STATUS REPORT ON THE LICENSING ACTIVITIES AND REGULATORY DUTIES OF THE U.S. NUCLEAR REGULATORY COMMISSION

For the Reporting Period through May 2018

Enclosure

Table of Contents

RESOURCES

1. Will Project Aim 2020 conclude in early 2018, or will it continue pursuing additional improvements? If Project Aim will continue, please describe any new or additional actions taken or planned, including milestones for completion of such actions.

In June 2015, the Commission approved 19 discrete Project Aim tasks intended to improve the Nuclear Regulatory Commission's (NRC's) efficiency and agility, as well as right size the agency's workforce to its workload, while retaining employees with the skills necessary to accomplish its safety and security mission and streamline processes. In 2017, the NRC completed the major deliverables for each of the 19 Project Aim tasks. The deliverables for some of the tasks entailed full implementation of the task, while others included detailed proposals and implementation plans for activities to be implemented in the future. The NRC staff is completing follow-on actions to implement recommendations, which will continue to affect and shape NRC's line organizations going forward. The NRC staff continues to provide a quarterly Project Aim status report to the Commission, which will be transmitted with this report each quarter.

The NRC Chairman's June 29, 2017, and October 25, 2017, letters to Senators Cochran and Leahy, on the progress of certain licensing actions and right-sizing commitments indicated that one of the 19 completed tasks implemented a re-baselining effort, which identified 150 activities to be shed, deferred, or performed with fewer resources.

The NRC continues to institutionalize the actions related to Project Aim and pursue additional activities. The table below describes two such activities that continue the objectives of Project Aim and demonstrate the NRC's continued commitment to effectiveness and efficiency. These and other Project Aim initiatives are now integrated with other agency efforts.

Initiative	Milestones	Notes
Implement an enhanced strategic workforce planning (SWP) process that will improve workforce management by focusing on strategic human capital management and longer-term planning	Project initiation 07/29/2017	Piloting the process with three offices to test a variety of guidance, templates, and tools, and to refine the process before launching agencywide.
	Train supervisors in SWP concepts and process 10/11/17	Completed
	Pilot offices deliver workload forecast (execution year+1 and execution year+5) 12/12/17	Completed
	Deliverable: Workforce Demand Analysis 01/31/18	Completed
	Deliverable: Workforce Supply Analysis 03/09/18	Completed

Initiative	Milestones	Notes
	Deliverable: Prioritized list of gaps and surpluses 04/26/18 (revised from 05/07/18)	Completed
	Deliverable: Strategies to address gaps and surpluses 05/11/18 (revised from 06/22/18)	Completed
	Pilot Report to the Executive Director for Operations (EDO) 06/08/18	Completed
Merge the Offices of Nuclear Regulator Regulation (NRR) and New Reactors (NRO) to achieve efficiency gains, improve supervisory ratios, and provide greater flexibility and improved agility to manage a dynamic workload	Major NRR restructure October 2017	Completed
	Minor NRO restructure April 2018	Completed
	Proposed organizational structure submitted to the Commission for consideration December 2018	On track
	Develop FY 2020 staffing plan with pre-merger consolidations Q4 of FY 2019	
	Implement at least one pre-merger consolidation 10/01/2019	
	Complete the merger 09/30/2020	

2. Consistent with the workload forecast done under Project Aim 2020, to what extent has the NRC incorporated five-year workload planning into its policies and procedures, e.g., strategic planning and budget formulation? Please describe the actions taken or planned.

On July 19, 2017, the NRC's Executive Director for Operations (EDO) formed a working group to develop a comprehensive, integrated, and systematic Strategic Workforce Planning Process (SWP) with the primary objective to enhance the existing SWP to better integrate the agency's workload projections, skills identification, human capital management, and workforce management activities with NRC's strategic planning and budget formulation process. As a part of this effort, a three-office pilot of the enhanced SWP process was performed, incorporating a 5-year workload planning horizon. The pilot demonstrated that the enhanced SWP framework and process, when fully implemented, can identify short- and long-term strategies and action plans that are comprehensive and provide important insights into training needs to address gaps and overages in workforce needs. These outcomes will improve the agency's human capital management activities, help identify employee opportunities for career growth, and provide for a greater understanding of the future workload of the NRC. On June 8, 2018, the pilot implementation team proposed proceeding with all the recommendations in the "Enhanced

Strategic Workforce Planning Lessons-Learned Pilot Report, including implementing Phase II of the enhanced SWP process. Phase II includes the five major program offices, two corporate offices, and the four regional offices, which accounts for approximately 79% of the workforce. This work is expected to begin in late June 2018. The enhanced SWP process is designed to be implemented on an annual cycle to develop strategies to address workforce needs in both budget execution year + 1 year and budget execution year + 5 years. At the conclusion of Phase II in June 2019, the Office of the Executive Director for Operations (OEDO) and the Office of the Chief Human Capital Officer (OCHCO) will determine the extent to which the remaining agency offices should be included.

3. Please provide the total number of staff and corporate support staff (FTE), budgeted vs actual, for the agency and in each of the following offices: Nuclear Reactor Regulation, New Reactors, Nuclear Material Safety and Safeguards, Nuclear Security and Incident Response, Nuclear Regulatory Research, Uranium Recovery, Decommissioning, and each regional office. Please provide this information for the current month, each of the previous eleven months, and projections for each of the twelve months going forward. Please do not divide by twelve.

U.S. Nuclear Regulatory Commission Agency Level FTE Actuals and Projections 11 Months Prior and 12 Months Future Data as of 05/12/2018				
Period	Actual/ Projected FTE for the Period	Fiscal Year to Date FTE	Annual Budget	
05/14/2017 - 06/10/2017	245.6	2265.6		
06/11/2017 - 07/08/2017	245.1	2510.7		
07/09/2017 - 08/05/2017	244.2	2754.9		
08/06/2017 - 09/02/2017	243.2	2998.1		
09/03/2017 - 09/30/2017	242.8	3240.9	3405	FY 2017
10/01/2017 - 10/28/2017	241.3	241.3		
10/29/2017 - 11/25/2017	240.8	482.1		
11/26/2017 - 12/23/2017	240.4	722.5		
12/24/2017 - 01/20/2018	238.2	960.7		
01/21/2018 - 02/17/2018	237.7	1198.4		
02/18/2018 - 03/17/2018	236.9	1435.3		
03/18/2018 - 04/14/2018	235.7	1671.0		
04/15/2018 - 05/12/2018	234.5	1905.5		
05/13/2018 - 06/09/2018	233.5	2139.0		
06/10/2018 - 07/07/2018	233.2	2372.2		
07/08/2018 - 08/04/2018	232.9	2605.1		
08/05/2018 - 09/01/2018	232.6	2837.7		
09/02/2018 - 09/29/2018	232.7	3070.4	3195	FY 2018
09/30/2018 - 10/27/2018	232.6	232.6		
10/28/2018 - 11/24/2018	232.5	465.1		
11/25/2018 - 12/22/2018	232.5	697.6		
12/23/2018 - 01/19/2019	232.5	930.1		
01/20/2019 - 02/16/2019	232.5	1162.6		
02/17/2019 - 03/16/2019	232.5	1395.1		
03/17/2019 - 04/13/2019	232.5	1627.6		
04/14/2019 - 05/11/2019	232.5	1860.1	3255	FY 2019

Notes:
1 Data are reported in two-pay-period groups because of the biweekly payroll cycle.
2 Actual/projected FTE for the period reflects FTE utilization (or projected utilization).
3 Projection is approximately $1/12^{th}$ of total year FTE expenditures, adjusted for known future gains and losses through the end of the fiscal year.
4 Includes staff in the Office of the Inspector General.
5 Includes reimbursable FTE for work performed for other Federal agencies and non-Federal organizations.
6 FY 2019 Agency Level FTE includes FTE associated with the High-Level Waste Program (HLW) activities. The Office Level tables, however, do not include the annual budgeted FTE for the HLW program; FTE will be allocated at the Office Level in future reports, if funds are enacted.

U.S. Nuclear Regulatory Commission Office of Nuclear Reactor Regulation FTE Actuals and Projections 11 Months Prior and 12 Months Future Data as of 05/12/2018				
Period	Actual/ Projected FTE for the Period	Fiscal Year to Date FTE	Annual Budget	
05/14/2017 - 06/10/2017	36.6	339.9		
06/11/2017 - 07/08/2017	36.5	376.4		
07/09/2017 - 08/05/2017	36.4	412.8		
08/06/2017 - 09/02/2017	36.4	449.2		
09/03/2017 - 09/30/2017	36.1	485.3	488	FY 2017
10/01/2017 - 10/28/2017	35.9	35.9		
10/29/2017 - 11/25/2017	34.7	70.6		
11/26/2017 - 12/23/2017	34.5	105.1		
12/24/2017 - 01/20/2018	34.5	139.6		
01/21/2018 - 02/17/2018	34.3	173.9		
02/18/2018 - 03/17/2018	34.4	208.3		
03/18/2018 - 04/14/2018	34.3	242.6		
04/15/2018 - 05/12/2018	34.1	276.7		
05/13/2018 - 06/09/2018	34.1	310.8		
06/10/2018 - 07/07/2018	34.0	344.8		
07/08/2018 - 08/04/2018	33.9	378.7		
08/05/2018 - 09/01/2018	33.9	412.6		
09/02/2018 - 09/29/2018	33.8	446.4	451	FY 2018
09/30/2018 - 10/27/2018	33.8	33.8		
10/28/2018 - 11/24/2018	33.7	67.5		
11/25/2018 - 12/22/2018	33.7	101.2		
12/23/2018 - 01/19/2019	33.7	134.9		
01/20/2019 - 02/16/2019	33.7	168.6		
02/17/2019 - 03/16/2019	33.7	202.3		
03/17/2019 - 04/13/2019	33.7	236.0		
04/14/2019 - 05/11/2019	33.7	269.7	451	FY 2019

Notes:
1 Data are reported in two-pay-period groups because of the biweekly payroll cycle.
2 Actual/projected FTE for the period reflects FTE utilization (or projected utilization).
3 Projection is approximately $1/12^{th}$ of total year FTE expenditures, adjusted for known future gains and losses through the end of the fiscal year.
4 Includes all staff in NRR.
5 Includes reimbursable FTE for work performed for other Federal agencies and non-Federal organizations.

U.S. Nuclear Regulatory Commission Office of New Reactors FTE Actuals and Projections 11 Months Prior and 12 Months Future Data as of 05/12/2018				
Period	Actual/ Projected FTE for the Period	Fiscal Year to Date FTE	Annual Budget	
05/14/2017 - 06/10/2017	22.3	206.8		
06/11/2017 - 07/08/2017	22.4	229.2		
07/09/2017 - 08/05/2017	22.2	251.4		
08/06/2017 - 09/02/2017	22.1	273.5		
09/03/2017 - 09/30/2017	22.0	295.5	313	FY 2017
10/01/2017 - 10/28/2017	22.0	22.0		
10/29/2017 - 11/25/2017	21.9	43.9		
11/26/2017 - 12/23/2017	21.6	65.5		
12/24/2017 - 01/20/2018	20.8	86.3		
01/21/2018 - 02/17/2018	20.9	107.2		
02/18/2018 - 03/17/2018	20.6	127.8		
03/18/2018 - 04/14/2018	20.5	148.3		
04/15/2018 - 05/12/2018	20.3	168.6		
05/13/2018 - 06/09/2018	20.3	188.9		
06/10/2018 - 07/07/2018	20.2	209.1		
07/08/2018 - 08/04/2018	20.2	229.3		
08/05/2018 - 09/01/2018	20.2	249.5		
09/02/2018 - 09/29/2018	20.2	269.7	275	FY 2018
09/30/2018 - 10/27/2018	20.1	20.1		
10/28/2018 - 11/24/2018	20.2	40.3		
11/25/2018 - 12/22/2018	20.2	60.5		
12/23/2018 - 01/19/2019	20.2	80.7		
01/20/2019 - 02/16/2019	20.2	100.9		
02/17/2019 - 03/16/2019	20.2	121.1		
03/17/2019 - 04/13/2019	20.2	141.3		
04/14/2019 - 05/11/2019	20.2	161.5	263	FY 2019

Notes:
1 Data are reported in two-pay-period groups because of the biweekly payroll cycle.
2 Actual/projected FTE for the period reflects FTE utilization (or projected utilization).
3 Projection is approximately $1/12^{th}$ of total year FTE expenditures, adjusted for known future gains and losses through the end of the fiscal year.
4 Includes all staff in NRO.
5 Includes reimbursable FTE for work performed for other Federal agencies and non-Federal organizations.

U.S. Nuclear Regulatory Commission Office of Nuclear Materials Safety and Safeguards FTE Actuals and Projections 11 Months Prior and 12 Months Future Data as of 05/12/2018				
Period	Actual/ Projected FTE for the Period	Fiscal Year to Date FTE	Annual Budget	
05/14/2017 - 06/10/2017	21.7	200.4		
06/11/2017 - 07/08/2017	22.0	222.4		
07/09/2017 - 08/05/2017	21.9	244.3		
08/06/2017 - 09/02/2017	21.9	266.2		
09/03/2017 - 09/30/2017	21.9	288.1	297	FY 2017
10/01/2017 - 10/28/2017	21.5	21.5		
10/29/2017 - 11/25/2017	23.1	44.6		
11/26/2017 - 12/23/2017	23.2	67.8		
12/24/2017 - 01/20/2018	23.3	91.1		
01/21/2018 - 02/17/2018	23.4	114.5		
02/18/2018 - 03/17/2018	23.3	137.8		
03/18/2018 - 04/14/2018	23.0	160.8		
04/15/2018 - 05/12/2018	22.7	183.5		
05/13/2018 - 06/09/2018	22.5	206.0		
06/10/2018 - 07/07/2018	22.4	228.4		
07/08/2018 - 08/04/2018	22.4	250.8		
08/05/2018 - 09/01/2018	22.4	273.2		
09/02/2018 - 09/29/2018	22.4	295.6	312	FY 2018
09/30/2018 - 10/27/2018	22.4	22.4		
10/28/2018 - 11/24/2018	22.3	44.7		
11/25/2018 - 12/22/2018	22.3	67.0		
12/23/2018 - 01/19/2019	22.4	89.4		
01/20/2019 - 02/16/2019	22.4	111.8		
02/17/2019 - 03/16/2019	22.4	134.2		
03/17/2019 - 04/13/2019	22.4	156.6		
04/14/2019 - 05/11/2019	22.4	179.0	292	FY 2019

Notes:
1 Data are reported in two-pay-period groups because of the biweekly payroll cycle.
2 Actual/projected FTE for the period reflects FTE utilization (or projected utilization).
3 Projection is approximately 1/12th of total year FTE expenditures, adjusted for known future gains and losses through the end of the fiscal year.
4 Provides all staff in NMSS, including FTE for Uranium Recovery and Reactor Decommissioning.
5 Includes reimbursable FTE for work performed for other Federal agencies and non-Federal organizations.

U.S. Nuclear Regulatory Commission Office of Nuclear Regulatory Research FTE Actuals and Projections 11 Months Prior and 12 Months Future Data as of 05/12/2018				
Period	Actual/ Projected FTE for the Period	Fiscal Year to Date FTE	Annual Budget	
05/14/2017 - 06/10/2017	15.3	142.7		
06/11/2017 - 07/08/2017	15.3	158.0		
07/09/2017 - 08/05/2017	15.3	173.3		
08/06/2017 - 09/02/2017	15.3	188.6		
09/03/2017 - 09/30/2017	15.1	203.7	197	FY 2017
10/01/2017 - 10/28/2017	15.0	15.0		
10/29/2017 - 11/25/2017	14.9	29.9		
11/26/2017 - 12/23/2017	15.1	45.0		
12/24/2017 - 01/20/2018	15.3	60.3		
01/21/2018 - 02/17/2018	15.2	75.5		
02/18/2018 - 03/17/2018	15.3	90.8		
03/18/2018 - 04/14/2018	15.4	106.2		
04/15/2018 - 05/12/2018	15.3	121.5		
05/13/2018 - 06/09/2018	15.4	136.9		
06/10/2018 - 07/07/2018	15.4	152.3		
07/08/2018 - 08/04/2018	15.4	167.7		
08/05/2018 - 09/01/2018	15.3	183.0		
09/02/2018 - 09/29/2018	15.3	198.3	201	FY 2018
09/30/2018 - 10/27/2018	15.3	15.3		
10/28/2018 - 11/24/2018	15.3	30.6		
11/25/2018 - 12/22/2018	15.3	45.9		
12/23/2018 - 01/19/2019	15.3	61.2		
01/20/2019 - 02/16/2019	15.3	76.5		
02/17/2019 - 03/16/2019	15.3	91.8		
03/17/2019 - 04/13/2019	15.3	107.1		
04/14/2019 - 05/11/2019	15.3	122.4	208	FY 2019

Notes:
1 Data are reported in two-pay-period groups because of the biweekly payroll cycle.
2 Actual/projected FTE for the period reflects FTE utilization (or projected utilization).
3 Projection is approximately $1/12^{th}$ of total year FTE expenditures, adjusted for known future gains and losses through the end of the fiscal year.
4 Includes all staff in RES.
5 Includes reimbursable FTE for work performed for other Federal agencies and non-Federal organizations.

U.S. Nuclear Regulatory Commission Office of Nuclear Security and Incident Response FTE Actuals and Projections 11 Months Prior and 12 Months Future Data as of 05/12/2018				
Period	Actual/ Projected FTE for the Period	Fiscal Year to Date FTE	Annual Budget	
05/14/2017 - 06/10/2017	13.3	122.3		
06/11/2017 - 07/08/2017	13.0	135.3		
07/09/2017 - 08/05/2017	12.9	148.2		
08/06/2017 - 09/02/2017	12.9	161.1		
09/03/2017 - 09/30/2017	12.9	174.0	182	FY 2017
10/01/2017 - 10/28/2017	13.0	13.0		
10/29/2017 - 11/25/2017	13.1	26.1		
11/26/2017 - 12/23/2017	13.2	39.3		
12/24/2017 - 01/20/2018	13.1	52.4		
01/21/2018 - 02/17/2018	13.0	65.4		
02/18/2018 - 03/17/2018	12.9	78.3		
03/18/2018 - 04/14/2018	12.7	91.0		
04/15/2018 - 05/12/2018	12.8	103.8		
05/13/2018 - 06/09/2018	12.9	116.7		
06/10/2018 - 07/07/2018	12.9	129.6		
07/08/2018 - 08/04/2018	12.9	142.5		
08/05/2018 - 09/01/2018	12.9	155.4		
09/02/2018 - 09/29/2018	12.9	168.3	176	FY 2018
09/30/2018 - 10/27/2018	12.9	12.9		
10/28/2018 - 11/24/2018	13.0	25.9		
11/25/2018 - 12/22/2018	13.0	38.9		
12/23/2018 - 01/19/2019	13.0	51.9		
01/20/2019 - 02/16/2019	13.0	64.9		
02/17/2019 - 03/16/2019	13.0	77.9		
03/17/2019 - 04/13/2019	13.0	90.9		
04/14/2019 - 05/11/2019	13.0	103.9	168	FY 2019

Notes:
1 Data are reported in two-pay-period groups because of the biweekly payroll cycle.
2 Actual/projected FTE for the period reflects FTE utilization (or projected utilization).
3 Projection is approximately $1/12^{th}$ of total year FTE expenditures, adjusted for known future gains and losses through the end of the fiscal year.
4 Includes all staff in NSIR.
5 Includes reimbursable FTE for work performed for other Federal agencies and non-Federal organizations.

U.S. Nuclear Regulatory Commission Uranium Recovery FTE Actuals and Projections 11 Months Prior and 12 Months Future Data as of 05/12/2018				
Period	Actual/ Projected FTE for the Period	Fiscal Year to Date FTE	Annual Budget	
05/14/2017 - 06/10/2017	1.7	15.3		
06/11/2017 - 07/08/2017	1.7	17.0		
07/09/2017 - 08/05/2017	1.7	18.7		
08/06/2017 - 09/02/2017	1.7	20.4		
09/03/2017 - 09/30/2017	1.6	22.0	31	FY 2017
10/01/2017 - 10/28/2017	1.6	1.6		
10/29/2017 - 11/25/2017	1.6	3.2		
11/26/2017 - 12/23/2017	1.6	4.8		
12/24/2017 - 01/20/2018	1.5	6.3		
01/21/2018 - 02/17/2018	1.5	7.8		
02/18/2018 - 03/17/2018	1.5	9.3		
03/18/2018 - 04/14/2018	1.4	10.7		
04/15/2018 - 05/12/2018	1.4	12.1		
05/13/2018 - 06/09/2018	1.4	13.5		
06/10/2018 - 07/07/2018	1.5	15.0		
07/08/2018 - 08/04/2018	1.5	16.5		
08/05/2018 - 09/01/2018	1.5	18.0		
09/02/2018 - 09/29/2018	1.5	19.5	30	FY 2018
09/30/2018 - 10/27/2018	1.5	1.5		
10/28/2018 - 11/24/2018	1.5	3.0		
11/25/2018 - 12/22/2018	1.5	4.5		
12/23/2018 - 01/19/2019	1.5	6.0		
01/20/2019 - 02/16/2019	1.5	7.5		
02/17/2019 - 03/16/2019	1.5	9.0		
03/17/2019 - 04/13/2019	1.5	10.5		
04/14/2019 - 05/11/2019	1.5	12.0	15	FY 2019

Notes:
1 Data are reported in two-pay-period groups because of the biweekly payroll cycle.
2 Actual/projected FTE for the period reflects FTE utilization (or projected utilization).
3 Projection is approximately $1/12^{th}$ of total year FTE expenditures, adjusted for known future gains and losses through the end of the fiscal year.
4 Includes all staff in the Uranium Recovery Branch of the Office of Nuclear Material Safety and Safeguards (NMSS), and relevant staff in the following:
Environmental Review Branch, NMSS; Division of Materials Safety, Security, State, and Tribal Programs, NMSS; Fuel Cycle and Decommissioning Branch, Region IV;
Office of General Counsel (OGC); and Atomic Safety Licensing Board Panel (ASLB).

U.S. Nuclear Regulatory Commission Decommissioning FTE Actuals and Projections 11 Months Prior and 12 Months Future Data as of 05/12/2018				
Period	Actual/ Projected FTE for the Period	Fiscal Year to Date FTE	Annual Budget	
05/14/2017 - 06/10/2017	3.4	29.9		
06/11/2017 - 07/08/2017	3.4	33.3		
07/09/2017 - 08/05/2017	3.5	36.8		
08/06/2017 - 09/02/2017	3.5	40.3		
09/03/2017 - 09/30/2017	3.5	43.8	37	FY 2017
10/01/2017 - 10/28/2017	3.5	3.5		
10/29/2017 - 11/25/2017	3.5	7.0		
11/26/2017 - 12/23/2017	3.5	10.5		
12/24/2017 - 01/20/2018	3.4	13.9		
01/21/2018 - 02/17/2018	3.4	17.3		
02/18/2018 - 03/17/2018	3.4	20.7		
03/18/2018 - 04/14/2018	3.3	24.0		
04/15/2018 - 05/12/2018	3.3	27.3		
05/13/2018 - 06/09/2018	3.2	30.5		
06/10/2018 - 07/07/2018	3.1	33.6		
07/08/2018 - 08/04/2018	3.2	36.8		
08/05/2018 - 09/01/2018	3.2	40.0		
09/02/2018 - 09/29/2018	3.2	43.2	37	FY 2018
09/30/2018 - 10/27/2018	3.2	3.2		
10/28/2018 - 11/24/2018	3.2	6.4		
11/25/2018 - 12/22/2018	3.2	9.6		
12/23/2018 - 01/19/2019	3.2	12.8		
01/20/2019 - 02/16/2019	3.2	16.0		
02/17/2019 - 03/16/2019	3.3	19.3		
03/17/2019 - 04/13/2019	3.3	22.6		
04/14/2019 - 05/11/2019	3.3	25.9	35	FY 2019

Notes:

1 Data are reported in two-pay-period groups because of the biweekly payroll cycle.
2 Actual/projected FTE for the period reflects FTE utilization (or projected utilization).
3 Projection is approximately $1/12^{th}$ of total year FTE expenditures, adjusted for known future gains and losses through the end of the fiscal year.
4 Includes all staff in the Reactor and Materials Decommissioning Branches of NMSS, plus relevant contributions from staff in OGC, R-I, and R-III. No mission support staff, second level and above supervisory staff, or staff support from other offices is included.

U.S. Nuclear Regulatory Commission Region I FTE Actuals and Projections 11 Months Prior and 12 Months Future Data as of 05/12/2018				
Period	Actual/ Projected FTE for the Period	Fiscal Year to Date FTE	Annual Budget	
05/14/2017 - 06/10/2017	15.3	140.4		
06/11/2017 - 07/08/2017	15.5	155.9		
07/09/2017 - 08/05/2017	15.7	171.6		
08/06/2017 - 09/02/2017	15.6	187.2		
09/03/2017 - 09/30/2017	15.5	202.7	209	FY 2017
10/01/2017 - 10/28/2017	15.4	15.4		
10/29/2017 - 11/25/2017	15.5	30.9		
11/26/2017 - 12/23/2017	15.4	46.3		
12/24/2017 - 01/20/2018	15.1	61.4		
01/21/2018 - 02/17/2018	14.9	76.3		
02/18/2018 - 03/17/2018	14.8	91.1		
03/18/2018 - 04/14/2018	14.8	105.9		
04/15/2018 - 05/12/2018	14.8	120.7		
05/13/2018 - 06/09/2018	14.8	135.5		
06/10/2018 - 07/07/2018	14.7	150.2		
07/08/2018 - 08/04/2018	14.7	164.9		
08/05/2018 - 09/01/2018	14.6	179.5		
09/02/2018 - 09/29/2018	14.6	194.1	198	FY 2018
09/30/2018 - 10/27/2018	14.6	14.6		
10/28/2018 - 11/24/2018	14.5	29.1		
11/25/2018 - 12/22/2018	14.5	43.6		
12/23/2018 - 01/19/2019	14.5	58.1		
01/20/2019 - 02/16/2019	14.5	72.6		
02/17/2019 - 03/16/2019	14.5	87.1		
03/17/2019 - 04/13/2019	14.5	101.6		
04/14/2019 - 05/11/2019	14.5	116.1	195	FY 2019

Notes:
1 Data are reported in two-pay-period groups because of the biweekly payroll cycle.
2 Actual/projected FTE for the period reflects FTE utilization (or projected utilization).
3 Projection is approximately $1/12^{th}$ of total year FTE expenditures, adjusted for known future gains and losses through the end of the fiscal year.
4 Includes all staff in R-I.

U.S. Nuclear Regulatory Commission Region II FTE Actuals and Projections 11 Months Prior and 12 Months Future Data as of 05/12/2018				
Period	Actual/ Projected FTE for the Period	Fiscal Year to Date FTE	Annual Budget	
05/14/2017 - 06/10/2017	20.3	181.9		
06/11/2017 - 07/08/2017	20.0	201.9		
07/09/2017 - 08/05/2017	19.9	221.8		
08/06/2017 - 09/02/2017	19.8	241.6		
09/03/2017 - 09/30/2017	19.8	261.4	274	FY 2017
10/01/2017 - 10/28/2017	19.7	19.7		
10/29/2017 - 11/25/2017	19.6	39.3		
11/26/2017 - 12/23/2017	19.6	58.9		
12/24/2017 - 01/20/2018	19.4	78.3		
01/21/2018 - 02/17/2018	19.3	97.6		
02/18/2018 - 03/17/2018	19.2	116.8		
03/18/2018 - 04/14/2018	19.2	136.0		
04/15/2018 - 05/12/2018	19.1	155.1		
05/13/2018 - 06/09/2018	18.8	173.9		
06/10/2018 - 07/07/2018	18.7	192.6		
07/08/2018 - 08/04/2018	18.6	211.2		
08/05/2018 - 09/01/2018	18.5	229.7		
09/02/2018 - 09/29/2018	18.5	248.2	253	FY 2018
09/30/2018 - 10/27/2018	18.5	18.5		
10/28/2018 - 11/24/2018	18.5	37.0		
11/25/2018 - 12/22/2018	18.5	55.5		
12/23/2018 - 01/19/2019	18.5	74.0		
01/20/2019 - 02/16/2019	18.5	92.5		
02/17/2019 - 03/16/2019	18.5	111.0		
03/17/2019 - 04/13/2019	18.5	129.5		
04/14/2019 - 05/11/2019	18.5	148.0	249	FY 2019

Notes:
1 Data are reported in two-pay-period groups because of the biweekly payroll cycle.
2 Actual/projected FTE for the period reflects FTE utilization (or projected utilization).
3 Projection is approximately $1/12^{th}$ of total year FTE expenditures, adjusted for known future gains and losses through the end of the fiscal year.
4 Includes all staff in R-II.

U.S. Nuclear Regulatory Commission Region III FTE Actuals and Projections 11 Months Prior and 12 Months Future Data as of 05/12/2018				
Period	Actual/ Projected FTE for the Period	Fiscal Year to Date FTE	Annual Budget	
05/14/2017 - 06/10/2017	14.3	128.3		
06/11/2017 - 07/08/2017	14.5	142.8		
07/09/2017 - 08/05/2017	14.4	157.2		
08/06/2017 - 09/02/2017	14.2	171.4		
09/03/2017 - 09/30/2017	14.2	185.6	197	FY 2017
10/01/2017 - 10/28/2017	14.3	14.3		
10/29/2017 - 11/25/2017	14.3	28.6		
11/26/2017 - 12/23/2017	14.3	42.9		
12/24/2017 - 01/20/2018	14.1	57.0		
01/21/2018 - 02/17/2018	14.0	71.0		
02/18/2018 - 03/17/2018	13.9	84.9		
03/18/2018 - 04/14/2018	13.9	98.8		
04/15/2018 - 05/12/2018	13.8	112.6		
05/13/2018 - 06/09/2018	13.9	126.5		
06/10/2018 - 07/07/2018	13.9	140.4		
07/08/2018 - 08/04/2018	14.0	154.4		
08/05/2018 - 09/01/2018	14.0	168.4		
09/02/2018 - 09/29/2018	14.0	182.4	188	FY 2018
09/30/2018 - 10/27/2018	14.0	14.0		
10/28/2018 - 11/24/2018	14.0	28.0		
11/25/2018 - 12/22/2018	14.0	42.0		
12/23/2018 - 01/19/2019	14.0	56.0		
01/20/2019 - 02/16/2019	14.0	70.0		
02/17/2019 - 03/16/2019	14.0	84.0		
03/17/2019 - 04/13/2019	14.0	98.0		
04/14/2019 - 05/11/2019	14.0	112.0	182	FY 2019

Notes:
1 Data are reported in two-pay-period groups because of the biweekly payroll cycle.
2 Actual/projected FTE for the period reflects FTE utilization (or projected utilization).
3 Projection is approximately $1/12^{th}$ of total year FTE expenditures, adjusted for known future gains and losses through the end of the fiscal year.
4 Includes all staff in R-III.

