

## **Progress on Licensing Applications – Fourth Quarter in Fiscal Year 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, which may prevent future backlogs of licensing actions while still ensuring that key questions get asked by the NRC staff to ensure health and safety requirements are met.

The Office of Nuclear Reactor Regulation (NRR) made great strides in reducing the backlog of licensing actions by reducing the inventory of licensing actions greater than 1-year-old from 139 in September 2014, to 14 by the end of 2017. Through the use of strict controls and metrics, the staff has been able to maintain this inventory at historically low levels. This improvement is due in large part to the RAI-related improvements implemented over the last several years.

NRR launched several initiatives to focus on leveraging or revising existing licensing processes to enhance agency efficiency, effectiveness, and predictability, while maintaining a continued strong safety focus. These initiatives have analyzed the issues that caused the previous licensing action backlog, including in the RAI process, and recommended enhancements to the licensing review process. NRR management issued interim guidance to the staff in January 2015, and updated interim guidance in April 2016, providing expectations to help enhance consistency of the licensing review process, sound decision-making, and discipline of schedule. In January 2017, this interim guidance was incorporated into NRR procedures.

The Office of New Reactors (NRO)<sup>1</sup> and the Office of Nuclear Material, Safety and Safeguards (NMSS) also issued expectations and guidance to their employees to improve the RAI process. The staff's continual efforts in this area have significantly improved the NRC's ability to monitor safety reviews and improve predictability. Current efforts include the formation of a working group to align, where appropriate, licensing strategies across the agency, including the RAI process. This working group includes representatives from NMSS, NRO, NRR, the Office of Nuclear Security and Incident Response, and the Office of the General Counsel.

### **2. Status of License Renewal Reviews**

#### **Power Reactors**

The NRC staff is not reviewing any initial license renewal applications at this time.

The NRC staff is currently reviewing three subsequent license renewal requests to extend operations to 80 years. These three requests involve six units at the three sites, as detailed below.

#### **Turkey Point Nuclear Generating**

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 (Turkey Point), Units 3 and 4. The NRC staff issued the acceptance letter dated April 26, 2018, with the technical safety and environmental review

---

<sup>1</sup> The NRC merged NRR and NRO effective October 13, 2019; the resulting office retained the title, "Office of Nuclear Reactor Regulation."

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 audits planned in support of this review 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 other interested stakeholders. 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 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18342A014). Between June 19, 2018, 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 Intervenors), (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 Intervenors and SACE; admitted four contentions (as revised) for litigation; and referred one portion of its ruling to the Commission. On April 9, 2019, SACE withdrew from the adjudication.

The ASLB dismissed all remaining admitted contentions on July 8, 2019, and found that the contentions were rendered moot by the NRC staff's draft supplemental environmental impact statement (SEIS). The Joint Intervenors filed several new and amended contentions based on the draft SEIS. The applicant and the NRC staff responded to the filings on July 19, 2019, and the ASLB held oral arguments on September 9, 2019, in Rockville, MD. Several items are still pending before the Commission: an earlier ASLB referral related to the applicability of the NRC's environmental regulations to SLRAs and a petition for review from Joint Intervenors challenging two of the ASLB's earlier decisions.

The partial government shutdown in the December 2018 – January 2019 timeframe impacted the original schedule 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 milestone for the issuance of the draft SEIS was delayed from January to March 2019. The staff issued the draft SEIS on March 29, 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 staff is reviewing and assessing over 400 individual public comment submittals received.

Notifications of schedule change were provided to the applicant on January 30, 2019 (ADAMS Accession No. ML19028A417), May 9, 2019 (ADAMS Accession No. ML19127A070), and August 15, 2019 (ADAMS Accession No. ML19200A070). The staff issued the Safety Evaluation Report (SER) with an open item on May 21, 2019, in an effort to support the June 21, 2019, Advisory Committee on Reactor Safeguards (ACRS) subcommittee meeting. The one open item was associated with buried and underground piping. The staff closed that item based on additional information and actions that FPL will conduct regarding installation of cathodic protection and conducting additional buried steel piping inspections. On July 22, 2019, the staff issued the final SER. The ACRS Full Committee meeting took place on September 4, 2019. The original milestone schedule and the scheduled date for completion of the review and making a decision on the Turkey Point SLRA are provided below.

