

# WOLF CREEK

NUCLEAR OPERATING CORPORATION

Richard D. Flannigan  
Manager Regulatory Affairs

August 6, 2008

RA 08-0074

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

- References:
- 1) Letter ET 95-0112, dated October 31, 1995, from R. C. Hagan, WCNOC, to USNRC
  - 2) Letter WO 95-0189, dated December 27, 1995, from O. L. Maynard, WCNOC, to USNRC
  - 3) Letter dated February 9, 1996, from USNRC to N. S. Carns, WCNOC

Subject: Docket No. 50-482: Containment Inservice Inspection Program  
First Interval, Third Period, Owner's Activity Reports

Gentlemen:

This submittal provides the Owner's Activity Reports (OARs) for the third period of the first interval of the Wolf Creek Nuclear Operating Corporation (WCNOC) Containment Inservice Inspection Program. American Society of Mechanical Engineers (ASME) Code Case N-532, "Alternative Requirements to Repair and Replacement Documentation Requirements and Inservice Summary Report Preparation and Submission as Required by IWA-4000 and IWA-6000," requires that an Owner's Activity Report (Form OAR-1) be prepared and certified upon completion of each refueling outage. Additionally, each Form OAR-1 prepared during an inspection period shall be submitted following the end of the inspection period.

In References 1 and 2, WCNOC requested use of ASME Code Case N-532 in lieu of current ASME Section XI reporting requirements. In Reference 3, the Nuclear Regulatory Commission (NRC) concluded that the proposed alternative to use Code Case N-532 and the clarifications contained within References 1 and 2 provided an acceptable level of quality and safety and approved the use of Code Case N-532 for use at Wolf Creek Generating Station (WCGS).

A047  
NRC

The enclosures provide the Owner's Activity Reports (Form OAR-1) for the timeframe of May 20, 2005 through May 14, 2008. This timeframe constitutes operational cycles 15 and 16 of the third period of the first interval of the WCNOG Containment Inservice Inspection Program. The enclosed OAR-1 Forms (Report No. WCRE-11, I1-P3-RF15 and Report No. WCRE-11, I1-P3-RF16) correspond to these cycles.

There are no commitments contained within this letter.

If you have any questions concerning this matter, please contact me at (620) 364-4117 or Ms. Diane Hooper at (620) 364-4041.

Sincerely,



Richard D. Flannigan

RDF/rit

Enclosures I - Form OAR-1, Report No. WCRE-11, I1-P3-RF15  
II - Form OAR-1, Report No. WCRE-11, I1-P3-RF16

cc: E. E. Collins (NRC), w/e  
V. G. Gaddy (NRC) w/e  
B. K. Singal (NRC), w/e  
Senior Resident Inspector (NRC), w/e

FORM OAR-1 OWNER'S ACTIVITY REPORT

Report Number WCRE-11, 11-P3-RF-15

Owner Wolf Creek Nuclear Operating Corporation, 1550 Oxen Lane Northeast, Burlington, Kansas 66839  
(Name and Address of Owner)

Plant Wolf Creek Generating Station, 1550 Oxen Lane Northeast, Burlington, Kansas 66839  
(Name and Address of Plant)

Unit No. 1 Commercial service date 9-3-85 Refueling outage no. 15  
(If applicable)

Current inspection interval 1<sup>st</sup> Interval for the Containment Inservice Inspection Program  
(1st, 2nd, 3rd, 4th, other)

Current inspection period 3<sup>rd</sup> period for the Containment Inservice Inspection Program  
(1st, 2nd, 3rd)

Edition and Addenda of Section XI applicable to the inspection plan 1998 edition with no addenda

Date and revision of inspection plan WCRE-11 Rev. 3, dated 9-21-2006

Edition and Addenda of Section XI applicable to repairs and replacements, if different than the inspection plan 1992 edition with 1992 addenda

**CERTIFICATE OF CONFORMANCE**

I certify that the statements made in this Owner's Activity Report are correct, and that the examinations, tests, repairs, replacements, evaluations, and corrective measures represented by this report conform to the requirements of Section XI.

