

**POLICY ISSUE**  
**Information**

April 8, 2016

SECY-16-0047

FOR: The Commissioners

FROM: Victor M. McCree  
Executive Director for Operations

SUBJECT: REACTOR OVERSIGHT PROCESS SELF-ASSESSMENT FOR  
CALENDAR YEAR 2015

PURPOSE:

The purpose of this paper is to present the results of the U.S. Nuclear Regulatory Commission (NRC) staff's annual self-assessment of the Reactor Oversight Process (ROP) for calendar year (CY) 2015. This paper also addresses three other commitments and deliverables as noted in the relevant portions of the paper. This paper does not address any new commitments or resource implications.

SUMMARY:

After the one-year suspension of self-assessments in CY 2014 to focus on revising the self-assessment process and implementing other ROP improvements, the staff completed the CY 2015 self-assessment using elements of the revised process. Because CY 2015 was a transition year, the planned self-assessment program was not fully implemented. The results of the CY 2015 self-assessment indicate that the ROP met its program goals and achieved its intended outcomes. The staff found that the ROP also met the agency's strategic goals of ensuring safety and security through objective, risk-informed, understandable, and predictable oversight, as described in NUREG-1614, Volume 6, "Strategic Plan: Fiscal Years [FY] 2014-2018," dated August 2014 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14246A439). The staff implemented several ROP improvements in CY 2015 and will continue to solicit input from the NRC's internal and external stakeholders to further improve the ROP.

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**BACKGROUND:**

The ROP is the NRC's primary means of ensuring that commercial nuclear power plants are operated safely, securely, and in accordance with applicable regulations. The ROP is a mature and effective oversight process that has continued to evolve, based on feedback and lessons learned, since its implementation in 2000. A contributor to its ongoing success has been the opportunity for, and inclusion of, continuous feedback and ongoing improvements via the staff's ROP self-assessment program. The program is governed by Inspection Manual Chapter (IMC) 0307, "Reactor Oversight Process Self-Assessment Program."

Before CY 2014, the staff issued an annual ROP self-assessment Commission paper and briefed the Commission on the results following the Agency Action Review Meeting (AARM). In the most recent annual self-assessment paper, SECY-14-0047, "Reactor Oversight Process Self-Assessment for Calendar Year 2013" (ADAMS Accession No. ML14066A365), the staff noted that it had initiated an effort to improve the ROP self-assessment process and explore more objective performance metrics for determining ROP effectiveness. In COMSECY-14-0030, "Proposed Suspension of the Reactor Oversight Process Self-Assessment for Calendar Year 2014" (ADAMS Accession No. ML14168A532), the staff requested Commission approval to suspend the ROP self-assessment for one year to focus on program improvements. In its staff requirements memorandum (SRM) to COMSECY-14-0030 (ADAMS Accession No. ML14262A078), the Commission approved the suspension of the annual ROP self-assessment for CY 2014 and noted that the staff should inform the Commission of the status of ROP enhancements in the CY 2015 ROP self-assessment.

In COMSECY-15-0014, "Proposed Elimination of Annual Reporting Requirements for Specific Evaluations within the Reactor Oversight Process Self-Assessment Process" (ADAMS Accession No. ML15072A202), the staff recommended eliminating three evaluations that previously had been enclosures to the annual ROP self-assessment: the regulatory impact summary, the resident inspector demographic analysis, and the ROP resource expenditure analysis. The staff noted that these evaluations had been shown to offer only limited insights, were redundant to other processes, and did not appear to add as much value as when they were first initiated. In its SRM to COMSECY-15-0014 (ADAMS Accession No. ML15169B131), the Commission approved the staff's request to eliminate these three evaluations from the existing ROP self-assessment process and annual report. As further noted in the COMSECY, the staff incorporated certain objective aspects of these three evaluations into Element 1 of the revised ROP self-assessment performance metrics.

