



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
612 EAST LAMAR BLVD, SUITE 400
ARLINGTON, TEXAS 76011-4125

August 10, 2010

Brian J. O'Grady, Vice President-Nuclear
and Chief Nuclear Officer
Nebraska Public Power – Cooper
Nuclear Station
72676 648A Avenue
Brownville, NE 68321

SUBJECT: COOPER NUCLEAR STATION - FOLLOWUP OF LICENSE RENEWAL
UNRESOLVED ITEM RELATED TO SUPPRESSION CHAMBER PITTING -
INSPECTION REPORT 05000298/2010008

Dear Mr. O'Grady:

On July 29, 2010, the U.S. Nuclear Regulatory Commission (NRC) completed their review of Unresolved Item 05000298/2009010-01, which documented concerns with your aging management plan for the containment suppression chamber coating. We have discussed the results of our review with Mr. A. Zaremba, Director, Nuclear Safety Assurance, and other members of your staff during an exit meeting conducted on July 29, 2010.

This license renewal followup inspection examined activities related to your application for a renewed license for Cooper Nuclear Station and to the impact during the current operating period. The inspection evaluated whether you maintained the design basis of your torus coating as required by our regulatory requirements. As part of the inspection, the NRC examined procedures and representative records and interviewed personnel.

As a result of our review, we concluded that no violations of regulatory requirements had resulted from this coating degradation. We have concluded that the commitment to recoat the wetted portion of your suppression chamber combined with increased frequency of the ASME, Section XI, Subsection IWE inspections provided reasonable assurance that the effects of aging resulting from the degraded coating would be effectively managed until you completed recoating the suppression chamber.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, and its enclosure, will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Neil O'Keefe, Chief
Engineering Branch 2
Division of Reactor Safety

Docket: 50-298
License: DPR-46

NRC Inspection Report 05000298/2010008
w/Attachment: Supplemental Information

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R:\REACTORS_CNS\2010\CNS2010008 LRI-GAP

ADAMS ML

ADAMS: <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes		<input checked="" type="checkbox"/> SUNSI Review Complete	Reviewer Initials: GAP
		<input checked="" type="checkbox"/> Publicly Available	<input checked="" type="checkbox"/> Non-Sensitive
		<input type="checkbox"/> Non-publicly Available	<input type="checkbox"/> Sensitive
RIV:DRS/EB2	C:DRP/C	C:EB2	
GAPick	VGGaddy	NOKeefe	
/RA/	/RA/	/RA/	
07/9/10	07/9/10	08/10/10	

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**U.S. NUCLEAR REGULATORY COMMISSION
REGION IV**

Docket: 50-298
License: DRP-46
Report: 05000298/2010008
Licensee: Nebraska Public Power District
Facility: Cooper Nuclear Station
Location: 72676 648A Ave
Brownville, NE 68321
Dates: May 5 through July 29, 2010
Inspectors: G. Pick, Senior Reactor Inspector
Approved By: Neil O'Keefe, Chief
Engineering Branch 2
Division of Reactor Safety

SUMMARY OF FINDINGS

IR 05000298/2010008; 05/05/2010 – 07/29/2010; Cooper Nuclear Station, Followup of License Renewal Unresolved Item

The report covered a 3-month period of in-office review and evaluation by a senior regional inspector.

A. NRC-Identified and Self-Revealing Findings

B. Cornerstone: Mitigating Systems

No findings were identified.

B. Licensee-Identified Violations

No findings were identified.

REPORT DETAILS

4. OTHER ACTIVITIES (OA)

4OA5 Other - License Renewal

(Closed) Unresolved Item 05000298/2009010-01: Adequacy of Aging Management for the Torus

Background

As described in Inspection Report 05000298/2009010, the license renewal inspection team had identified concerns related to the adequacy of the coating on the wetted portion of the containment suppression chamber (torus) because of the degraded conditions of the coating. Specifically, the applicant identified a large amount of general corrosion and localized pitting during each of the last three ASME, Section XI, Subsection IWE inspections (approximately 600 localized areas during each inspection) on the wetted surface of the torus. The license renewal inspection team concluded that the applicant continued to meet the ASME, Section XI, Subsection IWE requirements for assuring the structural integrity of the torus. However, the license renewal inspection team was concerned that the applicant may not have planned appropriate actions to manage the effects of aging for the submerged portions of the torus during the period of extended operation since the corrosion present appeared to indicate that the coating no longer provided the required protection from erosion and/or corrosion.

Evaluation

The Updated Final Safety Analysis Report discussed the suppression chamber coating and the need to prevent corrosion of this safety-related structure required for safe shutdown. Chapter 5, Section 2.3.3.2, identified that the lower half (i.e., wetted area) of the suppression chamber had a general corrosion allowance of 3/32 inches. Chapter 5, Section 2.5.1, specified the interior surfaces of the drywell and suppression chamber, including waterline regions, shall be visually inspected each refueling outage cycle for evidence of corrosion or leakage.

In Engineering Evaluation 01-047, the licensee specified that: (1) the protective coatings applied to surfaces inside the primary containment were nuclear safety related; (2) the application of coatings was a special process as defined in 10 CFR Part 50, Criterion IX; and (3) the original coatings applied to surfaces inside containment provided corrosion protection and prevented degradation of the substrate as long as the coating remained as a continuous film intact on the surface.

