



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

June 10, 2004

MEMORANDUM TO: ACRS Members

FROM: Marvin D. Sykes, Senior Staff Engineer **/RA/**
Technical Support Staff
ACRS/ACNW

SUBJECT: CERTIFICATION OF THE MINUTES OF THE MEETING OF THE
ACRS SUBCOMMITTEE ON DRESDEN/QUAD CITIES LICENSE
RENEWAL, APRIL 14, 2004 - ROCKVILLE, MARYLAND

The minutes of the subject meeting, issued on April 14, 2004 have been certified as the official record of the proceedings of that meeting. A copy of the certified minutes is attached.

Attachment: As stated

cc: J. Larkins
H. Larson
S. Duraiswamy
ACRS Staff Engineers



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

June 2, 2004

MEMORANDUM TO: Graham Leitch, Chairman
ACRS Plant License Renewal Subcommittee

FROM: Marvin D. Sykes, Senior Staff Engineer **/RA/**
Technical Support Staff
ACRS/ACNW

SUBJECT: WORKING COPY OF THE MINUTES OF THE ACRS
SUBCOMMITTEE MEETING ON THE DRESDEN AND QUAD
CITIES NUCLEAR POWER PLANTS LICENSE RENEWAL
APPLICATION, APRIL 14, 2004 - ROCKVILLE, MARYLAND

A working copy of the minutes for the subject meeting is attached for your review. Please review and comment on them at your earliest convenience. If you are satisfied with these minutes please sign, date, and return the attached certification letter in the pre-addressed envelope attached.

Attachment: Minutes (DRAFT)

cc w/o Attachment:

J. Larkins
H. Larson
S. Duraiswamy
ACRS File

CERTIFIED

6/10/04

By Graham Leitch

Issued: 6/02/04

ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
MINUTES OF ACRS PLANT LICENSE RENEWAL SUBCOMMITTEE MEETING
ON DRESDEN AND QUAD CITIES NUCLEAR PLANTS
APRIL 14, 2004
ROCKVILLE, MARYLAND

On April 14, 2004, the Plant License Renewal Subcommittee held a meeting in Room T-2B3, 11545 Rockville Pike, Rockville, Maryland. The purpose of the meeting was to review and discuss the Dresden and Quad Cities License Renewal Application and related Safety Evaluation Report (SER) with Open Items.

The meeting was open to the public. No written comments or requests to make oral statements were received from members of the public related to this meeting. Mr. Marvin Sykes was the Designated Federal Official for this meeting. The meeting was convened at 8:30 a.m. and adjourned at 3:55 p.m. on April 14, 2004.

ATTENDEES:

ACRS MEMBERS/STAFF

Graham Leitch, Chairman
Mario Bonaca, Member
George Apostolakis, Member
Marvin Sykes, ACRS Staff

Stephen Rosen, Member
Peter Ford, Member
Tom Kress, Member
John Barton, Consultant

NRC STAFF/PRESENTERS

P.T. Kuo, NRR
T. Kim, NRR
Greg Galletti, NRR
Carol Lauron, NRR
Antony Vogel, RIII
Larry Rossbach, NRR
Amar Pal, NRR

S. Lee, NRR
K. Corp, NRR
B. Elliot, NRR
Laura Kozak, Region III
Stephen Hoffman, NRR
Tilda Liu, NRR

OTHER ATTENDEES

William Bohlke, Exelon
Mark Kluge, Exelon
Paul Doverspike, Exelon
Bill Porter, Exelon
Keith Jury, Exelon
Jim Meister, Exelon

Fred Polaski, Exelon
Jaryam Patel, Exelon
John Nosko, Exelon
David Tubbs, Mid-American Energy
Elliott Flick, Exelon
Michael Hayse, Exelon

The presentation slides and handouts used during the meeting and a complete list of attendees is attached to the Office Copy of the meeting minutes. The presentation to the Subcommittee is summarized below.

Opening Remarks (Subcommittee Chair/Designee)

Mr. Graham Leitch, Chairman of the Subcommittee on Plant License Renewal convened the meeting. After a few introductory remarks, Mr. Leitch stated that the purpose of the meeting was to review the Exelon Generating Company (Exelon) application and the related Safety Evaluation Report (SER) with Open Items for Dresden, Units 2 and 3, and Quad Cities, Units 1 and 2. Mr. Leitch called upon Mr. Samson Lee of the Office of Nuclear Reactor Regulation (NRR) to begin the discussions.

