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SUBJECT: Responds to violations noted in Insp Repts 50-269/92-24, 50-270/92-24 & 50-287/92-24 & proposed imposition of civil penalty.Requests mitigation of penalty since prompt corrective action taken re LPSW sys degradation.

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DUKE POWER

D05

February 25, 1993

Mr. James Lieberman, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Oconee Nuclear Site
Docket Nos. 50-269, 270, 287/92-24
Response to proposed Civil Penalty EA 92-211

Dear Mr. Lieberman,

In accordance with 10 CFR 2.201 and 10 CFR 2.205, Duke Power Company (Duke) hereby files its "Answer to a Notice of Violation" and proposed imposition of civil penalty issued by the NRC (Region II) on December 28, 1992. Duke's position is that the cited violation was not safety significant and by itself does not warrant significant regulatory concern. Accordingly, Duke requests mitigation of the civil penalty.

Duke believes the particular example cited in this violation does not adequately consider all of the related information that accompanied the discovery and identification of the degraded Low Pressure Service Water (LPSW) system flow condition. Also, Duke believes that mitigation factors were not fully considered when determining the civil penalty amount. Duke's response to the NOV is provided in Attachment 1. Details supporting Duke's position concerning the mitigation factors are provided in Attachment 2.

I declare under penalty of perjury that the statements set forth herein are true and correct to the best of my knowledge.

Very truly yours,

J. W. Hampton

J. W. Hampton

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ATTACHMENT 1
REPLY TO A NOTICE OF VIOLATION
NRC INSPECTION REPORT NOS. 50-269, 270, 287/92-24

VIOLATION 269,270,287/92-24-02, SEVERITY LEVEL III

10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," and the licensee's Quality Assurance Program (Duke-1-A, Section 17.3.2.13) require that measures be established to assure that conditions adverse to quality are promptly identified and corrected.

Contrary to the above, a condition adverse to quality was indicated during the performance of procedure PT/3/0150/22A, "Operational Valve Stroke Test", and the licensee failed to identify and correct the condition. Specifically, although the plant operators identified on June 9, 1992, that one low pressure service water (LPSW) system pump failed to provide the required flowrate (i.e., 5200 gpm) through the 3B low pressure injection (LPI) cooler for single LPI cooler operation, they did not recognize this as a condition adverse to quality. During subsequent testing on September 14, 1992, while the unit was shutdown for a refueling outage, the licensee determined that the reduced LPSW flow was due to valve 3LPSW-78 (the LPSW cooler outlet manual isolation valve) remaining in a throttled position due to an actuator problem.

**RESPONSE:**

1. Admission or denial of the alleged violation:

   Duke Power Company's (Duke) Oconee Nuclear Site admits that a condition adverse to quality may have been indicated during the performance of procedure PT/3/0150/22A. It is significant that this condition could only be clearly identified by the performance of an actual system flow test which Duke performed in September of 1992. Upon discovery of the actual system flow degradation during the system performance test, prompt corrective action was taken. Furthermore, this degradation was not safety significant.

2. The reasons for the violation if admitted, and if denied, the reasons why:

A. Valve Functional Test vs. System Operability Test

The original procedure PT/3/0150/22A, was never intended to verify system performance or test system capabilities but only to verify check valve functionality. If this procedure had been intended and written to verify system performance, Duke believes that similar action to that taken in September would have been taken following the identified degraded condition. The performance of the selected portion of the test was to determine whether certain check valves could pass their required flow rates.

The check valve test did not verify that the LPSW system alignment was in a configuration that would be representative of an actual system performance test. For example, during a system performance test specific valves are required to be open and others closed. For the check valve functional test, these same valves could be in any position.

The first two times the valve test was performed, (3-4-91 & 3-27-91) the unit was at cold shutdown. Only one LPSW pump was required to achieve the 5200 gpm flow rate through the "B" train check valve. The next tests, (7-1-91 & 10-1-91) were performed at full power operation with additional non-essential loads present. This required two LPSW pumps to achieve the required 5200 gpm flow through the "B" train check valve. The majority of non-essential loads come off the "B" train. The "A" train check valve flow test required only one LPSW pump to achieve the required flow.

Duke maintains that the evaluation that was performed and the conclusions reached were based on the available data at the time. The test performed was never intended or configured to verify system performance.

B. Evaluation of Valve Test Requirements

The NRC letter accompanying the NOV stated that the practice of starting a second pump during a check valve functional test was not viewed as unusual by the operators. The NRC letter did not mention Duke's initial evaluation which led to this viewpoint. The previous evaluation was a significant factor leading to these operator actions.

The NRC also stated that there was no attempt to validate the position that the variation in non-safety loads necessitated the starting of the second pump. As discussed at the enforcement conference, Duke maintains that its review of the information, done at the time of the first occurrence of running two LPSW pumps, did attempt to address the issue. This evaluation was supported by the fact that only one LPSW pump was required the first two times the test was performed at shutdown conditions (3-4-91 & 3-27-91), and later validated by subsequent tests. Three of the subsequent tests were performed at full power operation, two requiring two LPSW pumps (7-1-91 & 10-1-91) and one requiring one LPSW pump (1-10-92) to meet the 5200 gpm acceptance criteria. The difference in the full power tests requiring two pumps versus one pump was reasonably attributed to the seasonal changes in lake temperature and subsequent LPSW system loads.

