

**U.S. Nuclear Regulatory Commission Monthly Status Report
Activities Related to the Yucca Mountain Licensing Action
Report for April 2014**

Background

On August 13, 2013, a panel of the U.S. Court of Appeals for the District of Columbia Circuit issued its decision in the case *In re Aiken County* directing the U.S. Nuclear Regulatory Commission (NRC) to “promptly continue with the legally mandated licensing process” for the U.S. Department of Energy’s (DOE’s) application to construct a geologic repository for high-level waste at Yucca Mountain, NV. The NRC promptly began taking steps to comply with the court’s direction following the issuance of the decision. On November 18, 2013, the Commission approved a Memorandum and Order, which set a course of action for the Yucca Mountain licensing process that is consistent with the Appeals Court decision and with the resources available. The Commission also issued a related Staff Requirements Memorandum (SRM) on November 18, 2013. The Commission provided further direction in an SRM dated January 24, 2014.

Accomplishments and Ongoing Work

NRC staff in the Office of Nuclear Material Safety and Safeguards, with the support of the Center for Nuclear Waste Regulatory Analyses, continues to make significant progress toward completion of the four volumes of the safety evaluation report (SER). Attached is the task tracking tool, “Status of Safety Evaluation Report (SER) Chapters and Volume Tasks,” which has been updated to include work completed through April 30, 2014. Staff is working diligently, completing many chapter milestones ahead of the due date. Staff completed eight chapters in April, including four ahead of schedule. Any chapters that do not meet the projected schedule receive further management attention.

The agency completed activities necessary to make the Licensing Support Network (LSN) document collection accessible and searchable in a nonpublic library of NRC’s Agencywide Documents Access and Management System (ADAMS) for use by the staff in completing the SER. This project was completed within the projected schedule and budget.

As noted in the March 2014 report, the Department of Energy deferred preparation of an environmental impact statement (EIS) supplement to the NRC and committed to providing an update to a July 2009 technical report that will “provide the NRC with substantially all of the technical information necessary to inform a draft EIS.” On April 7, 2014, NRC staff met with DOE staff in a public meeting to discuss DOE’s revision of this report, entitled, *Analysis of Postclosure Groundwater Impacts for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada*. During the meeting, DOE stated that: no material physical changes at the site have happened since 2009; nothing has been learned that would invalidate any of the numerical models that were used; the input data used in the numerical modeling were conservative in 2009 and still are; and, that there are no significant differences from the previous report. DOE indicated that the revised report will be sent to the NRC by the end of June. NRC staff provided the Commission with information on developing an EIS supplement and is awaiting further Commission direction.

Agency attorneys provided support to the staff and the Commission on project activities and participated in ongoing Federal court litigation related to Yucca Mountain. As part of this

litigation, the agency agreed to settle for \$59,000 a claim for attorneys' fees, pursuant to the Equal Access to Justice Act, of one of the *Aiken County* petitioners. Agency attorneys also advised staff on issues related to SER development and continued reviewing draft chapters of the SER.

Schedule and Cost for Remaining Activities

Completion of the SER is scheduled to take approximately 12 months, ending in January 2015. To date, no unforeseen technical or process issues have arisen that would affect the completion date. SER activities are proceeding within budget estimates.

In accordance with the January 2014 SRM, the agency gathered information on the cost, schedule, and availability of funding for making publicly accessible the documents now loaded in the ADAMS internal LSN library. The Commission has been advised of this analysis and will provide further direction.

Staff provided to the Commission information on schedule and budget regarding a path forward for the EIS supplement in light of DOE's independent decision not to prepare the supplement. The Commission is deliberating and will provide direction to the staff.

In September 2013, NRC staff estimated the cost of completing the remaining SER volumes to be approximately \$8.3 million. To date, this figure remains on target. The agency estimate in September 2013 to complete the loading of LSN documents into a nonpublic ADAMS library was \$700,000. This project was completed in April at an estimated cost of \$350,000, substantially under budget. Expenditures for this project will be updated and included in future reports as contract payments are finalized. Staff's estimate from September 2013 of \$625,000 for reviewing and reaching an adoption determination regarding an EIS supplement issued by the DOE is being reevaluated in light of the DOE decision that it will not prepare the EIS supplement. In addition, staff estimates that related activities such as the work performed by NRC attorneys on Federal court litigation following the issuance of the mandamus order, monthly reporting, and other support efforts will require approximately \$750,000 over the course of the project.¹ Therefore, the projected cumulative expenditures are approximately \$10 million, pending potential revision of costs associated with further actions under Commission consideration.

