

**U.S. Nuclear Regulatory Commission Monthly Status Report  
Activities Related to the Yucca Mountain Licensing Action  
Report for March 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 a January 24, 2014, SRM.

**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 March 31, 2014.

On February 28, 2014, the DOE provided a letter deferring the environmental impact statement (EIS) supplement preparation to the NRC. In the letter DOE committed to provide an update to the report submitted to the NRC on July 30, 2009, 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*. DOE states it will “provide the NRC with substantially all of the technical information necessary to inform a draft EIS.” On March 19, 2014, the NRC staff transmitted a letter to DOE requesting a meeting on April 7, 2014, to discuss the plan, content, and schedule for this report update. DOE confirmed its participation in this public meeting at NRC headquarters. In addition, the NRC staff is compiling information to present to the Commission for further direction on developing an EIS supplement in light of the DOE decision.

Agency attorneys provided support to the staff and the Commission on program planning-related activities and participated in ongoing Federal court litigation related to Yucca Mountain. Agency attorneys advised staff on issues related to SER development and continued reviewing draft chapters of the SER.

In March, the agency completed the loading and indexing of Licensing Support Network (LSN) documents into a nonpublic library of NRC’s Agencywide Documents Access and Management System (ADAMS). The LSN documents were previously provided, per agency direction, by the parties to the now-suspended adjudicatory hearing on the DOE high-level waste repository application. The agency also completed the search templates, making the LSN documents accessible and searchable internally by ADAMS users within the NRC. The remaining related

Enclosure

task is to complete the processing of the LSN documents into the agency's records management system. This processing does not impact any agency ADAMS user's ability to search and access the LSN documents.

### **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. Work is continuing on schedule with the exception of two chapters. Issues arose from the need for internal alignment on staff positions for the two earliest chapters reviewed in volumes 2 and 4. These chapters are being reviewed and progressing toward completion. The issues are being resolved and will inform the completion of the other chapters. The overall schedule is not affected.

The schedule and budget for development and completion of an EIS supplement are being re-evaluated in light of the February 28, 2014, Department of Energy (DOE) independent decision not to prepare the supplement. Neither the Commission nor any individual Commissioner was consulted prior to, or expressed agreement with, DOE's decision. Staff is gathering similar information for determining how to proceed regarding the EIS supplement.

Efforts to make the LSN document collection available in a nonpublic ADAMS library are expected to be fully completed under budget and ahead of schedule by the end of April 2014. In accordance with the January 2014 SRM, staff is in the process of gathering information on the cost, schedule, and availability of funding for making publicly available the documents now loaded in the ADAMS internal LSN library. The NRC staff anticipates informing the Commission on the results of this and its EIS supplement analysis in April 2014. The staff will ensure that all documents referenced in the SER and EIS supplement are available to the public by the time these documents are issued.<sup>1</sup>

In September 2013, NRC staff estimated the cost of completing the remaining SER volumes to be approximately \$8.3 million and estimated that \$700,000 is needed to complete the loading of LSN documents into a nonpublic ADAMS library. To date these figures remain on target. The staff's estimate had also included \$625,000 for reviewing and reaching an adoption determination regarding an EIS supplement issued by the DOE. However, this cost is being reevaluated in light of the DOE decision that it will no longer complete the EIS supplement. In addition, staff estimates that related activities such as the cost of 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.<sup>2</sup> Therefore, the projected cumulative expenditures are approximately \$10.4 million. The staff will update this estimate after a Commission decision regarding the production of the EIS supplement.

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<sup>1</sup> Documents will be publicly available following usual NRC practices for copyrighted materials such as books or journal articles, proprietary information, or other controlled information.

<sup>2</sup> This total does not include any potential agency liabilities from external litigation.

## Nuclear Waste Fund Expenditures

During the month of March, the NRC expended \$1,037,292 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 \$2,228,312. The August 13, 2013, balance of \$13,549,315 of unexpended NWF funding, less the \$2,228,312, results in a remaining unexpended balance of \$11,321,003. Total unobligated NWF funds remaining as of March 31, 2014, are \$9,477,208. The following table provides further details regarding NRC's expenditure of NWF funds since August 13, 2013.

