



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET SW SUITE 23T85
ATLANTA, GEORGIA 30303-8931

MARCH 9, 2000

EA 98-543

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

SUBJECT: PREDECISIONAL ENFORCEMENT CONFERENCE
(INSPECTION REPORT NOS. 50-269/99-13, 50-270/99-13, AND 50-287/99-13)

Dear Mr. McCollum:

This refers to inspections conducted on November 2-6 and 16-20, 1998; January 11-15, 1999; and November 15-19, 1999; at your Oconee 1, 2, and 3 reactor facilities. The inspections were documented in NRC Inspection Reports 50-269,270,287/99-10 and 50-269,270,287/99-08. The inspection reports described two unresolved items (URIs) concerning the design of your emergency feedwater (EFW) system; URI 50-269,270,287/99-10-01, EFW System was Designed to Fail During a Main Feedwater Line Break or Non-Seismic Pipe Break; and URI 50-269,270,287/99-10-02, 10 CFR 50.59 Evaluations Incorrectly Implemented the EFW Licensing Basis. Issues related to the URIs were also discussed with you at a February 8, 1999, meeting at the NRC headquarters office. The results of that meeting were documented in a letter to you dated February 24, 1999. Additional NRC in-office inspections related to the two URIs were conducted during December 6-17, 1999; January 3-7, 2000; and January 18-27, 2000; and are documented in the enclosed inspection report. The purpose of these inspections was to resolve the two URIs described above.

Based on the results of these inspections, the two URIs have been closed and seven apparent violations have been identified which are being considered for escalated enforcement action in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy), NUREG-1600. In summary, the apparent violations involve both past and present design vulnerabilities of the EFW system. These design vulnerabilities are related to potential loss of suction water sources and potential single active failures. The apparent violations also involve inadequate corrective action, reporting, and 50.59 safety evaluations for changes to the EFW system and the applicable design criteria. Accordingly, no Notice of Violation is presently being issued for these inspection findings. In addition, please be advised that the number and characterization of apparent violations may change as a result of further NRC review.

An open predecisional enforcement conference to discuss apparent violations 3 through 7 described in the enclosed inspection report will be scheduled at a later date. These five apparent violations address current or recent conditions. The decision to hold a predecisional enforcement conference does not mean that the NRC has determined that violations have

occurred or that enforcement action will be taken. This conference is being held to obtain information to enable the NRC to make an enforcement decision, such as a common understanding of the facts, root causes, missed opportunities to identify the apparent violations sooner, corrective actions, significance of the issues and the need for lasting and effective corrective action. In addition, this is an opportunity for you to point out any errors in our inspection reports, in our understanding of your design and licensing basis, or in this letter and for you to provide any information concerning your perspectives on 1) the severity of the violations, 2) the application of the factors that the NRC considers when it determines the amount of a civil penalty that may be assessed in accordance with Section VI.B.2 of the Enforcement Policy, and 3) any other application of the Enforcement Policy to this case, including the exercise of discretion in accordance with Section VII.

We expect your discussion to focus on the risk significance of the apparent violations and your corrective actions for the conditions described in apparent violations 3 through 7, including the 37 components which represent single failure vulnerabilities identified in your EFW System Single Failure Analysis and any potential common mode failure vulnerabilities with respect to these components. Also, please be prepared to address the corrective actions related to your two assessments of your EFW System Single Failure Analysis [Assessment SA-99-51 (ON)(EFW)(RA) dated November 16, 1999, and a technical assessment dated November 2, 1999], including the additional potential EFW system single failure vulnerabilities and the licensing basis vulnerabilities that are identified in those assessments. The assessments identified four additional potential single failure vulnerabilities and several misleading or inaccurate statements in the Updated Final Safety Analysis Report and in licensing basis letters to the NRC. The assessments also identified approximately 15 examples where incorrect interpretation of the licensing basis in the analysis led to inappropriate overall assumptions or erroneous evaluations of vulnerabilities.