Certificate of Authorization No. N/A Expiration Date N/A  
(If applicable)

Signed Dennis E. Tougaw *Dennis E. Tougaw* Engineer Date January 25, 2007  
Owner or Owner's Designee, Title

**CERTIFICATE OF INSERVICE INSPECTION**

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the State of Kansas and employed by The Hartford Steam Boiler Inspection and Insurance Company of Connecticut of Hartford, Connecticut have inspected the items described in this Owner's Activity Report, during the period May 20, 2005 to November 10, 2006, and state that to the best of my knowledge and belief, the Owner has performed all activities represented by this report in accordance with the requirements of Section XI.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the examinations, tests, repairs, replacements, evaluations and corrective measures described in this report. Furthermore, neither the inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

*Q-B C Field* Commissions KS#594 A, N, I  
Inspector's Signature National Board, State, Province, and Endorsements

Date 1/25/07

This form (E00127) may be obtained from the Order Dept., ASME, 22 Law Drive, Box 2300, Fairfield, NJ 07007-2300

**TABLE 1**  
**ABSTRACT OF EXAMINATIONS AND TESTS**  
**Completion of RF-15 (I-1, P-3)**

<b>Examination Category</b>	<b>Total Examinations Required For The Interval</b>	<b>Total Examinations Credited for This Period*</b>	<b>Total Examinations Credited (%) for The Period</b>	<b>Total Examinations Credited (%) to Date for the Interval</b>	<b>Remarks</b>
E-A	823	5	1	67	Note 1
E-C	8	1	12	50	Note 2
L-A	12	6	50	100	Note 3
L-B	26	26	100	100	Notes 3, 4

\* This column is interpreted to represent the cumulative number of exams performed to date in this period.

- Note 1: 100% of the Accessible Surface Areas of Category E-A are required to be inspected each Inspection Period per Table IWE-2500-1
- Note 2: In accordance with IWE-1241, 4 components were reclassified as Category E-C in Period 2 resulting in 8 examinations in this Category being required for the Interval.
- Note 3: The IWL components (Categories L-A and L-B) are examined on a 5 year period basis at this point in the WCGS plant life. The IWL periods in the current Containment Inservice Program Plan correspond to the 15<sup>th</sup> and 20<sup>th</sup> year anniversary.
- Note 4: As permitted by 10 CFR 50.55a, the initial examination of the tendons was conducted in accordance with the existing Tech Spec program. Thus only the tendon examinations after revision of the Tech Specs to utilize IWL (the 20<sup>th</sup> year anniversary) are listed.

**TABLE 2**  
**ITEMS WITH FLAWS OR RELEVANT CONDITIONS THAT**  
**REQUIRED EVALUATION FOR CONTINUED SERVICE**

Examination Category	Item Number	Item Description	Flaw Characterization (IWA-3300)	Flaw or Relevant Condition Found During Scheduled Section XI Examination or Test (Yes or No)
L-A	L1.12	Tendon Anchorage Areas of Tendon Access Gallery; Vertical Grease Caps	Small amount of grease leakage noted.	Yes
L-B	L2.40	Tendon 22CB; Corrosion Protection Medium	The absolute difference between the amount removed and the amount replaced exceeded 10 percent of the tendon net duct volume.	Yes
L-B	L2.40	Tendon 1AC; Corrosion Protection Medium	The absolute difference between the amount removed and the amount replaced exceeded 10 percent of the tendon net duct volume.	Yes
L-B	L2.40	Tendon 46BA Corrosion Protection Medium	The absolute difference between the amount removed and the amount replaced exceeded 10 percent of the tendon net duct volume.	No
L-B	L2.40	Tendon V65 Corrosion Protection Medium	The absolute difference between the amount removed and the amount replaced exceeded 10 percent of the tendon net duct volume.	Yes

Attachment 1 provides further information as required by the Containment Inservice Inspection Program.

