

## **ROP Program Area Assessments**

The staff of the U.S. Nuclear Regulatory Commission (NRC) performed an assessment in each of the four key program areas of the Reactor Oversight Process (ROP), including performance indicators (PIs), the inspection program, the significance determination process (SDP), and the assessment program. Each of these assessments was performed in accordance with Inspection Manual Chapter (IMC) 0307, "Reactor Oversight Process Self-Assessment Program." In each of the four program areas, the staff used self-assessment metrics and other pertinent information to provide insights regarding the effectiveness of the ROP in fulfilling the regulatory principles of being predictable, understandable, objective, and risk-informed, and in supporting the NRC's strategic 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 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 in each of the four key program areas, as discussed in the remaining sections of this attachment. In addition, Attachments 2 and 3 provide a comprehensive status of previous issues and an analysis of the self-assessment metrics, respectively.

### **Performance Indicator Program**

In SECY-03-0062, "Calendar Year 2002 Reactor Oversight Process Self-Assessment," the staff described its assessment of the PI program during the third full year of ROP implementation. The staff discussed the Mitigating Systems Performance Index (MSPI), which was under development as a possible replacement for the Safety System Unavailability indicators, as well as a program to develop proposed changes to simplify and clarify a number of other indicators that have generated many questions from stakeholders. In addition, the staff noted that the Institute of Nuclear Power Operations (INPO) and the World Association of Nuclear Operators (WANO) have been represented at the MSPI public meetings, and the NRC staff has worked closely with INPO on the Consolidated Data Entry (CDE) program. Based on the responses to the external survey, members of the public and the nuclear industry appear to have varying views concerning the efficiency and effectiveness of the ROP performance indicators. In addition, one of the PI self-assessment metrics (i.e., to minimize the potential for PIs to influence licensees to take actions that could adversely impact plant safety) was not met. Accordingly, the staff plans to continue its reassessment of the PI program during CY 2004 as discussed below.

During the fourth year of ROP implementation, the staff continued its effort with the industry to develop the MSPI as a potential replacement for the safety system unavailability (SSU) PI. The staff completed the data collection phase of the pilot test of the MSPI on schedule in March 2003 and recently completed its evaluation of the results of the pilot. The staff determined that the piloted MSPI had certain advantages (e.g., more risk-informed and plant-specific) over the SSU PI for monitoring equipment performance and reliability.

However, the disadvantages and unintended consequences identified with the piloted MSPI were deemed significant and outweighed the potential improvements. These identified disadvantages and unintended consequences include:

- the inclusion of a risk limiter (i.e., front stop) precludes agency action within the Action Matrix for single failures attributable to performance deficiencies that would likely have resulted in agency action had the performance deficiency been evaluated using the existing SDP
- although MSPI uses plant-specific probabilistic risk assessments (PRAs) to calculate the unreliability portion of the MSPI equation, the component failure rates are calculated using generic industry failure data that is Bayesian updated with plant-specific data to establish component failure probability distributions for the calculation of component unreliability performance; this statistical approach requires a significant trend in adverse performance to overcome the heavy influence of the generic data before a risk significant single failure will trip a performance threshold
- after a green/white threshold is crossed, there is one input into the Action Matrix; additional MSPI risk-significant failures and performance deficiencies do not result in additional inputs into the Action Matrix until the white/yellow threshold is crossed (because a SDP will not be performed)
- the MSPI does not include the risk contribution due to external events, internal flooding, shutdown, and large early release frequency
- the MSPI is nearly a risk-based indicator and would drive NRC action, through the Action Matrix, based on accumulated risk which is integrated over a 12 quarter period, whereas SDP drives NRC action through individual events that have associated performance deficiencies
- the resources associated with MSPI implementation, including long-term inspection of the MSPI and implementation of the frequently asked questions (FAQ) process due to interpretation issues associated with MSPI input values and variables from plant-specific PRAs, will be significant
- elimination of SDP for areas covered by MSPI will result in enforcement inconsistencies and enforcement will not be based on the significance of specific issues
- the MSPI does not include fault exposure unavailability; consequently, a potentially significant portion of the risk contribution due to a performance deficiency is unaccounted for in the indicator
- the MSPI assesses risk differently than does the SDP; failures covered by MSPI would be evaluated in context of a change in core damage frequency for accrued trends in risk, as opposed to the SDP's evaluation of conditional core damage probability for individual component failures. As a result, when both are evaluated using the ROP's Action Matrix, a different response for a given plant risk could result.