Apparent violations 1 and 2 in the enclosed report address a past design and operability issue, untimely corrective action for the issue, and failure to report the issue. The underlying design deficiency has been corrected and the NRC has sufficient information to make an enforcement decision on these apparent violations. In addition, since the design deficiency was corrected more than five years ago, a civil penalty is not warranted because the five-year statute of limitations has been exceeded. As a result, it may not be necessary to discuss these issues at the predecisional enforcement conference.

Before the NRC makes its enforcement decision, we are providing you an opportunity to either (1) respond to apparent violations 1 and 2 addressed in this inspection report within 30 days of the date of this letter, or (2) inform the NRC that you plan to address these apparent violations at the predecisional enforcement conference to be held on the other five apparent violations that are addressed in this inspection report. Please contact Mr. Kerry Landis at 404/562-4605 within seven days of the date of this letter to notify the NRC of your intended response.

If you choose to respond to apparent violations 1 and 2, your response should be clearly marked as a "Response to Apparent Violations in Inspection Report Nos. 50-269,270,287/99-13" and should include for each apparent violation: (1) the reason for the apparent violation, or, if contested, the basis for disputing the apparent 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. Your response should be

submitted under oath or affirmation and may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate response is not received within the time specified or an extension of time has not been granted by the NRC, the NRC may proceed with its enforcement decision based on the information available to us.

In addition, please be advised that the number and characterization of apparent violations described in the enclosed inspection report may change as a result of further NRC review. You will be advised by separate correspondence of the results of our deliberations on this matter. In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response will be placed in the NRC Public Document Room.

Sincerely,

/RA/

Victor M. McCree, Deputy Director
Division of Reactor Projects

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

Enclosure: Inspection Report Nos. 50-269/99-13,
50-270/99-13, And 50-287/99-13

cc w/encls:
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(cc w/encl cont'd - See page 4)

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4

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E-MAIL COPY?	YES NO						

U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos: 50-269, 50-270, 50-287, 72-04

License Nos: DPR-38, DPR-47, DPR-55, SNM-2503

Report Nos: 50-269/99-13, 50-270/99-13, 50-287/99-13

Licensee: Duke Energy Corporation

Facility: Oconee Nuclear Station, Units 1, 2, and 3

Location: 7800 Rochester Highway
Seneca, SC 29672

Dates: December 6 - 17, 1999; January 3-7, 2000; and January 18-27, 2000

Inspectors: R. Schin, Senior Reactor Inspector, RII
W. Rogers, Senior Reactor Analyst, RII

Approved by: K. Landis, Chief, Engineering Branch
Division of Reactor Safety

Enclosure

EXECUTIVE SUMMARY

Oconee Nuclear Station, Units 1, 2, and 3
NRC Inspection Report 50-269/99-13,
50-270/99-13, and 50-287/99-13

This inspection report (IR) documents NRC in-office review and inspection during December 1999 and January 2000 related to Unresolved Item (URI) 50-269,270,287/99-10-01, EFW System was Designed to Fail During a Main Feedwater Line Break or Non-Seismic Pipe Break and URI 50-269,270,287/99-10-02, 10 CFR 50.59 Evaluations Incorrectly Implemented the EFW Licensing Basis. The inspection activities focused on the licensee's "Probabilistic Risk Analysis (PRA) Evaluation in Support of Oconee EFW Single Failure Vulnerability Study" and EFW System licensing basis documents. This IR closes the two URIs and identifies seven apparent violations.

