

## **Progress on Licensing Applications – June 2019**

### **1. Progress to Eliminate the Backlog of Pending Licensing Actions**

The U.S. Nuclear Regulatory Commission (NRC) has taken specific actions to ensure greater discipline and management oversight in the request for additional information (RAI) process.

#### **Operating Reactors**

The Office of the Nuclear Reactor Regulation (NRR) continues to take actions to sustain improvements in the RAI guidance and the accountability in the process. In April 2018, NRR conducted mandatory RAI refresher training for staff and branch chiefs. The training emphasized (a) identifying applicable technical and regulatory bases for RAIs; (b) ensuring that RAIs are relevant to the licensing action being reviewed; (c) the requirements and expectations regarding the RAI administrative processes and records management; and (d) the expectation associated with achieving the RAI issuance target of 5 days. Lessons learned from the NRR RAI process will be incorporated into a new office instruction on RAIs as part of the guidance consolidation effort related to the merger of NRR and the Office of New Reactors (NRO). Additionally, an NRR desk-top audit review guide and associated RAI quality review template for conducting subsequent RAI audits were piloted. The pilot was completed in October 2018 and it was determined that the sampled RAIs met quality expectations but the administrative processing of the RAIs could be improved. A resulting recommendation was made to provide additional guidance and training to the administrative staff to improve RAI administrative processing. On May 23, 2019, guidance on appropriate RAI administrative processing was provided to all NRR administrative assistants.

#### **New Reactors<sup>1</sup>**

NRO has taken several steps to ensure that its RAIs are consistently of high quality and are necessary to make a safety finding. In 2016, senior managers in NRO undertook initiatives to examine licensing activities with a goal of promoting a continued strong safety focus, consistency, efficiency, and clarity in our reviews of new reactor licensing applications. These initiatives included revising the RAI process to promote the consistent generation of high quality RAIs.

In October 2016, the NRO RAI process was revised to include a new quality check audit process where, in addition to the technical branch's supervisor, the division management of both the technical and project management organizations review an RAI before it is issued to the applicant or licensee. In addition, the NRO Office Director reviews a sample of RAIs to keep abreast of high-priority issues identified in reviews and to support NRO's emphasis on effectiveness and efficiency as it focuses on safety, security, and environmentally significant matters.

On October 7, 2016, the NRO Office Director issued a memorandum titled "Effective Use of Request for Additional Information, Audit, and Confirmatory Analysis in New Reactor Licensing Review," to all NRO staff, which emphasized the goals of the RAI process, described the revised process, and included a job aid that contains best practices for preparing RAIs.

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<sup>1</sup> This section has not changed since the last report.

The staff has incorporated many lessons-learned into its review of the active design certification (DC) and early site permit (ESP) applications. The 2016 initiative to improve the focus of RAIs has improved the quality and safety focus of these requests. The staff is also using the regulatory audit tool earlier in the process to better inform the staff about the bases supporting the applications and therefore, better focus the staff's RAIs on information that directly relates to the staff reaching safety findings.

In early 2018, the staff conducted an audit to assess the effectiveness of the revised NRO RAI process. The audit evaluated whether the revised RAI process has yielded tangible improvements to NRO's licensing process. The RAI audit team found the quality of the RAIs that have gone through the revised review process was generally high.

In August 2018, NRO completed a significant update to its guidance on the development, processing, and issuance of RAIs. The updated guidance identifies the key attributes of high quality RAIs and provides direction for the staff in formulating RAIs to emphasize these attributes. One key attribute is ensuring that each RAI includes the safety, security, risk, and environmental significance of the question. This facilitates the NRC's focus on the most risk and safety significant aspects of its reviews.

### **Nuclear Material Safety and Safeguards<sup>2</sup>**

The Office of Nuclear Material Safety and Safeguards (NMSS) has established internal guidance for uranium recovery and waste program reviews that includes the expectation that RAIs will be developed in conjunction with the draft safety evaluation report (SER) to ensure that each RAI is necessary to reach a safety finding. In addition, the guidance notes each RAI should contain a reference to the specific relevant requirement and encourages staff to conduct telephone conferences with licensees and applicants to efficiently resolve technical issues on RAIs. The NRC staff finalized an internal self-assessment that identifies possible efficiency improvements within the Uranium Recovery Program. The self-assessment includes recommendations for improving the efficiency of the RAI process, such as issuing RAIs as they are written rather than as a group and reemphasizing the expectation that staff develop the draft safety evaluations (SE) and RAIs in concert.

