



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

ATTACHMENT 2 CONTAINS PROPRIETARY INFORMATION

July 20, 2004

EA-04-115

Duke Energy Corporation
ATTN: Mr. Ronald A. Jones
Vice President
Oconee Nuclear Station
7800 Rochester Highway
Seneca, SC 29672

PROPRIETARY INFORMATION REMOVED

SUBJECT: OCONEE NUCLEAR STATION - NRC TRIENNIAL FIRE PROTECTION
INSPECTION (FOLLOW UP) REPORT 05000269/2004012, 05000270/2004012
AND 05000287/2004012 PRELIMINARY GREATER THAN GREEN FINDING

Dear Mr. Jones:

On February 18, 2004, the U.S. Nuclear Regulatory Commission (NRC) completed the on-site portion of an open item inspection for your Oconee Nuclear Station Units 1, 2, and 3. Following additional in-office review, the inspection was completed on July 13, 2004. The enclosed inspection report documents the inspection findings, which were discussed on July 13, 2004, with Mr. Noel Clarkson and other members of your staff.

This inspection was an on-site and in-office examination of an Unresolved Item (URI) 05000269, 270, 287/2002003-001, Failure to Meet License Basis Commitment For Staffing the Standby Shutdown Facility (SSF) for a Confirmed Fire. This issue was unresolved pending a review by the NRC to determine if a loss of function occurs and a safety significance determination.

PROPRIETARY INFORMATION

Exempt from public release under the Freedom of Information Act (5 U.S.C. 552). Ref: 2.390(d)(1)

Nuclear Regulatory Commission review required before public release.

Determination made by:
Charles R. Ogle, Chief, EB1, DRS, RII

Signature /RA/ Date 7/20/4

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Based on the results of this inspection, the NRC determined that the Oconee fire response procedures were not consistent with the licensing basis in regards to the criteria for manning of the Standby Shutdown Facility (SSF). In some scenarios this could result in a delay of transfer of control to the SSF which could challenge the capability of the installed SSF makeup pump. As a result, in some scenarios, this could result in pressurizer level failing to be maintained within the indicating range as required by Appendix R. This apparent violation is identified as AV 05000269, 270, 287/2002004-12, Failure to Meet Licensing Basis for Staffing the SSF in the Event of a Confirmed Plant Fire.

This finding was assessed based on the best available information, including influential assumptions, using the applicable Significance Determination Process (SDP) and was preliminarily determined to be a Greater than Green finding. The NRC's calculated change in core damage frequency for this finding is provided in Attachment 2. However, due to uncertainties in developing the plant response to fires that leave the SSF as the exclusive core damage mitigation strategy, this finding has been preliminarily characterized as Greater than Green. Additional information in this regard from Duke Energy Corporation would allow a more refined risk analysis.

The finding has a greater than very low safety significance because it could affect fire protection defense in depth. The finding does not represent a current safety concern because you have modified your procedures to ensure that the SSF is manned upon confirmation of a fire.

Before we make a final decision on this matter, we are providing you an opportunity (1) to present to the NRC your perspectives on the facts and assumptions, used by the NRC to arrive at the finding and its significance, at a Regulatory Conference or (2) submit your position on the finding to the NRC in writing. If you request a Regulatory Conference, it should be held within 30 days of the receipt of this letter and we encourage you to submit supporting documentation at least one week prior to the conference in an effort to make the conference more efficient and effective. If a Regulatory Conference is held, it will be open for public observation. If you decide to submit only a written response, such submittal should be sent to the NRC within 30 days of the receipt of this letter.

This apparent violation is being considered for escalated enforcement action in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy), NUREG-1600. The current Enforcement Policy is included on the NRC's Web site at <http://www.nrc.gov/reading-rm/adams.html>

Please contact Mr. Charles R. Ogle at (404) 562-4605 within seven days of the date of this letter to notify the NRC of your intentions regarding the regulatory conference for the preliminary Greater than Green finding. If we have not heard from you within 10 days, we will continue with our significance determination and associated enforcement processes on this finding, and you will be advised by separate correspondence of the results of our deliberations on this matter.

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Since the NRC has not made a final determination in this matter, no Notice of Violation is being issued for the inspection finding at this time. In addition, please be advised that the characterization of the apparent violation described in the referenced inspection report may change as a result of further NRC review.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, portions of its enclosure and your response (if any) 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). However, the NRC is continuing to review the appropriate classification of the SDP Phase 3 Evaluation (Attachment 2) within our records management program, considering changes in our practices following the events of September 11, 2001. Using our interim guidance, the attached analyses have been marked as Proprietary Information or Sensitive Information in accordance with Section 2.390(d) of Title 10 of the Code of Federal Regulations. Please control the document accordingly (i.e., treat the document as if you had determined that it contained trade secrets and commercial or financial information that you considered privileged or confidential). We will inform you if the classification of these documents change as a result of our ongoing assessments. ADAMS is accessible from the NRC web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

If you have any questions regarding this letter, please contact me at 404-562-4600.

