



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
WASHINGTON, DC 20555 - 0001**

July 22, 2010

MEMORANDUM TO: ACRS MEMBERS

FROM: Kathy Weaver, Senior Staff Engineer */RA/*  
Reactor Safety Branch A  
Advisory Committee on Reactor Safeguards

SUBJECT: CERTIFICATION OF THE MINUTES OF THE ACRS PLANT LICENSE  
RENEWAL SUBCOMMITTEE MEETING, REGARDING COOPER NUCLEAR  
STATION ON MAY 5, 2010, ROCKVILLE, MARYLAND

The minutes of the subject meeting have been certified as the official record of the proceedings for that meeting. A copy of the certified minutes is attached.

Attachment: As stated

cc via e-mail: ACRS Staff Engineers



Certified on: July 21, 2010  
By: John Stetkar

**ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
MINUTES FOR THE MEETING OF THE SUBCOMMITTEE ON PLANT LICENSE RENEWAL  
REGARDING COOPER NUCLEAR STATION  
MAY 5, 2010  
ROCKVILLE, MARYLAND**

**INTRODUCTION**

On May 5, 2010, the Advisory Committee on Reactor Safeguards (ACRS) Subcommittee on Plant License Renewal held a meeting regarding Cooper Nuclear Station in Room T-2B1, at 11545 Rockville Pike, Rockville, Maryland. The purpose of the meeting was to hear presentations and discuss the Cooper Nuclear Station application for license renewal and NRC staff review of it. In addition to the NRC staff, representatives from Nebraska Public Power District (NPPD) made presentations to the Committee. The meeting was convened at 8:30 am and adjourned at 11:44 am.

**ATTENDEES**

**ACRS Members**

J. Stetkar, Chairman  
S. Armijo, Member  
M. Bonaca, Member  
S. Khalik, Member  
H. Ray, Member  
W. Shack, Member  
J. Sieber, Member  
J. Barton, Consultant

**ACRS Staff**

K. Weaver, ACRS Staff  
K. Howard, ACRS Staff (Rotation)

**NRC Staff**

T. Tran, NRR/DLR  
B. Pham, NRR/DLR  
B. Holian, NRR/DLR  
G. Pick, NRC/RIV  
C. Doutt, NRR/DLR  
S. Gardocki, NRR/DSS  
D. Alley, NRR/DCI  
A. Shiek, NRR/DLR  
O. Yee, NRR/DLR  
L. Regner, NRR/DLR  
B. Fu., NRR/DLR  
R. Vaucher, NRR/DLR  
S. Meung, NRR/DLR  
E. Wong, NRR/DCI  
C. Doutt, NRR/DLR

**NRC Staff (continued)**

J. Daily, NRR/DLR  
T. Morgan, NRR/DCI  
R. Auluck, NRR/DLR  
A. Wong, NRR/DLR  
R. Li, NRR/DLR  
D. Doyle, NRR/DLR  
G. Cheruvenki, NRR/DCI  
G. Shukla, NRR/DLR  
A. Hiser, NRR/DLR  
N. Ferrer, NRR/DLR  
J. Medoff, NRR/DLR  
H. Ashar, NRR/DLR  
A. Johnson, NRR/DCI

## **NEBRASKA PUBLIC POWER DISTRICT (NPPD)**

D. Buman  
T. Hottovy  
P. Leininger  
R. Rucker  
R. Estrada  
J. Cabella  
T. Hathaway  
T. McClure  
T. Carson  
R. Beilke  
M. Boyce

D. Bremer  
A. Cox  
B. Bowden  
K. Thomas  
J. Pullman  
M. Van Winkle  
B. Victor  
B. Skourup  
K. Sutton  
R. Asche  
A. Zarembo

## **OTHERS**

D. Lorch, Entergy  
R. Ahrabli, Entergy  
T. Ivy, Entergy  
J. Cavallo, Enercom Services  
A. Cox, Entergy  
K. Putnam, NextEra  
R. Cliche, NextEra  
G. Michael, Arizona Public Service  
A. Krainik, Arizona Public Service  
M. Hypsi, Arizona Public Service  
D. Berg, Arizona Public Service  
J. Keys, NEI  
M. Fallen, Constellation

