

Assessment Program Evaluation

Scope and Objectives - The staff of the U.S. Nuclear Regulatory Commission (NRC) performed an evaluation of the assessment program in accordance with Inspection Manual Chapter (IMC) 0307, "Reactor Oversight Process Self-Assessment Program." The staff used self-assessment metrics and other pertinent information to provide insights regarding the effectiveness of the Reactor Oversight Process (ROP) in fulfilling the regulatory principles of being predictable, understandable, objective, and risk-informed, and in supporting the NRC's 2004 performance goals of maintaining safety, enhancing public confidence, making regulatory activities more effective, efficient, and realistic, and reducing unnecessary regulatory burden. The staff also obtained input from internal stakeholders through an internal survey, counterpart meetings, focus groups, and the internal feedback process. In addition, the staff obtained external feedback through a *Federal Register* notice (FRN) solicitation for comments and through periodic meetings with the industry and other stakeholders.

Based on the metric results, stakeholder feedback, and other lessons learned through ongoing program monitoring, the staff identified certain issues and actions to further improve the assessment program. A complete listing of implementation issues and their status is included in Attachment 5. In addition, the annual ROP performance metric report provides the data and staff analysis for each of the program area metrics (reference ADAMS Accession No. ML050670162).

Summary of Previous Self-Assessment - In SECY-04-0053, "Reactor Oversight Process Self-Assessment for Calendar Year 2003," the staff described the status of the ROP assessment program and identified issues for staff action over calendar year 2004. Among the more significant issues identified in the SECY paper and the subsequent staff requirements memorandum (SRM) were the need to better define the thresholds for substantive cross-cutting issues, to evaluate the causes for ROP Action Matrix deviations and identify appropriate changes to the ROP, and to improve the standardization and transparency of agency actions associated with plants exiting increased oversight columns of the Action Matrix. The latest revision of IMC 0305, "Operating Reactor Assessment Program," dated December 21, 2004, addresses these issues, as well as incorporating lessons learned from the previous mid-cycle and end-of-cycle review meetings as discussed below.

Program Changes To Address Commission Comments - As a result of last year's Commission briefing on the results of the Agency Action Review Meeting (AARM), the Commission identified five issues as noted in the SRM dated May 27, 2004 (M040504B). Four of these issues were in the assessment program area. Specifically, the Commission noted that (1) the staff should continue efforts to better define thresholds for identifying and responding to substantive cross-cutting issues, (2) the staff should evaluate the causes for any Action Matrix deviations and identify changes to the ROP that may obviate the need for deviations in the future, and substantive changes should be provided to the Commission for approval prior to incorporation into the ROP, (3) the staff should inform the Commission when deviations from the Action Matrix are granted and highlight plants for which such deviations are granted at the annual AARM Commission meeting, and (4) the staff should improve the standardization and transparency of the process for plants to exit from increased oversight columns in the Action Matrix, and standardize the process for requesting and documenting deviations from the Action

Matrix. All of these issues were addressed in CY 2004 and have been closed based on the following activities and revisions to the process.

SECY-04-0053 noted that the staff had revised the guidance regarding substantive cross-cutting issues in each revision of IMC 0305 in order to incorporate lessons learned from implementation during the previous mid-cycle or end-of-cycle review meeting, and that the staff plans to continue monitoring regional implementation of this guidance and making adjustments, as necessary. The staff has further evaluated cross-cutting issues and discussed the effectiveness of recent changes with regional division directors in June 2004 and again in August 2004. Based upon these discussions, the staff revised IMC 0305 to provide more detailed criteria for determining if a substantive cross-cutting issue exists and more specific guidance on how this determination is documented and followed up by the regional offices.

Following the recent end-of-cycle review meetings in February 2005, the staff concluded that the guidance was more consistently implemented across the regions. Lessons learned were noted during these end-of-cycle review meetings and there was significant industry interest in this area during the most recent Regulatory Information Conference. As a result, the staff plans to further revise IMC 0305 and IMC 0612 in order to support the mid-cycle review meetings scheduled for August 2005. Anticipated improvements include providing examples or screening criteria to define a minimum threshold for assigning a cross-cutting element to a finding, better definitions of the human performance bins, and revisiting the exit criteria for substantive cross-cutting issues.

