



POLICY ISSUE **(Information)**

April 21, 2019

SECY-19-0039

FOR: The Commissioners

FROM: Margaret M. Doane
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SUBJECT: CONSTRUCTION REACTOR OVERSIGHT PROCESS
SELF-ASSESSMENT FOR CALENDAR YEAR 2018

PURPOSE:

This paper presents the results of the U.S. Nuclear Regulatory Commission (NRC) staff's calendar year (CY) 2018 self-assessment of the Construction Reactor Oversight Process (cROP). This paper does not address any new commitments.

SUMMARY:

The results of the 2018 self-assessment show that the staff effectively applied the NRC's Principles of Good Regulation while implementing the cROP. The cROP met the agency's strategic goals of ensuring safety and security through objective, risk-informed, transparent, and predictable oversight.

In 2018, Vogtle Electric Generating Plant (Vogtle) Units 3 and 4 were in their seventh year of construction. The staff independently verified that Southern Nuclear Operating Company (licensee) was constructing the Advanced Passive 1000 (AP1000) reactors at the Vogtle Electric Generating Station, Units 3 and 4 (Vogtle Units 3 and 4) in accordance with the approved design.

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As of the end of 2018, NRC inspections of Vogtle Units 3 and 4 had expended approximately 50 percent of the total number of planned direct inspection hours on inspections, tests, analyses, and acceptance criteria (ITAAC) at Unit 3 and 37 percent of the planned hours at Unit 4. The staff continues to look for efficiencies that can be gained and identified potential reductions in its annual quality assurance inspections. The staff also began posting the direct inspection hours reports on the NRC's public website.

The staff issued an office instruction, LIC-114 (Office of Nuclear Reactor Regulation (NRR))/REG-106 (Office of New Reactors (NRO)), "Title 10 of the Code of Federal Regulations (10 CFR) Section 52.103(g) Finding and Communication Process" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML18267A001), describing the steps to make the finding under 10 CFR 52.103(g). This instruction outlines extensive and frequent communications with the Commission during the final year of construction about the status of all cROP activities for Vogtle Units 3 and 4. Therefore, future annual SECY papers on the cROP self-assessment will focus on cROP development activities and emerging issues related to new reactor construction sites, and will not include the information being provided to the Commission under the LIC-114 (NRR)/REG-106 (NRO) process.

BACKGROUND:

The staff conducted the CY 2018 cROP self-assessment in accordance with NUREG-1614, "Strategic Plan: Fiscal Years 2018-2022," Volume 7, dated February 2, 2018 (ADAMS Accession No. ML18032A561), and Inspection Manual Chapter (IMC) 2522, "Construction Reactor Oversight Process Self-Assessment Program," dated July 28, 2014 (ADAMS Accession No. ML14189A211).

The annual cROP self-assessment has three objectives: (1) to determine whether the ongoing program is effective in supporting the achievement of the performance goals and the agency's strategic goals, (2) to provide timely, objective information to inform program planning and to develop recommended improvements to the cROP, and (3) to inform the Commission, NRC senior management, and the public of the results of the cROP self-assessment program, including any conclusions and resulting improvement actions.

As a part of the annual cROP self-assessment, the staff determines the effectiveness of the cROP by evaluating its success in meeting the established goals and metrics described in IMC 2522, Appendix A, "Construction Reactor Oversight Process Self-Assessment Metrics," dated October 4, 2017 (ADAMS Accession No. ML17257A163). The staff presents results of the assessment at the annual Commission briefing on the results of the agency action review meeting.

DISCUSSION:

The scope of the staff's self-assessment included: (1) cROP program evaluations, (2) ITAAC closure, (3) the construction experience program, (4) cROP communications, (5) cROP resources, and (6) Vogtle Status Communications. The staff documented its 2018 cROP metrics in the annual report, "Construction Reactor Oversight Process Performance Metric Report for Calendar Year 2018," dated January 28, 2019 (ADAMS Accession No. ML19015A291).

cROP Program Evaluations

During 2018, the staff continued to effectively implement the construction baseline inspection program. The staff independently verified that the licensee was constructing the AP1000 reactors in accordance with the approved design. Also, no outstanding procedure change requests need resolution to support ongoing and planned inspections in 2019.

