



A Duke Energy Company

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April 10, 2003

U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Document Control Desk

Subject: Oconee Nuclear Station
Docket Numbers 50-269, 270, and 287
License Amendment Request for Low Temperature
Overpressure Protection System 3.4.12,
Surveillance Requirements 3.4.12.5 and 3.4.12.7
Technical Specification Change (TSC) Number
2002-09

Pursuant to Title 10, Code of Federal Regulations, Part 50, Section 90 (10 CFR 50.90), Duke Energy (Duke) proposes to amend Appendix A, Technical Specifications, for Facility Operating Licenses DPR-38, DPR-47 and DPR-55 for Oconee Nuclear Station, Units 1, 2, and 3. Technical Specification (TS) 3.4.12 LTOP System, Surveillance Requirement (SR) 3.4.12.5 currently requires performance of a Channel Functional Test for the Power Operated Relief Valve (PORV) within 12 hours after decreasing Reactor Coolant System (RCS) temperature to $< 325^{\circ}\text{F}$ and 31 days thereafter. The proposed license amendment request (LAR) revises TS 3.4.12, SR 3.4.12.5 to allow the first performance of this surveillance to be performed within 31 days prior to decreasing RCS temperature to $< 325^{\circ}\text{F}$. TS SR 3.4.12.7 currently requires a channel calibration to be performed every 18 months. The proposed LAR changes SR 3.4.12.7 frequency from 18 months to 6 months, for consistency with supporting calculations.

The revised Technical Specification pages are included in Attachment 1. Attachment 2 contains the markup of the current Technical Specification pages. The Technical Justification for the amendment request is included in Attachment 3. Attachments 4 and 5 contain the No Significant Hazards Consideration Evaluation and the Environmental Impact Analysis, respectively.

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Approval of this proposed LAR is requested by August 31, 2003.

Implementation of these changes will not result in an undue risk to the health and safety of the public.

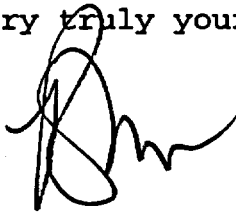
The Oconee Updated Final Safety Analysis Report has been reviewed and no changes are necessary to support this LAR.

This proposed change to the TS has been reviewed and approved by the Plant Operations Review Committee and Nuclear Safety Review Board.

Pursuant to 10 CFR 50.91, a copy of this proposed amendment is being sent to the South Carolina Department of Health and Environmental Control for review, and as deemed necessary and appropriate, subsequent consultation with the NRC staff.

If there are any additional questions, please contact Noel Clarkson at (864) 885-3077.

Very truly yours,

A handwritten signature in black ink, appearing to be 'R. A. Jones', written over a large, faint circular stamp or watermark.

R. A. Jones, Vice President
Oconee Nuclear Site

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cc: Mr. L. N. Olshan, Project Manager
Office of Nuclear Reactor Regulation
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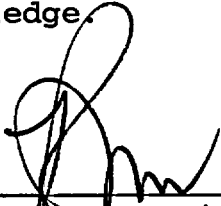
Mr. L. A. Reyes, Regional Administrator
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Mr. M. C. Shannon
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Oconee Nuclear Station

Mr. Henry Porter, Director
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Bureau of Land and Waste Management
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2600 Bull Street
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Ronald A. Jones, being duly sworn, states that he is Vice President, Oconee Nuclear Site, Duke Energy Corporation, that he is authorized on the part of said Company to sign and file with the U. S. Nuclear Regulatory Commission this revision to the Renewed Facility Operating License Nos. DPR-38, DPR-47, DPR-55; and that all the statements and matters set forth herein are true and correct to the best of his knowledge.