U.S. Nuclear Regulatory Commission Region IV FTE Actuals and Projections 11 Months Prior and 12 Months Future Data as of 05/12/2018				
Period	Actual/ Projected FTE for the Period	Fiscal Year to Date FTE	Annual Budget	
05/14/2017 - 06/10/2017	13.0	122.8		
06/11/2017 - 07/08/2017	13.0	135.8		
07/09/2017 - 08/05/2017	13.0	148.8		
08/06/2017 - 09/02/2017	13.0	161.8		
09/03/2017 - 09/30/2017	12.8	174.6	187	FY 2017
10/01/2017 - 10/28/2017	12.6	12.6		
10/29/2017 - 11/25/2017	12.6	25.2		
11/26/2017 - 12/23/2017	12.7	37.9		
12/24/2017 - 01/20/2018	12.8	50.7		
01/21/2018 - 02/17/2018	12.9	63.6		
02/18/2018 - 03/17/2018	12.9	76.5		
03/18/2018 - 04/14/2018	12.9	89.4		
04/15/2018 - 05/12/2018	12.8	102.2		
05/13/2018 - 06/09/2018	12.7	114.9		
06/10/2018 - 07/07/2018	12.9	127.8		
07/08/2018 - 08/04/2018	13.0	140.8		
08/05/2018 - 09/01/2018	13.0	153.8		
09/02/2018 - 09/29/2018	13.0	166.8	175	FY 2018
09/30/2018 - 10/27/2018	13.0	13.0		
10/28/2018 - 11/24/2018	13.0	26.0		
11/25/2018 - 12/22/2018	13.0	39.0		
12/23/2018 - 01/19/2019	13.0	52.0		
01/20/2019 - 02/16/2019	13.0	65.0		
02/17/2019 - 03/16/2019	13.0	78.0		
03/17/2019 - 04/13/2019	13.0	91.0		
04/14/2019 - 05/11/2019	13.0	104.0	169	FY 2019

Notes:
1 Data are reported in two-pay-period groups because of the biweekly payroll cycle.
2 Actual/projected FTE for the period reflects FTE utilization (or projected utilization).
3 Projection is approximately $1/12^{th}$ of total year FTE expenditures, adjusted for known future gains and losses through the end of the fiscal year.
4 Includes all staff in R-IV.

U.S. Nuclear Regulatory Commission Corporate Support Functions FTE Actuals and Projections 11 Months Prior and 12 Months Future Data as of 05/12/2018				
Period	Actual/ Projected FTE for the Period	Fiscal Year to Date FTE		
05/14/2017 - 06/10/2017	38.4	363.0		
06/11/2017 - 07/08/2017	38.2	401.2		
07/09/2017 - 08/05/2017	37.9	439.1		
08/06/2017 - 09/02/2017	37.4	476.5		
09/03/2017 - 09/30/2017	37.3	513.8	594	FY 2017
10/01/2017 - 10/28/2017	36.9	36.9		
10/29/2017 - 11/25/2017	36.0	72.9		
11/26/2017 - 12/23/2017	35.8	108.7		
12/24/2017 - 01/20/2018	35.3	144.0		
01/21/2018 - 02/17/2018	35.2	179.2		
02/18/2018 - 03/17/2018	34.9	214.1		
03/18/2018 - 04/14/2018	34.6	248.7		
04/15/2018 - 05/12/2018	34.5	283.2		
05/13/2018 - 06/09/2018	34.5	317.7		
06/10/2018 - 07/07/2018	34.7	352.4		
07/08/2018 - 08/04/2018	34.5	386.9		
08/05/2018 - 09/01/2018	34.5	421.4		
09/02/2018 - 09/29/2018	34.5	455.9	510	FY 2018
09/30/2018 - 10/27/2018	34.5	34.5		
10/28/2018 - 11/24/2018	34.5	69.0		
11/25/2018 - 12/22/2018	34.5	103.5		
12/23/2018 - 01/19/2019	34.5	138.0		
01/20/2019 - 02/16/2019	34.5	172.5		
02/17/2019 - 03/16/2019	34.5	207.0		
03/17/2019 - 04/13/2019	34.5	241.5		
04/14/2019 - 05/11/2019	34.5	276.0	506	FY 2019

Notes:
1 Data are reported in two-pay-period groups because of the biweekly payroll cycle.
2 Actual/projected FTE for the period reflects FTE utilization (or projected utilization).
3 Projection is approximately $1/12^{th}$ of total year FTE expenditures, adjusted for known future gains and losses through the end of the fiscal year.
4 Includes all staff in the following corporate support offices: Office of the Chief Financial Officer, Office of the Chief Information Officer, Office of Administration, Office of Small Business and Civil Rights, and Office of the Chief Human Capital Officer.
5 Includes reimbursable FTE for work performed for other Federal agencies and non-Federal organizations.

4. Please describe the status of actions taken or planned to reduce corporate support costs, including efforts to reduce office space in the Three While Flint North building and in the regional offices. Please include goals for space reductions and cost savings, as well as the estimated date to achieve those goals.

The NRC remains committed to identifying and achieving efficiencies in the corporate support area. In the SRM to the Project Aim Report, the Commission directed the staff to re-baseline the agency's workload—focusing on statutory mandates, as well as work pertaining to the agency's safety and security mission. In addition, in SECY-16-0035, "Additional Re-baselining Products", the NRC staff identified other actions that could provide additional efficiencies in the long-term. The remaining outstanding planned reductions are contained in the table below and will continue to be updated as they are achieved.

Product Line	Description	Total $ (M)*	FTE	Status	Fiscal Year
Additional Re-baselining Products (SECY-16-0035)					
Administrative Services	Reduce Office Space in Three White Flint North	-4.0	0	In process	FY 2019 – FY 2020
Administrative Services	Reduce Office Space in the Regions	-1.2	0	In process	FY 2018 – FY 2022
Administrative Services and Information Technology	Workstation Efficiencies	TBD	TBD	In process	FY 2019
	Subtotal – Additional Re-baselining Reductions	**-$5.2**	**0.0**		
Other Corporate Support Reductions					
Information Technology	IT Infrastructure Support - the agency expects to realize a 10 to 15 percent drop in contract expenses resulting from a new acquisition strategy.	-3.6	0	In process	FY 2018
	Subtotal – Other Corporate Support	**-$3.6**	**0.0**		
Total		**-$8.8**	**0.0**		

*Total includes any FTE cost.

Reduction of Office Space.

NRC office space is currently comprised of a Headquarters Campus in Rockville, MD (One White Flint North (OWFN), Two White Flint North (TWFN), and partial space in Three White Flint North (3WFN)), a warehouse, four regional office buildings, and a technical training center. From FY 2013 through FY 2015, NRC relinquished a net total of 364,997 useable square feet (USF) at its headquarters by shedding a total of eight floors in the 3WFN building and four temporary satellite locations. As a result, the agency's headquarters office space now consists of OWFN, TWFN, and five floors and the B1 level of 3WFN. On March 19, 2018, pursuant to the annual reporting requirements of the Federal Property Management Reform Act of 2016, the staff submitted its Draft FY 2019 through FY 2023 Real Property Efficiency Plan to the Federal Real Property Council. The draft plan outlined NRC's space reduction strategy over the 5 year

period. NRC plans to relinquish an additional 141,000 USF of office space at its headquarters location and four regional office locations, from FY 2019 through FY 2022. This space consists of four floors in 3WFN totaling 93,000 USF, and approximately 48,000 USF at the regional locations, by consolidating at headquarters and within each regional office location. Since the submission of the draft plan, NRC anticipates a more expedited release of space in 3WFN than what was assumed in the draft plan. NRC now plans to complete the relinquishment of the four floors in 3WFN by FY 2020 (as opposed to the previously reported completion in FY 2021), by releasing two floors of 3WFN in FY 2019 and the remaining two floors in FY 2020. NRC's updated proposed agency-wide total space reduction goals for each fiscal year are shown in the table below.

NRC Square Foot Reduction Goals FY 2019 – FY 2022				
	FY 2019	**FY 2020**	**FY 2021**	**FY 2022**
Office Target (Net SF Reduction)	54,190	60,810	11,000	15,000

Significantly reducing costs by releasing the space will be a challenge due to the non-cancelable terms of many of the occupancy agreements and leases, including the terms of 3WFN. However, NRC is working with the General Services Administration (GSA) to identify potential tenants for both 3WFN and the regional office locations. The pursuit of backfill tenants resulted in the Food and Drug Administration (FDA) signing an occupancy agreement to backfill one additional floor in 3WFN in FY 2019, and the National Institutes of Health (NIH) agreeing to backfill one floor in mid-2019 and the remaining two floors in FY 2020 (revised from last month's report). Regional office space reductions can be achieved by reconfiguring the existing space to use fewer square feet, thereby allowing for unused blocks of space to be released. However, with the exception of NRC's Region III office in Lisle, IL, rent savings will not be achieved until GSA identifies and places a new tenant into the released space, or until such time as the terms of the NRC's current leases allow. The timing and scope of the regional reductions will be refined as NRC works to finalize each location's relinquishment plan, however the current square footage estimates and schedules for release are as follows: Region III, Lisle, IL, 7,000 USF in early FY 2019 timeframe (revised from last month's report); Region II, Atlanta, GA, 15,000 USF in FY 2019;, Region IV, Arlington, TX, 11,000 USF in FY 2021, and Region I, King of Prussia, PA, 15,000 USF in FY 2022.

Per the terms of occupancy agreements signed by FDA and NIH regarding the backfill of the four floors to be released in 3WFN, the NRC anticipates an annual reduction of $1 million per floor for each floor relinquished upon a new tenant taking the space. The agency now anticipates rent costs decreasing in October 2018 when FDA occupies the 2nd floor of 3WFN, and again by mid-FY 2019 and 2020 (revised from last month's report) as NIH begins to occupy the remaining three floors. Once the release of NRC's space is complete in FY 2020, the agency will realize a total annual reduction of $4 million in office space costs going forward. Cost reductions for the regional locations are likewise dependent upon successful and timely leasing of the space to new tenants. The annual reduction in costs for the regional office space is anticipated to average approximately $300,000 per regional office. As a result of the planned space reductions, NRC anticipates an annual total rent reduction of $5.2 million from FY 2022 forward, as compared to FY 2018.

5. Please describe the status of efforts to provide greater transparency, timeliness, and itemization in invoices to applicants and licensees, including any progress toward electronic invoicing and payment. Please include near-term (within 6 months), medium-term (6 to 12 months), and long-term (greater than 12 months) milestones.

Improvements to invoices showing itemized charges by standard codes for greater transparency and timeliness.

Near-Term:

- The NRC will continue to evaluate feedback on the changes to the invoices.

Medium-Term:

- The Office of the Chief Financial Officer (OCFO) is working with an intra-agency working group during FY 2018 to implement a standardized 10 CFR Part 170 (fees for service) fee billing validation process, and establish standardized roles and responsibilities. The working group will develop, pilot, and finalize the process. OCFO will provide training to all staff involved in the billing process. OCFO has determined that system enhancements are required in order to facilitate the new standardized process, and is therefore reevaluating the estimated completion timeframe.

Progress towards electronic invoicing and payment.

The NRC is currently in the planning phase of the electronic invoicing (eBilling) project, which includes the following tasks:

Near-Term:

- Update the current “as-is” fee billing processes and fee billing information technology systems for OCFO acceptance (in progress).
- Select an eBilling tool (in progress).

Medium-Term:

- Establish the initial eBilling solution based on the eBilling tool selected, outreach activities, lesson learned opportunities, and a requirements analysis.
- Reach out to stakeholders for input on the initial eBilling proposed solution and to identify licensees to participate in phased-approach implementation pilot.
- Develop a phased-approach and corresponding project plan to implement the eBilling solution based on stakeholder feedback.

Long-Term:

- Execute the eBilling solution. The initial phased approach deployment is planned to occur on or about October 2019.
- Continue to perform outreach activities with stakeholders.

6. Please provide a list of all new research initiated during the reporting period. For each new project, please provide the estimated timeframe and resources necessary for completion, and a description of the safety significance of the research.

During the month of May 2018, the Office of Nuclear Regulatory Research (RES) initiated research on or substantially revised the following research:

Name of New or Revised Project	Estimated Completion	Estimated Resources	Safety Significance of Research Activity
User Need Request to Support Risk-Informed Reviews of Instrumentation and Control (I&C) System/Components – Technical Basis and Regulatory Approaches	September 2020	1 FTE / $900K of contract support	High – This activity supports risk informing digital I&C to support review efficiencies and regulatory decision making
User Need Request for Research on Embedded Digital Devices (EDDs) and Related Emerging Technologies – Development of Technical Basis and Recommendations for Evaluation Criteria	December 2020	0.8 FTE/$600K of contract support	High – This activity supports safety evaluations of the potential effects of EDDs on digital I&C systems in nuclear power plants
User Need Request For Developing New Regulatory Guide Related to Degraded Voltage and Loss of Voltage Protection in NPPs	May 2019	0.4 FTE	Medium – This activity involves the development of standard guidance for ensuring adequate voltage to power safety-related equipment especially when powered from offsite power sources.
User Need Request for Regulatory Research Supporting Licensing and Renewal of Dry Cask Storage Systems	May 2021	9 FTE/$2,000K of contract support	Medium – This activity supports safety evaluations for the renewal of licenses and certificates for spent nuclear fuel dry storage systems

Comments:

The table above provides projects that were reviewed and approved during the monthly reporting period for projects that exceed 300 staff hours or $500K of program support.

URANIUM RECOVERY

7. For major uranium recovery licensing actions, please provide a table including the date the application was filed, the duration of the application review, the originally forecasted completion date, the currently forecasted completion date, and the total current amount of fees billed to the licensee/applicant for the review.

Major Uranium Recovery Licensing Actions [1]

Licensee	Site/Facility Name	Licensing Action Type	Date of Submittal	Duration of Review [2] (months)	Originally Forecasted Completion Date	Currently Forecasted Completion Date	Total Current Fees Billed (through May 31, 2018)[3]
Uranium One [4]	Ludeman	Expansion	12/06/2011	73.0	08/14/2013	08/31/2018	$2,350,385.29
Kennecott	Sweetwater	Renewal	09/08/2014	42.5	12/31/2016	08/31/2018	$1,967,108.00
Crow Butte Resources (Cameco) [5]	Marsland	Expansion	06/20/2012	68.0	02/14/2015	Completed 05/23/2018	$4,073,788.46
Power Resources (Cameco)[6]	Smith Ranch	Renewal	02/01/2012	71.0	07/05/2015	09/27/2018	$2,637,037.24
Lost Creek, ISR [7]	KM Horizon/LC East	Expansion	02/27/2017	13.0	08/07/2018	08/07/2018	$1,582,850.95

Notes:

1. NRC staff completed a self-assessment of the uranium recovery licensing process in 2017. The review compared the uranium recovery licensing process to other licensing groups within the NRC to identify best practices. The review identified several recommendations for improvements to the uranium recovery licensing process. A number of these recommendations, such as the use of schedule letters to communicate changes in review schedules and developing tools to better track project status have already been implemented. In addition, in 2016, the uranium recovery program established an agency metric that tracks the percentage of major milestones completed on schedule. The uranium recovery staff anticipates that implementing these changes will result in future efficiencies in the uranium recovery licensing process.
2. The “duration of review” is the total amount of time the application has been under consideration, starting when the application was accepted for review by the NRC staff. The NRC’s goal is to complete major reviews within 36 months from acceptance of the application. The duration of review includes periods of delay that could be attributed to the NRC staff, the licensee, or both.
3. Fees for license-specific services under 10 CFR Part 170 are billed quarterly.
4. The duration of review has been primarily impacted by the applicant’s change in the design of the facility during the review process. The duration of review has also been impacted by a prior limited availability of health physics reviewers.
5. The duration of review was impacted by the applicant’s timeliness in responding to NRC staff’s RAI. The Marsland review was completed on May 23, 2018.
6. The duration of review has been primarily impacted by delays in applicant providing adequate responses to NRC staff’s RAI.
7. “Currently forecasted completion date” represents completion of NRC safety evaluation report. The NRC staff continues to coordinate with the U.S. Bureau of Land Management (BLM) in its preparation of the environmental impact statement (EIS) in accordance with the BLM/NRC Memorandum of Understanding (MOU) and the letter of December 4, 2014, designating BLM as the lead agency and the NRC as a cooperating agency. The BLM is scheduled to publish the final EIS in December 2018.

8. For major uranium recovery licensing actions, please provide a brief description of the status of each review, including· projected budget and timeline for both the environmental impact statement and the safety evaluation report.

The table below provides the status of major uranium recovery licensing actions currently under review, the timeline for completing the associated EISs and safety evaluation reports (SERs), and the total projected budget per project.

The NRC does not formulate its budget at the project level. The budget for the Uranium Recovery Program is formulated at a higher level using budget models for the number, type, and complexity of reviews anticipated. The projected budget information reported below includes the program staff and contract support resource estimates to perform the safety and environmental reviews from submittal to licensing decision, excluding resources for OGC's reviews, hearings, mission support, supervisory support, travel, and allocated agency corporate support resources. The estimates are based on budget models for different types (such as expansions, renewals, and new licenses) and complexities of major licensing action reviews. The NRC staff's goal is to complete the review of major licensing actions within 3 years; however, the staff estimates that smaller, less complex applications may be reviewed in 2 years, while larger, more complex, applications may require up to 4 years to review.

Uranium Recovery Applicant	**Application Accepted for Review**	**Review Status and Projected Budget**
Cameco North Trend Expansion(1) (NE)	08/28/07	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 SER for the North Trend expansion was completed in July 2013. The NRC staff has suspended its work related to the development of the draft Environmental Assessment (EA) 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 suspend any review of the application. The projected total budget to conduct the review is 3.0 FTE and $600K.
Uranium One Ludeman Expansion (WY)	05/16/12	The NRC staff completed the draft EA on February 27, 2018. Work will continue on the final EA, which is expected to be completed by August 3, 2018. The NRC staff completed its safety review documented in the final SER on March 1, 2018. The NRC staff is on schedule to make a licensing decision by August 31, 2018. The projected total budget to conduct the review is 3.0 FTE and $600K.

Uranium Recovery Applicant	Application Accepted for Review	Review Status and Projected Budget
Cameco Smith Ranch License Renewal[(1)] (WY)	07/05/12	Environmental and safety reviews are in progress. The NRC staff and Cameco met on February 21, 2018, to discuss Cameco's RAI responses. Cameco submitted updated RAI responses related to hydrogeology on March 7, 2018. Staff understands that Cameco is working to resolve the remaining RAI responses. The NRC staff's SER and EA completion dates in September 2018 were based on receipt of Cameco's RAI responses by January 19, 2018. The NRC staff is continuing to develop the SER and EA in an effort to complete this action prior to the potential Wyoming Agreement. However, the NRC has not yet received full RAI responses from Cameco. Therefore, the staff will reassess the schedule once additional information is received from the licensee. The projected total budget to conduct the review is 3.5 FTE.
Cameco Crow Butte Marsland Expansion[(1)] (NE)	10/05/12	The NRC staff completed its safety review for the final SER on January 29, 2018. The staff completed the final EA on April 27, 2018, and issued the license amendment on May 23, 2018. The Marsland expansion review has an admitted contention that is scheduled to go to hearing in October 2018. The projected total budget to conduct the review is 3.0 FTE and $600K.
Hydro Resources, Inc. (HRI) License Renewal (NM)	06/24/13	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. The projected total budget to conduct the review is 2.6 FTE.
Kennecott Sweetwater License Renewal (WY)	11/25/14	The licensee has maintained the facility in stand-by since 1983, waiting on better market conditions to resume operations. The staff completed its SER in February 2018. The draft EA was completed on March 27, 2018, and the final EA is scheduled to be completed on July 20, 2018. The review is on schedule to reach a licensing decision in August 2018.

Uranium Recovery Applicant	Application Accepted for Review	Review Status and Projected Budget
		The projected total budget to conduct the review is 0.5 FTE.
Strata Kendrick Expansion (WY)	01/14/16	On May 27, 2016, and September 14, 2016, the NRC staff issued RAIs for the environmental review and for the safety review, respectively. On December 15, 2016, the licensee requested that the NRC cease all activities related to this review. As a result of the licensee's request, the NRC staff is no longer reviewing this licensing action. The staff's safety and environmental reviews, including development of the Supplemental EIS, are on hold. The projected total budget to conduct the review is 3.5 FTE and $1500K, which includes completing the EIS.
Lost Creek KM Horizon/East Expansion (WY)	05/02/17	By letter dated February 27, 2017, the licensee resubmitted a revised application. The NRC staff has accepted the application for review on May 2, 2017. The NRC staff continues to coordinate with the BLM in its preparation of the EIS in accordance with the BLM/NRC MOU and the letter of December 4, 2014, designating BLM as the lead agency and NRC as a cooperating agency. BLM is scheduled to publish the final EIS in December 2018. The NRC staff is submitting its RAIs in batches in order to support BLM's schedule for issuing the EIS. The NRC staff issued its initial set of RAIs on July 27, 2017, its second set of RAIs on August 28, 2017, and its third set of RAIs on October 30, 2017. The final safety evaluation report is scheduled to be completed in August 2018. The projected total budget to conduct the review is 3.0 FTE.
Cameco Three Crow Expansion(1) (NE)		Three Crow is an expansion of the operating Crow Butte facility located in Crawford, NE. The NRC staff started its acceptance review on March 3, 2011, and was waiting for the licensee to complete changes in its design prior to acceptance. However, in November 2014, the licensee requested that the NRC staff place the review on hold and instead focus efforts on the review of the Marsland expansion. The acceptance review remains on hold.

Notes:

1. On February 9, 2018, Cameco announced that it is ceasing U.S. operations due to an expectation of prolonged poor uranium market conditions. The NRC staff is proceeding with its licensing reviews while seeking further information from Cameco regarding its licensing plans.

9. For minor uranium recovery licensing actions, please provide the following information each reporting period, including any months previously reported, in this format:
   a. Size of inventory;
   b. Number of acceptance reviews completed on time;
   c. The number of items completed in the period being reported; and
   d. Of the items completed in the reporting period, the number completed within the forecasted schedule.
   e. Please identify any "unusually complex" items omitted from the inventory and provide the age of the item, a brief description of the item, the justification for omitting it from the inventory size, and an explanation for any review exceeding its original schedule by 125 percent.

Month/Year	Size of Inventory	Number of Acceptance Reviews Completed on Time(1)	Number of Items Completed During Month	Number of Items Completed Within Forecasted Schedule(2)	Unusually Complex Items Omitted from Inventory
Nov-2017	21	NA	2	1	0
Dec-2017	21	1	0	0	0
Jan-2018	21(3)	1	1	1	0
Feb-2018	19	2	2	2	0
Mar-2018	11	NA	8	8	0
Apr-2018	10	3	2	2	0
May-2018	9	NA	1	1	0

Notes:
1. NA means no acceptance reviews were due.
2. This column represents the total number of minor licensing actions completed within the staff's forecasted schedule in a particular month. At times, the uranium recovery staff has to divert resources from minor licensing actions to address oversight of operating sites, emergent issues, and major licensing actions. When this occurs, the NRC staff tries to accommodate the licensee's priorities for completion of minor licensing actions. However, this has impacted the staff's ability to complete minor licensing actions within the forecasted schedule.
3. The size of the inventory for January has been decreased to account for the completion of a licensing action on January 31, 2018.

10. Please provide a concise summary of the status of the process for the State of Wyoming to become an Agreement State.

On February 27, 2015, Governor Matt Meade of Wyoming submitted a letter of intent for the State of Wyoming to become an Agreement State, under a limited agreement to regulate source and byproduct material (as defined in § 11e.(2) of the Atomic Energy Act (AEA)). A limited agreement is an agreement where a State assumes regulatory authority for a subset of the types and quantities of radioactive material that a State could assume authority for under the AEA. This agreement would authorize the State of Wyoming to assume regulatory authority over uranium and thorium milling (e.g., conventional and in-situ uranium recovery activities), the

possession and use of source material involved in the extraction and concentration of uranium and thorium in source material and ores at milling facilities, and the management and disposal of byproduct material as defined in Section 11e.(2) of the AEA.

The NRC and the Wyoming Department of Environmental Quality (DEQ) have worked closely to facilitate the timely completion of the Agreement through biweekly conference calls, in-person meetings, emails, and letters. As an interim step, the NRC staff, on July 5, 2016, requested Commission approval of the State of Wyoming's proposed approach to submit a draft application for a limited agreement. Under this approach six Uranium Mill Tailings Radiation Control Act (UMTRCA) sites would have been transferred to Wyoming under the Agreement. On August 3, 2016, the Commission approved this approach in SRM-SECY-16-0084.

On October 28, 2016, the State of Wyoming submitted a draft application for a limited agreement. The draft application proposed that the NRC retain jurisdiction over the six UMTRCA sites. In response to the draft application, the NRC staff had lengthy discussions with the State of Wyoming, after which the State of Wyoming proposed to include five UMTRCA sites in its final application. On August 16, 2017, the NRC staff recommended that the Commission approve the retention of NRC's regulatory authority over one of the six UMTRCA sites excluded in the State of Wyoming's draft application (i.e., the American Nuclear Corporation (ANC) site in Gas Hills, Wyoming). On October 4, 2017, the Commission approved the staff's proposal in SRM-SECY-17-0081.

In parallel with resolving the jurisdiction of the six UMTRCA sites, the NRC staff provided comments to Wyoming DEQ on the draft application in an April 20, 2017, letter. On June 22, July 17, and August 16, 2017, Wyoming DEQ provided written responses to address NRC's comments.

On November 14, 2017, the State of Wyoming submitted its formal request for an Agreement. Since the submittal of the final application, the NRC staff has reviewed the package to ensure that the State's program is adequate and compatible with the NRC's program. The NRC staff provided feedback to the State of Wyoming both officially (comment letter) and informally (bi-weekly teleconferences). On March 5, 2018, the State of Wyoming submitted revisions to its final application, addressing the NRC staff comments. The Commission approved the staff's request to publish the draft agreement between the NRC and Wyoming and the NRC staff's assessment for public comment. These documents were published on June 26, 2018, in the *Federal Register*, and will be repeated weekly for four weeks. Comments may be submitted through July 26, 2018, at regulations.gov under Docket ID NRC-2018-0104.

11. Please provide a concise summary of the specific actions planned to improve the efficiency of reviews conducted for compliance with the National Historic Preservation Act, including implementation dates for completion. Please describe any progress made during the reporting period.

The Section 106 process under the National Historic Preservation Act (NHPA) requires Federal agencies to take into account the effects of their undertakings on historic properties and afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment. Based on lessons learned in the uranium recovery licensing functional area, the NRC has taken a number of actions to facilitate and enhance its Section 106 reviews. Because each licensing or regulatory action differs in scope, the specific activities identified to carry out NRC's obligations under NHPA differ from one licensing or regulatory action to another. The following

specific actions have been identified and are being carried out to improve and facilitate compliance with the NHPA Section 106 process.

For efficiency, the NRC conducts the Section 106 process in coordination with the National Environmental Policy Act (NEPA) review process. To the extent possible, the NRC's completion date for its NHPA Section 106 review for a specific licensing action aligns with the date for publishing the final NEPA environmental review document.

In fiscal year 2013, the NRC entered into an interagency agreement with the ACHP, under which the ACHP established a dedicated liaison to provide the NRC with technical assistance with Section 106 reviews of specific licensing actions, as well as relevant training and guidance. To continue to improve the efficiency of the reviews, this year the ACHP is providing NRC staff with a series of webinars on the NHPA Section 106 process.

In June 2014, the NRC published its draft Interim Staff Guidance (ISG) for conducting the Section 106 process specific to uranium recovery licensing actions, "Guidance for Conducting the Section 106 Process of the National Historic Preservation Act for Uranium Recovery Licensing Actions" (FSME-ISG-02). Due to workload, resources, and other priorities, the NRC has had to delay completion of the ISG until the end of calendar year 2018.

To further improve the agency's NHPA and NEPA processes for licensing activities, the NRC has updated several documents regarding tribal consultation. The NRC published the final Tribal Policy Statement in the *Federal Register* on January 9, 2017 (82 FR 2402), and revised its Tribal Protocol Manual. The Tribal Protocol Manual is intended to facilitate effective consultations and interactions between the NRC and Tribes.

Consistent with NRC's MOU with BLM, in FY 2017, the NRC staff continued its coordination of NEPA and NHPA Section 106 reviews related to such facilities that require an NRC license to possess and use source and byproduct materials, and are located on public lands under BLM's regulatory authority. The goal of the MOU is to limit, to the extent possible, duplication of consultation, review, and evaluation efforts on a project.

The complexity of the Section 106 reviews associated with uranium recovery licensing actions has grown significantly and, as a result, NRC's consultation efforts with respect to its obligations under the Section 106 process have also increased. The NRC acknowledges that implementation of the Section 106 process continues to be a challenge affecting the licensing review schedule. The NRC staff will continue to evaluate its approach to the Section 106 process to identify additional activities that could be taken to better facilitate the process.

12. Please provide a concise summary of the progress of the pilot project to establish flat fees for uranium recovery licensees, including specific near-term (6 months), medium-term (6 - 12 months), and long-term (greater than 10 months) milestones necessary to complete the pilot program.

As directed by the Commission, the NRC staff will conduct a flat fee pilot program for routine uranium recovery licensing actions. As described in the staff paper SECY-16-0097, "Fee Setting Improvements and Fiscal Year 2017 Proposed Fee Rule," this pilot will involve evaluation of data to collect a representative sample of the costs for various licensing reviews. The staff believes that using data from the previous data recording structure that had less granularity could result in a proposed flat fee that is skewed either high or low for the work

delivered. Collecting representative samples of data under the new data recording structure, described in the response to question five, will allow NRC to determine a flat fee that is fair and equitable.

As of June 30, 2017, the agency completed development of a new data recording structure. By September 30, 2017, the NRC trained staff to record the data using the new structure. Concurrently, the staff began outreach to Agreement States with uranium recovery licensees to understand their fee schedule development process. The new data structure was deployed on October 1, 2017.

Near-Term:

- The NRC staff will record time and attendance, which indicates the hours spent on specific work products, using the new data structure.

- The NRC staff has completed its outreach to the Agreement States that have uranium recovery licensees and will use the information gathered to inform the staff's analysis regarding a flat fee structure.

Medium-Term:

- After a year of recording data using the new data structure, by November 1, 2018, the staff will begin analysis of the data to develop recommendations.

Long-Term:

- Beginning in January 2019, the staff will engage with stakeholders to solicit for comments and concerns. The analysis and draft recommendations will be completed by the end of April 2019. The recommendations will be included in the FY 2020 fee rule SECY paper due to the Commission on August 15, 2019. These recommendations will continue to address requirements under the Omnibus Budget Reconciliation Act of 1990 to collect approximately 90 percent of the NRC's annual budget through fees, and under the Independent Offices Appropriation Act, 1952 to assess user fees that are fair and based on the costs to the government and certain other factors. The Commission is expected to report its decision to Congress by the end of December 2019. The FY 2020 proposed fee rule is expected to be published in January 2020. The FY 2020 final fee rule is expected to be published by May 2020 and would be effective 60 days thereafter.

