the licensee has satisfied the concerns of I&E Bulletin 80-06, subject to the successful completion of confirmatory testing. Therefore, we find the ESF reset controls for the Arkansas Nuclear One-Units 1 and 2 in compliance with NRC criteria.

TECHNICAL EVALUATION OF THE LICENSEE'S RESPONSE TO IE BULLETIN 80-20 CONCERNING ESF RESET CONTROLS FOR THE ARKANSAS NUCLEAR ONE UNITS 1 AND 2

(DOCKET NOS. 50-313 and 50-368)

SAN RAMON OPERATIONS
2600 CAMINO RAMON
SAN RAMON, CALIFORNIA 94583

INTERIM REPORT

EG&G
Energy Measurements Group
San Ramon Operations

NRC TAC No. 42720 and 42721

Report No. EGG-1183-4200

Contract Program or Project Title:

Electrical, Instrumentation and Control System Support

Subject of this Document:

Technical Evaluation of the Licensee's Response to I&E Bulletin 80-06 Concerning ESF Reset Controls for the Arkansas Nuclear One, Units 1 and 2

Type of Document:

Informal Report

Author(s):

D.H. Laudenbach

Date of Document:

April 1981

Responsible NRC Individual and NRC Office or Division:

P. Bender/ R. Wilson, ICSB

This document was prepared primarily for preliminary or internal use. It has not received full review and approval. Since there may be substantive changes, this document should not be considered final.

EG&G Energy Measurements Group
San Ramon Operations
San Ramon, CA 94583

Prepared for the
U.S. Nuclear Regulatory Commission
Washington, D.C.
Under DOE Contract No. B&R 201904031
NRC FIN No. A0250

INTERIM REPORT

EG&G
Energy Measurements Group
San Ramon Operations

EGG 1183-4200
April 1981

TECHNICAL EVALUATION OF THE LICENSEE'S RESPONSE TO I&E BULLETIN 80-06 CONCERNING ESF RESET CONTROLS FOR THE ARKANSAS NUCLEAR ONE UNITS 1 AND 2

(DOCKET NOS. 50-313 and 50-368)

by

D. H. Laudenbach

Approved for Publication

J. R. Radosevic
Department Manager

This document is UNCLASSIFIED

Derivative Classifier:
Nicholas E. Broderick
Department Manager

Work Performed for Lawrence Livermore National Laboratory under U.S. Department of Energy Contract No. DE-AC08-76 NVO 1183.

INTRODUCTION

On March 13, 1980, the USNRC Office of Inspection and Enforcement (I&E), issued I&E Bulletin 80-06, entitled "Engineered Safety Feature (ESF) Reset Controls," to all PWR and BWR facilities with operating licenses. I&E Bulletin 80-06 requested that the following actions be taken by the licensees:

(1) Review the drawings for all systems serving safety-related functions at the schematic/elementary diagram level to determine whether or not upon the reset of an ESF actuation signal all associated safety-related equipment remains in its emergency mode.

(2) Verify that the actual installed instrumentation and controls at the facility are consistent with the schematics reviewed in Item 1 above by conducting a test to demonstrate that all equipment remains in its emergency mode upon removal of the actuating signal and/or manual resetting of the various isolating or actuation signals. Provide a schedule for the performance of the testing in your response to this bulletin.

(3) If any safety-related equipment does not remain in its emergency mode upon reset of an ESF signal at your facility, describe proposed system modification, design change, or other corrective action planned to resolve the problem.

(4) Report in writing within 90 days the results of your review, include a list of all devices which respond as discussed in Item 2 above, actions taken or planned to assure adequate equipment control, and a schedule for implementation of corrective action.

This technical evaluation addresses the licensee's response to I&E Bulletin 80-06 and the licensee's proposed system modification, design change, and/or other corrective action planned to resolve the problem. In evaluating the licensee's response to the four Action Item requirements of the bulletin, the following NRC staff guidance is also used:

> Upon the reset of ESF signals, all safety-related equipment shall remain in its emergency mode. Multiple reset sequencing shall not cause the affected equipment to deviate from its emergency mode. Justification should be provided for any exceptions.