R. A. Jones, Vice President
Oconee Nuclear Site

Subscribed and sworn to before me this 10th day of
April, 2003



Notary Public

My Commission Expires:
My Commission Expires Aug. 19, 2004



ATTACHMENT 1

TECHNICAL SPECIFICATION

Remove Page

3.4.12-4
3.4.12-5
B 3.4.12-11
B 3.4.12-12

Insert Page

3.4.12-4
3.4.12-5
B 3.4.12-11
B 3.4.12-12

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.12.1	Verify HPI is deactivated.	12 hours
SR 3.4.12.2	Verify each CFT is isolated.	12 hours
SR 3.4.12.3	Verify pressurizer level is \leq level necessary to assure \geq 10 minutes are available for operator action to mitigate an LTOP event.	30 minutes during RCS heatup and cooldown <u>AND</u> 12 hours
SR 3.4.12.4	Verify PORV block valve is open.	12 hours
SR 3.4.12.5	Perform CHANNEL FUNCTIONAL TEST for PORV.	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.12.6	<p>Verify Administrative Controls, other than limits for pressurizer level, that assure ≥ 10 minutes are available for operator action to mitigate an LTOP event are implemented for the following:</p> <ul style="list-style-type: none"> a. RCS pressure when RCS temperature is $< 325^{\circ}\text{F}$; b. Makeup flow rate; c. Alarms; d. High pressure Nitrogen System; and e. Verify pressurizer heater bank 3 or 4 is deactivated 	12 hours
SR 3.4.12.7	Perform CHANNEL CALIBRATION for PORV.	6 months

BASES

**SURVEILLANCE
REQUIREMENTS**

SR 3.4.12.3 (continued)

The 30 minute Surveillance Frequency during heatup and cooldown must be performed for the LCO Applicability period when temperature changes can cause pressurizer level variations. This Frequency may be discontinued when the ends of these conditions are satisfied, as defined in plant procedures. Thereafter, the Surveillance is required at 12 hour intervals.

These Frequencies are shown by operating practice sufficient to regularly assess indications of potential degradation and verify operation within the safety analysis.

SR 3.4.12.4

Verification that the PORV block valve is open ensures a flow path to the PORV. This is required at 12 hour intervals.

The interval has been shown by operating practice to be sufficient to regularly assess conditions for potential degradation and verify operation is within the safety analysis.

SR 3.4.12.5

A CHANNEL FUNCTIONAL TEST is required every 31 days. PORV actuation is not needed, as it could depressurize the RCS. |

The 31 day Frequency is based on industry accepted practice and is acceptable by experience with equipment reliability. |

SR 3.4.12.6

Verification that administrative controls, other than limits for pressurizer level, that assure ≥ 10 minutes are available for operator action to mitigate the consequences of an LTOP event are implemented is necessary every 12 hours. This verification consists of a combination of administrative checks for alarm availability, verification that pressurizer heater bank 3 or 4 is deactivated, appropriate restrictions on pressurizer level, controls for High Pressure Nitrogen, etc., as well as visual confirmation using available indications that associated physical parameters are within limits.

BASES

**SURVEILLANCE
REQUIREMENTS**

SR 3.4.12.6 (continued)

The Frequency is shown by operating practice sufficient to regularly assess indications of potential degradation and verify operation within the safety analysis.

SR 3.4.12.7

The performance of a CHANNEL CALIBRATION is required every 6 months. The CHANNEL CALIBRATION for the LTOP setpoint ensures that the PORV will be actuated at the appropriate RCS pressure by verifying the accuracy of the instrument string.

REFERENCES

1. 10 CFR 50, Appendix G.
 2. Generic Letter 88-11.
 3. UFSAR, 5.2.3.7.
 4. 10 CFR 50.46.
 5. 10 CFR 50, Appendix K.
 6. 10 CFR 50.36.
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ATTACHMENT 2

MARKUP OF TECHNICAL SPECIFICATION

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.12.1	Verify HPI is deactivated.	12 hours
SR 3.4.12.2	Verify each CFT is isolated.	12 hours
SR 3.4.12.3	Verify pressurizer level is \leq level necessary to assure \geq 10 minutes are available for operator action to mitigate an LTOP event.	30 minutes during RCS heatup and cooldown <u>AND</u> 12 hours
SR 3.4.12.4	Verify PORV block valve is open.	12 hours
SR 3.4.12.5	Perform CHANNEL FUNCTIONAL TEST for PORV.	Within 12 hours after 31 days prior to decreasing RCS temperature to \leq 325°F <u>AND</u> 31 days thereafter