In 2015, the NRC staff completed the redesign of the ROP self-assessment process to better assess the effectiveness of a mature program by focusing on the efficacy of recent changes to the program, performing in-depth reviews of specific areas of interest, and verifying NRC staff adherence to program governance documents. The new self-assessment approach is designed to ensure that the ROP is being implemented reliably and predictably across all four NRC regional offices, as well as at NRC headquarters. The staff informed the Commission of its revised approach to, and implementation plans for, the annual self-assessment of the ROP for CY 2015 and beyond in SECY-15-0156, "Improvements to the Reactor Oversight Process Self-Assessment Program," dated December 11, 2015 (ADAMS Accession No. ML15310A086).

The ROP self-assessment program applies to all seven cornerstones of the ROP and to all processes and procedures that are used to implement the ROP. The four specific program goals of being objective, risk-informed, understandable, and predictable, as well as the cross-cutting strategies of regulatory effectiveness and openness, as stipulated in the NRC's Strategic Plan, are included in the self-assessment. The goals and objectives are also consistent with the NRC's Principles of Good Regulation—to be independent, open, efficient, clear, and reliable.

#### DISCUSSION:

The staff performed the CY 2015 ROP self-assessment in accordance with specific elements of the redesigned process, as governed by the revisions to IMC 0307 and its appendices (ADAMS Accession No. ML15307A023), dated November 23, 2015. The staff conducted numerous activities and obtained data from many sources to ensure that it performed a comprehensive and robust self-assessment for CY 2015. Data sources included the objective ROP performance metrics and insights and lessons learned from internal and external stakeholder feedback. The staff analyzed this information to gauge ROP effectiveness and identify potential areas for improvement.

The revised self-assessment approach consists of three distinct elements: (1) measure the effectiveness of and adherence to the current program, (2) monitor ROP revisions and assess recent program changes for effectiveness, and (3) perform focused assessments of specific program areas as well as peer reviews of regional offices. As noted in SECY-15-0156, the staff performed and documented a limited self-assessment for CY 2015. Specifically, the CY 2015 self-assessment included only the metrics and program evaluations from Element 1 of the revised process and the status of ongoing and recently completed ROP enhancements from Element 2. The more detailed Element 2 and Element 3 assessments require more time to be effectively implemented than was available before this new self-assessment process was completed and, therefore, were not included in the CY 2015 effort. For CY 2016 and beyond, the staff will implement all three elements of the revised self-assessment program. Each of the three elements is discussed in more detail below.

#### **Element 1: Effectiveness of, and Adherence to, the Current ROP**

##### ROP Performance Metrics

As governed by Element 1 of the new self-assessment process, the staff measured the effectiveness of, and adherence to, the current program using objective metrics based on readily available data. The 26 performance metrics are defined in IMC 0307, Appendix A, "Reactor Oversight Process Self-Assessment Metrics," dated November 23, 2015. The metrics are aligned with the Principles of Good Regulation, and employ a graded approach to measure adherence. Several of the metrics were based on data that were already being gathered to support the previous self-assessment process or other processes, while a few others reflected new expectations that will be measured going forward.

The staff found that the ROP met 22 out of the 23 applicable performance metrics based on the criteria defined in Appendix A to IMC 0307. Three of the metrics were deemed not applicable for the CY 2015 self-assessment because the supporting data were either not being collected or were not readily available because they were new metrics that have not had sufficient implementation time. All 22 of the successful metrics were evaluated as Green, indicating that

they met or exceeded the specified criteria that represents expected performance and, therefore, do not warrant further evaluation. No metrics were evaluated as Yellow, which would demonstrate a downward trend that warrants further evaluation and potential staff action to correct before the acceptance criterion has been exceeded.

Metric E-5, "Completion of Final Significance Determinations," was evaluated as Red, because it met the criterion that represents unexpected performance and thus necessitates further evaluation and likely staff action to address the cause(s) for the missed metric. Metric E-5 focuses on the percentage of final significance determinations that are finished within 90 days. In CY 2015, 88 percent of the Greater-than-Green inspection findings were completed within 90 days versus the acceptance criterion of 90 percent, with two determinations exceeding the 90-day goal, one by only a matter of days. The staff is currently undertaking a significance determination process (SDP) streamlining initiative that is expected to improve SDP timeliness, as further discussed later in this paper.