EVALUATION AND CONCLUSIONS

In a letter dated June 18, 1980 [Ref. 1], Arkansas Power and Light Company, the licensee for Arkansas Nuclear One, Units 1 and 2 (ANO-1 and ANO-2), replied to I&E Bulletin 80-06. Following a January 7, 1981 telephone conference call [Ref. 2], NRC sent a letter dated January 12, 1981 [Ref. 3] to the licensee requesting a written response to the information discussed during the conference call. The licensee provided a supplemental response to I&E Bulletin 80-06 in a letter dated January 26, 1981 [Ref. 4].

The licensee reported [Ref. 1] that a review of the schematic drawings for ESF components has been completed for both ANO-1 and ANO-2, and from this review it was determined that not all ESF-associated safety-related equipment remained in its emergency mode upon ESF activation signal reset. Attachment 1 of reference 1 listed 17 valves at ANO-1 that do not remain in their emergency mode upon ESF reset. Attachment 2 of reference 1 listed 18 valves at ANO-2 that do not remain in their emergency mode upon ESF reset. We conclude that the licensee has complied with the requirements of Action Items 1 and 4 of I&E Bulletin 80-06 by completing the drawing review of all ESF-associated safety-related equipment and by identifying the devices that do not remain in the emergency mode upon ESF reset.

The licensee reported [Ref. 1] that as a result of design changes made last year and earlier this year, a test was conducted of all ANO-1 ESF components. This test checked removal of the ES signal to each component and operator action to position the component after an ES actuation. The licensee indicated that this test, in addition to the testing conducted as a result of design changes made in response to Action Item 3, is sufficient to verify that the actual installed instrumentation and controls are consistent with the schematics reviewed in response to Action Item 1. The licensee indicated [Ref. 1] that testing has been completed at ANO-2 to verify that the actual installed instrumentation and controls are consistent with the schematics reviewed in response to Action Item 1. In all cases, the schematics and test results agreed as to which components would remain or change position upon removal of the ESF signal. The licensee indicated [Ref. 4] that the required ANO-2 modifications would be installed and tested prior to startup from the upcoming refueling outage, scheduled to begin on or about April 1, 1981. We conclude that the licensee has complied with the requirements of Action Item 2 of I&E Bulletin 80-06 by providing a schedule for the performance of testing.

The licensee provided [Ref. 2] a verbal description of the modifications performed on the 17 identified valves at ANO-1 and a verbal description of the modifications planned for the 18 valves identified at ANO-2. The licensee subsequently provided a written narrative description of the modifications installed at ANO-1 and planned for ANO-2 [Ref. 4].

The licensee indicated [Ref. 4] that testing of the modifications installed at ANO-1 was completed on May 2, 1980 and the modifications planned for ANO-2 will be installed and tested prior to startup from the upcoming refueling outage, scheduled to begin on or about April 1, 1981. The modifications, as presented [Refs. 2 and 4], will insure that the identified valves will remain in their emergency mode position upon ESF reset; therefore, we conclude that the licensee has complied with the requirements of Action Item 3 of I&E Bulletin 80-06.

FINDINGS

Based on our review of the information and documents provided by the licensee, we find that the ESF reset controls for Arkansas Nuclear One, Units 1 and 2, satisfy the requirements of I&E Bulletin 80-06.

REFERENCES

1. Arkansas Power and Light Company letter (W. Cavanaugh, III) to NRC/I&E (K. V. Seyfrit), "Response to I&E Bulletin 80-06," dated June 18, 1980.

2. Telephone conference call (R. Wilson, P. Bender, G. Vissing) NRC; (M. Stroud, L. Young, R. Turner, M. Smith) Arkansas Power and Light Company; (M. Nishimura, D. Laudenbach) EG&G San Ramon, January 7, 1981.

