



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
101 MARIETTA STREET, N.W.  
ATLANTA, GEORGIA 30323

50-348  
50-364

JAN 02 1991

MEMORANDUM FOR: Gus C. Lainas, A/D for Region II Reactors, NRR  
FROM: Luis A. Reyes, Director, Division of Reactor Projects  
SUBJECT: REQUEST FOR TECHNICAL ASSISTANCE - FARLEY RESPONSE TO  
GL 88-17 REGARDING LOSS OF DECAY HEAT REMOVAL  
(;IA RII-90-20)

During the recent refueling outage of Farley Unit 2 the licensee violated their operating procedures by not assuring that all hot legs are not blocked simultaneously by nozzle dams without an adequate vent. A violation will be issued in Inspection Report 90-33. An excerpt from that report is attached as Enclosure 1.

A review of their operating procedure, FN-2-SOP 1.11 indicates that the licensee maintains that an adequate vent is provided if the reactor vessel head is fully detensioned AND the stud nuts loosened at least 0.17 inch deflection (Enclosure 2). Enclosure 3 is an excerpt from Alabama Power's response to GL 88-17.

Request NRR conduct a review of this matter and advise us of the acceptability of this technique to assure adequate venting. This matter has been discussed among members of our staffs.

  
For Luis A. Reyes

Enclosures:

1. Excerpt IR 90-33
2. Excerpt FN-2-SOP 1.11
3. Excerpt APCo Letter dated  
12/29/88

*DR* 1/1

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FILE NAME  
90-33R1.DOC

DO NOT USE  
FA90-33.DOC

Docket Nos. 50-348, 50-364  
License Nos. NPF-2 and NPF-B

Alabama Power Company  
ATTN: W. G. Hairston, III  
Senior Vice President  
Nuclear Operations  
40 Inverness Center Parkway  
P. O. Box 1295  
Birmingham AL 35101

Gentlemen:

SUBJECT: NOTICE OF VIOLATION  
(NRC INSPECTION REPORT NOS. 50-348/90-33 AND 50-364/90-33)

This refers to the inspection conducted by G. F. Maxwell of this office on November 10 through December 29, 1990. The inspection included a review of activities authorized for your Farley facility. At the conclusion of the inspection, the findings were discussed with those members of your staff identified in the enclosed report.

Areas examined during the inspection are identified in the report. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observation of activities in progress.

Based on the results of this inspection, certain of your activities appeared to be in violation of NRC requirements, as specified in the enclosed Notice of Violation (Notice). We are concerned about the violation because adequate procedures were not in-place to ensure that the plant could be maintained in a safe condition, while in mid-loop operation. The shift supervisor was required to take prompt action to mitigate what he perceived to be an unsafe plant condition because of these procedural inadequacies, ~~for mid-loop operations.~~

In addition to the need for corrective action regarding the specific matters identified in the enclosed Notice, we are concerned about the implementation of your procedural controls that permitted this situation to develop. Please address what measures you are taking to assure that similar inadequacies do not exist in all procedures which effect mid-loop operations.

In accordance with Section 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosures will be placed in the NRC Public Document Room.

The responses directed by this letter and its enclosure Notices(s) are not subject to the clearance procedures of the Office of Management and Budget as required by the Paperwork Reduction Act of 1980, Pub. L. No. 96-511.

Should you have any questions concerning this letter, please contact us.

Sincerely,

David M. Verrelli, Chief  
Reactor Projects Branch 1  
Division of Reactor Projects

Enclosures:

- A. Notice of Violation
- B. NRC Inspection Report

NOTICE OF VIOLATION

Alabama Power Company  
Farley 2

Docket Nos. 50-364  
License Nos. NPF-8

During the Nuclear Regulatory Commission (NRC) inspection conducted on November 10 through December 29, 1990, a violation of NRC requirements was identified. The violation involved inadequate procedures for mid-loop operation. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," 10 CFR Part 2, Appendix C (1990), the violation is cited below:

Technical Specification 6.B.1 requires that applicable written procedures recommended in Appendix A of Regulatory Guide (RG) 1.33, Revision 2, 1978 shall be established, implemented and maintained.

Procedure FNP-2-SOP-1.11, Mid-Loop Operations, Revision 3, Section 3.12, required that the reactor vessel head be fully de-tensioned and stud nuts loosened at least 0.17 inch deflection, or the pressurizer manway removed, or at least one pressurizer safety valve removed to prevent RCS pressurization in the event of a loss of core cooling.

Contrary to the above, on December 9, 1990, licensee personnel failed to ensure that the above conditions were thoroughly met while performing mechanical maintenance activities using FNP-2-MP-1.0, Maintenance Refueling Procedure. This procedure allowed hand-tightening and snug-up of the reactor vessel head stud nuts and washers to the head flange surface while the plant was in mid-loop operation.