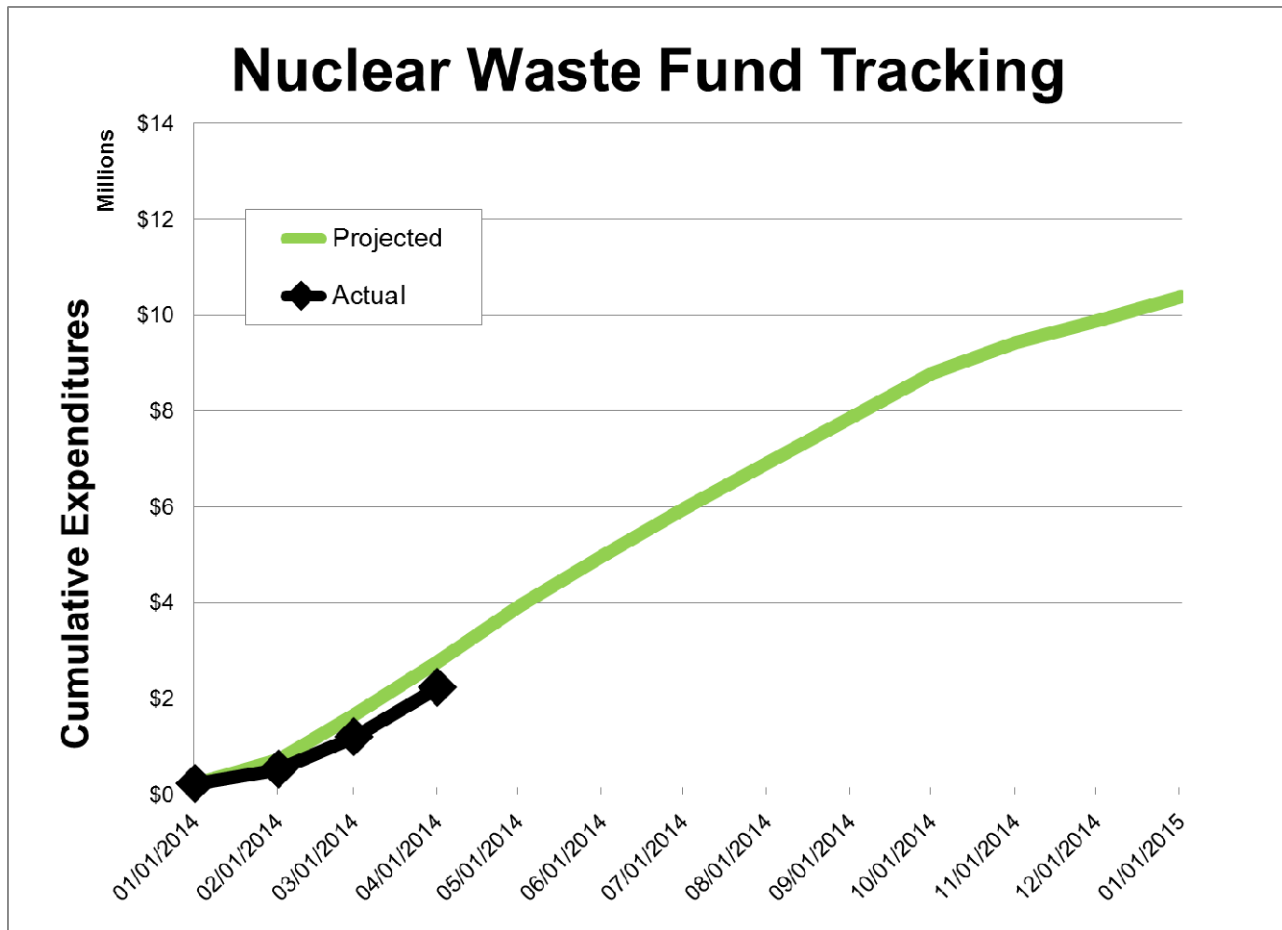
| <b>Yucca Mountain Licensing Activities</b>                             | <b>Cost Estimate</b> | <b>March Expenditures</b> | <b>Cumulative Expenditures</b> |
|--|----------------------|---------------------------|--------------------------------|
| Completion of the safety evaluation report                             | \$8,310,000          | \$861,323                 | \$1,544,151                    |
| Loading of Licensing Support Network documents into nonpublic ADAMS    | \$700,000            | \$53,327                  | 173,206                        |
| Adoption of the environmental impact statement supplement <sup>1</sup> | \$625,000            | \$20,144                  | \$20,330                       |
| Program planning and support   |                      | \$68,765                  | \$196,740                      |
| Response to the August 30, 2013, Commission Order                      |                      | \$ 0                      | \$137,518                      |
| Federal court litigation   |                      | \$29,199                  | \$ 81,890                      |
| Support/Advice in NRC proceedings                                      |                      | \$ 1,143                  | \$ 35,535                      |
| Subtotal, other support costs chargeable to NWF funds                  | \$750,000            | \$99,107                  | \$451,683                      |
| Adjustments to contracts funded by previous NWF appropriations         |                      | \$3,391                   | \$38,942                       |
| <b>Total</b>   | <b>\$10,385,000</b>  | <b>\$1,037,292</b>        | <b>\$2,228,312</b>             |