The staff met the IMC 2522 metric related to inspection report timeliness, as all inspection reports were issued within the timeliness goals. The staff did not meet the metric on the timely response to Technical Assistance Requests, because of the complex nature of one of the six requests reviewed by the staff. However, the late closure had no impact on construction inspection activities.

During 2018, the staff continued to effectively implement the construction significance determination process in support of the cROP goals to be objective, predictable, understandable, and open. Independent reviewers from NRC Headquarters reviewed inspection findings issued during 2018 and determined that the findings contained adequate detail to support the significance determination that was documented in the Region II inspection report, and there were no appeals of any of the inspection findings' significance determinations.

The staff also continued to effectively implement the construction assessment program. The staff completed all assessment reviews, assessment letters, and public meetings in a timely fashion. The staff met all construction assessment program metrics for 2018. The staff did not perform any supplemental inspections in 2018; therefore, that timeliness metric did not apply. The staff did not identify any significant issues for the cROP through the enforcement program for 2018. The staff made no significant changes to the construction assessment and enforcement programs in 2018.

ITAAC Closure

The staff met the IMC 2522 ITAAC closure metric, as the staff did not verify any ITAAC closure notifications (ICNs) as completed and then need to reopen them. ITAAC closure represents the successful completion of an ITAAC by the licensee coupled with the subsequent acceptance by the staff of the licensee's 10 CFR 52.99(c)(1) ITAAC closure notification. In addition, the New Reactors Business Line tracks timeliness of ICN reviews by fiscal year. As of the end of 2018, the staff met the timeliness goal, as it had reviewed over 90 percent (96.7 percent) of the ICNs within 60 days.

Overall, ITAAC consolidation has reduced the number of ITAAC in each combined license for Vogtle Units 3 and 4 by approximately 50 percent, with approximately 22 percent of that reduction occurring in 2018. Vogtle Unit 3 now has 449 ITAAC, and Unit 4 now has 443 ITAAC. The licensee has indicated that it may submit additional license amendment and exemption requests in 2019 to further consolidate ITAAC, which could further reduce the total number of ITAAC. Because ITAAC with similar topics, such as testing and qualification, were consolidated to reduce the administrative burden associated with preparing multiple ICNs, the licensing and inspection workload has not reduced but remains the same.

During 2018, the licensee submitted 29 ICNs, 17 for Vogtle Unit 3 and 12 for Vogtle Unit 4, which the staff accepted. As of the end of 2018, the staff had received and accepted 20 percent of the ITAAC for Vogtle Unit 3, and 16 percent for Vogtle Unit 4. The remainder of the ITAAC, 80 percent for Vogtle Unit 3 and 84 percent for Vogtle Unit 4, are for activities that have not

been completed by the licensee. In 2018, the staff accepted 303 uncompleted ITAAC notifications (UINs) for Vogtle Units 3 and 4. The licensee plans to submit UINs only for ITAAC that ICNs will not have been submitted by 315 days before scheduled fuel load. This results in approximately 154 UINs that have not been submitted to NRC. UINs provide earlier communication with public stakeholders and earlier identification of issues related to ITAAC completion.

During 2018, the licensee submitted two post-closure notifications pursuant to 10 CFR 52.99(c)(2) for each unit. Staff has completed their evaluations of these notifications. Post-closure notifications inform the NRC of new information that materially alters the determination basis for a previously completed ITAAC, including how this new information is resolved, during the ITAAC maintenance phase. The staff verifies the information included in the post-closure notifications and processes them the same as for ICNs.