Purpose and Introduction

Samson Lee provided brief introductory remarks for the staff and introduced Mr. Bill Bohlke, Exelon Senior Vice President to begin the discussion.

Presentation by Exelon Generating Company (Exelon)

Mr. Bohlke greeted the committee, introduced the accompanying members of the Exelon staff and summarized the key elements of his presentation which included a plant overviews and differences, operating performance history, and recent operating experience.

By letter dated January 3, 2003, Exelon submitted its application to the NRC for renewal of the Dresden and Quad Cities operating licenses for up to an additional 20 years. The current operating licenses for Dresden, Units 2 and 3 expire on December 22, 2009 and January 12, 2011, respectively. The current licenses for both Quad Cities plants expire on December 14, 2012.

Plant Descriptions and Notable Design Differences

Mr. Bohlke explained that the Dresden Nuclear Power Station is located in Grundy County, Illinois, and the Quad Cities Nuclear Power Station is located in Rock Island County, Illinois. All four plants are BWR-3's designed and supplied by GE Nuclear Energy with 251 inch vessels. The primary containment of each unit is of the Mark 1 design that consists of a drywell, a suppression chamber in the shape of a torus and a connecting vent system between the drywell and the suppression chamber. Each unit is authorized to operate at a steady state reactor power level not to exceed 2957 megawatts-thermal or approximately 850 megawatts-electric. Exelon is the sole owner of all four plants and has exclusive responsibility and control over the physical construction, operation and maintenance of the facility.

Dresden Units, 2 and 3 share the site and surrounding area with Unit 1, a dual-cycle boiling water reactor owned by Exelon that has been placed in a safe storage condition (SAFSTOR) until Units 2 and 3 are ready for decommissioning. Unit 1 systems, structures, and components (SSCs) which support the operation of Units 2 and 3 are included in the scope of this application and these components are expected to be adequately managed so that the intended functions will be maintained consistent with the current licensing basis throughout the period of extended operation. The Dresden units were designed with isolation condensers for core isolation cooling rather than the typical reactor core isolation cooling systems found at other BWRs. The Dresden units also have a separate shutdown cooling system rather than the more typical arrangement in which shutdown cooling is achieved as an operational mode of the residual heat removal system.

Both Dresden and Quad Cities were approved for an extended power uprate to a new licensed power level of 2957 MWt. This increased power output by 17% at Dresden and 17.8% at Quad Cities. However, shortly after operating at the new power level, Quad Cities Unit 2 experienced unexpectedly high moisture carryover which required a plant shutdown to investigate. The applicant identified damage to the steam dryer that was repaired and the unit was returned to service. Similar damage was identified in Unit 1 and again in Unit 2. The applicant has since chosen to operate the Quad Cities plants at pre-EPU power levels until more information can be gathered on the possible cause for the dryer damage.

Mr. Bohlke concluded his portion of the presentation and introduced Mr. Fred Polaski of Exelon to discuss other major equipment replacement and repairs that had been completed in accordance with existing aging management programs.

Major Equipment Replacement and Repairs

Mr. Polaski discussed the plant's operating history and described a few major projects completed at the plant focusing mainly on the recent extended power uprates and associated equipment upgrades at both plants. The changes included installation of new high pressure turbine rotors and replacement of three main power transformers.

Mr. Polaski briefly discussed the recirculation piping replacement at Dresden Unit 3, core shrouds repairs at both plants, and the introduction of hydrogen water chemistry and zinc injection to mitigate Intergranular stress-corrosion cracking at both plants.

Mr. Polaski also discussed Exelon's Long Term Asset Management Program. He noted that the asset management plan is already in place for all Exelon nuclear plants and is updated annually. According to MR. Polaski, the plan factors into Exelon's long range budget planning activities and complements routine Preventive Maintenance and Performance Centered Maintenance Programs.

Mr. Polaski concluded his portion of the presentation and introduced Mr. Stachniak of Exelon to discuss the applicants scoping and screening of plant SSCs.