Sincerely,

/RA/

Charles A. Casto, Director
Division of Reactor Safety

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

Enclosure: Inspection Report 05000280,281/2004012
w/Attachments: 1. Supplemental Information
2. Phase 3 SDP Evaluation (**Proprietary Information**)

cc w/encl: (See page 4)

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cc w/encl:

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 Seneca, SC 29672

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.: 50-269, 50-270, 50-287

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

Report Nos.: 05000269/2004012, 05000270/2004012, 05000287/2004012

Licensee: Duke Energy Corporation

Facility: Oconee Nuclear Station

Location: 7800 Rochester Highway
Seneca, SC 29672

Dates: February 17 - July 13, 2004

Inspectors: K. O'Donohue, Fire Protection Team Leader (Lead Inspector)
W. Rogers, Senior Reactor Analyst

Approved by: C. Casto, Director
Division of Reactor Safety

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SUMMARY OF FINDINGS

IR 05000269/2004012, 05000270/2004012, 05000287/2004012; 02/17 - 07/13, 2004; Oconee Nuclear Station, Units 1, 2, and 3; Significance Determination of Unresolved Item from Triennial Fire Protection Inspection.

This in-office and on-site review were conducted by a regional inspector and a senior reactor analyst. One preliminary Greater than Green finding with an apparent violation was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609 "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Initiating Events and Mitigating Systems

- Preliminary Greater than Green. An apparent violation of 10 CFR 50, Appendix R, Sections III.L.2.b and III.L.3 was identified, in that, for a severe fire in areas requiring the manning of the Standby Shutdown Facility (SSF) and activation of the SSF makeup pump, the licensee's safe shutdown strategy and related response procedures delayed the manning of the SSF until there was a loss of function of high pressure injection and component cooling or feedwater. In some scenarios, this would delay transfer of control to the SSF, thereby challenging the operability of the installed SSF makeup pump. This could result in pressurizer level failing to be maintained within the indicating range. The licensee has revised the affected procedures and is evaluating the need for additional corrective action.

This finding is greater than minor because it was associated with "protection against external factors" and "procedure quality" cornerstone attributes. It affected the objective of the Mitigating Systems cornerstone to ensure the availability, reliability and capability of systems that respond to initiating events. This degraded condition increased plant risk because, if a severe fire occurred in areas requiring the manning of the SSF and activation of the SSF makeup pump, the licensee's procedures may not preclude loss of reactor coolant beyond the capability of the SSF makeup pump. (Section 4OA5.01)

B. Licensee-identified Violations:

None

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Report Details

4. OTHER ACTIVITIES

40A5 OTHER

- .1 (Closed) URI 05000269, 270, 287/2002003-001: Failure to Meet License Basis Commitment for Staffing the Standby Shutdown Facility in the Event of a Confirmed Plant Fire.

Introduction: An apparent violation (AV) was identified for failure to comply with 10 CFR 50, Appendix R, Sections III.L.2.b and III.L.3, in that, for a severe fire in areas requiring the manning of the SSF and activation of the SSF makeup pump, the licensees' method for implementing their alternative shutdown capability did not ensure that the reactor coolant makeup function would be capable of maintaining the reactor coolant level within the level indication of the pressurizer. This inspection finding was assessed using the SDP and preliminarily determined to be Greater than Green (i.e., an issue with low to moderate increased importance to safety, which may require additional NRC inspections.)

Description: During the baseline triennial fire protection inspection, the inspectors identified a finding involving the timeliness associated with manning the SSF, having potential safety significance greater than very low significance. Specifically, per procedure, the manning of the SSF was not to be initiated until the fire damage caused a loss of both the high pressure injection (HPI) and component cooling (CC) systems or a loss of all feedwater. The inspectors were concerned that waiting until loss of function occurred to man the SSF could result in a loss of RCS inventory due to additional challenges to and subsequent failures of a power operated relief valve (PORV) or pressure safety valve (PSV). (Abnormal Procedure, AP/0/A/1700/025, Standby Shutdown Facility Emergency Operating Procedure, Revision 20, implemented the Auxiliary Shutdown design capability from the SSF in the event of a fire in areas requiring the manning of the SSF and activation of the SSF makeup pump.)

