



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
WASHINGTON, D.C. 20555-0001

**PLEASE RESPOND BY:**  
**February 9, 2017**

January 24, 2017

COMSECY-17-0004

MEMORANDUM TO: Chairman Burns  
Commissioner Svinicki  
Commissioner Baran

FROM: Victor M. McCree */RA/*  
Executive Director for Operations

SUBJECT: PROPOSED CLOSURE OF PROJECT AIM INTEGRATED  
IMPLEMENTATION PLAN TASK NO. 19 - LICENSING BUSINESS  
PROCESS IMPROVEMENT

This memorandum documents operating reactor licensing process improvement activities and requests Commission approval to close Task No. 19 in the Project Aim Integrated Implementation Plan dated August 21, 2015.<sup>1</sup> Task No. 19 implemented Recommendation III-2 in SECY-15-0015,<sup>2</sup> "Project Aim 2020 Report and Recommendations," dated January 30, 2015, which was to "[i]mprove licensing by conducting a business process improvement [BPI] review of the operating reactor licensing process and make associated improvements to enhance the predictability, timeliness, and efficiency of the reviews, while ensuring and measuring the effectiveness and quality of the reviews." This recommendation was approved by the Commission in a staff requirements memorandum (SRM) dated June 8, 2015.<sup>3</sup> The Commission also approved the staff proposal to delegate decision-making about this activity (its timing, its scope, and the application of its results) to the Director of the Office of Nuclear Reactor Regulation (NRR) and indicated that the review should incorporate available lessons learned about how the backlog of licensing actions that existed at the time originated and how it was resolved.

In proposing to close this task, the staff concludes that desired outcomes of the BPI review—improving predictability, timeliness, and efficiency of licensing reviews—have been achieved without the need to expend the additional time and cost of a formal BPI. In reaching this conclusion, the staff considered its successful implementation of process improvements that restored licensing review performance within standards established in the Congressional Budget Justification (CBJ), as well as recently implemented, ongoing, and planned improvements to licensing processes, including enhanced performance monitoring and management oversight of these processes.

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<sup>1</sup> Agencywide Documents Access and Management System (ADAMS) Accession No. ML15216A603.

<sup>2</sup> ADAMS Accession No. ML15023A558.

<sup>3</sup> ADAMS Accession No. ML15159A234.

SECY-15-0015, Enclosure 1 (the Project AIM report) describes a significant number of licensing actions that remained under NRC staff review for greater than 1 year. The agency completed only 87 percent of its licensing action reviews within 1 year for fiscal year (FY) 2014, which did not meet CBJ metric that at least 95 percent of licensing actions be completed within 1 year. This metric and the other metrics discussed in this document are described in further detail in Enclosure 1.

The reduction in licensing action performance was in large part caused by the redirection of staff resources to support Fukushima-related licensing actions in FY 2013. While the staff had anticipated that the submittal of a smaller number of routine licensing actions would support this redirection of staff resources, the total licensing actions submitted per year actually increased by nearly 50 percent from 2011 to 2013. When the inventory of licensing actions older than 1 year peaked at 112 licensing actions in November 2014, the agency recognized the need to exert additional efforts to complete these licensing actions and achieve consistency in program implementation. These efforts included reassignment of staff, greater use of contractor support, and reinforcement of management expectations. To communicate these efforts, in January 2015 NRR management issued an "Expectations Memo"<sup>4</sup> to its staff. The memo reinforced the guidance in existing office instructions and placed specific emphasis on several key items, including:

- ensuring that workload management system dates reflect realistic schedules to support workload forecasting;
- developing draft safety evaluations "with holes" correlating to requests for additional information (RAIs) prior to issuing the RAIs;
- ensuring greater division management focus on RAIs, particularly second-round RAIs; and
- initiating early division management engagement on differing views or potential denials.

In addition, NRR created several office initiatives specifically targeting areas where staff could make improvements to enhance the licensing process. NRR formed working groups to review initiatives in regulatory decision-making, acceptance review procedures, license amendment review procedures, and technical and regulatory adequacy of licensing reviews. Enclosure 3 provides a brief description and status of each of these initiatives as well as subsequently identified related initiatives.