| <b>Turkey Point</b>  |                          |                         |  |
|--|--------------------------|-------------------------|--|
| Application Review Time from Acceptance Review Date (Months)                               |                          |                         | 17   |
| <b>Milestone</b>   | <b>Original Schedule</b> | <b>Revised Schedule</b> | <b>Completion Date</b>                         |
| Receive SLRA   | 01/2018                  |                         | 01/30/2018, as supplemented through 04/10/2018 |
| Publish FRN – SLRA Availability  | 04/2018                  |                         | 04/18/2018                                     |
| Publish FRN – docketing acceptance/rejection and opportunity for hearing                   | 05/2018                  |                         | 05/02/2018                                     |
| Publish FRN – Notice of Intent to Prepare an EIS and Conduct Environmental Scoping Process | 05/2018                  |                         | 05/22/2018                                     |
| Public Meeting – License Renewal Overview and Environmental Scoping Meeting                | 05/2018                  |                         | 05/31/2018                                     |
| Environmental scoping process 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 with open items  | 04/2019                  |                         | 05/21/2019                                     |
| ACRS subcommittee meeting  | 05/2019                  |                         | 06/21/2019                                     |
| Issue final SEIS   | 08/2019                  | 10/2019                 |  |
| U.S. Environmental Protection Agency (EPA) FRN Published – availability of final SEIS      | 08/2019                  | 10/2019                 |  |

| <b>Turkey Point</b>  |                               |                         |                        |
|--|-------------------------------|-------------------------|------------------------|
| Application Review Time from Acceptance Review Date (Months) |                               |                         | 17                     |
| <b>Milestone</b>   | <b>Original Schedule</b>      | <b>Revised Schedule</b> | <b>Completion Date</b> |
| Issue Final SER  |                               | 08/2019                 | 07/22/2019             |
| ACRS Full Committee meeting                                  | 07/2019                       | 09/2019                 | 09/04/2019             |
| Decision – Director, NRR                                     | 10/2019 (assuming no hearing) | 11/2019**               |                        |

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

\*\*Denotes notification to the Commission that the safety and environmental reviews have been completed and final SEIS has been submitted to the EPA.

### Peach Bottom

On July 10, 2018, the NRC received a SLRA from Exelon Generating Company, LLC, for Peach Bottom Atomic Power Station, Units 2 and 3 (Peach Bottom). The staff informed the applicant in a letter dated August 27, 2018, that the application was accepted for detailed technical safety and environmental review.

In November 2018, a petition for leave to intervene was submitted by Beyond Nuclear, Inc. (Beyond Nuclear). 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; Exelon and the NRC staff filed replies opposing the appeal on August 9, 2019. On August 19, 2019, Beyond Nuclear filed a reply to Exelon’s and the staff’s replies, along with a motion for leave to reply. The appeal is pending before the Commission. On September 3, 2019, Beyond Nuclear filed a new contention based on information contained in the draft SEIS and on September 22, 2019, filed a motion to reopen the closed record.

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. A schedule change letter was issued on July 31, 2019, to identify changes to the dates for issuance of the SER and the meeting with the ACRS subcommittee on Plant License Renewal (ADAMS Accession No. ML19210C571). The staff has completed all of the planned audits and issued its associated audit reports. The staff issued the draft SEIS on July 30, 2019. A public meeting was held on September 12, 2019, to receive comments on the draft SEIS. The staff plans to issue the final SEIS in January 2020. The NRC is on track to meet the 18-month schedule for completing the review and making a decision on the SLRA for Peach Bottom.

| <b>Peach Bottom</b>   |                          |                         |                        |
|---|--------------------------|-------------------------|------------------------|
| Application Review Time from Acceptance Review Date (Months)                                      |                          |                         | 14                     |
| <b>Milestone</b>  | <b>Original Schedule</b> | <b>Revised Schedule</b> | <b>Completion Date</b> |
| Receive SLRA  | 07/10/2018               |                         | 07/10/2018             |
| Publish FRN – SLRA 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 Environmental Scoping Process        | 09/2018                  |                         | 09/10/2018             |
| Public Meeting – Overview of Subsequent License Renewal Process and Environmental Scoping Process | 09/25/2018               |                         | 09/25/2018             |
| Environmental scoping process period ends   | 10/2018                  |                         | 10/10/2018             |
| Deadline for filing hearing requests and petitions for intervention                               | 11/2018                  |                         | 11/05/2018             |
| Issue draft SEIS  | 07/2019                  |                         | 07/30/2019             |
| Public meeting – Draft SEIS meeting   | 09/2019                  |                         | 09/12/2019             |
| End of draft SEIS comment period  | 09/2019                  |                         | 09/23/2019             |
| Issue Safety Evaluation Report  | 09/2019                  | 10/2019                 |                        |
| ACRS subcommittee meeting   | 10/2019                  | 11/2019                 |                        |
| 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                  |                         |                        |

### Surry Power Station

On October 15, 2018, Virginia Electric and Power Company (Dominion Energy Virginia or Dominion) submitted a SLRA for Surry Power Station, Units 1 and 2 (Surry). The staff informed the applicant in a letter dated December 3, 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.