Subsequent to opening this unresolved item, the applicant committed in Letter NLS2010050, "Response to Open Items from the Safety Evaluation Report and Request for Additional Information Related to the License Renewal of Cooper Nuclear Station," dated May 4, 2010, to recoat the suppression chamber, which would occur no later than 3 years after entering the period of extended operation. As a compensatory measure, the applicant committed to increase the frequency of inspections of the wetted surfaces of the suppression chamber and analyze the impact and any growth of the pitting that may be occurring. The applicant described in the letter that the amount of material remaining at their observed pitting corrosion rate of 2 mils per year would allow operation for an additional next 20 years without exceeding minimum wall thickness.

Because of the remaining wall thickness and the apparent corrosion rates, the inspector concluded that the suppression chamber wall should remain unaffected until the applicant recoated the suppression chamber wall. Consequently, the commitment to recoat the wetted portion of the suppression chamber combined with the increased frequency of inspection and evaluation provided additional assurance that the applicant would remain aware of the suppression chamber condition and maintain the ability of the suppression chamber to perform its safety-related function.

The applicant documented this issue and their commitments in Condition Report 2010-04515.

Conclusion

The inspector determined that the applicant had taken appropriate actions to address the effects of aging that resulted in a degraded suppression chamber coating. Specifically, the applicant committed to: (1) recoat the suppression chamber within 3 years of entering the period of extended operation; (2) conduct increased ASME, Section XI, Subsection IWE inspections of the wetted portion of the suppression chamber each outage rather than every other outage; and (3) conduct a pitting analysis following each inspection

The inspector determined that these actions provided reasonable assurance that the licensee implemented actions to manage the aging of the suppression chamber that resulted in corrosion because of degraded coatings.

This unresolved item is considered closed.

4OA6 Meetings

Exit Meeting Summary

On July 29, 2010, the inspector presented the results of the in-office inspection of the suppression chamber reviews to Mr. A. Zaremba, Director, Nuclear Safety Assurance, and other members of the applicant's staff. The applicant acknowledged the issues presented. No proprietary information was identified.

SUPPLEMENTAL INFORMATION
KEY POINTS OF CONTACT

Licensee Personnel

D. Bremer, Project Manager, License Renewal
D. Buman, Director, Engineering
D. VanDerKamp, Manager, Licensing
W. Victor, Licensing Engineer
A. Zaremba, Director, Nuclear Safety Assurance

NRC Personnel

R. Auluck, Chief, Aging Management of Structures,
Electrical, and Systems Branch, Division of License Renewal

A. Sheikh, Senior Engineer, Aging Management of Structures,
Electrical, and Systems Branch, Division of License Renewal

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Closed

05000298/2010-001 URI Adequacy of Aging Management for the Torus (Section 4OA5)

LIST OF DOCUMENTS REVIEWED

Section 4OA5: Other Activities

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
7.0.15.1	Service Level I Coating	1

CALCULATIONS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
NEDC 92-213	ASME Section III, Subsection NE Evaluation of Torus Shell (Pitting)	2
NEDC 94-214	Review of Vectra's Calculation NPD037.0202, Evaluation of Cooper Pitting for Continued Plant Operation	4

CONDITION REPORTS (CR-CNS-)

2001-00522 2005-01188 2007-07398 2008-02650 2008-02770

MISCELLANEOUS DOCUMENTS

DESIGN DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
Change Evaluation Document 2001-0004	Coating, Service Level 1 Epoxy Type BIO-DUR 561	January 29, 2001
Design Specification 22A1337	Special Protective Coatings	0
Engineering Evaluation 01-047	Evaluation of Service Level I Coatings	0

CHICAGO BRIDGE & IRON DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
5	Suppression Chamber Penetration Schedule and Orientation	1
50	Suppression Chamber General Arrangement and Field Assembly	3
52	Field Assembly Suppression Chamber Columns, Girders & Vent Header Supports	6
50	Suppression Chamber Penetration Details	3
64	Suppression Chamber Penetrations - X213A&B, X214, X223A&B, and X225A	5

MISCELLANEOUS

ASME Section III, Division 1 NE, "Design Limits"

EPRI 1019157, "Guideline on Nuclear Safety-Related Coatings," Revision 2

Letter NLS980166, "Response to NRC Generic Letter 98-04, 'Potential for Degradation of the Emergency Core Cooling System and Containment Spray System after a Loss-of-Coolant Accident Because of Construction and Protective Coating Deficiencies and Foreign Material in Containment'"

Letter NLS2010050, "Response to Open Items from the Safety Evaluation Report and Request for Additional Information Related to the License Renewal of Cooper Nuclear Station," dated May 14, 2010

NUREG-1522, "Assessment of Inservice Conditions of Safety-Related Nuclear Plant Structures," dated June 1995

Refueling Outage 19, -22, and -24 Reactor Torus Desludging, Inspection, and Coating Repair Reports

TNC-ISI-07-008, "IWE Inspection Program Assessment," dated August 28, 2007