Engineering

- An apparent violation (EEI 50-269,270,287/99-13-01, Past EFW System Design Was Not Functional for a Main Feedwater Line Break) was identified for inadequate design control in response to a post-Three Mile Island (TMI) order. (Section E8; [EEI - 4A])
- An apparent violation (EEI 50-269,270,287/99-13-02, Inadequate Corrective Action and Reporting for Past EFW System Design That Was Not Functional for a Main Feedwater Line Break) was identified for inadequate corrective action and reporting after identifying a design deficiency. (Section E8; [EEI - 5A, 5B])
- An apparent violation (EEI 50-269,270,287/99-13-03, Insufficient Water Sources for EFW System) was identified for inadequate design control in response to a post-TMI order. (Section E8; [EEI - 4A, 5A])
- An apparent violation (EEI 50-269,270,287/99-13-04, EFW System Single Failure Vulnerability) was identified for inadequate design control in response to a post-TMI order. (Section E8; [EEI - 4A])
- An apparent violation (EEI 50-269,270,287/99-13-05, Inadequate EFW System Seismic Boundary) was identified for inadequate design control of the EFW system seismic boundary. (Section E8; [EEI - 4A])
- An apparent violation (EEI 50-269,270,287/99-13-06, Inadequate Safety Evaluation for EFW System Modification to Automatically Close Valve C-187 and Protect EFW Pumps' Suction Source) was identified for inadequate 10 CFR 50.59 safety evaluations in 1993 and 1994. (Section E8; [EEI - 4A, 4B])
- An apparent violation (EEI 50-269,270,287/99-13-07, Inadequate Safety Evaluation for UFSAR Change That Reduced EFW System Design Criteria) was identified for an inadequate 10 CFR 50.59 safety evaluation in 1998. (Section E8; [EEI - 4A, 4B])

Report Details

I. Engineering

E8 Miscellaneous Engineering Matters (92903)

(Closed) URI 50-269,270,287/99-10-01: EFW System was Designed to Fail During a Main Feedwater Line Break or Non-Seismic Pipe Break

(Closed) URI 50-269,270,287/99-10-02: 10 CFR 50.59 Evaluations Incorrectly Implemented the EFW Licensing Basis

(Open) LER 50-269/99-001-00: EFW Outside Design Basis Due to Deficient Documentation

This IR closes URI 50-269,270,287/99-10-01 and URI 50-269,270,287/99-10-02, and identifies seven apparent violations. All but one of the issues associated with the apparent violations were previously documented in IR 50-269,270,287/99-10 and IR 50-269,270,287/99-08. Some of the issues were also addressed in LER 50-269/99-001-00.

The two URIs that are being closed highlighted substantial differences between what the licensee and the NRC understood to be the licensing basis of the Oconee EFW system, as noted in the Exit Meeting Summary sections of this IR, IR 50-269,270,287/99-10 and in a meeting summary for a February 8, 1999, NRC meeting with the licensee. After the February 8 meeting, the NRC advised the licensee by letter dated February 24, 1999, of the NRC's position with respect to the current licensing basis of the Oconee EFW system. In that letter, the NRC restated the following Oconee UFSAR Section 10.4.7 description of the EFW system: "Sufficient redundancy and valving are provided in the design of the EFW piping system with isolation and cross-connections allowing the system to perform its safety-related function in the event of a single failure coincident with a secondary pipe break and the loss of normal station auxiliary AC power." The NRC noted that this statement was also in a May 17, 1979, licensee letter to the NRC about the post-TMI upgraded EFW system. The NRC staff concluded that the Oconee EFW licensing basis has included the requirement for the EFW system to be able to mitigate a main feedwater line break since 1973, with certain approved exceptions. The NRC staff also concluded that the EFW licensing basis has included the requirement for the EFW system of each unit to be able to withstand a single active failure, concurrent with a main feedwater line break, since 1981 (post-TMI).

The NRC conducted an in-office inspection of the licensee's "Probabilistic Risk Analysis (PRA) Evaluation in Support of Oconee EFW Single Failure Vulnerability Study," as part of the risk significance determination, and identified an issue that was not previously documented in an IR. While reviewing the evaluation, the NRC risk analyst recognized that a main feedwater line break, exclusive of any single failure, could cause a loss of the hotwell contents. Either the hotwell pumps would discharge the hotwell contents out the break or, if the break were between the hotwell pumps and the condenser connection, the hotwell contents would drain directly out the break. Depending upon the location and size of the main feedwater break, access to the EFW cross-ties from the other units could be impaired. Also, a high energy break, such as a main feedwater line

break, depending upon the location, could cause a partial or complete loss of power to 4160 VAC buses TC, TD & TE. These buses provide power to all the non-load shed, safety-related AC loads for that unit. Their loss would impact the EFW system, numerous other accident mitigation systems, and cause a loss of reactor coolant pump seal cooling.

