



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
SAM NUNN ATLANTA FEDERAL CENTER  
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ATLANTA, GEORGIA 30303-8931**

**July 20, 2001**

EA-01-192  
EA-01-056  
EA-00-137

Duke Energy Corporation  
ATTN: Mr. W. R. McCollum  
Vice President  
Oconee Site  
7800 Rochester Highway  
Seneca, SC 29672

**SUBJECT: OCONEE NUCLEAR STATION - REPLY TO NOTICE OF VIOLATION -  
NRC INSPECTION REPORT NO. 50-269/01-06, 50-270/01-06, AND  
50-287/01-06 AND REPLY TO CLAIM OF BACKFIT**

Dear Mr. McCollum:

Thank you for your response of May 18, 2001, to our Notice of Violation (NOV) issued on April 19, 2001, with NRC Inspection Report Nos. 50-269/01-06, 50-270/01-06, and 50-287/01-06. In your response, you stated your basis for disputing the violation and provided your views in support of your claim of a backfit. We previously acknowledged receipt of your response to the NOV and your claim of backfit in letters dated June 6 and 13, 2001, respectively.

We have reviewed your response in detail. Your denial of the NOV was reviewed by Region II Division of Reactor Safety (DRS) staff personnel. In response to concerns raised by your staff regarding the independence of the NRC staff assigned to respond to your denial, a senior inspector, knowledgeable in the requirements of 10 CFR 50.59 and not involved in the original inspection effort, reviewed the details of the NOV. An NRC backfit review panel considered your backfit claim. The backfit review panel was chaired by Mr. Loren Plisco, Director, Division of Reactor Projects, and included members from NRC Region II and from the Office of Nuclear Reactor Regulation (NRR). Given the complexity of this issue and the relationship between the NOV denial and backfit claim, the panel also reviewed the response to your denial. This letter also was reviewed by NRR and Office of Enforcement (OE) personnel, including an expert in 10 CFR 50.59, during the concurrence process.

Your bases for disputing the violation and to support your claim of a backfit are restated in the enclosure to this letter. The enclosure also includes an NRC evaluation of each of your objections to the violation and an overall NRC conclusion.

After careful consideration of the bases for your denial of the violation, we have concluded, for the reasons presented in the enclosure, that the violation occurred as stated in the inspection report. In addition, it was determined that no backfit was involved. The basis for this conclusion is also presented in the enclosure. Should you wish to appeal this denial of your

claim of a backfit, your appeal should be submitted in writing, within 30 days of the date of this letter, to the Director, Office of Nuclear Reactor Regulation. A copy of the appeal should also be sent to the Executive Director for Operations.

It is our understanding that the condition described in the violation has not been corrected. Consequently, you are required to submit a written statement in response to the violation, within 30 days of the date of this letter, containing the information as described in the Notice of Violation of April 19, 2001.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

Should you have any questions concerning this letter, please contact Charles R. Ogle at (404) 562-4605.

Sincerely,

**/RA Bruce S. Mallett for:/**

Luis A. Reyes  
Regional Administrator

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

Enclosure: Evaluation and Conclusion

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DEC

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PUBLIC DOCUMENT (circle one): YES NO

OFFICE	RII:DRS	RII:DRS	RII:DRS	RII:DRS	RII:DRS	RII:EICS	RII:ORA
SIGNATURE	SCHIN	OGLE FOR:	OGLE FOR:	VANDOORN	OGLE	BOLAND	EVANS
NAME	RSCHIN	MTHOMAS	WROGERS	KVANDOORN	COGLE	ABOLAND	CEVANS
DATE	7/9/2001	7/9/2001	7/9/2001	7/9/2001	7/9/2001	8/ /2001	7/12/2001
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

OFFICE	RII:DRP	RII:DRS	RII:DRP	NRR	OE	NRR	NRR
SIGNATURE	WIDMANN	LESSER FOR:	PLISCO	SCHIN FOR:(1	SCHIN FOR: (2)	SCHIN FOR: (2)	OGLE FOR: (3)
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DATE	8/ /2001	7/10/2001	7/16/2001	7/17/2001	7/18/2001	7/18/2001	8/ /2001
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SIGNATURE	OGLE FOR:						
NAME	HBERKOW						
DATE	7/18/2001	8/ /2001	8/ /2001	8/ /2001	8/ /2001	8/ /2001	8/ /2001
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- 1- PER PHONE CALL OF 7/17/01
- 2- PER PHONE CALL OF 7/18/01
- 3- PER PHONE CALL OF 7/18/01 w/EMCH

## **EVALUATION AND CONCLUSION**

On April 19, 2001, the NRC identified a violation as a result of a supplemental inspection at the Oconee Nuclear Station. In a letter dated May 18, 2001, Duke denied the violation. Duke listed three reasons for denying the violation and provided other comments in opposition to the violation. Duke also made statements to support their claim that the violation represented a backfit.