The staff continues to publish *Federal Register* notices documenting the staff's determination of the successful completion of ITAAC under 10 CFR 52.99(e). The staff also continues to make the status of notifications on ITAAC for Vogtle Units 3 and 4 available on the agency's public website at <http://www.nrc.gov/reactors/new-reactors/oversight/itaac.html> on a monthly basis. This frequency may increase as the end of construction and the date the licensee intends to begin operation nears.

As referred to in the summary, on February 1, 2019, the staff issued Office Instruction LIC-114 (NRR)/REG-106 (NRO). This instruction describes the steps and provides templates for memoranda informing the Commission of the status of regulatory activities in the final year of construction for a facility licensed under 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," and for taking the actions necessary to make the 10 CFR 52.103(g) finding if the licensee demonstrates that all ITAAC acceptance criteria have been met. In addition, the instruction includes a template for issuing an order allowing interim operation pursuant to 10 CFR 52.103(c), if necessary. It also outlines extensive and frequent communications with the Commission about the status of all cROP activities for Vogtle Units 3 and 4.

Construction Experience Program

During 2018, the NRR Operating Experience Center of Expertise staff continued to collect information on operational events and construction-related issues. The staff reviewed and evaluated domestic and international operational events and construction-related issues for applicability to domestic reactor designs, the new reactor licensing process, and the vendor and construction inspection programs for NRO. Accordingly, the NRC informed its inspection activities and communicated the information to external stakeholders.

The NRC has gathered valuable experience about and insights into the construction, testing, and startup of the AP1000 units in China. The NRC has conducted inspector exchanges as part of the memorandum of cooperation between the NRC and China's National Nuclear Safety Administration. For example, during 2018, the NRC sent a three-member team to observe startup testing of the first two AP1000 reactors at the Sanmen site. During this 15-week visit, the team observed three first-plant-only tests at Sanmen Unit 1 and 20 major startup tests on Sanmen Units 1 and 2. The team also participated in plant area tours and system walkdowns. The insights gained from observing the startup testing activities at Sanmen have helped advance the NRC's inspection program for initial plant testing and startup testing for Vogtle Units 3 and 4.

cROP Communications

The staff continued to facilitate the means for external stakeholders to access cROP information and to offer feedback. In 2018, the staff held two public meetings to discuss the construction inspection program. Topics covered during those meetings included the staff's establishment of the Vogtle Readiness Group, AP1000 transition to operations, vendor ITAAC findings, the ITAAC hearing process, and the staff's plan for communications with the Commission in the final year of construction.

The staff held weekly public meetings for licensing action reviews and to resolve issues related to ITAAC. In accordance with IMC 2505, "Periodic Assessment of Construction Inspection Program Results," dated January 6, 2017 (ADAMS Accession No. ML16253A097), the staff also conducted an annual public end-of-cycle performance assessment meeting near the Vogtle site. Furthermore, senior managers from Region II, NRO, and other headquarter offices continue to visit the Vogtle site on a quarterly basis and discuss topics of interest with senior licensee management and stakeholders.

cROP Resources

The staff maintains a detailed evaluation of cROP inspection resources, with estimated direct inspection hours on its public website at <https://www.nrc.gov/docs/ML1903/ML19038A463.pdf> for Vogtle Units 3 and 4.

The staff originally estimated that direct inspection, on a per-unit basis, would require a total of 35,000 direct inspection hours. This total includes 15,000 hours for ITAAC inspections; 10,000 hours for programmatic inspections; 5,000 hours for reactive inspections above the baseline program in response to licensee performance issues, allegations, and nonperformance issues or events; and 5,000 hours for technical support for construction inspections.

Consistent with the 2017 cROP self-assessment, the staff estimates that direct inspection hours on ITAAC will be approximately 21,000 hours for Vogtle Unit 3 and 15,000 hours for Vogtle Unit 4. Construction schedule delays have increased the number of planned programmatic inspection hours because of annual quality assurance inspections, which require several hundred inspection hours per year. Notwithstanding, the staff has and continues to identify efficiencies that can be gained with respect to the ITAAC, programmatic, and initial test inspections. The staff will continue to monitor direct inspection resource expenditures closely and adjust as necessary, as construction progresses.