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.12.6	<p>Verify Administrative Controls, other than limits for pressurizer level, that assure ≥ 10 minutes are available for operator action to mitigate an LTOP event are implemented for the following:</p> <ul style="list-style-type: none"> a. RCS pressure when RCS temperature is $< 325^{\circ}\text{F}$; b. Makeup flow rate; c. Alarms; d. High pressure Nitrogen System; and e. Verify pressurizer heater bank 3 or 4 is deactivated 	12 hours
SR 3.4.12.7	Perform CHANNEL CALIBRATION for PORV.	6-18 months

BASES

**SURVEILLANCE
REQUIREMENTS**

SR 3.4.12.3 (continued)

The 30 minute Surveillance Frequency during heatup and cooldown must be performed for the LCO Applicability period when temperature changes can cause pressurizer level variations. This Frequency may be discontinued when the ends of these conditions are satisfied, as defined in plant procedures. Thereafter, the Surveillance is required at 12 hour intervals.

These Frequencies are shown by operating practice sufficient to regularly assess indications of potential degradation and verify operation within the safety analysis.

SR 3.4.12.4

Verification that the PORV block valve is open ensures a flow path to the PORV. This is required at 12 hour intervals.

The interval has been shown by operating practice to be sufficient to regularly assess conditions for potential degradation and verify operation is within the safety analysis.

SR 3.4.12.5

~~A CHANNEL FUNCTIONAL TEST is required every 31 days. days prior to 12 hours after decreasing RCS temperature to $\leq 325^{\circ}\text{F}$ and every 31 days thereafter to ensure the setpoint is proper for using the PORV for LTOP. PORV actuation is not needed, as it could depressurize the RCS.~~

~~The 12 hour Frequency considers the unlikelihood of a low temperature overpressure event during the time. The 31 day Frequency is based on industry accepted practice and is acceptable by experience with equipment reliability.~~

SR 3.4.12.6

Verification that administrative controls, other than limits for pressurizer level, that assure ≥ 10 minutes are available for operator action to mitigate the consequences of an LTOP event are implemented is necessary every 12 hours. This verification consists of a combination of administrative checks for alarm availability, verification that pressurizer heater bank 3 or 4 is deactivated, appropriate restrictions on pressurizer level, controls for High Pressure Nitrogen, etc., as well as visual confirmation using available indications that associated physical parameters are within limits.

BASES

**SURVEILLANCE
REQUIREMENTS**

SR 3.4.12.6 (continued)

The Frequency is shown by operating practice sufficient to regularly assess indications of potential degradation and verify operation within the safety analysis.

SR 3.4.12.7

The performance of a CHANNEL CALIBRATION is required every 618 months. The CHANNEL CALIBRATION for the LTOP setpoint ensures that the PORV will be actuated at the appropriate RCS pressure by verifying the accuracy of the instrument string. ~~The calibration can only be performed in shutdown.~~

~~The Frequency considers a typical refueling cycle and industry accepted practice.~~

REFERENCES

1. 10 CFR 50, Appendix G.
 2. Generic Letter 88-11.
 3. UFSAR, 5.2.3.7.
 4. 10 CFR 50.46.
 5. 10 CFR 50, Appendix K.
 6. 10 CFR 50.36.
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Attachment 3

Technical Justification

Attachment 3

Technical Justification

Background

The Low Temperature Overpressure Protection (LTOP) System limits pressure at low temperatures so the integrity of the Reactor Coolant System (RCS) boundary is not compromised by violating the pressure and temperature requirements of 10 CFR 50, Appendix G. The reactor vessel is the most limiting RCS boundary component for providing such protection. Pressure and temperature limits, provided in Technical Specifications, provide the allowable combinations of pressure and temperature during cooldown, shutdown and heatup to keep from violating the 10 CFR 50, Appendix G limits.

Technical Specification (TS) 3.4.12 provides RCS overpressure protection in the applicable MODES by ensuring an adequate pressure relief capacity and a limit on coolant addition capability. The pressure relief capacity requires the Power Operated Relief Valve (PORV) lift setpoint to be reduced.

As required for LTOP, the PORV is signaled to open if the RCS pressure approaches a limit set in the LTOP actuation circuit. The LTOP actuation circuit monitors RCS pressure and determines when an overpressure condition is approached. When the monitored pressure meets or exceeds the setting the PORV is signaled to open. Maintaining the setpoint within the limits of the Limiting Condition for Operation ensure the 10 CFR 50, Appendix G limits will be met in any event analyzed for LTOP.