The staff further revised IMC 0305 to require that all deviations be evaluated to identify potential program improvements, and that substantive program changes be provided to the Commission for approval prior to incorporation into the ROP. In addition, IMC 0305 now specifies that the Commission shall be informed of all deviations after approval from the Executive Director for Operations and annually at the Commission meeting on the results of the AARM.

The staff reviewed the causes of the five Action Matrix deviations since the beginning of the ROP to identify potential program improvements. As a result, the staff identified a need to clarify followup activities for plants that are exiting the multiple/repetitive degraded cornerstone column of the Action Matrix, and revised the guidance to provide for greater transparency and standardization of staff actions as plants transition out of increased oversight columns of the Action Matrix. This revision allows the regional offices to utilize some of the actions that are consistent with the multiple/repetitive degraded cornerstone or degraded cornerstone columns of the Action Matrix for a period of one year after the original findings have been closed out. These actions, which do not constitute a deviation from the Action Matrix, include senior management participation at periodic meetings and site visits that are focused on reviewing the results of licensee improvement initiatives such as efforts to reduce corrective action backlogs and progress in completing the Performance Improvement Plan, limited IP 95003 and CAL followup inspections beyond the baseline inspection program, senior management attendance at the annual public meetings, and signature authority for the subsequent assessment letters.

AARM Lessons Learned - Although the AARM and related meetings and papers were effective this past year, the staff identified several areas for improvement to increase their effectiveness in future years. The staff initiated modest improvements in several distinct areas pertaining to the significant steps leading up to and following the AARM, including the ROP

self-assessment SECY paper, the industry trends program, the end-of-cycle and end-of-cycle summary meetings, preparations and conduct of the AARM, and the subsequent Commission meeting on the results of the AARM. These recommended improvements were provided to the Office of the Executive Director for Operations (OEDO) and senior NRC management and were incorporated into existing guidance, as applicable.

Status of DBLLTF Items - The DBLLTF recommended that the staff identify alternative mechanisms to independently assess plant performance as a means of self-assessing NRC processes (reference DBLLTF item 3.3.3.1). The staff revised IMC 0305 to address this concern. Specifically, the revision requires that the mid-cycle and end-of-cycle review meetings consider conclusions of independent assessments such as the Institute of Nuclear Power Operations (INPO) and the International Atomic Energy Agency (IAEA) Operational Safety Review Team (OSART) inspections in order to self-assess the NRC's inspection and assessment processes.

The DBLLTF also recommended that the staff perform a sample review of the plant assessments conducted under the interim Plant Performance Review (PPR) assessment process (from 1998 through 2000) to determine whether there are plant safety issues that have not been adequately assessed (reference DBLLTF item 3.3.3.2). As a result, the staff performed an audit of eight PPRs conducted between 1997 and 1999. The audit was conducted by reviewing the PPR packages used during the internal NRC meeting and correlating all the negative statements made in the PPR packages to inspection reports. Furthermore, the staff reviewed appropriate inspection reports in order to see if negative conclusions in the PPR packages were followed up and if the issue could potentially be indicative of hidden equipment issues. The audit concluded that, while some minor documentation problems did exist, no potentially hidden equipment issues were identified.

IMC 0350 Process Improvements and Implementation - As noted in last year's self-assessment, the staff committed to monitoring the effectiveness of the significant revisions to IMC 0350, "Oversight of Operating Reactor Facilities in a Shutdown Condition with Performance Problems," that were made to address recommendations from the DBLLTF and to incorporate other lessons learned and clarifications. Specifically, the DBLLTF recommended that the NRC should develop guidance to address the impacts of implementing IMC 0350 as they relate to regional organizational alignment and resource allocation (reference DBLLTF item 3.3.5.4), and that the NRC should revise IMC 0350 to permit its implementation without first having established that a significant performance problem exists (reference DBLLTF item 3.3.4.4). As a result, IMC 0350 now provides a comprehensive correlation between aspects of the ROP and the IMC 0350 process, enhances the structure of the inspection approach for IMC 0350 plants, and includes an entry condition based on a significant operational event without first having established that a significant performance problem exists.