Enclosure 1, "Reactor Oversight Process Program Area Evaluations," contains a brief discussion of the performance metric evaluations for each of the program areas, and the annual ROP performance metric report provides data and a staff analysis for each ROP metric (ADAMS Accession No. ML16053A326).

#### ROP Program Area Evaluations

The staff completed the ROP program area evaluations in accordance with the second aspect of Element 1 of the new self-assessment process. Based on objective metrics and other relevant feedback, the staff evaluated the effectiveness of each of the four major program areas of the ROP: the performance indicator (PI) program, the inspection program, the SDP, and the assessment program. The program area evaluations also summarize changes to the program, current and future focus areas, and recommendations for improvement. These program area evaluations align directly with, and fulfill the intent and scope of, the planned program reviews for the ROP, as stipulated in Appendix C to NRC's Strategic Plan.

As described in Enclosure 1, the staff noted that the PI program continued to offer insights into ensuring plant safety and security in CY 2015. NRC inspectors independently verified that licensees operated plants safely and securely. The SDP continued to be a generally effective tool for determining the safety and security significance of inspection findings, although efforts are underway to further streamline the process and improve the timeliness of significance determinations. The assessment program continued to ensure that the NRC and licensees took appropriate actions to address performance issues commensurate with their significance. The staff made several improvements to the program area guidance documents, based on feedback and lessons learned, and made significant progress on several initiatives and program improvement recommendations, as detailed in Enclosure 1.

**Element 2: Monitor ROP Revisions and Assess Recent Program Changes**Monitor ROP Revisions

As governed by Element 2 of the revised self-assessment process, the staff is reporting on the status of the longer-term program changes resulting from more complex ROP feedback, including recommendations from independent evaluations and lessons-learned reports. These more comprehensive efforts often involve multiple internal and external stakeholders to evaluate, resolve, and implement the changes, as appropriate.

The NRC staff initiated the ROP Enhancement Project in CY 2012 to take a fresh look at several key areas of the ROP, including the baseline inspection program, ROP communications, the assessment process, and the self-assessment program. The staff also initiated a business process improvement project late in 2012 to identify opportunities to improve the SDP. In addition, in CY 2013, the ROP received independent evaluations by the Government Accountability Office, the Office of the Inspector General (OIG), and a Commission-directed internal independent assessment. The staff also performed lessons-learned assessments following the supplemental inspection at the Browns Ferry Nuclear Power Plant, in accordance with Inspection Procedure 95003, "Supplemental Inspection for Repetitive Degraded Cornerstones, Multiple Degraded Cornerstones, Multiple Yellow Inputs, or One Red Input"; the enhanced oversight of the Fort Calhoun Station, in accordance with IMC 0350, "Oversight of Reactor Facilities in a Shutdown Condition Due to Significant Performance and/or Operational Concerns"; and the steam generator degradation event at the San Onofre Nuclear Generating Station. In 2015, the staff briefed the Advisory Committee on Reactor Safeguards (ACRS) on the ongoing enhancements to the ROP in the areas of baseline inspection, licensee assessment, SDP, communications, and the self-assessment program. The ACRS letter to the NRC Chairman noted their general support of the staff's plans.

These efforts collectively produced numerous recommendations and suggestions for further ROP improvements, several of which have been implemented. The status of these activities and resulting program improvements are provided in Enclosure 2, "Status of Reactor Oversight Process Improvements."