### **Restatement of the Violation**

During an NRC inspection conducted on January 22-26, 2001, and March 12-22, 2001, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions - May 1, 2000," NUREG-1600, as amended on December 12, 2000, the violation is listed below:

10 CFR 50.59 (a)(1) (as revised January 1, 1999) states in part, that the licensee may make changes in the facility as described in the safety analysis report without prior Commission approval provided the proposed change does not involve an unreviewed safety question (USQ). 10 CFR 50.59 (a)(2) states, in part, that a proposed change involves a USQ if the probability of occurrence or malfunction of equipment important to safety previously evaluated in the safety analysis report may be increased.

The Updated Final Safety Analysis Report (UFSAR) Section 3.2.2, System Quality Group Classification, states, in part, that a sufficient supply of primary side makeup water is assured during a tornado initiated loss of offsite power by several sources. Included in these sources is a high pressure injection (HPI) pump taking suction from the spent fuel pool (SFP).

UFSAR Section 3.2.2 further states that protection against a tornado is an Oconee design criterion, and that capability is provided to safely shut down all three units, in that, after a tornado, normal shutdown systems will remain available or alternate systems will be available to allow shutdown of that plant.

Contrary to the above, on August 28, 2000, the licensee completed a 10 CFR 50.59 safety evaluation to revise UFSAR Section 3.2.2 and delete the SFP as a suction source for the HPI pump after certain tornadoes, thereby increasing the probability of the malfunction of equipment important to safety. This resulted in a USQ for which the licensee did not have prior Commission approval.

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

### **Summary of the Licensee's Response to the Violation**

Duke gave three reasons for disputing the violation:

1. The ability to utilize SFP water as a source of primary make-up via an HPI pump was not a design basis function in the original licensing basis as reviewed and approved by the NRC and is not a design basis function in the historical or current licensing basis.

2. An HPI pump, within the context of tornado mitigation, has never been considered a piece of equipment important to safety previously evaluated in the UFSAR.
3. There is no regulatory basis for the NRC's statement that "scenarios exist within the design basis which would require use of the SFP as a suction source for an HPI pump" as contained in a November 9, 2000, letter supporting Inspection Report 50-269/01-06, 50-270/01-06, and 50-287/01-06.

Duke also provided several other statements in opposition to the violation or to support the claim of backfit.

4. A number of options exist to recover primary makeup following a tornado. Specifically, makeup can be provided from the borated water, letdown, concentrated boric acid, or the "B" bleed storage tanks.
5. The NRC staff's position, as stated in this Notice of Violation, implies, that the flow path must be tornado-protected. This new interpretation represents a staff-imposed revision to the Oconee licensing basis.
6. The NRC position stated in an NRC letter to Duke dated November 9, 2000, which is the basis for this violation, changes the design basis for the facility by imposing substantial changes to previous regulatory requirements imposed upon Duke and previous commitments made by Duke. Duke believes this position involves a backfit. Therefore, the process prescribed in 10 CFR 50.109 is the appropriate means for evaluating proposed changes to the plant.

### **NRC Evaluation of Licensee's Response**

1. Duke Denial Basis Number 1: The ability to utilize SFP water as a source of primary make-up via an HPI pump was not a design basis function in the original licensing basis as reviewed and approved by the NRC and is not a design basis function in the historical or current licensing basis.

#### **NRC Evaluation:**

- a. The terms "design basis function," "original licensing basis," "historical licensing basis," and "current licensing basis" are not directly relevant to this violation. Instead, this violation involves the portion of 10 CFR 50.59 which controls changes to the facility as described in the UFSAR. 10 CFR 50.59 provides that NRC approval is required for a change to the facility, as described in the UFSAR, which would increase the probability of a malfunction of equipment important to safety. How, when, and why the information to be changed was included in the UFSAR is not a stated consideration of 10 CFR 50.59. In this situation, removing information describing the SFP as an HPI pump suction source from the UFSAR and the proposal to delete it from Abnormal Procedure AP/1/A/1700/006 represented an increase in the probability of a malfunction of equipment important to safety. Hence, this change required NRC approval. The violation against 10 CFR 50.59 is not an attempt to interpret or define the licensing or design basis of Oconee.

- b. Notwithstanding the discussion above, our review determined that the ability to use the SFP as a source of primary makeup using an HPI pump is a design basis function in the historical and current licensing basis.