The UFSAR, Section 10.4.7.1, in November 1998, stated that the EFW system was designed to mitigate a main feedwater line break, and "The EFW System will supply sufficient feedwater to enable the reactor coolant system (RCS) to cool down to a condition at which the decay heat removal system may be operated." This EFW cooldown statement was in the TS 3.4 Bases in November 1998 and in the licensee's response, dated April 3, 1981, to a post-TMI Order and NUREG -0737 Item II.E.1.1. The UFSAR, Section 10.4.7.1, in November 1998, also stated: "The feedwater inventory required for a 100°F/hr cool down to decay heat removal switchover is 94,000 gallons, and 145,000 for a 50°F/hr cool down. These requirements are will within the available hotwell and upper surge tank inventory." Contrary to the UFSAR, during a main feedwater line break there would not be sufficient hotwell inventory to enable the RCS to cool down to a condition at which the decay heat removal system may be operated. This EFW system design deficiency is identified as Apparent Violation 3 below.

Apparent Violation 4 below describes a single failure vulnerability of the EFW system. Prior to September 30, 1999, a single failure analysis had not been completed on the EFW system. The licensee's "Oconee EFW System Single Failure Analysis," dated September 30, 1999, identified 36 additional EFW system single failure vulnerabilities. The 37 EFW single failure vulnerabilities were documented and numbered (1 through 37) in the licensee's Problem Investigation Process (PIP) Report O-99-03903. Evaluation by the NRC risk analyst determined that the more significant of those single failure vulnerabilities involved:

- the failure of components in a common operating air supply to both EFW flow control valves, FDW-315 and 316, that could cause both flow control valves to fail in the full open or closed position (single failure vulnerabilities 9, 10, 11, 12, 13, and 14 in the PIP).
- the failure open of a turbine bypass valve, which would significantly raise condenser hotwell water temperature and result in insufficient available net positive suction head for the EFW pumps (single failure vulnerabilities 25 and 26 in the PIP); and
- the failure to manually open the condenser vacuum breaker, which would render the condenser hotwell incapable of being a suction source for the motor driven EFW pumps (single failure vulnerability 21 in the PIP).

The inspectors reviewed the licensee's Problem Investigation Process (PIP) Report O-99-03903, that addressed the 37 EFW single failure vulnerabilities. As of November 12, 1999, the PIP report evaluated that the single failure vulnerability of valve C-187 was inconsistent with the licensing basis requirements for the EFW system and was a non-

conformance item. The PIP also evaluated that five of the other 36 single failure vulnerabilities were non-conformance items but that most of the 36 were not non-conformance items. The inspector determined that each single component failure that could cause an EFW system failure was a nonconforming condition unless it had been specifically approved by the NRC as an exception. The inspector did not agree with the licensee's determination that most of the single failure vulnerabilities were within the EFW licensing basis. The inspector evaluated the information available and could not conclude that any of the other 36 single failure vulnerabilities were approved exceptions to the single failure design requirement. For example:

- The licensee evaluated that the 11 single failure vulnerabilities that could fail the hotwell were within the licensing basis and stated: "For many of the design basis events which EFW is required to mitigate, inventory stored in the hotwell is lost. Following secondary line breaks, its stored inventory could be depleted in as early as 10 minutes without operator action. Loss of hotwell inventory is mitigated by use of an alternate unit's EFW system. In addition, the SSF ASW system would be available as a long term source of decay heat removal. Single failure criteria is not applicable to the hotwell." The inspector did not agree because the UFSAR described the EFW system as relying on the hotwell water to be able to perform its safety function of cooling down the RCS. Further, the NRC previously stated in the February 24, 1999, letter that "The EFW licensing basis has included the requirement for the entire EFW system to be able to withstand a single active failure, concurrent with a main feedwater line break."
- The licensee evaluated that failure of an EFW pump to stop on demand was within the licensing basis because operators could close the flow control valve to stop EFW flow to a faulted steam generator within the 10 minutes assumed in safety analysis calculations. The inspector did not agree because the PIP stated that the licensee has not performed appropriate testing to assure that the flow control valve will be able to close under those conditions.