LICENSING

13. For operating reactors, new reactors, and uranium recovery licensees, please provide the following information regarding license amendment reviews:

13.a Please provide the following information for the current reporting period, including any information previously reported in the last six months:

i. Size of inventory;
ii. The number of items completed in the period being reported;
iii. Percentage of acceptance reviews completed on time;
iv. The percentage of these items completed within the forecasted schedule;
v. The percentage of these items completed within 125 percent of the forecasted schedule;
vi. The percentage of items completed within ten months;
vii. The average age for items completed during the month being reported;
viii. The ages of the quickest three items completed; and
ix. The ages of the slowest three items completed.

Operating Reactors

Month/Year	Size of Inventory (Note 1)	No. of Items Completed in the Report Period	Percentage of Acceptance Reviews Completed on Time	Percentage of Items Completed within the Forecasted Schedule (Note 2)	Percentage of Items Completed within 125% of Forecasted Schedule (Note 3)	Percentage of Items Completed within 10 Months	Average Age for Items Completed During Report Period (months)	Ages of the Quickest Three Items Completed (months)			Ages of the Slowest Three Items Completed (months)		
Nov-2017	588	46	100%	94%	94%	85%	6.9	<1	<1	<1	21	21	21
Dec-2017	579	93	100%	94%	94%	91%	9.2	<1	<1	1	12	12	12
Jan-2018	495	105	100%	100%	100%	84%	5.7	<1	<1	1	12	12	11
Feb 2018	496	51	94%	86%	90%	76%	7.9	<1	1	1	24	24	24
Mar 2018	558	47	98%	98%	85%	85%	7.5	1	1	1	12	12	12
Apr 2018	554	74	100%	94%	95%	93%	6.1	<1	<1	<1	17	17	12
May 2018	610	50	97%	94%	96%	89%	6.3	<1	<1	<1	12	12	20

Note 1: Similar to the licensing actions reported in the yearly CBJ, the inventory does not include unusually complex or Fukushima related licensing actions.

Note 2: Internal processes track licensing action completions within forecasted scheduled (+ 1 month) [this percentage does not include unusually complex or Fukushima related licensing actions].

Note 3: Internal processes track licensing action completions within 125 percent of the forecasted schedule [this percentage does not include unusually complex or Fukushima related licensing actions].

New Reactors

Month/Year	Size of Inventory	No. of Items Completed in the Report Period	Percentage of Acceptance Reviews Completed on Time	Percentage of Items Completed within the Forecasted Schedule	Percentage of Items Completed within 125% of Forecasted Schedule	Percentage of Items Completed within 10 Months	Average Age for Items Completed During Report Period (months)	Ages of the Quickest Three Items Completed (months)			Ages of the Slowest Three Items Completed (months)		
Nov-2017	38	7	100%	86%	100%	100%	6.4	5	5	5	6	7	8
Dec-2017	35	4	75%	50%	100%	100%	4.5	2	4	5	4	5	7
Jan-2018	30	2	50%	50%	100%	50%	8.5	5	12	N/A	12	5	N/A
Feb-2018	32	6	67%	67%	100%	83%	6.6	4	4	5	10	7	10
Mar-2018	22	10	80%	80%	100%	100%	5	3	4	4	7	6	5
Apr-2018	24	4	50%	75%	100%	100%	6	4	6	7	7	7	6
May-2018	23	2	50%	100%	100%	100%	4	4	4	N/A	4	4	N/A

Uranium Recovery

Month/Year	Size of Inventory	Number of Items Completed in the Report Period	Percentage of Acceptance Reviews Completed on Time	Percentage of Items Completed within Forecasted Schedule	Percentage of Items Completed within 125% of Forecasted Schedule	Percentage of Items Completed within 10 Months	Average Age for Items Completed during Report Period (months)[1]	Ages of the Quickest Three Items Completed (months)			Ages of the Slowest Three Items Completed (months)		
Nov-2017	24	2	N/A	50%	50%	50%	24.5	48[2]	1	N/A	48[2]	1	N/A

Month/Year	Size of Inventory	Number of Items Completed in the Report Period	Percentage of Acceptance Reviews Completed on Time	Percentage of Items Completed within Forecasted Schedule	Percentage of Items Completed within 125% of Forecasted Schedule	Percentage of Items Completed within 10 Months	Average Age for Items Completed during Report Period (months)[1]	Ages of the Quickest Three Items Completed (months)			Ages of the Slowest Three Items Completed (months)		
Dec-2017	24	0	0	0%	0%	0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Jan-2018	24[3]	1	100%	100%	100%	100%	10	10	N/A	N/A	10	N/A	N/A
Feb-2018	22	2	100%	100%	100%	0%	24.5	23.5	25.5	N/A	23.5	25.5	N/A
Mar-2018	14	8	N/A	89%	89%	75%	11	1.5	2.0	3.5	39	17.5	7.5
Apr-2018	13	2	100%	100%	100%	100%	3.8	7	0.5	N/A	7	0.5	N/A
May-2018	11	2	N/A	100%	100%	50%	34.5	1	68	N/A	1	68	N/A

Note 1: The uranium recovery staff's goal is to complete major licensing actions within 36 months of acceptance and minor licensing actions within 12 months of acceptance. At times, the uranium recovery staff has to divert resources from minor licensing actions to address oversight of operating sites, emergent issues, and major licensing actions. When this occurs, the NRC staff tries to accommodate the licensee's priorities when determining which minor licensing actions to complete first.

Note 2: One review of a minor licensing action completed in November 2017 required 48 months to complete. This review was low priority for the licensee; therefore, the uranium recovery staff focused on higher priority work until sufficient resources were available to complete the review.

Note 3: The size of the inventory for January has been decreased to account for the completion of a licensing action on January 31, 2018.

13.b <u>For the reporting period, please also provide the following for license amendment requests</u>:

i. <u>The number not accepted for review; and</u>

ii. A list of the requests that were withdrawn or denied after being accepted for review including the age of the request at the time it was withdrawn or denied.

Operating Reactors

Month/Year	No. of License Amendment Requests Not Accepted for Review	List the Requests that were Withdrawn or Denied after Being Accepted for Review	Age of the Request at the Time it was Withdrawn or Denied (months)
May-2018	0	Withdrawn: Perry Nuclear Power Plant – Adoption of Technical Specifications Task Force (TSTF) Traveler TSTF-500 Revision 2, "DC Electrical Rewrite – Update to TSTF-360" (EPID L-2017-LLA-0438)	3

New Reactors

Month/Year	No. of License Amendment Requests Not Accepted for Review	List the Requests that were Withdrawn or Denied after Being Accepted for Review	Age of the Request at the Time it was Withdrawn or Denied (months)
May-2018	0	0	N/A

Uranium Recovery

Month/Year	Number of Amendment Requests Not Accepted for Review	List of the Requests that were Withdrawn or Denied after being Accepted for Review	Age of the Request at the Time it was Withdrawn or Denied (months)
May-2018	0	None	N/A

13.c Please identify items considered "unusually complex" items (e.g. criticality reviews, NFPA 805 reviews) and omitted from the [licensing amendment] inventory including: the age of the item, a brief description of the item, the justification for omitting it from the inventory size and an explanation for any review exceeding its original schedule by 125 percent.

Operating Reactors

Note: Unusually complex license amendments are not included in the internal performance measures and their nature does not allow for realistic forecasted schedule development. Rather, they are given escalated management attention to ensure progress is being made towards resolving outstanding issues and completing the reviews in a timely manner.

- Technical Specifications Task Force (TSTF)-505 Reviews
  - Description: These submittals request changes to Technical Specifications (TSs) for the adoption of Risk-Informed Technical Specifications Task Force (RITSTF) Initiative 4b, specifically "TSTF-505, Revision 1, Provide Risk-Informed Extended Completion Times." This effort is associated with NEI 06-09, "Risk-Informed Technical Specifications Initiative 4b, Risk-Managed Technical Specifications Guidelines."
  - Justification: During review of the Vogtle pilot license amendment requests (LAR) for a risk-informed TS Completion time (RICT) program, a number of issues were raised by NRC staff. These issues resulted in the suspension of TSTF-505 to allow necessary revisions to the process. The NRC has been working with the TSTF group and other stakeholders to resolve the issues and lift the suspension. The four LARs currently under review are being reviewed on a plant-specific basis in parallel with revision of TSTF-505. All of the LARs have been supplemented to address the issues raised with TSTF-505. The supplements represent significant additional information and modifications to the licensee implementation of a RICT program. Although not a complete reset of the review, the additional information and changes to the LARs have added time to the review schedule and may result in the need for additional clarification requests.

Current Reviews	Age (Months)
Turkey Point Units 3 & 4	42
Saint Lucie Units 1 & 2	42

Calvert Cliffs Unit 1 & 2	28
Palo Verde Units 1, 2, & 3	35

- National Fire Protection Association (NFPA) 805 Reviews
  - Description: NFPA Standards Council approved NFPA Standard 805, "Performance-Based Standard for Fire Protection for Light-Water Reactor Electric Generating Plants, 2001 Edition," on January 13, 2001, as a risk-informed, performance-based standard for existing light-water nuclear power plants. The NRC staff cooperatively participated in the development of NFPA 805 as an alternative to the rules in Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix R. Each submittal requesting implementation of NFPA 805 is over 1000 pages, requires five different technical disciplines to review, and has reviews staggered in an overlapping fashion. At any one time, 30 technical reviewers were active in the NFPA 805 LAR review process. Each NFPA 805 LAR requires at least one regulatory on-site audit; some required return regulatory audits to review on-site documentation and walk-down plant fire areas.
  - Justification: The NFPA 805 reviews are voluminous and technically challenging, have unique site-specific issues, have utilized unreviewed analysis methods (UAMs), and required additional response time for RAIs. Some licensees used UAMs that deviated from the acceptable NUREG/CR-6850 methods, and had to be reviewed in-depth by the staff for the first time. To resolve these UAMs, the licensees either perform a sensitivity analysis or redo their fire probabilistic risk assessment (PRA). Due to the complexity of these methods, a great deal of time is required for the staff to prepare initial RAIs, significant time may be required for licensees to provide responses, and several rounds of RAIs may be needed to resolve issues. In some cases, licensees required up to 180 days to respond to the more complex RAIs. This complexity adds greatly to the length of the review.

Current Reviews	**Age (Months)**
Davis-Besse Unit 1	30

- Sequoyah Units 1 & 2 – Updated Final Safety Analysis Reports (UFSARs) Regarding Changes to Hydrologic Analysis
  - Description: To respond to a Confirmatory Action Letter, Tennessee Valley Authority (TVA or the licensee) submitted LARs on August 10, 2012, for Sequoyah, Units 1 and 2, that proposed to revise the respective UFSAR, Section 2.4, “Hydrologic Engineering,” to reflect new probable maximum flood (PMF) levels and the associated changes.
  - Justification: During the LAR review in 2013, TVA asked the staff to suspend the review in order to change the methodology from an in-house hydrology model to an industry standard model developed by the US Army Corps of Engineers and supplement the LAR. However, just before the supplement, TVA identified an error in the application of the new model in 2015 and has to re-perform the analyses. In addition, in August 2016, TVA also proposed to use another modern-day rainfall methodology that was not previously approved for licensing actions. The staff is currently reviewing this new rainfall methodology as a topical report for TVA to adopt and submit the final hydrology LAR supplement at the end of 2018. TVA cannot withdraw this LAR because it was credited to close out the 2012 Confirmatory Action Letter.

- Current Age: 69 months

- McGuire Units 1 & 2 – Reactor Vessel Internals (RVI) Aging Management Plan License Renewal Commitment
  - Description: Materials Reliability Program: Pressurized Water Reactor Internals Inspection and Evaluation Guidelines, MRP-227-A, provides a generic program for aging management of pressurized water reactor (PWR) RVI. Many applicants made commitments during the license renewal process to implement the industry program (which became MRP-227-A) when it was completed. During calendar year 2012, the owners of seven PWRs, as part of their license renewal commitments, submitted Aging Management Programs (AMP) consistent with the MRP-227-A guidelines for RVI components and/or inspection plans.
  - Justification: Since 2013, considerable progress has been made towards resolving technical issues related to the NRC review of the plant-specific MRP-227-A inspection plans. However, responding to the RAIs related to such items as cold-worked components and core design/fuel management requires review of the fabrication records, which are usually held by the original equipment manufacturer (OEM). There is a backlog of licensee requests for the OEM to provide this information, resulting in delays of several months to a year.
  - Current Age: 4 months

- Seabrook – Alkali-Silica Reaction (ASR) Licensing Basis Amendment
  - Description: The licensee is requesting revising the current licensing basis to adopt a methodology for the analysis of seismic Category I structures with concrete affected by ASR.
  - Justification: Seabrook is the first US nuclear facility to exhibit ASR in concrete structures. As such, this LAR is a first-of-a-kind amendment to a plant's licensing basis to include the effects of ASR. In addition, the LAR references licensee conducted research to justify an analysis methodology that has never been used before.
  - Current Age: 22 months

- Brunswick Units 1 & 2 – Maximum Extended Load Line Limit Analysis Plus (MELLLA)+ Core Flow Operating Range Expansion
  - Description: The licensee is requesting to revise its technical specifications to allow operation in the MELLLA+ expanded operating domain. This domain increases operating flexibility by allowing control of reactivity at maximum power by changing flow, rather than by control rod insertion and withdrawal.
  - Justification: Due to the complexity of the subject, the review involves eight technical branches, and conducting Advisory Committee on Reactor Safeguards (ACRS) subcommittee and full committee meetings. The current proposed schedule for completing the review is approximately 18 to 20 months. The Monticello Nuclear Generating Plant was the first commercial plant to submit an LAR to adopt the MELLLA+ operating domain and required more than 4 years to complete. Based on the considerations above, the Brunswick MELLLA+ LAR is especially voluminous.
  - Current Age: 21 months

- Shearon Harris Unit 1 – Spent Fuel Pool Criticality Analysis
  - Description: The licensee is requesting to revise the TSs for fuel storage criticality to account for the use of Metamic neutron absorbing spent fuel pool rack inserts and soluble boron for the purpose of criticality control in the Boiling Water Reactor (BWR) storage racks that currently credit Boraflex. This license amendment request is required to resolve a current operable but degraded condition.
  - Justification: Precedents have shown that a review related to spent fuel pool criticality analyses is complex. Further, this review is considered a first-of-a-kind due to the unique configuration of the Shearon Harris spent fuel pool (SFP). Specifically, the SFP configuration is the only one in the United States that contains both pressurized water reactor fuel racks and boiling water reactor fuel racks.
  - Current Age: 8 months

- Point Beach Units 1 & 2 – Risk-Informed Approach to Resolve Construction Truss Design Code Non-conformances

- Description: The licensee is requesting approval of a risk-informed strategy to resolve low risk, legacy design code non-conformances associated with construction trusses in the containment building.
- Justification: Established risk-informed applications follow endorsed guidance for the technical content that needs to be submitted. Such endorsed technical guidance is not available for this first-of-a-kind application and extra review effort is needed to determine the acceptability of the proposed technical approach.
- Current Age: 13 months

- Brunswick Units 1 & 2 – Adopt 10 CFR 50.69, "Risk-Informed Categorization and Treatment of Structures, Systems and Components [SSCs] for Nuclear Power Reactors"
  - Description: The licensee is requesting approval to allow for the implementation of the provisions of 10 CFR 50.69. The provisions of 10 CFR 50.69 allow adjustment of the scope of equipment subject to special treatment controls (e.g., quality assurance, testing, inspection, condition monitoring, assessment, and evaluation).
  - Justification: This is a first-of-its-kind review that includes external hazard probabilistic risk assessment (PRA) models that have not been commonly submitted in support of risk-informed LARs. The NRC staff does not have extensive experience in reviewing those models. Therefore, the scope of staff review for this LAR will include evaluation of the acceptability of these relatively unique external hazard PRA models for the application and the use of those models in the licensee's categorization program.
  - Current Age: 3 month

New Reactors

- None.

Uranium Recovery

- None.

13.d Please describe any steps taken to provide transparency into the progress of license amendment reviews, such as publicly available, real-time tracking of the completion of review schedule milestones.

Operating Reactors

The routine interactions between licensees/applicants and the NRC project manager provide the same information, and possibly more insights, to a licensee regarding the status of an individual licensing review than would a tracking system. Therefore, the NRC does not consider such a tracking system necessary to facilitate these communications with licensees.

Project managers and licensees have routine communications regarding the status and schedules of licensing actions. During these conversations, the schedules for each licensing action are discussed, including schedule expectations, when to expect requests for additional information, and when to expect the safety evaluation, if approved. In addition, the project managers and their direct supervisors are accessible to the licensees by phone or e-mail if any other issues arise.

The NRC staff began publishing monthly performance metrics on the NRC public website in March 2018. While metrics do not provide insight into specific licensing amendment reviews, the metrics provide information on the age of the existing inventory as a whole along with the number of reviews completed. Information is also posted on the average adherence to initial schedules and resource estimates.

The NRC continues to refine its licensing process for operating reactors. Through the use of controls and metrics, the staff is currently meeting the Congressionally-reported metrics for the quantity of licensing actions reviewed annually, and the percentage of actions completed within one year. The NRC considers the current performance metrics appropriate to balance efficiency with safety. These measures recognize that schedule performance can be affected by applicant, licensee, or NRC performance, and may need fluidity to account for emerging safety or security issues, or changes in licensee plans.

The NRC has launched several initiatives to focus on leveraging existing licensing processes to enhance efficiency, effectiveness, and predictability as a regulator, while maintaining a continued strong safety focus. For example, an initiative analyzed the issues that caused the backlog in processing amendment requests for reactor licensees, including issues related to the request for information (RAI) process, and provided recommendations to Office of Nuclear Reactor Regulation management regarding enhancements to the licensing review process. Such efforts resulted in reducing the inventory of licensing actions greater than one year old by more than 95 percent over the past years and enabled the staff to maintain this inventory at historically low levels. The staff's continual efforts in this area have significantly improved the NRC's ability to monitor safety reviews and improve predictability.

New Reactors

For NRO license amendment reviews, only the final safety evaluation report (FSER) completion date is tracked as a milestone. In the amendment request, the licensee provides a date by which the amendment would need to be issued in order to facilitate the desired construction schedule. Occasionally, the staff works with the licensee to identify an alternate agreed-upon date, which is provided in a supplement or revision to the amendment request. These letters containing the requested or alternate agreed-upon date for the license amendment issuance are publicly available.

Uranium Recovery

To ensure transparency in the process of licensing reviews, the NRC's uranium recovery staff provides the status of major licensing actions on the agency's public web page. For minor licensing actions, staff discusses these schedules during phone calls with licensees. In addition, for major licensing action reviews, the uranium recovery staff issues schedule letters at the beginning of each review and subsequent letters are issued, if the schedule changes.

14. For decommissioning transition reviews, please provide the following information for the reporting period, including any months previously reported:

    a. Size of inventory;
    b. The number of items completed in the reporting period;
    c. Of the items completed in the reporting period, the number completed within the originally forecasted schedule;
    d. The number of items completed within 125 percent of the forecasted schedule;
    e. Please identify any "unusually complex" items omitted from the inventory including: the age of the item, a brief description of the item, the justification for omitting it from the inventory size and an explanation for any review exceeding its original schedule by 125 percent.

Decommissioning Transition Open Inventory and Closed Reviews		
Month	**Open Inventory Total (Note 1)**	**Closed Reviews Total**
November 2017	19	1
December 2017	15	4
January 2018	14	1
February 2018	15	0
March 2018	12	7
April 2018	14	0
May 2018	16	0

Note 1: The inventory includes licensing actions and other licensing tasks specifically related to an operating reactor plant transitioning into a decommissioning plant.

Information responsive to #14c-e is included in the response to #13 above.

15. Please provide a list of Technical Specifications Task Force (TSTF) "travelers" under review, including the date filed, the milestone schedule for completing the review, and the estimated date for final agency action. Please provide an explanation for any review exceeding the original schedule by 125 percent.

Traveler Under Review	**Date Filed**	**Milestone Schedule (Draft SE)**	**Estimated Date for Final Agency Action (Final SE)**
TSTF-567, "Add Containment Sump TS to Address GSI-191 Issues"	03/30/2017	Complete	8/31/2018
TSTF-541, "Add Exceptions to Surveillance Requirements When the Safety Function is Being Performed"	09/10/2013*	01/31/2019	07/31/2019
TSTF-563, "Revise Instrument Testing Definitions to Incorporate the Surveillance Frequency Control Program"	05/10/2017	07/31/2018	10/31/2018
TSTF-565, "Clarify the Term Operational Convenience in the LCO 3.0.2 Bases," Revision 1	03/30/2018	11/16/2018	02/28/2019
TSTF-564, "Safety Limit MCPR"	08/28/2017	07/31/2018	10/31/2018

Traveler Under Review	Date Filed	Milestone Schedule (Draft SE)	Estimated Date for Final Agency Action (Final SE)
TSTF-568, "Clarify Applicability of BWR/4 TS 3.6.2.5 and TS 3.6.3.2"	12/19/2017	09/28/2018	12/19/2018
TSTF-557, Revision 1, "Spent Fuel Storage Rack Neutron Absorber Monitoring Program"	12/19/2017	09/28/2018	12/19/2018
TSTF-566, “Revise Actions for Inoperable RHR Shutdown Cooling Subsystems”	01/19/2018	12/16/2018	03/29/2019
TSTF-569, “Revise Response Time Testing Definition”	02/08/2018	11/05/2018	02/08/2019

*The TSTF is currently drafting a revision for NRC review; expected submittal date is 8/31/2018.

There were no traveler reviews that exceeded the original schedule by 125 percent.

16. Please describe the actions planned and/or taken to ensure that the TSTF traveler process achieves the regulatory efficiencies that were initially projected. Please include progress reports with regard to any TSTF travelers adopted by the industry.

The TSTF proposes changes to the Standard Technical Specifications (STS) via a “traveler” submitted for NRC review and approval. The traveler process was collaboratively developed between NRC and the nuclear industry 20 years ago as a means to revise the STS to gain regulatory efficiencies and enhance safety. Since then, the NRC has approved over 355 travelers, and has a mature process for review and approval of plant-specific license amendment requests to adopt approved STS changes.

Over the last several years NRC introduced two enhancements to the traveler review process: (1) increased transparency and documentation through publication of safety evaluations; and (2) ensuring that all appropriate technical branches are involved early and working as a team to ensure consistency. More recently, NRC and the TSTF adopted two additional best practices to make reviews more efficient and effective: (1) establishing teams of reviewers who develop expertise on a given traveler; and (2) leveraging the staff expertise on a particular traveler through timely submission of plant specific requests for adoption. The NRC is seeing early successes from these enhancements in the reviews of licensees’ adoption of TSTF-542, “Reactor Pressure Vessel Water Inventory Control.” Average review times for recent traveler adoptions have dropped to 10 months, in part as a result of these above efficiencies.

The NRC will continue working with the TSTF to make improvements to the STS. In recent years, requested changes from industry stakeholders have become more complex (e.g., risk-informed STS changes). To ensure the traveler process achieves the regulatory efficiencies that were initially intended, and to align on priorities, the NRC holds quarterly public meetings and monthly status calls with the TSTF. Additionally, the status of travelers is discussed by both NRC and senior management from industry at the quarterly Regulatory Issues Task Force meeting.

In 2017, two travelers were approved by the NRC. Currently nine travelers are under review by the NRC staff. The latest status report of travelers currently under review is available (ADAMS Accession No. ML18142B038).

17. For each ongoing license renewal review, please provide the date each application was filed, the duration of the review, the original milestone schedule based on 22 months for uncontested applications and 30 months for contested applications, the actual completion dates for milestones, and the scheduled date for completion of the review. Please provide an explanation for any review exceeding the original schedule by 125 percent.

Indian Point 2&3			
Application Review Time from Acceptance Review Date (Months)			128
Milestone	**Original Schedule**	**Current Schedule**	**Completion Date**
License Renewal Application Receipt	04/30/2007		04/30/2007
Publish FRN-Acceptance/rejection and opportunity for hearing	08/01/2007		08/01/2007
Public Meeting - Environmental Scoping	09/19/2007		09/19/2007
Issue draft Supplemental Environmental Impact Statement (SEIS)	07/25/2008		12/22/2008
Issue SER with open items	09/05/2008		01/15/2009
1st ACRS Subcommittee meeting	10/2008		03/18/2009
Issue final SER	03/27/2009		08/11/2009
ACRS Full Committee meeting	05/2009		09/10/2009
Issue final SEIS	04/03/2009		12/03/2010
1st Supplement to SER	N/A*		08/30/2011
Issue Draft 1st Supplement to final SEIS	N/A*		06/26/2012
Issue Final 1st Supplement to final SEIS	N/A*		06/13/2013
FRN – Notice of Intent to Prepare Supplemental Environmental Impact Statement	N/A*		09/04/2014
2nd ACRS Subcommittee meeting	N/A*		04/23/2015
Issue 2nd Supplement to SER	N/A*		07/07/2015
Issue Draft 2nd Supplement to final SEIS	N/A*	01/2016	12/22/2015
End of Comment Period for Draft 2nd Supplement to final supplemental environmental impact statement (FSEIS)	N/A*	03/2016	03/04/2016
Issue Final 2nd Supplement to FSEIS	N/A*	05/2018	04/30/2018
Issue 3rd Supplement to SER	N/A*	07/2018	
Decision-Director, NRR (no hearing)	07/2009	09/2018	
Commission decision (if hearing is granted)	TBD	N/A	

*The NRC did not issue an official schedule for the first supplement to the final SEIS.

The Indian Point License Renewal Application schedule letters are publicly available in ADAMS at Accession Nos. ML071900365, ML080230115, ML081000441, ML082400214, ML100110063, ML101260536, ML102300092, ML14254A207, ML15147A199 and ML16153A351.

The delays in the review of the Indian Point application were associated with complex adjudicatory issues, audits, reviews of substantial new information submitted by the licensee, review of the severe accident mitigation alternatives (SAMA) analyses and review of extensive public comments on NRC staff environmental review documents. In 2012, the issuance of renewed licenses was suspended pending completion of the continued storage rulemaking; the licensing reviews continued to move forward. On August 26, 2014, the Continued Storage rule was approved and the Commission lifted the suspension on issuing renewed licenses. In

January 2017, the parties to the legal proceedings reached an agreement that resulted in the withdrawal of all contentions on the license renewal application. Thus, on March 13, 2017, all pending adjudicatory actions were voluntarily dismissed. A decision regarding the renewal of the operating licenses for both units is expected to be issued in the 4th quarter of FY 2018.

Seabrook 1			
Application Review Time from Acceptance Review Date (Months)			93
Milestone	**Original Schedule**	**Current Schedule**	**Completion Date**
License Renewal Application Receipt	06/01/2010		06/01/2010
Publish FRN-Acceptance/rejection and opportunity for hearing	07/23/2010		07/21/2010
Public Meeting- Environmental Scoping meeting	08/19/2010		08/19/2010
Deadline for filing hearing requests and petitions for intervention	09/21/2010		10/20/2010
Issue draft SEIS	05/13/2011		08/01/2011
Issue SER with open items	07/2011		06/08/2012
1st ACRS Subcommittee meeting	09/2011		07/10/2012
Issue 2nd draft SEIS	12/2012		04/22/2013
Issue final SEIS	01/07/2012		07/29/2015
2nd ACRS Subcommittee meeting	N/A	11/2018	
Issue final SER	01/2012	11/2018	
ACRS full committee meeting	02/2012	12/2018	
NRR Director Decision (no hearing)	04/02/2012	04/2019	
Commission Decision (if hearing is granted)	12/03/2012	NA	

The Seabrook license renewal application schedule letters are publicly available in ADAMS at Accession Nos. ML101690417, ML110890319, ML11178A365, ML12074A096, ML12109A427, ML12352A075, ML13298A091, ML14148A218, ML14223B144, ML15041A449, ML15107A300, ML15293A157, and ML16074A246.

In 2011, the Seabrook schedule was updated to ensure that the applicant addressed issues related to the alkali-silica reaction (ASR) of concrete and the SAMA analysis. In 2012, subsequent to the NRC staff issuing the draft SEIS, the applicant made significant changes to the SAMA. Additionally, in 2012, the issuance of new licenses was suspended pending completion of the Continued Storage rulemaking; the licensing reviews continued to move forward. The second draft SEIS was issued in April 2013 and in August 2013 an agreement regarding a contention associated with the SEIS was reached. On August 26, 2014, the Continued Storage rule was approved and the Commission lifted the suspension on issuing renewed licenses. The NRC staff issued the final SEIS in 2015.

In August 2016, NextEra submitted a LAR to the current license to adopt a methodology for the analysis of seismic Category I structures with concrete affected by ASR. This methodology is the basis for the aging management program being evaluated for the license renewal application review. On October 6, 2017, the ASLB admitted a contention on the ASR LAR. After the NRC staff completes its safety evaluation of the ASR LAR, the ASLB hearing will be held and the ACRS will also perform its review. The review of this amendment has a direct impact on the schedule for the license renewal review and a decision on the license renewal is currently projected to be made by April 2019.

Waterford 3			
Application Review Time from Acceptance Review Date (Months)			22
Milestone	**Original Schedule**	**Current Schedule**	**Completion Date**
License Renewal Application Receipt	03/23/2016		03/23/2016
Publish FRN-Acceptance/rejection and opportunity for hearing	05/20/2016		05/20/2016
Public Meeting- Environmental Scoping meeting	06/08/2016		06/08/2016
Deadline for filing hearing requests and petitions for intervention	08/01/2016		08/01/2016
Issue draft SEIS	05/2017	06/2018	
Issue SER with open-items	06/2017	09/2018	
ACRS Subcommittee meeting	07/2017	10/2018	
Issue final SEIS	03/2018	05/2018	
Issue final SER	01/2018	03/2019	
ACRS full committee meeting	03/2018	04/2019	
NRR Director Decision (no hearing)	04/2018	06/2019	
Commission Decision (if hearing is granted)	TBD	N/A	

The Waterford License Renewal Application schedule letters are publicly available in ADAMS at Accession Nos. ML16130A023 and ML17131A194.

The NRC staff continues work on the Waterford safety and environmental reviews. The publication of the draft SEIS has been delayed due to competing staff priorities. The delay is not expected to impact the decision date. The applicant submitted an LAR in November 2017 that requests approval of its plant-specific neutron fluence methodology that is applied to the reactor vessel neutron fluence embrittlement analysis referred to in the license renewal application. The LAR acceptance review has been completed and the NRC staff safety review is currently underway. The review of the LAR is estimated to take approximately 1 year. The LAR included a supplement to the License Renewal Application and the NRC staff determined that additional information is required in order to complete its review of the supplement, and has issued an RAI. A response to the RAI has been provided and is currently under evaluation by the NRC staff. The license renewal application fluence methodology review is dependent on the approval of the LAR and an acceptable response to the RAI. The decision regarding the renewal of the operating license is expected to be issued in 3rd quarter of FY 2019.