K. Sutton, Morgan Lewis  
J. Staples, Structural Integrity  
R. Rucker, Entergy  
B. O'Grady, Entergy  
P. Aiken, Dominion  
G. Young, Entergy  
K. Cho, NextEra  
E. Blochur, STARS  
T. Weber, Arizona Public Service  
E. Montgomery, Arizona Public Service  
M. Green, Arizona Public Service  
P. Davidson, PSEG Nuclear  
M. Gallagher, Exelon

The presentation slides and handouts used during the meeting are attached to the office copy of these minutes. The presentations to the Subcommittee are summarized below.

## **SUMMARY OF MEETING**

### **Opening Statement**

Chairman John Stetkar convened the meeting by introducing the ACRS members present. Chairman Stetkar stated that the purpose of the meeting was to review the Cooper Nuclear Station License Renewal Application, the draft Safety Evaluation Report (SER) with open items, and associated documents. He stated that the Subcommittee would hear presentations from representatives of NRR, and the applicant, NPPD. He also stated that the Subcommittee would gather information, analyze relevant issues and facts, and formulate proposed positions and actions, as appropriate for deliberation by the Full Committee. Chairman Stetkar acknowledged that the Committee had received no written statements or requests for time to make oral statements from members of the public.

## **DISCUSSION OF AGENDA ITEMS**

### **Staff Introduction**

Mr. Brian Holian, Director of the Division of License Renewal in NRR, introduced the principal staff members present. He then called upon the applicant's presenter, Mr. Brian O'Grady, Chief Nuclear Officer for NPPD.

### **The Applicant NPPD Presentation**

#### **Overview**

Mr. Brian O'Grady, Chief Nuclear Officer for NPPD, provided a brief overview of the reasons for the subcommittee meeting and introduced the presenters from NPPD.

#### **NPPD - Presentation on Open Item 2.3.4.2-1, Steam and Power Conversion Systems In-Scope for 10 CFR 54.4(a)(2) (OPEN)**

Mr. Todd Hottovy, Manager, Engineering Support, NPPD, discussed Condensate Storage Tank 1A and the flow path, which was not included within the initial scoping for license renewal. Mr. Hottovy explained that the reason that the system was not previously included in the scope was that it is considered nonsafety related and does not have a direct impact on a safety function. Mr. Hottovy noted that the condensate storage and transfer system includes four tanks. Mr. Hottovy further explained that there are two Condensate Storage Tanks and two Emergency Condensate Storage Tanks. He stated that the Emergency Condensate Storage Tanks and their piping do have a direct function with regard to safety, and have always been in the scope of license renewal. The CNS Updated Safety Analysis Report and Technical Specifications credit core spray and low pressure coolant injection suction from Condensate Storage Tank 1A to reflood the core during Mode 4 and Mode 5 configurations when the suppression pool is drained. Mr. Hottovy stated that the resolution to this open item was to include Condensate Storage Tank 1A and the associated piping within the scope of license renewal.

#### **NPPD - Presentation on Open Item 3.0.3.1-1, One-Time Inspection, Small Bore Piping Program (OPEN)**

Mr. Hottovy discussed the one time inspection of small bore piping socket welds. Mr. Hottovy stated that initially, NPPD did not use a volumetric examination method. Mr. Hottovy further stated that during the CNS history review, CNS did discover three small bore cracks. Mr. Hottovy stated that NRC staff requested CNS to include a periodic examination of the small bore welds using a volumetric technique. Mr. Hottovy further stated that CNS will include periodic examination of **at least three** Class 1 socket welds in each ten year In Service Inspection (ISI) Interval during the period of extended operation in order to close this open item.

