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50-287 Oconee Nuclear Station, Unit 3, Duke Power Co. 05000287

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SUBJECT: Requests use of alternative to requirements of ASME Boiler & Pressure Vessel Code, Section XI, Subsection IWL, 1992 Edition w/1992 Addenda for plant. Proposed alternative will permit use of more appropriate exam schedule.

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Duke Power Company
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May 6, 1998

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Subject: Duke Power Company
Oconee Nuclear Station, Units 1, 2, and 3
Docket Nos. 50-269, -270, and -287
Request to use an alternative to the requirements of the ASME Boiler and Pressure Vessel Code, Section XI in accordance with 10 CFR 50.55a(a)(3)(I). Duke Energy Corporation Request for Alternative 98-ONS-0002

Pursuant to 10 CFR 50.55a(a)(3)(i), Duke Energy Corporation requests the use of an alternative to the requirements of the ASME Boiler and Pressure Vessel Code, Section XI, Subsection IWL, 1992 Edition with the 1992 Addenda for Oconee Units 1, 2, and 3.

This request is to allow the use of an alternative to the examination requirements for post-tensioning systems of concrete containments (Class CC components), as specified in The ASME Boiler and Pressure Vessel Code, Section XI, 1992 Edition with the 1992 Addenda, IWL-2421 and IWL-2521, Table-2521-1.

The proposed alternative will permit the use of a more appropriate examination schedule that that permitted by IWL-2421 for a site with more than two units. The proposed schedule and modified examination plan will provide an equivalent, or improved level of quality and safety for the post-tensioning system components of the concrete containments at Oconee.

A detailed description of this proposed alternative, including a background discussion and justification is included as an enclosure. Duke Energy requests timely NRC review and approval of this relief request so that Containment Inservice Inspection plans, which are under development, can be completed during the second quarter of 1998.

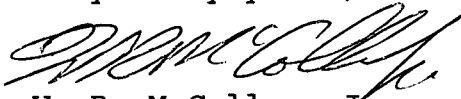
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U. S. Nuclear Regulatory Commission
May 5, 1998
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If there are any questions or further information is needed you may contact M. J. Ferlisi at (704) 382-3923.

Very truly yours,



W. R. McCollum, Jr.
Site Vice President

Attachments

xc (w/attch): Mr. D. E. LaBarge, Project Manager
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U. S. Nuclear Regulatory Commission
Washington, DC 20555

Mr. L. A. Reyes
Regional Administrator, Region II
U. S. Nuclear Regulatory Commission

xc(w/o attch): Mr. M. A. Scott
Senior NRC Resident Inspector
Oconee Nuclear Station

Mr. Max Batavia
Bureau of Radiological Health
SC Dept. of Health & Environmental Control
2600 Bull St.
Columbia, SC 29201

DUKE ENERGY CORPORATION
Request For Alternative No. 98-ONS-0001
Oconee Nuclear Station Units 1, 2 and 3

Request for Alternative to the Requirements of the ASME
Boiler and Pressure Vessel Code, Section XI.

Background:

Pursuant to 10 CFR 50.55a (a) (3) (i), Duke Energy Corporation requests the use of an alternative to the requirements of the ASME Boiler and Pressure Vessel Code, Section XI, Subsection IWL, 1992 Edition with the 1992 Addenda for Oconee Units 1, 2 and 3.

IWL-2420 specifies the schedule for examination of post-tensioning systems of Class CC components. IWL-2421 allows for a modification of the examination requirements for sites with two plants meeting the provisions of IWL-2421(a). Because IWL-2421 applies to sites with two plants, there are no specific provisions in IWL allowing a modification of the examination schedule for a site with three plants. This proposed alternative would allow an appropriate modification of the schedule for IWL-2522 examinations for Oconee.

I. Systems/Components for Which Relief is Requested:

Post-tensioning systems of Class CC components.

II. Code Requirement(s):

The ASME Boiler and Pressure Vessel Code, Section XI, Division 1, 1992 Edition with the 1992 Addenda, Paragraph IWL-2420 specifies schedule requirements for examination of unbonded post-tensioning systems. The specific requirement is that unbonded post-tensioning systems shall be examined in accordance with IWL-2520 at 1, 3, and 5 years following the completion of the containment Structural Integrity Test and every five years thereafter. Selection of tendons to be examined is performed in accordance with IWL-2521 and Table IWL-2521-1.

IWL-2421 allows sites with two plants to modify the examination requirements for the concrete containments if both containments utilize the same prestressing

system and are essentially identical in design, if post-tensioning operations for the two containments were completed not more than 2 years apart, and if both containments are similarly exposed to or protected from the outside environment.

III. Requirement from Which Alternative is Requested:

An alternative is requested to the requirements of IWL-2421 and Table IWL-2521-1 to permit a modified examination program for IWL-2522 examinations of concrete containment post-tensioning systems at Oconee.

IV. Basis for Requesting Alternative:

Oconee has reactor containments that meet the requirements of IWL-2421(a), except that there are three containments at the site.

Because IWL-2421 does not provide an alternative examination schedule for a site with three plants, Duke Energy has determined that the modified schedule permitted by IWL-2421 can be applied only to Oconee units 1 and 2. The Unit 3 post-tensioning system examinations would comply with the requirements of IWL-2420 and IWL-2520, and would not utilize a modified examination schedule. This approach is consistent with the position stated by the NRC in SECY-96-080, Attachment 6, for IWL Comment 2.8 submitted by Duke Power.