River Bend		
Application Review Time from Acceptance Review Date (Months)		8
Milestone	**Original Schedule**	**Completion Date**
License Renewal Application Receipt	05/31/2017	05/31/2017
Publish FRN-Acceptance/rejection and opportunity for hearing	08/2017	08/17/2017
Public Meeting- Environmental Scoping meeting	09/2017	09/19/2017
Deadline for filing hearing requests and petitions for intervention	10/2017	10/13/2017
Issue draft SEIS	05/2018	05/25/2018
Issue final SER	07/2018	
ACRS Subcommittee meeting	10/2018	

River Bend		
Application Review Time from Acceptance Review Date (Months)		8
Milestone	**Original Schedule**	**Completion Date**
Issue final SEIS	11/2018	
ACRS full committee meeting	12/2018	
NRR Director Decision (no hearing)	02/2019	
Commission Decision (if hearing is granted)	TBD	

The River Bend license renewal application review schedule is available in ADAMS at Accession No. ML17187A035.

18. Please provide the status of ongoing license renewal reviews.

Applicant	Application Accepted for Review	Review Status for Long-Term Application Reviews
Indian Point 2&3	08/01/2007	The NRC staff issued the second supplement to the FSEIS on April 30, 2018. The staff's response to the public comments is documented in the second FSEIS supplement. The initial SER was issued in November 2009, with supplements issued in August 2011 and July 2015. A third SER supplement will be issued in the third quarter of FY 2018 to address new information received by the staff concerning safety issues. In January 2017, the parties to the legal proceedings reached an agreement that resulted in the withdrawal of all contentions on the license renewal application. Under the agreement, Units 2 & 3 will cease operations in April 2020 and 2021, respectively, with possible extensions to operate until April 2024 and 2025, respectively. On February 8, 2017, the State of New York Department of Environmental Conservation (NYDEC) and Riverkeeper filed an unopposed motion to withdraw their contentions and terminate the adjudicatory proceeding. The Licensing Board granted that motion and terminated the adjudicatory proceeding on March 13, 2017. Recently, the National Marine Fisheries Service (NMFS) designated critical habitat in the Hudson River for Atlantic Sturgeon. Interactions between the NRC staff, NMFS, NYDEC, and Entergy regarding this new designation and Entergy's monitoring plan for sturgeon are complete. Resolution of this issue will be documented in the Record of Decision issued in conjunction with the renewed operating licenses for the units. A decision on the renewed operating licenses for both units is expected to be issued in the 4th quarter of FY 2018.

Applicant	Application Accepted for Review	Review Status for Long-Term Application Reviews
Seabrook 1	07/21/2010	The NRC staff continues discussions with NextEra to ensure that technical issues related to the ASR open item in the SER are properly addressed. In August 2016, NextEra submitted a LAR to the current license to adopt a methodology for the analysis of seismic Category I structures with concrete affected by ASR. This methodology is the basis for the aging management program being evaluated under the license renewal application review. An audit of the methodology and its implementation was performed onsite by NRC staff March 19 – 21, 2018, resulting in some follow-up questions. On October 6, 2017, the ASLB admitted a contention on the ASR LAR. The review of this amendment has a direct impact on the schedule for the license renewal review. A decision on the license renewal is currently projected to be made by April 2019.
Waterford	05/31/2016	The NRC staff continues their safety and environmental reviews, including the resolution of specific questions regarding the Waterford neutron fluence time-limited aging analysis. The applicant submitted a LAR in November 2017 that will request approval of their plant-specific neutron fluence methodology which is applied to the reactor vessel neutron fluence embrittlement analysis referred to in the license renewal application. The acceptance review of this LAR has been completed and NRC staff safety review is currently underway. The review of the LAR is estimated to take approximately 1 year. The LAR included a supplement to the License Renewal Application. The NRC staff determined that additional information is required in order to complete its review of the supplement, and has issued an RAI. A response to the RAI has been provided and is currently under evaluation by the NRC staff. The license renewal application fluence methodology review is dependent on the approval of the LAR and an acceptable response to the RAI. The decision on the renewed operating license is expected to be issued in the 3rd quarter of FY 2019.
River Bend	08/07/2017	The staff continues the safety and environmental reviews, which are expected to take approximately 18 months. The staff has completed issuance of RAIs and is in the process of engaging the applicant for clarifications on several RAI responses. The draft supplemental environmental impact statement was issued on May 25, 2018.

19. Please provide the status of the NRC's readiness to review applications for Subsequent License Renewal (SLR).

In August 2014, the Commission affirmed that no revisions to either the safety or environmental regulations are needed to support the assessment of a SLR application. However, the Commission directed the staff to update license renewal guidance, as needed, to provide additional clarity on the implementation of the license renewal regulatory framework. The main guidance documents for initial license renewal are:

- Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants (SRP-LR), Revision 2;
- Generic Aging Lessons Learned (GALL) Report, Revision 2; and

- Standard Review Plan for Environmental Reviews for Nuclear Power Plants, Supplement 1: Operating License Renewal (Revision 1).

The guidance in these documents is based on plant operation up to 60 years. The staff evaluated this guidance to determine what, if any, revisions were necessary to address issues for plant operations up to 80 years under SLR. The staff determined that no revisions were needed to the NRC guidance document entitled, "Standard Review Plans for Environmental Reviews for Nuclear Power Plants," to support environmental reviews from 60 to 80 years. However, the staff determined that the GALL Report and the SRP-LR should be updated to facilitate more effective and efficient reviews of SLR applications.

On July 14, 2017, the NRC published "Generic Aging Lessons Learned for Subsequent License Renewal (GALL-SLR) Report" (NUREG-2191, Volumes 1 and 2), and "Standard Review Plan for Review of Subsequent License Renewal Applications for Nuclear Power Plants" (SRP-SLR) (NUREG-2192). On December 29, 2017, the NRC staff published NUREG-2221, "Technical Bases for Changes in the Subsequent License Renewal Guidance Documents NUREG-2191 and NUREG-2192," and NUREG-2222, "Disposition of Public Comments on the Draft Subsequent License Renewal Guidance Documents NUREG-2191 and NUREG-2192."

On November 6, 2015, Dominion Virginia Power notified the NRC of its intent to submit an SLR application in the first quarter of 2019 for Surry Power Station. On June 7, 2016, Exelon Generation Company, LLC notified the NRC of its intent to submit an application for Peach Bottom Atomic Power Station in the third quarter of 2018. On November 9, 2017, Dominion Energy Virginia notified the NRC of its intent to pursue subsequent license renewal for North Anna Power Station Units 1 and 2 in the 4th quarter of 2020. As noted above, on January 30, 2018, Florida Power & Light Company submitted the first subsequent license renewal application, for renewal of the Turkey Point Nuclear Generating Units 3 and 4 licenses.

On December 20, 2017, the staff issued a letter to NEI providing interim approval for use of guidance documents NEI 17-01, "Industry Guideline for Implementing the Requirements of 10 CFR Part 54 for Subsequent License Renewal [SLR]," and NEI 17-04, "Model SLR New and Significant Assessment Approach for SAMA, Revision 0." These documents will provide interim guidance to licensees that have notified the NRC of their intent to submit SLR applications while formal NRC endorsement of the NEI guidance document is considered. The NRC expects that issuance of formal revisions to Regulatory Guides 1.188, "Standard Format and Content for Applications to Renew Nuclear Power Plant Operating Licenses," and 4.2, "Preparation of Environmental Reports for Nuclear Power Plant License Renewal Applications," by December 31, 2019, will supersede the interim guidance.

20. Once Subsequent License Renewal reviews begin, please report progress similarly to current license renewal reviews, including: the date each application was filed, the duration of the review, the original milestone schedule based on an 18-month review, the actual completion dates for milestones, and the scheduled date for completion of the review.

Turkey Point		
Application Review Time from Acceptance Review Date (Months)		0
Milestone	**Original Schedule**	**Completion Date**
Receive subsequent license renewal application (SLRA)	01/2018	01/30/2018, as supplemented on 04/10/2018

Turkey Point		
Application Review Time from Acceptance Review Date (Months)		0
Milestone	**Original Schedule**	**Completion Date**
Publish Federal Register Notice (FRN) – License Renewal Application 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 Environmental Impact Statement 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	07/02/2018
Issue draft supplemental environmental impact statement (SEIS)	01/2019	
Public Meeting – draft SEIS meeting, if needed	02/2019	
End of draft SEIS comment period	03/2019	
Issue safety evaluation report (SER)	04/2019	
Advisory Committee on Reactor Safeguards (ACRS) Subcommittee meeting	05/2019	
Issue final SEIS	08/2019	
U.S. Environmental Protection Agency FRN Published – availability of final SEIS	08/2019	
ACRS full committee meeting	07/2019	
Decision – Director, NRR	10/2019	

The Turkey Point Subsequent License Renewal Application schedule letter is publicly available in ADAMS at Accession No. ML18003A047.

The 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 period in which a hearing may be requested closes on August 1, 2018.

The staff has begun its detailed environmental and safety review of the Turkey Point subsequent license renewal application. Between May 7 and May 18, 2018, the staff conducted an audit of Florida Power & Light Company's operating experience information in support of the staff's safety review.

On May 22, 2018, the staff issued a *Federal Register* notice announcing its intent to conduct the environmental scoping process and to prepare an environmental impact statement. On May 31, 2018, the staff held two public environmental scoping meetings in Homestead, FL, near the Turkey Point site. The staff will issue publicly available meeting summaries with the transcripts.

21. For each ongoing power uprate review, please provide:
    a. The date the application was filed;
    b. The duration of the review;
    c. The original milestone schedule;

d. The actual completion dates for the milestones; and
e. The scheduled date for completion of the review based on the metrics in SECY-13-0070.

Plant Name	Uprate Type (Note 1)	Date Filed	Planned Issue Date	Actual Issue Date	Planned Review Duration (Months) (Note 2)	Actual Review Duration (Months)	Notes
None							

Note 1: MUR = measurement uncertainty recapture power uprate
EPU = extended power uprate

Note 2: For licensing actions, with an application date of October 1, 2016, or later, the duration of the review of the licensing action will be measured starting when the acceptance review is complete.

22. Please provide a brief status of power uprate application reviews.

No power uprate reviews are ongoing at this time.

23. Please provide the following information below regarding Requests for Additional Information (RAI) issued by each of the following offices: Nuclear Reactor Regulation, New Reactors, Nuclear Security and Incident Response, Uranium Recovery, and Decommissioning. The number of RAIs includes the total number of questions or requests contained in a letter or email. For example, if a letter requests five items, the number of RAIs is five. For each office and for the period being reported, please provide:
    a. Number of RAIs issued;
    b. The number of RAIs issued prior to preparation of a draft safety evaluation with open items;
    c. The number of RAIs issued in an additional round, subsequent to previous RAIs, in specific technical area or by a technical branch;
    d. The percentage of RAI responses provided by licensees within 30 days of the date mutually agreed upon;
    e. The number of RAIs prepared or responses reviewed by contractors; and
    f. The number of RAIs prepared or responses reviewed by NRC staff.
    g. Once sufficient date becomes available please provide 12-month rolling average number of RAIs issued by each office.

NOTE: Information for the Office of Nuclear Security and Incident Response is included within each of the other entities or programs reporting below.

Office of Nuclear Reactor Regulation

Month/Year	Number of RAIs Issued	Number of RAIs Issued Prior to the Preparation of a Draft Safety Evaluation with Open Items	Number of RAIs Issued in an Additional Round, Subsequent to Previous RAI's in Specific Technical Area or by a Technical Branch	The Percentage of RAI Responses Provided by Licensees within 30 Days or the Date Mutually Agreed Upon	The Number of RAIs prepared by NRC staff	The Number of RAI Responses Reviewed by NRC Staff	12 Month Rolling Average, Number of RAIs Issued by Each Office
May 2018	112	Note 1	12	100%	112 Note 2	187	Note 3

Note 1: The database systems do not have readily available information that distinguishes between item 23a and 23b. Accurately compiling the number of RAI questions issued prior to preparation of a draft safety evaluation with open items would require extensive manual document searches and analysis to cover the significant volume of project reviews. The count of RAIs is presented collectively under Item 23a.

Note 2: The NRC employs contractors to supplement the staff in selected critical skill areas; however, all RAIs identified by contractors are evaluated by NRC staff to verify that they are necessary to support a regulatory finding. If the RAIs are necessary, they are formally prepared and issued by NRC staff. The NRC does not track the number of draft RAIs prepared by contractors. In addition, the NRC staff is responsible for making the final determination on the acceptability of all RAI responses.

Note 3: A 12-month rolling average will not be available until November 2018.

Office of New Reactors

Project Name	Number of RAIs Issued in May 2018	Number of RAIs Issued Prior to Preparation of a Draft SER with Open Items in May 2018	Number of RAIs Issued in an Additional Round, Subsequent to Previous RAIs, in Specific Technical Area or by Technical Branch in May 2018 (Note 1)	Percentage of RAIs Responses Provided by the Applicant/Licensee within 30 Days or the Date Mutually Agreed Upon in May 2018	Number of RAIs Prepared or Responses Reviewed by Contractors in May 2018 (Note 2)	Number of RAIs Prepared or Responses Reviewed by NRC Staff in May 2018 (Note 2)	12-Month Rolling Average (Note 3)
APR1400 Design Certification (DC)	0	0	N/A	0%	0	13 (12 revised responses; 1 new response)	N/A
U.S. Advanced Pressurized Water Reactor (US-APWR) DC	0	0	N/A	N/A	0	0	N/A
Advanced Boiling Water Reactor (ABWR) DC Renewal (General Electric Hitachi (GEH))	0	0	N/A	N/A	0	0	N/A
Clinch River Early Site Permit (ESP)	0	0	N/A	N/A	0	0	N/A
NuScale Small Modular Reactor (SMR) DC	65	65	N/A	53%	0	87	N/A

Project Name	Number of RAIs Issued in May 2018	Number of RAIs Issued Prior to Preparation of a Draft SER with Open Items in May 2018	Number of RAIs Issued in an Additional Round, Subsequent to Previous RAIs, in Specific Technical Area or by Technical Branch in May 2018 (Note 1)	Percentage of RAIs Responses Provided by the Applicant/Licensee within 30 Days or the Date Mutually Agreed Upon in May 2018	Number of RAIs Prepared or Responses Reviewed by Contractors in May 2018 (Note 2)	Number of RAIs Prepared or Responses Reviewed by NRC Staff in May 2018 (Note 2)	12-Month Rolling Average (Note 3)
NuScale Topical Reports	34	34	N/A	0%	0	39	N/A
Vogtle LARs	17	17	N/A	N/A	0	17	N/A

Note 1: NRO does not currently have an electronic system to track how many RAIs are issued in an additional round as a subsequent RAI to a previous RAI issued. To develop this capability within the current electronic system used to track RAIs would be labor and resource intensive.

Note 2: The NRC employs contractors to supplement the staff in selected critical skill areas; however, all RAIs identified by contractors are evaluated by NRC staff to verify that they are necessary to support a regulatory finding. If the RAIs are necessary, they are formally prepared and issued by NRC staff. The NRC does not track the number of draft RAIs prepared by contractors. In addition, the NRC staff is responsible for making the final determination on the acceptability of all RAI responses.

Note 3: A 12-month rolling average will not be available until November 2018.

Office of Nuclear Material Safety and Safeguards

Uranium Recovery

Month/Year	Number of RAIs Issued	Number of RAIs Issued Prior to the Preparation of a Draft Safety Evaluation with Open Items	Number of RAIs Issued in an Additional Round, Subsequent to Previous RAIs in Specific Technical Area or by a Technical Branch	The Percentage of RAI Responses Provided by Licensees within 30 Days or the Date Mutually Agreed Upon	The Number of RAIs prepared by Contractors	The Number of RAI Responses Reviewed by Contractors	The Number of RAIs prepared by NRC staff	The Number of RAI Responses Reviewed by NRC Staff	12 Month Rolling Average, Number of RAIs Issued by Each Office
May-2018	3	3	0	0	0	0	3	0	N/A

Reactor Decommissioning

Month/Year	Number of RAIs Issued	Number of RAIs Issued Prior to the Preparation of a Draft Safety Evaluation with Open Items	Number of RAIs Issued in an Additional Round, Subsequent to Previous RAIs in Specific Technical Area or by a Technical Branch	The Percentage of RAI Responses Provided by Licensees within 30 Days or the Date Mutually Agreed Upon	The Number of RAIs prepared by Contractors	The Number of RAI Responses Reviewed by Contractors	The Number of RAIs prepared by NRC staff	The Number of RAI Responses Reviewed by NRC Staff	12 Month Rolling Average, Number of RAIs Issued by Each Office
May-2018	0	0	0	19%	0	0	0	21	N/A

24. Please provide the status of specific actions taken or planned to ensure greater discipline, management oversight, and transparency in the use of the RAI process and to limit RAIs to those necessary for making regulatory decisions. The description should include: management oversight and accountability, the training necessary to provide consistency and sustainable improvement across the applicable program business lines, efforts to establish consistent procedures in relevant offices, and any gaps or trends identified by management or through internal reviews including periodic internal RAI audits.

Efforts to establish consistent procedures throughout the agency are being initiated by the establishment of a working group to align, where appropriate, licensing strategies across the agency including the RAI process. This effort, which is in the initial stages, will include representatives from NMSS, NRR, NRO, the Office of Nuclear Security and Incident Response (NSIR), and the OGC.

NRR Activities

NRR made great strides in reducing the backlog of licensing actions by reducing the inventory of licensing actions greater than one year old from 139 in September 2014 to 11 in October 2017 and 4 in March 2018. Through the use of strict controls and metrics, this inventory remains below 15 at any given time. This improvement has been possible, in large part, due to the office specific RAI-related improvements implemented over the last several years.

NRR launched several initiatives and 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 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. Some of the key items that have added discipline and management oversight to the RAI process include the following:

- NRR staff review of an application will be limited to the scope of the licensing action and RAIs should only request information that is required to make a safety determination.
- At the point when RAIs are transmitted from the technical staff to the NRR project manager, the technical staff is expected to have developed a draft safety evaluation (SE). In addition to ensuring that the RAIs contain a sound technical and regulatory basis, the technical staff should be able to correlate each RAI to a “hole” in the draft SE that the licensee response is expected to fill.
- Prior to sending a second (and any subsequent) round of RAIs in a specific technical area, NRR division-level management will apply additional oversight to discuss the need for the RAIs and whether alternative methods, such as a public meeting or audit, may be more effective and efficient for obtaining the necessary information.
- NRR project managers track licensee timeliness and adherence to RAI response schedules. Any significant delays in licensee responses will be brought to NRR management attention.

Training sessions were held with the technical and project management staff on RAI quality and the RAI process. Following the issuance of the finalized NRR guidance in this area in January 2017, online training was developed and provided to the NRR staff. This training covered expectations regarding added discipline and management oversight of the RAI process. Approximately 98 percent of the NRR staff has received the training.

Other actions that provide a stable and sustainable improvement in the RAI process and add accountability to the process include the following:

- In November 2014, NRR management began holding periodic meetings to discuss open licensing actions, develop alignment on the best approaches for completing those actions, and monitor licensing performance.
- In October 2016, NRR replaced the existing software used to manage and monitor licensing reviews with a newly developed software package called the Reactor Program System - Licensing/Workload Management software. This system has the capability to better track RAI issuance and status.
- NRR performed an internal audit of a sample of RAIs issued between April and December 2016 and found that the overall adherence to quality, timeliness, and process expectations was satisfactory. The audit team identified areas for continued improvement and recommended increased staff training on the RAI guidance, development of staff job aids, and consideration of modifications to staff guidance to better reflect the reactor license renewal and non-power utilization facilities licensing processes.
- On January 2, 2018, in response to the recommendations from the internal audit, NRR management issued a tasking memorandum to the staff with four specific actions to address the audit findings: (1) provide mandatory RAI refresher training for applicable NRR, NSIR, and NRO staff and branch chiefs, (2) evaluate existing RAI job aid for applications to other divisions, (3) formalize use of NRR guidance, as applicable, for reactor license renewal and non-power utilization facilities, and (4) conduct subsequent RAI quality reviews. The staff and branch chiefs completed the RAI refresher training in April 2018. On May 18, 2018, the staff reported the completion of the RAI refresher training and recommended flexibility in applying the RAI job aid to NRR management. The staff is evaluating the applicability of the RAI job aid and has developed a process for conducting subsequent RAI audits.

NRO Activities

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 (ADAMS Accession No. ML16280A389) 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.

The staff has incorporated many lessons-learned into its review of the active DC and 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.

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, and if the revised RAI process should be maintained, modified, or eliminated. The RAI audit team found the quality of the RAIs that have gone through the current review process was generally excellent.

NMSS Activities

In NMSS, internal guidance for uranium recovery and waste program reviews includes the expectation that RAIs will be developed in conjunction with the draft SER to ensure that each RAI is necessary to reach a safety finding. In addition, the guidance contains the expectation to include a reference in the RAI 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 recently 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 evaluation and RAIs in concert.

NMSS is also in the process of studying RAI approaches used by other offices at the NRC, developing office procedures, revising guidance, and evaluating the development of job aids to incorporate applicable RAI approaches from other NRC branches, divisions and offices. Following completion of this effort, NMSS will develop a training plan, as needed, to implement the resulting RAI process products.

In addition, NMSS is revising NUREG-1556, Volume 20, "Guidance about Administrative Licensing Procedures." Information in this NUREG regarding requests for additional information 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's Division of Spent Fuel Management (DSFM) issued Division Instruction (DI) 26, DSFM-26, Rev., 0, which provided management expectations and guidance to employees with regard to meeting division and business line goals of being an independent, transparent, and effective regulator. In DSFM-26, management has specifically indicated that "DSFM's goal is one round of RAIs for a typical review and a maximum of two rounds of RAIs. 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 concurrence by the division-level management, in-addition to branch-level, when a second round of RAIs is being considered during the review of an application. In addition, the staff has developed 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 has been discussed with all the reviewers as part of continuous training, supplemented by a desk guide and a quick reference card. The division also will conduct a self-assessment on spent fuel storage and transportation licensing RAIs during FY 2018.

The Division of Fuel Cycle Safety, Safeguards, and Environmental Review (FCSE) conducted a review of the FCSE RAI process during the second quarter of FY 2017. Staff reviewed audit reports from the NRC's Office of the Inspector General (OIG) and the U.S. Government Accountability Office (GAO) "Statement of Facts" (GAO Job Code 100910). The NRC staff assessment report is at ADAMS Accession Number ML17102A783. The NRC staff also reviewed the internal policies and interviewed subject matter experts in the Office of Nuclear Reactor Regulation, the Office of New Reactors, and the Office of Nuclear Material Safety and Safeguards. The results of this assessment, including staff's recommendations and proposed actions for implementing recommended improvements, were documented in a report to FCSE management on May 25, 2017. The report proposed revisions to the FCSE 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 safety evaluation report 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, FCSE has conducted 2 licensing seminars on RAIs for Project Managers and Technical Reviewers, as well as a team meeting for those involved in the license renewal application review for Honeywell International. Tasks for updates to the guidance are scheduled for completion by the end of September 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.

Efforts to establish consistent procedures throughout the agency are being initiated by the establishment of a working group to align, where appropriate, licensing strategies across the agency including the RAI process. This effort, which is in the initial stages, will include representatives from NMSS, NRR, NRO, NSIR, and OGC.

25. In keeping with the Commission's policy statement on the use of probabilistic risk assessment (PRA), please describe the agency's actions to enhance the integration of risk information across the agency's activities to improve the technical basis for regulatory activities, to increase efficiency, and to improve effectiveness. Please include actions taken or planned (including milestones, where appropriate) for improving the realism of PRA information used in regulatory decision-making, for training staff to more effectively apply risk information, for updating agency processes and procedures accordingly, and for improving consistency among NRC offices and regions.

As directed by the Commission in SRM-M170511, the staff issued SECY-17-0112, which summarizes its plans to increase staff capabilities to use risk information in decision-making activities. The paper describes five overarching strategies and summarizes associated staff actions and plans. Strategy I evaluates and updates risk-informed decision-making (RIDM) guidance to foster a collaborative review process and a broadened understanding of risk and

risk insights. Strategy II develops a graded approach for using risk information in licensing reviews. Strategy III enhances training requirements related to RIDM for managers and staff. Strategy IV advances NRC and industry risk-informed initiatives, and Strategy V enhances communication on risk-informed activities. As directed by SRM-M170511, the staff will provide periodic updates to the Commission on its progress.

Each strategy with examples of specific actions taken or planned (including milestones, where appropriate) is summarized in the table below. Additional details are available in SECY-17-0112 and in an action plan that leverages best practices in RIDM from the operating and new reactor programs (current revision at ADAMS Accession No. ML18116A023). Though strategies and actions mainly focus on the reactor program, Strategies III and V will be coordinated across all agency offices and the regions, as appropriate. In addition, risk-informed approaches as applied in the materials safety and waste management arenas are described, along with reactor safety and cross cutting activities, on the "Risk-Informed Activities" page on the NRC public Web site (https://www.nrc.gov/about-nrc/regulatory/risk-informed/rpp.html).

Strategy Description/Background	Actions/Milestones
I. Evaluate and Update Guidance Updated or new guidance will be developed to more fully equip staff with the tools necessary to use quantitative or qualitative risk information in both traditionally deterministic and formal risk-informed reactor licensing reviews. Importantly, all other strategies also involve guidance development activities.	• A revision to NUREG-1855, "Treatment of Uncertainties Associated with PRAs in Risk-Informed Decision Making" was published in March 2017 (ADAMS Accession No. ML17062A466). • A revision to Regulatory Guide 1.174 "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to The Licensing Basis" was published ahead of schedule in January 2018 (ADAMS Accession No. ML17317A256). • New and revised inspection procedures and field guides are being developed for risk-informed initiatives. • Action plan task 4 includes a review of branch technical position (BTP) 8-8, "Onsite (Emergency Diesel Generators) and Offsite Power Sources Allowed Outage Time Extensions," to determine if clarification is needed for use of a 14-day backstop for deterministic evaluations; applicability of the guidance to one-time and permanent extensions; and defense-in-depth considerations, particularly with respect to mitigating the consequences of a loss of offsite power coincident with a loss-of-coolant accident with a single failure. **Milestone:** The staff will provide findings and recommended changes to management by June 2018.
II. Develop a Graded Approach for Using Risk Information in Licensing Reviews A graded approach seeks to leverage risk insights across the spectrum of licensing review types (i.e., deterministic and formal risk-informed submittals). A framework that supports a	• The staff created a tool to guide technical reviewers to consider plant design features when formulating the scope and depth of new reactor review activities. This tool was successfully applied to the NuScale design certification review and is a critical element of the ongoing enhanced safety-focused review of this design. • The NRC has made significant progress on initiatives to enhance the regulatory framework for non-light water reactors (non-LWRs) with risk-informed performance-based technology-inclusive approaches. The actions for advanced reactor reviews are described more fully in response to question 52.

Strategy Description/Background	Actions/Milestones
graded risk-informed review approach is already described in NUREG-0800 (ADAMS Accession Nos. ML070630046 and ML13207A315).	• Action plan task 3 involves developing a graded approach for using risk information more broadly in operating reactor licensing reviews. This involves creating tools to facilitate the consideration of both qualitative and quantitative risk insights in licensing reviews. Action plan task 1 seeks to expand the use of license review teams with enhanced collaboration between the engineering staff and the PRA practitioners. **Milestone:** The staff will provide findings and recommended changes to management in June 2018.
III. Enhance Training Requirements Related to Risk-Informed Decision-Making (RIDM) for Managers and Staff The NRC provides over 30 formal staff training courses on technical and regulatory aspects associated with RIDM. Courses are available to all staff members; however, currently, only some NRC employees are required to take these courses. Furthermore, many courses focus on the technical aspects of PRA as opposed to describing how risk information can be used to inform regulatory decisions.	• A new course for NRC managers ("Perspectives on Risk-Informed Decision-Making for NRC Managers") is being developed that will focus on applications of PRA and describe how risk insights can inform decision-making. If successfully piloted, the course will be made mandatory for all supervisors and senior managers in the reactor program. **Milestone:** Conduct pilot course by the end of June 2018. • The staff continues to offer the "Risk-Informed Thinking Workshop" that provides participants with hands-on experience in applying RIDM using scenarios of practical agency work. • The staff plans to update position-specific qualification requirements to include the newly developed "Risk-Informed Thinking Workshop" for reactor program staff. • The staff is evaluating whether aspects of the "Risk-Informed Thinking Workshop" could be integrated with appropriate modules of the Fundamentals of Reactor Licensing Workshop for Technical Reviewers. **Milestone:** Complete evaluation by June 30, 2018. • Action plan task 2 seeks to "broaden the definition of risk beyond just a quantitative value." It re-emphasizes the definition of risk to ensure awareness and common understanding between the staff and managers and clarifies the concepts of risk and risk insights in regulatory applications.
IV. Advance Risk-Informed Initiatives The NRC primarily uses the Risk Informed Steering Committee (RISC) to advance risk-informed initiatives. RISC is a senior management committee with members from each of the program offices. The industry also has a RISC composed of senior managers. Since inception in 2014, the NRC and industry RISCs meet	• Fire PRA realism: The staff is engaged with industry to evaluate and improve, where applicable, fire PRA realism. Existing processes allow licensees to propose method improvements through the fire PRA frequently asked question (FAQ) process, by submitting a license amendment request, or by submitting a topical report. The staff has conducted a fire PRA public workshop and three fire PRA public meetings with industry stakeholders since the third quarter of 2017 to elicit new fire PRA FAQs and research activities. NRC has completed three (3) fire PRA FAQs to improve realism. The NRC and NEI are working on three additional FAQs. In addition, NEI presented its proposal regarding refinement of the current PRA credit allowed for Very Early Warning Detection Systems (VEWFDS) in NUREG-2180. NRC staff has provided comments on the industry's proposal.