3. NRC/ORB4 letter (R. W. Reid) to Arkansas Power and Light Company, (W. Cavanaugh, III), "Request for Additional Information," dated January 12, 1981.

4. Arkansas Power and Light Company letter (D. C. Trimble) to NRC/ORB4 (R. W. Reid), "Supplemental Response to I&E Bulletin 80-06," dated January 26, 1981.

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

June 15, 1981

Docket Nos. 50-313/368

MEMORANDUM FOR: E. L. Jordan, Deputy Director, Division of Resident and Regional Reactor Inspection, IE

FROM: Thomas M. Novak, Assistant Director for Operating Reactors

SUBJECT: ANO-1&2 - ESF RESET CONTROL DESIGN DEFICIENCY - I&E BULLETIN 80-06

Task Interface agreement ROI-80-15, assigned the responsibility to the Office of Nuclear Reactor Regulation for reviewing the licensee's responses to Items 1 and 3 of I&E Bulletin 80-06. Our review of Arkansas Power and Light Company responses to the bulletin for the Arkansas Nuclear One Unit Nos. 1 and 2 are complete. The Technical Evaluation Report (TER) prepared by our contractor EG&G and our Safety Evaluation Report (SER) are attached.

Please note that except for the Auxiliary Feedwater System we found that for all systems serving Safety related functions that the associated Safety related equipment remained in their emergency mode. In the Main Feedwater systems the control valves opened on reset action. The emergency mode is closed. In response to our request the licensee by letter dated June 18, 1980, supplemented by letter dated January 26, 1981, committed to revise design to keep the control valves closed. We therefore found the licensees response to Items 1 and 3 of the I&E Bulletin 80-06 acceptable.

Thomas M. Novak, Assistant Director for Operating Reactors

Attachment:
As stated

cc:
JStolz
GVissing
RClark
RMartin

SAFETY EVALUATION REPORT
ARKANSAS NUCLEAR ONE-UNITS 1&2
LICENSEE RESPONSE TO I&E BULLETIN 80-06,
ENGINEERED SAFETY FEATURES (ESF) RESET CONTROLS

INTRODUCTION

Instances have been reported at operating nuclear power plants where it had been found that following the reset of an ESF actuated signal, certain equipment (e.g., ventilation dampers, motors, and valves) would return to its normal mode which could compromise the protective actions of the affected systems. As a result, on March 13, 1980 the NRC issued I&E Bulletin 80-06 requesting certain actions to be taken by licensees for all PWR and BWR facilities with operating licenses.

EVALUATION

The enclosed report (EGG 1183-4200) was prepared for us by E G & G, Inc., San Ramon, California as part of our technical assistance contractor program. It provides their technical evaluation of the licensee's response to I&E Bulletin 80-06 in accordance with NRC-provided guidance.

For all safety systems, E G & G concluded that safety-related equipment remains in its emergency mode upon reset of the ESF actuated signals, except for the seventeen (17) valves identified in Unit 1 and the eighteen (18) valves identified in Unit 2 found to change position upon ESFAS reset. The licensee provided detailed system modification schemes for each of these devices which E G & G concluded will assure that the identified devices will remain in their emergency mode position upon ESFAS reset. Further, the licensee committed to modify and test Unit 1 systems during the May 1980 refueling outage and to modify and test Unit 2 systems during the April 1981 refueling outage, to demonstrate compliance. Therefore, E G & G found the plant to satisfy the requirements of I&E Bulletin 80-06.

CONCLUSION

Based on the information and documents provided by the licensee, and on our review of the contractor's report, we conclude that the licensee has satisfied the concerns of I&E Bulletin 80-06, subject to the successful completion of confirmatory testing. Therefore, we find the ESF reset controls for the Arkansas Nuclear One-Units 1 and 2 in compliance with NRC criteria.