By letter dated September 20, 1982, the licensee responded to a staff request for additional information (letter dated July 17, 1982). In response to staff concerns regarding the potential for spurious operation of reactor coolant system (RCS) isolation valves (Question No. 4) the licensee stated:

"Upon confirmation of a fire in the plant, operating personnel will be dispatched to the SSF where they will establish communication with the control room...If vital control and monitoring functions (eg., reactor coolant pressure boundary, reactor coolant makeup capability) become unacceptably degraded or unavailable from the control room, a prompt transfer can be made and control established from the SSF....As stated above,

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spurious operation is extremely unlikely within the first 10 minutes. To preclude unacceptable consequences of spurious operation in the longer term, circuits are designed to either preclude spurious operation or retain operability of the systems necessary to mitigate such operation."

By letter dated April 28, 1983, the staff issued its SER of the Oconee Nuclear Station SSF. This SER was based, in part, on the above referenced Duke response. Based on review of these documents, the inspectors determined that upon a confirmed fire in the Cable Spread Room or other areas where shutdown from the SSF may be required, the SSF should be manned immediately upon the confirmation of a fire and communication established with the MCR. However, as described above, the licensee's procedures did not require the SSF to be manned (or activated) until significant fire damage occurred. This delay in manning the SSF could result in additional challenges to the PORVs and PSVs and result in loss of RCS inventory beyond the SSF makeup capability. In some scenarios this could result in a failure to maintain the RCS PZR level within the indicating range.

The licensee captured this issue in its corrective action program in Problem Investigation Process (PIP) O-02-00609.

Analysis: This finding affects the "protection against external factors" and "procedure quality" cornerstone attributes. It affected the objective of the Mitigating Systems cornerstone to ensure the availability, reliability and capability of systems that respond to initiating events because existing procedural guidance may result in a fire damage scenario that could impact the ability of the unit (s) to achieve and maintain safe shutdown conditions. Because the finding affects fire protection, it was assessed in accordance with the NRC Reactor Oversight Process's SDP as described in NRC Inspection Manual Chapter 0609, Appendix F (MC 0609, App. F). The Phase 1 screening conclusion was that a Phase 2 screening should be performed. However, due to the unique failure mechanism associated with the performance deficiency, the senior risk analyst determined that a Phase 2 SDP would not be performed and the finding was screened to a Phase 3 analysis.

Summary of Phase 3 SDP Analysis

This evaluation was performed by Region II SRAs. The Oconee Phase 3 SDP Analysis is included in this inspection report as Attachment 2.

The Phase 3 analysis discusses the approach, site visit observations, assumptions, screening analysis, fire ignition frequencies, fire scenario analysis, contributors to fire risk, integrated assessment of fire-induced core damage frequency, and conclusions developed from this analysis. The report also contains several appendices documenting supplemental information used in the Phase 3 analysis.

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The Phase 3 considers the conforming case where operation personnel are dispatched to the SSF at the confirmation of a fire in the fire areas of concern. The Phase 3 then considers the non-conforming case where operation personnel are dispatched only after loss of critical plant functions. This time delay increases the challenges to the PORVs or if they are not available, challenges to the PSVs. The additional risk is quantified by the Δ CDF. The core damage frequency (CDF) for fires which require the SSF to prevent core damage was calculated in each case and summed for each unit.

The risk analysts concluded that the Δ CDF [the difference between the conforming case CDF and the non-conforming case CDF] was $3E-6$ (low to moderate importance to safety.)

SDP/Enforcement Review Panel (SERP) Evaluation

The total change in CDF due to the performance deficiency was found to be $3 E-6$ / yr for each unit. The dominant accident sequences that cause the largest Δ CDF are fully developed fires that require manning of the SSF. The color associated with this magnitude of change in CDF is Greater than Green. Therefore, the SERP has preliminarily determined this issue to be a Greater than Green finding.

Enforcement: Oconee Unit 1 Operating License DPR-38, Oconee Unit 2 Operating License DPR-47, and Oconee Unit 3 Operating License DPR-55 Condition D provide, in part, that the licensee implement and maintain in effect all provisions of the approved fire protection program as described in the UFSAR and as approved in the SER dated April 28, 1983 and subsequent supplements.

The licensee's UFSAR commits to 10 CFR 50, Appendix R, Sections III.G and III.L. Section III.G.3 states that alternative shutdown capability should be provided where the protection of systems whose function is required for hot shutdown, does not satisfy the requirements of III.G.2. Section III.L of Appendix R provides requirements to be met by alternative shutdown methods. Section III.L.2.b states, in part, that "The reactor coolant makeup function shall be capable of maintaining the reactor coolant level. . . within the level indication in the pressurizer in PWRs." Section III.L.3 specifies that "procedures shall be in effect to implement this capability."

