

REACTOR OVERSIGHT PROCESS
INITIAL IMPLEMENTATION EVALUATION PANEL
FINAL REPORT

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EXECUTIVE SUMMARY

On May 17, 2000, the Commission directed the NRC staff to convene a panel under the Federal Advisory Committee Act to evaluate the first year's implementation of the Reactor Oversight Process (ROP). The Initial Implementation Evaluation Panel (IIEP) was established on October 17, 2000. The panel met six times between November 2000 and April 2001.

The IIEP has concluded that the ROP is a notable improvement over the previous licensee performance assessment program and should be continued. The reactor oversight process has made progress toward achieving the Agency's four performance goals: 1) maintain safety, 2) increase public confidence, 3) increase regulatory effectiveness and efficiency, and 4) reduce unnecessary regulatory burden. In addition, the process provides a more objective, risk-informed, predictable, and understandable approach to the oversight of commercial nuclear reactor facilities.

The NRC and the nuclear industry expended substantial time and effort communicating with their staff members and public stakeholders about the process changes and paradigm shifts embodied in the ROP. Although the change-management tools used to communicate and carry out the changes were generally successful, the panel identified continuing tension as a result of three changes in regulatory philosophy: maintaining safety rather than improving safety, applying risk-informed regulation rather than deterministic regulation, and using indicative measures of performance rather than predictive measures of performance. To a large extent, stakeholder concern with these regulatory changes are common denominators for the various issues identified by the panel. The tension created by these underlying changes has affected the degree to which the performance goals of the ROP can ever be fully achieved according to various stakeholders' perspectives about what constitutes a successful oversight process. On the other hand, it is this tension that helps to ensure that the NRC, the industry, and public stakeholders will continue to engage in creative dialogue focused on the safe operations of nuclear power reactors. The panel considers the interaction among stakeholders throughout the development process, and going forward, to be an important feature of the ROP. Continued management attention is needed to sustain genuine and substantive interaction among stakeholders, mindful of the challenges and creative potential inherent in the tensions of the complex nuclear regulatory environment.

An ancillary common concern raised by the panel members in evaluating the specific issues discussed in the report is the continuing need for sufficient resources to maintain the formal processes and infrastructure for the ROP. NRC resources are needed to evaluate, pilot, communicate, and implement future enhancements and ensure regional consistency. Although the staff has learned many lessons from the first year's implementation and has already made numerous changes, there are many issues to be resolved and still other issues to be discovered as the ROP continues to evolve. The many issues regarding the significance determination process reflect the degree of change in the use of risk insights in the ROP and the substantial work that remains to complete development of the staff's suite of tools.

The panel considered the following recommendations as high priority:

- Establish a formal program and assign sufficient resources to enhance communications necessary for improving the ROP. The program should accumulate lessons learned,

provide multiple and diverse opportunities for comment to all internal and external stakeholders, respond to stakeholders' comments, and have a process for making timely process changes.

- Revise the ROP communication plan to include outreach activities designed to inform the public about the process and its relationship to the Agency's mission of protecting the public health and safety. Appropriate resources should be provided to revise and implement the communication plan. Evaluate additional improvements to the information on the ROP Web page to improve and simplify public access to the information. Identify methods, using stakeholder input, to improve public outreach efforts.
- Establish a structured ongoing program to evaluate long-term ROP effectiveness and to test ROP assumptions. As a minimum, this includes integrating the insights of the ROP self-assessment program and the overall assessment of industry performance. The staff should also consider periodically engaging internal and external stakeholders to independently assess the ROP.
- Continue the efforts of the crosscutting issues task force and clarify the ROP guidance on the identification and disposition of crosscutting issues.
- Evaluate lessons learned from initial implementation to achieve parity in the treatment of risk-significant inspection findings and crossed performance indicator thresholds. The evaluation should verify that the outcomes from the performance indicators and inspection findings accurately reflect the significance of the issues. The staff should consider addressing this issue by adjusting the Green/White thresholds or modifying the action matrix.
- Ensure that the staff's ROP self-assessment program identifies and evaluates any unintended consequences or unnecessary regulatory burden caused by the performance indicators and that changes are made where appropriate.
- Expedite the efforts to resolve the concerns about the safety system unavailability performance indicators and implement any needed revisions to NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," to achieve consistency with other applications.
- Evaluate the inspection approach for the physical protection cornerstone and revise the inspection program as necessary after the pending safeguards performance assessment pilot program and the physical security rulemaking are completed.
- Validate and issue the revised reactor safety significance determination process Phase 2 worksheets.
- Continue efforts to obtain improved and standardized risk analysis tools for the reactor analysts.