**TABLE 3**  
**ABSTRACT OF REPAIRS, REPLACEMENTS, OR CORRECTIVE MEASURES**  
**REQUIRED FOR CONTINUED SERVICE**

Code Class	Repair, Replacement, or Corrective Measure	Item Description	Description of Work	Flaw or Relevant Condition Found During Scheduled Section XI Examination or Test (Yes/No)	Date Complete	Repair/ Replacement Plan Number
There were no repairs, replacements, or corrective measures performed on any Class MC or CC items during the period of this report, which were required due to an item containing a flaw or relevant condition that exceeded acceptance criteria.						

**Attachment 1**  
**RF-15 IWL Examination**

1. The condition noted in Table 2 of the absolute difference between the amount removed and the amount replaced exceeding 10 percent of the tendon net duct volume for Tendons 22CB, 1AC, 46BA and V65 was evaluated in CCP 11852. The amounts replaced ranged from 10.7% to 17.35% of the net duct volume. This evaluation noted that the leak-tightness and structural integrity of containment is maintained.
2. All de-tensioned tendons were re-tensioned with acceptable elongations. The re-tensioning force of tendons were within the limit of 10% from that recorded during the last measurement.
3. The sheathing filler (grease) samples were tested and found to contain less than 10 percent by weight of chemically combined water (Chlorides, Nitrates, and Sulfides) or the presence of free water.
4. All tendons were resealed and re-greased.
5. During general visual examination of the containment surface, no grease leakage was on the containment surface. However; as noted in Table 2, grease leakage was noted on the tendon anchorage areas of the grease caps in the Tendon Access Gallery. This was evaluated in SWO 05-275375-001. The evaluation finds that this small leakage is not a non-conformance.
6. Tendon 46BA is not part of original 20<sup>th</sup> year tendon inspection scope. The tendon was regreased due to the grease can being changed out at this location.

FORM OAR-1 OWNER'S ACTIVITY REPORT

Report Number WCRE-11, 11-P3-RF-16

Owner Wolf Creek Nuclear Operating Corporation, 1550 Oxen Lane Northeast, Burlington, Kansas 66839  
(Name and Address of Owner)

Plant Wolf Creek Generating Station, 1550 Oxen Lane Northeast, Burlington, Kansas 66839  
(Name and Address of Plant)

Unit No. 1 Commercial service date 9-3-85 Refueling outage no. 16  
(If applicable)

Current inspection interval 1<sup>st</sup> Interval for the Containment Inservice Inspection Program  
(1st. 2nd. 3rd. 4th. other)

Current inspection period 3<sup>rd</sup> period for the Containment Inservice Inspection Program  
(1st. 2nd. 3rd)

Edition and Addenda of Section XI applicable to the inspection plan 1998 edition with no addenda

Date and revision of inspection plan WCRE-11 Rev. 3, dated 9-21-2006

Edition and Addenda of Section XI applicable to repairs and replacements, if different than the inspection plan 1992 edition with 1992 addenda

CERTIFICATE OF CONFORMANCE

I certify that the statements made in this Owner's Activity Report are correct, and that the examinations, tests, repairs, replacements, evaluations, and corrective measures represented by this report conform to the requirements of Section XI.

Certificate of Authorization No. N/A Expiration Date N/A  
(If applicable)

Signed Dennis E. Tougaw *Dennis E. Tougaw* Engineer Date August 4, 2008  
Owner or Owner's Designee, Title

CERTIFICATE OF INSERVICE INSPECTION

I, the undersigned, holding a valid commission issued by the National Board of Boiler and Pressure Vessel Inspectors and the State of Province of Kansas and employed by The Hartford Steam Boiler Inspection and Insurance Company of Connecticut of Hartford, Connecticut have inspected the items described in this Owner's Activity Report, during the period November 11, 2006 to May 14, 2008, and state that to the best of my knowledge and belief, the Owner has performed all activities represented by this report in accordance with the requirements of Section XI.

By signing this certificate neither the Inspector nor his employer makes any warranty, expressed or implied, concerning the examinations, tests, repairs, replacements, evaluations and corrective measures described in this report. Furthermore, neither the inspector nor his employer shall be liable in any manner for any personal injury or property damage or a loss of any kind arising from or connected with this inspection.

