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SUBJECT: Oconee Nuclear Station - Unit 1  
Docket No. 50-269  
Inservice Inspection Summary Report for Class  
CC Component Examination  
End of Cycle 21 Outage

Pursuant to 10CFR50.55a(b)(2)(viii), Duke Energy Corporation submits the attached ISI Summary Report for ASME Class CC In-service Inspections completed during 1 EOC 21 refueling outage.

The report describes conditions considered reportable under 10CFR50.55a(b)(viii)(D)(1). Planned corrective actions are described within the report, but are not considered NRC commitment items.

Questions regarding the attached report may be directed to R. V. Hester at (864) 885-4333 or R. P. Todd at (864) 885-3418.

Very truly yours,

R. A. Jones,  
Site Vice President  
Oconee Nuclear Station

Attachment:

cc w/att: L. A. Reyes  
L. N. Olshan  
M. E. Shannon

A047

Oconee Nuclear Station, Unit 1  
Class CC ISI Summary Report for  
Refueling Outage EOC21

By:  Date: 03/29/04  
(Mark J. Ferlisi, P.E.)

Reviewed By:  Date: 03/30/04  
(R. V. Hester, P.E. IWL  
Responsible Engineer)

Approved By:  Date: 3/31/04

ANII Review By:  Date: 4/1/04  
(Authorized Nuclear Inservice  
Inspector)

## II. General Description of Condition Requiring Reporting

Free water was detected in tendon sheath for tendon 62H21. This condition was identified during the performance of routine maintenance not associated with the performance of ASME Code, Section XI, Subsection IWL, Table IWL-2500-1, Category L-B Examinations. This condition is considered to be reportable in accordance with 10CFR50.55a(b)(2)(viii)(D)(1) and was documented in Problem Investigation Process Report PIP #O-03-07856.

## III. Detailed Description of Reportable Condition

When performing maintenance to correct grease leakage from a tendon cap for hoop tendon 62H21, water drained from a tendon cap stud hole when the stud was removed. A total of 8 gallons of water drained from the affected end of the tendon.

Although 10CFR50.55a(b)(2)(viii)(D)(1) does not require that an evaluation of this condition be submitted in this ISI Summary Report, an evaluation is provided below.

### Technical Evaluation

The drained water from tendon 62H21 was tested and found to have a pH of 9.75 (slightly basic). The tendon cap was removed and the anchorage and wires were inspected for corrosion. The anchorhead and buttonheads were bright, shiny metal when wiped clean. The wires showed no signs of corrosion, but small globules of grease stained with a rusty surface tint were attached to the wires. When these globules were removed, there was no corrosion on the wire at these locations. No other indications of abnormal conditions were observed for this tendon, and it is considered acceptable at this time.

Historically, water detected in tendon sheaths at Oconee has not been associated with unacceptable conditions because the original tendon grease continues to coat the wires and provide adequate protection against corrosion. Please note that water has been discovered previously in vertical tendons (Reference Problem Investigation Process Report PIP #O-97-03593) and it has been concluded that water in vertical tendons was most likely from ground water or from rainwater entering the Reactor Building in the parapet

region due to improper sealing of the tendon caps at the top ends of vertical tendons. Tendon 62H21 is a hoop tendon at elevation 812' + 0" (above adjacent ground level), so the source of water in 62H21 cannot be groundwater. However, a path for rainwater in-leakage has been detected previously in 2002 near the top end of tendon 12V9 and at tendon 3D5, as documented in Problem Investigation Process Report PIP #O-02-02191 (also detailed in letter to the NRC dated July 29, 2002 from W. R. McCollum). Dome tendon 3D5, which passes near tendon 12V9, contained a significant quantity of water, but other tendons which also pass near tendon 12V9 were not found to contain water. All hoop tendons between buttresses #2 and #6 (including 62H21), and all hoop tendons between buttresses #1 and #3 pass near tendon 12V9. Water observed in tendon 12V9 is not necessarily an indication that water will be found in adjacent tendons. There must also be a path through the surrounding concrete, such as a void, to allow water from one tendon sheath to migrate to another in the same vicinity. Although no water was detected in the bottom cap of tendon 12V9 in 2002, water could still have been present in this tendon sheath above elevation 812' + 0" and could have entered the sheath for tendon 62H21 near this elevation. The concrete surrounding the top end of tendon 12V9 has been repaired and sealed to prevent continued water intrusion.

#### Corrective Actions

1. The tendon cap for tendon 62H21 was reinstalled, and this tendon shall be refilled with grease during the next tendon surveillance for Unit 1, currently scheduled to be performed between 08/04/2005 and 08/04/2007.
2. A stud was removed from the tendon caps on tendons immediately above and below the affected cap (tendons 62H20 and 62H22), and no water was detected in either of these tendon caps.
3. During the next scheduled tendon surveillance for Unit 1, tendons 62H21, 12V9 and 3D5 shall be drained, inspected for evidence of any remaining free water, and the tendon sheaths shall be filled with grease.