- Review lessons learned from use of the fire protection significance determination process, and improve the risk characterization tool to make it more meaningful, effective, and efficient.
- Continue development of an improved physical protection significance determination process.
- Evaluate the need for other significance determination tools. The staff should carefully evaluate any potential changes against the Agency's goals. For example, a new significance determination process that increases regulatory burden should have a corresponding benefit in maintaining safety or increasing the Agency's effectiveness.
- Evaluate lessons learned from initial implementation and revise the as-low-as-reasonably-achievable (ALARA) significance determination process as necessary.
- Evaluate a graded approach for resetting non-Green inspection findings as entry conditions into the action matrix.
- Evaluate and clarify the guidance on the designation, definition, and use of what are presently called no-color findings, and find a more appropriate term for these findings.

As part of its evaluation, the panel reviewed the staff's self-assessment program and the performance measures for the ROP. The panel concluded that the self-assessment program has the necessary elements to evaluate the ROP against the Agency's performance goals; however, the panel could not evaluate the effectiveness of the program given that the first year's assessment data are not yet available. Nevertheless, the panel found that, for the most part, the staff had identified the same issues the panel identified.

The IIEP had the benefit of information obtained during the first full year of nationwide implementation of the ROP. During the year, the oversight process elements were extensively exercised and many experiences that exemplified concerns and issues were available for the panel's consideration. The panel observed that the staff actively solicited stakeholder input throughout initial implementation, as it did during development and piloting of the ROP. The panel believes that the level of stakeholder involvement has been unprecedented for an NRC process change and is reflected in the quality of the process. Public workshops, public meetings near all facilities, surveys, and formal internal feedback processes were critical to the staff's efforts to further refine the ROP.

FINAL REPORT OF THE REACTOR OVERSIGHT PROCESS INITIAL IMPLEMENTATION EVALUATION PANEL

Introduction

The NRC implemented, nationwide, a revised Reactor Oversight Process (ROP) for commercial nuclear power plant licensees on April 2, 2000. Background information on the development of the ROP and the results of the pilot program is given in Commission papers SECY-99-007, "Recommendations for Reactor Oversight Process Improvements," dated January 8, 1999, SECY-99-007A, "Recommendations for Reactor Oversight Process Improvements (Follow-up to SECY-99-007)," dated March 22, 1999, and SECY-00-049, "Results of the Revised Reactor Oversight Process Pilot Program," dated February 24, 2000. These Commission papers described the scope and content of performance indicator reporting, a new risk-informed baseline inspection program, a new assessment process, and revisions to the enforcement policy. Commission paper SECY-00-049 also described the results from the Pilot Program Evaluation Panel (PPEP), including a recommendation to proceed with initial implementation of the ROP at all power reactor facilities. On March 28, 2000, the Commission approved initial implementation of the ROP.

On May 17, 2000, in a staff requirements memorandum in response to SECY-00-049, the Commission directed the NRC staff to convene another evaluation panel under the Federal Advisory Committee Act to evaluate the first year's implementation of the ROP. The Initial Implementation Evaluation Panel (IIEP) was established on October 17, 2000. The purpose of the cross-disciplinary oversight panel was to independently monitor and evaluate the results of the first year's implementation of the ROP and provide advice and recommendations to the Director of the Office of Nuclear Reactor Regulation on reforming and revising the ROP (see Attachment 1). The panel, like the PPEP, was made up of a cross-section of stakeholders. An NRC senior resident inspector and a senior reactor analyst were added to the panel at the Commission's request. The NRC selected the panel members to represent the views of diverse groups that had an expressed interest in the changes to the ROP (see Attachment 2).