*George Z Hicks* Commissions NB 12882ANII KS 601  
Inspector's Signature National Board, State, Province, and Endorsements

Date 8/5/2008

This form (E00127) may be obtained from the Order Dept., ASME, 22 Law Drive, Box 2300, Fairfield, NJ 07007-2300.



**TABLE 1**  
**ABSTRACT OF EXAMINATIONS AND TESTS**  
**Completion of RF-16 (I-1, P-3)**

Examination Category	Total Examinations Required For The Interval	Total Examinations Credited for This Period*	Total Examinations Credited (%) for The Period	Total Examinations Credited (%) to Date for the Interval	Remarks
E-A	823	274	33	100	Note 1
E-C	9	5	56	100	Note 2
L-A	12	6	50	100	Note 3
L-B	26	26	100	100	Notes 3, 4

\* This column is interpreted to represent the cumulative number of exams performed to date in this period.

Note 1: 100% of the Accessible Surface Areas of Category E-A are required to be inspected each Inspection Period per Table IWE-2500-1.

Note 2: In accordance with IWE-1241, 4 components were reclassified as Category E-C in Period 2, and another in period 3, resulting in 9 examinations in this Category being required for the Interval.

Note 3: The IWL components (Categories L-A and L-B) are examined on a 5 year period basis at this point in the WCGS plant life. The IWL periods in the current Containment Inservice Program Plan correspond to the 15<sup>th</sup> and 20<sup>th</sup> year anniversary.

Note 4: As permitted by 10 CFR 50.55a, the initial examination of the tendons was conducted in accordance with the existing Tech Spec program. Thus only the tendon examinations after revision of the Tech Specs to utilize IWL (the 20<sup>th</sup> year anniversary) are listed.

**TABLE 2**  
**ITEMS WITH FLAWS OR RELEVANT CONDITIONS THAT**  
**REQUIRED EVALUATION FOR CONTINUED SERVICE**

Examination Category	Item Number	Item Description	Flaw Characterization (IWA-3300)	Flaw or Relevant Condition Found During Scheduled Section XI Examination or Test (Yes or No)
E-A	E1.11	Piping Penetration P-35 surface	Corrosion wall loss was identified on containment penetration. The nominal wall thickness is 0.432 inch. The penetration wall was reduced to 0.366 inch in an area of 1 inch by 2 inch.	Yes
E-C	E4.11	Liner of sump at 90 degrees	Isolated pitting in the liner surface. The maximum dimension of the observed pitting was less than 1/32 inch in depth and 3/8 inch in diameter.	Yes
E-C	E4.11	Liner of sump at 270 degrees	Isolated pitting in the liner surface. The maximum dimension of the observed pitting was less than 1/16 inch in depth and 1/4 inch in diameter.	Yes
E-C	E4.11	Incore tunnel sump liner	Numerous pits identified in the liner. The pit depths ranged from less than 1/16 inch up to a maximum of 0.226 inch.	Yes

Attachment 1 provides further information as required by the Containment Inservice Inspection Program.

**TABLE 3**  
**ABSTRACT OF REPAIRS, REPLACEMENTS, OR CORRECTIVE MEASURES**  
**REQUIRED FOR CONTINUED SERVICE**

Code Class	Repair, Replacement, or Corrective Measure	Item Description	Description of Work	Flaw or Relevant Condition Found During Scheduled Section XI Examination or Test (Yes/No)	Date Complete	Repair/ Replacement Plan Number
MC	Repair	Incore Tunnel Sump Liner Plate	Corrosion pits in the liner plate in the Containment Incore Tunnel Sump were corrected by repair activity.	Yes	Note A	2008-043

Note A: The field work of the plant repair activity was completed during RF16, which ended May 14, 2008. A Nonconformance was identified during documentation review. The nonconformance resolution and documentation completion are still in process.