Even though SOP-1.11 provided operational guidance for the placement of stud nuts in a position which allowed for head deflection and subsequent RCS venting, the procedure was inadequate in that it failed to provide specific guidance, to both operations and maintenance personnel to ensure that the nuts were truly placed in a prescribed position of 0.17 inches. Also, the corresponding mechanical maintenance procedure, MP-1.0, used by maintenance personnel for de-tensioning and tensioning of the vessel head, failed to make provisions for recommended placement of the studs nuts as prescribed by FNP-2-SOP-1.11.

NOTICE OF VIOLATION (CONTINUED)

This is a Severity Level IV violation (Supplement 1).

Pursuant to the provision of 10 CFR 2.201, Alabama Power Company is hereby required to submit a written statement or explanation to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555, with a copy to the Regional Administrator, Region II, and if applicable, a copy to the NRC Resident Inspector, Farley, within 30 days of the date of the letter transmitting this Notice of Violation (Notice).

This reply should be clearly marked as a "Reply to the Notice of Violation" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. If an adequate reply is not received within the time specified in this Notice, an order may be issued to show cause why the license should not be modified, suspended, or revoked or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extend the response time.

FOR THE NUCLEAR REGULATORY COMMISSION

David M. Verrelli, Chief  
Reactor Projects Branch 1  
Division of Reactor Projects

Dated at Atlanta, Georgia  
this        day of December 1990



I&C personnel determined that the apparent cause of the inadvertent SI signal was attributable to a frayed electrical conductor (a single strand of wire) becoming grounded to the SSPS cabinet.

This strand of wire was removed, the contact re-soldered, other conductors in the SSPS cabinet were inspected for similar conditions and the equipment was returned to service. Subsequently, the test, STP-40.C, was performed satisfactorily.

The licensee reported the event to the NRC and documented the conditions, causes and corrective action on LER 90-04.

(2) Procedures for Mid-Loop Operation - Unit 2

On 12/9/90, the Farley Unit 2 Shift Supervisor identified, during discussions with field personnel, that the nozzle dams were installed in both the hot and cold legs of all three steam generators, and that licensee maintenance personnel had installed the reactor head studs and hand-tightened the stud nuts and washers to the head flange surface, in accordance with, maintenance procedure FNP-2-MP-1.0, Maintenance Refueling Procedure, revision 13. This was contrary to information contained in the operating procedure for mid-loop operations, FNP-2-SOP-1.11, Mid-Loop Operations procedure, revision 3.

SOP-1.11, required that when in mid-loop a vent path shall be provided by, 1) fully de-tensioning the head and further loosening the stud nuts to allow for at least a 0.17 inch deflection, or 2) removal of the pressurizer manway, or 3) removal of at least one pressurizer safety valve. These vent paths were prescribed to prevent RCS over-pressurization in the event of a loss of core cooling.

When informed, the operations shift supervisor immediately dispatched operations personnel to establish containment integrity and maintenance personnel were directed to back-off the stud nuts for a distance of approximately 0.25 inches. This condition; the nuts being hand-tightened against the washers and the vessel flange surface; existed for about 8 hours.

While SOP-1.11 provided operational guidance to require the placement of stud nuts in a position which allowed for proper head deflection and subsequent RCS venting, the procedure was found to be inadequate since it failed to provide specific guidance to maintenance personnel, to ensure that the stud nuts were appropriately placed in the prescribed position of 0.17 inches.

The maintenance procedure, MP-1.0, was also found to be inadequate for it failed to provide detailed provisions to control maintenance personnel activities for placement of the studs nuts to allow for the deflection prescribed by SOP-1.11.

Prior to recognition of the incident, because pressurizer safety valves and the manway cover were in place, operations personnel assumed that the reactor vessel head was serving as the RCS vent path.

After the incident, the licensee determined that there had been other methods in effect for venting the RCS, even though at the time of the event, 12/9/90, they were unaware of these specific vent paths. These vent paths consisted of a PZR block valve which had been previously removed and an open vessel head vent valve.

The licensee documented the event on incident report 2-90-403, and on December 11, a temporary change notice (TCN 31) was written for FNP-2-SOP-1.11. The TCN was more specific and detailed about the vessel head stud nut placement. A similar TCN was written for maintenance procedure FNP-2-MP-1.0 (TCN 13F) on December 10. This TCN requires verification of the distance between the nuts and the stud washers/head flange. After this incident, the inspectors observed an increased awareness on the part of operations and maintenance personnel in maintaining proper RCS vent paths while in mid-loop operations. The licensee has not yet completed corrective actions which would preclude similar mid-loop operation problems from occurring due to procedural inadequacies.

Based on the above, procedures were not in place to ensure that the RCS was capable of relieving pressure. This is a violation and will be identified as 364/90-33-01, Inadequate procedures for mid-loop operation.

No other violations or deviations were identified. The results of the inspections in this area indicate that the program was effective with respect to meeting the safety objectives.

3.9.3 Activities that may affect the RCS should not be performed unless absolutely necessary. IF this type of activity is performed, THEN additional monitoring of RHR pump parameters should be performed. Examples of such parameters are pump suction pressure, pump amps, unusual pump vibration, RHR flow and RCS level.