Approach and Objectives

The IIEP conducted six meetings during the first year's implementation of the ROP. All meetings were open to the public and all meeting material was placed in the NRC's public document room. Additionally, the meeting notices, summaries, and transcripts were placed on the NRC's ROP Web page. Attachment 3 is a bibliography of the significant documents on the panel's activities.

The IIEP worked as a management-level cross-disciplinary oversight group of experts to evaluate whether the new regulatory oversight process can be effectively carried out and whether it has achieved its overall objectives. The panel solicited and obtained additional views, to supplement the members' personal insights, from representatives of four States (New Jersey, Pennsylvania, Illinois, and Vermont), the Union of Concerned Scientists, the Nuclear Energy Institute (NEI), NRC resident inspectors, NRC senior reactor analysts, the NRC Office of Public Affairs, and McGraw-Hill (see Attachment 4). The NRC staff members directly involved in the process development reported on the status of the initial implementation and responded to questions and comments.

During the IIEP meetings, the panel discussed and generally agreed to the following objectives:

- (1) Determine whether the ROP is achieving the following goals:
 - Maintaining safety
 - Increasing public confidence
 - Increasing effectiveness and efficiency
 - Reducing unnecessary regulatory burden
 - Objective
 - Risk-informed
 - Predictable
 - Understandable
- (2) Determine whether the more significant problem areas of the ROP have been identified.
- (3) Determine whether the NRC has developed a sound self-assessment program for the ROP and, if so, whether it includes mechanisms for self-correction.

To accomplish these objectives, each panel member was requested to provide a list of issues regarding implementation of the ROP. The panel member's issues were compiled, categorized, and integrated with other issues presented to the panel during its meetings. The issues were sorted according to the ROP elements they affected: performance indicators (P), inspection (I), significance determination process (S), and assessment and enforcement (A). Those issues that were identified as being pertinent to more than one element of the ROP were placed into an overall (O) category.

With a facilitator's assistance, the panel collectively evaluated the list of issues and developed group consensus on the description of each issue, its priority, the primary ROP performance goals affected, and the panel's recommendation for addressing the issue. The panel defined consensus in its bylaws as no one panel member dissenting from the position taken. In practice, this meant all panel members "could live with" the group position taken on the issue.

Each issue was assigned one of two priorities. The panel defined Priority 1 issues as those issues that should receive high priority. Priority 2 issues were defined as issues for the staff's consideration. Although the panel prioritized the various issues, it did not identify a timetable within which the staff should resolve the issues. The panel recognized the complexity of some issues and the need for additional time and information to evaluate solutions and the impacts of any proposed changes. Furthermore, the panel did not lower the priority of an issue because the staff was already resolving the issue. In developing its recommendations, the panel did not specify how to resolve the issues identified in this report. The staff resolved some of the issues the panel identified before the panel completed its activities. The panel did not include these issues in the report.

Panel Conclusions and Recommendations

The IIEP concluded that the ROP is a notable improvement over the previous licensee performance assessment program and should be continued. The reactor oversight process has made progress toward achieving the Agency's four performance goals: 1) maintain safety, 2) increase public confidence, 3) increase regulatory effectiveness and efficiency, and 4)

reduce unnecessary regulatory burden. In addition, the process provides a more objective, risk-informed, predictable, and understandable approach to the oversight of commercial nuclear reactor facilities.

The NRC and the nuclear industry expended substantial time and effort communicating with their staff members and public stakeholders about the process changes and paradigm shifts embodied in the ROP. Although the change-management tools used to communicate and carry out the changes were generally successful, the panel identified continuing tension as a result of three changes in regulatory philosophy: maintaining safety rather than improving safety, applying risk-informed regulation rather than deterministic regulation, and using indicative measures of performance rather than predictive measures of performance. To a large extent, stakeholder concern with these regulatory changes are common denominators for the various issues identified by the panel. The tension created by these underlying changes has affected the degree to which the performance goals of the ROP can ever be fully achieved according to various stakeholders' perspectives about what constitutes a successful oversight process. On the other hand, it is this tension that helps to ensure that the NRC, the industry, and public stakeholders will continue to engage in creative dialogue focused on the safe operations of nuclear power reactors. The panel considers the interaction among stakeholders throughout the development process, and going forward, to be an important feature of the ROP. Continued management attention is needed to sustain genuine and substantive interaction among stakeholders, mindful of the challenges and creative potential inherent in the tensions of the complex nuclear regulatory environment.