NRR also placed significant focus on management oversight of ongoing licensing casework as well as performance restoration activities. In November 2014 NRR began holding leadership team workload management meetings twice a month and executive team workload management meetings once a month. The meetings focused on the progress of performance restoration activities, identification and resolution of licensing obstacles, and lessons learned from recent complex or challenging reviews. In FY 2015 NRR also implemented an internal goal of improving performance on the CBJ metric by at least 2 percent per year (e.g., increasing from 87 percent to 89 percent) until the metric was met.

By the end of FY 2015, NRR had reduced the inventory of licensing actions older than 1 year significantly, to 32 licensing actions. Although this reduction resulted in only a small

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<sup>4</sup> ADAMS Accession No. ML15309A433.

improvement in NRR's performance in the CBJ metric (from 87 to 88 percent for FY 2015), this reduction demonstrated the value of activities that led to significantly improved performance in FY 2016.

In FY 2016, NRR continued steps to improve existing processes to enhance the predictability, timeliness, and efficiency of licensing reviews. NRR performed a lessons-learned study on the difficult and unusually complex LaSalle license amendment involving the ultimate heat sink that far exceeded expected levels of effort and timeliness. During the same time period, the working groups for the aforementioned NRR initiatives completed and finalized their reports. The office used specific insights from these reports and the LaSalle lessons-learned study to issue a revised Expectations Memo<sup>5</sup> in April 2016. The revised Expectations Memo further reinforced adherence to office procedures and provided additional guidance to improve efficiency of the licensing process regarding:

- enhancing communications to ensure timely identification of issues that could warrant non-acceptance;
- leveraging the license amendment denial process to hold licensees accountable in providing timely and complete responses to RAIs;
- processing grouped or particularly complex submittals; and
- evaluating the appropriateness of RAIs, including consideration of other tools (audits or public meetings) in lieu of second-round RAIs when those tools could support more efficient and timely resolution of outstanding technical issues.

Additionally, NRR sent a letter<sup>6</sup> to all operating power reactor licensees on August 22, 2016, to ensure they were aware of the revised expectations. By the end of FY 2016, NRR had reduced the number of licensing actions older than 1 year to 10 licensing actions. In doing so, the agency far exceeded its goal of a 2-percent improvement over the last year for the CBJ licensing action timeliness metric (improving 7 percent over what was achieved in FY 2015) and returned to standard on the CBJ metric ahead of the expected schedule. If the office can maintain this level of performance, the agency will meet the CBJ metric in FY 2017. Enclosure 2 provides additional information on the improvement in licensing action timeliness.

Additionally, analysis by the staff indicates that the agency has gained efficiencies from the completed and ongoing process improvements. For example, from FY 2015 to FY 2016, NRR has reduced the average time it takes to complete a routine licensing action (actions requiring 300 hours or less) by approximately 2 months. Routine licensing actions account for approximately 85 percent of the total licensing action inventory. Further, while the restoration of licensing performance can be partially attributed to the temporary reallocation of staff, NRR has continued to show performance increases following an overall reduction in staff and return of staff to other important work activities.

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<sup>5</sup> ADAMS Accession No. ML16202A029.

<sup>6</sup> ADAMS Accession No. ML16225A003.

To support sustained high licensing performance, NRR established additional internal metrics for FY 2017:

- **Completion Effort:** Percentage of actions completed within 125 percent of hours forecasted  $\geq 90$  percent
- **Completion Schedule:** Percentage of actions completed within the schedule forecasted/requested + 1 month  $\geq 90$  percent
- **Acceptance Reviews:** Percentage of acceptance reviews completed on time  $\geq 95$  percent

These metrics, as well as actions taken for their implementation, are described in detail in Enclosure 1.

