

December 8, 2011

MEMORANDUM TO: Chairman Jaczko
Commissioner Svinicki
Commissioner Apostolakis
Commissioner Magwood
Commissioner Ostendorff

FROM: R. W. Borchardt */RA/*
Executive Director for Operations

SUBJECT: STATUS OF RESEARCH AND TEST REACTOR LICENSE
RENEWAL

The purpose of this memorandum is to inform the Commission of the current status of research and test reactor (RTR) license renewal. This status update includes the staff's progress on renewing RTR licenses (WITS 200900073), challenges in the reviews of the remaining license renewal applications (LRAs), and the staff's plan for completing the remaining reviews.

The staff continues to reduce the backlog of RTR LRAs. On October 24, 2008, the staff issued SECY-08-0161, "Review of Research and Test Reactor License Renewal Applications," which formally began the staff's streamlining effort. At that time, the backlog contained 19 LRAs. As of the date of this memorandum, the backlog contains 9 LRAs. The reduction is the result of completing nine license renewal reviews and one change in facility licensing status because of a foreign ownership issue at a research reactor that is moving toward decommissioning. The staff is also reviewing three additional LRAs that are not in the backlog and expects to complete the last of these reviews in the third quarter of fiscal year (FY) 2013. While working to resolve the backlog, the staff continues to ensure that RTRs are being operated safely and securely through licensing, inspection, and other oversight activities.

On June 4, 2010, the staff provided the Commission with a progress report on the status of RTR license renewal, which included actions to eliminate the backlog. The actions included using the "Interim Staff Guidance on the Streamlined Review Process for License Renewal for Research Reactors," issued October 2009 (ISG), to perform the LRA review and using the Enterprise Project Management software to address schedule risks and track schedule changes. As discussed later in this memorandum, the staff uses mitigating strategies and lessons learned to minimize schedule risks.

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Enclosure 1 contains the schedule for completing the remainder of the backlog, including the progress toward completion for each LRA review. Of the remaining nine reviews, four are at least 75 percent complete. To eliminate the remaining backlog, the staff expects to issue six renewed licenses in the second quarter of FY 2012, two in the third quarter of FY 2012, and one in the second quarter of FY 2013. Enclosure 1 also includes the cumulative delay in the review since the June 4, 2010, progress report. Since that report, the average schedule delay is 17 months for those reviews still in progress. Enclosure 2 summarizes the challenges, licensee and staff actions, and schedule impact for each LRA review.

Members of the Executive Committee of the National Organization of Test, Research, and Training Reactors and individual licensees have voiced concerns that some relicensing requirements are overly burdensome and unnecessary given that NRC approved the original license, the inherent safety of these reactors, and the minimal impacts in the unlikely event that an accident were to occur. Some of the relicensing requirements have taxed the ability of the licensees to support license renewal because of limited documentation of the facility design basis and prior safety analyses and limited resources to recreate and/or update this information. This situation has often resulted in multiple requests for additional information (RAIs) and protracted responses to these requests. As discussed more fully below, this situation follows from the regulations.

As discussed in SECY-08-0161, the process for RTR license renewal is essentially the same as for initial licensing. This is because there are no regulations for RTR license renewal analogous to those for license renewal of nuclear power reactors found in Title 10 of the *Code of Federal Regulations* (10 CFR) Part 54, "Requirements for renewal of operating licenses for nuclear power plants." To renew a license for an RTR, the NRC must make the findings specified in 10 CFR 50.57, "Issuance of operating license," regarding safety, security, and regulatory compliance. Specifically, 10 CFR 50.57(a)(3) requires the NRC to find that "there is reasonable assurance (i) that the activities authorized by the operating license can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the regulations in [10 CFR Chapter I – Nuclear Regulatory Commission]."

The findings required by 10 CFR 50.57 must be supported by the information contained in the LRA. The regulations in 10 CFR 50.34, "Contents of applications; technical information," require the LRA to include a final safety analysis report that includes "information that describes the facility, presents the design bases and the limits on its operation, and presents a safety analysis of the structures, systems, and components and of the facility as a whole." Further, 10 CFR 50.36, "Technical specifications," requires that "the technical specifications be derived from the analyses and evaluation included in the safety analysis report." A major review area described in the ISG is the technical specifications, and the results of the staff's review are the findings required by 10 CFR 50.57.