Contrary to statements in the NRC's letter, the discrepancy in the number of pumps required for the "B" train was pointed out by plant operators the first time that two pumps were needed. This was evaluated at that time by the operating staff and station engineering although this evaluation was not documented. This evaluation considered that the normal operating loads on the individual trains are different than those during a design bases accident and that the "B" train carried the majority of non-essential loads during operation. Additionally, the actual flow in the "B" train with only one LPSW pump running was within 10% of the required flowrate. This provided support to the evaluation that the difference between one pump and two pumps was due to the non-essential loads on the "B" train.

During the test on June 9, 1992, the starting of the second pump was not considered unusual given the evaluation that was previously performed. The starting of the second pump was not based on first impression but on prior experience. The operators did not assume that variations in non-safety loads necessitated the starting of the second pump without the basis of the previous evaluation. Duke maintains that at the time, variations in non-safety loads between the "A" and "B" trains were adequately evaluated by the operating staff and station engineering. Additionally, the "trend" mentioned by the NRC after several performances of the test under varying plant conditions was expected from previous evaluations. It was not until the actual system performance testing was done in September of 1992 that information disputing the previous evaluations was available.

In summary, during the test on June 9th, the starting of the second pump was reasonably not viewed as unusual by the operators because it was expected for the plant conditions based on the evaluation of previous test results.

C. Relationship of SITA to LPSW System Testing

As mentioned in the NRC's letter, Duke had performed a Self-Initiated Technical Audit (SITA) on the LPSW system in 1987. This audit identified several problems related to the LPSW system including the lack of system flow testing and engineering flow calculations. As already noted in the enforcement conference, Duke recognizes that the corrective actions taken in response to some of the items identified by the SITA did not adequately address the problems identified nor did they meet management expectations with respect to timeliness. The LPSW system flow testing that discovered the 3LPSW-78 problem was being performed to validate the engineering flow calculations and to address some concerns raised by the resident inspector during his review of these flow calculations.

It is not certain that the degraded condition of 3LPSW-78 would have been discovered sooner had more timely actions been taken in response to the SITA items. The LPSW system, because of its continuous service even during plant shutdown, cannot be tested in the same manner as other plant systems. The system cannot be put in all the various configurations required for system testing without potentially jeopardizing safe operation of the plant.

D. Use of Calculations to Verify System Operability

The NRC stated at the enforcement conference that the Duke staff "seemed satisfied in relying on calculations without the benefit of sufficient system testing as a followup". Although Duke does rely on engineering calculations where necessary, we are not satisfied that calculations alone can determine system capabilities. It is Duke's practice to perform system testing when such testing can be done without potentially jeopardizing the safe operation of the plant.

There are other alternatives for determining system operability other than just testing. For example, there are circumstances where operability determinations can be based on calculations after a flow model is benchmarked against actual plant data. For LPSW, engineering

calculations are relied on to a greater extent than other systems because the LPSW system cannot be tested in the same manner as other plant systems. This position is generally supported by Generic Letter 89-13.

Duke continues to refine engineering calculations and flow models. Duke does not intend to utilize these as sole determinants in system operability evaluations where system testing can be reasonably performed.

E. Safety Significance

The amount of flow that was capable of being supplied through the "B" train, with 3LPSW-78 in the partially closed position, was sufficient to ensure that "B" train LPI cooler could perform its intended safety function. This is based on an evaluation of the resulting heat transfer capability of the LPI cooler as it relates to containment heat removal during a design bases accident. This was determined by the performance of a heat balance utilizing the flow available through the affected "B" train.

3LPSW-78 is a butterfly valve. Duke believes that the type of failure discovered on the valve operator would not have allowed the valve to fail in "any partially open position." The most likely position is that which subjected the smallest amount of valve disc cross section to the flow stream. It is also recognized that this position would have caused the disc to experience flutter which would account for the reduction in flow compared to a stable disc in the flow stream.

Duke maintains that the degradation caused by the partially closed position of 3LPSW-78 was not safety significant because the LPSW system was still capable of performing its safety function.

F. Conclusion

Duke maintains that its initial evaluation of the low flow condition in the "B" LPSW train adequately addressed the practice of starting two LPSW pumps. At the time, given the system configuration and the purpose of the valve functional test, Duke believes the action taken was reasonable. Duke also believes that indications available at the time were not sufficient to reasonably expect the degraded condition to be identified. Following the actual system flow testing, when system flow balancing information became available, it became evident that this

condition could have been detected if system testing had been performed earlier.

The system remained capable of performing its safety function even with the reduced flow condition. This is based on an evaluation of the resulting heat transfer capability of the LPI cooler as it relates to containment heat removal during a design bases accident. The degradation never presented any risk to the health and safety of the public.