In addition to presenting the results of the staff's annual self-assessment of the ROP, this paper also addresses three other commitments and deliverables. In response to the SRM dated August 29, 2014 (ADAMS Accession No. ML14241A578), associated with SECY-14-0016, "Ongoing Staff Activities to Assess Regulatory Considerations for Power Reactor Subsequent License Renewal" (ADAMS Accession No. ML13210A206), the staff has integrated appropriate aging management inspection and guidance into existing baseline inspection procedures. Consistent with the SRM dated September 17, 2007, associated with SECY-07-0136, "Recommendation to Discontinue Two of Three Performance Indicators Associated with the Security Reactor Oversight Process," the staff continued evaluating possible additional PIs for the security cornerstone.<sup>1</sup> The staff also completed its evaluation of the efficacy of the cumulative changes to the ROP during recent years to ensure they have not created an unacceptable relaxation of regulatory oversight as committed to in SECY-15-0108, "Recommendation to Revise the Definition of Degraded Cornerstone as Used in the Reactor

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1 SECY-07-0136 and the associated SRM are withheld from public disclosure because they contain sensitive unclassified non-safeguards information.

Oversight Process,” dated August 28, 2015 (ADAMS Accession No. ML15076A066). Additional discussion of these activities are provided in the applicable program evaluations in Enclosure 1.

### Assess Effectiveness of Recent Programmatic Changes

The second aspect of Element 2 is to assess recently implemented ROP changes to evaluate their effectiveness. This was not completed for the CY 2015 self-assessment, as the recent changes require more time to assess than was available before this new self-assessment process was completed. However, a number of significant efforts to improve the ROP have been recently implemented and will be considered in CY 2016 for effectiveness reviews under this element of the process. For CY 2016 and beyond, the staff will select recent significant program changes and perform effectiveness reviews to ensure that the intended results have been realized and to assess any unintended consequences. The selected topics for the effectiveness reviews will typically be identified early in the calendar year, based on the magnitude of the recent change and whether sufficient time has elapsed and enough data collected to adequately evaluate the effectiveness of the change. For CY 2016, the staff has already completed evaluations of the unintended consequences from adding a quarter to the Repetitive Degraded Cornerstone, and the impacts of the aggregate changes made to the ROP. The assessment of the impacts of the aggregate changes to the ROP will be briefed at the CY 2016 AARM. The staff will continue to evaluate the cumulative changes of recently implemented changes to the ROP and provide related insights in the ROP self-assessments for future years. The staff will document the results of the CY 2016 effectiveness reviews in next year’s self-assessment and will brief senior NRC management during the 2017 AARM and the subsequent Commission meeting.

### **Element 3: Perform Focused Assessments and Peer Reviews of Regional Offices**

#### Perform Focused Assessments of Specific Program Areas

Under Element 3 of the new self-assessment process, the staff selects one or more topics for a focused assessment that delves more deeply into specific aspects of the ROP. The assessments typically involve focused surveys or interviews to gather feedback and perspectives from affected stakeholders. The staff did not perform a focused assessment for the CY 2015 self-assessment, as this new aspect of the process requires more time to be effectively implemented. As discussed throughout this paper, a number of ROP improvements are underway and will be considered in CY 2016 for focused assessments. The staff will recommend to senior NRC leadership the program area(s) to pursue for the CY 2016 focused assessment as part of the 2016 AARM process and will inform the Commission in the AARM summary. The staff will document the results of the focused assessment in next year’s self-assessment and will brief senior NRC management during the 2017 AARM and the subsequent Commission meeting.

#### Perform Peer Reviews of Regional Offices

Another key aspect of Element 3 is to conduct peer reviews to ensure accountability to program governance as well as predictable and reliable program implementation across the regions. The staff did not perform a peer review for the CY 2015 self-assessment, as this new aspect of the process required more time than was available after the process was revised. The staff is currently developing guidance for conducting the regional peer reviews. Beginning in CY 2016,

the staff will perform a peer review of a selected region each year on a rotating basis. Every fifth year, in lieu of a peer review, the staff will conduct a comprehensive independent assessment, similar to the 2013 ROP Independent Assessment or those performed by OIG, the Government Accountability Office, or other entities. In 2016, the staff plans to develop and document the process and perform the first peer review of Region III with a team of representatives from each other region and Headquarters. The staff will document the results of the CY 2016 peer review in next year's self-assessment and will brief senior NRC management during the 2017 AARM and the subsequent Commission meeting.

