

**U.S. Nuclear Regulatory Commission Monthly Status Report
Activities Related to the Yucca Mountain Licensing Action
Report for August 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 provides further direction to the staff as needed.

Accomplishments and Ongoing Work

The 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 progress toward completing the four remaining volumes of the safety evaluation report (SER). Attached is the task tracking tool, “Status of Safety Evaluation Report (SER) Chapters and Volume Tasks,” which documents work completed through August 31, 2014. The staff has completed chapter milestones for SER Volume 3 and is currently preparing this volume for management review.

The majority of the remaining chapter milestones have been completed on time or ahead of due dates; management provides additional oversight and support for any chapter that does not meet the projected schedule. Management and staff are actively working to resolve delays in those chapters that have not met their due dates. As a result, the final volume end dates have not changed. Completion of the SER remains the staff’s highest priority for this project and is on track for completion by January 2015.

Agency attorneys provided support to the staff and the Commission on project activities, advised the 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 the September 2013 budget estimate of \$8.3 million.

The schedule for completion of an environmental impact statement (EIS) supplement is being considered. On February 28, 2014, DOE informed the NRC that it would not complete an EIS supplement that the staff has determined is needed for the review of DOE’s application under the National Environmental Policy Act, but rather would provide an update to a 2009 technical report that would inform an EIS supplement. On April 7, 2014, NRC staff met with DOE staff in a public meeting to discuss DOE’s revision of this report, titled, *Analysis of Postclosure*

Enclosure

Groundwater Impacts for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada. The NRC is awaiting receipt of the update to the 2009 technical report. Staff sent a letter to DOE on August 21, 2014, requesting an estimated delivery date for the NRC to receive this report.

After DOE informed the NRC that it would not complete an EIS supplement, the Commission necessarily revised its earlier direction to adopt DOE's supplement. The Commission has directed the staff to plan to develop and issue an EIS supplement, pending a reassessment of available funding in the fall of 2014. The previous cost estimate of \$625,000 for an adoption determination of a DOE-developed EIS supplement would be revised to account for an NRC-developed EIS supplement as part of the fall 2014 reassessment.

The Licensing Support Network (LSN) document collection is fully available to internal users in a nonpublic library of the NRC's Agencywide Documents Access and Management System (ADAMS). This project was completed in April 2014 at an estimated cost of \$350,000. The Commission has also directed that, pending a reassessment of available funding in the fall of 2014, the LSN document collection should be loaded into a publicly accessible library in ADAMS.

The staff's February 2014 estimate 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 has not changed.¹

The total cost estimate for the work described above as of August 31, 2014, is projected to be approximately \$10 million.

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

Nuclear Waste Fund Expenditures

During the month of August, the NRC expended \$690,499 of Nuclear Waste Fund (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 \$6,734,182. The August 13, 2013, balance of \$13,549,315 of unexpended NWF funding, less the \$6,734,182, results in a remaining unexpended balance of \$6,815,133. Total unobligated NWF funds remaining as of August 31, 2014, are \$5,195,783. The following table provides further details regarding the NRC's expenditure of NWF funds since August 13, 2013.

| Table 1 Status of NRC NWF Funds since the August 13, 2013, Court Decision | | | |
|---|----------------------|----------------------------|--------------------------------|
| Yucca Mountain Licensing Activities | Cost Estimate | August Expenditures | Cumulative Expenditures |
| Completion of the safety evaluation report | \$8,310,000 | \$652,047 | \$5,734,683 |
| Loading of Licensing Support Network documents into a nonpublic ADAMS library | \$350,000 | \$13,352 | \$285,592 |
| Development of the environmental impact statement supplement* | \$625,000 | \$0 | \$47,427 |
| Program planning and support | | \$25,100 | \$306,429 |
| Response to the August 30, 2013, Commission Order | | \$0 | \$137,518 |
| Federal court litigation** | | \$0 | \$148,056 |
| Support/Advice in NRC proceedings | | \$0 | \$35,535 |
| Subtotal, other support costs chargeable to NWF funds | | \$25,100 | \$627,538 |
| Adjustments to close out contracts funded by previous NWF appropriations | | \$0 | \$38,942 |
| Total | \$10,035,000 | \$690,499 | \$6,734,182 |