3. The corrective steps that have been taken and the results achieved:

The immediate corrective action following the discovery of the actuator problem with 3LPSW-78 was to repair the valve actuator and restore full valve function. Subsequent followup system testing has shown that adequate flow can be supplied through the "B" LPI train using one LPSW pump under various system conditions.

An operability evaluation was performed which verified that even at reduced flow the system was capable performing its intended safety function. Limited LPSW system testing is being performed during shutdown conditions. System configurations similar to those which would be experienced during design bases accidents are being utilized. The system cannot be put in all the various configurations required for system testing without potentially jeopardizing safe operation of the plant particularly on units 1 & 2 which utilize a shared LPSW system. However, measures are being taken to compensate for the inability to duplicate accident configurations during testing of the LPSW system. Initial testing has been completed on all three Oconee units. This testing will continue on a refueling bases when some flexibility exist for system reconfiguration.

4. The corrective steps that will be taken to avoid further violations:

The Design Basis Documentation (DBD) program captures system design criteria in the form of Test Acceptance Criteria (TAC) sheets which are incorporated into system testing procedures. These testing procedures are utilized to verify that the systems can perform their intended design functions.

The continued development and implementation of the System Engineering program at Duke will provide a broader based review of engineering calculations and testing data. Review of test acceptance criteria and system configuration for testing for specific systems is an ongoing process which will continue under the System Engineering program. It has been, and will continue to be, Duke's practice to perform system testing whenever it can be reasonably performed.

The corrective action program has been enhanced to ensure that a timely resolution of identified items is performed. Outstanding operability items are brought to managements attention when they are overdue. The management corrective action steering committee reviews all More Significant Events (MSEs) that are overdue for resolution to ensure that adequate attention is given to these items. The committee meets at regularly scheduled (currently monthly) intervals to perform these reviews.

5. The date when full compliance will be achieved:

Duke is in full compliance at this time.

ATTACHMENT 2

ANSWER TO A NOTICE OF VIOLATION
NRC INSPECTION REPORT NOS. 50-269, 270, 287/92-24

Duke believes that due consideration was not given with respect to the escalation of the base civil penalty. The following is supporting information for these beliefs:

I. Application of Identification Factor

The NRC stated that the base civil penalty was escalated by 50% for identification because the problem involving the inadequate flow in the 3B LPI cooler and the necessity of using two LPSW pumps to obtain the required flow was identified by the NRC.

It was recognized by Duke in 1991 that there was a difference in LPSW flow in the "B" train during the check valve testing at power versus the same test at shutdown conditions. As described in the 2.201 response, an evaluation of this flow discrepancy performed at the time, was reasonably believed to adequately address all of the related factors. It was the actual system flow testing performed by Duke which identified the problem with 3LPSW-78. This system flow testing was being performed to validate engineering flow calculations and to address concerns raised by the resident inspector during his review of these flow calculations.

Duke's initial evaluation of the need to start two pumps was discussed with the resident NRC Inspectors when they questioned the flow discrepancy on June 9, 1992. Additional concerns were not expressed by the NRC at that time. This is evidenced by Section 3, "Surveillance Testing (61726)", of NRC Inspection Report No. 50-269, 270, 287/92-13, from May 24 - June 27, 1992. The "Operational Valve Stroke Test," PT/3/A/0150/22A, was reviewed and witnessed in whole or in part by the inspectors to verify procedural and performance adequacy.

Following review of LPSW system engineering flow calculations by the resident inspector, a number of concerns were raised including the required number of LPSW pumps in the Technical Specifications versus the number assumed in the engineering calculations. These concerns were promptly addressed. Duke agreed that system testing would be beneficial and would be conducted on unit three prior to unit startup to validate engineering flow calculations for the LPSW system. Although this testing discovered the problem with 3LPSW-78, a number of other issues were identified during the testing as described in LER 269/92-12, which were promptly corrected by Duke. Duke believes that its efforts were equally if not primarily responsible for the discovery of the failed valve 3LPSW-78.

## II. Application of Prior Enforcement History

The root cause of this violation was the lack of system performance testing which would have identified the problem with the LPSW system. The corrective actions described in the 2.201 response in Attachment 1 are designed to address the identified root cause of inadequate system performance testing.

The corrective actions for the previous enforcement action noted by the NRC in EA 91-167, in general, were intended to redefine operator roles and responsibilities and expectations of operator performance in the control room. These corrective actions were to address the various root causes identified during the evaluation of the events. None of these root causes were associated with the lack of system performance testing

The NRC's definition of "similar violation" from Footnote No. 6 of the current Enforcement Policy (57 Fed. Reg. 5791, 5799, dated 2/18/92) states that a violation that reasonably could have been prevented by a licensee's corrective action for a previous violation. Duke believes that the corrective actions for the previous violation would not have addressed the root cause for this violation as stated above and therefore this violation is dissimilar and not appropriately linked to prior (similar) enforcement action.

## III. Conclusion

Duke believes that mitigation of the civil penalty is warranted based on the information provided above.