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

JUN 04 1991

Docket Nos. 50-269, 50-270, 50-287
License Nos. DPR-38, DPR-47, DPR-55
EA 91-049

Duke Power Company
ATTN: Mr. M. S. Tuckman, Vice President
Nuclear Operations
P. O. Box 1007
Charlotte, NC 28201-1007

Gentlemen:

SUBJECT: NOTICE OF VIOLATION
(INSPECTION REPORT NOS. 50-269/91-08, 50-270/91-08 AND 50-287/91-08)

This refers to the Nuclear Regulatory Commission (NRC) Augmented Inspection Team (AIT) special inspection conducted on March 12-15, 1991, at the Oconee Nuclear Station. The AIT was chartered on March 11, 1991, and directed to review the loss of reactor coolant inventory event of March 8, 1991. The report documenting this inspection was sent to you by letter dated April 15, 1991. As a result of this inspection, violations of NRC requirements were identified. An Enforcement Conference was held on May 7, 1991, in the NRC Region II office to discuss the violations, their cause, and your corrective action to preclude their recurrence. The letter summarizing this conference was sent to you by letter dated May 15, 1991.

On March 8, 1991, while Unit 3 was in cold shutdown for refueling, the Decay Heat Removal system was lost for approximately 18 minutes due to cavitation of the operating Low Pressure Injection (LPI) pump caused by a rapid primary system water loss. Approximately 9,750 gallons of water were drained from the Reactor Coolant System into containment. Another 4,500 gallons were drained from the Borated Water Storage Tank (BWST) into containment for a total of approximately 14,000 gallons of water. The control room operators took prompt action to stop the water loss, refilled the primary system from the BWST to allow for LPI pump operation and subsequently restarted the pump.

The sequence of activities that lead to this event are fully discussed in the AIT special inspection report. In addition, the report addressed several significant human performance implications that contributed to the event. Most significant were the improper use of a schematic drawing by a maintenance supervisor and his subsequent incorrect verbal instructions to maintenance technicians who, as a result of those instructions and mislabeled piping, mistakenly installed a blank flange on the emergency sump suction line piping for valve 3LP-20 instead of valve 3LP-19. Other human performance aspects which contributed to this event included: (1) additional independent verifications which did not detect the error in the initial flange placement, (2) maintenance and operations personnel who failed to report the reliance on a non-standard label, and (3) miscommunications which occurred between control room operators and maintenance personnel.

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Violation A described in the enclosed Notice of Violation (Notice) involved the installation of a flange on the wrong valve which occurred because of improper instructions from the supervisor to the maintenance technicians who performed the installation and their subsequent reliance on those instructions as well as a non-standard label which incorrectly identified valve 3LP-20 as 3LP-19. Violation B described in the enclosed Notice involved the failure of independent verification activities in that verification that valve 3LP-19 could be manually opened was mistakenly verified because the flange had actually been installed on valve 3LP-20. Violation C described in the enclosed Notice involved the failure to have an adequate procedure for labeling plant equipment, resulting in a handwritten label erroneously identifying valve 3LP-20 as valve 3LP-19.

These violations must be evaluated collectively as they represent a significant example of singular minor events compounding to produce the potential for serious safety consequences. Vulnerability for routine evolutions to rapidly expand into non-routine events is inherently increased during shutdown operation. The NRC recognizes that the safety consequences of the event were minimal since LPI pump 3A and train B were available for use and plant systems required for these conditions were functional. In addition, no Technical Specification required safety limits for these conditions were exceeded. Nevertheless, the event is considered significant since it reflects a lack of plant status awareness by control room operators, and consisted of numerous personnel errors, poor communications, and procedural problems, all of which contributed to the event which is of importance not only during power operation but also during outage conditions. Therefore, the violations are classified in the aggregate as a Severity Level III problem.

In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," (Enforcement Policy) 10 CFR Part 2, Appendix C (1991), a civil penalty is considered for a Severity Level III problem. However, after consultation with the Director, Office of Enforcement, and the Deputy Executive Director for Nuclear Reactor Regulation, Regional Operations and Research, I have decided that a civil penalty will not be proposed in this case because mitigation was warranted for your prompt and extensive reporting and identification of other problems related to this event. Mitigation was also warranted for your immediate corrective action to address procedural, labeling and communications deficiencies and your proposed long term corrective actions, specifically your commitment to complete all corrective actions prior to the next scheduled refueling outage in August 1991. Finally, additional partial mitigation was warranted for your good past performance. No other factors warranted further adjustment of the civil penalty.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. In your response, you should document the specific actions taken and any additional actions you plan to prevent recurrence. After reviewing your response to this Notice, including your proposed corrective actions and the results of future inspections, the NRC will determine whether further NRC enforcement action is necessary to ensure compliance with NRC regulatory requirements.

In accordance with 10 CFR 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 the enclosed Notice 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.

Sincerely,

Albert F Gibson for

Stewart D. Ebneter
Regional Administrator

Enclosure:
Notice of Violation

cc w/encl:
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APR 15 1991

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License Nos. DPR-38, DPR-47, DPR-55

Duke Power Company
ATTN: Mr. M. S. Tuckman, Vice President
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P. O. Box 1007
Charlotte, NC 28201-1007

Gentlemen:

SUBJECT: NRC INSPECTION REPORT NOS.: 50-269/91-08, 50-270/91-08, AND 50-287/91-08

This refers to the special inspection conducted by the Nuclear Regulatory Commission (NRC) Augmented Inspection Team (AIT) at your Oconee facility during the period March 12-15, 1991. The inspection included a review of events that lead to the March 8, 1991, Loss of Decay Heat Removal. At the conclusion of the inspection, the findings were discussed with those members of your staff identified in the enclosed report.

The enclosed copy of the AIT report identifies the areas examined during this inspection. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel and observation of activities in progress.

The AIT concluded that the event was caused by a combination of factors including incorrect labeling, poor verification of flange installation, poor communication between operations and technical personnel, procedural inadequacies and incorrectly using plant drawings. Each of these factors taken singularly are relatively minor; however, taken in total, emphasizes the need for continued management attention to routine evolutions. In addition, events of this nature, although not resulting in serious consequences, provide a basis for changing routine activities when the event and its causal factors receive in-dept analysis. Our report shows there were multiple causal factors, many of them related to human factor deficiencies. Certainly a more detailed and comprehensive event analysis by the Duke staff could have provided additional lessons learned.

This event further reinforces the need for more management attention to the serious consequences of errors committed during shutdown operation. Risk management with consideration for contingency plans could have received more attention at Oconee particularly with regard to the total disablement of the radiation monitoring equipment in the containment.

Within the scope of this inspection, no violations or deviations were identified.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter and its enclosure will be placed in the NRC Public Document Room.

We appreciate your cooperation during our team inspection and subsequent evaluation of this event. Your open discussion of your findings and evaluations were very beneficial.

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

Sincerely,

Stewart D. Ebneter

Stewart D. Ebneter
Regional Administrator

Enclosure:
NRC Inspection Report

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