When the PORV is opened in an increasing pressure transient, the release of coolant causes the pressure increase to slow and reverse. As the PORV releases steam, the RCS pressure decreases until a reset pressure is reached and the valve is signaled to close. The pressure continues to decrease below the reset pressure as the valve closes.

Surveillance Requirement (SR) 3.4.12.5 requires that a Channel Functional Test (CFT) be performed to ensure the setpoint is proper for using the PORV for LTOP. PORV actuation is not required for performance of this SR as it could depressurize the RCS.

SR 3.4.12.7 requires that a Channel Calibration of the PORV be performed. This calibration supports actuation of the PORV at the proper setpoint such that low temperature overpressure protection is provided.

Description of the Technical Specification Change and Technical Justification

This proposed change to TS 3.4.12, SR 3.4.12.5, will revise the Frequency to allow the Channel Functional Test to be performed within 31 days prior to decreasing RCS temperature to $< 325^{\circ}\text{F}$. This will allow verification that the instrument is operating properly before the conditions for Low Temperature Overpressure Protection (LTOP) are entered. Currently the surveillance must be performed after entering LTOP conditions, which results in removal of the instrument from service during the time at which it is relied upon. This TS revision will allow the surveillance to be performed prior to entering the conditions which rely upon the instrument, resulting in more conservative plant operation.

The proposed change to SR 3.4.12.7 will change the frequency for Channel Calibration from the current 18 month interval, to a 6 month interval. This reduction in the frequency time frame is necessary to reflect values in the supporting calculations.

The LTOP System protects the reactor vessel from excessive pressure at low temperature conditions. The LTOP System consists of two diverse trains. One train consists of the pressurizer power operated relief valve (PORV) with a lift setpoint based on the low temperature overpressure limits. The second train consists of operator action, assisted by administrative controls and alarms.

The pressurizer PORV has a dual setpoint. During normal operation, the lift setpoint is 2450 psig. A lower PORV lift setpoint is used during startup and shutdown conditions. The lower setpoint is enabled by actuation of a switch in the control room whenever the RCS temperature is below 325°F . In order to prevent the LTOP pressure limits from being exceeded, a low pressure setpoint is specified by Technical Specifications (TS).

Low temperature overpressure scenarios have been analyzed using conservative assumptions. Assuming a single failure of either of the two diverse methods of overpressure protection,

the analysis demonstrates that the reactor vessel is protected from damage during events which result in increasing pressure. The two trains (active and passive) of the LTOP System, taken together, are single failure proof. The individual trains are not single failure proof.

As described in UFSAR Section 5.2.3.7, removing the PORV from service while in LTOP conditions renders LTOP not single failure proof. The resulting Actions, contained in TS 3.4.12, are to restore the PORV to Operable status within 1 hour or be in MODE 3, with an Reactor Coolant System (RCS) average temperature > 325°F or depressurize the RCS to < 100 psig.

Performing the Channel Functional Test before decreasing RCS temperature to 325°F will continue to ensure the instrument is operating properly to control the PORV for LTOP. The advantages of performing the functional test before LTOP is required are: (a) a more conservative position of not removing the PORV from service when it is needed for LTOP, and (b) remove the requirement of entering a TS Action within TS 3.4.12 when the PORV is inoperable due to performing the functional test. Changing the timeframe of performing the Channel Functional Test required by TS does not reduce the margin of safety.

The proposed frequency for SR 3.4.12.5 is 31 days. The justification for 31 day frequency is from the existing TS 3.4.12 Bases. The existing Bases state the 31 day frequency is based on industry accepted practice and is acceptable by experience with equipment reliability. The Bases of SR 3.4.12.5 will be changed to reflect the proposed change to the Frequency of SR 3.4.12.5.

Performance of this test prior to decreasing RCS temperature to < 325°F will require the PORV block valve to be closed for a short period of time, above 325°F to support this test. The risk of PORV unavailability for this short period of time (a few hours) has been determined to be negligible.

This change will eliminate removing the PORV from service when LTOP is required thereby increasing safety and reducing risk by maintaining both trains (active and passive) of the LTOP System operable.