- the MSPI concept will be difficult for the public to understand; the data and PRAs will not be available for public review

Based on these disadvantages and unintended consequences, the staff recently announced that use of the MSPI in the ROP, as piloted, would not be pursued further. However, the staff plans to document the detailed concerns with the piloted MSPI and share them with all interested stakeholders. The staff will then conduct a public meeting on MSPI and request that interested stakeholders provide formal written comments and potential changes regarding MSPI. After further discussion on these issues, the staff will document the results of this effort and will make appropriate recommendations going forward.

Beginning in 2002 and continuing throughout 2003 and into early 2004, the NRC/industry working group has been unable to resolve differences in interpretation of the "Scrams with Loss of Normal Heat Removal" (Sw/LONHR) PI. As a result, a backlog of nine frequently asked questions (FAQs) concerning that PI has developed, and some of those FAQs concern events that occurred as long ago as 2001. This PI demonstrates the inability to resolve some PI questions in a timely manner, which has in turn rendered the FAQ process inefficient, ineffective, and overly burdensome. Even if agreement is achieved after months of discussion, the NRC will not have taken timely action. By letter dated October 31, 2003, the Nuclear Energy Institute (NEI) wrote to the NRC's Executive Director for Operations to recommend that the NRC should eliminate the Sw/LONHR PI from the ROP. The staff responded by letter dated March 16, 2004, articulating its reasons for maintaining this PI and stating that if, in the future, agreement cannot be reached on a particular question in two meetings, the NRC will make the final determination.

Other PIs which the staff believes should be simplified and/or clarified include the following:

- Unplanned Power Changes: whether the indicator should include notices of enforcement discretion (NOEDs)
- Safety System Functional Failures: evaluate the 20-percent discrepancy in reporting, compared to the NRC database (much of the discrepancy may lie in the definitions used in each case); the staff is currently working with industry on this issue
- Reactor Coolant System (RCS) Activity: whether the WANO fuel reliability PI is a better measure
- RCS Leakage: incorporate lessons learned from the event at the Davis-Besse Nuclear Power Station to better trend unidentified leakage

In addition, the Advisory Committee on Reactor Safeguards (ACRS) and other stakeholders have expressed the need for PIs for the cross-cutting areas of problem identification and resolution, human performance, and safety-conscious work environment. The ACRS has also expressed concerns regarding the feasibility and usefulness of risk-based PI thresholds, particularly the "white/yellow" and "yellow/red" thresholds for the initiating events PIs.

Although some aspects of plant performance have improved based on licensees addressing certain PIs, the declining trend in non-green PIs has resulted in the PIs providing less information on plant performance outliers. Several internal and external stakeholders have also indicated that the current set of PIs and their respective definitions should be reevaluated to ensure that the PIs are measuring the appropriate parameters necessary to assess plant

performance. The staff's experience with performance indicators confirms that most PIs have a limited lifetime because it is expected that a licensee will react to any metric against which it is being measured. Accordingly, the staff plans to continue its reassessment of the PI program during CY 2004 to address outstanding concerns related to PIs identified through staff, ACRS, industry, and stakeholder feedback. This effort will address PI programmatic issues, definitions, thresholds, reporting accuracy, the number of FAQs, and the timeliness and inefficiency of the FAQ process. Specifically, the programmatic issues to be considered include the following:

- the need to develop new indicators to supplement or replace the existing indicators (including PIs for the cross-cutting areas)
- enhancements to the FAQ process
- whether some PI thresholds should be performance-based rather than risk-informed

The staff has followed INPO's development of its CDE database for the reporting of all data required by the NRC, INPO, and WANO. As part of the CDE, INPO recently took over the ROP PI data collection and reporting process from NEI, and successfully completed the first quarterly PI submittal for all plants in January 2004. The staff believes that the CDE may ease the burden on licensees for meeting their data reporting requirements. The staff intends to review INPO's final product in CY 2004 to ensure that it satisfies the NRC's needs and to verify that the CDE accurately captures the data that the staff needs to assess licensee performance.