In addition, in October 2016 NRR deployed a newly developed workload management tool called Reactor Program System Licensing/Workload Management (RPS Licensing/WM). This enhanced platform offers more flexibility to the users, creates additional avenues for communication between the project management and technical staffs, and enhances the processing and managing of licensing activities. NRR developed RPS Licensing/WM to specifically incorporate tools for implementing some of the new guidance from the revised Expectations Memo and recent lessons learned from previous complex licensing actions. With this increased functionality, the system will be able to provide data to support additional indicators beyond those established for FY 2017, thus providing the NRR management team with a more informed picture of overall licensing performance.

In parallel with the previously described actions, NRR also considered methods to better predict workload and any consequential resource challenges. NRR issued Regulatory Issue Summary (RIS) 2015-16,<sup>7</sup> "Planned Licensing Action Submittals for All Power Reactor Licensees," dated November 25, 2015. The NRC issued RIS 2015-16, Revision 1 on January 15, 2016,<sup>8</sup> providing additional guidance and information for licensee's responses. Collectively, RIS 2015-16 requested all power reactor licensees to submit information on planned licensing actions for the following two calendar years as well as information on any planned power uprates. NRR has compiled the industry's responses into a managed data repository. To preserve data repository accuracy, the project managers systematically update the repository through information received from their routine communications with licensees. This managed data repository is then used to forecast licensing workload, identify future resource needs, and seek ways to mitigate any impacts to licensing schedules, including revised work prioritization and resource reallocation. While this data is useful for workload planning, the industry has stated that they can only forecast with reliability 1 year in advance (2 years for major licensing actions). Thus, the data has limitations for detailed, long-term budgeting and planning.

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<sup>7</sup> ADAMS Accession No. ML15266A509.

<sup>8</sup> ADAMS Accession No. ML16013A156.

NRR continues to proactively seek additional improvement opportunities to enhance current performance, ensure quality, and monitor the effectiveness of implemented changes. For FY 2017, these activities include:

- creating additional office-level, sub-element monitoring measures (such as number of licensing actions with second-round RAIs) to further identify where attention should be focused to address impediments to the licensing review process;
- continuing efforts on the regulatory decision-making initiative and technical and regulatory adequacy initiative (see Enclosure 3); and
- conducting periodic audits of RAIs issued since issuance of the 2016 Expectations Memo to validate whether staff is meeting expectations (see Enclosure 3).

In summary, NRR has performed thorough evaluations of its licensing process and has implemented substantial process improvements including enhanced performance monitoring and management oversight of these processes. In performing these assessments, the staff utilized BPI-like approaches, such as forming working groups targeting areas where staff could make improvements, and identified the types of improvements that likely would have resulted from a formal BPI review, such as revising pertinent guidance documents, enhancing tracking systems, and enhancing performance monitoring. These improvements have proven to be effective in restoring licensing performance and enhancing the predictability, timeliness, and efficiency of the licensing reviews. Additionally, with the enhanced capabilities of RPS Licensing/WM, additional performance monitoring and trending analysis, and the standing workload management meetings with the NRR leadership and executive teams, NRR is well-poised to reassess, on an ongoing basis, the need for a more extensive look into the licensing process based on actual performance. Furthermore, these process improvements and enhancements will allow NRR to manage its inventory of licensing actions and predict licensing process performance, even if resources were redirected away from licensing casework as occurred following the Fukushima event. The staff will continue self-assessments and process improvements through NRR's ongoing workload management process.

As such, the staff concludes that that the desired outcomes of improving predictability, timeliness, and efficiency of licensing reviews as described in Task No. 19 in the Project Aim Integrated Implementation Plan, have been achieved and requests Commission approval to close this task.

SECY, please track.