In most cases, the staff's review of an LRA identified many areas where the final safety analysis report does not provide sufficient information for the staff to make an independent determination that the technical specifications are appropriately derived from the final safety analysis report. This does not necessarily mean that the technical specifications are inadequate (RTRs have a long history of safe operation under the current technical specifications), but it does mean that the information in the LRA is not compliant with the regulatory requirements. Similarly, the staff's review of an LRA often identified areas where the final safety analysis report did not fully present the design bases for the facility. In these situations, the staff issued RAIs to obtain the

necessary information from the licensee. The staff uses the information to verify compliance with the requirements of 10 CFR 50.34 and 50.36 and make the findings required by 10 CFR 50.57.

The June 4, 2010, progress report included a review schedule for the remainder of the backlog. The staff based that schedule on the assumptions that licensees would respond to RAIs in a timely manner (usually 60 to 120 days), and that the responses would be technically correct and complete. Contrary to the first assumption, all but one of the licensees requested one or more extensions to respond to RAIs. The extension requests ranged from 30 days to 18 months, depending on the technical complexity of the RAIs and the circumstances of the individual licensee (e.g., the need to obtain contractor assistance). Contrary to the second assumption, many licensees' responses to RAIs were not technically correct or complete. This was most apparent in thermal-hydraulic analyses and analyses of onsite and offsite radiation doses from normal operations and accidents. As described in the ISG, these technical areas are fundamental to the staff's safety conclusions that support the findings required by 10 CFR 50.57 for issuance of a renewed license. As discussed previously, the staff maintains oversight of RTRs through operator and facility licensing, routine and reactive inspections, and other activities. While the staff has identified issues associated with the quality and timeliness of RAI responses, the results of the NRC's RTR oversight program continue to demonstrate that RTRs are being operated safely and securely.

The Enterprise Project Management software used by the staff includes a change control feature that the staff uses to document and review changes to the license renewal schedules. A review of these changes verified that the majority of schedule delays occurred because the staff's assumptions about the timeliness and quality of responses to RAIs were inconsistent with the licensees' actual ability to respond to RAIs. The two main contributors to the current schedule delays are licensee resources, both personnel and budgetary, and licensee in-house technical expertise. The direct causes of delays related to licensee resources include not having personnel dedicated to responding to RAIs, turnover of licensee personnel, and the need to maintain day-to-day operations. The direct causes of the delays relating to technical expertise include the licensees' procurement process, funding for technical support, and the need for several rounds of RAIs to obtain technically correct and complete responses.

The staff uses mitigating strategies and lessons learned to reduce the burden of license renewal on the licensees and reduce the risk of schedule delays. For example, the staff encouraged the U.S. Department of Energy (DOE) to make funds and technical support available to licensees. To date, eight licensees have received some form of DOE support. In addition, the staff is increasing communication with licensees to reduce uncertainty in the licensing process and misunderstanding of technical issues. The increased communication includes multiday site visits to discuss technical specifications and detailed analyses, conference calls to discuss the licensing process and financial review, periodic calls to verify licensee progress on responding to RAIs, and improved clarity and increased detail in written RAIs. The staff continues to incorporate lessons learned, including an increased use of approved templates for routine documents, best practices for specific areas of technical review, identifying common technical issues in LRAs, and effective negotiation of licensee extension requests. These initiatives have reduced but not eliminated the delays and should be a formula for success in eliminating the backlog.

Figure 1 shows the number of LRAs in the backlog, starting with the beginning of FY 2008 and ending with elimination of the backlog at the end of the second quarter of FY 2013 based on the current schedule. The figure illustrates two important points. First, the staff made continual progress to reduce the backlog during the efforts to streamline the license renewal process. Second, streamlining the process and increasing staff resources worked to accelerate the reduction of the backlog. This acceleration is indicated by the actual increase in the completion rate of license renewals during FY 2011 and the projected further increase in FY 2012.