The responses to the external survey indicated that the public and the nuclear industry have varying views on the efficiency and effectiveness of the PI program. The industry generally believed that the PI program was working well and supported the MSPI as an important initiative to improve the program. By contrast, the public has become increasingly concerned that the PIs are being managed by the licensees and have become ineffective as indicators of plant performance. Many internal and external stakeholders also indicated that the FAQ process had become overly burdensome and ineffective, particularly for issues involving the Sw/LONHR PI. As a result of the survey responses, one of the PI self-assessment metrics (i.e., to minimize the potential for PIs to influence licensees to take actions that could adversely impact plant safety) was not met. The Sw/LONHR PI, the SSU PI, and the Unplanned Power Changes PI were specifically identified as indicators that had the potential to influence licensee actions. Efforts are underway to evaluate these PIs to improve their effectiveness and minimize potential actions that may adversely impact plant safety. All other PI self-assessment metrics met their criteria and staff expectations for CY 2003.

In conclusion, although the PI program continues to provide the NRC with objective indicators regarding plant performance, the staff and many stakeholders have become concerned with the current set of PIs and their ability to provide adequate indications of declining performance in a timely manner. Accordingly, the staff plans to continue its reassessment of the PI program during CY 2004 to address outstanding concerns related to PIs identified through staff, ACRS, industry, and stakeholder feedback.

## Inspection Program

At the end of the fourth year of ROP implementation, the staff's self-assessment and feedback activities indicated that, in general, the inspection program was meeting its predetermined goals and objectives. The staff addressed many previous issues by revising IMC 0612, "Power Reactor Inspection Reports," and made certain adjustments to the resource estimates and level of effort in individual inspection procedures to provide increased inspection flexibility. The baseline inspection program was completed at all plants, although resource challenges continued and additional assistance from inspectors outside the regions was necessary in some cases. Attachment 2 provides more complete discussion concerning the status of previous issues and details concerning the staff's related actions.

During this assessment period, the staff also revised two baseline inspection procedures to change the respective scope and/or level of effort. Specifically, the staff revised Inspection Procedure (IP) 71152, "Problem Identification and Resolution (PI&R)," in response to recommendations and feedback from the Davis-Besse Lessons Learned Task Force (DBLLTF), the PI&R focus group, and inspectors. The changes include enhanced requirements regarding the routine PI&R reviews conducted by resident inspectors, biennial reviews of longstanding issues, and biennial reviews of operating experience issues.

In addition, the staff revised IP 71111.05, "Fire Protection," to provide additional inspection requirements and guidance for evaluating licensees' manual actions in lieu of full implementation of Section II.G.2, "Associated Circuits," of Appendix R to Title 10, Part 50, of the *Code of Federal Regulations* (10 CFR Part 50). The suspension of associated circuits inspections continued throughout this period. In support of the fire protection improvement plan initiated by the NRC's Office of Nuclear Reactor Regulation (NRR), the staff expects to revise the inspection guidance in 2004 and lift the inspection moratorium on associated circuits. The staff will monitor the effectiveness of program implementation and make revisions based on feedback from the regions and other stakeholders.

The staff also recently performed the annual in-depth review of each baseline inspection procedure and its attachments. The objectives of the review were to (1) determine whether changes in scope, frequency, or level of effort are needed based on recent experience and inspector feedback; (2) determine whether a change in the estimated hours for completion is needed; (3) define or change what constitutes minimum completion of each inspectable area, if needed; and (4) critically evaluate all of the inspectable areas together to justify retaining them in the baseline inspection program, or determine whether the addition of a new inspectable area is warranted. The staff did not perform this review for the physical protection portion of the ROP because a temporary instruction (TI) to inspect the Safeguards Interim Compensatory Measures replaced the baseline program beginning in CY 2002, as described below. Based on this review, the staff did not identify any significant changes to the inspection program, although the staff is making minor adjustments to some inspection procedures. For example, the staff determined the need to enhance several baseline inspection procedures to provide a clearer definition of what constitutes a sample and more definitive guidance regarding the number of samples required for completion of the inspection. The change will improve the staff's consistency in documenting sample size in inspection reports and the reactor program system.

In addition, per the Commission's request, the staff has recently reviewed the effectiveness of its inspections in the engineering design area and has developed a proposed pilot inspection program to test the effectiveness of a newly developed inspection procedure. The details regarding the proposed revisions will be communicated to the Commission in a separate Commission paper that is currently under development.