Strategy Description/Background	Actions/Milestones
quarterly. The NRC RISC's objectives include the following: engage industry and listen to concerns relative to the use of PRA to support regulatory decision-making; communicate NRC actions in the area of risk-informed decision-making; discuss what initiative can be taken by the NRC to incentivize industry to continue to develop PRAs to help both reduce uncertainty and provide a framework to make decisions in light of uncertainty; and discuss industry actions necessary to achieve the vision for future use of PRA to support regulatory decisions. A brief summary of RISC actions to improve the realism of PRA information used in regulatory decision-making are provided here. SECY 17-0112 Enclosure 3 provides additional information on all active RISC initiatives including TS Initiative 4b, The Peer Review Facts and Observations Closure Process, 10 CFR 50.69, PRA Methods Vetting Process, and Risk Aggregation. Activities supplemental to the RISC that also advance risk-informed initiatives are also briefly described here.	• Realism in the Reactor Oversight Process (ROP): The NRC continuously maintains and improves guidance documents and NRC risk tools used to support ROP activities. One such tool is the Risk Assessment Standardization Project Handbook (RASP Handbook). In March 2017, the staff transmitted plans to discuss industry concerns associated with the RASP Handbook. As a result of public meetings, industry proposed pursuing the issue on common cause failure (CCF) as the highest priority and discussed alternatives. Industry provided a document regarding CCF modeling for staff review on December 8, 2017. Following this review, the staff plans to develop additional guidance for addressing CCF for the Significance Determination Process. • Credit for Diverse and Flexible Coping Strategies (FLEX) in RIDM: FLEX is currently being credited in multiple risk-informed applications. The NRC staff has developed several guidance documents to promote consistency and efficiency in applications in these areas. The staff is continuing to monitor the licensees' use of FLEX and is evaluating the need for additional guidance changes. Additional activities that advance risk-informed initiatives outside the RISC include: • Cooperative Research Activities with the Electric Power Research Institute (EPRI). To conserve resources and to avoid unnecessary duplication of effort, both the NRC and EPRI have agreed to cooperate in selected research efforts and to share information and/or costs whenever such cooperation and cost sharing is appropriate and mutually beneficial. A Memorandum of Understanding with EPRI (ADAMS Accession No. ML16223A497) currently covers a number of risk-related topics, including fire, seismic, PRA methods, treatment of uncertainties, and flooding. • Update to Regulatory Guide (RG) 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities." RG 1.200 provides the staff position of what constitutes an acceptable base PRA and is the agency's vehicle for endorsing the industry consensus PRA standards and related PRA peer review guidance. ASME/ANS will publish and NEI has recently published updated industry documents related to PRA standards and peer reviews, respectively. RG 1.200 will be revised to reflect the NRC's endorsement of pertinent industry documents. • Consensus Standards Development: The NRC actively participates in the development and maintenance of consensus standards. This includes standards for all levels of PRA, reactor operating modes, and hazards for design certification and combined licenses for both LWR and non-LWR nuclear power plants. NRC participation ensures that

Strategy Description/Background	Actions/Milestones
	the NRC's views are considered in the development of the standard and industry guidance. For example, the staff issued two separate letters in May 2017 and March 2018 regarding closure of findings from peer reviews and external hazard PRA peer-review guidance, respectively.
V. Enhance Communication on Risk-Informed Activities The NRC is enhancing communication to ensure that its stakeholders are aware of new and enhanced risk training courses and guidance, ongoing RIDM initiatives, and plans and experience using risk information.	• Staff with risk/PRA expertise are sharing knowledge and experience through presentations at branch and division meetings across the offices on topics such as risk-informed screening tools for operating and new reactor reviews. Knowledge and experience is also being shared through working group and review team meetings. Seminars on RIDM for NRC inspectors and enhanced inclusion of RIDM topics at regional and senior reactor analyst counterpart meetings are planned. • The action plan includes a communication plan with key messages and tools to increase awareness of NRC's efforts related to the use of risk information.

26. The NRC has a long-standing effort to establish an efficient, reliable, and predictable licensing process for power reactors to transition from analog to digital instrumentation and control systems for safety-related applications. Please provide the date this effort began, a milestone schedule for implementation of the licensing process including the actual milestone completion dates, and the scheduled date for completion.

The NRC is implementing an integrated strategy plan to modernize the NRC regulatory infrastructure for digital instrumentation and controls (I&C), through strategic and tactical modernization plans (MPs). The plans focus on topics identified by industry stakeholders that will provide confidence in transitioning from analog to digital control systems (Integrated Action Plan - ADAMS Accession No. ML17102B307*)*	
MP #1A: Develop guidance for near term implementation of digital upgrades without prior NRC approval under 10 CFR 50.59 (limited scope of systems)(endorsement clarification of NEI 01-01 via RIS supplement)	
Activity	Actual or Projected Completion Date
NRC begins effort: Prepare preliminary drafts of RIS 2002-22, Supplement 1, clarifying the staff's previous endorsement of NEI 01-01	March 2017
Issue Draft RIS for Public Comment	July 2017
Issue revised Draft RIS for 2nd Public Comment Period	March 2018
Anticipate issuing the final RIS	May 2018
MP #1B: NRC review and endorsement, as appropriate, of industry technical guidance for addressing common cause failure in digital I&C (NEI 16-16)	
Activity	Completion Date
NRC begins effort: Begin staff evaluation of the partial draft of NEI 16-16 received December 22, 2016, and develop staff comments and gap analysis	December 2016

NEI submits complete NEI 16-16 to the NRC for review	Review suspended per NEI's request to evaluate the pending changes to EPRI technical guidance that underpins NEI 16-16
NRC decision on technical adequacy and whether to issue a potential interim endorsement letter	To be determined
NRC formally enters NEI 16-16 into the Regulatory Guide development process (if decision is made to endorse)	To be determined
MP #1C: Modernize NRC's current position on defense against potential common cause failure in I&C systems and components	
Activity	Completion Date
NRC efforts begin: Begin staff review to identify if there are policy issues that need to be taken to the Commission	July 2017
Present SECY paper to Commission for information	September 2018

MP #2: Issue durable guidance for implementation of digital upgrades without NRC approval under 10 CFR 50.59 (full scope of systems) - Endorsement review of NEI 96-07, Appendix D	
Activity	Completion Date
NRC efforts begin: Initiate review and stakeholder interactions of NEI guidance document, NEI 96-07, Appendix D, Guidelines for 10 CFR 50.59 Evaluations	April 2016
NRC decision on technical adequacy and s whether to issue a potential interim endorsement letter	June 2018
NRC formally enters NEI 96-07 Appendix D into the Regulatory Guide development process (if decision is made to endorse)	December 2018

MP #3: Review Industry's process for using commercially available digital equipment	
Activity	Completion Date
NRC efforts begin: Public Meeting to discuss resolution of RIS 2016-05 public comments	April 2016
EPRI publishes research results	October 2018
NEI Submits NEI 17-06 for NRC Review	January 2019
NRC makes decision on technical adequacy	April 2019
NRC staff completes audits of Safety Integrity Level certification organizations and accrediting entities	June 2020
NRC formally enters NEI 17-06 into the Regulatory Guide development process (if decision is made to endorse)	July 2020

MP #4A: Streamline the licensing process guidance - update to Interim Staff Guidance ISG-06	
Activity	Completion Date
NRC begins effort: Conduct a series of public stakeholder meetings (e.g., public workshops) for additional feedback	February 2017
Issue final Draft revision of ISG-06 for public comment	July 2018
Issue final revision of ISG-06	December 2018
MP #4B: Develop strategic activities for long-term improvements to the regulatory infrastructure	
NRC begins effort to develop strategic plan to modernize overall regulatory infrastructure	October 2017
Consider evaluation of lessons learned from MP 1-4A progress	April 2018
Coordinate with stakeholders to identify potential regulatory gaps and potential options for improving the regulatory infrastructure	June 2018
Develop additional detailed modernization plan for implementing tactical and strategic improvements to the regulatory infrastructure	August 2018

27. Please describe actions taken and/or planned to prepare to review industry requests to use Accident Tolerant Fuel in existing reactors, including but not limited to actions taken and/or planned for lead test assemblies and fuel loads. Please include a milestone schedule and brief project plan for both evolutionary and revolutionary designs.

The staff is finalizing the project plan by addressing comments received in response to the December 21, 2017, *Federal Register* notice of the draft plan (ADAMS Accession ML17325B771), which was discussed during a February 27, 2018, public meeting. The project plan outlines the strategy to efficiently and effectively license near-term and longer-term accident tolerant fuel (ATF) designs. The plan will cover all aspects of ATF regulation, including fabrication, transportation, storage, and the regulatory framework for in-reactor performance. The plan contains tasks covering regulatory and infrastructure needs, tools and methods for safety evaluations, and accounts for interactions with industry stakeholders, the U.S. Department of Energy (DOE), and international organizations regarding requisite experimental data and code capabilities. The plan will evolve as ATF concepts are refined. The staff anticipates finalizing the plan by mid-summer 2018.

To facilitate the conduct of phenomena identification and ranking table (PIRT) exercises, consistent with the revised ATF plan, the staff is planning a public meeting in June 2018. The staff is also planning a generic communication to obtain timeline details from vendors for the various ATF concepts. In addition, the staff is engaged with the DOE and industry stakeholders in discussions about the potential closure of a key fuel research facility, the Halden Reactor Project.

In an October 31, 2017, telephone call, the NRC relayed its position to the licensee for Hatch (Southern Nuclear Operating Company) on the use of ATF lead test assemblies (LTAs) at Unit 1. Consistent with a June 29, 2017, letter to NEI (ADAMS Accession No. ML17150A443), the NRC stated its view that no exemption from the NRC regulations would be necessary for loading and irradiating the LTA campaign at Hatch; the plant's TS allow the use of LTAs, as specified, so a license amendment was not required; and the licensee's intent to conduct a full evaluation of the proposed activity in accordance with 10 CFR 50.59 would be appropriate. The

NRC and the licensee agreed that the 10 CFR 50.59 evaluation of LTAs could result in the need for a license amendment notwithstanding the TS. The NRC steering committee for LTAs developed a draft letter to NEI regarding the use of LTAs in commercial operating nuclear reactors, which once finalized will clarify the staff's positions stated in its June 29, 2017, letter. The draft letter was approved on May 31, 2018 (ADAMS Accession No. ML18100A045), and was published for public comment on June 7, 2018 (83 FR 26503).

28. Please describe actions taken and/or planned to improve the quality of cost benefit analyses conducted in association with new requirements, backfit analyses, or rulemaking, including the development of metrics for assessing the quality of cost-benefit analyses. Please include milestones for completing these actions and the guidance that is currently under revision.

The NRC has taken specific actions to improve the quality of cost-benefit analyses conducted in association with new requirements, backfit analyses, or rulemaking. The key milestones for these actions are described below.

On March 19, 2013, the Commission issued a staff requirements memorandum (SRM) regarding SECY-12-0157, "Consideration of Additional Requirements for Containment Venting Systems for Boiling Water Reactors with Mark I and Mark II Containments" (ADAMS Accession No. ML13078A017). The SRM directed the staff to seek detailed Commission guidance on the use of qualitative factors.

On March 20, 2013, the Commission issued SRM-SECY-12-0110, "Staff Requirements – SECY-12-0110 – Consideration of Economic Consequences within the U.S. Nuclear Regulatory Commission's Regulatory Framework," directing the staff to identify potential changes to current methodologies and tools to perform cost-benefit analysis in support of regulatory, backfit, and environmental analyses. The Commission also directed the staff to provide a regulatory gap analysis before developing new cost-benefit guidance.

On January 2, 2014, in response to SRM-SECY-12-0110, the staff submitted SECY-14-0002, "Plan for Updating the U.S. Nuclear Regulatory Commission's Cost-Benefit Guidance." In SECY-14-0002, the staff identified potential changes to current methodologies and tools related to performing cost-benefit analysis in support of regulatory, backfit, and environmental analyses. The staff informed the Commission of its planned two-phase approach for revising the content and structure of cost-benefit guidance documents. Phase 1 aligns regulatory guidance across NRC's business lines by restructuring and incorporating non-policy revisions to NRC cost-benefit guidance. This phase is underway, as described below. In Phase 2, staff will identify and analyze potential policy issues that could affect the NRC's cost-benefit guidance and present these issues to the Commission for consideration and approval. The staff then will incorporate final updates to guidance for conducting cost-benefit analyses that support backfitting decisions.

On August 14, 2014, in response to SRM-SECY-12-0157, the staff submitted SECY-14-0087, "Qualitative Consideration of Factors in the Development of Regulatory Analyses and Backfit Analyses." In SECY-14-0087, the staff proposed updating the cost-benefit guidance to include a set of methods that could be used for the consideration of qualitative factors within a cost-benefit analysis for regulatory and backfit analyses.

On December 16, 2014, in response to Commission direction to provide a regulatory gap analysis before developing new cost-benefit guidance, the staff submitted SECY-14-0143, "Regulatory Gap Analysis of the Nuclear Regulatory Commission's Cost Benefit Regulations, Guidance and Practices." In SECY-14-0143, the staff described the review of current NRC

guidance, methodologies, and tools used for cost-benefit determinations. The staff also described the results of its review of the NRC regulatory analyses that had been completed and identified differences across NRC business lines (e.g., material users, fuel cycle facilities, new and operating reactors) and procedures (i.e., regulatory analyses, backfit analyses). Finally, SECY-14-0143 included staff's gap analysis, and identified where additional guidance is needed to ensure consistency across the agency.

On March 4, 2015, the Commission issued SRM-SECY-14-0087. The Commission approved the staff's plans for updating guidance regarding the use of qualitative factors, including the treatment of uncertainties, and directed the staff to focus the update on capturing best practices for the consideration of qualitative factors. The Commission also directed the staff to provide a toolkit for analysts regarding the consideration of qualitative factors.

In July 2015 and May 2017, the staff held two public meetings on the proposed cost-benefit guidance updates. The staff also held a public workshop in March 2016 to discuss proposed changes to the cost-benefit guidance. Meeting participants included industry representatives, government and nongovernment organizations, and other interested parties.

The Phase 1 update identified in SECY-14-0002 and described above is underway. In April 2017, the NRC issued draft NUREG/BR-0058, Revision 5, "Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission," and published a notice requesting public comment in the *Federal Register* (82 FR 18163; April 17, 2017). The staff received three comment submissions with a total of 58 individual comments from industry stakeholders and members of the public. The NRC staff considered this input when revising the NUREG, which is under review by agency management.

The staff submitted the draft final NUREG/BR-0058, Revision 5, and five appendices to the Commission via a notation vote paper dated March 28, 2018 (SECY-18-0042). The following appendices are included in this update:

- Appendix A, "Qualitative Factors Assessment Tools"
- Appendix B, "Cost Estimating and Best Practices"
- Appendix C, "Treatment of Uncertainty"
- Appendix D, "Guidance on Regulatory Analysis Related to ASME Rules"
- Appendix E, "Special Circumstances and Relationship to Other Procedural Requirements"

Metrics for assessing the quality of cost-benefit analyses are contained in NUREG/BR-0058, Appendix B. Enclosure B-4 to Appendix B discusses the expectations for quality cost estimates and details the steps to ensure high-quality cost-benefit analyses are developed and presented to agency management. Additionally, the enclosure describes the steps to verify the quality of a cost-benefit analysis through various techniques for checking accuracy.

The Commission is reviewing the draft final Revision 5 of NUREG/BR-0058. After the Commission provides direction, the staff will conduct Phase 2 of the activity, as described in SECY-14-0002.

29. Please provide the status of the revised guidance currently under development to clarify the use of qualitative factors, including milestones and the projected date for completion. In addition to this revised guidance, please list and briefly describe any actions taken and/or planned to improve the use of quantitative factors in regulatory analyses

required for rulemaking, in the regulatory analyses required under the Backfit Rule, and in the Reactor Oversight Process Significance Determination Process.

As noted above, the staff completed the draft final Revision 5 of NUREG/BR-0058 and provided the document to the Commission for its review (SECY-18-0042) on March 28, 2018.

In the interim, a draft of the NUREG was issued for public comment and is available for interim staff use. In conducting its regulatory analyses, the staff is implementing the best practices and lessons learned that are contained within this draft revision of NUREG/BR-0058.

In revising this cost-benefit guidance, the staff focused on improving methods for quantitative analyses, including the treatment of uncertainty and the development of realistic estimates of the cost of implementing proposed requirements. Specifically, the staff developed two appendices to NUREG/BR-0058, Revision 5 to guide the staff in these areas.

- Appendix B, "Cost Estimating and Best Practices," provides expanded guidance on incorporating cost-estimating best practices, including estimating life-cycle costs.
- Appendix C, "The Treatment of Uncertainty," expands on the existing guidance for performing uncertainty and sensitivity analyses for cost-benefit analyses.

In addition to the improved methods for quantitative analyses, the revised cost-benefit guidance directs the staff to quantify the estimates of costs and benefits to the extent possible. However, the staff acknowledges that some attributes in regulatory analyses are difficult to quantify, and require additional resources to develop a strictly quantitative analysis. To address this gap, staff developed a toolkit to enable analysts to clearly present analyses of qualitative results in a transparent way that decision makers, and stakeholders can understand.

- Appendix A, "Qualitative Factors Assessment Tools," identifies best practices for the consideration of qualitative factors and describes a number of methods that can be used to support the NRC's evidence-based, quantitative, and analytical approach to decision-making. The guidance clearly states that these methods (1) should only be used when quantification may not be practical, (2) are not a substitute for collecting accurate information to develop realistic cost estimates, and (3) do not constitute an expansion of the consideration of qualitative factors in regulatory, backfit, or environmental analyses.

Revision 5 of NUREG/BR-0058 is intended to meet the following objectives:

- Refocus and expand guidance on cost-benefit analysis across the agency
- Emphasize quantification and provides methods for creating realistic estimates
- Provide methods for assessing factors that are difficult to quantify
- Incorporate cost estimating best practices identified in U.S. Government Accountability Office (GAO) guidance and in recommendations from GAO in GAO-15-98, "Nuclear Regulatory Commission: NRC Needs to Improve Its Cost Estimates by Incorporating More Best Practices," dated December 12, 2014
- Expand guidance on the treatment of uncertainties
- Enhance transparency of analysis for the decision-maker

With regard to the use of qualitative factors in the ROP's Significance Determination Process, the SRM for SECY-13-0137 directed the staff, in part, to "evaluate the need to provide additional clarity on the use of qualitative factors for operating reactors to provide more transparency and predictability to the process." The staff has completed its evaluation, which was documented in Enclosure 2 of SECY-18-0045, "Reactor Oversight Process Self-Assessment for Calendar Year

2017" (ADAMS Accession No. ML18059A155). To address the results of this evaluation, the staff plans to revise Appendix M of Inspection Manual Chapter 0609, "Qualitative Significance Determination Process," by the end of the calendar year 2018. This revision will clarify the entry criteria for Appendix M and provide better guidance on application of the existing decision-making attributes in the appendix, but will not expand its use.

30. Please provide a list of all final generic regulatory actions issued in the last 3 years. Please include:
    a. Whether the item was reviewed by Committee for the Review of Generic Requirements (CRGR);
    b. Whether the CRGR review was formal or informal;
    c. The CRGR recommendation; and
    d. The NRC's conclusions with respect to compliance with the Backfitting Rule (i.e., no backfitting, cost-justified substantial increase, compliance exception, adequate protection exception).

The majority of the final generic regulatory actions that the NRC issues do not lead to backfitting. In addition, as discussed in response #34, the agency is working to enhance oversight to prevent unintended and unsupported backfits. The NRC issues many types of final generic regulatory actions, such as rules, orders, bulletins, generic letters (GLs), regulatory information summaries (RISs), RGs, standard review plans (SRPs), and ISGs.

The CRGR Charter, Revision 8 clarifies which issues should be forwarded to the Committee for review where new or revised generic requirements could propose backfits or new staff positions. Items for CRGR review are forwarded by the agency's program offices or are directed for review by the EDO. The table below illustrates that only a few final generic agency actions are reviewed by the CRGR to assess if generic backfitting concerns exist. Most backfitting issues are resolved during management review and legal review, or identified during interactions with external stakeholders.

Rules, orders, bulletins, GLs, and RISs are final generic regulatory actions that are reviewed and evaluated to screen for potential backfitting concerns and new staff positions. CRGR reviews these items when certain criteria are met, including:

- Stakeholders or NRC staff identify concerns regarding backfitting or regulatory analysis
- The EDO directs the review or an office director requests review
- Use of the compliance exception or the adequate protection exceptions to justify backfitting
- For rulemaking, if there are finality concerns or possible backfitting qualitative factors were used to justify a rulemaking with significant costs, or substantial statistical uncertainty exists in the qualitative benefit determination in the backfit analysis.

For rulemaking, over the last 3 years CRGR reviews were not conducted because the criteria for requiring CRGR review were not met for any of the rulemakings listed in the table. However, under the revised criteria, the CRGR is now more actively reviewing rulemaking activities. For example, in June 2017, the CRGR reviewed a draft proposed rule on cybersecurity at fuel cycle facilities. This marked the first CRGR review using the new criteria and guidance. The draft proposed rule is currently with the Commission for its consideration. Also, on October 25, 2017, the CRGR reviewed the draft final rule on enhanced weapons, firearms background checks, and security event notifications. In reviewing both of these packages, the CRGR requested additional information to ensure that the staff was not unnecessarily imposing backfits on the licensees.

Regulatory guides, standard review plans, and interim staff guidance, are only reviewed by CRGR when concerns are raised during staff review regarding potential generic backfitting. These documents are intended to provide acceptable approaches for licensees or applicants to meet NRC requirements, or for the NRC staff to confirm the adequacy of proposed approaches. Additionally, adopting new regulatory guides is intended to be voluntary for licensees and applicants. For limited instances where regulatory guides may result in potential backfits or new staff positions, the CRGR conducts a review.

The table below provides NRC final generic regulatory actions issued within the last 3 years. For the response, the staff has included final rules, orders, bulletins, RISs, and GLs.

Summary of Final Generic Regulatory Actions over the Last 3 Years					
Item #	**Title**	**Issuance Date**	**CRGR[1] Review**	**CRGR Recommendation**	**NRC Backfitting Review**
RIS 2002-22, Supplement 1	Clarifications on Endorsement of Nuclear Energy Institute Guidance in Designing Digital Upgrades in Instrumentation and Control Systems	05/31/18	Informal Review	NA	No Backfitting
10 CFR Part 75	Modified Small Quantities Protocol	05/04/18 83 FR 19603	None	NA	No Backfitting
RIS 2017-01, Rev. 1	Human Reliability and Human Performance Database	03/29/2018	None	NA	No Backfitting
RIS-18-02	Preparation and Scheduling of Operator Licensing Examinations	03/26/2018	None	NA	No Backfitting
RIS-18-01	Common Violations Cited During First 2 Years of 10 CFR Part 37, "Physical Protection of Category 1 and Category 2 Quantities of Radioactive Material," Implementation and	01/22/18 and ERRATA 03/01/2018	None	NA	No Backfitting

[1] None – indicates that the item was administrative in nature or did not meet thresholds for CRGR backfitting review, informal reviews – were conducted by the members without a meeting. Formal Reviews – are these items that a meeting was conducted to assess potential backfitting concerns.

Summary of Final Generic Regulatory Actions over the Last 3 Years					
Item #	**Title**	**Issuance Date**	**CRGR[1] Review**	**CRGR Recommendation**	**NRC Backfitting Review**
	Guidance Documents Available to Support Rule Implementation				
10 CFR Part 50	Approval of American Society of Mechanical Engineers' Code Cases	01/17/18 83 FR 2331	None	NA	No Backfitting
10 CFR 2 and 13	Adjustment of Civil Penalties for Inflation for Fiscal Year 2018	01/12/18 83 FR 1515	None	NA	No Backfitting
RIS-17-08	Process for Scheduling and Allocating Resources for Fiscal Years 2020 Through 2022 for the Review of New Licensing Applications for Light-Water Reactors and Non-Light-Water Reactors	12/21/17	None	NA	No Backfitting
10 CFR Parts 2, 9, 40, 50, 61, 71, 73, and 110	Miscellaneous Corrections	11/15/17; 82 FR 52823	None	NA	No Backfitting
RIS-17-06	NRC Policy on Use of Combination Dosimetry Devices During Industrial Radiographic Operations	09/19/17	None	NA	No Backfitting
RIS-17-05	Administration of 10 CFR Part 72 Certificate of Compliance Corrections and Revisions	09/13/17	None	NA	No Backfitting
RIS-17-04	Clarification on the Implementation of Compensatory Measures for Protective Strategy Deficiencies or	08/30/17	Informal Review	NA	No Backfitting

Summary of Final Generic Regulatory Actions over the Last 3 Years					
Item #	**Title**	**Issuance Date**	**CRGR[1] Review**	**CRGR Recommendation**	**NRC Backfitting Review**
	Degraded or Inoperable Security Systems, Equipment, or Components				
10 CFR Part 50	American Society of Mechanical Engineers Codes and Code Cases	07/18/17; 82 FR 329034	None	NA	Two changes resulted in an adequate protection backfit exception (Code Case N-729-4 and Code Case N-770-2)
10 CFR Parts 170 and 171	Fee Recovery for Fiscal Year 2017	06/30/17; 82 FR 30682	None	NA	No Backfitting
RIS-17-03	Preparation and Scheduling of Operator Licensing Examinations	04/05/17	None	NA	No Backfitting
RIS-17-02	Applicability of Title 10 of the *Code of Federal Regulations* Part 37 to Non-Manufacturing and Distribution Service Provider Licensees	02/08/17	None	NA	No Backfitting
RIS-17-01	Human Reliability and Human Performance Database	02/02/17	None	NA	No Backfitting
10 CFR Parts 2 and 13	Adjustment of Civil Penalties for Inflation	01/24/17; 82 FR 8133	None	NA	No Backfitting
10 CFR Part 72	List of Approved Spent Fuel Storage Casks	Published 6 Certificate of Compliance (COC) rules in 2017	None	NA	No Backfitting

Summary of Final Generic Regulatory Actions over the Last 3 Years					
Item #	**Title**	**Issuance Date**	**CRGR[1] Review**	**CRGR Recommendation**	**NRC Backfitting Review**
10 CFR Part 140	Increase in the Maximum Amount of Primary Nuclear Liability Insurance	12/30/16; 81 FR 96347	None	NA	No Backfitting
10 CFR Parts 2 and 9	Update to Incorporate Freedom of Information Act Improvement Act of 2016 Requirements	12/30/16; 81 FR 96344	None	NA	No Backfitting
RIS-16-12	NRC Employee Access to Switchyards at Licensee Facilities	11/22/16	None	NA	No Backfitting
RIS-16-11	Requests to Dispose of Very Low-Level Radioactive Waste Pursuant to 10 CFR 20.2002	11/13/16	Informal Review	Endorsed	No Backfitting
RIS-15-19, Rev 1	Decommissioning Timeliness Rule Implementation and Associated Regulatory Relief	09/27/16	None	NA	No Backfitting
RIS-16-10	License Amendment Requests for Changes to Emergency Response Organization Staffing and Augmentation	08/05/16	Informal Review	Endorsed	No Backfitting
10 CFR Part 2	Update to Transcript Correction Procedures	07/20/16; 81 FR 47005	None	NA	No Backfitting
10 CFR Parts 2 and 13	Adjustment of Civil Penalties for Inflation	07/01/16; 81 FR 43019	None	NA	No Backfitting
10 CFR Parts 9, 170, and 171	Fee Recovery for Fiscal Year 2016	06/24/16; 81 FR 41171	None	NA	No Backfitting
RIS-16-09	Preparation and Scheduling of Operator	06/16/16	None	NA	No Backfitting

Summary of Final Generic Regulatory Actions over the Last 3 Years					
Item #	**Title**	**Issuance Date**	**CRGR[1] Review**	**CRGR Recommendation**	**NRC Backfitting Review**
	Licensing Examinations				
RIS-16-08	Process for Scheduling and Allocating Resources in Fiscal Year 2019 for the Review of New Licensing Applications for Light-Water Reactors and Non-Light-Water Reactors	06/07/16	None	NA	No Backfitting
10 CFR Parts 170 and 171	Variable Annual Fee Structure for Small Modular Reactors	05/24/16; 81 FR 32617	None	NA	No Backfitting
RIS-16-07	Containment Shell or Liner Moisture Barrier Inspection	05/09/16	Informal Review	Endorsed	No Backfitting
RIS-16-06	NRC Regulation of Radium-226 Under Military Control and for Coordination on the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Response Actions at Department of Defense Sites with Radioactive Materials	05/09/16	None	NA	No Backfitting
RIS-16-05	Embedded Digital Devices in Safety-Related Systems	04/29/16	Informal Review	Endorsed	No Backfitting
RIS-16-04	Clarification of 10 CFR 50.46 Reporting Requirements and Recent Issues with Related Guidance Not Approved for Use	04/19/16	Informal Review	Endorsed	No Backfitting
RIS-16-03	10 CFR 50.59 Issues Identified in NRC's San	04/13/16	None	NA	No Backfitting

Summary of Final Generic Regulatory Actions over the Last 3 Years					
Item #	**Title**	**Issuance Date**	**CRGR[1] Review**	**CRGR Recommendation**	**NRC Backfitting Review**
	Onofre Steam Generator Tube Degradation Lessons Learned Report				
GL-16-01	Monitoring of Neutron-Absorbing Materials in Spent Fuels Pools	04/07/16	Formal	Endorsed	No Backfitting
RIS-16-02	Design Basis Issues Related to Tube-to-Tubesheet Joints in Pressurized-Water Reactor Steam Generators	03/23/16	None	NA	No Backfitting
RIS-16-01	Nuclear Energy Institute Guidance for the Use of Accreditation in Lieu of Commercial Grade Surveys for Procurement of Laboratory Calibration and Test Services	03/16/16	Informal Review	Endorsed	No Backfitting
RIS-15-16, Rev 1	Planned Licensing Action Submittals for All Power Reactor Licensees	01/15/16	None	NA	No Backfitting
10 CFR Part 72	List of Approved Spent Fuel Storage Casks	Published 5 COC rules in 2016	None	NA	No Backfitting
RIS-15-17	Review and Submission of Updates to Final Safety Analysis Reports, Emergency Preparedness Documents, and Fire Protection Documents	12/23/15	None	NA	No Backfitting
RIS-15-19, Rev 0	Decommissioning Timeliness Rule Implementation and	12/21/15	None	NA	No Backfitting

Summary of Final Generic Regulatory Actions over the Last 3 Years					
Item #	**Title**	**Issuance Date**	**CRGR[1] Review**	**CRGR Recommendation**	**NRC Backfitting Review**
	Associated Regulatory Relief				
RIS-15-18	Sodium Iodide-131 (I-131) Patient Release Information Collection	12/14/15	None	NA	No Backfitting
RIS-15-15	Information Regarding a Specific Exemption in the Requirements for the Physical Protection of Category 1 and Category 2 Quantities of Radioactive Material	12/04/15	Informal Review	Endorsed	No Backfitting
RIS-15-16, Rev 0	Planned Licensing Action Submittals for All Power Reactor Licensees	11/25/15	None	NA	No Backfitting
RIS-15-13	Seismic Stability Analysis Methodologies for Spent Fuel Dry Cask	11/12/15	None	NA	No Backfitting
RIS-15-11	Protective Action Recommendations for Members of the Public on Bodies of Water	11/05/15	Informal Review	Endorsed	No Backfitting
10 CFR Part 73	Cyber Security Event Notifications	11/02/15; 80 FR 67264	None	NA	No Backfitting
RIS-15-14	Issuance of Enforcement Guidance Memorandum – Emergency Plan and Emergency Plan Implementing Procedure Updates	10/30/15	None	NA	No Backfitting
10 CFR Parts 2 and 150	Hearings on Challenges to the Immediate Effectiveness of Orders	10/20/15; 80 FR 63409	None	NA	No Backfitting

Summary of Final Generic Regulatory Actions over the Last 3 Years					
Item #	**Title**	**Issuance Date**	**CRGR[1] Review**	**CRGR Recommendation**	**NRC Backfitting Review**
10 CFR Part 2	Revisions to the Petition for Rulemaking Process	10/07/15; 80 FR 60513	None	NA	No Backfitting
10 CFR Part 72	List of Approved Spent Fuel Storage Casks: Holtec international HI-STORM 100 Cask System, Certificate of Compliance No. 1014, Amendment No. 8, Revision 1	08/18/15; 80 FR 49887	None	NA	No Backfitting
RIS-15-10	Applicability of ASME Code Case N-770-1 As Conditioned in 10 CFR 50.55a, "Code and Standards," to Branch Connection Butt Welds	07/16/15	Formal	Endorsed	No Backfitting
RIS-15-09	Implementation of Fingerprinting Requirements for Non-Power Reactors	07/09/15	None	NA	No Backfitting
10 CFR Parts 170 and 171	Fee Recovery for Fiscal Year 2015	06/30/15; 80 FR 37431	None	NA	No Backfitting
RIS-15-08	Oversight of Counterfeit, Fraudulent and Suspect Items in the Nuclear Industry	06/24/15	None	NA	No Backfitting
GL-15-01	Treatment of Natural Phenomena Hazards in Fuel Cycle Facilities	06/22/15	Formal	Endorsed	No Backfitting
10 CFR Part 71	Transportation Safety Requirements and Harmonization with International Atomic Energy Agency Transportation Requirements; Revisions	06/12/15; 80 FR 33987	None	NA	No Backfitting

Summary of Final Generic Regulatory Actions over the Last 3 Years					
Item #	**Title**	**Issuance Date**	**CRGR[1] Review**	**CRGR Recommendation**	**NRC Backfitting Review**
RIS-15-06	Tornado Missile Protection	06/10/15	Formal	Endorsed	No Backfitting

31. Please provide a list and brief description of all facility specific backfits issued in the reporting period.

None.