Enclosures:

1. Licensing Performance Metrics
2. Licensing Timeliness Charts
3. Summary of NRR Initiatives

cc: SECY  
OGC  
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CFO

SUBJECT: PROPOSED CLOSURE OF PROJECT AIM INTEGRATED IMPLEMENTATION  
PLAN TASK NO. 19 - LICENSING BUSINESS PROCESS IMPROVEMENT  
DATED: JANUARY 24, 2017

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## Licensing Performance Metrics

### Existing Timeliness Metric from the Congressional Budget Justification (CBJ):

- ***Percentage of Licensing Actions Completed in 1 Year or Less  $\geq$  95 percent***

In fiscal year (FY) 2014, performance on this metric fell to 87 percent, which focused attention in the Office of Nuclear Reactor Regulation (NRR) on licensing process performance. For FY 2015, NRR implemented an internal goal of improving performance on the CBJ metric by at least 2 percent per year until the metric was met. NRR was able to restore performance on this metric by the end of FY 2016 and anticipates meeting the metric for FY 2017. Additionally, the metric for FY 2017 starts when an application is determined to be acceptable.

### Additional Internal Metrics Implemented for FY 2017:

- ***Completion Effort: Percentage of actions completed within 125 percent of hours forecasted  $\geq$  90 percent***

The purpose of this metric is to ensure that licensing actions are completed in accordance with resource estimates that are developed at the beginning of the staff's review of the licensing action. To improve the validity of this metric, NRR provided additional guidance to the staff on estimating the hours it takes to complete a licensing action. These project estimates are used in two ways. First, the staff communicates with the licensee to increase transparency in the level of staff resources needed to complete a given review. Second, the staff actively monitors the actual hours expended as compared to the projected hours. NRR uses this information to measure the progress of the review and identify difficulties in the licensing review. Internal processes enable estimates to be updated, where appropriate, if significant safety issues necessitate additional staff effort.

- ***Completion Schedule: Percentage of actions completed within the schedule forecasted/requested + 1 month  $\geq$  90 percent***

The CBJ metric reflects an overall timeliness goal for completion of licensing actions, but does not account for the many licensing actions that are requested on an expedited schedule by applicants. These licensing actions are typically of higher priority to the applicant because they typically are indicative of situations that may impede a plant startup or necessitate a plant shutdown if not resolved. The staff developed this metric to better assess its performance on these higher priority licensing actions and demonstrate predictability to licensees requesting expedited schedules.

- ***Acceptance Reviews: Percentage of acceptance reviews completed on time  $\geq$  95 percent***

Acceptance reviews are performed to ensure that an application is of acceptable quality before the staff begins its detailed technical review. The staff determined that the review duration considered for the CBJ metric should start at the time an application is determined to be acceptable for detailed review, and this is reflected in the 2017 CBJ metric. In 2016 the staff identified that acceptance reviews were taking longer than

expected. If this continued, given the revised 2017 CBJ metric, it could be perceived as the staff was allowing itself more time to review licensing actions. To address this possible perception, NRR identified the need to more closely monitor performance in this area and developed this performance metric. As of October 2016, the staff has substantially improved performance in this area with all current acceptance reviews on track to be completed within the timeliness goals contained within the applicable procedure (NRR Office Instruction LIC-109, "Acceptance Review Procedures").<sup>1</sup>