NMSS also continues to study RAI approaches used by other offices at the NRC. Following completion of this effort, NMSS will develop an appropriate training plan to implement the resulting RAI process products.

In addition, NMSS is revising NUREG-1556, Volume 20, "Guidance About Administrative Licensing Procedures." Information in this guidance regarding RAIs for materials licensing actions is being updated to improve consistency and management oversight between NRC headquarters and regional materials licensing staff.

In August 2016, NMSS also issued expectations and guidance to employees in its spent fuel management division that specifically stated a goal of one round of RAIs for a typical review and a maximum of two rounds of RAIs in any review. RAIs and the applicant's responses need to converge on the information needed for making a regulatory finding. As part of the management oversight process, the staff has been seeking management concurrence when a second round of RAIs is being considered during a review. In addition, the staff has developed

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<sup>2</sup> This section has not changed since the last report.

further guidance on preparing RAIs that are clear, complete, and specific with respect to the requested information, the justification for the request, and the associated regulatory basis. This guidance is part of continuous training, supplemented by a desk guide and a quick reference card for all reviewers. The division recently completed a self-assessment on spent fuel storage and transportation licensing RAIs that were issued in Fiscal Year (FY) 2017. The self-assessment evaluated the clarity and effectiveness of RAIs issued by the Division of Spent Fuel Management (DSFM) and aimed to identify potential improvements to the RAI development process. DSFM is developing follow up activities based on the self-assessment. Implementation of these enhancements is anticipated by the fourth quarter of FY 2019.

The division that focuses on fuel cycle facilities and environmental reviews conducted a review of its RAI process during the second quarter of FY 2017. Staff reviewed audit reports from the NRC's Office of the Inspector General and the U.S. Government Accountability Office (GAO) "Statement of Facts" (GAO Job Code 100910). The NRC staff assessment report is publicly available in NRC's Agencywide Documents Access and Management System (ADAMS) (ADAMS Accession No. ML17102A783). The NRC staff also reviewed the internal policies and interviewed subject matter experts throughout the agency. The results of this assessment, including staff's recommendations and proposed actions for implementing recommended improvements, were documented in a report to the division's management on May 25, 2017. The report proposed revisions to the fuel cycle safety, safeguards, and environmental Licensing Review Handbook, including:

- Periodically reinforcing expectations of key aspects in the RAI process during licensing seminars or division meetings;
- Promoting a more consistent and uniform use and application of the guidance, particularly following the instructions on interactions with the licensee, drafting the SER as a tool to identify any RAIs, having a sound regulatory basis for the RAIs, and maintaining licensing reviews aligned with its scope;
- The addition of clear instructions specifying that RAIs should not request information available elsewhere; and
- Continuing with current management oversight practice for RAIs process, such as elevating any challenges encountered during the RAI process to division management for their awareness and involvement.

Based on recommendations, this division has conducted three licensing seminars on RAIs for Project Managers and Technical Reviewers, as well as a team meeting for those involved in the license renewal application (LRA) review for Honeywell International. The guidance in the Licensing Review Handbook was updated to address the report's recommendations. The final document was issued on October 31, 2018.

No adverse findings were identified in the Final GAO Report GAO-17-344, "U.S. Nuclear Regulatory Commission: Efforts Intended to Improve Procedures for Requesting Additional Information for Licensing Action are Underway," dated May 25, 2017.

## **Summary**

Efforts to establish consistent procedures throughout the agency are being initiated through a working group to align, where appropriate, licensing strategies across the agency

including the RAI process. This working group includes representatives from NMSS, NRR, NRO, the Office of Nuclear Security and Incident Response, and the Office of the General Counsel.

