

September 3, 2003

LICENSEE: Carolina Power & Light Company

FACILITY: H. B. Robinson Nuclear Station

SUBJECT: SUMMARY OF MEETINGS BETWEEN THE U.S. NUCLEAR REGULATORY COMMISSION (NRC) STAFF AND CAROLINA POWER & LIGHT COMPANY TO CLARIFY THE REQUESTS FOR ADDITIONAL INFORMATION PERTAINING TO THE H. B. ROBINSON NUCLEAR STATION (HBRNS) LICENSE RENEWAL APPLICATION (LRA)

The NRC staff and representatives of the Carolina Power and Light Company (CP&L) held meetings on May 20-21, 2003, and a conference call on May 29, 2003, to clarify the staff's requests for additional information (RAIs) (see ADAMS Accession No. ML030420424, ML030550625, and ML031340655). On the basis of these discussions, the applicant plans to revise some of its responses to the RAIs.

The combined list of attendees for the two meetings is provided in Enclosures 1 and 2. The discussed RAIs are included in Enclosure 3. The conference call summary is included in Enclosure 4. A draft of this summary was provided to the applicant to allow them the opportunity to comment prior to being issued.

**/RA/**

Sikhindra K. Mitra, Project Manager  
License Renewal and Environmental Impacts Program  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Docket No.: 50-261

Enclosures: As stated

cc w/enclosures: See next page

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Division of Regulatory Improvement Programs  
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Accession No:ML032461542

cc w/enclosures: See next page

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DISTRIBUTION: Summary of Meeting with CP&L, Dated: September 3, 2003

Accession No: ML032461542

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**ATTENDANCE LIST**  
**MEETINGS BETWEEN NRC AND**  
**CAROLINA POWER & LIGHT COMPANY**  
**MAY 20 - 21, 2003**

<b><u>NAME</u></b>	<b><u>ORGANIZATION</u></b>
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S.K. Mitra	NRC/NRR/DRIP/RLEP
Kimberly Corp	NRC/NRR//DRIP/RLEP
Mario G. Cora	NRC/NRR/DRIP/RLEP
Tomeka Terry	NRC/NRR/DRIP/RLEP
Talmage B. Clements	CP&L
Roger A. Stewart	CP&L
Michael Heath	CP&L
R. Whorton	SCE&G
Jeff Lane*	CP&L
Chris Mallner*	CP&L
Myle Ceuthrie*	CP&L
Michael Fletcher	CP&L
Bob Reynolds**	CP&L
Hans Asher	NRR/DE/EMEB
Jim Strnisha	NRR/DE/EMEB
Ken Chang	NRR/DRIP/RLEP
Steven Jones	NRR/SPLB
Daniel Frumkin	NRR/SPLB
John Lehning	NRR/SPLB
Chang Li	NRR/SPLB
John Tsao	NRR/DE/EMCB
James Medoff	NRC/DE/EMCB
A.N. Pal	NRR/DE/EEIB
Stewart Bailey	NRR/DE/EMEB
Sam Miranda	NRR/DE/EMEB

\*\* Participated via telephone for the meeting on May 20, 2003

\* Participated via telephone for the meeting on May 21, 2003

**ATTENDANCE LIST**  
**CONFERENCE CALL BETWEEN NRC AND**  
**CAROLINA POWER & LIGHT COMPANY**  
**MAY 29, 2003**

**NAME**

Rajender Auluck  
Mario G. Cora  
Roger A. Stewart  
Bob Reynolds  
James Medoff  
John Ma

**ORGANIZATION**

NRC/NRR/DRIP/RLEP  
NRC/NRR/DRIP/RLEP  
CP&L  
CP&L  
NRC/DE/EMCB  
NRR/DE/EMEB

Note: All members in the list participated via telephone call

**SUMMARY OF MEETING BETWEEN NRC AND**  
**CAROLINA POWER & LIGHT COMPANY**  
**MAY 20 - 21, 2003**

The Nuclear Regulatory Commission (NRC) staff met with representatives of Carolina Power and Light Company (CP&L or the applicant) on May 20-21, 2003, and participated in a telephone conference on May 29, 2003, to clarify the staff's requests for additional information (RAIs) associated with the H.B. Robinson, Unit 2, (RNP) license renewal application (LRA) (see ADAMS Accession No. ML030420424, ML030550625, and ML031340655).

