



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

ACRSR-2073

April 23, 2004

The Honorable Nils J. Diaz  
Chairman  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

SUBJECT: REPORT ON THE SAFETY ASPECTS OF THE LICENSE RENEWAL  
APPLICATION FOR THE R. E. GINNA NUCLEAR POWER PLANT

Dear Chairman Diaz:

During the 511th meeting of the Advisory Committee on Reactor Safeguards, April 15 -17, 2004, we completed our review of the License Renewal Application (LRA) for the R. E. Ginna Nuclear Power Plant and the related final Safety Evaluation Report (SER) prepared by the NRC staff. Our Plant License Renewal Subcommittee reviewed both the LRA and the staff's SER with Open Items during a meeting on November 4, 2003. During these reviews, we had the benefit of discussions with representatives of the NRC staff and the Rochester Gas and Electric Company (RG&E). We also had the benefit of the documents referenced.

#### **CONCLUSION AND RECOMMENDATION**

1. The programs instituted and committed to by RG&E to manage age-related degradation are appropriate and provide reasonable assurance that the R. E. Ginna Nuclear Power Plant can be operated in accordance with its current licensing basis for the period of extended operation without undue risk to the health and safety of the public.
2. The RG&E application for renewal of the operating license for R. E. Ginna Nuclear Power Plant should be approved.

#### **BACKGROUND AND DISCUSSION**

This report fulfills the requirements of 10 CFR 54.25, which states that the ACRS should review and report on all license renewal applications. The Ginna plant is a single unit, Westinghouse-designed, two-loop, pressurized-water reactor (PWR) rated at 1520 megawatts-thermal (MWt). RG&E prepared its application in accordance with NUREG-1801, "The Generic Aging Lessons Learned (GALL) Report." In that LRA, RG&E requested renewal of the operating license for the plant for a period of 20 years beyond the current license term, which expires on September 18, 2009.

The final SER documents the results of the staff's review of the information submitted by the applicant or identified during the several inspections conducted at the plant site. In particular, the staff reviewed the completeness of the applicant's identification of structures, systems, and components that are within the scope of license renewal; the integrated plant assessment process; the applicant's identification of the plausible aging mechanisms associated with passive long lived components; the adequacy of the applicant's aging management programs; and the identification and assessment of time limited aging analyses (TLAAs) requiring review.

The Ginna plant is the oldest PWR currently in operation in the U.S. The plant was constructed prior to the establishment of 10 CFR Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants." The plant was therefore subjected to the Systematic Evaluation Program (SEP) to determine if possible changes in the plant and licensing commitments would be required. The applicant indicated that since Ginna was an SEP plant, RG&E made early use of risk insights to evaluate cost beneficial plant modifications. During the scoping and screening process, unique plant-specific design features were identified, such as a standby auxiliary feedwater system and grouted containment tendons. Significant improvements have been made to the plant, including replacement of the steam generators in 1996 and the reactor vessel head in 2003.

The applicant has developed 33 aging management programs to manage aging degradation at Ginna during the period of extended operation. Of these, 20 are consistent with GALL, 10 are consistent with GALL with minor exceptions, and 3 are plant-specific programs for periodic surveillance and preventive maintenance, thimble tube inspection, and systems monitoring. The applicant has indicated that 31 license renewal commitments have been incorporated into the Ginna Corrective Action Tracking System. Less than half of these commitments have been completed. The remaining activities are scheduled for completion prior to the period of extended operation. We encouraged RG&E to establish a schedule for implementing these commitments well ahead of the beginning of the license renewal period so as not to place an unreasonable demand on both the applicant and NRC resources.

During our review, we also discussed the effectiveness of existing programs that the applicant has established to deal with significant equipment degradation issues identified by operating experience.

Ginna has conducted inspections of upper and lower reactor vessel heads in accordance with the current NRC bulletins and orders. No leakage was identified on the upper head. Nonetheless, the head was replaced in 2003. The new head has control rod drive mechanism penetrations fabricated using Alloy 690 TT and J-groove welds utilizing Alloy 52. The reactor vessel insulation is designed to allow full bare metal visual inspections of the upper and lower heads. The lower head penetrations were visually inspected in 2003 and there were no indications of leakage. These penetrations are expected to have low susceptibility to primary-water stress-corrosion-cracking due to the relatively low reactor operating temperature and the low residual stresses. The lower head was also cleaned to facilitate future inspections.

In response to NRC Bulletin 2003-01, Ginna inspected the containment sump screens and identified a gap in the "B" sump screen that could have allowed some debris to bypass the screen. The gap was repaired. The applicant plans to assess debris generation and transport following the Nuclear Energy Institute guidelines and, if necessary, make appropriate changes to the facility to satisfy NRC requirements.

We concur with the staff that TLAAAs have been evaluated appropriately by the applicant. Independent calculations performed by the staff confirm that the Ginna reactor vessel will be able to operate throughout the period of extended operation with adequate margin to reactor vessel neutron embrittlement limits. For metal fatigue, no components have projected cumulative usage factors that exceed the design basis limits for the period of extended operation. All other TLAAAs show that components evaluated will maintain acceptable margin to respective limits for the period of extended operation.

On the basis of our review of the LRA, the final SER, and the NRC's inspection and audit reports, we agree with the staff that there are no issues, specifically related to the matters described in 10 CFR 54.29(a)(1) and (a)(2), preclude renewal of the plant's operating license. The programs instituted and committed to by RG&E to manage age-related degradation are appropriate and provide reasonable assurance that the plant can be operated in accordance with its current licensing basis for the period of extended operation without undue risk to the health and safety of the public. The RG&E application for renewal of the operating license for the R. E. Ginna Nuclear Power Plant should be approved.

Sincerely,

**/RA/**

Mario V. Bonaca  
Chairman

References:

1. U. S. Nuclear Regulatory Commission, "Safety Evaluation Report Related to the License Renewal of the R. E. Ginna Nuclear Power Plant," February 2004.
2. Rochester Gas and Electric Company, "License Renewal Application for R. E. Ginna Nuclear Power Plant," August 6, 2002.
3. U. S. Nuclear Regulatory Commission, "Safety Evaluation Report with Open Items Related to the License Renewal of the R. E. Ginna Nuclear Power Plant," October 9, 2003.
4. NRC Inspection Report 50-244/03-010, Scoping and Screening Methodology, August 22, 2003.
5. NRC Inspection Report 50-244/03-008, Aging Management Program, December 2, 2003.
6. U. S. Nuclear Regulatory Commission, "Aging Management Program Audit Report," September 8, 2003.