The seven apparent violations are:

1. The failure of modification ON 1,2,3-1275; Add Two Motor-Driven EFW Pumps; to upgrade the EFW system in 1979 per post-TMI requirements of NUREG-0737 Item II.E.1.1. This modification failed to meet the requirements of 10 CFR 50, Appendix B, Criterion III, Design Control, in that it failed to implement the design basis that the EFW system could perform its safety-related function in the event of a secondary pipe break as described in a licensee letter to the NRC dated May 17, 1979, and UFSAR Section 10.4.7.1. The modification left EFW valves C-187 and C-176 designed to open on a low condenser hotwell level (that would result from a main feedwater line break) and to consequently dump the UST water to the condenser hotwell in about two minutes. Since the design of the EFW system was such that all three EFW pumps would automatically start and take a suction from the UST, the result would be failure of the EFW system when the suction water was lost and potential damage to all EFW pumps. This design remained in effect until it was modified in 1993 and 1994. This apparent violation

is identified as EEI 50-269,270,287/99-13-01, Past EFW System Design Was Not Functional for a Main Feedwater Line Break.

2. The failure to promptly correct and also to report a deficient and nonconforming condition that was outside the design basis of the plant, as required by 10 CFR 50, Appendix B, Criterion XVI; 10 CFR 50.72; and 10 CFR 50.73. Problem Investigation Report (PIR) 4-89-0111, dated June 30, 1989, identified a condition wherein the loss of condenser hotwell level would result in automatic opening of valve C-187, draining the UST to the hotwell, and losing the water supply to the EFW pumps. This condition could have prevented the EFW system from fulfilling its design safety function of supplying water to the steam generators during a break in any of the non-seismic pipes attached to the hotwell or a main feedwater line break, as described in a licensee letter to the NRC dated May 17, 1979, and UFSAR Section 10.4.7.1. The licensee incorrectly evaluated this condition as not affecting EFW system operability, not being outside the EFW system design basis, and not being reportable. The licensee subsequently continued to operate all three units with this condition for over four years before taking corrective action in the form of a plant modification. The licensee's failure to report this condition effectively denied the NRC an opportunity to be aware of the condition and to require more prompt corrective action, including the identification of the root causes. This apparent violation is identified as EEI 50-269,270,287/99-13-02, Inadequate Corrective Action and Reporting for Past EFW System Design That Was Not Functional for a Main Feedwater Line Break.
3. The failure of modification ON 1,2,3-1275; Add Two Motor-Driven EFW Pumps; to upgrade the EFW system in 1979 per post-TMI requirements of NUREG-0737 Item II.E.1.1. The modification failed to meet the requirements of 10 CFR 50, Appendix B, Criterion III, Design Control, in that it failed to implement the design basis that the EFW system could perform its safety-related function in the event of a secondary pipe break (not considering a coincident single failure) as described in UFSAR Section 10.4.7.1. Following a secondary pipe break, the hotwell water could be lost out the break, resulting in insufficient EFW system water sources to cool down the RCS to conditions at which the decay heat removal system may be operated. This water source vulnerability remains in effect. This apparent violation is identified as EEI 50-269,270,287/99-13-03, Insufficient Water Sources for EFW System.
4. The failure of modification ON 1,2,3-2911; UST Makeup to Hotwell Control Valves, which was installed in 1993 and 1994; to meet the requirements of 10 CFR 50, Appendix B, Criterion III, Design Control; in that it failed to implement the design basis that the EFW system could perform its safety-related function in the event of a single failure coincident with a secondary pipe break. ON 1,2,3-2911 modified air-operated valve C-187 to automatically close at a low UST level of seven feet to protect the EFW pumps' suction water source. However, the modification left the EFW system vulnerable to a single failure in that there was still a single C-187 valve which could cause the EFW system to fail during a break in a main feedwater line or a non-seismic pipe attached to the condenser hotwell. Prior to September 30, 1999, a single failure analysis had not been

completed on the EFW system. This single failure vulnerability remains in effect. This apparent violation is identified as EEI 50-269,270,287/99-13-04, EFW System Single Failure Vulnerability.