On the basis of the discussions, the staff was able to better understand the applicant's technical bases; however, no technical issues were resolved. In some cases, the applicant identified actions that would enhance its RAI responses. The staff did not provide any approval for or agreement with the technical information provided during the meeting.

The applicant is scheduled to submit its responses to the supplemental RAIs by June 13, 2003. The staff will review the applicant's responses when they are received. A summary of the RAIs discussed and the applicant's proposed actions are presented below.

**RAI 3.5.1-19**

The staff and the applicant discussed the corrective action related to liner plate corrosion in the aging management review (AMR) for the moisture barriers. The applicant agreed to provide the documents used to reach their conclusions in their RAI response on liner plate corrosion.

**RAI B.3.14-1**

The staff and the applicant discussed the results of the inspections performed in the below grade section of the intake structure and dam spillway. The staff needs more information to support the conclusion that degradation is not occurring and that the enhanced inspection is adequate. The applicant plans to justify why there is no need for an inspection or specify a frequency for the inspection of the submerged portion of the intake structure. The applicant also plans to justify why there is no monitoring or need for a frequency of inspecting the dam spillway.

**RAI 3.4.1-5**

The staff and the applicant discussed the operation of the Auxiliary Feedwater (AFW) pumps and the exposure of AFW piping to raw water. The applicant agreed to clarify the following concerning the modified steam driven AFW pump: (1) the AFW pump is in a self-cooling mode and no longer uses raw water, (2) it uses condensate water on the coolers, (3) it is not inspected on 89.13, and (4) predictive maintenance inspects the coolers and performs water chemistry.



RAI 4.1-1

The staff and the applicant discussed the Time-Limited Aging Analysis (TLAAs) applicable to RNP in Tables 4.1-1 of the LRA, and Tables 4.1-2, and 4.1-3 of NUREG-1800. The applicant agreed to include a statement clarifying that of the nine items listed from the Tables in NUREG-1800, only three are applicable to TLAA in the LRA. The applicant also agreed to be consistent when referencing USAS 131 and not using ANSI 131 in their responses.

RAI 4.3-7

The staff and the applicant discussed the fatigue design analyses of the AFW to Feed Water (FW) connections downstream of the motor-driven AFW pumps and downstream of the steam-driven AFW pump. The applicant agreed to provide further clarification on the materials and repair histories of the six AFW to FW connections in the AFW pumps.

RAI 4.3-8

The staff and the applicant discussed implicit fatigue design/analysis of components, specifically, sampling in the letdown line. The applicant agreed (1) to clarify that they no longer use normal sampling process for the letdown line, and (2) to provide the references for the stress used in the equation to calculate the maximum allowable stress used in determining the maximum loads.

RAI 4.3-9

The staff and the applicant discussed the evaluation of the impact of the reactor water environment on the fatigue life of components during the period of extended operation, specifically, Environmentally Assisted Fatigue (EAF)-adjusted Cumulative Usage Factor (CUF) values for environmental fatigue projections. The applicant agreed to add a note to the table in their RAI response clarifying that the information is for 40 years.

RAI 4.3-10

The staff and the applicant discussed fatigue analysis performed in response to NRC Bulletin 88-11. The applicant plans to clarify that the inservice inspection (ISI) is planned for the end of the current license. The applicant agreed to clarify that if the Ultrasonic Test (UT) analysis does not have a fatigue crack in critical flaw size, then the inspections would be reduced to interval of one per inspection period. Also, the applicant plans to add a third option, reserving the right to keep the other inspections as possibilities.

RAI 2.3.3.8-1

The staff and the applicant discussed the dam failure described in Sections 9 and 10 of the Safety Analysis Report (SAR) and why it was included in the SAR. The applicant plans to provide documentation on why the dam was put into the SAR as a capability and the basis for concluding dam failure is not a design basis event.

RAI 2.3.3.8-2

The staff and the applicant discussed Generic Letter 84-04 and initiators of missiles capable of damaging Component Cooling Water (CCW) piping and potential pipe break effects inside containment on CCW lines. The applicant referred the staff to an NRC inspection report. Staff stated that they would review the NRC's inspection report dated February 6, 1998.

RAI 2.3.3.9-1

The staff and the applicant discussed RNP's license amendment 156 crediting the redundant Spent Fuel Pit (SFP) cooling pump and makeup from the Refueling Water Storage Tank (RWST) in preventing a substantial loss of coolant inventory. The applicant plans to revise their response to clarify why the source for the make-up water, the spent fuel pool cooling function, is or is not in scope.