32. For matters reviewed by the CRGR, please provide 12-month and 3-year rolling averages for the following metrics:
    a. For the number of issues reviewed formally: the percentage accepted for imposition on industry and the percentage rejected based on cost-benefit or Backfit concerns; and
    b. For the number of issues reviewed informally: the percentage accepted for imposition on industry and the percentage rejected based on cost-benefit or Backfit concerns.

12-Month Summary of CRGR Review Decisions of Potential Backfit Issues			
Review Type & Outcome	Percentage Accepted or Endorsed with Backfitting	Percentage Rejected Based on Backfit Concerns	Percentage Endorsed without Backfitting
Informal Reviews	0%	0%	100%
Formal Reviews	28.6%	14.3%	57.1%
3-Year Summary of CRGR Review Decisions of Potential Backfit Issues			
Review Type & Outcome	Percentage Accepted or Endorsed with Backfitting	Percentage Rejected Based on Backfit Concerns	Percentage Endorsed without Backfitting
Informal Reviews	0.0%	0.0%	100.0%
Formal Reviews	30.0%	10.0%	60.0%

Comments:

1. As of April 30, 2018, for the rolling 3-year period, the CRGR has completed 27 reviews for potential backfits, including 17 informal reviews and 10 formal reviews. In the past 12-months, the CRGR has completed no informal reviews and 7 formal reviews. These percentages omit ongoing CRGR reviews.

2. These tables provide summaries of CRGR review results for the rolling 12-month and 3-year periods. The percentage accepted includes CRGR endorsements of generic documents that may lead to licensee backfits, the percentage rejected are reviews in which the CRGR disapproved documents due to backfit concerns, and the percentage endorsed were reviews in which the CRGR found no backfit implications.

33. Please provide the status of the application of the Backfit Rule in the licensing and inspection programs across the agency, including:

    a. The need for training on the requirements and application of 10 CFR 50.109;

    b. The need for a process, training, and/or oversight in addressing inspection issues that may redefine or reinterpret the original licensing basis (e.g., unresolved issues, task interface agreements, disputed violations) to ensure that new requirements are not imposed through the inspection program;

    c. A review of proposed regulatory changes that are currently in process to ensure that regulatory actions are appropriately informed by the requirements of 10 CFR 50.109. Examples of such actions could include but are not limited to the following:

        i. The Draft Regulatory Issue Summary on Service Life addressing the treatment of vendor recommendations within the regulatory framework;
        ii. 10 CFR 50.46(c) rulemaking for which the justification utilizes the adequate protection provisions of the backfit rule to obviate the need to compare the benefits of public health and safety with the cost of compliance for the three major portions of the rule;
        iii. Use of the compliance exception backfit as proposed by the NRC staff to address the "open phase condition (OPC)" issue; and
        iv. Possible alteration of the risk reduction credit given for Incipient Fire Protection after the modifications have been installed and received approval from the NRC crediting the technology.

    d. Please describe the progress made during each reporting period.

a, b, & d. Consistent with the EDO approved milestones in Response 34, the agency developed and implemented refresher training for management, inspection staff, engineers, and project managers. The agency has developed enhanced backfit training that will be deployed in 2018 and 2019. As of January 31, 2018, the agency completed refresher training for NRC senior managers, NRC regional inspection staff, and applicable NRC headquarters offices. Starting in June 2018, applicable NRC staff will participate in enhanced backfit training.

More detailed backfitting guidance and procedures will be developed throughout FY 2018 as discussed in Response 34.

c. The agency has incorporated the recent lessons learned from the Exelon backfit appeal decision and the Commission's direction in SRM-COMSECY-16-0020 into its reviews of proposed regulatory changes and decision making.

The table below provides a summary of the status of regulatory changes and issues as of January 31, 2018.

Status of Select Regulatory Activities		
Title	**Status of Regulatory Change**	**Backfitting Considerations**
RIS on Service Life - "Disposition of Information Related to the Time Period That Safety-Related Structures, Systems, or Components are Installed"	RIS (ADAMS Accession No. ML17177A060) was issued for public comment and the public comments have been dispositioned. RIS was reviewed by CRGR on September 12 and 14, 2017. CRGR Meeting Nos. #446, #447(ADAMS Accession No. ML17276B156).	While the CRGR found that the draft RIS did not contain any specific backfits or new staff positions, it did not endorse the RIS in its current form. The CRGR indicated that a RIS may not be appropriate for addressing these issues. Currently, the staff is discussing its next steps forward.
10 CFR 50.46(c) Rulemaking	The NRC staff prepared a regulatory analysis for the 10 CFR 50.46c draft final rule (ADAMS Accession No. ML15323A122) to identify the benefits and costs of the particular regulatory approach for addressing emergency core cooling system performance. The regulatory analysis focuses on the marginal difference in benefits and costs for each alternative relative to the "no action" baseline alternative for the three major portions of the rule, which is consistent with the requirements of the backfit rule (10 CFR 50.109), Commission direction, and the ongoing revisions to the agency's cost-benefit guidance (e.g., NUREG/BR-0058, Revision 5).	Based on established criteria at the time, the CRGR was not required to review the rulemaking to assess potential backfits. The rulemaking is currently with the Commission for its consideration.
Proposed Rule, 10 CFR 73.53, "Requirements for Cyber Security at Nuclear Fuel Cycle Facilities" and associated draft regulatory guidance, DG-5062 "Cyber Security Programs for Nuclear Fuel Cycle Facilities"	The proposed rule (ADAMS Accession No. ML17145A342), if approved, would require certain Fuel Cycle Facility licensees to establish, implement, and maintain a cyber security program that can detect, protect against, and respond to a cyber-attack capable of causing one or more of the consequences of concern as defined in the proposed rule.	CRGR completed its review in two meetings, June 27 and July 12, 2017. This rule contained backfitting and was endorsed by the CRGR. This rulemaking is currently with the Commission for its consideration.

Status of Select Regulatory Activities		
Title	**Status of Regulatory Change**	**Backfitting Considerations**
Regulatory Guide 5.77, Revision 1, “Insider Mitigation Program”	This regulatory guide describes an approach that the NRC staff considers acceptable for an insider mitigation program for nuclear power reactors that contain protected or vital areas.	This item has been closed. The staff did not identify a backfitting concern. This RG is currently being reviewed by the Commission.

34. Please provide a description of actions taken and/or planned to address recommendations made by the CRGR in their report "U.S. Nuclear Regulatory Commission's Implementation of Backfitting and Issue Finality Requirements," dated June 27, 2017. Please include a milestone schedule for completing action on each recommendation.

The actions identified in the CRGR Review Report and approved by the EDO in a memo dated July 19, 2017, have been organized into the following activities:

Backfitting Enhancement Tasks from the June 27, 2017, CRGR Review Report				
Item	Task	Lead	Due Date	Status
1	Update agency-level guidance on backfitting and issue finality to reflect Commission direction on the use of the compliance exception to the backfit rule and submit for Commission approval.	NRR	05/02/2018	Completed
2	Update office-level implementing guidance on backfitting and issue finality, and the Enforcement Manual to reflect Commission-approved agencywide guidance.	NRR, NMSS, NRO, NSIR, RES, all Regions, OE	02/21/2019	On track
3	Develop and conduct "reset" training for managers and staff on backfitting and issue finality.	CRGR	02/28/2018	Completed
4	Update initial training on backfitting and issue finality for use in office and regional qualification programs.	CRGR	06/31/2018	On track
5	Develop or update refresher training and developmental activities on backfitting and issue finality, and revise office qualification procedures to require such training and developmental activities.	CRGR, NRR, NMSS, NRO, NSIR, RES, all Regions	09/31/2018	On track
6	Make available "just-in-time" training and references on backfitting and issue finality.	CRGR	10/31/2018	On track
7	Add backfitting information to agency knowledge management Web site.	CRGR	09/18/2017	Completed
8	Prepare a NUREG/Knowledge Management report on the history and activities of the Committee to Review Generic Requirements.	CRGR	08/31/2019	On track
9	Create a backfitting Community of Practice with office points of contact.	CRGR	08/31/2017	Completed
10	Conduct an effectiveness review of actions taken in response to the June 27, 2017, CRGR report.	CRGR	07/27/2020	On track
11	Propose a revision to the charter for the CRGR to	CRGR	06/29/2018	On track

Backfitting Enhancement Tasks from the June 27, 2017, CRGR Review Report				
Item	Task	Lead	Due Date	Status
	reflect rulemaking criteria, incorporate recent Commission direction, and enhance rigor of CRGR assessments.			
12	Report on the availability of key docketed information categories and the resources needed to make information more readily retrievable.	OCIO	02/28/2018	Completed
13	Report on the resources needed to implement the actions in the July 19, 2017, EDO tasking on backfitting.	CRGR	10/02/2017	Completed

REACTOR INSPECTION

35. Please provide the Reactor Oversight Process findings for year-to-date and 3-year rolling metrics, including the total number and for each region for green, white, yellow, and red findings.

Location	# of Findings		2014	2015	2016	2017	2018
Nationally	Total		824	821	704	560	92
NSIR (all regions)			18	26	19	N/A (Note 1)	N/A
RI	Green		167	169	155	126	17
	White		3	4	2	2	0
	Yellow		0	1	0	0	0
	Red		0	0	0	0	0
	GTG Security		1	1	0	0	0
	Total		171	175	157	128	17
	# OP Units		26	25	25	25	25
R2	Green		148	159	151	119	20
	White		4	1	0	3	0
	Yellow		0	0	0	0	0
	Red		0	0	0	0	0
	GTG Security		0	0	1	2	0
	Total		152	160	152	124	20
	# OP Units		32	32	33	33	33
R3	Green		221	202	177	133	23
	White		4	5	1	4	2
	Yellow		0	0	0	0	0
	Red		0	0	0	0	0
	GTG Security		1	1	1	0	0
	Total		226	208	179	137	25
	# OP Units		23	23	23	23	23
R4	Green		249	248	196	167	30
	White		5	2	1	2	0
	Yellow		2	1	0	0	0
	Red		0	0	0	0	0
	GTG Security		1	1	0	2	0
	Total		257	252	197	171	30
	# OP Units		19	19	19	19	18

NSIR: Office of Nuclear Security and Incident Response*
GTG Security: Greater-than-green security;
#OP Units: Number of operating units;
Notes:

1. Starting in CY 2017, these finding are included in the findings for each region.

36. Please provide the percentage of Final Significance Determinations made within 90 Days for all potentially Greater-Than-Green findings, monthly for one-year rolling metrics and annually for the past 10 years.

1-Year Rolling Metric	
Month	**Percent Met**
June 2017	N/A
July 2017	100
August 2017	100
September 2017	N/A
October 2017	100
November 2017	0
December 2017	100
January 2018	N/A
February 2018	100
March 2018	N/A
April 2018	100
May 2018	N/A

10-Year Annual Determinations Within 90 Days	
Year	**Percent Met**
2008	100
2009	100
2010	93
2011	100
2012	100
2013	100
2014	86
2015	88
2016	100
2017	93

Comments:

This metric, reported in the NRC's CBJ, measures the time from the issuance date of the first official correspondence that describes the inspection finding, until the final significance determination letter is sent to the licensee, which is expected to be 90 days or less.

37. For each reporting period, please describe each instance where Inspection Manual Chapter 609 Appendix M, "Significance Determination Process Using Qualitative Criteria," has been applied in the Reactor Oversight Process Significance Determination Process, including the justification for doing so.

Appendix M was not used to disposition any inspection findings finalized in May 2018.

38. Please provide the status of potential changes to the Reactor Oversight Process, and identify any changes that may require Commission approval prior to implementation.

Significant potential changes to the ROP include the following:

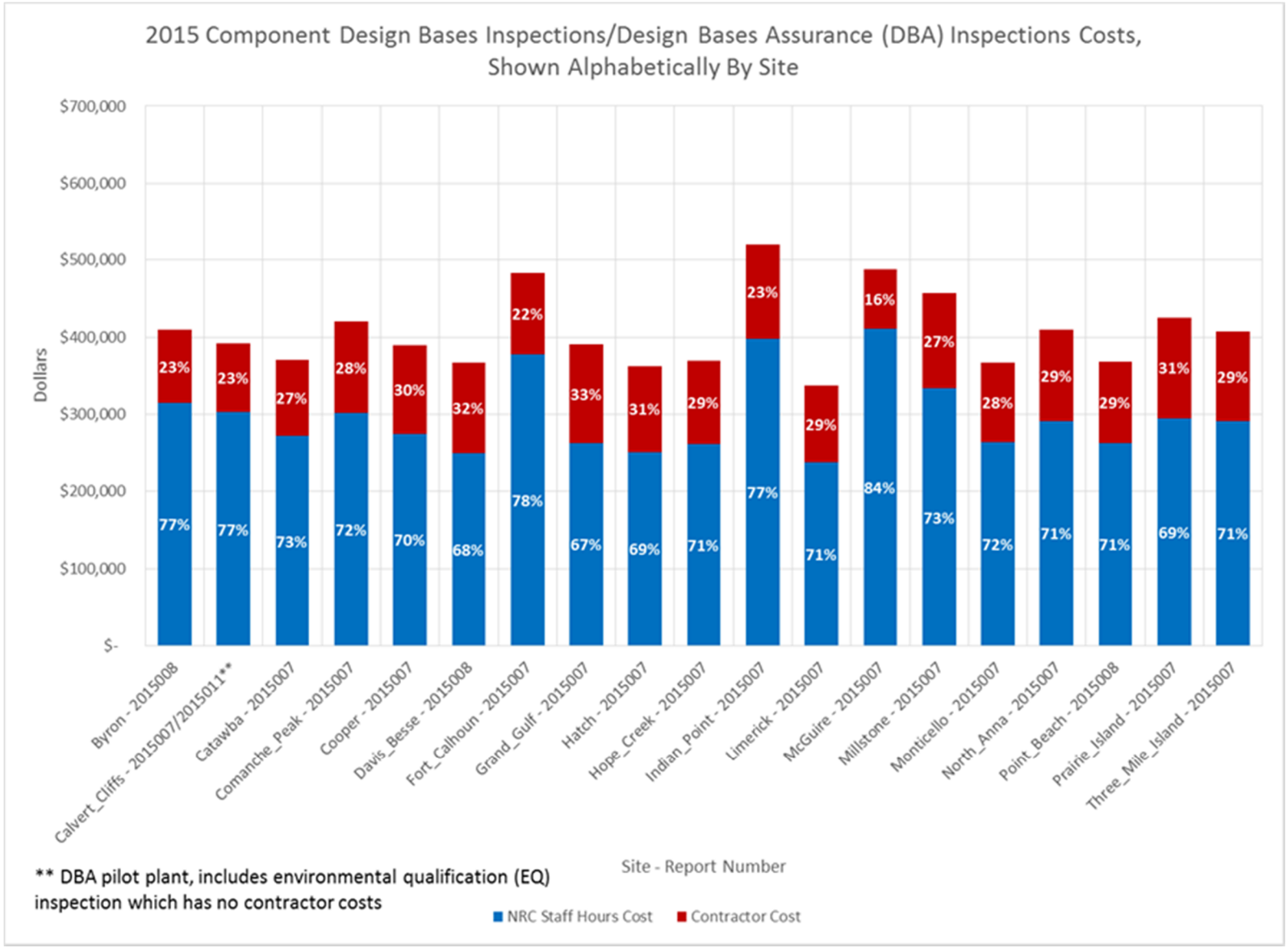
- IMC 0609, “Significance Determination Process,” Appendix M, “Significance Determination Process Using Qualitative Criteria.” Having received stakeholder feedback on its initially proposed changes to Appendix M, the NRC staff is preparing a revised approach, which is described in Enclosure 2 of SECY-18-0045 (ADAMS Accession No. ML18059A155). The staff plans to re-engage with stakeholders in the coming months to review the changes and address any additional feedback. Based on the changes contemplated, at the present time, the staff does not expect that Commission approval will be required.
- Changes to the engineering inspections that will improve effectiveness and efficiency of the inspections. The changes will be implemented in CY 2020.

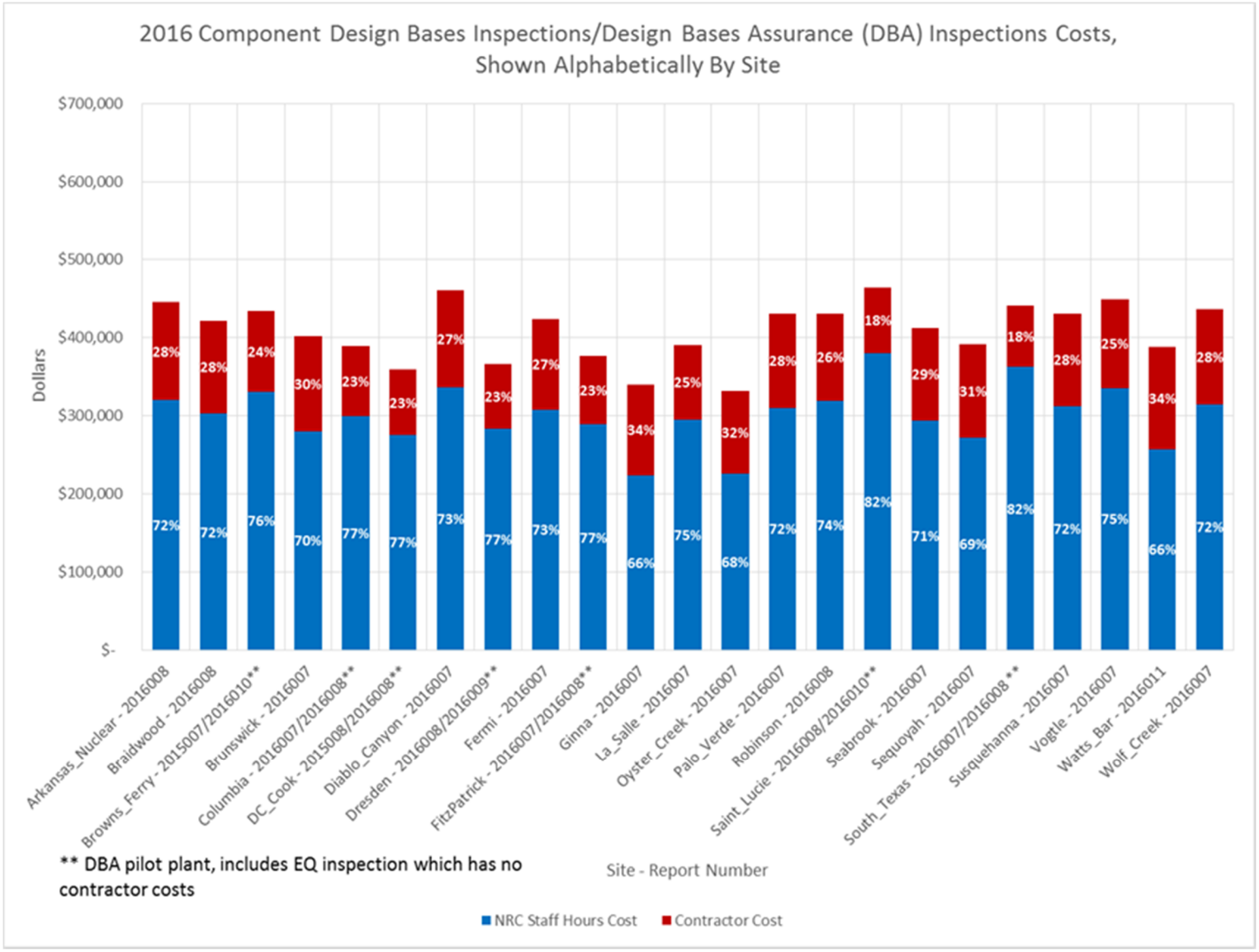
39. Please describe the progress toward utilizing an industry consensus document as a means of accomplishing predictability and consistency in operability determinations.

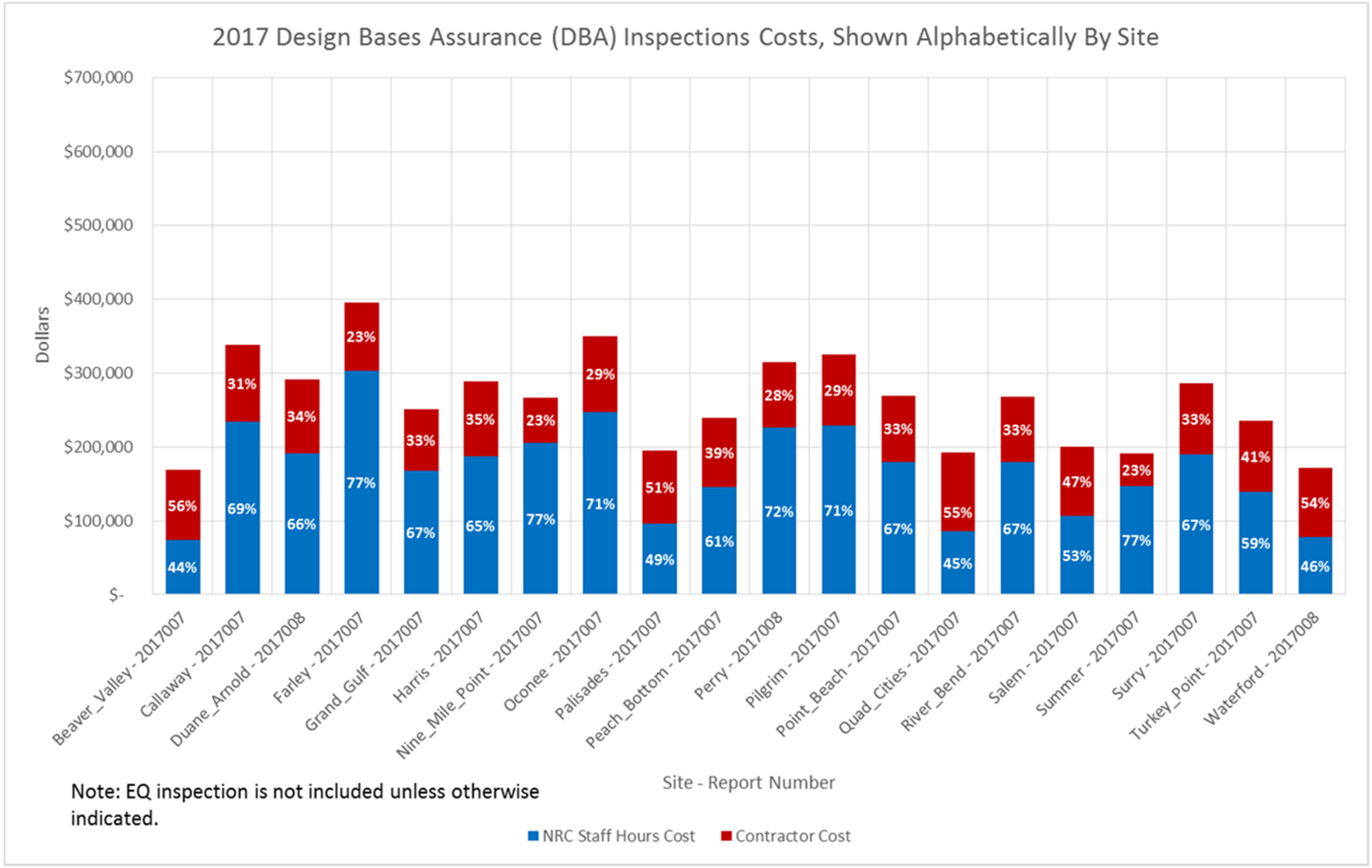
The NRC is engaged with nuclear industry stakeholders on its effort to develop a consensus document for operability determinations. The agency held a public meeting on June 1, 2017, to discuss the fundamental concepts used to make operability determinations. The staff also participated in an operability panel at the NEI Licensing Forum on August 23, 2017. The nuclear industry stakeholders will present issues for the staff’s consideration in revising IMC 0326, “Operability Determinations & Functionality Assessments for Conditions Adverse to Quality or Safety,” during a public meeting scheduled for June 28, 2018.

40. For each Design Bases Assurance Inspection (formerly known as the Component Design Basis Inspection) completed in the last three years, please list the duration, amount of fees billed, and percentage of fees used to reimburse contractors.

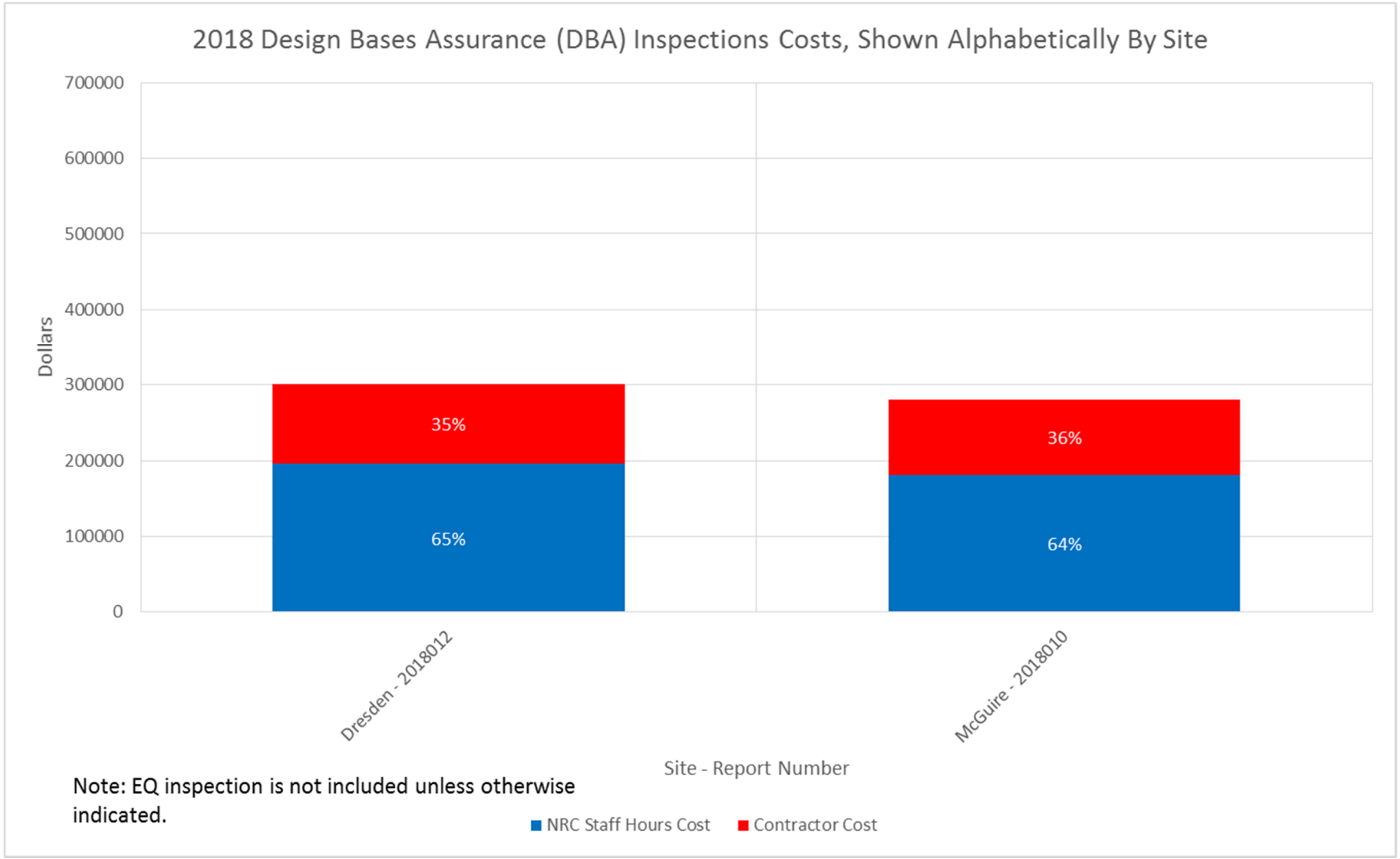
The fees are grouped per Design Bases Assurance (DBA) inspection in order to allow easier review by the reader and facilitate comparison between the costs of DBA inspections performed at each site. Monthly comparison of DBA inspection fees will not provide an accurate representation of each licensee’s charges due to the fact that the DBA inspections span 2 months.