## 2. Status of License Renewal Reviews

### **Operating Reactors**

The NRC staff is not reviewing any initial LRAs at this time.

The NRC staff has three ongoing subsequent license renewal reviews, requesting to extend operations to 80 years.

#### Turkey Point

On January 30, 2018, Florida Power & Light Company (FPL) submitted the first subsequent license renewal application (SLRA) seeking to extend the operating life of Turkey Point Nuclear Generating, Units 3 and 4. The NRC staff issued the acceptance letter dated April 26, 2018, with the review schedule. The notice of application acceptance and opportunity for hearing was published in the *Federal Register* on May 2, 2018.

The NRC staff completed all of the planned audits during 2018 and issued its associated audit reports in 2018 and 2019.

On May 22, 2018, the staff issued a *Federal Register* Notice (FRN) announcing its intent to conduct the environmental scoping process and to prepare an environmental impact statement (EIS). On May 31, 2018, the staff held two public environmental scoping meetings in Homestead, FL, near the Turkey Point site to obtain public input on the scope of the environmental review. During the scoping process, the NRC staff solicited comments and participation from the public, including residents in the surrounding community and from stakeholder groups. The NRC also consulted with Federal, State, Tribal, regional, and local agencies. In January 2019, the NRC issued its "Supplemental Environmental Impact Statement Scoping Process Summary Report, Turkey Point Nuclear Generating Unit Nos. 3 and 4, Miami-Dade County, Florida," which includes the comments received during the scoping process and the NRC staff's responses to those comments (ADAMS Accession No. ML18342A014). Between June 19 and June 22, 2018, the staff was on-site to conduct an environmental audit in support of the staff's review of the SLRA. A summary of the audit was issued on July 20, 2018 (ADAMS Accession No. ML18178A229).

In early August 2018, three petitions for leave to intervene were submitted for the Turkey Point SLRA by (1) Friends of the Earth, Natural Resources Defense Council, and Miami Waterkeeper (Joint Intervenor), (2) Southern Alliance for Clean Energy (SACE), and (3) Mr. Albert Gomez. The applicant and staff filed answers to the petitions. The Atomic Safety and Licensing Board (ASLB) held oral arguments on the petitions on December 4, 2018, in Homestead, FL. The parties subsequently filed additional statements regarding the admissibility of two contentions associated with alternative cooling water systems. On March 7, 2019, the ASLB denied Mr. Gomez's petition for failure to file an admissible contention; granted the petitions filed by the Joint Intervenor and SACE; admitted four contentions (as revised) for litigation; and referred one portion of its ruling to the Commission. On March 21, 2019, the ASLB issued an initial scheduling order for the hearing. In the meantime, SACE has withdrawn from the adjudication. On July 8, 2019, the Board granted a motion from FPL to dismiss the Joint



Intervenors' two admitted contentions; FPL subsequently informed the Commission that its pending appeal of the Board's decision to admit those two contentions was moot. On June 24, 2019, as corrected on June 28, 2019, the Joint Intervenors filed two amended contentions and four new contentions challenging the staff's draft supplemental environmental impact statement (SEIS). The Joint Intervenors' new and amended contentions are pending before the Board.

The partial government shutdown impacted the interim schedule milestones for the environmental review. Specifically, the shutdown delayed the National Park Service (a cooperating agency on this review) from performing a review of those portions of the NRC's draft SEIS pertaining to the areas in and around Biscayne National Park. As a result, the milestones for the issuance of the draft SEIS were delayed from January to March 2019. The staff issued the draft SEIS on March 31, 2019 (ADAMS Accession No. ML19078A330). Two public meetings were held on May 1, 2019, in Homestead, FL to receive comments on the draft SEIS. The deadline for submitting public comments on the draft SEIS was May 20, 2019. The NRC staff is currently reviewing and assessing over 400 individual public comment submittals received. As a result of the proffered new and amended contentions, staff is assessing whether additional time is needed to issue the final SEIS.