RAI B.3.7 (see ADAMS Accession No. ML031340655, Item L)

(2a) The staff and the applicant discussed site fire procedures requiring that fire doors be inspected semi-annually. The applicant agreed to justify their exception to frequency of fire door inspection procedures in the Generic Aging Lessons Learned (GALL) report, NUREG-1801, by clarifying that in addition to the six month inspections with prescribed criteria, additional inspections will be performed. The applicant agreed to confirm the types of inspection, what the inspections involve and frequency of the inspections that are implemented on site.

RAI B3.7 (see ADAMS Accession No. ML031340655, Item L)

(2b) The staff and the applicant discussed the inspection of fire barriers and how these inspections will adequately address aging during the extended operation. The applicant agreed to confirm the frequency of their structural monitoring program in GALL for fire barrier penetrations and seals.

RAI 2.3.2.5-1

The staff and the applicant discussed the hydrogen control function as an intended function for the post accident hydrogen system according to 10 CFR 54.4(a)(2). The applicant plans to bring in additional piping into scope and to clarify if there are alternate means of hydrogen control and long term recovery.

RAI B.3.9-2

The staff and the applicant discussed the nuclear grade of the cathodic protection system at RNP. The applicant agreed to clarify their response to the RAI to state that the cathodic protection system protects the external surface. The applicant plans to remove the word "credited" from their response.

RAI 3.1.2.1-3

The staff and the applicant discussed that loss of pre-load due to stress relaxation in bolting is not an aging effect. The staff also discussed the Electric Power Research Institute (EPRI)

guidelines on bolting and torque programs. The applicant agreed to clarify that their bolting practice is similar to the bolting integrity program in Appendix B of NUREG-1801 and identify procedures for this bolting practice.

RAI 3.1.2.4.6-2

The staff and the applicant discussed the inspection of several steam generator components. The applicant agreed to clarify which secondary side steam generator components are inspected by listing the components and describing what procedures are performed during the inspection but is not credited by license renewal.

RAI B.3.12-3

The staff and the applicant discussed the loss of emergency diesel generator jacket water system integrity and the ability of the jockey pump header to maintain header pressure. The applicant agreed to clarify their response that the headers from the jacket water system and jockey pump are in separate systems and can be isolated.

RAI 2.5.2-1

The staff requested the reasons as to why fuse holders were not included in the list of "Electrical/I&C component commodity groups" in Section 2.5.2 of the LRA. The applicant provided a formal response to the request by letter dated April 28, 2003. During the meeting the staff discussed the NRC's position related to aging management of insulating material for fuse holders. The staff understands that insulating material for fuse holders should be managed by GALL X.I. E1 Program. The applicant agreed to include requested information in a supplemental response to RAI 2.5.2-1.

RAI 4.4-2

In response to RAI 4.4-2, the applicant provided the RNP Environmental Qualification (EQ) Program. During the meeting, the staff indicated that the corrective actions listed in the applicant's program were not consistent with the GALL elements. The staff requested the applicant to include corrective actions in the EQ Program in consistency with the requirements of 10 CFR 50, Appendix B. The applicant agreed to revise the EQ Program in accordance with the GALL elements.

RAI B.4.6-1

In the LRA, the applicant stated that "the Non-EQ Insulated Cables and Connections Program is credited for aging management of cables and connections not included in the RNP EQ Program." In response to RAI B.4.6-1, the applicant stated that as discussed in LRA Subsection 3.6.2.1, the components subject to aging in the electrical penetration assemblies are the materials for the electrical conductors and connections. Since the electrical conductors and connections will be managed by three programs (Non-EQ Insulated Cables and Connections Program, Aging Management Program for Non-EQ Electrical Cables Used in Instrumentation Circuits, and Aging Management Program for Neutron Flux Instrumentation Circuits), the staff requested the applicant to consider that the Non-EQ Electrical Penetration assemblies should

also be managed by all three programs. The applicant agreed to review the response to RAI B4.6-1.

RAI B.4.6-2

The RAI relates to the "Non-EQ Insulated Cables and Connections Aging Management Program" for aging management of cables and connections not included in the RNP EQ Program. In response to RAI B.4.6-2, the applicant stated that the scope of this program includes plant cables of various insulation material types that may be located in adverse localized environments. The staff informed the applicant that the scope of the program should include cables and connections including fuse holders. The applicant agreed to consider appropriate modification to the program.