All inspection program metrics met their established criteria in 2003. The staff suspended the metric for auditing of inspection reports (IP-1) during the last assessment period (CY 2002) to allow inspectors and regional management to become familiar with the new requirements of IMC 0612. To obtain the metric data, the staff recommenced the auditing of inspection reports during the first quarter of CY 2003, and reviewed 99 inspection reports from all four regions, which included a total of 254 findings. The percentage of findings documented in accordance with IMC 0612 requirements increased from 67.7 percent in the first quarter of CY 2003 to 88.9 percent in the fourth quarter, indicating an improving trend. In addition, a survey of external stakeholders asking about the usefulness of inspection reports indicated that the information contained in those reports was useful and timely and that the quality of the reports has improved.

All four regions reported that they completed their baseline inspections in accordance with IMC 2515, "Light-Water Reactor Inspection Program — Operations Phase." In SECY-03-0062, the staff reported that the regions experienced resource challenges in completing the inspection program in the 2002 inspection cycle and described the staff's responses to meet those challenges. Those challenges continued in 2003. In anticipation of the potential impacts, however, the staff took preemptive action in order to avoid any adverse consequences. Specifically, in 2003, NRR and regional staff contributed significant resources to assist two regions in successfully completing the baseline inspection program. That assistance impacted the staff's ability to complete some project work as scheduled, and caused delays in some personnel transfers and inspector qualifications, as discussed in Attachment 7. These coping strategies did, however, ensure completion of the required baseline inspection procedures.

In order to address potential budget shortfalls and avoid inspection resource challenges in future years, the staff evaluated the inspection resource needs in each of the four regions. As a result, the regional budget for operating reactor inspection activities for fiscal years (FYs) 2004 through 2006 was increased by approximately 15 full time equivalent (FTE) positions (compared to the FY 2003 budget), in part to provide additional inspection resources for oversight of a plant in accordance with IMC 0350 "Oversight of Operating Reactor Facilities in a Shutdown Condition with Performance Problems," and to assist in post-supplemental inspection activities to verify licensees' improvement plans. The additional regional FTEs should alleviate resource challenges as these positions become staffed with fully qualified inspectors.

In addition, the staff revised the resident inspector policy to allow early assignment of new resident and senior resident inspectors to a site. The new policy allows the regional administrator to assign a permanent resident inspector up to 12 months before the planned departure of the incumbent resident inspector, and to assign senior resident inspectors up to 6 months before the planned departure of the incumbent. The staff believes that this revised resident inspector staffing policy and additional regional FTEs will improve the site staffing levels with experienced and qualified resident inspectors in CY 2004. Attachment 6 provides further discussion and analyses of ROP resources.

As a result of the terrorist attacks on September 11, 2001, the staff issued Temporary Instruction (TI) 2515/148, "Inspection of Nuclear Reactor Safeguards Interim Compensatory Measures." The staff informed the Commission in SECY-02-0195, "Staff Plans to Use Temporary Instruction for Verification of Licensee Implementation of Power Reactor Security Interim Compensatory Measures and as Temporary Replacement of the Physical Protection Baseline Inspection Program," dated November 1, 2002, that the inspections conducted pursuant to TI 2515/148 were sufficiently scoped to satisfy portions of the baseline inspection program for the physical protection cornerstone in CYs 2002 and 2003. This was in conjunction with completion of portions of the ROP baseline inspection procedures and conduct of the physical protection cornerstone portion of the Performance Indicator Verification procedure. The staff issued IMC 2201, "Security and Safeguards Inspection Program for Commercial Reactors," which establishes interim policy and guidance for the security and safeguards inspection of commercial power reactors. The staff also revised baseline inspection procedure 71130 and its attachments for verification and assessment of licensee action with respect to (1) safeguards events; (2) recurring, non-routine safeguards activities; and (3) Commission initiatives deemed necessary to address adequacy in the protection of public health and safety from the design-basis threat or changes thereto.

As part of its ongoing efforts to improve the effectiveness and efficiency of the ROP, the NRC is currently evaluating a process that would allow licensees to receive credit for certain self-assessments. The NRC is considering allowing licensees to substitute a self-assessment for specific, predetermined NRC baseline inspections, as long as the self-assessment is conducted in accordance with an NRC-approved industry self-assessment process. The NRC would still monitor these self-assessments, but the staff anticipates that resource savings to the NRC and its licensees could be significant for these inspectable areas. The NRC plans to conduct a pilot program, which is likely to begin in 2004, to ascertain the feasibility of the licensee self-assessment process. The staff will report the status of the pilot program in the next annual ROP self-assessment.