TECHNICAL EVALUATION OF THE LICENSEE'S RESPONSE TO IE BULLETIN 80-06 CONCERNING ESF RESET CONTROLS FOR THE ARKANSAS NUCLEAR ONE UNITS 1 AND 2

(DOCKET NOS. 50-313 and 50-368)

SAN RAMON OPERATIONS
2600 CROW CANYON ROAD
SAN RAMON, CALIFORNIA 94583

INTERIM REPORT

EG&G
Energy Measurements Group
San Ramon Operations

NRC TAC No. 42720 and 42721

Report No. EGG-1183-4200

Contract Program or Project Title:

Electrical, Instrumentation and Control System Support

Subject of this Document:

Technical Evaluation of the Licensee's Response to I&E Bulletin 80-06 Concerning ESF Reset Controls for the Arkansas Nuclear One, Units 1 and 2

Type of Document:

Informal Report

Author(s):

D.H. Laudenbach

Date of Document:

April 1981

Responsible NRC Individual and NRC Office or Division:

P. Bender/ R. Wilson, ICSB

EG&G Energy Measurements Group
San Ramon Operations
San Ramon, CA 94583

Prepared for the
U.S. Nuclear Regulatory Commission
Washington, D.C.
Under DOE Contract No. B&R 201904031
NRC FIN No. A0250

INTERIM REPORT

EG&G
Energy Measurements Group
San Ramon Operations

EGG 1183-4200
April 1981

TECHNICAL EVALUATION OF THE LICENSEE'S RESPONSE TO I&E BULLETIN 80-05 CONCERNING ESF RESET CONTROLS FOR THE ARKANSAS NUCLEAR ONE UNITS 1 AND 2

(DOCKET NOS. 50-313 and 50-368)

by

D. H. Laudenbach

Approved for Publication

J. R. Radosevic
Department Manager

This document is UNCLASSIFIED

Derivative Classifier:
Nicholas E. Broderick
Department Manager

Work Performed for Lawrence Livermore National Laboratory under U.S. Department of Energy Contract No. DE-AC08-76 NVO 1183.

INTRODUCTION

On March 13, 1980, the USNRC Office of Inspection and Enforcement (I&E), issued I&E Bulletin 80-06, entitled "Engineered Safety Feature (ESF) Reset Controls," to all PWR and BWR facilities with operating licenses. I&E Bulletin 80-06 requested that the following actions be taken by the licensees:

(1) Review the drawings for all systems serving safety-related functions at the schematic/elementary diagram level to determine whether or not upon the reset of an ESF actuation signal all associated safety-related equipment remains in its emergency mode.

(2) Verify that the actual installed instrumentation and controls at the facility are consistent with the schematics reviewed in Item 1 above by conducting a test to demonstrate that all equipment remains in its emergency mode upon removal of the actuating signal and/or manual resetting of the various isolating or actuation signals. Provide a schedule for the performance of the testing in your response to this bulletin.

(3) If any safety-related equipment does not remain in its emergency mode upon reset of an ESF signal at your facility, describe proposed system modification, design change, or other corrective action planned to resolve the problem.

(4) Report in writing within 90 days the results of your review, include a list of all devices which respond as discussed in Item 3 above, actions taken or planned to assure adequate equipment control, and a schedule for implementation of corrective action.

This technical evaluation addresses the licensee's response to I&E Bulletin 80-06 and the licensee's proposed system modification, design change, and/or other corrective action planned to resolve the problem. In evaluating the licensee's response to the four Action Item requirements of the bulletin, the following NRC staff guidance is also used:

> Upon the reset of ESF signals, all safety-related equipment shall remain in its emergency mode. Multiple reset sequencing shall not cause the affected equipment to deviate from its emergency mode. Justification should be provided for any exceptions.