5. The failure of modification ON 1,2,3-2640; EFW Seismic Upgrade; to establish an adequate EFW system seismic boundary in 1989. This modification failed to meet the requirements of 10 CFR 50, Appendix B, Criterion III, Design Control in that it failed to implement the seismic design basis that during a seismic event the EFW system upper surge tanks would be protected against a break in a non-seismic secondary pipe, to assure that the safety function of the EFW system would not be lost. This design basis was described in UFSAR Section 3.2; the licensee's letter to the NRC dated May 7, 1986; and the NRC Safety Evaluation Report on Seismic Qualification of the Emergency Feedwater System, dated January 14, 1987. Modification ON 1,2,3-2640 made air-operated valve C-187 safety-related, to support moving the EFW system seismic boundary from normally open valves C-186 and C-191 to a single EFW system boundary at air-operated valve C-187. However, valve C-187 was not remotely operable from the control room and was not maintained normally closed. Instead, C-187 cycled open automatically and routinely during plant operation to add makeup water to the main condenser from the upper surge tanks. In addition, C-187 was susceptible to spurious opening as demonstrated on April 16, 1999, when the Unit 1 C-187 valve spuriously opened due to aging of O-rings and diaphragms in the pneumatic relay assembly. This design deficiency remains in effect. This apparent violation is identified as EEI 50-269,270,287/99-13-05, Inadequate EFW System Seismic Boundary.
6. The failure of a 10 CFR 50.59 safety evaluation to recognize that a modification involved an unreviewed safety question (USQ) and that NRC approval was required prior to installing the modification. In 1993 and 1994, the licensee installed modification ON 1,2,3-2911; UST Makeup to Hotwell Control Valves; which modified air-operated valve C-187 to automatically close at a low UST level of seven feet to protect the EFW pumps' suction water source. However, the modification left the EFW system with an increased probability of occurrence of a malfunction of equipment important to safety over that previously evaluated in the safety analysis report. The modification left the EFW system vulnerable to a single failure in that there was still a single C-187 valve which could cause the EFW system to fail during a break in a main feedwater line or a non-seismic pipe attached to the condenser hotwell. The licensee's PRA recognized that a single failure of valve C-187 was one of the top contributors to a potential EFW system failure. The PRA stated: "If a main feed line break is assumed, the UST could be drained into the hotwell, thereby failing EFW's initial suction source." The licensee's safety evaluations, dated December 30, 1993; April 7, 1994; and August 4, 1994; for units 3, 1, and 2, respectively; incorrectly concluded that this modification did not involve a USQ and consequently the licensee installed the modification without the required NRC approval. This apparent violation is identified as EEI 50-269,270,287/99-13-06, Inadequate Safety Evaluation for EFW System Modification to Automatically Close Valve C-187 and Protect EFW Pumps' Suction Source.

7. The failure of a 10 CFR 50.59 safety evaluation to recognize that a 1998 UFSAR change involved a USQ and a change in the Technical Specifications (TS), and that NRC approval was required prior to making the change. On November 18, 1998, the licensee approved a change to the UFSAR that reduced the design and performance requirements for the EFW system and consequently increased the probability of occurrence of a malfunction of equipment important to safety over that previously evaluated in the safety analysis report. The approved UFSAR revision no longer stated that the EFW system was designed to withstand the single failure of any EFW pump or valve, but instead stated that the EFW system was designed to withstand only the single active failure of an EFW pump or control valve. Also, the approved UFSAR revision no longer required that the EFW system be able to mitigate a secondary pipe break coincident with a single failure, but instead stated: "In the case of a secondary pipe break coincident with a single failure, the emergency feedwater function may be provided by another unit's EFW pumps, the SSF auxiliary service water (ASW) pump, or the station ASW pump." However, TS 3.4 required that each unit's EFW system be able to perform the secondary system decay heat removal safety function, without reliance on other equipment to provide the emergency feedwater function. The licensee's safety evaluation, dated November 18, 1998, incorrectly concluded that this change did not involve a USQ or a change in the TS and consequently the licensee made the change without the required NRC approval. This apparent violation is identified as EEI 50-269,270,287/99-13-07, Inadequate Safety Evaluation for UFSAR Change That Reduced EFW System Design Criteria.

URI 50-269,270,287/99-10-01 and URI 50-269,270,287/99-10-02 are closed and the above apparent violations have been identified. LER 50-269/99-001-00 remains open for NRC review of the licensee's corrective actions.