3.9.4 A continuous level watch is maintained on the tygon level indicator.

3.10 WHEN operating at mid loop (<126'6"), THEN one of the following requirements must be met to minimize the effects of a loss of RHR.

3.10.1 WHEN conditions dictate creating a cold leg opening without a sufficient hot leg vent, THEN containment integrity or containment closure in accordance with FNF-2-SOP-14.1, CONTAINMENT CLOSURE, is required AND a hot leg injection path must be available for makeup and coil cooling.

3.10.2 WHEN conditions dictate creating a cold leg opening, THEN an adequate hot leg vent shall be established OR the conditions of precaution established.

3.11 An adequate hot leg vent is considered established by one of the following conditions.

3.11.1 The pressurizer manway is removed.

3.11.2 All three pressurizer safety valves are removed.

3.11.3 At least one steam generator hot leg primary manway and diaphragm are removed.

3.12 Prior to installing all nozzle dams one of the following criteria MUST be met.

3.12.1 The reactor vessel head must be fully detensioned AND the stud nuts loosened at least 0.17 inch deflection.

3.12.2 The pressurizer manway is removed.

3.12.3 At least one pressurizer safety valve is removed.



*Basis to be adequate vent!*

FN-2-SOP-1.11

Revision 3

Rev. 4  
TCN-3A

3



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W. G. Hairston, III  
Senior Vice President  
Nuclear Operations



Alabama Power  
the southern electric system

December 29, 1988

10CFR50.54

Docket Nos. 50-348  
50-364

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D. C. 20555

Gentlemen:

Joseph M. Farley Nuclear Plant - Units 1 and 2  
Loss of Decay Heat Removal (Generic Letter 88-17)

Generic Letter (G.L.) 88-17 provides recommendations for operation of the NSSS whenever there is irradiated fuel in the reactor vessel and the reactor coolant system (RCS) is partially filled (i.e., mid-loop). These recommendations are given in the form of expeditious actions and programmed enhancements. Alabama Power Company addresses each of the recommended expeditious actions in the attachment to this letter. A second submittal which addresses the programmed enhancements will be provided by February 2, 1989. Alabama Power Company will adhere to the schedule for implementation as specified by the NRC for both Farley Units 1 and 2. Based on NRC guidance provided in G.L. 88-17, Alabama Power Company considers all previous responses made as a result of G.L. 87-12 to be superseded by G.L. 88-17.

The attached responses are based upon current or proposed practices and may be changed in the future if appropriate. Information related to this issue will be available onsite for NRC review. If there are any questions concerning these responses, please advise.

Respectfully submitted,

*W. G. Hairston, III*  
W. G. Hairston, III

WGH,III/BHW:pr-3.4

Attachment

cc: Mr. L. B. Long  
Mr. H. L. Ernst  
Mr. E. A. Reeves  
Mr. G. F. Maxwell

SWORN TO AND SUBSCRIBED BEFORE ME

THIS 29<sup>th</sup> DAY OF December, 1988

*Mary J. Winters*  
Notary Public

My Commission Expires November 24, 1991

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pump. The water addition rate capable of being provided by each of the means should be at least sufficient to keep the core covered. Procedures for use of these systems during loss of RHR events should be provided. The path of water addition must be specified to assure the flow does not bypass the reactor vessel before exiting any opening in the RCS.

APCo Response

Procedures will be revised to require the availability of at least two means of adding water to the RCS in case both RHR pumps become inoperable. At least one of these injection means will be a charging pump (high pressure) capable of injecting water into the RCS. The water addition rate will be at least sufficient to keep the core covered in the event of a loss of RHR. This flow rate can be provided by either a charging pump or gravity drain of the RVST. Procedures and administrative controls will ensure that the systems will be properly aligned to direct flow into the RCS without bypassing the core.

7. NRC Recommendation

~~Implement procedures and administrative controls that reasonably assure that all hot legs are not blocked simultaneously by nozzle dams unless a vent path is provided that is large enough to prevent pressurization of the upper plenum of the reactor vessel.~~

APCo Response

*Open Period - yes  
Maint " - no!*

Nozzle dam installation and removal procedures will be revised to require the cold leg nozzle dam to be installed first and the hot leg nozzle dam removed first. Procedures will be revised to require the reactor vessel head be detensioned and capable of relieving pressure or an adequate hot leg vent provided whenever the RCS is in a reduced inventory condition with all nozzle dams installed. Normally, a sufficient hot leg vent will be provided whenever maintenance requires a cold leg opening; however, if outage situations dictate that providing a hot leg vent would not be practical, the containment will be closed prior to creating a cold leg opening while in a reduced inventory condition. In addition, a hot leg injection path will be available for make-up and core cooling.

*Not done  
not done*

8. NRC Recommendation

Implement procedures and administrative controls that reasonably assure that all hot legs are not blocked simultaneously by closed stop valves unless a vent path is provided that is large enough to prevent