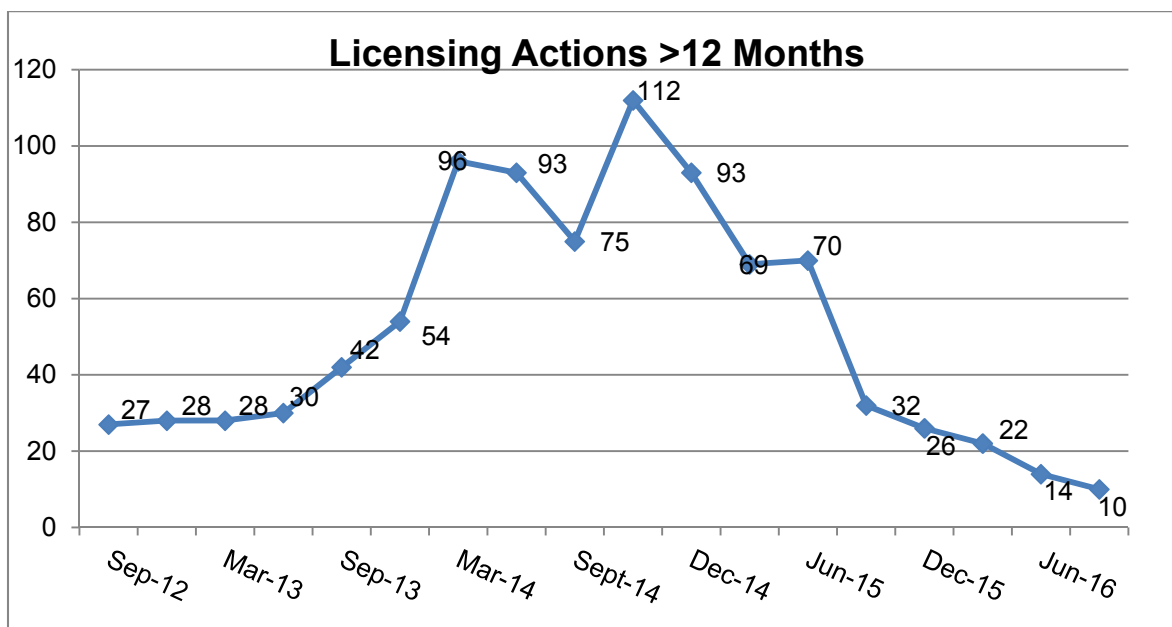
Additionally, NRR created additional office-level, sub-element monitoring measures (such as number of licensing actions with second-round requests for additional information), to further identify where attention should be focused to address impediments to an efficient and effective licensing review process.

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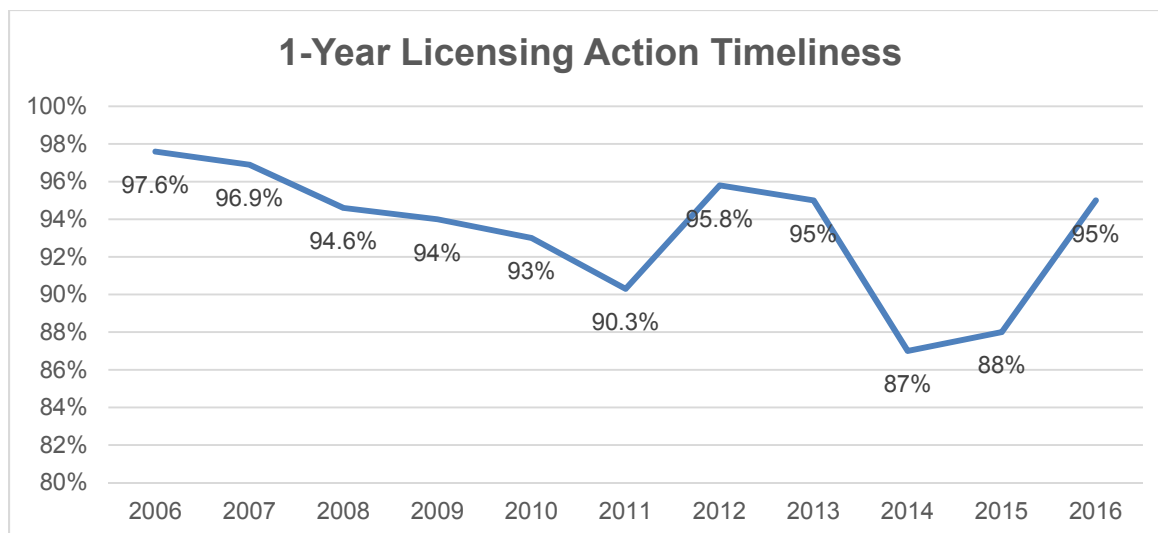
<sup>1</sup> Agencywide Documents Access and Management System Accession No. ML091810088.



### Licensing Action Timeliness Charts



This chart above shows the evolution of the licensing action inventory over time. The accident at Fukushima Dai-Ichi occurred in March 2011. Number of licensing actions older than 1 year began to increase in September 2012 as staff resources were diverted to Fukushima-related activities and peaked in November 2014. At that point, the Office of Nuclear Reactor Regulation initiated many office strategies that reduced the number of licensing actions older than 1 year to below pre-Fukushima levels.



