

June 15, 2010

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

FROM: R. W. Borchardt */RA by Michael F. Weber for/*
Executive Director for Operations

SUBJECT: PROJECT PLAN FOR THE REGULATORY PROGRAM REVIEW TO
SUPPORT EXTENDED STORAGE AND TRANSPORTATION OF
SPENT NUCLEAR FUEL

The purpose of this memorandum is to request Commission approval of the Project Plan for the Extended Storage and Transportation Regulatory Program Review in Enclosure 1. The staff developed this plan in response to staff requirements memorandum (SRM) COMDEK-09-0001, "Revisiting the Paradigm for Spent Fuel Storage and Transportation Regulatory Programs." In this SRM, the Commission directed the staff to develop a project plan to conduct a thorough review of the regulatory programs for spent nuclear fuel (SNF) storage and transportation, and to evaluate their adequacy for ensuring safe and secure storage of SNF for extended periods beyond 120 years. The Commission also directed the staff to undertake research to bolster the technical bases of the regulatory framework in support of extended periods, and to leverage ongoing improvement initiatives.

The staff has developed a plan for Integrating Spent Nuclear Fuel Regulatory Activities (ISNFRA) to address future regulatory challenges related to the management of SNF and high-level waste. The three core areas of the ISNFRA plan are storage and transportation, reprocessing, and disposal. As part of the ISNFRA plan, the staff will coordinate the extended storage and transportation regulatory program review with the reprocessing and disposal regulatory program activities, as appropriate, to address changes to national policy and industry programs related to SNF management.

The staff believes that the current regulatory framework can be enhanced to ensure the safety and security of extended storage and transportation with additional research, guidance, review processes, and potential rule changes. The project plan includes two main goals to enhance the regulatory programs for both interim storage and extended storage and transportation:

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(1) identification and implementation of regulatory improvements to current licensing, inspection, and enforcement programs; and (2) enhancement of the technical and regulatory basis of the existing regulatory framework, and modification as necessary, to support extended storage and transportation.

The plan also details cross-cutting strategies that the staff will apply to help achieve the two main goals, as applicable. These strategies include applying risk-informed and performance-based (RIPB) enhancements, promoting development of domestic codes and standards, promoting international cooperation on extended storage and transportation regulatory issues, exploring incentives for industry adoption of state-of-the-art technologies, and engaging stakeholders. The staff plans to implement risk-informed enhancements using the “Risk-Informed Decision Making for Nuclear Material and Waste Applications” (RIDM), Revision 1 (ML080720238), as appropriate. The RIDM has been developed for generic use in Office of Nuclear Material Safety and Safeguards (NMSS) risk-informing activities, and provides a systematic process for evaluating the feasibility of risk-informing improvements and implementing risk insights into existing regulatory frameworks.

Further, Appendix A of the project plan identifies potential policy issues. These issues are related to the storage cask certification rulemaking process, the integration of transportation and storage safety design standards, maintaining fuel cladding integrity during the backend of the fuel cycle, and financial qualifications and assurance of licensees for extended storage and transportation. The staff plans to evaluate these issues as part of the project plan and present policy recommendations to the Commission, as warranted.

The staff has developed a seven-year plan for enhancing the technical and regulatory basis for extended storage and transportation by FY 2017. This would be followed by potential rulemaking activities, as warranted. The staff considered shorter time frames for enhancing the regulatory program, however, schedule constraints are influenced by the time needed to sequence various gap assessments and complete multiple research activities (e.g., high-burnup fuel research), participate in external research initiatives, engage international counterparts, and engage stakeholders and other interested parties in development of guidance and potential environmental assessments. The staff plans to implement the near-term regulatory improvements to guidance and procedures by late fiscal year (FY) 2013, with potential rule changes completed in FY 2015. These improvements would enhance the effectiveness of the current regulatory program for interim storage and transportation, and would also be durable in supporting future licensing and inspection activities related to extended storage and transportation. The staff also plans to complete aging research gap assessments in FY 2011 and environmental gap assessments in FY 2012. These and other gap assessments will systematically identify technical and regulatory differences between the current regulatory framework, and that needed to support extended storage and transportation in the future. These gap assessments will also inform the estimated time and effort that will be needed for enhancing the extended storage and transportation regulatory framework. Appendix B of the project plan provides an integrated overview of projected schedules for all activities.

The staff notes that one significant outcome of the various research studies may be identification of timeframes that require significant mitigation actions (e.g., replacement of cask components) to ensure continued safe storage and transportability. The staff has not yet identified any such timeframes, and has preliminarily selected an analytical timeframe of 300 years for the scope of the extended storage and transportation regulatory program review elements, such as extrapolating research data, conducting potential risk and environmental assessments, and developing aging management and design performance guidelines.

Prior to issuance of SRM-COMDEK-09-0001, the staff had several initiatives underway which will continue in fiscal year (FY) 2010, and are leveraged in the enclosed project plan. These ongoing initiatives include a Lean Six Sigma review of the general licensing process; aging research and gap assessments; participation with the Electric Power Research Institute and the U.S. Department of Energy in the Extended Storage Collaboration Program; engaging stakeholders and interested parties; and implementing various research activities that support emergent issues on fuel cladding integrity, potential degradation of cask components, criticality safety, and transportation risk.

Upon Commission approval, the staff plans to implement major elements of the project plan (i.e., initiatives that are not already underway) in FY 2011 and FY 2012. These activities include a comprehensive review of the inspection and enforcement programs, gap assessments to identify research and assessment needs in the safety, security, and environmental arenas, and interactions with international counterparts to compare regulatory frameworks and share research. In summary, the staff expects to achieve several outcomes in FY 2011 and FY 2012, including revision of internal procedures for licensing, inspection, and enforcement to improve efficiency, and completion of (or significant progress on) several gap assessments for extended storage and transportation.

It is also important that current and future rulemakings are informed to the extent practical by relevant findings generated from the gap assessments. The staff will coordinate the safety, security and environmental gap assessments with current and future rulemakings that are related to those areas, such as the rulemaking on security enhancements for independent spent fuel storage installations. This coordination could result in adjustments to rulemaking or extended storage and transportation gap assessment schedules. The staff will inform the Commission of any proposed changes to planned rulemaking activities as a result of this coordination effort.

The budgeted resources for FY 2010, for initiatives already underway related to the project plan, are 2.0 FTE and \$1.15M. Projected resources required to implement this plan in FY 2011 will be approximately 21 FTE and \$3.4M. Resources for the FY 2011 project plan activities are included in the NMSS-lead, Spent Fuel Storage and Transportation business line, or are requested on the FY 2011 Shortfall Request. The staff will prioritize and reallocate FY 2011

resources among the offices, as necessary. Projected resources required to implement the plan in FY2012 are pre-decisional and discussed separately in Enclosure 2 (Official Use Only).

SECY, please track.

Enclosures:

1. Project Plan for the Extended Storage and Transportation
Regulatory Program Review
2. Official Use Only - Projected Resources for the Extended Storage and
Transportation Program Review

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