The completion dates for initial post-tensioning operations at Oconee are as follows:

Unit 1	November 1970	
Unit 2	December 1971	(13 months after Unit 1)
Unit 3	June 1973	(18 months after Unit 2)

Table 1 shows the number of tendons subject to tendon force measurements (IWL-2522) at years 25 and 30 following the completion of the Structural Integrity Test in accordance with the requirements of IWL-2400 and IWL-2500. Years 25 and 30 were used in Table 1 solely to demonstrate how tendons would be selected during any single ten year period. The examination schedule shown would be repeated every ten years.

As Table 1 shows, the required number of tendons subject to IWL-2522 examinations during any ten year period is not equal for each unit.

V. Alternative Examination(s):

In lieu of the examination plan detailed in Table 1, Duke Energy proposes an alternative to use the examination plan listed in Table 2 for all tendon examinations. This will enable Oconee to distribute these examinations equally between all three units.

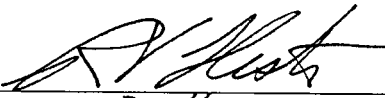
VI. Justification for Granting Alternative:

The proposed alternative plan for the unbonded post-tensioning system examinations provides an improved level of quality and safety because IWL-2522 examinations would be performed every five years on each unit, allowing earlier detection of potential conditions that could adversely affect the structural integrity of the containment. This alternative will allow for a better distribution of randomly selected tendons throughout all three units, improving the statistical quality of the sample, and will result in nearly the same number of tendons being examined as that required by Subsection IWL.

VII. Implementation Schedule

First IWL examinations scheduled after January 1, 2000.

Evaluated By: 
Date: 3-5-98

Reviewed By: 
Date: 3-11-98

DUKE ENERGY CORPORATION

Request For Alternative No. 98-ONS-0001

Oconee Nuclear Station Units 1, 2 and 3

Table 1

IWL-2520 Examinations Required Using Modified Schedule Allowed by IWL-2421 (See Note 3)

Unit	Tendon Type	No. of Tendons of Each Type (See Note 1)	No. of Tendons To Be Selected For Examination in Accordance With Table IWL-2521-1		No. of Tendons To Be Examined in Accordance With IWL-2522 At Year 25 (See Note 3)	No. of Tendons To Be Examined in Accordance With IWL-2522 At Year 30 (See Note 3)	No. of Tendons To Be Examined in Accordance With IWL-2522 During Years 25 & 30
			4% of Each Type	Number Required (See Note 2)			
1	Hoop	630	25.20	10	0	10	10
	Vertical	175	7.00	7	0	7	7
	Dome	162	6.48	7	0	7	7
2	Hoop	631	25.24	10	10	0	10
	Vertical	176	7.04	8	8	0	8
	Dome	162	6.48	7	7	0	7
3	Hoop	632	25.28	10	10	10	20
	Vertical	174	6.96	7	7	7	14
	Dome	162	6.48	7	7	7	14

Total number of tendons examined in accordance with IWL-2522 every ten years:

97

Notes:

1. The original containment design includes 632 Hoop, 176 Vertical, and 162 Dome tendons. The actual numbers of tendons listed in this column consider the fact that some tendon sheaths on each unit were not utilized.
2. Table IWL-2521-1 specifies a maximum number of ten tendons of each type. Fractional tendon numbers have been rounded up to the nearest whole number.
3. IWL-2523 examinations shall be performed on one tendon of each type when IWL-2522 examinations are performed. IWL-2524 and IWL-2525 examinations are required every five years on tendons selected for examination in accordance with Table IWL-2521-1.

DUKE ENERGY CORPORATION

Request For Alternative No. 98-ONS-0001

Oconee Nuclear Station Units 1, 2 and 3

Table 2

IWL-2520 Examinations Required Using Proposed Alternative

Unit	Tendon Type	No. of Tendons of Each Type (See Note 1)	No. of Tendons To Be Examined in Accordance With IWL-2522 Every 5 Years (See Note 2)	No. of Tendons To Be Examined in Accordance With IWL-2522 During Each 10 Year Period	No. of Tendons To Be Examined in Accordance With IWL-2524 & IWL-2525 Every 5 Years (See Note 3)	No. of Tendons To Be Examined in Accordance With IWL-2524 and IWL-2525 During Each 10 Year Period
1	Hoop	630	7	14	10	20
	Vertical	175	5	10	7	14
	Dome	162	4	8	7	14
2	Hoop	631	7	14	10	20
	Vertical	176	5	10	8	16
	Dome	162	4	8	7	14
3	Hoop	632	7	14	10	20
	Vertical	174	5	10	7	14
	Dome	162	4	8	7	14
Total number of tendons subject to examination during each ten year period:				96		146

Notes:

1. The original containment design includes 632 Hoop, 176 Vertical, and 162 Dome tendons. The actual numbers of tendons listed in this column consider the fact that some tendon sheaths on each unit were not utilized.
2. IWL-2523 examinations shall be performed on one hoop, vertical, and dome tendon on each containment every 5 years.
3. The number of tendons selected for IWL-2524 and IWL-2525 examinations is the same as that required by Table IWL-2521-1.