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 milestone 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. The staff is

developing the SER, which it plans to issue in November 2019 to support a meeting with the ACRS subcommittee on Plant License Renewal in February 2020. For the environmental review, the staff moved the milestone 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. A schedule change letter was issued on July 31, 2019, to change the milestone for issuance of the draft SEIS from September 2019 to October 2019 (ADAMS Accession No. ML19206A651). The staff plans to issue the draft SEIS in October 2019 and hold a public meeting via webinar in November 2019.

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. The NRC is currently on track to complete the reviews necessary to make a decision on the SLRA for Surry within the 18-month schedule.

| <b>Surry</b>   |                          |                         |                        |
|--|--------------------------|-------------------------|------------------------|
| Application Review Time from Acceptance Review (Months)                                    |                          |                         | 10                     |
| <b>Milestone</b>   | <b>Original Schedule</b> | <b>Revised Schedule</b> | <b>Completion Date</b> |
| Receive SLRA   | 10/15/2018               |                         | 10/15/2018             |
| Publish FRN – SLRA 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 Environmental Scoping Process | 12/2018                  |                         | 12/21/2018             |
| Public Meeting – Overview of Subsequent License Renewal Process and Environmental Scoping  | 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                  | 10/2019                 |                        |
| Public Meeting – Draft SEIS Meeting, if needed   | 10/2019                  | 11/2019*                |                        |
| Issue SER  | 11/2019                  |                         |                        |
| End of draft SEIS comment period   | 11/2019                  | 12/2019                 |                        |
| 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                  |                         |                        |

\*Public meeting via webinar

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

The NRC staff is reviewing license renewal applications for four research and test reactors at this time. The current status of these reviews is provided in the table below.

| Research and Test Reactors   |   |   |
|--|---|---|
| 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 license renewal application 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 license renewal application once the licensee submits a revised safety analysis report (SAR) 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 (license renewal application resubmitted on 12/20/2017; application withdrawn and review terminated on 07/30/19) | By letter dated December 6, 2018, the licensee requested to withdraw its license renewal application from NRC consideration. The NRC staff suspended its review. Subsequently, by letter dated June 28, 2019, the licensee provided a declaration that the reactor was permanently shut down as of December 6, 2018. With confirmation of the permanent cessation of reactor operation, the NRC staff terminated its review of the license renewal application by letter dated July 30, 2019. Separately, by letter dated March 21, 2019, as supplemented, the licensee submitted a request to the NRC for a possession-only license amendment in preparation for the eventual decommissioning of the reactor. The NRC staff is currently reviewing this license amendment request. |

| Research and Test Reactors            |   |   |
|---------------------------------------|---|---|
| Facility Name                         | Application Date                                    | Status  |
| University of Texas at Austin (UTA)   | 12/12/2011<br>(Review now in progress) <sup>2</sup> | <p>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.</p> <p>By conference call on September 30, 2019, UTA personnel, technical staff of the Oregon State University (assisting UTA), and NRC staff discussed challenges with the neutronics analysis of reactor core safety parameters. The NRC staff has additional questions about UTA's computer modelling and another conference call is planned in the near term. An audit is being scheduled with the licensee to discuss issues for additional RAIs in advance of this call. The schedule will be revised following completion of the audit.</p> |
| University of Massachusetts at Lowell | 10/20/2015<br>(Review in progress)                  | <p>The review remains scheduled for completion by June 2020. The NRC staff is drafting the SER. On July 19, 2019, the NRC staff issued RAIs to address the proposed instrumentation and control upgrades in this license renewal, including additional changes proposed in an April 2019 supplement. The NRC staff is also preparing a list of open items primarily related to technical specifications, that the staff is planning to address in a regulatory audit by December 2019.</p>  |

<sup>2</sup> This review was reported as suspended in the previous quarterly report.