Notification of schedule changes were provided to the applicant on January 31, 2019 (ADAMS Accession No. ML19028A417), and on May 9, 2019 (ADAMS Accession No. ML19127A070). The staff issued the SER with open items on May 21, 2019. One open item is associated with buried and underground piping. The staff closed the item based on additional information and actions that FPL will conduct regarding installation of cathodic protection and conducting additional buried steel piping inspections. The Advisory Committee on Reactor Safeguards (ACRS) subcommittee meeting was held in June 2019, and the ACRS Full Committee meeting date is scheduled for September 2019. The original milestone schedule and the scheduled date for completion of the review of the Turkey Point SLRA are provided below.

<b>Turkey Point</b>			
Application Review Time from Acceptance Review Date (Months)			14
<b>Milestone</b>	<b>Original Schedule</b>	<b>Current Schedule</b>	<b>Completion Date</b>
Receive SLRA	01/2018		01/30/2018, as supplemented through 04/10/2018
Publish FRN – LRA availability	04/2018		04/18/2018
Publish FRN – Acceptance/Rejection and Opportunity for Hearing	05/2018		05/02/2018
Publish FRN – Notice of Intent to Prepare an EIS and Environmental Scoping	05/2018		05/22/2018
Public Meeting – License Renewal Overview and Environmental Scoping meeting	05/2018		05/31/2018
Environmental scoping period ends	06/2018		06/21/2018
Deadline for filing hearing requests and petitions for intervention	07/2018		08/01/2018*
Issue draft SEIS	01/2019		03/29/2019
Public Meeting – draft SEIS meeting	02/2019		05/01/2019
End of draft SEIS comment period	03/2019		05/20/2019
Issue SER	04/2019		05/21/2019

<b>Turkey Point</b>			
Application Review Time from Acceptance Review Date (Months)			14
<b>Milestone</b>	<b>Original Schedule</b>	<b>Current Schedule</b>	<b>Completion Date</b>
ACRS subcommittee meeting	05/2019		06/21/2019
Issue final SEIS	08/2019	08/2019	
U.S. Environmental Protection Agency (EPA) FRN Published – availability of final SEIS	08/2019		
ACRS Full Committee meeting	07/2019	09/2019	
Decision – Director, NRR	10/2019 (assuming no hearing)	After Board issues initial decision or adjudicatory proceeding is terminated	

\*Order (Granting a Partial Extension of Time) (ADAMS Accession No. ML18180A185)

#### Peach Bottom

On July 10, 2018, the NRC received its second application for SLR from Exelon Generating Co. for Peach Bottom Atomic Power Station, Units 2 and 3. The application was made publicly available on July 26, 2018. The staff informed the applicant in a letter dated August 27, 2018, that the application was accepted for detailed technical safety and environmental review. The staff completed all of the planned audits and issued its associated audit reports in 2018 and 2019. In November, a petition for leave to intervene was submitted by Beyond Nuclear, Inc. Staff and applicant answers to the petition were filed on December 14, 2018. The Board heard oral argument on standing and contention admissibility on March 27, 2019. On June 20, 2019, the Board found that, although Beyond Nuclear had demonstrated standing to intervene, neither of its two proposed contentions was admissible. Therefore, the Board denied Beyond Nuclear's petition to intervene and request for hearing and terminated the proceeding. On July 15, 2019, Beyond Nuclear appealed the Board's decision to the Commission. The original milestone schedule, the actual completion dates for milestones, and the scheduled date for completion of the review of the Peach Bottom SLRA are provided below.

<b>Peach Bottom</b>		
Application Review Time from Acceptance Review Date (Months)		11
<b>Milestone</b>	<b>Scheduled</b>	<b>Actual</b>
Receive SLRA	07/10/2018	07/10/2018
Publish FRN – LRA availability	08/2018	08/01/2018
Publish FRN – docketing acceptance/rejection and opportunity for hearing	09/2018	09/06/2018
Publish FRN – Notice of Intent to Prepare an EIS and Conduct Scoping Process	09/2018	09/10/2018
Public Meeting – Overview of SLR Process and Environmental Scoping Process	09/25/2018	09/25/2018