¹ This total does not include any potential agency liabilities from external litigation.

Nuclear Waste Fund Expenditures

During the month of April, the NRC expended \$940,960 of NWF funds on its actions in direct response to the court's decision. Cumulative expenditures since the August 13, 2013, U.S. Court of Appeals decision are \$3,169,272.² The August 13, 2013, balance of \$13,549,315 of unexpended NWF funding, less the \$3,169,272, results in a remaining unexpended balance of \$10,380,043. Total unobligated NWF funds remaining as of April 30, 2014, are \$7,920,896. The following table provides further details regarding NRC's expenditure of NWF funds since August 13, 2013.

Yucca Mountain Licensing Activities	Cost Estimate	April Expenditures	Cumulative Expenditures
Completion of the safety evaluation report	\$8,310,000	\$849,442	\$2,393,593
Loading of Licensing Support Network documents into nonpublic ADAMS*	\$350,000	\$17,210	\$190,416
Adoption of the environmental impact statement supplement**	\$625,000	\$26,928	\$47,258
Program planning and support		\$42,983	\$239,723
Response to the August 30, 2013, Commission Order		\$0	\$137,518
Federal court litigation		\$4,397	\$86,287
Support/Advice in NRC proceedings		\$0	\$35,535
Subtotal, other support costs chargeable to NWF funds		\$750,000	\$47,380
Adjustments to close out contracts funded by previous NWF appropriations		\$0	\$38,942
Total	\$10,035,000	\$940,960	\$3,169,272

* Revised cost estimate based on completion of project. Expenditures will be updated and included in future reports as contract payments are finalized.

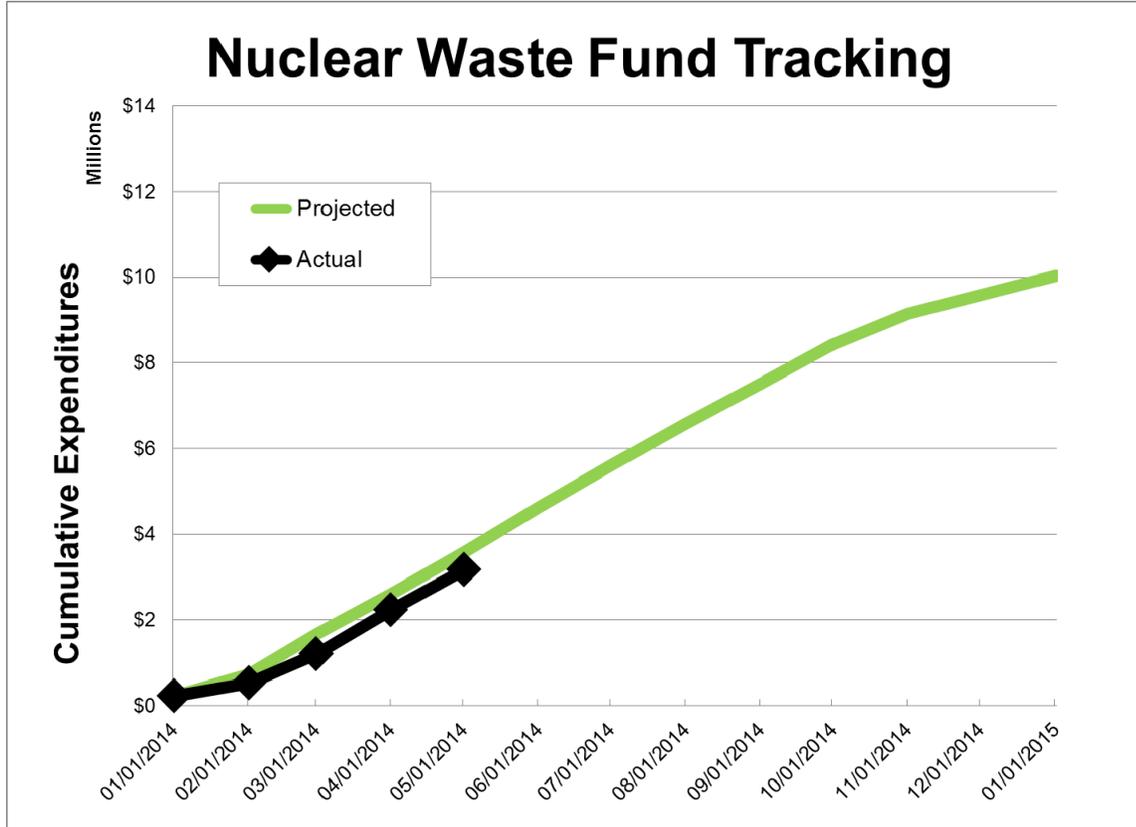
** Estimate will be reevaluated in light of the February 28, 2014, letter from DOE and pending Commission direction.