| Research and Test Reactors        |                                    |  |
|-----------------------------------|------------------------------------|--|
| Facility Name                     | Application Date                   | Status   |
| North Carolina State University   | 02/24/2017<br>(Review in progress) | <p>The review remains 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, that were related to safety, financial, environmental, operator requalification, and supporting information. By letter dated November 1, 2018, the licensee provided partial responses to these RAIs. 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 remaining responses, including additional computational analysis indicating it would change the requested power level increase from 2.6 MW to 2.0 MW.</p> <p>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 revised SAR with significant updates to supplement the license renewal application and incorporate the fueled experiment into the application to renew the operating license. The licensee submitted the revised SAR on August 8, 2019, and revised technical specifications on September 16, 2019. The NRC staff is also preparing RAIs, which are expected to be issued in December 2019, after reviewing the revised SAR, the fueled experiment update, and the site audit.</p> |
| University of California at Davis | 06/11/2018<br>(Review in progress) | <p>The review remains scheduled for completion in June 2022. The NRC staff is reviewing the license renewal application 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 license renewal application with an updated final SAR (UFSAR), which will reflect 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.</p>   |

### 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 reviews for design certification (DC) applications. 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 SER issued

#### U.S. Advanced Pressurized-Water Reactor

Mitsubishi Heavy Industries, Ltd. (MHI) submitted its U.S. Advanced Pressurized-Water Reactor DC application on December 31, 2007. 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. Since that time, the NRC staff has been performing the review of the DC application at a reduced pace. The staff has completed Phase 2 for several chapters and is making progress on the Phase 4 review for six DC chapters.

#### 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, which was transmitted to NuScale on May 22, 2017. On April 11, 2018, the staff completed Phase 1 of the review. The staff completed Phase 2 of the review on July 12, 2019. However, the SERs for chapters 15 and 20 remain preliminary and a final Phase 2 SER was not issued. The remaining issues and associated open items from these two chapters will be resolved before completion of Phase 4. As a result, on May 16, 2019, the NRC staff issued a letter to NuScale communicating that the staff had not met the Phase 2 milestone of May 16, 2019, because several issues remained 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 and open items with the NRC staff in order to meet the December 12, 2019, Phase 4 milestone for completion of an Advanced SER with no open items. The staff also completed Phase 3 of the review on July 12, 2019. The staff's review is currently in Phase 4. As of September 30, 2019, the staff had issued a total of 1,325 RAIs, and the applicant has responded to 1,323 of them. The staff remains confident that it can complete the NuScale small modular reactor DC review within the established 42-month schedule.

#### 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 continues to prepare the

safety evaluation. The NRC staff issued a letter to GEH on July 20, 2012, that described 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. By letter dated February 19, 2016, GEH submitted its revised application incorporating the changes to the ABWR design control document. 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 final SER (Phase B) on June 28, 2019. The ACRS subcommittee meeting (Phase C) was held August 23, 2019; the ACRS Full Committee meeting was held in October 2019. The NRC plans to complete its final SER for this renewal application in Spring 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

The NRC employs a four-phase schedule to monitor progress towards completion of the safety reviews for early site permit (ESP) applications. These phases are

- Phase A - RAIs and supplemental RAIs issued
- Phase B - Advanced SER with no open items developed
- Phase C - ACRS meeting on advanced SER
- Phase D - Final SER issued

The NRC employs a three-phase schedule to monitor progress towards completion of the environmental review for ESP applications. These phases are

- Phase 1 - Scoping summary report issued
- Phase 2 - Draft EIS issued to EPA
- Phase 3 - Final EIS issued to EPA

#### 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. This application is based on a plant parameter envelope characterizing several small modular reactor designs. 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 the NRC. By December 30, 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 safety and environmental 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. On December 6, 2018, the NRC staff completed safety public milestone, Phase C – “ACRS Review and Meetings on Advanced SEs.” The final SER (Phase D) was issued on June 14, 2019.

For the environmental review, the 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. Both the final EIS and final SER were completed more than 2 months ahead of schedule.

On June 12, 2017, SACE, the 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 the 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. 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 Intervenors’ 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. This was the first mandatory hearing on an ESP involving a small modular reactor.

8. Status of Uranium Recovery Licensing Application Review

| Uranium Recovery Applicant                       | Application Accepted for Review | Status  |
|--|---------------------------------|---|
| Cameco North Trend Expansion <sup>3</sup> (NE)   | 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. |
| 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 remains to be determined.   |

<sup>3</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.