#### **NPPD - Presentation on Open Item 3.0.3.1.2-1, Buried Piping and Tanks Inspection (OPEN)**

Mr. Hottovy discussed the open item regarding the Buried Piping and Tanks Inspection Program and also discussed the CNS Buried Piping and Tanks aging management program. Mr. Hottovy explained that the program was initially described as in conformance with the industry initiatives and that the program satisfied Revision 1 of the GALL report. Mr. Hottovy stated that NRC staff requested additional information from CNS regarding changes to the Buried Piping and Tanks Inspection Program in response to recent industry events involving leakage from buried and underground piping. In recognition of the significant industry challenges and recent events,

CNS is further enhancing the aging management program to include inspections of high risk piping systems that are in scope for license renewal prior to entering the period of extended operation. Mr. Hottovy also stated that, based on recent operating experience, CNS has modified the program to include not only buried piping, which is piping in contact with the soil, but also underground piping, which is the piping that may be in pipe chases and not in contact with the soil.

#### **NPPD - Presentation on Open Item 3.0.3.2-1, Containment Inservice Inspection Program (OPEN)**

Mr. Roman Estrada, Design Engineering Manager, NPPD, discussed the final open item, in which the applicant had not demonstrated that the effects from torus pitting corrosion would be adequately managed so that the intended function would be maintained for the period of extended operation. Mr. Estrada explained that the current inspection program was established in 2001 in accordance with Section XI of the ASME Code and that the inspection frequency accounted for observed pitting in the torus. Mr. Estrada stated that during the inspections, CNS performed a one hundred percent visual inspection of the wetted area for any recording of pits based on their established criteria. Mr. Estrada stated that CNS also performed a desludging and cleaning of the torus. Mr. Estrada stated that the next inspection is scheduled for March 2011. Mr. Estrada explained that the inspections since implementation of the ASME XI inspection program have identified 2,090 pits that were recoated since 2001, and that the maximum pit depth was 92 mils. Mr. Estrada stated that the pits were evaluated as acceptable in accordance with ASME IWE-3511.3 and that the torus health was deemed acceptable per the CNS inspection program in accordance with the ASME XI inspection process. Mr. Estrada stated that CNS will increase inspection of the wetted portion of the torus and sludge removal to every refueling outage and will also recoat the wetted portion of the torus within three years after entering the period of extended operation.

#### **NRC Presentation, Region IV**

Mr. Greg Pick, Lead Inspector from Region IV gave an overview of the results of the Regional Inspection. Mr. Pick stated that the inspection teams were made up of personnel from Regions IV, III, and I. Mr. Pick stated that the inspection team looked at scoping and screening of non-safety related systems and also looked at 23 of the 40 aging management programs, which included 10 of the 11 new aging management programs. Mr. Pick stated that this inspection identified no areas of concerns to the inspection team. Mr. Pick explained that the inspection team also reviewed the operating experience at CNS, and took a 10 year look back at the condition reports. Mr. Pick stated that the largest issue of the inspection was the containment program, and the team reviewed data contained in the IWE reports. Mr. Pick stated that the applicant gave "a good description of how they did their inspections and the results they found." Mr. Pick explained that for the current licensing basis, the largest torus corrosion pit located near one of the penetrations was 0.092 inches, and that the pit was coated with epoxy to arrest any further corrosion. Mr. Pick stated that in conclusion, the results of the inspection were that scoping of non-safety structures, systems and components, and the application of the aging management programs to those components, structures and systems were acceptable, and there was reasonable assurance that aging effects would be managed and the intended functions maintained. Mr. Pick stated that the inspection team also agreed that the torus condition currently meets the ASME Code and that this was based on a review of the calculations and inspection reports. Mr. Pick stated that the inspection team believes that recoating the torus would solve the pitting problems that were observed, and that CNS would be able to maintain containment integrity.

## **NRC Presentation, Division of License Renewal**

Mr. Tam Tran, Project Manager, NRC, began his presentation with a brief overview of the scope of the presentation. Mr. Tran noted that the draft SER contained 4 open items and 1 confirmatory item. Mr. Tran further stated that there were three onsite audits and inspections associated with the license renewal application. Mr. Tran stated that the Aging Management Program Audit was conducted April 20 – 24, 2009, the Scoping and Screening Audit was conducted May 4 – 8, 2009, and that Region IV conducted two inspections, one on July 27 – 31, 2009, and the other on August 10 – 14, 2009. Mr. Tran also discussed the results of Section 2 of the SER, “Structures and Components Subject to Aging Management Review,” and stated that the staff concluded that the applicant’s methodology meets the review criteria for the standard review plan and in accordance with the rule.