## **Other Related Activities**

### ROP Communications

Based on feedback from internal and external stakeholders, the staff continued to improve the communication tools and openness of the ROP. This was one of the ROP enhancement project's specific areas of focus. The staff used a variety of communication methods to ensure that stakeholders had access to ROP information and ample opportunity to provide feedback. The staff continued to conduct monthly public meetings with internal and external stakeholders, use the internal feedback process, and hold periodic meetings and telephone conferences with internal stakeholders to discuss potential improvements to the ROP. Specific to internal stakeholder feedback, the staff responded to an OIG recommendation by creating a "Contact Us" form, which can be used by resident inspectors to ask questions and request information on topics such as administrative issues, operating experience, resident support, regional differences, and information technology. The staff also maintained and updated the ROP Web pages to ensure that they communicate accurate and timely information to all stakeholders.

The staff has developed a plain-language brochure and pamphlet, NUREG/BR-0508, "Reactor Oversight Process," and NUREG-1649, "Reactor Oversight Process." The staff highlighted the availability of these documents at the ROP poster session during the NRC's Regulatory Information Conference, held in March 2015, and at numerous public meetings. In addition, the staff is developing communications tools in CY 2016 to facilitate NRC knowledge management and to improve public awareness and understanding of the ROP. For example, as a result of a recommendation from the ROP Independent Assessment, the staff coordinated the complete redesign of the external ROP Web pages to incorporate more extensive use of plain language, consistent messaging, and overall transparency. To provide an additional venue to receive public feedback, the staff created a publically-available "Contact Us" form specific to the ROP to allow anyone to ask a question about the ROP and receive a timely response. The staff is considering additional enhancements to improve the effectiveness of NRC messages through more extensive use of plain language and a focus on the desired effect of the communication on stakeholder perceptions, including the use of wording that conveys the significance of issues to the broadest possible audience.

### Industry Trends Program

The NRC also collects and analyzes industry-wide data to monitor the overall safety performance of operating plants and to serve as an indicator of ROP effectiveness. The Industry Trends Program (ITP) was revised on January 26, 2016, to replace the industry trend indicators with ROP PIs. The staff is reporting the FY 2015 results of the ITP to the

Commission in an annual paper that complements this paper. The results of the ITP, along with the results of this annual self-assessment, will be reviewed at the 2016 AARM.

The staff has proposed elimination of the ITP as outlined in SECY-16-0009, "Recommendations Resulting from the Integrated Prioritization and Re-Baselining of Agency Activities," dated February 9, 2016. The staff observed that while the ITP provides data that helps to validate broad industry performance trends, no regulatory action has ever resulted from ITP insights. In considering the cost of the program, staff believes that any negative trends in performance that the ITP would highlight would be self-revealing or be identified through other means. This recommendation is under review by the Commission.

### Construction ROP and Transition to New Reactor Oversight

Similar to the ROP for operating reactors, the staff implements the Construction Reactor Oversight Process (cROP) for the oversight of new reactors that are under construction. The staff conducts an annual self-assessment of the cROP that is forwarded to the Commission in a separate paper. The staff noted in its memorandum, "Delegation of Authority to the Director of the Office of New Reactors" (ADAMS Accession No. ML103140191), dated March 22, 2011, that the Office of New Reactors (NRO) will have lead authority for activities related to new nuclear reactor facilities during the licensing and construction of those facilities. The memorandum further states that the NRC must address the staff's organizational roles and responsibilities for licensing and oversight of new nuclear reactors as they begin operation. The NRC established a transition working group in 2013 to develop an integrated plan that identifies all regulatory functions necessary to support the transition of new reactors from construction to operation (see the charter at ADAMS Accession No. ML13127A319). On September 9, 2014, the results of the working group were summarized in the report, "Assessment of the Staff's Readiness to Transition Regulatory Oversight and Licensing as New Reactors Proceed from Construction to Operation" (ADAMS Accession No. ML14031A387).