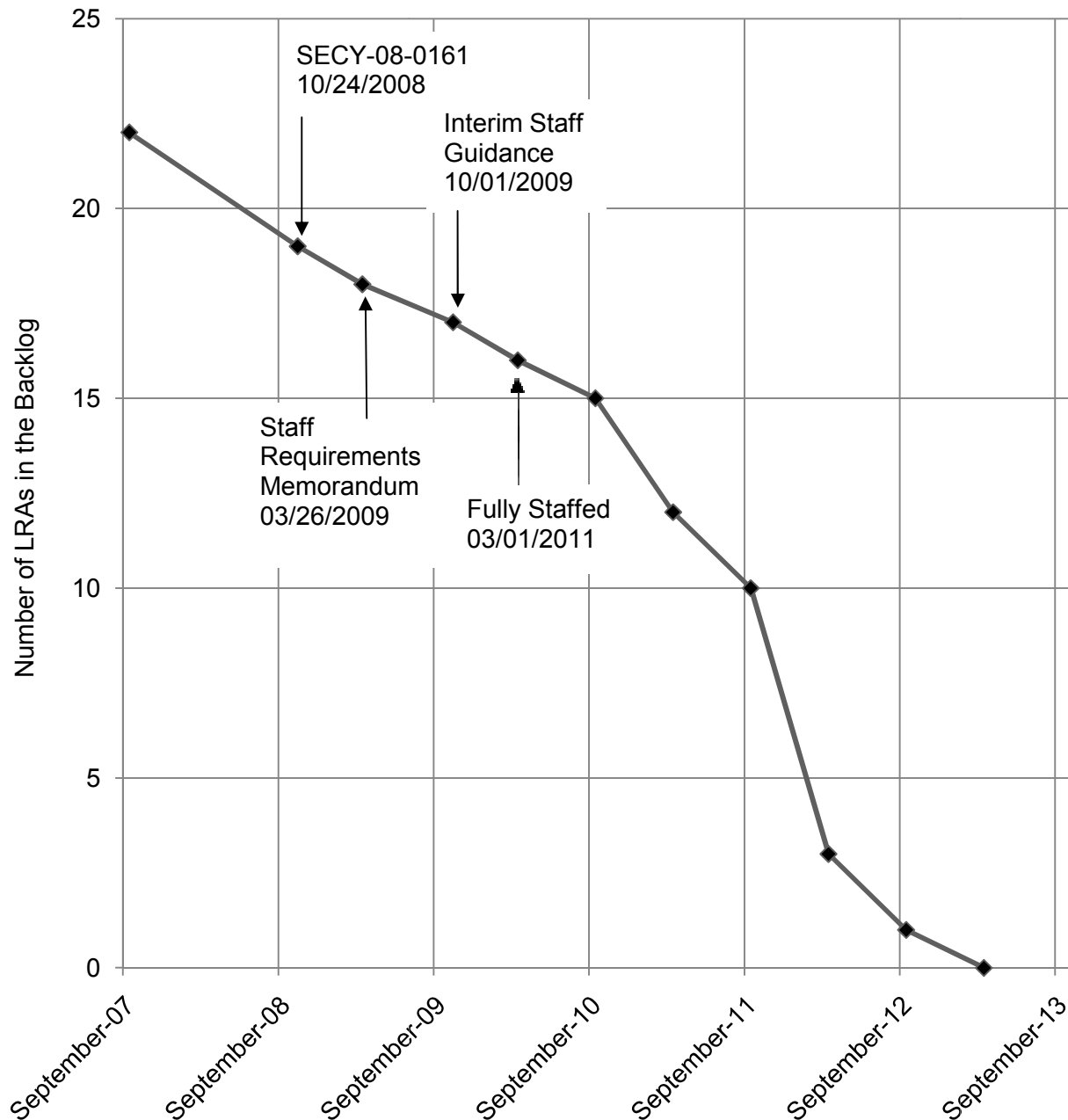


Figure 1 RTR LRA backlog timeline

The staff intends to maintain the current momentum and the current level of resources to eliminate the backlog. The NRC RTR staff's top priority remains the review of LRAs and the elimination of the backlog. The staff has budgeted \$200,000 and 2.5 full-time equivalent staff in FY 2012 for license renewal reviews based on the renewal schedule as of January 2011. Based on the updated schedule in Enclosure 1, there are sufficient resources allocated within the RTR program to support RTR license renewal reviews by shedding lower priority work, such as routine, non-safety-related RTR licensing activities.

The Office of the General Counsel has reviewed this paper and has no legal objection.

Enclosures:

As stated

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