2015 Component Design Bases Inspections/Design Bases Assurance (DBA) Inspections Costs, Shown Alphabetically By Site
Dollars
$700,000
$600,000
$500,000
$400,000
$300,000
$200,000
$100,000
$-
Byron - 2015008
Calvert_Cliffs - 2015007/2015011**
Catawba - 2015007
Comanche_Peak - 2015007
Cooper - 2015007
Davis_Besse - 2015008
Fort_Calhoun - 2015007
Grand_Gulf - 2015007
Hatch - 2015007
Hope_Creek - 2015007
Indian_Point - 2015007
Limerick - 2015007
McGuire - 2015007
Millstone - 2015007
Monticello - 2015007
North_Anna - 2015007
Point_Beach - 2015008
Prairie_Island - 2015007
Three_Mile_Island - 2015007
23%
77%
23%
77%
27%
73%
28%
72%
30%
70%
32%
68%
22%
78%
33%
67%
31%
69%
29%
71%
23%
77%
29%
71%
16%
84%
27%
73%
28%
72%
29%
71%
29%
71%
31%
69%
29%
71%
** DBA pilot plant, includes environmental qualification (EQ) inspection which has no contractor costs
Site - Report Number
NRC Staff Hours Cost
Contractor Cost


2016 Component Design Bases Inspections/Design Bases Assurance (DBA) Inspections Costs, Shown Alphabetically By Site
$700,000
$600,000
$500,000
$400,000
$300,000
$200,000
$100,000
$-
Dollars
Arkansas_Nuclear - 2016008
Braidwood - 2016008
Browns_Ferry - 2015007/2016010**
Brunswick - 2016007
Columbia - 2016007/2016008**
DC_Cook - 2015008/2016008**
Diablo_Canyon - 2016007
Dresden - 2016008/2016009**
Fermi - 2016007
FitzPatrick - 2016007/2016008**
Ginna - 2016007
La_Salle - 2016007
Oyster_Creek - 2016007
Palo_Verde - 2016007
Robinson - 2016008
Saint_Lucie - 2016008/2016010**
Seabrook - 2016007
Sequoyah - 2016007
South_Texas - 2016007/2016008**
Susquehanna - 2016007
Vogtle - 2016007
Watts_Bar - 2016011
Wolf_Creek - 2016007
28% 72%
28% 72%
24% 76%
30% 70%
23% 77%
23% 77%
27% 73%
23% 77%
27% 73%
23% 77%
34% 66%
25% 75%
32% 68%
28% 72%
26% 74%
18% 82%
29% 71%
31% 69%
18% 82%
28% 72%
25% 75%
34% 66%
28% 72%
** DBA pilot plant, includes EQ inspection which has no contractor costs
Site - Report Number
NRC Staff Hours Cost
Contractor Cost



Note: EQ inspection is not included unless otherwise indicated.


2018 Design Bases Assurance (DBA) Inspections Costs, Shown Alphabetically By Site
700000
600000
500000
400000
300000
200000
100000
0
Dollars
35%
65%
36%
64%
Dresden - 2018012
McGuire - 2018010
Site - Report Number
Note: EQ inspection is not included unless otherwise indicated.
NRC Staff Hours Cost
Contractor Cost

41. Please provide the status of the holistic review of engineering inspection procedures and any actions taken and/or planned because of the review.

NRR plans to forward a Commission paper with recommendations to improve the effectiveness and efficiency of the engineering inspections to the OEDO by this summer. The changes being proposed will require Commission approval before they can be implemented. Many of the recommendations contained in the Commission paper are also reflected in the publicly available memorandum (ADAMS Accession No. ML18103A174), which captures the recommendations by the Reactor Oversight Process (ROP) Engineering Inspection Working Group to improve the ROP engineering inspections.

NRR management and staff are also currently working with the industry to review and provide feedback on an industry initiative associated with the use of licensee self-assessments in the engineering inspection program.

NEW REACTORS

42. Please provide a table showing the funds budgeted, the resources spent, and the total Part 170 fees billed each year for the last ten years for the Office of New Reactors.

	FY 08	FY 09	FY 10	FY 11	FY 12	FY 13	FY 14	FY 15	FY 16	FY 17	FY 18
Enacted ($M)	137.08	110.46	109.81	110.71	102.53	100.87	112.61	96.08	91.63	72.03	71.46
Expended ($M)	82.57	81.16	90.55	89.75	76.06	89.16	67.03	61.46	62.63	54.84	34.91
Part 170 Billed ($M)				75.73	74.65	60.28	60.18	59.62	60.12	55.65	25.42

Enacted: Beginning in FY 2018, the NRC eliminated the allocation of mission indirect resources in the agency's budget request to increase transparency (see NRC FY 2018 Congressional Budget Justification page 161 for detailed explanation). To allow for comparison of historical budget data, FY 2008 - FY 2017 are presented in a consistent manner. FY 2018 expenditure is as of May 31, 2018, and Part 170 billing data is as of April 30, 2018; next quarterly billing scheduled for August 2018.

Part 170 Billed: For FY 2008 - FY 2010, the data in the legacy billing system is not available at the office level.

43. For each design certification, Construction and Operating License (COL), and Early Site Permit (ESP) application reviewed since 2007, please provide:
    a. The date of the first pre-application meeting;
    b. The date the application was filed;
    c. Whether the acceptance review was completed in 60 days;
    d. The originally scheduled dates for completion of the safety evaluation report and environmental impact statement;
    e. The actual dates for completion of the safety evaluation report and environmental impact statement;
    f. For ongoing reviews, the projected date for final agency action;

g. For terminated or suspended reviews, the dates of the termination or suspension; and
h. The total fees billed for each review.

Project Name	Date of First Pre-Application Meeting	Date the Application was Filed	Acceptance Review Completed in 60 Days (Note 1)	Original Review Schedule Dates for FSER and FEIS (or EA) Completion	Actual FSER and FEIS (or EA) Completion Dates	Projected Date for Final NRC Action	Date of Withdrawal or Suspension Request (for terminated projects only)	Total Fees Billed for Each Review (Note 4)
U.S. Advanced Pressurized Water Reactor (APWR) DC	05/12/2006	12/31/2007	Yes	FSER: 06/2012 FEIS: N/A	Application is currently under review	Not Scheduled (Note 2)	N/A	$77,952,743
APR1400 DC	11/05/2009	12/23/2014	Yes	FSER: 09/2018 FEIS: N/A	Application is currently under review	09/2019	N/A	$57,338,756
ABWR DC Renewal (GEH)	02/23/2010	12/07/2010	Yes	FSER: 03/2018 FEIS: N/A	Application is currently under review	Schedule currently under review	N/A	$5,433,393
Turkey Point COL	02/10/2009	06/30/2009	Yes	FSER: 12/2012 FEIS: 10/2012	FSER: 12/2016 FEIS: 10/2016	COL issued on 04/12/2018	N/A	$35,347,473
Clinch River ESP	12/14/2010	05/12/2016	No (Note 3)	FSER: 08/2019 FEIS: 06/2019	Application is currently under review	02/2020	N/A	$7,306,264
NuScale SMR DC	07/09/2008	01/06/2017	Yes	FSER: 09/2020 FEIS: N/A	Application is currently under review	01/2021	N/A	$23,446,086
North Anna ESP	Information not known	09/25/2003	Yes	FSER: 06/2005 FEIS: 06/2005	FSER: 08/2006 FEIS: 12/2006	ESP issued on 11/27/2007	N/A	$8,579,177
Vogtle ESP	Information not known	08/15/2006	Yes	FSER: 05/2008 FEIS: 05/2008	FSER: 02/2009	ESP issued on	N/A	$11,680,269

Project Name	Date of First Pre-Application Meeting	Date the Application was Filed	Acceptance Review Completed in 60 Days (Note 1)	Original Review Schedule Dates for FSER and FEIS (or EA) Completion	Actual FSER and FEIS (or EA) Completion Dates	Projected Date for Final NRC Action	Date of Withdrawal or Suspension Request (for terminated projects only)	Total Fees Billed for Each Review (Note 4)
					FEIS: 08/2008	08/26/2009		
South Texas Project COL	Information not known	09/20/2007	Yes	FSER: 09/2011 FEIS: 03/2011	FSER: 09/2015 FEIS: 02/2011	COL issued on 02/12/2016	N/A	$58,463,244
Bellefonte COL	Information not known	10/30/2007	Yes	FSER: 02/2011 FEIS: 01/2010	Application withdrawn by the applicant	N/A	03/28/2016	$21,916,556
North Anna COL	Information not known	11/26/2007	Yes	FSER: 08/2010 FEIS: 12/2009	FSER: 01/2017 FSEIS: 02/2010	COL issued on 06/02/2017	N/A	$33,032,175
Lee COL	Information not known	12/12/2007	Yes	FSER: 02/2011 FEIS: 03/2010	FSER: 08/2016 FEIS: 12/2013	COL issued on 12/19/2016	N/A	$22,762,364
U.S. EPR DC	2/8/05	12/11/2007	Yes	FSER: 05/2011 FEIS: N/A	Application review is suspended at the applicant's request	N/A	02/25/2015 *(suspension request)*	$82,585,674
Shearon Harris COL	Information not known	02/18/2008	Yes	FSER: 04/2011 FEIS: 05/2010	Application review is suspended at the applicant's request	N/A	05/02/2013 *(suspension request)*	$10,106,258
Vogtle COL	Information not known	03/28/2008	Yes	FSER: 12/2010 FEIS: 01/2010	FSER: 08/2011 FEIS: 04/2011	COL issued on 02/10/2012	N/A	$29,770,625

Project Name	Date of First Pre-Application Meeting	Date the Application was Filed	Acceptance Review Completed in 60 Days (Note 1)	Original Review Schedule Dates for FSER and FEIS (or EA) Completion	Actual FSER and FEIS (or EA) Completion Dates	Projected Date for Final NRC Action	Date of Withdrawal or Suspension Request (for terminated projects only)	Total Fees Billed for Each Review (Note 4)
V.C. Summer COL	Information not known	03/27/2008	Yes	FSER: 02/2011 FEIS: 02/2011	FSER: 08/2011 FEIS: 04/2011	COL issued on 03/30/2012[5]	N/A	$28,057,913
Levy COL	Information not known	07/30/2008	Yes	FSER: 05/2011 FEIS: 09/2010	FSER: 05/2016 FEIS: 04/2012	COL issued on 10/26/2016[6]	N/A	$27,398,694
Fermi COL	Information not known	09/18/2008	Yes	FSER: 03/2012 FEIS: 08/2011	FSER: 11/2014 FEIS: 01/2013	COL issued on 05/01/2015	N/A	$26,413,206
Comanche Peak COL	Information not known	09/18/2008	Yes	FSER: 12/11 FEIS: 01/2011	FSER: N/A FEIS: 05/2011 Application review is suspended at the applicant's request	N/A	11/07/2013 *(suspension request)*	$23,278,377

Project Name	Date of First Pre-Application Meeting	Date the Application was Filed	Acceptance Review Completed in 60 Days (Note 1)	Original Review Schedule Dates for FSER and FEIS (or EA) Completion	Actual FSER and FEIS (or EA) Completion Dates	Projected Date for Final NRC Action	Date of Withdrawal or Suspension Request (for terminated projects only)	Total Fees Billed for Each Review (Note 4)
River Bend COL	Information not known	09/25/2008	Yes	A review schedule was not developed for this application	Application withdrawn by the applicant	N/A	01/09/2009 *(suspension request)* 12/04/2015 *(withdrawal request)*	$1,350,316
Callaway COL	Information not known	07/24/2008	No	A review schedule was not developed for this application	Application withdrawn by the applicant	N/A	06/23/2009 *(suspension request)* 08/12/2015 *(withdrawal request)*	$4,066,138
Bell Bend COL	Information not known	10/10/2008	Yes	FSER: 03/2012 FEIS: 03/2011	FSER: N/A FEIS: 04/2016 Application withdrawn by the applicant	N/A	02/25/2015 *(suspension request)* 08/30/2016 *(withdrawal request)*	$20,026,574
PSEG ESP	Information not known	05/25/2010	Yes	FSER: 07/2013 FEIS: 03/2013	FSER: 09/2015 FEIS: 11/2015	ESP issued on 05/05/2016	N/A	$17,917,093
ABWR DC Renewal (Toshiba)	Information not known	10/27/2010	Yes	A review schedule was not developed for this	Application withdrawn by the applicant	N/A	06/09/2016 *(withdrawal request)*	$686,911

Project Name	Date of First Pre-Application Meeting	Date the Application was Filed	Acceptance Review Completed in 60 Days (Note 1)	Original Review Schedule Dates for FSER and FEIS (or EA) Completion	Actual FSER and FEIS (or EA) Completion Dates	Projected Date for Final NRC Action	Date of Withdrawal or Suspension Request (for terminated projects only)	Total Fees Billed for Each Review (Note 4)
				application				
Victoria County ESP	Information not known	03/25/2010	Yes	FSER: 04/2013 FEIS: 08/2013	Application withdrawn by the applicant	N/A	08/28/2012 *(withdrawal request)*	$6,146,248
Calvert Cliffs COL	Information not known	07/13/2007 (Part 1 of application) 03/14/2008 (Part 2 of application)	No Yes	FSER: 07/2012 FEIS: 03/2010	FSER: N/A FEIS: 05/2011 Application withdrawn by the applicant	N/A	02/27/2015 *(suspension request)* 06/08/2015 *(withdrawal request)*	$31,400,772
Nine Mile Point COL	Information not known	09/30/2008	Yes	A review schedule was not developed for this application	Application withdrawn by the applicant	N/A	12/01/2009 *(suspension request)* 11/26/2013 *(withdrawal request)*	$2,687,822
Grand Gulf COL	Information not known	02/27/2008	Yes	FSER: 03/2011 FEIS: 05/2010	Application withdrawn by the applicant	N/A	2/9/2015 *(withdrawal request)*	$4,719,505
Grand Gulf ESP	Information not known	10/21/2003	Yes	FSER: 10/2005 FEIS: 10/2005	FSER: 10/2005 FEIS: 04/2006	ESP issued on 04/05/2007	N/A	$5,352,875

Project Name	Date of First Pre-Application Meeting	Date the Application was Filed	Acceptance Review Completed in 60 Days (Note 1)	Original Review Schedule Dates for FSER and FEIS (or EA) Completion	Actual FSER and FEIS (or EA) Completion Dates	Projected Date for Final NRC Action	Date of Withdrawal or Suspension Request (for terminated projects only)	Total Fees Billed for Each Review (Note 4)
Clinton ESP	Information not known	09/25/2003	Yes	FSER: 08/2005 FEIS: 08/2005	FSER: 02/2006 FEIS: 07/2006	ESP issued on 03/15/2007	N/A	$5,186,587
AP1000 DC Amendment	Information not known	05/26/2007	Yes	FSER: 08/2010 FEIS: N/A	FSER: 08/2011 FEIS: N/A	Final Rule published on 12/30/2011	N/A	$33,036,394
Economic Simplified Boiling Water Reactor (ESBWR) DC	6/20-21/2002	08/24/2005	No	FSER: 06/2009 FEIS: N/A	FSER: 03/2011 Supplement FSER: 09/2014 FEIS: N/A	Final Rule published on 10/15/2014	N/A	$68,153,802
ABWR DC Amendment	Information not known	06/30/2009	Yes	FSER: 04/2010 FEIS: N/A	FSER: 10/2010 FEIS: N/A	Final Rule published on 12/16/2011	N/A	$1,145,852
Victoria County COL	Information not known	09/03/2008	Yes	A review schedule was not developed for this application	Application withdrawn by the applicant	N/A	06/11/2010 *(withdrawal request)*	$1,493,183

Note 1: NRO's acceptance review metric is to complete the acceptance review within 60 days and to issue a letter to the applicant documenting the staff's findings on acceptability within 75 days.

Note 2: The NRC is performing the review of the US APWR at a very reduced pace at the request of the applicant and will continue at this pace until notified by the applicant of a change in its plans. Therefore, no completion date has been established.

Note 3: The acceptance review for the Clinch River ESP application was extended at the request of the applicant, TVA, by letter dated August 19, 2016.

Note 4: The NRC's 10 CFR Part 170 charges are billed on a quarterly basis. Therefore, updates will be provided in this report to Question 43.h during the reporting periods for January, April, July, and October.

Note 5: On July 31, 2017, two of the V.C. Summer Units 2 & 3 licensees, South Carolina Electric & Gas (SCE&G) and SCANA, announced their decision to terminate construction at the site. On December 27, 2017, SCE&G and SCANA requested termination of the V.C. Summer Units 2 & 3 combined licenses. On January 8, 2018, the third licensee, Santee Cooper, opposed termination of the combined licenses. These requests are currently under review.

Note 6: On January 25, 2018, the licensee, Duke Energy Florida, LLC, requested termination of the combined licenses for Levy Units 1 & 2. On April 26, 2018, the NRC granted the request to terminate the combined licenses. The NRC's decision was published in the *Federal Register* on May 2, 2018.

44. Please provide a concise summary of the status of ongoing design certification, COL, and ESP application reviews. Please include a discussion of the issuance of RAIs and receipt of responses.

In addition to the updates provided here, each of the DC, COL, and ESP milestone schedules that are under review are publicly available on the NRC website.

DC Applications

The NRC employs a 6 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 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

US-APWR

Mitsubishi Heavy Industries (MHI) submitted its 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 very reduced pace and will continue at this reduced pace until further notice from the applicant. As of May 31, 2018, the staff has issued 5,682 RAIs and the applicant has responded to 5,534 of them.

APR1400

On December 23, 2014, Korea Electric Power Corp. and Korea Hydro & Nuclear Power Co., Ltd. (KHNP), submitted to the NRC its application for the certification of the APR1400 standard plant design for use in the U.S. domestic energy market. The NRC completed the Phase 2 review for all chapters of the application in May 2017 and completed the Phase 3 review in June 2017. On May 31, 2018, NRC staff completed Phase 4, meeting the public milestone. The staff is currently in Phases 5 and 6 of its review. Phase 5 and Phase 6 are scheduled to be completed in July 2018 and September 2018, respectively. As of May 31, 2018, the staff had issued 2,225 RAI questions and the applicant has responded to all 2,225 of them. (Note that of the 13 RAI responses received in May 2018, one response is considered a new response. The other 12 were revised responses and thus already included in the total.) Of the RAIs issued, 99.9% are closed or are considered confirmatory actions that the staff will verify, upon receipt of the updated final safety analysis report, that the applicant has incorporated all changes in accordance with the response approved by the staff.

NuScale

On January 6, 2017, NuScale submitted the first SMR DC application for review by the NRC. On March 15, 2017, the NRC completed its acceptance review and docketed the application. The staff 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 Phase 2 and Phase 3. To date the NRC has identified 27 significantly challenging issues requiring resolution and that have the potential to adversely affect the review schedule. Of these 27 issues, 4 are now considered resolved. As of May 31, 2018, the staff has issued 484 RAIs, which included 1261 questions and the applicant has responded to 899 of these questions. Of the 484 RAIs issued, 131 RAIs (27%) are now closed.

DC Renewal Applications

ABWR Renewal (General Electric-Hitachi (GEH))

On December 7, 2010, GEH submitted an application for renewal of the ABWR DC. The NRC staff is currently preparing the safety evaluation with no open items. 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 DCD. By letter dated February 19, 2016, GEH submitted its revised application incorporating the changes to the ABWR DCD. On August 30, 2016, the staff issued a schedule letter to GEH based on resolving all open items by January 2017. However, some open items associated with the review of the application remain unresolved. 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. As of May 31, 2018, the staff has issued 37 RAIs and the applicant has responded to all of them.

ESP Applications

The NRC employs a 4 Phase schedule to monitor the progress towards completion of the safety review. These phases are:

- Phase A – Preliminary SER and RAIs issued to the applicant
- Phase B – Advanced SER with No Open Items Developed
- Phase C – ACRS meeting on Advanced SER
- Phase D – Final SER issued

The NRC also employs a 4 Phase schedule to monitor completion of the environmental impact statement. These phases are:

- Phase 1 – Scoping Summary Report issued
- Phase 2 – Draft EIS issued to the U.S. Environmental Protection Agency (EPA)
- Phase 3 – Responses to draft environment impact statement (DEIS) comments completed
- Phase 4 – Final EIS issued to EPA

Clinch River

On May 12, 2016, TVA submitted an ESP application for the Clinch River Nuclear Site located in Oak Ridge, Tennessee. 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.

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 (consistent with the established schedule). The staff is currently in Phase B of its review, which is scheduled to conclude in October 2018. Phase C review activities are also now underway (in parallel with Phase B) for some safety evaluations sections, and Phase C is expected to be completed in March 2019. As of May 31, 2018, 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 ahead of schedule on October 30, 2017. Additionally, the NRC staff completed Phase 2 ahead of schedule by issuing the DEIS on April 27, 2018.

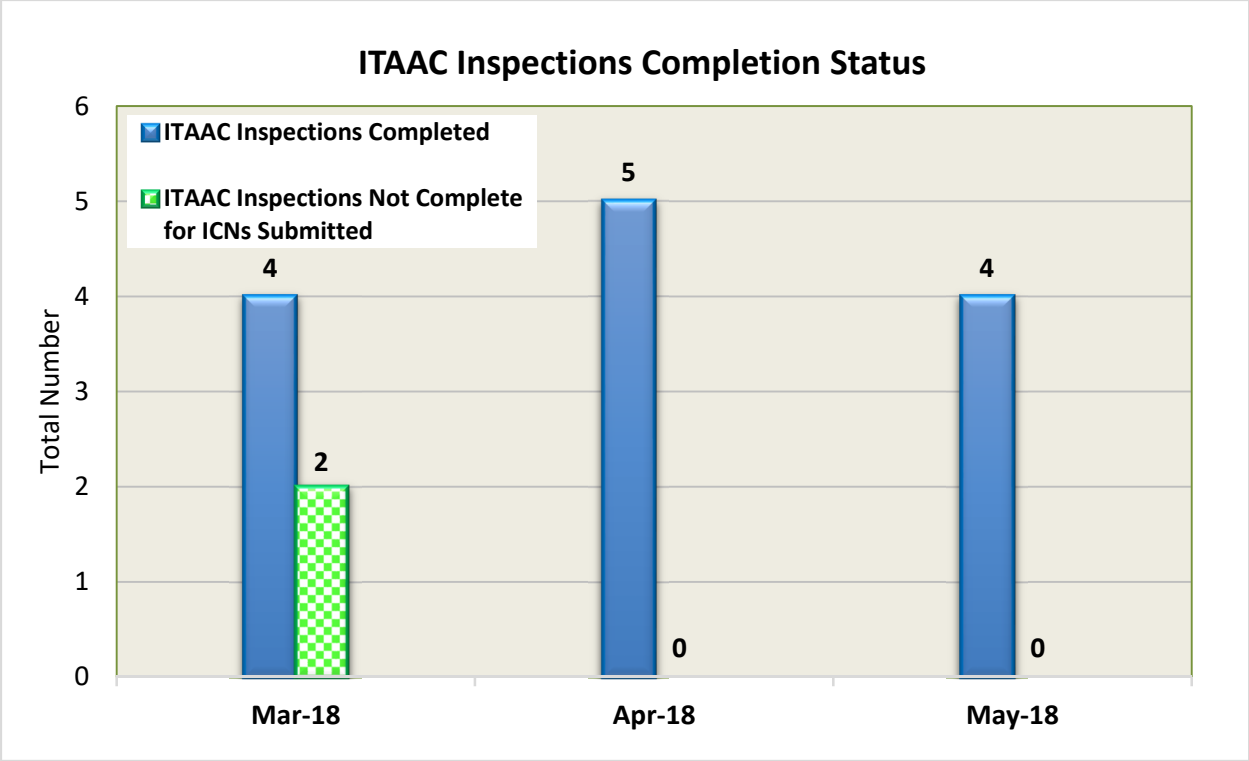
On June 12, 2017, the Southern Alliance for Clean Energy (SACE), Tennessee Environmental Coalition (TEC), and Blue Ridge Environmental Defense League filed petitions seeking a hearing. On September 12, 2017, the ASLB conducted oral argument on these petitions. On October 10, 2017, the ASLB issued a decision that 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. SACE/TEC filed a motion for reconsideration of the Board's dismissal of the third contention and the motion was dismissed. 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 DEIS two months ahead of the public milestone. On May 21, 2018, SACE/TEC submitted two new contentions on the DEIS, which are pending. The ASLB is working to schedule the contested hearing.

45. For reactors under construction, please provide:

Project Name	Project Type	Licensing Status
Vogtle Unit 3	COL Holder	COL issued on 02/10/2012
Vogtle Unit 4	COL Holder	COL issued on 02/10/2012

a. The number of NRC inspections and ITAAC reviews forecast to be completed per month versus the number completed each month;

NRC Inspections Test Analyses and Acceptance Criteria (ITAAC) Inspections:



Comments:

The graph above tracks, by month, the number of ITAAC inspections completed and the number of ITAAC inspections not completed for ITAAC Closure Notifications (ICNs) that had been received. For each ITAAC, there are predetermined inspections to be completed in order to provide assurance that the licensee has met the design commitments and that the ITAAC acceptance criteria are met. An ITAAC inspection is comprised of multiple inspection activities that may be performed over days, weeks, or months.

For this graph, the term "ITAAC Inspections Completed" means that all the associated NRC inspection activities tied to that ITAAC have been completed, verified, and marked "Inspection Complete" in the NRC database. The term "ITAAC Inspections Not Complete for ICNs Submitted" represents the number of ITAACs for which the completed box in the NRC database has not been checked for ICNs that had been submitted by the licensee. All ITAAC inspections associated with ICN submittals were completed for May.

Because of the coordination between the NRC's inspections and the licensee's construction activities, the majority of the required inspections are scheduled and completed prior to the ICN submittal. The completion of these ITAAC-related inspections closely mirrors the completion status of the licensee's (Southern Nuclear Operating Company) associated work activities. Changes to the licensee's construction schedule due to weather conditions, work sequencing, and other factors impact when NRC inspections can be performed.

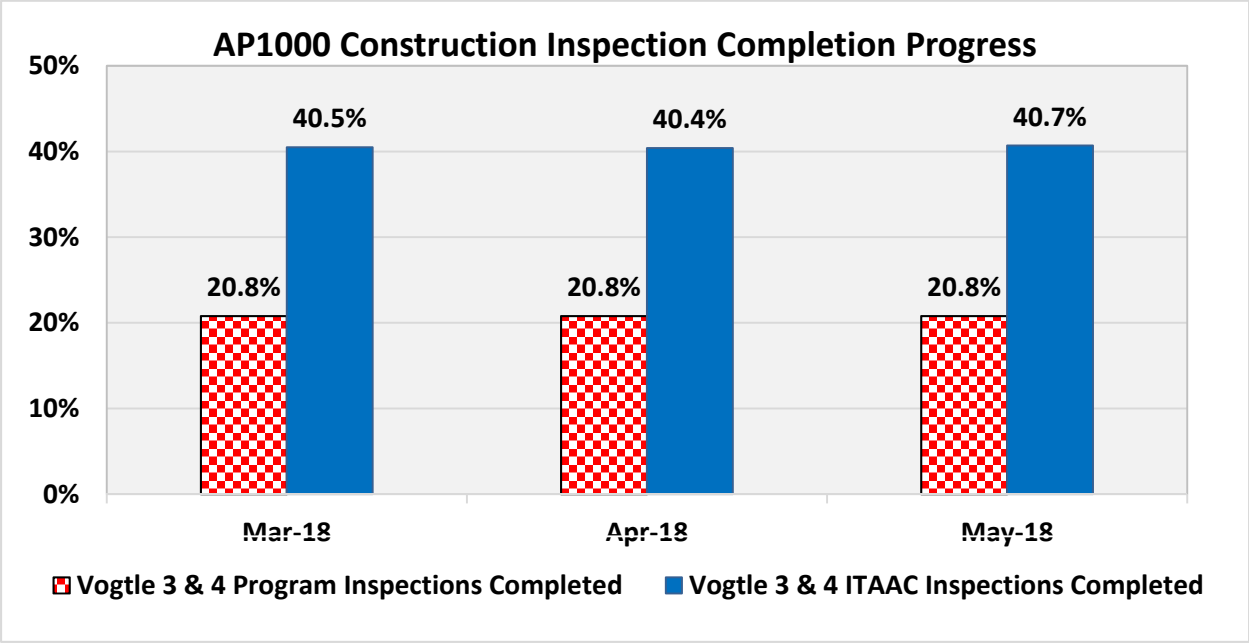
ITAAC Closure Notifications Reviews:

The NRC's goal is to complete 90% of ICN reviews within 60 days. However, some ICN reviews may be completed in significantly less time. Conversely, complex ICN reviews may require more than 60 days to complete. For this reason, it is difficult for the NRC to forecast in

which month a specific ICN review will be completed based on its submittal date. Therefore, the NRC relies on the metrics reported in its response to question 45.b.

b. The percentage of NRC inspections and the percentage of ITAAC reviews completed within 30 days and within two months;

New Reactor Inspection Status:



Comments:

This graph represents the percentage of NRC inspections associated with ITAAC that have been completed with respect to the total number of inspections required for the Vogtle facility. Planned inspection activities are evaluated and updated to ensure they align with licensee's work activities.

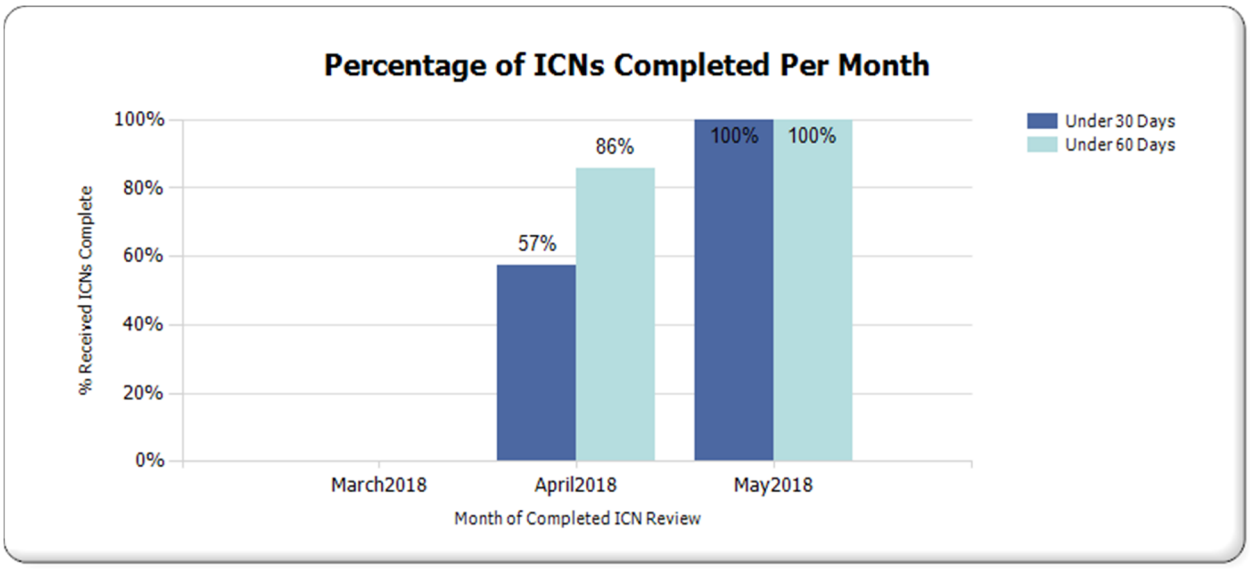
For this graph, the term "ITAAC Inspections Completed" means a specific inspection activity/plan is completed, verified, and approved in the NRC database. Monthly, this number of completed ITAAC inspection activities is compared to the total number of all the required ITAAC inspection activities/plans for the Vogtle Units 3 and 4 ITAAC inspection program.