Davis-Besse remained the only plant under the IMC 0350 process during CY 2004. Although the plant was approved for restart in March 2004, the Davis-Besse Oversight Panel continues to monitor plant activities utilizing enhanced inspection oversight coverage in accordance with IMC 0350 and a confirmatory order. Since no additional plants have been considered for IMC 0350 oversight since the implementation of the DBLLTF recommendations, only a limited effectiveness review could be performed. However, feedback from the Davis-Besse Oversight Panel and other stakeholders indicates that the procedural and budgetary changes have been effective in addressing the concerns noted by the DBLLTF. In addition, in accordance with the

guidance in IMC 0350, the Davis-Besse Oversight Panel is developing a report on recommended improvements to the process based on additional lessons learned. The staff plans to revise IMC 0350 in CY 2005 to address these recommendations and further improve the process.

Cross-Cutting Issues Assessment - During formulation of the ROP, the staff hypothesized that weaknesses in the cross-cutting areas of human performance, problem identification and resolution, or safety conscious work environment would be detected through performance indicators or baseline inspections prior to a facility's performance level degrading to an unacceptable level (i.e., Column V of the Action Matrix). The staff confirmed this hypothesis as part of the CY 2000 and 2001 ROP self-assessments by analyzing events classified as significant through the NRC's Accident Sequence Precursor (ASP) program, as well as facilities that reached the degraded cornerstone column of the Action Matrix. However, a similar assessment performed during CY 2002, including the performance issues at Davis-Besse associated with the erosion of the reactor vessel head, raised questions regarding the original cross-cutting issue hypothesis. In the 2002 self-assessment, the staff stated that additional work would be needed to decide whether a more direct way is needed to assess and react to performance weaknesses in the cross-cutting areas of problem identification and resolution and safety conscious work environment (as well as safety culture).

A review was not performed as part of the CY 2003 self-assessment because there were few newly analyzed ASP events or plants that reached the degraded cornerstone column of the Action Matrix. Also, the staff was in the process of responding to the recommendations raised by the Davis-Besse Lessons Learned Task Force (DBLLTF), some of which were directly related to the staff's failure to recognize cross-cutting performance issues.

In response to the DBLLTF recommendations, actions were taken to:

- strengthen the inspection guidance related to licensee corrective action programs
- enhance inspector training on the importance of maintaining a questioning attitude
- enhance communications between inspectors and regional management regarding plant performance issues

Also, as directed by the Commission, the staff is currently evaluating ways to more directly assess licensee safety culture. In addition, as part of the Commission-directed Engineering Pilot Inspection Program, the staff will assess whether a new cross-cutting issue in engineering is warranted. The results of the engineering pilot program assessment will be communicated to the Commission later this calendar year. In aggregate, the above program enhancements, together with the ongoing engineering and safety culture assessments, should be sufficient to respond to the issues identified by the DBLLTF. However, a common theme in both the internal and external surveys and at the 2005 Regulatory Information Conference was that the agency needs additional guidance for substantive cross-cutting issues. The staff continues to analyze the area of cross-cutting issues as part of the annual self-assessment to ensure that the fundamental ROP hypothesis is confirmed and that these issues are adequately addressed.