Peach Bottom		
Application Review Time from Acceptance Review Date (Months)		11
Milestone	Scheduled	Actual
Environmental scoping process period ends	10/2018	10/10/2018
Deadline for filing hearing requests and petitions for intervention	11/2018	11/19/2018
Issue draft SEIS	07/2019	07/30/2019
Issue SER	10/2019	
Public Meeting – draft SEIS meeting, if needed	09/2019	
End of draft SEIS comment period	09/2019	
ACRS subcommittee meeting	10/2019	
ACRS Full Committee meeting	12/2019	
Issue final SEIS	01/2020	
EPA FRN Published – availability of final SEIS	02/2020	
Decision – Director, NRR	03/2020 (assuming no hearing)	

### Surry

On October 15, 2018, Virginia Electric and Power Company (Dominion Energy Virginia or Dominion) submitted its application for subsequent renewal for Surry Power Station, Units 1 and 2. The application was made publicly available on October 24, 2018. The staff informed the applicant in a letter dated December 3, 2018, that the application was accepted for detailed technical review. The staff completed all of the planned audits and issued its associated audit reports in 2018 and 2019.

On April 29, 2019, the staff issued a schedule change letter to modify the schedule for three milestones (ADAMS Accession No. ML19100A254). For the safety review, the staff moved the scheduled due date for “ACRS Full Committee Meeting” from March 2020 to April 2020. This change was made due to the finalization of the ACRS Full Committee Meeting schedule. For the environmental review, the staff moved the scheduled due dates for “Issue Final SEIS” and “U.S. Environmental Protection Agency FRN Published – Availability of Final SEIS” from March 2020 to April 2020 to support workload prioritization. The overall schedule for issuance of the renewed license is not impacted. The original milestone schedule, the actual completion dates for milestones, and the scheduled date for completion of the review of the Surry SLRA are provided below.

Surry			
Application Review Time from Acceptance Review (Months)			7
Milestone	Scheduled	Current Schedule	Completion Date
Receive SLRA	10/15/2018		10/15/2018
Publish FRN – LRA availability	11/2018		11/01/2018
Publish FRN – docketing acceptance/rejection and opportunity for hearing	12/2018		12/17/2018
Publish FRN – Notice of Intent to Prepare an EIS and Conduct Scoping Process	12/2018		12/21/2018
Public Meeting – Overview of SLR Process and Environmental Scoping Process	01/2019		01/08/2019
Environmental scoping process period ends	02/2019		01/22/2019
Deadline for filing hearing requests and petitions for intervention	02/2019		02/15/2019
Issue draft SEIS	09/2019		
Public Meeting – draft SEIS meeting, if needed	10/2019		
Issue SER	11/2019		
End of draft SEIS comment period	11/2019		
ACRS subcommittee meeting	02/2020		
ACRS Full Committee meeting	03/2020	04/2020	
Issue final SEIS	03/2020	04/2020	
EPA FRN Published – availability of final SEIS	03/2020	04/2020	
Decision – Director, NRR	06/2020		

## Research and Test Reactors License Renewal Applications Currently Under Review

Facility Name	Application Date	Status
Texas A&M University (TAMU) Aerojet- General Nucleonics (AGN) Reactor	07/22/1997 (on hold)	The review of the TAMU AGN reactor LRA is on hold. The AGN license currently allows only possession of the reactor. The licensee partially disassembled and placed the reactor into storage at the Texas Engineering Experiment Station Training, Research, Isotopes, General Atomics reactor facility, where the licensee has started construction on support laboratory space for the AGN reactor. The NRC staff will resume its review of the LRA once the licensee submits a revised safety analysis report as part of an application for a construction permit to reassemble the AGN in its new location.
Aerotest Radiography and Research Reactor	02/28/2005 (LRA resubmitted on 12/20/2017; review suspended 12/06/2018)	By letter dated December 6, 2018, the licensee requested to withdraw its LRA from NRC consideration. Therefore, the NRC staff has suspended its review. By letter dated March 21, 2019, the licensee submitted an application to the NRC to amend its license to remove authorization to operate the reactor, as a preliminary step toward decommissioning the facility. The review will be terminated pending the licensee's declaration that it has permanently ceased operation of the facility.
University of Texas at Austin (UTA)	12/12/2011 (on hold until supplemental information provided by licensee)	By letter dated December 14, 2018, UTA staff proposed a schedule that would provide the results of the neutronic and thermal-hydraulic analyses to the NRC by August 30, 2019. UTA obtained a contract from the U.S. Department of Energy and will collaborate with staff from Oregon State University to help ensure the accuracy and completeness of the neutronic and thermal-hydraulic analyses. Following receipt of the UTA analyses, the NRC staff will review them to validate the results and resume the license renewal review. By telephone call on July 11, 2019, the reactor supervisor requested an extension to November 2019. A formal written request is expected.