In conclusion, the inspection program continues to meet the established goals. The regions completed the required baseline inspection program for CY 2003. Although resource challenges continued in CY 2003, the staff expects that the revised resident inspector policy and additional regional FTEs will improve the site staffing levels with experienced and qualified resident inspectors in CY 2004. The staff has also implemented several changes to the inspection program to address recommendations from the DBLLTF, and additional improvements are planned to reflect lessons learned as a result of the Davis-Besse event, as well as continuing feedback from the regions through their implementation of the ROP.

### **Significance Determination Process**

During this period, the staff continued to implement the initiatives that were originally identified in SECY-02-0062 to improve the SDP process and thereby improve the timeliness in issuing final SDP results. In particular, the staff issued its updated SDP Improvement Plan in March 2001, and continues to maintain that plan to incorporate all stakeholder recommendations related to the enhancement of the SDP process. In November 2003, the staff included the SDP Improvement Plan in the Director's Quarterly Status Report to ensure continued management attention (reference Accession No. ML040140030 in the NRC's Agencywide Documents Access and Management System (ADAMS)).

During this period, the following eight SDPs were available to all stakeholders:

- IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations"
- IMC 0609, Appendix B, "Emergency Preparedness Significance Determination Process"
- IMC 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process"
- IMC 0609, Appendix D, "Public Radiation Safety Significance Determination Process"
- IMC 0609, Appendix E, "Interim Physical Protection Significance Determination Process"
- IMC 0609, Appendix F, "Fire Protection Significance Determination Process"
- IMC 0609, Appendix H, "Containment Integrity Significance Determination Process"
- IMC 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process (SDP)"

Three of these eight appendices (A, F, and H) are risk-informed based on changes to core damage frequency. Appendices B, C, and D are more deterministic, assessing requirements designed to reduce the risk of occupational and public overexposure. The staff also made minor revisions to appendices A, B, C, and D, and is currently in the process of making major revisions to Appendices E, F, and H, which will be issued during 2004. In addition, the staff is currently developing four SDPs covering the areas of (1) maintenance, (2) steam generator tube integrity, (3) shutdown risk, and (4) spent fuel. The staff plans to issue those four new SDPs in 2004.

The timeliness of final safety-significance determinations is one of the most critical measures of the ROP self-assessment metrics. This indicator reached 73 percent during CY 2003, meaning that 27 percent of the findings identified as "more than very low significance" were not finalized within 90 days; that figure decreased from 43 percent during the previous period. The staff anticipates continued challenges in CY 2004 with SDP timeliness in certain areas, particularly for fire protection issues requiring Phase III analyses and for SDPs that involve licensees' complex engineering analyses. The objectives outlined in the SDP Improvement Plan are designed to enhance the tools needed for the continued improvement in timely arrival at a final significance determination.

During the current period, the staff has made significant advances to complete several objectives of the SDP Improvement Plan. In particular, the staff incorporated the agency's timeliness goals into the NRR and regional operating plans. The staff also added timeliness goals for licensee communications, such as choice letters and regulatory conferences in IMC 0609.01, "Significance and Enforcement Review Process," to enhance NRC communications with licensees.

The staff also revised the SDP guidance to allow preliminary categorization of potentially significant finding as "potentially greater than green," rather than a specific color. This category allows for a more timely preliminary significance evaluation and review process where the initial decision is based on the best available information at the time, and when the staff is confident that additional information affecting influential assumptions will be forthcoming. The staff is monitoring the effectiveness of this change, and plans to assess its impact in CY 2004.

An important inspection program tool in the area of reactor safety is the plant-specific, risk-informed inspection notebooks. The staff met the commitment to benchmark all notebooks during this period. As a result, all notebooks have been revised and currently reflect the best available licensee PRA information. However, as the project progressed, lessons learned over the 2-year benchmarking period resulted in incremental improvements in notebook quality, which were not captured in the early part of the effort. Recognizing the benefits derived from this process, the staff initiated a standardization effort that will further enhance the quality of about one-third of the notebooks (i.e., those originally benchmarked before process improvements were incorporated) by the end of 2004.

