Reactor Oversight Process Program Area Evaluations

This enclosure provides the program area evaluations completed by staff in the four Reactor Oversight Process (ROP) program areas of inspection, assessment, performance indicators (PIs), and the significance determination process (SDP) in accordance with Element 1 of the ROP self-assessment program and as described in the "ROP Program Area Evaluations" section of this paper. The staff conducted the ROP program area evaluations using the objective performance metrics data and other relevant feedback from both internal and external stakeholders. The staff provided its data and analysis for all the objective performance metrics in a memorandum, "ROP Performance Metric Report for CY 2019," dated March 11, 2020 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20064G913). In each program area evaluation discussed below, the staff also summarizes changes to each program, current and future focus areas, and potential recommendations for improvement.

Performance Indicator Program

The PI program continued to provide insights into plant safety and security performance in calendar year (CY) 2019. The staff and industry continued to improve the PI program guidance through ROP working group public meetings and feedback from stakeholders. As noted in the annual ROP performance metric report referenced above, the ROP metrics related to the PI program met or exceeded performance expectations, including the timeliness of the reporting, dissemination, and accurate posting of the PI data to the U.S. Nuclear Regulatory Commission (NRC's) public Web site. PI updates for new reactors are discussed in the "ROP for New Reactors" section of this SECY.

Security Performance Indicator

Currently, the staff provides information to the Commission related to the evaluation, assessment, and development of security PIs in (1) the annual ROP self-assessment SECY and (2) reporting to comply with Staff Requirements Memorandum (SRM)-SECY-07-0136, "Staff Requirements—SECY-07-0136—Recommendation to Discontinue Two of Three Performance Indicators Associated with the Security Reactor Oversight Process," dated September 13, 2007 (ADAMS Accession No. ML072560811, nonpublic). In January 2020, the Office of Nuclear Security and Incident Response (NSIR) initiated action to streamline reporting on the status of PIs. Specifically, NSIR staff provided the Commission with COMSECY-20-0004, "Redundant Reporting of Security Performance Indicators to the Commission," dated January 23, 2020 (ADAMS Accession No. ML19302F645, nonpublic), which requested that information related to security PIs be consolidated into a single report, the annual ROP self-assessment SECY. If approved, redundant reporting on security PIs in response to SRM-SECY-07-0136 via means other than the annual ROP self-assessment SECY would be discontinued.

The Protected Area Security Equipment Performance Index is the only PI for the security cornerstone. This PI serves as a measure of the unavailability of security equipment to perform its intended function. The current security cornerstone PI, along with the conduct of the NRC baseline inspection program, continues to provide assurance that regulatory oversight and performance assessment of power reactor licensees remains effective and efficient, ensuring safe and secure operations.

The staff continues to assess the physical security program for enhancements and efficiencies

based on physical security operating experience, inspection results, oversight visits and periodic reviews of inspection procedures (IPs). Any enhancements to the physical security inspection program may initiate the need to develop new PIs. However, ongoing changes to and the continuous evaluation of the physical inspection program, such as those described in SECY-19-0067, "Recommendations for Enhancing the Reactor Oversight Process," dated July 16, 2019 (ADAMS Accession No. ML19070A036), have not resulted in the need for PI changes.

Inspection Program

Throughout CY 2019, NRC inspectors independently verified that commercial nuclear plants were operated safely and securely. As documented in the annual ROP performance metric report (ADAMS Accession No. ML20064G913), metrics associated with completion of the baseline inspection program, inspector objectivity, inspector qualifications, and site staffing were determined to be Green for CY 2019. One inspection-related metric, "Responsiveness to ROP Feedback Forms," was determined to be Red for CY 2019. This metric monitors the disposition timeliness of ROP feedback forms and is discussed in the "ROP Performance Metrics" section of this paper. Throughout the year, the staff revised various IPs based on ROP feedback forms and other internal and external feedback. The engineering inspection working group continued its work through CY 2019, summarized in the "Update on Improvements to the Engineering Inspection Program" section of this paper. The staff discusses inspection program readiness for AP1000 reactors in the "ROP for New Reactors" section of this paper.

Baseline Inspection Program Completion

All four NRC regions and NSIR documented completion of the baseline inspection program for CY 2019 (ADAMS Accession Nos. ML20042E405 for Region I, ML20063H438 for Region II, ML20049H329 for Region III, ML20059N508 for Region IV, and ML20021A236 for NSIR (non-public)).

Security Baseline Inspection Program

The NSIR staff continued to implement IP 71130.10 Pilot (P), "Cyber Security" (nonpublic), to inspect operating nuclear power plants that have fully implemented the requirements in Title 10 of the *Code of Federal Regulations* (10 CFR) 73.54, "Protection of Digital Computer and Communication Systems and Networks." These pilot inspections were conducted as scheduled in CY 2018 and 2019 and will be completed in CY 2020. NSIR is developing a revision to IP 71130.10 for the post cybersecurity full-implementation inspection program that will start in CY 2021.

As part of the agency's commitment to openness, the staff completed evaluation of ten security IPs to ensure that each had appropriate information security designations. This effort resulted in the re-designation of five IPs (i.e., IPs that did not contain sensitive, security-related information), making those IPs available to the public.