The report included 21 readiness issues with associated options and recommendations. The NRC staff tracks the status of these readiness issues and briefs senior NRC management on a regular basis. Although most of the readiness issues do not need to be in place until CY 2019 to support new reactor operations, the staff has made significant progress in addressing a number of them. For instance, on January 13, 2015, the staff concluded that regulatory oversight for each respective unit will be transferred from NRO to the Office of Nuclear Reactor Regulation (NRR) at the finding described in Title 10 of the *Code of Federal Regulations* (10 CFR) 52.103(g), while licensing will be transferred from NRO to NRR when the last of the four units under construction receives its 10 CFR 52.103(g) finding, or shortly thereafter. The staff is developing the implementation plan to transfer AP1000 licensing and oversight responsibility from NRO to NRR. There are also specific readiness issues associated with each of the four primary ROP program areas: PIs, inspection, SDP, and assessment.

### ROP for New Reactors

The staff provided the Commission with SECY-13-0137, "Recommendations for Risk-informing the Reactor Oversight Process for New Reactors," dated December 17, 2013 (ADAMS Accession No. ML13263A351). In its SRM dated June 30, 2014 (ADAMS Accession No. ML14181B398), the Commission directed the staff to enhance the SDP by developing a structured qualitative assessment for events or conditions that are not evaluated in the

supporting plant risk models. The Commission further directed that the SDP should continue to emphasize the use of existing quantitative measures of the change in plant risk for both operating and new reactors and should address circumstances that are unique to new reactors. The Commission also directed the staff to develop appropriate PIs and thresholds for new reactor applications; specifically, those PIs in the Initiating Events and Mitigating Systems cornerstones, or develop additional inspection guidance to address identified shortfalls to ensure that all cornerstone objectives are adequately met. The Commission noted that the staff should develop the programmatic changes to the PIs and SDP, with appropriate stakeholder input, and submit them to the Commission for approval before power operation for the first new reactor units. The NRC has held initial internal and external meetings and is monitoring these actions as part of the transition to the new reactor oversight activities discussed above.

#### CONCLUSIONS:

As noted in SECY-15-0156, the staff performed and documented a limited self-assessment for CY 2015. Specifically, the CY 2015 self-assessment included only the metrics and program evaluations from Element 1 of the revised process and the status of ongoing and recently completed ROP enhancements from Element 2. The more detailed Element 2 and Element 3 assessments will be implemented in CY 2016 and beyond. The self-assessment results for CY 2015 indicate that the ROP provided effective oversight of operating reactors by meeting the program goals and achieving its intended outcomes. The ROP ensured openness and effectiveness in supporting the agency's mission and its strategic goals of safety and security. The program was successful in being objective, risk-informed, understandable, and predictable. Several program improvements are being evaluated and implemented, based on lessons learned and feedback from stakeholders and independent assessments, consistent with the continuous improvement features of the ROP. The staff's limited self-assessment, using the new process, verified that the staff had implemented the ROP reliably and predictably through objective performance metrics and program area evaluations in CY 2015. Future self-assessments will include additional aspects of the revised self-assessment process and will focus on the efficacy of recent changes to the program, perform in-depth reviews of specific areas of interest, and continue to verify agency adherence to program governance.

COORDINATION:

The Office of the General Counsel has reviewed this Commission paper and has no legal objection. The Office of the Chief Financial Officer has reviewed this Commission paper and determined that there are no resource implications.

***/RA Dan Dorman Acting for/***

Victor M. McCree  
Executive Director  
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Enclosures:

1. Reactor Oversight Process Program  
Area Evaluations
2. Status of Reactor Oversight Process  
Improvements

COORDINATION:

The Office of the General Counsel has reviewed this Commission paper and has no legal objection. The Office of the Chief Financial Officer has reviewed this Commission paper and determined that there are no resource implications.

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Victor M. McCree  
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Enclosures:

1. Reactor Oversight Process Program Area Evaluations
2. Status of Reactor Oversight Process Improvements

200700335, 201100134, SRM-S14-0016-3, SRM-S15-0108-2

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\*Concurrence via email

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