<sup>1</sup> Estimate will be reevaluated in light of the February 28, 2014 letter from DOE.

The unexpended NWF fund balance of \$11,321,003 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 March 31, 2014, as given in Table 1.

Figure 1 Nuclear Waste Fund Tracking



### Stakeholder Communications and Interactions

NRC staff presented a status update on the NRC's Yucca Mountain licensing review activities to more than 80 attendees at the Low-Level Radioactive Waste Forum in Austin, Texas, on March 18, 2014.

NRC staff held a public meeting on April 7, 2014, with DOE representatives to discuss DOE's plans and schedule for completion of an update to a 2009 technical report on groundwater impacts. Copies of the staff's letter to DOE on March 19, 2014, confirming the meeting were sent to parties involved in previous Yucca Mountain adjudication. The meeting notice is available on the NRC Public Meeting Schedule website. Details from this meeting will be included in the April monthly status report.

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

Volume 2 - Volume 5

Milestone Achieved as of March 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 & 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 |

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|---------------------------|---------------------------|----------------------------|---------------------|------------------------|--------------------------------|--|-------------------------|--|
| <b>CHAPTER MILESTONES</b> |                           |                            |                     |                        |                                |  |                         |  |

| <b>Volume 3: Review of Repository Safety After Permanent Closure</b> |  |  |  |  |  |  |  |            |
|--|--|--|--|--|--|--|--|------------|
| 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                                     |  |  |  |  |  |  |  | 05/27/2014 |
| 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                                   |  |  |  |  |  |  |  | 05/13/2014 |
| Chapter 18 - Human Intrusion   |  |  |  |  |  |  |  | 06/27/2014 |
| 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 |

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|--------------------|---------------------------|----------------------------|---------------------|------------------------|--------------------------------|--|-------------------------|--|
| CHAPTER MILESTONES |                           |                            |                     |                        |                                |  |                         | CHAPTER COMPLETE!                          |

| 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                                       |  |  |  |  |  |  |  | 02/27/2014 |
| Chapter 4 - Records, Reports, Tests, and Inspections                        |  |  |  |  |  |  |  | 04/15/2014 |
| Chapter 5 - DOE Organization Structure - Construction                       |  |  |  |  |  |  |  | 04/15/2014 |
| Chapter 6 - Key Positions   |  |  |  |  |  |  |  | 04/15/2014 |
| 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                          |  |  |  |  |  |  |  | 05/30/2014 |
| Chapter 10 - Emergency Planning   |  |  |  |  |  |  |  | 04/29/2014 |
| 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 |
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Volume 2 - Volume 5

Milestone Achieved as of March 31, 2014

|                    |                           |                            |                     |                        |                                |  |                         |  |
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|   |  |  |  |  |  |  |  |            |
|---|--|--|--|--|--|--|--|------------|
| <b>Volume 5: License Specifications</b> |  |  |  |  |  |  |  |            |
| 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    | MSS Office Director Concurrence Authorizes 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                 |