Facility Name	Application Date	Status
University of Massachusetts at Lowell	10/20/2015 (Review in progress)	The review is scheduled for completion by June 2020 based on several changes to the renewal application made by the licensee in its March 5, 2019, responses to NRC RAI and an April 10, 2019, supplement. The NRC staff is drafting the SER and continuing to review the March 2019 RAI responses primarily related to technical specifications. The NRC staff issued RAIs on July 19, 2019, to address the instrumentation and control upgrades that the licensee has proposed in conjunction with license renewal, including additional changes included in the April 2019 supplement.
North Carolina State University	02/24/2017 (Review in progress)	The review is scheduled for completion in October 2021 based on several changes to the renewal application made by the licensee. The NRC staff has prepared a draft of the SER, which was the basis for RAIs dated October 18, 2018, related to safety, financial, environmental, operator requalification, and supporting information. By letter dated November 1, 2018, the licensee provided partial responses to the NRC staff's RAI. By letter dated December 13, 2018, the licensee requested an additional 60 days to complete the RAI responses. By letter dated February 14, 2019, the licensee submitted the remainder of the RAI responses, including additional computational analysis indicating it would increase the requested power level. On July 12, 2019, the licensee notified the NRC staff that it intends to withdraw its request for a separate fueled experiment license amendment and instead intends to submit a replacement safety analysis report (SAR) that provides significant updates to supplement the LRA and incorporates the fueled experiment into the application to renew the operating license. The revised SAR was provided by the licensee on August 12, 2019. The NRC staff is also preparing RAIs, which it expects to issue in September 2019 after reviewing the revised SAR and fueled experiment update.
University of California at Davis	06/11/2018 (Review in progress)	The review is on schedule for completion in June 2022. The NRC staff is reviewing the LRA and drafting the SER. The NRC staff conducted a site familiarization visit the week of April 9, 2019. By letter dated May 10, 2019, the licensee requested to supplement the LRA with an updated final SAR (UFSAR) which reflected its decision to reduce the licensed power level to approximately 1.0 MW, and to eliminate pulsing capability and irradiation of explosive materials in the reactor tank. By letter dated June 14, 2019, the licensee provided a date of April 10, 2020, for the submission of the UFSAR.

### 3. Status of Power Uprate Application Reviews

The NRC staff currently has no power uprate applications under review.

### 4. Status of Design Certification Applications

The NRC employs a six-phase schedule to monitor progress towards completion of the safety review. These phases are:

- Phase 1 - Preliminary SER with RAIs issued to applicant
- Phase 2 - SER with Open Items issued
- Phase 3 - Response to the ACRS regarding SER with Open Items issued
- Phase 4 - Advanced SER with no Open Items issued
- Phase 5 - Response to ACRS regarding SER with no Open Items issued
- Phase 6 - Final Safety Evaluation Report (FSER) issued

### US-Advanced Pressurized-Water Reactor

Mitsubishi Heavy Industries (MHI) submitted its US-Advanced Pressurized-Water Reactor (US-APWR) DC application on December 31, 2007. The staff is currently in Phase 2 of the review. By letter dated November 5, 2013, MHI initiated a coordinated slowdown of NRC licensing activities in order to focus its resources towards supporting the restart of the Mitsubishi-designed reactors in Japan following the Fukushima event. The NRC staff has been performing the review of the US-APWR DC application at a reduced pace and is making progress on the Phase 4 review for six DC chapters. As of June 30, 2019, the staff has issued 5,683 RAIs and the applicant has responded to 5,534 of them.