Unique Scoping Topics

Mr. Stachniak discussed Dresden Unit 2 and Unit 3 Fire Protection System scoping. He noted that those portions of the Unit 1 system that are in the scope of the Maintenance Rule Program were included in the scope of license renewal for Units 2 and 3.

He also discussed the scoping of non-safety-related piping. Mr. Stachniak noted that the applicant had expanded their initial scoping decisions to include all non-safety related piping and components attached to safety-related piping up to the first two supports in each orthogonal direction.

Mr. Stachniak also discussed consistency of the existing programs with those referenced in the GALL report. HE explained that 38 of 47 aging management programs were related to GALL i.e., 18 consistent and 20 consistent with exceptions. All exceptions contained alternative aging management activities that have been accepted by NRC.

According to Mr. Stachniak, the applicant had provided responses to several RAIs associated with open items included in the SER. Mr. Stachniak stated that 1 item had been resolved and 4

were still being reviewed by the staff. Of the 16 confirmatory items listed in the SER, 15 had been resolved and 1 remained under review. He also noted that all technical issues identified during the NRC inspections and audits had been resolved, however, a followup inspection is necessary to confirm the adequacy of the action tracking system for license renewal commitments.

NRC Staff Discussion of the Dresden-Quad Cities SER

Mr. T. J. Kim, the project manager, and Kimberley Corp of NRR were introduced to discuss the license renewal activities and the Draft SER for Dresden and Quad Cities. The key points of their presentation were:

Overview

Mr. Kim began by providing an overview of the Dresden Quad Cities application and summarized the current status of the license renewal review process. He noted that the SER included 5 open items and 16 confirmatory items.

Inspections and Audits

Laura Kozak, Region III, discussed the results of the inspections focused on Scoping and Screening and Aging Management Program reviews that were conducted by NRC staff. The inspections were implemented in accordance with Inspection Procedure IP 7002 to determine whether the applicant has included all appropriate structures, systems, and commodities in the scope of license renewal and to determine whether the existing aging management programs are adequately managing current age related degradation as required by 10CFR 54.

Mrs. Kozak informed the ACRS that MR. Caudle Julian, Region II provided technical support to Region III since this was the first license renewal application to be submitted by Region III licensees. She also stated that staff had identified a few items that appeared to have been omitted from scope but once these issues were brought to the attention of the licensee, they were promptly resolved to the satisfaction of the inspection staff. She stated that the existing aging management programs (AMPs) were working well and materiel condition of the plant has been adequately maintained. She noted that the applicant's documentation of existing AMPs were of good quality. The staff has scheduled a followup on-site inspection to confirm that the applicant had established an appropriate commitment action tracking program.

Overall, the staff concluded that the applicant's scoping and screening approach had successfully identified equipment and structures needing aging management review and that the existing aging management programs (AMPs) met the requirements of 10 CFR 54.

An audit of AMPs was conducted by NRR's License Renewal Branch with contractor support from Argonne and Brookhaven National Laboratories, to confirm the applicants assertions that the AMPs were consistent with GALL. They reviewed all attributes of the AMPs and concluded that the AMPs were, indeed, consistent with GALL.

Because of current staff concerns associated with steam dryer cracking at the Quad Cities facility, the staff and applicant discussed the possibility of additional license conditions that may be necessary to ensure that appropriate procedures and programs are developed to monitor the new and unexpected steam dryer aging effects.

Time Limited Aging Analyses (TLAAs)

Kimberley Corp discussed the staff's evaluation of the applicants use of Time Limited Aging Analyses. She noted that the remaining 5 open items identified in the SER were associated with Reactor Vessel and Internals Neutron Embrittlement. According to Mrs. Corp, our items had been resolved since issuance of the SER and the remaining item was still under review. She also noted that for PTS (heatup/cooldown), the applicant will be required to submit revised P-T curves for the period of extended operation and update the Technical Specifications in accordance with Appendix G and H of 10 CFR 50. She concluded by stating that applicant had identified the appropriate TLAAs and has demonstrated the TLAAs will remain valid for the period of extended operation or the aging effects will be adequately managed for the period of extended operation.

Mr. Kim concluded the staff's presentation by stating that the pending resolution of the 5 open and 16 confirmatory items, the applicant has met the requirements for license renewal, as required by 10 CFR 54.29 and 10 CFR Part 51.