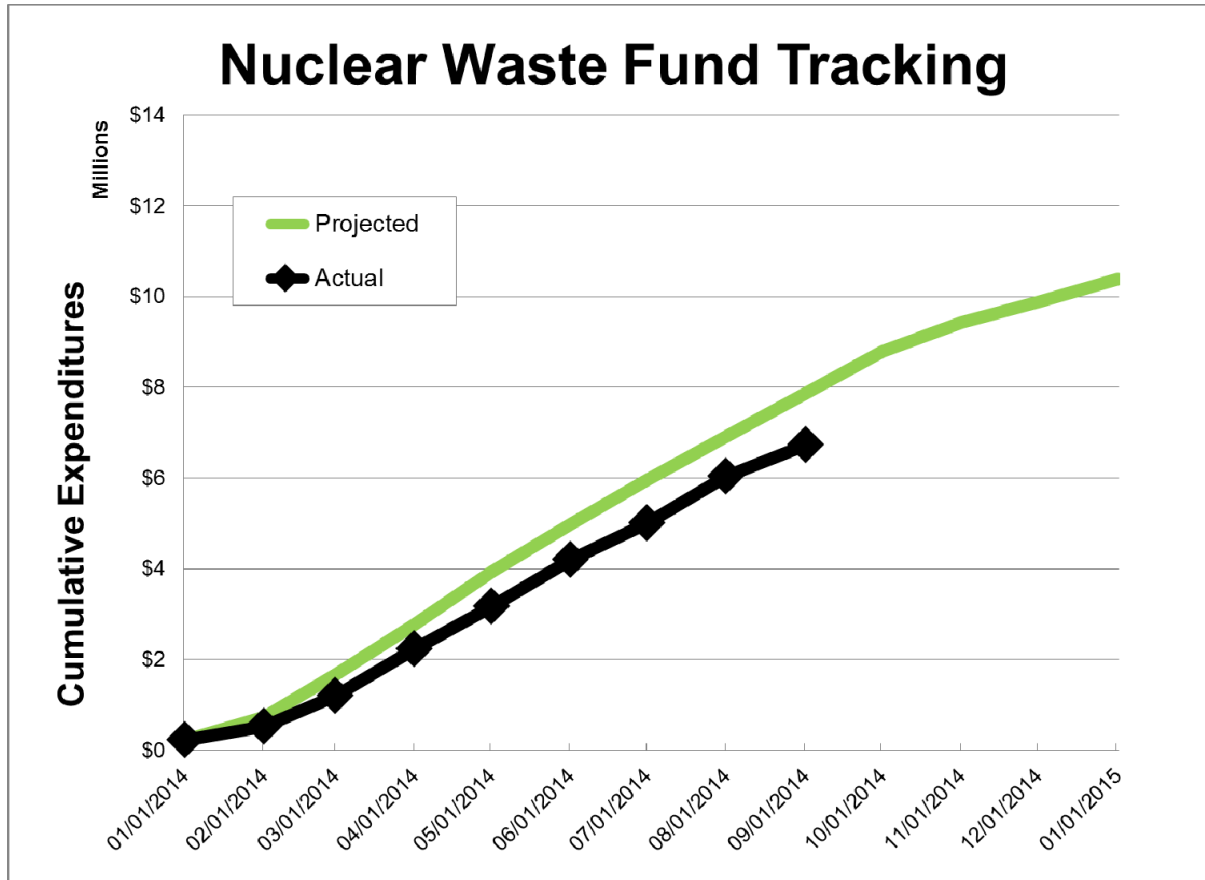
* The estimate of \$625,000 for an adoption determination of a DOE-developed EIS supplement would be revised to account for an NRC-developed EIS supplement as part of the fall 2014 reassessment of remaining NWF funds consistent with Commission direction.

** Includes a \$59,000 expenditure in May for 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 is properly paid with NWF funds.

The unexpended NWF fund balance of \$6,815,133 includes \$254,348 of previously appropriated NWF funds that remain unexpended but obligated on contracts with the Center for Nuclear Waste Regulatory Analyses.

The 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 August 31, 2014, as given in Table 1.

Figure 1. Nuclear Waste Fund Tracking



Stakeholder Communications and Interactions

Staff revised an NRC backgrounder on Licensing Yucca Mountain, which is a fact sheet describing the history and recent activities related to the Yucca Mountain construction authorization application. This document can be found on the NRC public website.

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

Volume 2 - Volume 5


Milestone Achieved as of August 31, 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 |
|--------------------|---------------------------|----------------------------|---------------------|------------------------|--------------------------------|--|-------------------------|--|
| | | | | | | | | CHAPTER COMPLETE! |

| 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 | | | | | | | | 06/10/2014 |
| Chapter 3 - ID Hazard & Initiating Events | | | | | | | | 06/10/2014 |
| Chapter 4 - ID Event Sequence | | | | | | | | |
| Chapter 5 - Consequences | | | | | | | | 06/27/2014 |
| Chapter 6 - ID Structures, Systems, & Components Important to Safety | | | | | | | | 08/08/2014 |
| Chapter 7 - Design of Structures, Systems, & Components | | | | | | | | |
| Chapter 8 - ALARA | | | | | | | | |
| Chapter 9 - Retrieval | | | | | | | | |
| Chapter 10 - Decontamination & Demolition | | | | | | | | |
| Abstract | | | | | | | | |
| Executive Summary | | | | | | | | 09/10/2014 |
| Introduction | | | | | | | | 09/10/2014 |
| Glossary | | | | | | | | |
| Conclusions | | | | | | | | 09/24/2014 |
| Appendices - Not Applicable | | | | | | | | |