### NuScale

On January 6, 2017, NuScale submitted the first small modular reactor DC application for review by the NRC. On March 15, 2017, the NRC completed its acceptance review and docketed the application. The staff then issued the acceptance review letter to NuScale on March 23, 2017, and developed a full review schedule with public milestones that was transmitted to NuScale on May 22, 2017. On April 11, 2018, the staff completed Phase 1 of the review. The staff's review is currently in Phases 2, 3, and 4. The staff identified 29 challenging issues. Sixteen of these issues have been resolved to date. Of the remaining 13 issues, 8 have a clear path forward toward resolution. For the remaining issues, a path forward for resolution is being developed. On May 16, 2019, the NRC staff issued a letter to NuScale communicating the status of Phase 2 of the DC application review. This letter is a follow up to the January 17, 2019, DC application review status letter. Specifically, the May letter conveyed that the NRC staff has met the Phase 2 public milestone for most of the 21 DC application chapters through the completion and issuance of SEs with open items and has completed Phase 3 actions for many of these chapters with presentations made to the ACRS. The letter also stated that the staff has not met the Phase 2 milestone of May 16, 2019, because several issues remain unresolved without a mutually understood and clearly defined path toward resolution. The letter further emphasized that to meet the overall 42-month schedule for review, NuScale must resolve the remaining issues with the NRC staff and the open items identified in the completed Phase 2 SEs to meet the December 12, 2019, Phase 4 milestone for completion of an Advanced SER with no open items. As of June 30, 2019, the staff has issued 521 RAIs, which included 1,324 questions and the applicant has responded to 1,297 of these questions. Of the 521 RAIs issued, 322 RAIs (~62%) are now closed. As of June 30, 2019, NuScale has

responded to approximately 70 percent of RAI questions within the 60 days agreed to in the staff's May 22, 2017, schedule letter for the design certification review.

## 5. Status of Design Certification Renewal Applications

### Advanced Boiling-Water Reactor Renewal (General Electric-Hitachi)

On December 7, 2010, General Electric-Hitachi (GEH) submitted an application for renewal of the Advanced Boiling-Water Reactor (ABWR) DC. The NRC staff is currently preparing the SE. The NRC staff issued a letter to GEH on July 20, 2012, describing 28 design changes that GEH should have included in the application. By letter dated September 17, 2012, GEH stated it planned to address the 28 items in its Revision 6 of the ABWR design control document (DCD). By letter dated February 19, 2016, GEH submitted its revised application incorporating the changes to the ABWR DCD. On August 3, 2017, the staff issued a letter to GEH stating that the NRC will not be able to meet the original schedule outlined in the August 30, 2016, letter due to unresolved issues with the application. The letter also stated that the NRC will issue a revised schedule letter to GEH after additional interactions with the applicant are held to resolve these issues and the staff receives complete responses to the NRC's RAIs. In a letter dated January 21, 2019, GEH provided the NRC staff with the final RAI response regarding the peak cladding temperature issue. As of June 30, 2019, the staff has issued 37 RAIs and the applicant has responded to all of them. GEH has addressed all the previous open items and the staff completed the advanced FSER (Phase B) on June 28, 2019. The ACRS subcommittee meeting (Phase C) has been scheduled for August 20, 2019, with an ACRS Full Committee meeting to be held in October 2019. In a letter dated May 31, 2019, the NRC staff projected the completion of the ABWR DC renewal FSER by the end of March 2020.

## 6. Status of Combined License Applications

The NRC staff currently has no combined license applications under review.

## 7. Status of Early Site Permit Applications

### Clinch River

On May 12, 2016, the Tennessee Valley Authority (TVA) submitted an ESP application for the Clinch River Nuclear Site located in Oak Ridge, TN. By letter dated August 11, 2016, TVA identified certain aspects of the application for which it intended to provide supplemental information. The NRC responded to TVA in a letter dated August 19, 2016, and informed TVA that its application would remain in a tendered but not docketed status until all of the supplemental information was provided to NRC. By December 15, 2016, TVA had provided the supplemental information in support of its application, and by letter dated January 5, 2017, the NRC staff informed TVA that its application, as supplemented, was acceptable for docketing and detailed technical review.