Member Comments

In general, the Subcommittee thought the application was well organized and adhered to the GALL format. However, there were several issues raised which required further evaluation by the staff. These issues were primarily focused on recent operating experience with steam dryers and other internal components at BWR plants. They are included in the listing below:

Member Leitch

A tornado tore several panels off the reactor building because the panels did not function properly. They were either installed improperly or not maintained. Was this an aging management issue. If so, why is it not in scope for structures?

Page 248 of the Draft SER, states "The steam dryers are not in scope, because loose parts will not interfere with the ability to isolate the main steam line." However, Mr. Terao of NRR stated that the staff is revising that portion of the safety evaluation. What is the final resolution of this issue?

The oscillation power monitor is not in scope (as mentioned in the LRA in Table 2.2-3). However, the application says "Scram trips generated by the oscillation power range monitor have not been enabled." This is not a valid reason for it not being in scope. It has to be either short-lived or active in order not to be in scope.

On page 33 of the Scoping and Screening Inspection Report, it was documented that a diesel driven fire pump is necessary to support the operation of Units 2 and 3, but this pump is not in scope. Why?

Consultant Barton

The staff stated in the SER that Dresden has problems with its instrument air system. There are debris and corrosion products in the system. A proposed solution is a periodic blowdown program. What is the result of this plan and has the problem been solved? If not, what is the proposed long term solution? Is the problem due to a design issue or a problem with the system? The purpose of the instrument air system is to provide clear, dry air for instrumentation of valves so the plant operates properly. Also, what is the cause of this problem?

In Section 2.3 of the LRA, for the Reactor Vessel CCW System, a tank is listed for Dresden only. Is there a tank in Quad Cities? Is it in scope? There was no mention of this issue in the SER nor were there any RAIs. Please clarify.

Member Wallis

If the staff concludes that the the Dresden or Quad Cities steam dryers should be included in the scope of license renewal, why shouldn't the other plants coming in for license renewal also have steam dryers in scope? Are the steam dryers a unique issue or is it a generic issue?

Member Ford

A clamping device was used to mitigate the cracking of the core shroud. The clamp was assumed to be a quick fix. However, it appears to have been approved as a long term remedy. How is the degradation going to be monitored?

Has anyone on the staff been willing to accept the Rev. 2 (Water Chemistry Guidelines) applications? Has anyone done the risk analysis associated with having those relaxations apply for any station in the future?

Member Rosen

Is the reactor vessel fit for service for 60 years? Provide Charpy data on all the capsules and the calculation for each of them separately.

Staff Commitments

The staff committed to provide responses to the the issues requiring further before the full Committee review of the final SER.

Subcommittee Decisions and Follow-up Actions

The Subcommittee will summarize the discussions to the full Committee during April 2004 ACRS meeting.

Background Materials Provided to the Committee

1. License Renewal Application for Dresden Nuclear Power Station (DNPS), Units 2 and 3, and Quad Cities Nuclear Power Station (QCNPS), Units 1 and 2, dated January 2003.
2. Safety Evaluation Report with Open items Related to the License Renewal of the Dresden Nuclear Power Station (DNPS), Units 2 and 3, and Quad Cities Nuclear Power Station (QCNPS), Units 1 and 2, dated February 2004.)
3. NRC-Region III Inspection Reports # 50-237/03-04; 50-249/03-04 ; 50-254/03-04; 50-265/03-04, dates July 28 through August 1, 2003, and aging management program inspection reports # 50-237/03-04; 50-249/03-04 ; 50-254/03-04; 50-265/03-04 dates September 29 through October 22, 2003. License Renewal Application for the R. E. Ginna Nuclear Power Plant, dated July 30, 2002.

NOTE:

Additional details of this meeting can be obtained from a transcript of this meeting available in the NRC Public Document Room, One White Flint North, 11555 Rockville Pike, Rockville, MD, (301) 415-7000, downloading or view on the Internet at <http://www.nrc.gov/reading-rm/doc-collections/acrs/> can be purchased from Neal R. Gross and Co., 1323 Rhode Island Avenue, NW, Washington, D.C. 20005, (202) 234-4433 (voice), (202) 387-7330 (fax), nrgross@nealgross.com (e-mail).