The proposed frequency for SR 3.4.12.7 is changed from 18 months to 6 months. Oconee calculations have determined that a recalibration interval, for the RCS Low Range Pressure

Transmitter, of 6 months results in a single-sided 95/95 probability confidence of 9.4 psig. The uncertainty used in the LTOP evaluation analysis bounds the 6 month instrument uncertainty. This reduction in frequency will allow the TS SR to reflect supporting calculations. The Bases will be revised to reflect the proposed Frequency of SR 3.4.12.7.

ATTACHMENT 4

NO SIGNIFICANT HAZARDS CONSIDERATION

Attachment 4
No Significant Hazards Consideration

Pursuant to 10 CFR 50.91, Duke Power Company (Duke) has made the determination that this amendment request involves a No Significant Hazards Consideration by applying the standards established by the NRC regulations in 10 CFR 50.92. This ensures that operation of the facility in accordance with the proposed amendment would not:

- (1) Involve a significant increase in the probability or consequences of an accident previously evaluated:

No. This is a revision to the Technical Specification (TS) surveillance requirement (SR) for performing the channel functional test (CFT) for the pressurizer pressure operated relief valve (PORV). As such, changing the requirement to perform the first CFT before entering the Low Temperature Overpressure Protection (LTOP) region, rather than after LTOP is required, eliminates removing the PORV from service, in the mode of applicability for the performance of this CFT. This change will decrease the probability of a low temperature overpressurization of the reactor vessel, thereby increasing safety and reducing risk, by maintain both trains (active and passive) of the LTOP System operable. The change to the frequency for performance of SR 3.4.12.7 is being done to ensure the calibration is performed in a time frame supported by current analysis. The method of test is not changed, only the frequency. This reduction in frequency will not significantly increase the probability or consequences of any accident previously evaluated.

- (2) Create the possibility of a new or different kind of accident from any kind of accident previously evaluated:

No. This revision will not impact the LTOP evaluation analysis. The timeframe to perform the CFT for the PORV will not change the operation of the PORV or its function during accident conditions. No new or different accidents result from performing the CFT prior to entering LTOP conditions. The revision to SR 3.4.12.7 only changes the frequency of the testing. The method of test is not changed. This change has no effect on the possibility of a new or different kind of accident.

(3) Involve a significant reduction in a margin of safety.

No. The proposed revision will perform the CFT within 31 days prior to entering LTOP conditions, rather than performing the test once LTOP conditions are entered. This allows the CFT, which causes the PORV to be inoperable for a short period of time, to be performed prior to reaching the plant conditions where the PORV is relied upon for LTOP. Performing the CFT within 31 days prior to decreasing RCS temperature to $< 325^{\circ}$, rather than after entering these conditions, will not change the margin of safety. Ocone calculations show that a recalibration interval of 6 months for the Reactor Coolant System (RCS) low range pressure instrumentation results in a single-sided 95/95 probability confidence limit of 9.4 psig. This result is bounded by the instrument uncertainty assumed in the LTOP evaluation analysis. The frequency change for SR 3.4.12.7 from 18 months to 6 months does not affect the method of test performance. It only decreases the allowed time between performances to reflect current Ocone analysis. This will not significantly reduce the margin of safety.

Duke has concluded, based on the above, that there are no significant hazards considerations involved in this amendment request.

ATTACHMENT 5

ENVIRONMENTAL ASSESSMENT

ATTACHMENT 5

Environmental Assessment

Pursuant to 10 CFR 51.22(b), an evaluation of the license amendment request (LAR) has been performed to determine whether or not it meets the criteria for categorical exclusion set forth in 10 CFR 51.22(c)9 of the regulations. The LAR does not involve:

- 1) A significant hazards consideration.

This conclusion is supported by the determination of no significant hazards contained in Attachment 4.

- 2) A significant change in the types or significant increase in the amounts of any effluents that may be released offsite.

This LAR will not change the types or amounts of any effluents that may be released offsite.

- 3) A significant increase in the individual or cumulative occupational radiation exposure.

This LAR will not increase the individual or cumulative occupational radiation exposure.

In summary, this LAR meets the criteria set forth in 10 CFR 51.22 (c)9 of the regulations for categorical exclusion from an environmental impact statement.