Contrary to the above, on February 8, 2002, the inspectors determined that the procedures specified for a fire requiring SSF manning and activation would not assure that reactor cooling makeup function would be capable of maintaining reactor coolant level within the indicated range of the pressurizer. Specifically, delaying the manning of the SSF until after the occurrence of a loss of function of the high pressure injection and component cooling or feedwater rather than manning the SSF immediately upon confirmation of a fire in the areas of concern may not preclude an extended loss of reactor coolant system inventory. This could result in pressurizer level failing to be maintained within the indicating range. This apparent violation is identified as AV

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05000269, 270, 287/2004012-01, Failure to Meet Licensing Basis for Staffing the SSF in the Event of a Confirmed Plant Fire.

4OA6 Meetings, Including Exit

On July 13, 2004, the inspectors presented the inspection results by telephone to Mr. Noel Clarkson and other members of your staff, who acknowledged the findings. The inspectors confirmed that proprietary information was not provided or examined during the inspection.

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SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

G. Davenport, Compliance Manager (ONS)
D. Garland, Sr. Engineer
J. Smith, Regulatory Compliance
J. Weast, Regulatory Compliance
H. Barrett, Sr. Engineer (Design Basis Engineering)
N. Constance, Operations Training
D. Henneke, Sr. Engineer (PRA Engineering)

NRC personnel

M. Shannon

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000269,270,287/2004012-01	AV	Failure to Meet Licensing Basis for Staffing the SSF in the Event of a Confirmed Plant Fire (Section 4OA5.1)
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Closed

05000269,270,287/2002003-01	URI	Failure to Meet License Basis Commitment for Staffing the SSF in the Event of a Confirmed Plant Fire (Section 4OA5.1)
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LIST OF DOCUMENTS REVIEWED

Procedures:

AP/0/A/1700/025, Standby Shutdown Facility Emergency Operating Procedure, Revision 20
AP/0/A/1700/025, Standby Shutdown Facility Emergency Operating Procedure, Revision 25
AP/1/A/1200/008, Loss of Control Room, Revision 8

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PIP-O2-00609, Questions of Procedural Guidance for Spurious Actuation of EFW and Acceptability of the Start of the 10 minute Time for Spurious Actuations

Other Documents:

Oconee UFSAR Chapter 9.5.1 Fire Protection System, 12/31/00

Special Study, "Pwr Pressurizer Safety Valves and Main Steam Safety Valves and BWR Safety/Relief Valves Performance," dated December 1998

NUREG-1715, Vol. W, "Component Performance Study - Pressurizer Power-Operated Relief Valves (PORVs), 1987 - 2000 (Draft)"

Letter dated September 20, 1982 from H. Tucker (Duke) to H. Denton (NRC); Subject: Response to July 17, 1982 staff request for additional information regarding Oconee Standby Shutdown Facility

Safety Evaluation Report dated April 28, 1983

Response To Request For Technical Assistance Regarding Appendix R Compliance - Oconee Nuclear Station (TAC NOS. 65629, 65630, 65631), Dated September 11, 1989

ATTACHMENT 2 CONTAINS PROPRIETARY INFORMATION**LIST OF ACRONYMS**

AFW	Auxiliary Feedwater
ASP	Auxiliary Shutdown Panel
AV	Apparent Violation
BTU	British Thermal Units
CCDP	Conditional Core Damage Probability
CDF	Core Damage Frequency
CFR	Code of Federal Regulations
CPV	Cable Penetration Vault
CV&T	Cable Vault and Tunnel
EIHP	Early Inventory High Pressure Injection
ESGR	Emergency Switchgear and Relay Room
FCA	Fire Contingency Action
IEL	Initiating Event Likelihood
IPEEE	Individual Plant Examination of External Events
LOCA	Loss of Coolant Accident
NCV	Non-cited Violation
No.	Number
NRC	U.S. Nuclear Regulatory Commission
MCC	Motor Control Center
MCR	Main Control Room
PARS	Publicly Available Records System
PI	Plant Issue
PWR	Pressurized Water Reactor
RCP	Reactor Coolant Pump
SBCV	Service Building Cable Vault
SCBA	Self-contained Breathing Apparatus
SDP	Significance Determination Process
SER	Safety Evaluation Report
SERP	SDP/Enforcement Review Panel
UFSAR	Undated Final Safety Analysis Report
URI	Unresolved Item

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Attachment 1