II. Management Meetings

X1 Exit Meeting Summary

The inspectors discussed preliminary inspection findings by telephone with members of licensee management on February 2 and 14, 2000. On February 2, 2000, the licensee made a presentation on their "Assessment of EFW Failure Analysis" which is an attachment to this inspection report. The NRC presented the inspection results to members of licensee management at the site on February 17, 2000. After consideration of licensee dissenting comments on apparent violations 3 and 5, regarding adequacy of EFW system water sources and an EFW system seismic boundary, the NRC re-exited on those items with licensee management by telephone on February 28, 2000. The licensee was informed that the NRC considered both issues to be current non-conforming conditions. At that time, the licensee expressed continued disagreement with apparent violations 3 and 5, stated that they did not consider either to be a non-conforming condition, and stated that they had not performed operability assessments

assuming that the issues were non-conforming conditions. No proprietary information was identified to the inspectors.

Partial List of Persons Contacted

Licensee

L. Azzerello, Design Basis Engineering Manager
 W. Foster, Safety Assurance Manager
 W. McCollum, Site Vice President, Oconee Nuclear Station
 M. Nazar, Manager of Engineering
 L. Nicholson, Regulatory Compliance Manager

Other licensee employees contacted during the inspection included engineering personnel.

NRC

W. Beckner, Chief, Technical Specification Branch, Office of Nuclear Reactor Regulation (NRR)
 J. Hannon, Chief, Plant Systems Branch, NRR
 D. LaBarge, Project Manager, NRR
 K. Landis, Chief, Engineering Branch, Division of Reactor Safety
 V. McCree, Deputy Director, Division of Reactor Projects
 M. Shannon, Senior Resident Inspector
 J. Tatum, Senior Reactor Engineer, Plant Systems Branch, NRR

Inspection Procedures Used

IP92903 Followup - Engineering

Items Opened, Closed, and Discussed

Opened

50-269,270,287/99-13-01	EEI	Past EFW System Design Was Not Functional for a Main Feedwater Line Break (Section E8)
50-269,270,287/99-13-02	EEI	Inadequate Corrective Action and Reporting for Past EFW System Design That Was Not Functional for a Main Feedwater Line Break (Section E8)
50-269,270,287/99-13-03	EEI	Insufficient Water Sources for EFW System (Section E8)
50-269,270,287/99-13-04	EEI	EFW System Single Failure Vulnerability

(Section E8)

50-269,270,287/99-13-05	EEI	Inadequate EFW System Seismic Boundary (Section E8)
50-269,270,287/99-13-06	EEI	Inadequate Safety Evaluation for EFW System Modification to Automatically Close Valve C-187 and Protect EFW Pumps' Suction Source (Section E8)
50-269,270,287/99-13-07	EEI	Inadequate Safety Evaluation for UFSAR Change That Reduced EFW System Design Criteria (Section E8)

Closed

50-269,270,287/99-10-01	URI	EFW System was Designed to Fail During a Main Feedwater Line Break or Non-Seismic Pipe Break (Section E8)
50-269,270,287/99-10-02	URI	10 CFR 50.59 Evaluations Incorrectly Implemented the EFW Licensing Basis (Section E8)

Discussed

50-269/99-001-00	LER	Emergency Feedwater (EFW) Outside Design Basis Due to Deficient Documentation (Section E8)
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List of Acronyms

ASW	Auxiliary Service Water
CFR	Code of Federal Regulations
EEI	Escalated Enforcement Item
EFW	Emergency Feedwater
F	Fahrenheit
IR	Inspection Report
NRC	Nuclear Regulatory Commission
PIR	Problem Investigation Report
PRA	Probabilistic Risk Assessment
RCS	Reactor Coolant System
SSF	Standby Shutdown Facility
SSHR	Secondary Side Heat Removal
TS	Technical Specifications
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
USQ	Unreviewed Safety Question
UST	Upper Surge Tank

THE ATTACHEMENT
“ASSESSMENT OF EFW FAILURE ANALYSIS”
FEBRUARY 2, 2000

WILL BE ADDED TO THE DOCUMENT WHEN ADDED TO ADAMS