The NRC staff began its detailed technical review of the ESP application in January 2017 and developed a full review schedule with public milestones that was transmitted to TVA on March 17, 2017. The Phase A safety review for all chapters of the application was completed by the staff on August 4, 2017. The staff completed Phase B of its review on October 17, 2018.

Phase C review activities took place in parallel with Phase B for some SEs sections. On December 6, 2018, the NRC staff completed safety public milestone, Phase C – "ACRS Review

and Meetings on Advanced SEs". Phase C was scheduled to be completed by March 26, 2019, thus the staff's review is currently significantly ahead of schedule. As of March 31, 2019, the staff has issued 50 safety-related RAI questions and the applicant has responded to all 50 RAI questions. One hundred percent of the RAI questions issued and responded to are closed. The final SER is currently scheduled to be issued in August 2019. For the environmental review, NRC staff completed Phase 1 of the review on October 30, 2017. Additionally, the NRC staff completed Phase 2 by issuing the draft EIS on April 27, 2018. The public comment period for the draft EIS closed on July 13, 2018. Based on one of the comments received from the applicant, the staff issued one environmental RAI question in September 2018, and the applicant responded to the RAI in October 2018. The final EIS was issued on April 3, 2019, and the final SER was issued on June 14, 2019. Both the final EIS and final SER were completed more than 2 months ahead of schedule.

On June 12, 2017, the SACE, Tennessee Environmental Coalition (TEC), and Blue Ridge Environmental Defense League filed petitions seeking a hearing. The ASLB denied the Blue Ridge Environmental Defense League's petition to intervene and granted the SACE and TEC's joint petition to intervene and admitted two contentions. Separately, TVA appealed the admission of the two contentions to the Commission, and the Commission upheld the admission of one contention and dismissed the other. In April 2018, the staff published its draft EIS 2 months ahead of the public milestone. On May 21, 2018, SACE/TEC submitted two new contentions on the draft EIS. On July 31, 2018, the ASLB issued a memorandum and order (LBP-18-04) denying the Intervenor's motion for leave to file new contentions, granted TVA's and the NRC staff's motions to dismiss the remaining admitted contention, and terminated the contested proceeding. The Board's decision was not appealed.

The Commission conducted the mandatory hearing for the Clinch River ESP application on August 14, 2019.

#### 8. Status of Uranium Recovery Licensing Application Review

Uranium Recovery Applicant	Application Accepted for Review	Status
Cameco North Trend Expansion <sup>(1)</sup>	08/28/2007	The SER for the North Trend Expansion was completed in July 2013. On December 16, 2015, the licensee requested the NRC staff to stop its review of the North Trend application and to instead focus its efforts on the review of the Marsland expansion. The NRC staff has suspended its work related to the development of the draft Environmental Assessment and conduct of Section 106 consultations pursuant to the National Historic Preservation Act. In addition, the hearing to address contentions related to groundwater is on hold, pending completion of the NRC staff's environmental review. By letter dated April 4, 2018, Cameco reiterated its request that the staff continue to hold its review in abeyance.

Uranium Recovery Applicant	Application Accepted for Review	Status
Hydro Resources, Inc. (HRI) License Renewal (NM)	06/24/2013	The sites, located very close to Navajo Nation lands, were licensed in 1998. Construction has not yet commenced. The license renewal review was placed in abeyance on November 13, 2014, while HRI continues its work with the Navajo Nation Council. In March 2016, the NRC approved the transfer of control of the license from the HRI parent company, Uranium Resources, Inc., to Laramide Resources. The parties finalized the transaction in January 2017. The schedule for remaining milestones associated with the licensing review is to be determined.

<sup>(1)</sup> On February 9, 2018, Cameco announced that it is ceasing U.S. operations due to an expectation of prolonged poor uranium market conditions. At the request of the licensee, the NRC staff has placed its licensing reviews on hold while seeking further information from Cameco regarding its licensing plans.