The NRC's Office of the Inspector General (OIG) completed an audit of the SDP, as documented in OIG-02-A-15, "Review of NRC's Significance Determination Process," dated August 21, 2002. The OIG recommended various refinements to help ensure the successful implementation of the SDP. The audit yielded 11 specific recommendations, which the staff incorporated into the SDP Improvement Plan for tracking purposes. The staff has resolved all recommendations as to expectation, tracking, and completion dates, and has fully completed 5 recommendations.

In addition, the agency established the SDP Task Group in late-2002 to complete an independent and objective review of the SDP and to address recommendations from the OIG audit and a differing professional opinion regarding the SDP. The SDP Task Group developed 30 recommendations, which are generally aimed at improving the risk-informed Phase 2 evaluations using the risk-informed inspection notebooks. To date, the staff has revised the SDP guidance or other portions of the ROP to incorporate 21 of the Task Group's recommendations. The staff is tracking the 9 remaining recommendations using the SDP Improvement Plan. A notable recommendation involves the use of pre-solved Phase 2 tables, which would eliminate the routine use of the risk-informed Phase 2 notebooks. The information required for the development of the pre-solved tables has been collected at two plants as part of a pilot program. A guidance document and format recommendations are being developed and should be ready by the end of CY 2004, and the staff plans to have the pre-solved tables available by the end of CY 2005.

In the staff's continuing efforts to improve the process, in addition to the previously discussed improvement plan, self-assessment metrics are in place to track changes in the quality of the program. During this period, program expectations were met in all but two of the nine areas monitored by these metrics. One of the two unsuccessful metrics resulted from the negative perception that the SDP results do not translate to the same level of significance for all cornerstones. In particular, several stakeholders have expressed concern regarding the imbalance between the risk-informed and deterministic cornerstones. In addition, the metric measuring SDP timeliness once again failed to meet staff expectations, although SDP timeliness has improved significantly over the past year. The goal of 75 percent of SDP results to be finalized within 90 days was missed by 2 percentage points (73 percent). Since a relatively small number of SDPs were completed in 2003, the data were influenced by a small number of issues, such as the Davis-Besse vessel head, the Dresden water hammer, and the DC Cook loss of essential service water (ESW) events. The metric measuring the accuracy of results communicated to the public failed to meet its criteria for CY 2002, but improved significantly in CY 2003 (zero inaccuracies) based on the staff's implementation of new procedures requiring multiple checks prior to posting findings to the NRC's external Web site.

In the coming year, the staff will continue to implement the SDP Improvement Plan. In particular, the staff will standardize the risk-informed inspection notebooks and will revise the SDP portion of IMC 0308, the "ROP Basis Document," to incorporate the associated "construction rules," which are used for the development of the notebooks. Considerable activity is also ongoing to improve other SDP tools. For example, the added risk contribution from external events (particularly fire) has occasionally resulted in the final significance determination to be more significant than the preliminary determination that only considered internal events. Therefore, the staff plans to develop a simple methodology that would help inspectors to evaluate the risk contribution from external initiators as part of the reactor safety Phase 2 process. The staff will also issue revised SDPs for assessing findings in fire protection, plant physical protection, and containment integrity. In addition, the staff will issue new SDPs to address findings in the areas of steam generator tube integrity, shutdown risk, maintenance, and spent fuel.

In conclusion, the SDP continues to serve as an essential component of the ROP, although ongoing improvements are needed. The SDP also proved to be a more reliable inspection tool in 2003, allowing inspectors and staff to use risk insights where appropriate, in determining the safety significance of inspection findings. The staff will continue to monitor planned SDP improvements and developments via the SDP Improvement Plan.

### **Assessment Program**

In SECY-03-0062, the staff described the status of the ROP assessment program and identified issues for staff action during CY 2002. The more significant issues identified in that Commission paper and the subsequent staff requirements memorandum (SRM) included the need to consider adjusting the frequency of some of the annual assessment meetings, evaluating the treatment of substantive cross-cutting issues, enhancing IMC 0350 guidance for oversight of shutdown reactors with performance problems, and responding to the concerns of external stakeholders at the Commission meeting on May 15, 2003. Attachment 2 provides a more complete discussion concerning the status of previous issues and details concerning the staff's related actions. In addition, the latest revisions of IMC 0305, "Operating Reactor Assessment Program," and IMC 0350 address these issues and incorporate lessons learned from the previous mid-cycle and end-of-cycle review meetings.