The unexpended NWF fund balance of \$10,380,043 includes \$254,348 of previously appropriated NWF funds that remain unexpended but obligated on contracts with the Center for Nuclear Waste Regulatory Analyses.

Staff has estimated the expenses necessary to complete the SER and related activities directed by the Commission. Figure 1 on page 4 shows the cumulative projected and actual expenditures. Projected expenditures include cost estimates shown in Table 1. The actual cumulative expenditures reflect costs through April 30, 2014, as given in Table 1.

² This amount does not include the cost of the agency's agreement to settle the Equal Access to Justice Act claim of one of the *Aiken County* petitioners. The agency has sought the views of the Comptroller General as to whether this payment, which is scheduled to take place in May, is properly paid with NWF funds.

Figure 1. Nuclear Waste Fund Tracking



Stakeholder Communications and Interactions

NRC staff held a public meeting on April 7, with a DOE representative to discuss DOE's plans and schedule for completion of an update to a 2009 technical report on groundwater impacts. Eighty-seven attendees, including representatives of Federal, Tribal, and State governments, DOE and other Federal agencies, industry, public advocacy and environmental interest groups, members of the public, and the NRC, participated either in person or by phone. The meeting summary is available through NRC's public website on the Public Meeting Schedule webpage.

On April 11, staff participated in a webinar meeting of the Midwest Council of State Governments to update legislators and other stakeholders in the Great Lakes region on some NRC activities, including current work related to the Yucca Mountain licensing action. Approximately 39 stakeholders participated in the webinar.

On April 28, staff gave an invited presentation at the spring 2014 meeting of the Nuclear Waste Strategy Coalition in Washington, DC, on the status of NRC's review of the Yucca Mountain license application. The meeting was attended by representatives of Tribal and local governments, State commissions, and national associations; consumer advocates; nuclear-generating utilities and utilities with shutdown reactors; and other participants.

Status of Safety Evaluation Report (SER) Chapters and Volume Tasks

Volume 2 - Volume 5

 Milestone Achieved as of April 30, 2014

CHAPTER MILESTONES	Staff Develops SER Inputs	Staff Completes SER Inputs	Branch Chief Review	OGC Chapter NLO Review	OGC Chapter Comment Resolution	Staff Verifies References Are Publicly Available	Technical Editor Review	Project Manager Accepts/Rejects Tech Edits
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Volume 2: Review of Repository Safety Before Permanent Closure								
Chapter 1 - Site Description								07/11/2014
Chapter 2 - Description of Structures, Systems, & Components and Operations								03/27/2014
Chapter 3 - ID Hazard & Initiating Events								06/10/2014
Chapter 4 - ID Event Sequence								06/10/2014
Chapter 5 - Consequences								07/11/2014
Chapter 6 - ID Structures, Systems, & Components Important to Safety								05/27/2014
Chapter 7 - Design of Structures, Systems, & Components								08/08/2014
Chapter 8 - ALARA								09/10/2014
Chapter 9 - Retrieval								05/27/2014
Chapter 10 - Decontamination & Demolition								05/13/2014
Abstract								09/10/2014
Executive Summary								09/10/2014
Introduction								09/10/2014
Glossary								09/10/2014
Conclusions								09/24/2014
Appendices								09/24/2014

Status of Safety Evaluation Report (SER) Chapters and Volume Tasks

Volume 2 - Volume 5

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CHAPTER MILESTONES	Staff Develops SER Inputs	Staff Completes SER Inputs	Branch Chief Review	OGC Chapter NLO Review	OGC Chapter Comment Resolution	Staff Verifies References Are Publicly Available	Technical Editor Review	Project Manager Accepts/Rejects Tech Edits
CHAPTER MILESTONES								[CHAPTER COMPLETE]