This chart shows the 10-year history for licensing action timeliness.

## **Summary of the Office of Nuclear Reactor Regulation Initiatives**

As a result of the large number of licensing actions older than 1 year as of fiscal year (FY) 2014, the Office of Nuclear Reactor Regulation (NRR) created office initiatives targeting areas where the agency could make improvements to enhance the licensing process. Specifically, NRR formed working groups targeting acceptance review procedures, license amendment review procedures, regulatory decision-making, technical and regulatory adequacy of licensing reviews, and quality reviews on requests for additional information (RAIs). A summary and status of each initiative are provided below.

### **I. Conduct Effective Acceptance Reviews**

Background: NRR performs acceptance reviews of incoming licensing actions in accordance with Office Instruction LIC-109, "Acceptance Review Procedures." The purpose of this instruction is to determine whether the applicant has provided the necessary information (including sufficient scope and depth) to allow the U.S. Nuclear Regulatory Commission (NRC) staff to perform an efficient safety review. When the application lacks critical information necessary for the staff to complete its review, the staff spends an excessive amount of time requesting the information and waiting for the applicant to respond. By identifying the insufficient information early in the process, the NRC and the licensee both benefit by not expending resources on an insufficient application, and the licensee benefits as the NRC has provided an early decision that enables resubmission following necessary correction.

Objective of Initiative: Evaluate if LIC-109 is performing its intended function of adding efficiencies to the review process, and modify or eliminate accordingly.

Result: The working group determined that LIC-109 has value when consistently applied. The instruction was written to provide guidelines to the staff for evaluating the completeness or the minimum, sufficient information in the application. When the staff applies the acceptance review process correctly (i.e., only accepting complete applications), the number of RAIs should be reduced. In turn, the resources necessary for the actual review and the timeframe for that review are reduced.

Status of Initiative: NRR is revising LIC-109 to ensure that both NRC staff and applicants understand what constitutes the minimum and sufficient information for a complete application. The revision also enhances the instruction to ensure a common understanding of the criteria supporting denial or rejection of an application. NRR estimates it will issue revised LIC-109 in January 2017. Furthermore, NRR is developing staff training to conduct in conjunction with LIC-101 training, discussed in Section II below, at a future date.

### **II. Reinforce Our Licensing Procedures**

Background: NRR performs licensing reviews in accordance with NRR Office Instruction LIC-101, "License Amendment Review Procedures." In FY 2013 through FY 2015 NRR

was challenged with a deferral of licensing work resulting from the reprioritization and shifting of resources to address lessons learned from the accident at Fukushima Dai-ichi. On June 17, 2014, the NRC staff briefed the Commission on strategic considerations associated with the Operating Reactors Business Line, including the status and challenges facing the licensing program. On June 30, 2014,<sup>1</sup> the Commission issued a staff requirements memorandum that led the staff to develop new mechanisms to restore licensing performance, specifically with respect to timeliness and the number of licensing actions.

Objective of Initiative: Review and evaluate the existing LIC-101 process with the goal of reinforcing current expectations and best practices. In conducting this initiative, the working group was to identify and evaluate opportunities and processes to implement efficiencies and effectiveness in conducting licensing reviews.

Result: The working group conducted interviews with NRR staff members and analyzed performance data. The working group provided a list of recommendations to the NRR management team. Examples of recommendations included drafting safety evaluations prior to issuing RAIs to focus the scope of RAIs, improvements to the workload management system to remind staff of upcoming milestones, better communication if schedules cannot be met, and additional tools for staff to ensure proper technical branches are involved in the review. NRR management used these recommendations to inform the revised Expectations Memo dated April 18, 2016.