The term “current licensing basis” is defined in NRC Generic Letter 91-18, Revision 1, Attachment 1, dated October 8, 1997. The current licensing basis includes plant design basis information as documented in the most recent UFSAR and also includes licensee commitments documented in NRC safety evaluations. 10 CFR 50.2 describes design basis information in part, as information which identifies the specific functions to be performed by a structure, system, or component. NEI 96-07, Revision 1, dated November 2000, and endorsed by the NRC in Regulatory Guide 1.187, defines design basis functions. According to this document, design basis functions are, in part, functions performed by structures, systems, and components credited in licensee analyses to meet NRC requirements.

The description in the UFSAR Section 3.2.2 regarding the use of the SFP water as a source of primary makeup water following certain tornados met these thresholds. This capability was clearly described in the UFSAR and it represented a specific function to be performed by a structure, system, or component. The function was credited in a licensee analysis to meet NRC requirements. In addition, UFSAR Section 3.1.2 states that the UFSAR Section 3.2.2 description is the design basis for tornado mitigation.

As the licensee pointed out in its response, the use of an HPI pump, powered by the tornado-protected ASW switchgear, was described in the licensee’s letter dated September 15, 1986. This letter was part of an exchange between Duke and the NRC to resolve a post-TMI action item. This letter was incorporated by reference into the associated NRC SER dated July 28, 1989.

We acknowledge that the use of the spent fuel pool as the suction source was not specifically called out in either the licensee’s September 15, 1986, letter or our SER. However, we noted that the licensee’s calculation OSC-2262, Tornado Protection Analysis, Revision 0, dated September 22, 1986, stated that the analysis was performed in response to an NRC request for additional information on tornado mitigation dated May 30, 1986. The original OSC-2262 analysis relied on an HPI pump, aligned to take a suction from the spent fuel pool, to provide makeup to the reactor coolant system to mitigate a design basis tornado. A description of the OSC-2262 analysis, including the RETRAN02-MOD003 computer code used and the output curves from that analysis [e.g., reactor coolant system (RCS) pressure, RCS temperature, steam generator (SG) pressure, SG level, and RCS leakage during the first 2800 seconds (47 minutes) of the event], were included in the licensee’s letter to the NRC dated September 15, 1986. In 1989, after receiving the NRC SER, the licensee added to the UFSAR a description of the ability to provide a suction to an HPI pump from the SFP to mitigate a tornado. In 1997, the licensee made a pen and ink change to OSC-2262 deleting the statement that the HPI pump suction would be from the spent fuel pool. The current analysis, OSC-2262, Revision 4, dated December 21, 2000, still relies on an HPI pump to provide RCS makeup, still contains the pen and ink change, and does not specify the suction source for the HPI pump. However, the use of the SFP as a suction source for an HPI pump to mitigate a tornado was still proceduralized in AP/1/A/1700/006, Natural Disaster, as of

the dates of the NRC supplemental inspection in January and March 2001. Hence, in addition to being described in the UFSAR, we concluded that Calculation OSC-2262, as initially developed and maintained for approximately 11 years, represented a licensee analysis which also established the spent fuel pool as the suction source for the high pressure injection pump in this scenario.

2. Duke Denial Basis Number 2: An HPI pump, within the context of tornado mitigation, has never been considered a piece of equipment important to safety previously evaluated in the UFSAR.

NRC Evaluation:

The NRC does not agree. As stated above, reliance on an HPI pump for tornado mitigation was described in the UFSAR and in a licensee letter to the NRC dated September 15, 1986. The 1986 letter was relied upon by the NRC and incorporated by reference into an SER on tornado mitigation dated July 28, 1989. An HPI pump is also relied on for tornado mitigation in licensee calculation OSC-2262, Tornado Protection Analysis.

This is sufficient analysis and evaluation to characterize the high pressure injection pump as a piece of equipment important to safety previously evaluated in the UFSAR.

This evaluation result is in keeping with other guidance and regulatory documents, such as the following: Appendix A to 10 CFR 50 defines the phrase “equipment important to safety” to include systems and components that provide reasonable assurance that the facility can be operated without undue risk to the health and safety of the public. NEI 96-07, Revision 1, Guidelines for 10 CFR 50.59 Implementation, which was endorsed by NRC Regulatory Guide 1.187, Guidance for Implementation of 10 CFR 50.59, states the following definition: “Malfunction of systems, structures, or components (SSCs) important to safety means the failure of SSCs to perform their intended design functions described in the UFSAR (whether or not classified as safety-related in accordance with 10 CFR 50, Appendix B).”