In 2003, the staff performed a detailed analysis of the industry's recommendation to increase the threshold for a degraded cornerstone from two to three white PIs or inspection findings, as directed by the Commission SRM dated June 10, 2003. As documented in a memorandum to the Commission, dated August 29, 2003, the staff does not support changing the existing threshold of two white inputs to three white inputs for the following reasons:

- The staff reviewed the plants that have entered the degraded cornerstone column or multiple/repetitive degraded cornerstone column of the Action Matrix during the 3-year period from April 1, 2000, through March 31, 2003. That review revealed that 4 of the 11 plants that entered the degraded cornerstone column would not have entered that column if the entry threshold had been three white inputs, rather than the current threshold of two white inputs. As a result, those plants would have received a less-intensive IP 95001 inspection instead of an IP 95002 supplemental inspection. After further review of the IP 95002 inspections that were performed, the staff concluded that in these four cases, IP 95002 was the appropriate inspection for the issues at the plants,

and that the degraded cornerstone column of the Action Matrix was the appropriate action level.

- The SDP Task Group concluded that the current threshold of two white inputs in the same cornerstone as the criterion for a degraded cornerstone was reasonable and there was no information to suggest that it was inappropriate.
- The staff is currently reviewing the green/white thresholds for the individual SDPs and PIs in response to a variety of stakeholder concerns. The staff believes that these threshold questions should be fully resolved before any changes are made to the entry conditions for the Action Matrix.

The staff's memorandum to the Commission dated August 29, 2003, also addressed the issues raised by external stakeholders at the Commission briefing on May 15, 2003. The staff noted that the NRC actively solicits and continuously evaluates feedback from internal and external stakeholders throughout the year and incorporates appropriate changes. The staff has included the comments from the subject Commission meeting in the feedback disposition process, and has addressed the more significant comments in this Commission paper.

The Commission also noted in the SRM dated June 10, 2003, that the staff should review the Action Matrix thresholds to determine whether changes are needed to ensure that the Action Matrix categorization adequately reflects the safety significance of PIs and inspection findings. The SRM further requested that the staff provide a recommendation to the Commission in the CY 2003 ROP self-assessment report. The staff periodically reviews the effectiveness of the ROP assessment program, including the appropriateness of the Action Matrix thresholds, as part of its annual ROP self-assessment via a variety of mediums including the metrics program and internal and external feedback mechanisms. Additionally, senior NRC managers review the ROP self-assessment at the annual Agency Action Review Meeting (AARM). In addition to these ongoing self-assessment activities, the staff recently reviewed the Action Matrix thresholds for entering the degraded cornerstone column of the Action Matrix and found that the current threshold is appropriate as previously discussed above and noted in the staff's memorandum to the Commission dated August 29, 2003. Based on the CY 2003 review of the appropriateness of the Action Matrix thresholds, the staff recommends that no changes should be made to the Action Matrix at this time and considers this specific SRM item to be closed. However, the staff will continue to review the Action Matrix thresholds as part of its annual self-assessment and will report the results to the Commission.

The industry has also recommended a graded approach for removing inspection findings from consideration in the assessment program. This recommendation involves applying a graded approach based on safety significance, such that white findings would remain in the assessment program for two quarters, yellow findings for three quarters, and red findings for four quarters. The staff disagrees with this approach because the range of actions across the Action Matrix is graded, such that increased regulatory actions occur with the accumulation of "greater than green" assessment inputs. One concern with the industry's recommendation is that inspection findings would not remain in the assessment program long enough to allow increased NRC action with degrading performance, as envisioned during the development of the ROP. This would be inconsistent with the PI program, in which the indicators reflect performance over the past year or more based on specific algorithms. Additionally, experience since the inception of the ROP indicates that, in many cases, the licensee's corrective actions were not completed and were not deemed adequate within the four quarters for consideration in

the Action Matrix in accordance with the existing program. The staff does not currently plan to change this policy or expend additional resources to further evaluate this industry recommendation. However, the staff will continue to review the Action Matrix annually as part of the self-assessment and the Agency Action Review Meeting (AARM), to assess the appropriateness of the criteria for determining a licensee's placement in the Action Matrix.