Assessment Program Performance Metrics - For the period covered by this self-assessment, all of the performance metrics in the assessment area met their established criteria or goals with the exception of the number of Action Matrix deviations (AS-1), which increased in CY 2004 compared to the past few years. The staff has taken measures to address this concern by

making changes to the process as previously discussed. The other assessment program metrics that met their criteria include: (1) the number of significant departures from the requirements of IMC 0305 and IMC 0350, (2) the appropriateness of actions taken for greater than green performance indicators and findings, (3) the number and scope of any additional actions recommended at the Agency Action Review Meeting (AARM), (4) the number of timeliness goals for the assessment program that are not met, (5) the timeliness and availability of assessment letters in ADAMS and the NRC's Web site, (6) the number of revisions to IMC 0305 and IMC 0350, (7) the timeliness of completing supplemental inspections for risk significant PIs and inspection findings, and (8) the number of instances in which plants move more than one column to the right in the Action Matrix from one quarter to the next. There are also two other metrics, which are discussed below, that evaluate feedback received from internal and external stakeholders.

Internal Survey Results - Participants in the internal survey were asked if the assessment process (1) provides an appropriate range of actions for safety issues, (2) provides for timely resolution of issues commensurate with safety significance, (3) applies appropriate enforcement actions, (4) focuses resources on areas of greatest safety significance, (5) minimizes duplication of work in preparation of assessment meetings, (6) provides objective levels of assessment, (7) provides understandable thresholds, (8) takes appropriate action for performance issues for those licensees outside of the licensee response column of the Action Matrix, and (9) provides assessment reports that are communicated effectively through the use of plain English. The participants responded positively to all nine questions with the percentage of positive responses increasing for eight of the questions from the internal survey discussed in SECY-03-0062, dated April 21, 2003. Specifically, positive response rates varied from 66 to 85 percent for the questions discussed above. A common theme from the survey's written comments was that the guidance for identification and disposition of substantive cross-cutting issues is unclear.

External Survey Results - Participants in the external ROP survey included 4 private citizens or public interest groups, 11 industry representatives, and 6 State or local government agencies. The participants were asked (1) if the ROP takes appropriate actions to address performance issues for those licensees that are outside of the licensee response column of the Action Matrix, and (2) if the information contained in assessment reports is relevant, useful, and written in plain language.

The industry and the majority of the State and local agencies generally agreed that actions taken by the NRC for plants outside of the licensee response column have been appropriate. However, one State was critical of the timeliness and scope of NRC supplemental inspections. One public interest group responded positively but maintained that improvement was warranted in the agency's followup to deficiencies in the cross-cutting areas. This survey participant recommended that the NRC develop a mechanism, such as a greater than green finding, to allow early NRC engagement of licensees when a substantive cross-cutting issue is identified and to clearly delineate NRC actions in the assessment letter. The level of external stakeholder satisfaction in this area was generally positive and similar to the previous external surveys.

The industry and the majority of the State and local agencies agreed that the information contained in assessment reports is relevant, useful, and written in plain English. However, one State regulator was critical of the scope and length of discussions in the assessment letters. One public interest group stated that the assessment letters contained too much boilerplate

information and lacked clear distinction between the best performing plants and the worst performing plants. The level of external stakeholder satisfaction in this area was generally positive and similar to the previous external surveys.

More detail on the results of the internal and external surveys is provided in Attachment 6. Further staff analysis of the survey responses is included in the annual ROP performance metric report (reference ADAMS Accession No. ML050670162).

Future Plans - Future staff work on the assessment program over the next year will include monitoring the effectiveness of recent changes to IMC 0305. Specifically, the staff plans to closely monitor the effectiveness of revised guidance for (1) defining the threshold for a substantive cross-cutting issue as well as agency followup actions, (2) staff actions when Point Beach and Perry plants transition out of increased oversight columns of the Action Matrix, and (3) considering conclusions of independent assessment such as the Institute of Nuclear Power Operations (INPO) and the International Atomic Energy Agency (IAEA) Operational Safety Review Team (OSART) inspections in order to self-assess the NRC's inspection and assessment processes during the mid-cycle and end-of-cycle review meetings. The staff will also seek to further improve guidance related to cross cutting issues.

Self-Assessment Conclusions - Overall, the assessment program is meeting the agency's goals of maintaining safety, using NRC resources efficiently and effectively, and enhancing public confidence. The program is also meeting the objectives established for the ROP of being objective, risk-informed, understandable, and predictable.