Once all the associated ITAAC inspection activities are completed, verified, and approved, then "Inspection Complete" is marked in the NRC database. This information is presented earlier in Graph 45.a.

On March 6, 2018, the NRC approved license amendments 113 and 112 for Vogtle Unit 3 and 4, respectively. The amendments changed the COL Appendix C to consolidate a number of ITAAC to improve the efficiency of the ITAAC completion and closure process. The consolidation does not change the NRC workload needed to review ICNs and perform inspections. Specifically, the amendments consolidated 247 ITAAC by regrouping them into 57 new ITAAC. More information regarding the changes are in ADAMS at Accession No. ML18019A854. As a result, a re-baseline of ITAAC inspection completion status was completed, which shows a slight decrease in inspection completion for April.

The graph reports “Program Inspections Completed” since the start of construction for the Vogtle facility, which include both programs required for construction and operation of Units 3 and 4. There are a total of five construction programs, which include Quality Assurance, Fitness for Duty, and ITAAC Management. In addition, there are a total of 20 operational programs, which include Fire Protection, Emergency Preparedness, Reactor Operator Training, and Security. The graph depicts the percentage of planned inspections that are completed, and does not account for the level of effort required for inspections.

Timeliness of ITAAC Closure Notification Reviews:



Comments:

This bar chart shows the percentage of ICN reviews completed each month within 30 days and within 60 days. The majority of the delays in these reviews shown in previous monthly reports were due to coordination issues between the NRC and the licensee resulting in equipment or activities not being available for scheduled inspections. Positive engagement with the licensee has resulted in considerable improvement in the quality of submittals and staff review times. The NRC continues to assess efficiencies in the process and to enhance communication with stakeholders.

c. For ITAAC reviews completed during the reporting period, please provide the date when the NRC received the ITAAC closure notice and the date when the review was completed.

For the current reporting period of May 2018, four ICNs were completed. All ICNs were within the 60 day metric for completion with no issues identified.

Review Month	Unit	ITAAC	Received Date	Approval Date
May 2018	VOG4	2.3.06.09a.ii	04/26/2018	05/09/2018
	VOG3	2.3.06.09a.ii	04/26/2018	05/09/2018
	VOG3	2.3.06.09a.i	04/27/2018	05/08/2018
	VOG4	2.3.06.09a.i	04/27/2018	05/08/2018

46. For reactors under construction, please provide:
    a. The number of license amendment reviews forecast to be completed in the reporting period;
    b. The number completed in the reporting period; and
    c. The number of those that were completed within 30 days.

Reporting Period	Number of License Amendment Reviews Forecast to be Completed in the Reporting Period	Number Completed in the Reporting Period	Number of Those that were Completed within 30 Days
May 2018	2	2	0

47. For reactors under construction, please provide the budgeted resources versus actual expenditures each month for the last 24 months.

The NRC does not formulate the budget on a monthly basis. The annual budget for construction resources is provided below. The monthly budgeted resources provided below are calculated as 1/12th of the annual budgeted construction resources.

FY 2016 Enacted Budget ($K)	$17,169
FY 2017 Enacted Budget ($K)	$14,191
FY 2018 Enacted Budget ($K)	$10,467

Month	Budgeted Resources ($K)	Total Expended ($K)
Jun-2016	$1,431	$857
Jul-2016	$1,431	$946
Aug-2016	$1,431	$1,005
Sep-2016	$1,431	$921
Oct-2016	$1,183	$829
Nov-2016	$1,183	$882
Dec-2016	$1,183	$935
Jan-2017	$1,183	$983
Feb-2017	$1,183	$845
Mar-2017	$1,183	$1,048
Apr-2017	$1,183	$859
May-2017	$1,183	$990
Jun-2017	$1,183	$1,058
Jul-2017	$1,183	$1,129
Aug-2017	$1,183	$886
Sep-2017	$1,183	$808
Oct-2017	$872	$837
Nov-2017	$872	$926
Dec-2017	$872	$882

FY 2016 Enacted Budget ($K)	$17,169
FY 2017 Enacted Budget ($K)	$14,191
FY 2018 Enacted Budget ($K)	$10,467

Month	Budgeted Resources ($K)	Total Expended ($K)
Jan-2018	$872	$878
Feb-2018	$872	$706
Mar-2018	$872	$810
Apr-2018	$872	$811
May-2018	$872	$871

48. Please provide a concise summary of the status of licensing and inspection for Vogtle 3 & 4, including any challenges to the timely resolution of: licensing issues, 10 CFR Part 52 interpretations, completion of inspections, or completion of ITAAC reviews.

The NRC issued COLs to SNC and several co-owners on February 10, 2012, for two AP1000 units at the Vogtle site near Augusta, GA. As construction progresses, the NRC has increased the pace of construction inspections to verify compliance with the agency's regulations and to ensure that the new plants are constructed in accordance with their COLs. A summary of the license amendment inventory for Vogtle 3 & 4 is included in response to question 13. There are currently no challenges with timely resolution of licensing issues for Vogtle 3 & 4.

The graphs provided in Item 45 of this report represent the completion status of ITAAC inspections and ICN reviews. The completion of these ITAAC-related inspections closely mirrors the completion status of the licensee's work activities associated with the ITAAC. The graphs also display the percentage of completed program inspections, which are separate from the ITAAC-related inspections, and include both construction and operational programs. For ITAAC reviews, the NRC tracks the timeliness of ICNs reviewed and closed. In the past year the NRC has increased communication with the licensee and other external stakeholders through various public meetings and workshops to improve processes that support ICN closure, including inspection related activities. The NRC is implementing an integrated project plan that overlays key NRC activities on top of the licensee's construction and start-up schedule. In addition, the Vogtle Readiness Group (VRG) was created to provide division-level management attention to the timely implementation of the integrated project plan. NRC management is in regular contact with the VRG and the licensee to ensure effective communication and the timely resolution of issues.

Additionally, NRC has established metrics to represent the different aspects of the ICN review process and the inspection program. The metrics track performance, reinforce accountability, and communicate issues needing attention at the appropriate management levels. These metrics enhance early engagement of NRC management and are key internal and external communications tools. With the improvements identified to the processes and increased communication with the licensee, the staff does not foresee any major challenges for 2018.

49. Please describe any actions taken in the past 3 years or planned to improve the efficiency of new plant reviews, including milestone schedules to implement efficiency improvements. Please include any concerns arising from review experience in the past 3 years.

The NRC proactively identifies ways to increase the effectiveness and efficiency of its new reactor reviews. For oversight of licensing activities at the Vogtle site, NRO senior managers have established quarterly meetings with the licensee executives to monitor progress of licensing activities supporting construction at the site. The Licensing Action Review Meetings provide an opportunity for both the NRC and SNC to be strategic in identifying and resolving topics that are needed to support construction.

Similarly, for the NuScale review, the NRC senior managers meet with NuScale executives quarterly. These meetings provide executives from both organizations the opportunity to discuss progress on known review challenges, to identify emerging issues, and to establish timelines for resolving these emerging issues to keep the project review on schedule.

Starting in mid-2017, the NRO management team developed and implemented new internal metrics to better track the timeliness related to the review of license amendment requests supporting Vogtle licensing efforts. These metrics have identified license amendments that have been under lengthy reviews and have focused management's attention on the actions necessary to complete these reviews. The management and project managers meet biweekly to identify amendment requests that may require elevated management attention and to track the progress of license amendments, with particular attention to amendment requests that have been in review for 120 days or longer. NRO management has set an internal goal of completing all license amendment reviews within 180 days of their acceptance. With additional management attention and better use of pre-application meetings, NRO has been able to improve the timeliness of reviews.

NRO has also incorporated many of the lessons-learned from previous new reactor reviews into its review activities for the active DC and ESP applications. As described in response to question 24, NRO implemented an initiative in 2016 to improve the focus of RAIs, which has improved the quality and safety focus of information requests. The staff is also enhancing use of the regulatory audit tool.

NRO has instituted an "Enhanced Safety Focus Review" initiative for the NuScale design certification review. This initiative focuses the staff's review on first-of-a-kind or high safety, high risk areas of the design, and simplifies the review of lower safety or risk significant areas.

In addition, the NRC has made significant progress on initiatives to enhance the regulatory framework for non-light water reactors (non-LWRs). For example, in December 2017, the NRC issued the "Regulatory Review Roadmap for Non-Light Water Reactors," which described flexible review options including the use of a staged-review process and the use of conceptual design assessments during the pre-application period. The actions for advanced reactor reviews are described more fully in response to question 52.

50. Please provide a list of any unresolved policy issues with regard to the licensing of small modular light-water reactors (SMRs). Please include an approximate date for when each issue was first raised, any actions taken or planned to resolve the issue, the milestone scheduled for resolution, and the projected date for resolution.

Issue Title/Applicability	Status	References
I. Appropriate Source Term, Dose Calculations, and Siting for SMRs	In the December 29, 2011, memorandum to the Commission, the staff stated it would remain engaged with SMR stakeholders regarding applications of mechanistic source term (MST)	Staff Draft White Paper (11/29/17)

Issue Title/Applicability	Status	References
Applicability: SMRs and non-LWRs	methods, review of pre-application white papers and topical reports it receives from potential SMR applicants concerning source term issues that discuss design-specific proposals to address MST, and considerations of research and development in this area. If necessary, the staff would propose revised review guidance or regulations, or propose new guidance to support reviews of SMRs. In Commission Memoranda dated May 30, 2013, and June 20, 2014, the staff provided updates on interactions with DOE and nuclear industry organizations regarding MST. On February 7, 2016, the staff provided the Commission SECY 16-0012, which addressed this item. The paper concluded that (1) SMR and non-light water reactor (non-LWR) applicants can employ modern analysis tools to demonstrate quantitatively the safety features of those designs, and (2) MST analysis methods can also be used by applicants to demonstrate the ability of the enhanced safety features of plant designs to mitigate accident releases, allow future COL applicants to consider reduced distances to Exclusion Area Boundaries and Low Population Zones and potentially increase proximity to population centers. **Disposition:** The staff has engaged with interested stakeholders on this issue in 2017. The staff developed a draft white paper summarizing the assessment of current siting regulations, guidance, and Commission policy and discussed it in a public meeting on December 14, 2017. During a May 3, 2018, public meeting, NEI provided feedback on this topic on behalf of the nuclear industry. The NEI stated their position that Regulatory Guide (RG) 4.7 should be updated to scale the population density guidance based on the smaller source term and lower probability of release anticipated for SMRs and advanced reactors. The NEI plans to consider this topic further and make a more specific proposal on potential updates to the RG. The staff will consider insights obtained from stakeholder discussions and determine whether clarifications to siting guidance or other actions would be beneficial to address siting criteria for SMRs and non-LWRs. The staff will	SECY-16-0012 (02/07/16) Commission Memo (06/20/14) Commission Memo (05/30/13) Commission Memo (12/29/11)

Issue Title/Applicability	Status	References
	report to the Commission on any proposed actions, as described in SECY-16-0012.	
II. Offsite Emergency Planning (EP) Requirements for SMRs and other new technology. Applicability: SMRs and non-LWRs	In SECY-11-0152, staff identified a possible approach for a scalable emergency planning zone for SMRs. The NRO staff is working with NSIR and NRR on an internal working group to review these issues further. As part of the approach, the staff would liaise with other stakeholders (Department of Homeland Security/Federal Emergency Management Agency, the Environmental Protection Agency, Department of State, Department of Commerce, NEI, American Nuclear Society, and the public), consider NEI position papers on this topic and develop recommendations. In a May 30, 2013, Commission Memorandum, the staff provided updates on its EP activities. The staff stated that it would not propose new policy or revise guidance for specific changes to EP requirements absent specific proposals from industry stakeholders. On December 23, 2013, NEI submitted a white paper on this topic. The staff conducted a public meeting to discuss the white paper on April 8, 2014, issued follow-up questions to NEI on June 11, 2014, and received NEI responses in November 2014. On May 29, 2015, staff issued SECY-15-0077 regarding EP for SMRs and non-LWRs. On August 4, 2015, the Commission approved the staff's recommendation to initiate a rulemaking. Staff developed SECY-16-0069, which discussed the rulemaking plan and schedule. On June 22, 2016, the Commission approved the staff's plan and schedule for the rulemaking. **Disposition:** The rulemaking will address EP issues for future SMRs, non-LWR, and other new design technologies such as isotope producing facilities. The Commission directed the staff to utilize exemptions in the interim (e.g., for the TVA ESP) until completion of the EP rulemaking. The draft regulatory basis was published for public comment in the *Federal Register* on April 13, 2017. A public meeting was held May 10, 2017, to discuss the draft regulatory basis. The public comment period closed on June 27, 2017. After considering the	Final Regulatory Basis (10/16/17) SRM-SECY-16-0069 (06/22/16) SECY-16-0069 (05/31/16) SRM-SECY-15-0077 (08/04/15) SECY-15-0077 (05/29/15) NEI Response to NRC Questions on White Paper (11/19/14) NRC Letter to NEI (R. Bell) (06/11/14) NEI White Paper (12/23/13) Commission Memo (05/30/13) SECY-11-0152 (10/28/11)

Issue Title/Applicability	Status	References
	public comments, the staff issued the final regulatory basis on October 16, 2017. The staff will discuss this rulemaking during a June 14, 2018, stakeholder meeting, and will brief the ACRS on August 22, 2018. The proposed rule is scheduled to be provided to the Commission for its consideration in October 2018.	
III. Insurance and Liability for SMRs Applicability: SMRs and non-LWRs	In SECY-11-0178, the staff identified a potential inequity between the insurance requirements for power reactors producing electrical power equal or greater than 100 MWe per unit and those SMR designs with individual modules producing less than 100 MWe. Specifically, staff raised the question of whether there would be insurance and indemnity coverage sufficient to pay all public claims in the case of an insurable event for an SMR with an individual module sized at less than 100 MWe under the current Price-Anderson Act and associated regulatory language. Since completing that paper, staff prepared a comparative analysis of different SMR designs to further explore the potential inequity. Staff is using this analysis, and other inputs, to develop a SECY paper for this topic. In the paper, staff will identify whether rulemaking or a change to the current interpretation of the definitions given in the Price-Anderson Act is recommended. **Disposition:** In accordance with the latest version of the Price-Anderson Act, the NRC will prepare a report to Congress, and an associated SECY paper, recommending the need for continuation or modification of the provisions of the Price-Anderson Act by December 31, 2021. Any changes that may be needed for non-LWRs and SMRs will be addressed by the staff in that report and SECY paper. The staff engaged stakeholders on this topic during a November 2, 2017, public meeting and the staff will continue to keep stakeholders informed as the report to Congress is prepared.	SECY-11-0178 (12/22/11)
IV. Security and Safeguards Requirements for SMRs	In SECY-11-0184, staff informed the Commission of its determination that the current regulatory framework is adequate to certify, approve, and license light-water SMRs, the manufacturing of SMR fuel, transportation of special nuclear material and irradiated fuel, and	Staff Draft White Paper (11/29/17)

Issue Title/Applicability	Status	References
Applicability: SMRs and non-LWRs	the interim storage of irradiated fuel proposed for light-water SMRs under 10 CFR Parts 50, 52, 70, 71, and 72, respectively. The staff also determined that security and material control and accounting requirements in 10 CFR Parts 72, 73, and 74, respectively, are also adequate. In the case of non-LWRs, the staff's preliminary conclusion is that the current security regulatory framework is comprehensive and sufficiently robust to certify, approve, and license non-LWRs. Sufficient provisions are available to provide flexibility for designers and applicants to meet performance-based and prescriptive security requirements and to apply methods or approaches to achieve the objective of high assurance that activities involving special nuclear materials are not inimical to the common defense and security and do not constitute an unreasonable risk to public health. On December 14, 2016, NEI submitted a white paper on a "Proposed Consequence-Based Physical Security Framework for Small Modular Reactors and Other New Technologies." This paper "... proposes an approach to security that considers the enhanced safety and security incorporated into these designs and provides a more effective and efficient means to protect the public health and safety." In the transmittal letter, NEI requests that "... the NRC establish regulatory positions on this approach and the associated policy and technical issues." NEI submitted a fee waiver request for NRCs review of this white paper. **Disposition:** The NRC has approved NEI's fee waiver request and met with NEI on May 3, 2017, to discuss the review of their submittal. The NRC provided feedback on NEI's white paper in July 2017, and met with NEI again on October 12, 2017. The staff prepared a draft white paper to facilitate stakeholder interactions. The staff discussed this white paper with NEI and other stakeholders on December 13, 2017. The staff will consider stakeholder feedback and plans to prepare a SECY paper in 2018 to address this issue.	NEI White Paper (12/14/16) SECY-11-0184 (12/29/11)
V. Functional Containment Performance	In SECY-93-0092, "Issues Pertaining to the Advanced Reactor (PRISM, MHGTR, and PIUS) and Candu 3 Designs and their Relationship to	Staff Draft White Paper (11/27/17)

Issue Title/Applicability	Status	References
Applicability: Non-LWRs	Current Regulatory Requirements," the staff proposed to evaluate the acceptability of proposed designs using a standard based upon containment functional performance rather than to rely exclusively on prescriptive containment design criteria. The staff also informed the Commission that it intended to approach this by comparing containment performance with the accident evaluation criteria. In SRM-SECY-93-0092, the Commission approved the staff's recommendation. Subsequently, in SECY-03-0047, the staff recommended that the Commission approve the use of functional performance requirements to establish the acceptability of a containment or confinement structure (i.e., a non-pressure retaining building may be acceptable provided the performance requirements can be met) and the staff proposed that functional performance requirements be developed. In SRM-SECY-03-0047, the Commission disapproved the staff's recommendation stating that there was insufficient information at the time for the Commission to prejudge the best options and make a decision on the viability of a confinement building. The Commission directed the staff to develop performance requirements and criteria working closely with industry experts (e.g., designers, EPRI, etc.) and other stakeholders regarding options in this area, taking into account such features as core, fuel, and cooling systems design. The Commission also directed the staff to pursue the development of functional performance standards and then submit options and recommendations to the Commission. In SECY-05-0006, the staff discussed many of the concepts developed in previous communications between the staff and Commission on the topic of functional containment performance and, as directed in SRM-SECY-03-0047, outlined the attributes for a functional containment. The topic of functional containment was also addressed as part of the next-generation nuclear plant (NGNP) project in the context of high-temperature gas-cooled reactors. More recently, in light of the broad range of non-light water designs under consideration, the staff has determined that it	SECY-05-0006 (1/7/05) SMR-SECY-03-0047 (06/26/03) SECY-03-0047 (03/28/03) SRM-SECY-93-092 (07/30/93) SECY-93-092 (04/08/93)

Issue Title/Applicability	Status	References
	would be beneficial to seek Commission direction to support development and possible deployment of advanced reactor technologies. The staff plans to engage the Commission to confirm whether the Commission direction in SRM-93-0092 should be applied more broadly to additional advanced reactor designs and to propose a risk-informed, performance-based approach to establishing performance criteria for structures, systems, and components and corresponding programs to limit the release of radioactive materials from advanced reactors. **Disposition:** The staff has engaged stakeholders on this topic at several public meetings. The staff prepared a draft white paper on functional containment performance to facilitate stakeholder interactions. The staff discussed this white paper with stakeholders on December 14, 2017, and February 1, 2018, and with the ACRS on February 22 and April 5, 2018. The ACRS provided a letter on May 10, 2018. The staff will consider ACRS and stakeholder feedback and plans to prepare a SECY paper in 2018 to address this issue.	

51. Please provide a list of any unresolved policy issues with regard to the licensing of advanced non-light water reactors. Please include an approximate date for when each issue was first raised, any actions taken or planned to resolve the issue, the milestone schedule, and the projected date for resolution.

See response to question 50. All of the SMR policy issues listed in that response are also applicable to non-light water designs. In addition, there is one non-light water specific issue included on that list: functional containment performance.

52. Please describe the status of preparations to review non-light water reactor applications including a milestone schedule and completion dates.

The agency has developed a vision and strategy to assure NRC readiness to conduct its mission for these technologies effectively and efficiently as described in “NRC Vision and Strategy: Safely Achieving Effective and Efficient Non-Light Water Reactor Mission Readiness,” which was published in the *Federal Register* on July 21, 2016, for stakeholder input. The NRC updated this document (ADAMS Accession No. ML16356A670) to reflect stakeholder feedback and made it publicly available in December of 2016.

The NRC’s non- LWR vision and strategy has three strategic objectives—enhancing technical readiness, optimizing regulatory readiness, and optimizing communication. The NRC has developed implementation action plans (IAPs) to identify the specific activities the NRC will conduct in the near-term (0-5 years), mid-term (5-10 years), and long-term (beyond 10 years) timeframes to achieve non-LWR readiness. In the fall of 2016, the NRC released its draft near-

term IAPs to obtain stakeholder feedback. The staff also developed draft mid- and long-term IAPs, which were released to the public in February of 2017. The staff updated its IAPs to reflect stakeholder feedback in July of 2017 (ADAMS Accession Nos. ML17165A069 and ML17164A173).

The staff issued SECY-18-0011, "Advanced Reactor Program Status" (ML17334B217) on January 25, 2018. This paper provides the status of the NRC staff's activities related to advanced reactors, including the progress and path forward on each of the implementation action plan (IAP) strategies. It also provides an overview of the various external factors influencing the staff's activities to prepare for possible licensing and deployment of advanced reactors. Additionally, on April 24, 2018, industry, the Department of Energy, and NRC staff briefed the Commission on activities to prepare for effective and efficient reviews of advanced reactor applications and to provide stakeholder perspectives on advanced reactor development activities, including projected policy and program issues that need to be resolved.

There are 6 individual strategies addressed in the near-term IAPs. These strategies, and the activities in support of each strategy, are discussed below.

Strategy	**Activities in support of the strategy**
1) Acquire/develop sufficient knowledge, technical skills, and capacity to perform non-LWR regulatory activities	• NRC contracted with the Oak Ridge National Laboratory to develop a 12-module training course on Molten Salt Reactors (MSRs). The course provided background on various MSR concepts presently under development, including history of earlier MSR projects, descriptions of conceptual designs, and expected technical and regulatory challenges. About 90 NRC staff attended the training along with several DOE staff in three separate 2-day sessions in May, August, and November 2017. • NRC developed models of the competencies required for reviewing advanced reactor designs. Project managers and technical reviewers in NRO are currently in the process of assessing their skills against the models. Supervisors will also be able to complete an independent assessment of their employees' skills. Based on assessment results, any skill gaps that may exist can be identified and the system will help the employee identify developmental activities and create an individual development plan to close those gaps.
2) Acquire/develop sufficient computer codes and tools to perform non-LWR regulatory reviews	• Staff attended DOE and NRC-sponsored workshops and technology working groups, sought additional information through pre-application interactions, and focused its training efforts to better understand the reactor systems under development. In the near-term, these efforts are focused on the following areas: Reactor Kinetics and Criticality, Fuel Performance, Thermal-Fluid Phenomena, Severe Accident

Strategy	Activities in support of the strategy
	Phenomena, Offsite Consequence Analysis, Materials and Component Integrity, and PRA. • An initial screening of analysis codes for design-basis and beyond-design-basis event simulation was completed, and a suite of tools for further examination and consideration has been identified. The code suite comprises both NRC-developed and DOE-developed codes. Future efforts will evaluate codes in the code suite against analysis requirements. • A Phenomena Identification and Ranking Table (PIRT) exercise was conducted for molten salt reactors. The PIRT focused attention on fuel salt MSRs due to their novel and unique feature of fuel being part of the coolant. The PIRT is considered preliminary in that design specifics are not available, but it is useful in that several phenomena requiring simulation could be identified based on existing information. • Staff completed a PRA report that summarizes previous work and issues for non-LWRs and identifies several policy decisions that may need to be made for non-LWRs.
3) Develop guidance for a flexible non-LWR regulatory review process within the bounds of existing regulations, including the use of conceptual design reviews and staged-review processes	• In October 2017, the staff issued a preliminary draft of "A Regulatory Review Roadmap for Non-Light Water Reactors" (ADAMS Accession No. ML17279B177), and discussed it with stakeholders on November 2, 2017. The NRC issued the final regulatory review roadmap on December 26, 2017 (ADAMS Accession No. ML17312B567). • In June 2017, the NRC issued a preliminary draft document, "Nuclear Power Reactor Testing Needs and Prototype Plants for Advanced Reactor Designs," to solicit stakeholder feedback (ADAMS Accession No. ML17025A353). This document describes the relevant regulations governing the testing requirements for advanced reactors, describes the process for determining testing needs to meet the NRC's regulatory requirements, clarifies when a prototype plant might be needed and how it might differ from the proposed standard plant design, and describes licensing strategies and options that include the use of a prototype plant to meet the NRC's testing requirements. The NRC addressed stakeholder feedback and issued the final prototype document as

	part of the Regulatory Review Roadmap on December 26, 2017. • On February 3, 2017, the NRC issued draft regulatory guide DG-1330, "Guidance for Developing Principal Design Criteria for Non-Light Water Reactors" for formal public comment. The staff briefed the ACRS subcommittee on the draft final regulatory guide in February 2018 and the ACRS full Committee in March 2018. On April 3, 2018, the NRC issued the Final Regulatory Guide (RG) 1.232 (ML17325A611), along with the, "Public Comment Resolution Table" (ML17325A616). The notice of availability of RG 1.232 was published in the *Federal Register* on April 9, 2018. • The NRC is supporting activities related to the Licensing Modernization Project (LMP) being led by Southern Company, coordinated by the NEI, and cost-shared by DOE. The LMP's objective is to develop technology-inclusive, risk-informed, and performance based regulatory guidance for licensing non-LWRs for the NRC's consideration and possible endorsement. The NRC has reviewed four LMP white papers and provided feedback to industry stakeholders: "Modernization of Technical Requirements for Licensing of Advanced Non-Light Water Reactors - Selection of Licensing Basis Events" (ADAMS Accession No. ML17104A254), "Modernization of Technical Requirements for Licensing of Advanced Non-Light Water Reactors - Probabilistic Risk Assessment Approach" (ADAMS Accession No. ML17158B543), "Modernization of Technical Requirements for Licensing of Advanced Non-Light Water Reactors: Safety Classification and Performance Criteria for Structures, Systems, and Components" (ADAMS Accession No. ML17290A463), and "Modernization of Technical Requirements for Licensing of Advanced Non-Light Water Reactors: Risk-Informed and Performance-Based Evaluation of Defense-in-Depth Adequacy" (ADAMS Accession No. ML17354B174). As discussed in the NRC's letter dated February 28, 2018 ADAMS Accession No. (ML18047A149), these interactions have helped set the stage for developing more formal guidance. On March 29, 2018, industry submitted a working draft of a consolidated guidance document titled "Risk-Informed Performance-Based Guidance for Non-Light Water Reactor Licensing Basis Development," for discussion. The staff met with NEI, Southern and other non-LWR stakeholders

Strategy	Activities in support of the strategy
	to discuss this draft guidance document on April 5 and 6, 2018. Southern provided an updated draft (Revision "M," ADAMS Accession No. ML18150A344) of the guidance document on May 27, 2018. The staff held another meeting on June 5 and 6, 2018, to discuss the draft guidance document. The staff is also scheduled to brief the ACRS Future Plant Designs Subcommittee in June and October 2018 and the ACRS Full Committee in December 2018.
4) Facilitate industry codes and standards needed to support the non-LWR life cycle (including fuels and materials)	• The NRC staff is actively participating in subgroups and working groups associated with the development of ASME Boiler and Pressure Vessel (B&PV) Code, Section III, Division 5. NRC staff is also participating in the "Task Group on ASME/NRC Liaison for Division 5" that seeks NRC, DOE, and industry stakeholder input in identifying gaps in ASME B&PV Code Section III, Division 5, which need to be resolved prior to considering endorsement in 10 CFR 50.55a. The staff discussed this topic during a public meeting on December 14, 2017. ASME plans to send a letter to the staff confirming that advanced reactor developers support NRC endorsement of the 2017 edition of ASME Section III, Division 5, rather than waiting for a later edition. ASME also plans to submit a technical basis document for the 2017 edition. • The staff is actively participating on several American Nuclear Society (ANS) standards working groups and consensus committees related to non-LWR safety standards and the joint ASME/ANS non-LWR PRA standard. • On September 26, 2017, the NRC held the second annual NRC Standards Forum, which was attended by representatives from many standards development organizations, representatives from industry (NEI, the Electric Power Research Institute, and Technology Working Groups for non-LWRs), and representatives from DOE and DOE national labs. A portion of this year's standards forum was devoted to non-LWRs with the intent of working with stakeholders to identify new codes and standards needed for non-LWR development and to facilitate the codes and standards development and eventual endorsement by the NRC, as appropriate. A follow-up workshop on advanced reactor standards development was held on May 2, 2018.
5) Identify and resolve technology-inclusive (not	• The NRC's key activities related to the resolution of policy issues in support of near-term IAP strategy 5

Strategy	Activities in support of the strategy
specific to a particular non-LWR design or category) policy issues that impact regulatory reviews, siting, permitting, and/or licensing of non-LWR nuclear power plants	are discussed in response to questions 50 and 51 above. In addition, an April 2018 Commission briefing on advanced reactors included an overview of near term policy issues.
6) Develop and implement a structured, integrated strategy to communicate with internal and external stakeholders having interests in non-LWR technologies	• The NRC is conducting public meetings with stakeholders every 4 to 6 weeks. The most recent of these meetings was held on June 14, 2018. The NRC uses these stakeholder meetings to solicit input on policy and process issues related to the possible licensing and regulation of non-LWR technologies. • The NRC and DOE hosted a series of three Advanced Non-LWR Workshops. The most recent workshop was held on April 25 and 26, 2017. This series of workshops focused on opening a dialogue between key stakeholders to discuss challenges in the commercialization of non-LWR technologies and to discuss possible solutions. • On November 10, 2016, the NRC and DOE signed a MOU (ADAMS Accession No. ML16215A382) on the Gateway for Accelerated Innovation in Nuclear (GAIN) Initiative. GAIN is an initiative that is intended to provide the nuclear energy community with increased access to the technical, regulatory, and financial support necessary to move new or advanced nuclear reactor designs toward commercialization while ensuring the continued safe, reliable, and economic operation of the existing nuclear fleet. As described in the MOU, the NRC is responsible for providing DOE and the nuclear energy community with accurate, current information on the NRC's regulations and licensing processes. • The NRC will continue to share information with various international groups, including the Organization for Economic Co-operation and Development's Nuclear Energy Agency (NEA), the International Atomic Energy Agency, the Generation IV International Forum, and the NRC's international regulatory counterparts. The NRC chairs NEA's ad hoc group for international regulators of non-LWRs known as the Group on the Safety of Advanced Reactors. The purpose of the group is to bring interested regulators together to discuss

Strategy	Activities in support of the strategy
	common interests, practices, and problems, and address both the regulatory interests and research needs.