The staff also revised IMC 0305 to give the regional offices increased flexibility in scheduling annual public meetings. The previous guidance stated that the annual public meetings are to be scheduled within 16 weeks of the end of the assessment period. The staff reassessed this requirement and determined that plants that have been in the licensee response or regulatory response column of the Action Matrix for the entire assessment period may schedule their annual public meetings up to 6 months after issuing the annual assessment letter.

One of the fundamental premises of the ROP is that significant weaknesses in the cross-cutting areas of human performance, safety-conscious work environment, and PI&R will be detected by PIs crossing thresholds or by inspection activities in sufficient time to allow for an appropriate NRC response to ensure adequate protection of public health and safety. In order to confirm the validity of this premise, the staff performs an assessment for all accident sequence precursor (ASP) events and for those facilities that reached the degraded cornerstone column of the Action Matrix. The staff did not perform this assessment of cross-cutting issues for CY 2003 because there were few recently analyzed ASP events or new plants that reached the degraded cornerstone column of the Action Matrix that had not already been analyzed in last year's assessment. However, the staff continues to analyze the area of cross-cutting issues to ensure that this fundamental ROP premise is met and that these issues are adequately addressed.

In addition, the staff revised the guidance to clarify what constitutes a "substantive cross-cutting issue" and to include the option to request that a licensee respond to the identification of such issues. The staff incorporated specific criteria into IMC 0305, and the program office continues to participate in each of the individual plant mid-cycle and end-of-cycle review meetings to ensure consistent application of this policy across the regions. In addition, the regions may request that the licensee provide a response to an unresolved substantive cross-cutting issue at the next annual public meeting, in a separate meeting specifically for that purpose, or in writing.

The staff also made significant revisions to IMC 0350 to address recommendations from the DBLLTF and to incorporate other lessons learned and clarifications. 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, as defined in Management Directive (MD) 8.3, "NRC Incident Investigation Program," without first having established that a significant performance problem exists. In addition, the staff revised the inspection budget estimates for FY 2004 and beyond to include additional resources for the oversight of IMC 0350 plants and plants with significant performance problems in the future. The staff also made a simultaneous revision to IMC 0305 to add an "IMC 0350 process" column to the ROP Action Matrix (even though IMC 0350 plants are considered to be outside the auspices of the Action Matrix) for illustrative purposes to demonstrate the staff response and communication expectations in a format similar to plants within the Action Matrix.

For the period covered by this self-assessment, all of the performance metrics in the assessment area met their established criteria or goals. Examples of the assessment program metrics include (1) the number of deviations from the Action Matrix, (2) the number of significant departures from the requirements of IMC 0305 and IMC 0350, (3) the appropriateness of actions taken for “greater than green” PIs and findings, (4) the number and scope of any additional actions recommended at the AARM, (5) the number of timeliness goals for the assessment program that are not met, (6) the timeliness of completing supplemental inspections for risk-significant PIs and inspection findings, and (7) 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. Attachment 3 to this paper provides the results for each of the assessment program metrics. In addition, there are two other metrics, which are discussed below, that evaluate feedback received from internal and external stakeholders.

The responses to the external survey indicated that the industry and State respondents generally agreed that the NRC is taking appropriate actions for those plants that are outside of the licensee response column of the Action Matrix. However, some respondents questioned the NRC’s response to the tube failure at Indian Point 2 and the head degradation event at Davis-Besse. The industry respondents generally agreed that the information contained in assessment reports is relevant, useful, and written in plain language. One State regulator stated that the reports were initially stilted and unclear, but they have continued to improve. One public interest group stated that the assessment letters contained too much boilerplate information. Many industry representatives continued to provide their recommendations to increase the threshold for a degraded cornerstone from two to three white PIs or inspection findings, and to incorporate a graded approach for removing inspection findings from consideration in the assessment program; however the staff disagrees with both recommendations, as previously discussed.

Overall, the assessment program continues to meet the agency’s goals of maintaining safety, using NRC resources efficiently and effectively, enhancing public confidence, and reducing unnecessary regulatory burden. The program also continues to meet the established ROP objectives of being objective, risk-informed, understandable, and predictable. Future staff work on the assessment program over the next year will include addressing outstanding DBLLTF recommendations and monitoring the effectiveness of recent changes to IMC 0305 and IMC 0350.