Mr. Tran discussed the open item relating to the scoping of Condensate Storage Tank 1A. Mr. Tran stated that the staff’s position is that Condensate Storage Tank 1A should be in scope, in accordance with 10 CFR 54.4(a)(2) because it is a viable and allowable source of coolant for the Emergency Core Cooling System operation during shutdown. Mr. Tran stated that the staff was notified by the applicant that the license renewal application was amended. Mr. Tran also stated that since this information was received late, the staff would make a confirmatory determination for this item in the final SER.

Mr. Tran discussed the open item relating to the management of small bore piping socket welds. Mr. Tran stated that CNS proposed to manage the aging effect in the socket welds by visual inspection. Mr. Tran explained that the staff had determined, based on previous operating experience, that volumetric examination is needed for small bore socket welds. Mr. Tran stated that, as the applicant had previously covered earlier in their presentation, CNS had agreed to provide a response or supplement to the application, and the staff would confirm this open item in the final SER.

Chairman Stetkar stated that a take away from this meeting, and for future license renewal applications, was to expect more emphasis on volumetric examinations than has been seen in past applications.

Mr. Tran discussed the open item associated with the buried piping and tanks inspection program and stated that there have been a number of recent industry events involving leakage from buried and underground piping, where the causes have included coating damage during backfill operations, failures of fiberglass piping, failure of buried piping and piping penetrations, and failure of piping in trenches. Mr. Tran stated the NRC staff issued a late request for additional information regarding incorporation of recent industry operating experience into the aging management program at CNS. Mr. Tran stated that the staff will provide a flow chart of this information as part of the SER documentation.

Mr. Tran discussed the open item related to the management of torus aging effects. Mr. Tran stated that the staff reviewed the applicant’s operating experience, and identified a concern about the cumulative effect of more than 2,000 pits in the torus. Mr. Tran stated that the staff noted some of the pit corrosion had reached bare steel and also the apparent galvanic corrosions indicated higher and unpredictable pitting corrosion rates. Mr. Tran stated that the staff will review the information provided by CNS for closure of this item in the final SER.

In regards to the torus pitting, Member Armijo asked if there was a maximum pit depth that would indicate that the torus was in trouble. In response to Member Armijo, the NRC staff indicated that the margin rate could be very uncertain, unpredictable and would review the information and present it at the Full Committee meeting.

Mr. Tran discussed the confirmatory item in the draft SER and stated that the NRC staff had requested information from the applicant regarding the use of the proper NUREG for metal fatigue analysis. Mr. Tran stated that the staff's position is that either the 2007 version of NUREG 6909 should be used for nickel alloy components, or the applicant needed to demonstrate that the use of the 1995 version of NUREG 6909 is conservative.

### **COMMENTS AND OBSERVATIONS FROM THE SUBCOMMITTEE MEMBERS**

Chairman Stetkar stated that a take away from this meeting, and for future license renewal applications, is to expect more emphasis on volumetric examinations than has been seen in past applications for small bore socket welds.

In regards to the torus pitting, Member Armijo asked if there was a maximum pit depth that would indicate that the torus was in trouble. In response to Member Armijo, the NRC staff indicated that the margin rate could be very uncertain, unpredictable and would review the information and present it at the Full Committee meeting.

Member Bonaca stated that the application and the draft SER was good but that he would have preferred more documented operating experience.

### **SUBCOMMITTEE CONCLUSIONS**

Chairman Stetkar concluded the meeting by thanking the staff and the applicant. He stated that the presentations were very good and well supported. The meeting was adjourned.

### **REFERENCES**

1. NRC Safety Evaluation Report (SER) with Open Items, dated April 2010
2. NRC Inspection Report 05000298/2009010, dated November 24, 2009
3. NRC Audit Summary Report, dated June 15, 2009
4. Nebraska Public Power District Cooper License Renewal Application