RAI 4.4.1-2(a)

In the RAI the staff requested the applicant to provide information as to whether there have been any major plant modifications or events with sufficient duration to cause a change in the temperature, and in the radiation values that were used for underlying the assumptions in the EQ calculations. The applicant provided a formal response in a letter dated April 28, 2003. During the meeting the staff requested additional information related to the effect that power uprate has on temperature and the radiation values used in the EQ calculation. The applicant agreed to provide the requested information.

RAI 3.6.1-2

This RAI pertains to neutron flux instrumentation circuits. The staff provided the following comments and questions:

- (a) Detection of aging effects of aging management program for neutron flux instrumentation circuits should cover both cables and connections and testing should include a combination of tests.
- (b) Describe types of cables used inside and outside containment. Are the same cable types used inside and outside containment?
- (c) Are any of these cables covered under the EQ program? If so, what is the qualified life of the cables?
- (d) Provide operating experience of these cables.
- (e) How often are these cables inspected, tested, and replaced? Summarize the results of the inspection, testing, and replacement.
- (f) What is "I/V" test? Is this a power factor or loss factor test? What is the test voltage for this test?
- (g) What is the technical basis for the ten year frequency of this test?

The applicant agreed to address the above in response to RAI 3.6.1-2.

RAI 2.3.1.3-1

The staff and the applicant discussed the exclusion of the pressurizer spray head from the scope of license renewal. The staff requested the applicant to show that failure of pressurizer spray head will not impede the safety functions of the safety-grade components in accordance with 10 CFR 54(a)(2). Pressurizer spray is two of four preferred methods for recovery following a steam generator tube rupture (UFSAR, Section 15.6.3.2.1). If no aging management program is executed for the spray head, the staff requested the applicant to show that the statement in Section 15.6.3.2.1 of the UFSAR is still applicable. The applicant plans to revise the RAI response to clarify their basis for exclusion of the pressurizer spray head from the scope of license renewal.

RAI 2.3.1.6-1

The staff and the applicant discussed the exclusion of the feedring/J-tube from the scope of license renewal. The staff requested the applicant to show that failure of feedring /J-tube (both components are enclosed by safety related-grade components) will not impede the safety functions of the safety-grade components (steam generator internals) in accordance with 10 CFR 54(a)(2). The applicant plans to revise the RAI response to clarify their basis for exclusion of the feedring/J-tube from the scope of license renewal.

RAI 3.1.2.1-5

This RAI relates to crack initiation and growth due to cyclic loading, stress corrosion cracking (SCC), and/or primary water stress corrosion cracking (PWSCC) as aging effects for the reactor coolant system (RCS) nozzle safe-ends, control rods drive mechanisms (CDRM) housings, and RCS components other than bolting materials or RCS components made from cast austenitic stainless steels (CASS). The applicant explained that follow-up inspections will be performed as a part of the ongoing Alloy 600 management strategy. The staff and the applicant discussed the Alloy 600 management strategy commitment and the applicant's participation in the industry working groups relating to Alloy 600 degradation. The applicant agreed to include similar statements used in other LRAs (such as McGuire or Catawa).

RAI 3.1.2.2.1-1

The staff and the applicant discussed the justification as to why a thermal fatigue analysis was not needed for those reactor vessel (RV) internals listed in Table 2.3.1-1 of the RNP LRA. The applicant stated that RNP aging management review evaluation determined that these components are not susceptible to cracking due to thermal fatigue. This was consistent with GALL, which also does not identify this aging effect/mechanism for similar RV internals components. The applicant plans to clarify the appropriate RAI response related to the consistency with GALL.

RAI 3.1.2.2.4-1

The staff and the applicant discussed the AMP for managing crack initiation and growth in RCS small-bore piping components less than 4 inch nominal pipe size (NPS). From the AMR Item 6, Table 3.1-1 in the LRA, the applicant does not appear to be taking credit of the ASME Section XI, Subsections IWB, IWC, and IWD Program as one of the AMPs for managing crack initiation and growth in RCS small-bore piping components less than 4 NPS in size. The staff requested

the applicant to confirm that although RNP is not taking credit of ASME Section XI Program as listed in GALL, the applicant will implement the referenced sections with regards to managing crack initiation and growth in RCS small-bore piping components less than 4 NPS in size. The applicant plans to revise the RAI response as appropriate.