Vogtle Status Communications

As noted earlier, OI LIC-114 (NRR)/REG-106 (NRO), details the following communications with the Commission as the staff approaches the end of construction at Vogtle Units 3 and 4:

- Two Commission Meetings (one for each unit): Approximately 8 months before the anticipated receipt of the all ITAAC complete notification required by 10 CFR 52.99(c)(4), the staff will propose an opportunity for the Commission to hold a meeting on the status of ITAAC completion as well as inspection and licensing activities.

- Two Initial Commission Memoranda (one for each unit): Approximately 3 months before the anticipated receipt of the all ITAAC complete notification, the staff will inform the Commission of the status of (1) ITAAC completion, (2) inspection activities (including construction and operational programs), (3) licensing activities, and (4) any current challenges.
- Two Final Commission Memoranda (one for each unit): Within 14 calendar days of receiving the licensee's all ITAAC complete notification, if the licensee has met all ITAAC acceptance criteria, the staff will inform the Commission of (1) the staff's determination that all ITAAC acceptance criteria within Appendix C to the combined license are met, (2) the completion of the staff's ITAAC notification review and supporting inspection activities, (3) the completion and public availability of the 10 CFR 52.103(g) basis document (which explains the basis for the staff's determination that the inspections, tests, and analyses have been performed and all acceptance criteria met), (4) the status of operational programs, and (5) the staff's intent to make the 10 CFR 52.103(g) finding (ordinarily in 3 calendar days), notify the licensee, and publish the *Federal Register* notice for the 10 CFR 52.103(g) finding.

The staff plans to use the Commission meetings and memoranda to provide updates of the Vogtle cROP status. The staff will also communicate Vogtle cROP status via the annual New Reactor Business Line Commission meeting, the public Web site updates, semi-annual Commission Assistants briefs on ITAAC, and the cROP public meetings for the Vogtle site. Based on the licensee's publicly available target dates, if the licensee demonstrates that it has met all ITAAC acceptance criteria, the staff estimates proposing the first Commission meeting related to a 10 CFR 52.103(g) finding for Vogtle Unit 3 during February 2020.


CONCLUSION:

The self-assessment results for 2018 demonstrate that the cROP provided effective oversight by meeting program goals and achieving intended outcomes. The cROP was objective, risk informed, transparent, and predictable. The cROP also ensured openness and effectiveness in support of the agency's mission and its strategic goals of safety and security. The staff recognizes the value of continuous improvement and will continue to consider stakeholder feedback in its efforts to apply lessons learned and improve various aspects of the cROP. The staff will continue to perform an annual self-assessment of the cROP and will use other planned communications with the Commission to provide updates for the Vogtle site.

Based on the communications outlined in Office Instruction LIC-114 (NRR)/REG-106 (NRO), future annual SECY papers on the cROP self-assessment will focus on cROP development activities and emerging issues related to new reactor construction sites rather than repeating information associated specifically with the Vogtle site.

COORDINATION:

This paper has been coordinated with the Office of the General Counsel, which has no legal objection. The Office of the Chief Financial Officer has reviewed this paper for resource implications and has no objections.

A handwritten signature in cursive script that reads "Margaret M. Doane".

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for Operations

CONSTRUCTION REACTOR OVERSIGHT PROCESS SELF-ASSESSMENT FOR
CALENDAR YEAR 2018 Date: April 21, 2019

ADAMS Accession Number: ML19037A311 *via email WITS: 201100140/OEDO-YY-XXXX

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DATE	02/12/19	03/13/19	02/12/19
OFFICE	RGN-II/DCO	OCFO	QTE
NAME	SWalker*	SCoffin (RAllwein for)*	JDougherty*
DATE	02/20/19	03/15/19	03/19/19
OFFICE	OGC/NLO	NRO:D	EDO
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