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

Volume 2 - Volume 5


 Milestone Achieved as of August 31, 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 | CHAPTER COMPLETE! |
|--------------------|---------------------------|----------------------------|---------------------|------------------------|--------------------------------|--|-------------------------|--|-------------------|
|--------------------|---------------------------|----------------------------|---------------------|------------------------|--------------------------------|--|-------------------------|--|-------------------|

| Volume 3: Review of Repository Safety After Permanent Closure | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|
| Chapter 1 - Multiple Barriers | | | | | | | | | |
| Chapter 2 - Scenarios (Features, Events, & Processes) | | | | | | | | | |
| Chapter 3 - Probability | | | | | | | | | |
| Chapter 4 - Degradation of Engineered Barriers | | | | | | | | | |
| Chapter 5 - Mechanical Disruption of Engineered Barriers | | | | | | | | | |
| Chapter 6 - Water Chemistry & Barriers | | | | | | | | | |
| Chapter 7 - Radionuclide Release | | | | | | | | | |
| Chapter 8 - Climate & Infiltration | | | | | | | | | |
| Chapter 9 - Flow in the Unsaturated Zone | | | | | | | | | |
| Chapter 10 - Radionuclides in the Unsaturated Zone | | | | | | | | | |
| Chapter 11 - Flow in the Saturated Zone | | | | | | | | | |
| Chapter 12 - Radionuclides in the Saturated Zone | | | | | | | | | |
| Chapter 13 - Igneous Disruption | | | | | | | | | |
| Chapter 14 - Radionuclides in Groundwater | | | | | | | | | |
| Chapter 15 - Airborne Transport & Redistribution | | | | | | | | | |
| Chapter 16 - Biosphere | | | | | | | | | |
| Chapter 17 - Individual Protection | | | | | | | | | |
| Chapter 18 - Human Intrusion | | | | | | | | | |
| Chapter 19 - Groundwater Protection | | | | | | | | | |
| Chapter 20 - Expert Elicitation | | | | | | | | | |
| Abstract | | | | | | | | | |
| Executive Summary | | | | | | | | | |
| Introduction | | | | | | | | | |
| Glossary | | | | | | | | | |
| Conclusions | | | | | | | | | |
| Appendices - Not Applicable | | | | | | | | | |

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

Volume 2 - Volume 5


 Milestone Achieved as of August 31, 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 |
|--------------------|---------------------------|----------------------------|---------------------|------------------------|--------------------------------|--|-------------------------|--|
| | | | | | | | | [CHAPTER COMPLETE] |

| Volume 4: Review of Administrative and Programmatic Requirements | | | | | | | | |
|---|--|--|--|--|--|--|--|------------|
| Chapter 1 - Research & Development Program to Resolve Safety Questions | | | | | | | | 09/10/2014 |
| Chapter 2 - Performance Confirmation Program | | | | | | | | |
| 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 | | | | | | | | |
| Chapter 8 - Plans for Startup Activities and Testing | | | | | | | | |
| Chapter 9 - Plans for Conduct of Normal Activities | | | | | | | | |
| Chapter 10 - Emergency Planning | | | | | | | | |
| Chapter 11 - Controls to Restrict Access and Regulate Land Use | | | | | | | | |
| Chapter 12 - Uses of Geologic Repository Operations Area for Other Purposes | | | | | | | | 05/13/2014 |
| Abstract | | | | | | | | |
| Executive Summary | | | | | | | | |
| Introduction | | | | | | | | 07/11/2014 |
| Glossary | | | | | | | | 07/11/2014 |
| Conclusions | | | | | | | | |
| Appendices - Not Applicable | | | | | | | | 09/10/2014 |

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

Volume 2 - Volume 5

 Milestone Achieved as of August 31, 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 |
|--------------------------|---------------------------|----------------------------|---------------------|------------------------|--------------------------------|--|-------------------------|--|
| CHAPTER COMPLETE! | | | | | | | | |

| | | | | | | | | |
|---|--|--|--|--|--|--|--|------------|
| Volume 5: License Specifications | | | | | | | | |
| Chapter 1 - License Specifications | | | | | | | | 09/24/2014 |
| Abstract | | | | | | | | |
| Executive Summary - Not Applicable | | | | | | | | |
| Introduction | | | | | | | | |

| | | | | | | | |
|--------------------------|--|--------------------------|----------------------------------|---------------------------|------------|---|----------------------------|
| 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 |

Abbreviations and 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.

Not Applicable A section of the originally planned report is not needed. Information intended for this section is captured elsewhere in the report.