EVALUATION AND CONCLUSIONS

In a letter dated June 18, 1980 [Ref. 1], Arkansas Power and Light Company, the licensee for Arkansas Nuclear One, Units 1 and 2 (ANO-1 and ANO-2), replied to I&E Bulletin 80-06. Following a January 7, 1981 telephone conference call [Ref. 2], NRC sent a letter dated January 12, 1981 [Ref. 3] to the licensee requesting a written response to the information discussed during the conference call. The licensee provided a supplemental response to I&E Bulletin 80-06 in a letter dated January 23, 1981 [Ref. 4].

The licensee reported [Ref. 1] that a review of the schematic drawings for ESF components has been completed for both ANO-1 and ANO-2, and from this review it was determined that not all ESF-associated safety-related equipment remained in its emergency mode upon ESF activation signal reset. Attachment 1 of reference 1 listed 17 valves at ANO-1 that do not remain in their emergency mode upon ESF reset. Attachment 2 of reference 1 listed 18 valves at ANO-2 that do not remain in their emergency mode upon ESF reset. We conclude that the licensee has complied with the requirements of Action Items 1 and 4 of I&E Bulletin 80-06 by completing the drawing review of all ESF-associated safety-related equipment and by identifying the devices that do not remain in the emergency mode upon ESF reset.

The licensee reported [Ref. 1] that as a result of design changes made last year and earlier this year, a test was conducted of all ANO-1 ESF components. This test checked removal of the ES signal to each component and operator action to position the component after an ES actuation. The licensee indicated that this test, in addition to the testing conducted as a result of design changes made in response to Action Item 3, is sufficient to verify that the actual installed instrumentation and controls are consistent with the schematics reviewed in response to Action Item 1. The licensee indicated [Ref. 1] that testing has been completed at ANO-2 to verify that the actual installed instrumentation and controls are consistent with the schematics reviewed in response to Action Item 1. In all cases, the schematics and test results agreed as to which components would remain or change position upon removal of the ESF signal. The licensee indicated [Ref. 4] that the required ANO-2 modifications would be installed and tested prior to startup from the upcoming refueling outage, scheduled to begin on or about April 1, 1981. We conclude that the licensee has complied with the requirements of Action Item 2 of I&E Bulletin 80-06 by providing a schedule for the performance of testing.

The licensee provided [Ref. 2] a verbal description of the modifications performed on the 17 identified valves at ANO-1 and a verbal description of the modifications planned for the 18 valves identified at ANO-2. The licensee subsequently provided a written narrative description of the modifications installed at ANO-1 and planned for ANO-2 [Ref. 4].

The licensee indicated [Ref. 4] that testing of the modifications installed at ANO-1 was completed on May 2, 1980 and the modifications planned for ANO-2 will be installed and tested prior to startup from the upcoming refueling outage, scheduled to begin on or about April 1, 1981. The modifications, as presented [Refs. 2 and 4], will insure that the identified valves will remain in their emergency mode position upon ESF reset; therefore, we conclude that the licensee has complied with the requirements of Action Item 3 of I&E Bulletin 80-06.

FINDINGS

Based on our review of the information and documents provided by the licensee, we find that the ESF reset controls for Arkansas Nuclear One, Unit 1 and 2, satisfy the requirements of I&E Bulletin 80-06.

REFERENCES

1. Arkansas Power and Light Company letter (W. Cavanaugh, III) to NRC/I&E (K. V. Seyfrit), "Response to I&E Bulletin 80-06," dated June 18, 1980.

2. Telephone conference call (R. Wilson, P. Bender, G. Vissing) NRC; (M. Stroud, L. Young, R. Turner, M. Smith) Arkansas Power and Light Company; (M. Nishimura, D. Laudenbach) EG&G San Ramon, January 7, 1981.

3. NRC/ORB4 letter (R. W. Reid) to Arkansas Power and Light Company, (W. Cavanaugh, III), "Request for Additional Information," dated January 12, 1981.

4. Arkansas Power and Light Company letter (D. C. Trimble) to NRC/ORB4 (R. W. Reid), "Supplemental Response to I&E Bulletin 80-06," dated January 26, 1981.