RAI 3.1.2.4.1-1

The staff and the applicant discussed the aging management of stainless steel and nickel-based alloy RCS components that may be susceptible to loss of material by crevice or pitting corrosion. The staff requested the applicant to identify which specific EPRI guideline the applicant intends to use.

RAI 3.1.2.4.1-2

The staff and the applicant discussed the implementation of RNP water chemistry control program for leveling hydrogen over-pressure in the RCS, and the management of crevice or pitting corrosion in the internal surfaces of the Class 1 RCS components that are exposed to the borated reactor coolant. The applicant states that hydrogen concentration limits for the RCS are delineated in their water chemistry program in accordance with the EPRI guidelines. The applicant agreed to incorporate this information in the supplemental RAI response.

RAI 3.1.2.4.4-1

This RAI relates to primary water stress corrosion cracking (PWSCC) induced crack initiation and growth as an applicable aging effect for Alloy 600 RV bottom head instrumentation tubes. The applicant discussed its intention to participate in industry-wide programs for nickel-based alloy penetrations, and proposed managing reactor vessel nozzles of the same material using a combination of the nickel-alloy nozzles and penetrations program and water chemistry Program. The applicant will include a statement in the revise RAI response which states its intention to participate in the industry working group.

RAI 3.1.2.4.5-1

This RAI relates to crack initiation and growth due to PWSCC as an applicable aging effect for Alloy 600 core support pads/core guide lugs. The staff requested clarification related to the proposed AMP that the applicant intends to implement for managing this aging effect. The applicant plans to modify the RAI response to specify the aging management program to be used for Alloy 600 core support pads/core guide lugs.

RAI 4.2.1-1

The staff and the applicant discussed the TLAA for protecting the reactor vessel against pressurized thermal shock (PTS) events. The technical staff requested the applicant to review and update the PTS calculations, and to incorporate them into WCAP-15828. The applicant stated that the requested modifications were included in a revised WCAP-15828. The staff is reviewing WCAP-15828.

RAI 4.6.1-1

The staff and the applicant discussed the status of WCAP-15628, "Technical Justification for Eliminating Large Primary Loop Rupture as the Structural Design Basis for the H. B. Robinson Unit 2 Nuclear Plant for the License Renewal Program." The applicant stated that WCAP-15628 was submitted subsequent to the LRA. The staff is reviewing WCAP-15628.

RAI 4.6.1-2

The staff and the applicant discussed the status of WCAP-15363, Revision 1, "A Demonstration of Applicability of ASME Code Case N-481 to the Primary Loop Pump Casings of H. B. Robinson Unit 2 for License Renewal." The applicant stated that WCAP-15363 was submitted subsequent to the LRA. The staff is reviewing WCAP-15363.

RAI B.2.8-1

The staff found a potential typographical error in the first sentence of the third paragraph of the RAI response. This should be changed from "J-09" to "J-07." The applicant agreed to correct the subject typographical error.

**SUMMARY OF CONFERENCE CALL BETWEEN NRC AND**  
**CAROLINA POWER & LIGHT COMPANY**  
**MAY 29, 2003**

RAI 4.6.3-2

This RAI relates to thermal fatigue analysis for concrete surrounding containment penetrations. The staff requested the applicant to further explain the method for the analysis of concrete temperature surrounding containment penetrations. The staff also requested additional information that documents the fatigue calculation for penetration concrete with 252 cycles of heatup/cooldowns.

RAI 3.1.2.1-8

This RAI pertains to the AMP for the lower and upper internal assembly sub-components that are subject to loss of pre-load due to stress relaxation. The staff requested a commitment that inspection plans will be submitted to the NRC two (2) years before the extended period of operation. The applicant plans to provide such a commitment in the revised RAI response.

RAIs 3.1.2.1-6, and 3.1.2.4.1-3.

The staff discussed RAIs 3.1.2.1-6 and 3.1.2.4.1-3, which also relate to RAI 3.2.1-1 on the issue of general corrosion. Both RAIs pertain to the AMP for the external surfaces of carbon steel components in RCS pressure boundary on the susceptibility to corrosion due to weather exposure and condensation processes. The applicant plans to modify the RAI 3.2.1-1 response to state that the temperature in the carbon steel components is hotter than the ambient condition and therefore, condensation process is not likely to occur on such surfaces.