Volume 3: Review of Repository Safety After Permanent Closure								
Chapter 1 - Multiple Barriers								05/13/2014
Chapter 2 - Scenarios (Features, Events, & Processes)								07/11/2014
Chapter 3 - Probability								
Chapter 4 - Degradation of Engineered Barriers								
Chapter 5 - Mechanical Disruption of Engineered Barriers								
Chapter 6 - Water Chemistry & Barriers								08/13/2014
Chapter 7 - Radionuclide Release								
Chapter 8 - Climate & Infiltration								
Chapter 9 - Flow in the Unsaturated Zone								05/13/2014
Chapter 10 - Radionuclides in the Unsaturated Zone								05/27/2014
Chapter 11 - Flow in the Saturated Zone								07/11/2014
Chapter 12 - Radionuclides in the Saturated Zone								07/25/2014
Chapter 13 - Igneous Disruption								
Chapter 14 - Radionuclides in Groundwater								
Chapter 15 - Airborne Transport & Redistribution								05/13/2014
Chapter 16 - Biosphere								05/13/2014
Chapter 17 - Individual Protection								
Chapter 18 - Human Intrusion								
Chapter 19 - Groundwater Protection								
Chapter 20 - Expert Elicitation								07/04/2014
Abstract								07/11/2014
Executive Summary								07/11/2014
Introduction								07/11/2014
Glossary								07/11/2014
Conclusions								08/27/2014
Appendices								08/27/2014

Status of Safety Evaluation Report (SER) Chapters and Volume Tasks

Volume 2 - Volume 5

Milestone Achieved as of April 30, 2014

CHAPTER MILESTONES	Staff Develops SER Inputs	Staff Completes SER Inputs	Branch Chief Review	OGC Chapter NLO Review	OGC Chapter Comment Resolution	Staff Verifies References Are Publicly Available	Technical Editor Review	Project Manager Accepts/Rejects Tech Edits
Volume 4: Review of Administrative and Programmatic Requirements								
Chapter 1 - Research & Development Program to Resolve Safety Questions								08/27/2014
Chapter 2 - Performance Confirmation Program								09/10/2014
Chapter 3- Quality Assurance Program								
Chapter 4 - Records, Reports, Tests, and Inspections								
Chapter 5 - DOE Organization Structure - Construction								
Chapter 6 - Key Positions								
Chapter 7 - Qualifications and Training								05/30/2014
Chapter 8 - Plans for Startup Activities and Testing								05/30/2014
Chapter 9 - Plans for Conduct of Normal Activities								
Chapter 10 - Emergency Planning								
Chapter 11 - Controls to Restrict Access and Regulate								05/13/2014
Chapter 12 - Uses of Geologic Repository Operations Area for Other Purposes								05/13/2014
Abstract								07/11/2014
Executive Summary								07/11/2014
Introduction								07/11/2014
Glossary								07/11/2014
Conclusions								09/10/2014
Appendices								09/10/2014

Status of Safety Evaluation Report (SER) Chapters and Volume Tasks

Volume 2 - Volume 5

 Milestone Achieved as of April 30, 2014

CHAPTER MILESTONES	Staff Develops SER Inputs	Staff Completes SER Inputs	Branch Chief Review	SFAS Deputy Director Concurrence	SFAS Director Concurrence	OGC NLO	OGC Chapter NLO Review	OGC Chapter Comment Resolution	Staff Verifies References Are Publicly Available	Technical Editor Review	Project Manager Accepts/Rejects Tech Edits
CHAPTER COMPLETE!											

Volume 5: License Specifications											
Chapter 1 - License Specifications											09/24/2014
Abstract											08/27/2014
Executive Summary											08/27/2014
Introduction											08/27/2014

VOLUME MILESTONES	Camera-Ready Combined File to Branch Chief	Branch Chief Concurrence	SFAS Deputy Director Concurrence	SFAS Director Concurrence	OGC NLO	NMSS Office Director Concurrence and Authorization of NUREG Publication	Final SER Volume Published
Volume 2					10/30/2014	11/06/2014	12/04/2014
Volume 3					10/02/2014	10/09/2014	11/06/2014
Volume 4					10/16/2014	10/23/2014	11/20/2014
Volume 5					10/30/2014	11/06/2014	12/11/2014

Acronyms:

- NLO** No Legal Objection
- NMSS** Office of Nuclear Material Safety and Safeguards
- OGC** Office of the General Counsel
- SFAS** Division of Spent Fuel Alternative Strategies
- SER** Safety Evaluation Report. This document consists of 5 volumes. Volume 1: General Information (NUREG-1949) was published in August 2010. The remaining volumes are scheduled for completion as noted in the chart above.