**Attachment 1**  
**RF-16 IWE Examination Revealing Flaw or Area**  
**Of Degradation Exceeding Acceptance Standards**

**Flaws on Piping Penetration P-36**

1) *Description of flaw or area, including the extent of degradation, and the conditions that led to the degradation.*  
Corrosion and pitting was noted on the auxiliary building side of Penetration P-35. The area of wall loss was located at the bottom of the penetration in an area of approximately 1 inch by 2 inch. The nominal wall of 0.432 inch was reduced to 0.366 inch in this area. The corrosion that led to the wall reduction was caused by the auxiliary building side of the penetration being uncoated, combined with dampness and moisture in the penetration. The penetration has since had a coating applied.

2) *The acceptability of each flaw or area.*

The penetration area of reduced thickness was acceptable for continued service, as sufficient wall thickness exists for the penetration to perform its function.

3) *A description of necessary corrective actions.*

No corrective actions were necessary. This penetration will be monitored under the augmented examination category of the IWE program.

Reference WO 08-304986-001 and CCP 12688

**Flaws in Liner of the Sump at 90 Degrees**

1) *Description of flaw or area, including the extent of degradation, and the conditions that led to the degradation.*  
Isolated pitting was found in the liner of the sump at 90 degrees. The pitting was located on the vertical walls near the water level surface, approximately 14 inches above the sump liner floor. One pitted area was also located on the sump floor. The maximum dimensions of the pitting were less than 1/32 inch in depth and 3/8 inch in diameter. Degradation of the surface coating by aging and perhaps localized damage, combined with being normally wet, has led to this relatively small amount of corrosion.

2) *The acceptability of each flaw or area.*

The areas were acceptable for continued service as sufficient thickness of the liner remains at the bottom of the pits to maintain the liner plate function.

3) *A description of necessary corrective actions.*

The areas with the degraded coating were cleaned and recoated. This sump liner will be monitored under the augmented examination category of the IWE program.

Reference WO 08-305796-001 and CCP 12751

**Flaws in Liner of the Sump at 270 Degrees**

1) *Description of flaw or area, including the extent of degradation, and the conditions that led to the degradation.*  
Isolated pitting was found in the liner of the sump at 90 degrees. The pitting was located on the vertical walls near the water level surface, approximately 14 inches above the sump liner floor. The maximum dimensions of the pitting were less than 1/16 inch in depth and 1/4 inch in diameter. Degradation of the surface coating by aging and perhaps localized damage, combined with being normally wet, has led to this relatively small amount of corrosion.

2) *The acceptability of each flaw or area.*

The areas were acceptable for continued service as sufficient thickness of the liner remains at the bottom of the pits to maintain the liner plate function.

3) *A description of necessary corrective actions.*

The areas with the degraded coating were cleaned and recoated. This sump liner will be monitored under the augmented examination category of the IWE program.

Reference WO 08-305603-001 and CCP 12733

### Flaws in Liner of the Incore Tunnel Sump

1) *Description of flaw or area, including the extent of degradation, and the conditions that led to the degradation.*

Numerous pits were found in the liner of the incore tunnel sump. The most widespread pitting was located on the liner floor. Pitting and coating degradation was also identified, to a lesser degree, on the walls of the liner. However, the deepest pit was located on a liner wall, 1 ½ inch above the floor. The depth of the pits ranged from less than 1/16 inch up to a maximum of 0.226 inch. Degradation of the surface coating by aging and perhaps localized damage, combined with being normally wet, has led to this corrosion and pitting.

2) *The acceptability of each flaw or area.*

The pits with a depth of less than 0.150 inch were acceptable for continued service, as sufficient thickness of the liner remained to maintain the liner plate function.

3) *A description of necessary corrective actions.*

Eight of the pits were identified to have a depth of 0.150 inch or deeper. These were repaired by installing pipe caps, designed and installed as penetrations, over these areas (this repair is listed in Table 3). The installed pipe caps, and all areas with degraded coating, were cleaned and recoated. This sump liner will be monitored under the augmented examination category of the IWE program.

Reference WO 08-306055-006 and CCP 12758.