3. Duke Denial Basis Number 3: There is no regulatory basis for the NRC’s statement that “scenarios exist within the design basis which would require use of the SFP as a suction source for a HPI pump” as contained in a November 9, 2000, letter supporting Inspection Report 01-06.

As discussed in 1.a above, the design basis issue is not directly relevant to this violation. However, the licensee’s assertion is a critical part of its argument that this is an unsupported licensing position which represents a backfit. As such, it was reviewed as part of the NRC’s backfit review process.

The panel disagreed with the licensee’s assertion. Using the logic outlined in Section 1.b above, the panel concluded that the SFP, as an HPI pump suction source, was a design basis function in the licensing basis.

Further, the panel concluded that the position did not represent a new or different staff position; and hence, was not a backfit in accordance with 10 CFR 50.109.

4. Additional Duke Statement in Opposition: A number of options exist to recover primary makeup following a tornado. Specifically, makeup can be provided from the borated water, letdown, concentrated boric acid, or the “B” bleed storage tanks.

NRC Evaluation:

While this statement is technically correct for some tornado scenarios, review of the applicable procedure and the plant design show that this statement is incomplete.

These tanks can all be used as primary makeup sources during normal plant conditions. An HPI pump normally takes a suction from the letdown storage tank (LDST) and control room operators can readily align an HPI pump to take a suction from the borated water storage tank (BWST). While an HPI pump cannot take a suction directly from the concentrated boric acid tank or the “B” bleed storage tank, control room operators can pump water from these tanks into the LDST.

However, the design basis tornado of concern is one that disables the safety-related 4KV switchgear, the emergency feedwater system, and the BWST. As described by the licensee, the plant design is to mitigate the tornado with the station ASW pump and an HPI pump, as analyzed in the licensee’s tornado protection analysis. During this event, the BWST will not be available because of damage by the tornado, and the concentrated boric acid tank and the “B” bleed storage tank water will not be available because the pumps necessary to transfer water from these tanks will not have power. In addition, the LDST availability will be severely limited since it contains a small amount of water and its use under these circumstances is not proceduralized.

In addition, the procedure used to mitigate this event, Procedure AP/1, 2, 3/A/1700/006, Natural Disaster, provides direction for operating an HPI pump powered from the station ASW switchgear to mitigate a tornado, with only two alternate suction sources: the BWST or the SFP.

5. Additional Duke Statement: The NRC staff’s position, as stated in this Notice of Violation, implies that the flow path must be tornado-protected. This new interpretation represents a staff-imposed revision to the Oconee licensing basis.

NRC Evaluation:

This statement was reviewed by the backfit review panel.

The panel reviewed the violation, as restated in the beginning of this evaluation, and did not identify any additional requirements on the post-tornado high pressure injection pump flowpath. Instead, the panel found that the violation addressed the licensee’s non-compliance with 10 CFR 50.59 by making a change that required prior NRC approval. The panel concluded that this did not represent a new or different staff position. Hence, this did not represent a backfit in accordance with 10 CFR 50.109.

6. Additional Duke Statement: The NRC position stated in an NRC letter to Duke dated November 9, 2000, which is the basis for this violation, changes the design basis for the facility by imposing substantial changes to previous regulatory requirements imposed upon Duke and previous commitments made by Duke. Duke believes this position involves a backfit. Therefore, the process prescribed in 10 CFR 50.109 is the appropriate means for evaluating proposed changes to the plant.

NRC Evaluation:

The backfit review panel reviewed this statement as part of its deliberations.

As discussed in 1.b above, the panel did not consider the use of the SFP as a suction source for the high pressure injection pump as a change to the design basis of the facility. Thus, the panel did not consider this a new regulatory position and hence this is not a backfit as defined in 10 CFR 50.109.

Also, the violation against 10 CFR 50.59 does not require the licensee to modify the plant. 10 CFR 50.59 only requires that the licensee obtain NRC approval prior to changing the UFSAR to remove the SFP as a suction source for an HPI pump.

NRC Conclusion:

As described above, based on the NRC review of this issue, Duke's denial of the violation and or claim of backfit are not accepted.

The fundamental issue in this violation concerns whether the change to the UFSAR and the proposed change to the abnormal procedure involved an unreviewed safety question. This review reaffirmed that an unreviewed safety question resulted from the proposed change and that Duke was required to obtain NRC approval prior to making the change.

Also, the capability of the SFP to serve as a suction source for an HPI pump following certain tornados was described in the UFSAR and was a design basis feature. This was not a new regulatory position and hence was not a backfit.