Additionally, during CY 2019, NSIR staff submitted COMSECY-19-0006, "Revised Security Inspection Program Framework (Option 3) in Response to SRM-17-0100," dated May 21, 2019 (ADAMS Accession No. ML19038A485). This COMSECY responded to SRM-SECY-17-0100, "Staff Requirements—SECY-17-0100—Security Baseline Inspection Program Assessment Results and Recommendations for Program Efficiencies," dated October 9, 2018 (ADAMS Accession No. ML18283A072), in which the Commission approved the staff's recommendation to modify the force-on-force (FOF) inspection program to include one NRC-conducted FOF

exercise and an enhanced NRC inspection of a licensee-conducted annual FOF exercise. Additionally, the staff continues to develop and evaluate approaches that provide credit for a broader set of operator actions, including the use of FLEX equipment, and response by local, State, and Federal law enforcement in the NRC's security cornerstone.

Significance Determination Process

The SDP continued to be effective by providing inspectors with a risk-informed method for determining the safety and security significance of inspection findings. As of February 25, 2020, the NRC documented 422 inspection findings (includes licensee-identified findings) for CY 2019, with more than 99 percent determined to be of very low safety or security significance (Green).[1] In this respect, the SDP is an effective and efficient risk-informed process for focusing staff resources on issues that are potentially more risk-significant. Nevertheless, the staff is always open to opportunities to further improve the SDP. The text below summarizes several efforts currently underway or completed in CY 2019.

Finalized, Ongoing, and Planned Revisions to the Significance Determination Process Guidance

This section provides the status of revisions to Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," dated October 23, 2018 (ADAMS Accession No. ML18187A187), and its attachments and appendices.

The staff revised IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," dated December 13, 2019 (ADAMS Accession No. ML19011A338). This revision clarified issues related to exposure time, functionality, and specific screening questions with the goal of improving efficiency and predictability in the ROP. Additionally, this revision included updates needed to accommodate new reactor designs. The staff eliminated IMC 0609, Appendix O, "Significance Determination Process for Mitigating Strategies and Spent Fuel Pool Instrumentation," by revising the screening questions and moving relevant guidance to IMC 0609, Appendix A. The staff notified the Commission of these changes in a Commissioners' Assistant Note, "Revisions to Inspection Manual Chapters Related to the Significance Determination Process," dated December 6, 2019 (ADAMS Accession No. ML19302F254, nonpublic).

In SECY-18-0091, "Recommendations for Modifying the Reactor Oversight Process for New Large Light Water Reactors with Passive Safety Systems Such as the AP1000 (Generation III+ Reactor Designs)," dated September 12, 2018 (ADAMS Accession No. ML17166A238), the staff identified five SDP guidance documents requiring revisions to support new reactor designs. Appendices A and M, "Significance Determination Process Using Qualitative Criteria" (ADAMS Accession No. ML18183A043), to IMC 0609 were revised in CY 2019. Appendix G to IMC 0609, "Shutdown Operations Significance Determination Process," was revised and issued in January 2020 (ADAMS Accession No. ML19101A289). The staff plans to revise IMC 0609 and its Appendix H, "Containment Integrity SDP," in CY 2020.

The staff provided a revision to IMC 0609, Appendix E, Part II, "Force-on-Force Significance Determination Process," in Enclosure 3 to COMSECY-19-0006, which is discussed in the "Security Performance Indicators" section of this enclosure. In this revision, the staff simplified the FOF SDP model and revised it to assess one NRC-conducted FOF exercise and to provide

[1] See the "Inspection Finding Trends and Monitoring via Data Analytics" section of this SECY for more information regarding the staff's analysis of the downward trend in inspection findings.

guidance for addressing an indeterminate exercise outcome.

The NRC staff continued its engagement with both internal and external stakeholders. Internally, SDP guidance revisions aim to address ROP feedback forms submitted by the NRC staff. In CY 2019, newly revised SDP guidance addressed 15 ROP feedback forms. Additionally, draft SDP-related Inspection Manual documents circulate for a 30-day internal comment period, after which any received comments are resolved before issuance. The staff's external engagement activities included communicating proposed SDP changes and revisions to the public, industry, and other external organizations through monthly ROP public meetings.

Significance Determination Process Metrics

Four ROP metrics are associated with the SDP and apply to Greater-than-Green (GTG) inspection findings. Efficiency Metric (E)-4 measures whether the staff completes performance deficiency determinations within 120 days of initial identification. Metric E-5 measures whether the staff finalizes inspection finding significance within 90 days from the date the licensee was notified of the preliminary significance. Clarity Metric (C)-3 measures the traceability of GTG inspection findings. Reliability Metric (R)-2 measures the repeatability and predictability of the SDP in processing GTG inspection findings. In CY 2019, metrics E-4, C-3, and R-2 were evaluated as Green. Metric E-5 was determined to be Red because the timeliness threshold for the final significance determination was exceeded for a White finding at Clinton Power Station (ADAMS Accession No. ML19092A212). More information regarding this Red metric can be found in the "ROP Performance Metrics" section of this paper.

Assessment Program

The staff's implementation of the assessment program ensures that the staff and licensees took appropriate actions to address performance issues in CY 2019, commensurate with their safety significance. All applicable assessment ROP metrics met their established criteria in CY 2019, including timely issuance of assessment letters and the conduct of annual assessment meetings. There were no new ROP Action Matrix deviations in CY 2019.

Plants in Column 4 during the Self-Assessment Period

During CY 2019, Pilgrim Nuclear Station transitioned from Column 4 to Column 1 of the ROP Action Matrix on March 4, 2019, and permanently ceased operations on May 31, 2019.