Status of Initiative: NRR is revising LIC-101 to incorporate procedural changes introduced in the revised Expectations Memo, as well as recommendations from the LIC-101 working group. NRR estimates it will issue revised LIC-101 by the end of January 2017. Furthermore, the office is developing staff training to conduct in conjunction with LIC-109 training at a future date.

### **III. Improve Regulatory Decision-Making**

Background: NRR did not have a formal process to efficiently resolve or elevate technical or regulatory issues to management when there may be staff disagreement on the correct path forward. As a result, there has been instances when the office did not resolve issues in a timely fashion and this adversely impacted the efficiency of processing some licensing actions.

Objective of Initiative: Improve the process of making regulatory decisions when branches or staff within a branch reaches an impasse. Also, provide a better process for determining when staff should elevate issues to higher levels of management to ensure timeliness of management support.

Result: NRR developed the Timely Elevation and Resolution Process (TERP) and documented it in NRR Office Instruction LIC-507 in FY 2016. TERP can improve resource efficiency by enhancing regulatory decision-making while maintaining staff involvement. The office instruction defines the process by which NRR staff and

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<sup>1</sup> Agencywide Documents Access and Management System Accession No. ML14181B402.

supervisors will elevate impasses to the attention of higher levels of management for resolution.

Status of Initiative: Draft LIC-507 was available for staff use through December 2016. NRR staff has used TERP once during the trial period. The process was successful as staff resolved the impasse in a timely manner. In 2017 the staff will review and adjust the office instruction with lessons learned from the trial period and issue the formal office instruction by spring of 2017.

#### **IV. Evaluate the Technical and Regulatory Adequacy of Licensing Reviews**

Background: This initiative is part of NRR's overall effort to implement improvements that will enhance predictability, timeliness, effectiveness, and efficiency of reviews. In certain instances, there is not a clear set of essential information of specific acceptance criteria identified for making regulatory decisions. As a result, similar reviews completed by different technical reviewers are inconsistent in the information requested of the licensee and in the final regulatory conclusions.

Objective of Initiative: Clearly articulate what constitutes "reasonable assurance" as it pertains to licensing reviews. This is consistent with management expectations that the NRC staff focus technical reviews on matters in a risk-informed manner, such that those aspects most pertinent in making a safety determination are considered and not those aspects that have little-or-no contribution to the safety significance of the issue.

Result: The working group considered the goals for the initiative and feedback from facilitated focus groups and others. The working group recommended the selective development and use of structured multilevel guidance developed using maturity model/framework concepts for large, routine reviews. The working group has labeled this multilevel guidance "enhanced review guidance." For a particular type of review, the enhanced review guidance is intended to be a comprehensive review aid that compiles all criteria and references needed to complete a review, including an explicit list of all information that is necessary and sufficient to make a regulatory finding. In part because of the amount of effort needed to develop enhanced review guidance, the working group has limited its recommendation to large routine reviews, review areas where NRR may lose expertise, or review areas that have a history of inconsistent regulatory decision-making. These are considered to be the types of activities where leveraging this enhanced review guidance will garner the most efficiency and also serve as a knowledge management tool.

Status of Initiative: NRR is in process of completing several pilots of the enhanced review guidance, with the goal of completing four by the end of FY 2017 before expanding the initiative more broadly.

## **V. Review Quality of Requests for Additional Information**

Background: The NRC staff has placed increased emphasis on RAIs. The January 15, 2015, and April 18, 2016, Expectations Memos direct that draft safety evaluations be written “with holes” correlating to RAIs before issuing RAIs, and that management increase attention when multiple rounds of RAIs are proposed. NRR established this initiative in the beginning of FY 2017 to validate the effectiveness of the recent changes in the RAI process.

Objective of Initiative: A periodic review of RAIs issued since the April 18, 2016, Expectations Memo to validate whether the staff is meeting expectations in process adherence, quality, and timeliness. The results will be evaluated for improvement opportunities within the RAI process and used to better inform office-level, sub-element monitoring measures.

Status of Initiative: The NRR staff is in the process of conducting this review. Preliminary results from the first review effort will be provided to the NRR executive team in February 2017.