- *Maintaining safety rather than improving safety:* One premise of the NRC's strategic plan is that the nuclear power industry's performance has improved substantially over the past 10 years and nuclear reactors, collectively, are operating above acceptable safety levels consistent with the Agency's Safety Goal Policy. The staff designed the ROP to maintain the current level of safety. The process is designed to improve safety performance before it falls below acceptable levels, not to continually improve the safety margins that currently exist. Some public stakeholders do not believe that current nuclear industry performance is sufficient to assure public health and safety without continual improvement. This could limit the public's confidence in the process.
- *Risk-informed regulation rather than deterministic regulation:* In many ways the ROP is ahead of the other regulatory processes in using risk insights. It is difficult to implement a risk-informed oversight process while in a deterministic regulatory framework. For example, the integration of the significance determination process with the NRC's assessment program puts both the inspector and licensee in a conflicting situation. The ROP focuses on risk-significant issues, but licensees must still comply with regulatory requirements that are not risk-informed. This conflict has contributed to many of the issues discussed in this report. An additional concern of public stakeholders is the perceived overreliance on existing risk analysis tools for regulatory decision making. Over the long term, the staff must continue risk-informing the regulations to close the gap between the regulatory framework and the oversight process.
- *Indicative measures of performance rather than predictive measures of performance:* The ROP, using performance indicator thresholds and the significance determination process, is an indicative process, whereas the previous performance assessment

process attempted to be predictive by using performance issues of low safety significance to identify declining performance trends. A premise of the ROP is that the licensee's corrective action program best handles low-level performance trends and that a regulatory response is not required until a threshold is crossed. A related assumption is that a licensee will not normally pass directly from the licensee response column to the unacceptable performance column of the action matrix, giving the NRC time to respond before plant performance becomes unacceptable. Many of the concerns about crosscutting issues and inspection report thresholds come from skepticism about this assumption.

Though the panel focused on areas needing improvement, it noted many positive attributes and outcomes. We note some of these in the introductory comments on each ROP element.

The panel's recommendations are as follows:

- Establish a formal program and assign sufficient resources to enhance communications necessary for improving the ROP. The program should accumulate lessons learned, provide multiple and diverse opportunities for comment to all internal and external stakeholders, respond to stakeholders' comments, and have a process for making timely process changes. (O-1)
- Revise the ROP communication plan to include outreach activities designed to inform the public about the process and its relationship to the Agency's mission of protecting the public health and safety. Appropriate resources should be provided to revise and implement the communication plan. Evaluate additional improvements to the information on the ROP Web page to improve and simplify public access to the information. Identify methods, using stakeholder input, to improve public outreach efforts. (O-2)
- Establish a structured ongoing program to evaluate long-term ROP effectiveness and to test ROP assumptions. As a minimum, this includes integrating the insights of the ROP self-assessment program and the overall assessment of industry performance. The staff should also consider periodically engaging internal and external stakeholders to independently assess the ROP. (O-3)
- Continue the efforts of the crosscutting issues task force and clarify the ROP guidance on the identification and disposition of crosscutting issues. (O-4)
- Evaluate lessons learned from initial implementation to achieve parity in the treatment of risk-significant inspection findings and crossed performance indicator thresholds. The evaluation should verify that the outcomes from the performance indicators and inspection findings accurately reflect the significance of the issues. The staff should consider addressing this issue by adjusting the Green/White thresholds or modifying the action matrix. (O-5)
- Ensure that the staff's ROP self-assessment program identifies and evaluates any unintended consequences or unnecessary regulatory burden caused by the performance indicators and that changes are made where appropriate. (P-1)

- Expedite the efforts to resolve the concerns about the safety system unavailability performance indicators and implement any needed revisions to NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," to achieve consistency with other applications. (P-2)
- Continue the efforts to identify and evaluate improvements to performance indicators. The staff should thoroughly evaluate any significant changes to the performance indicators, following the structured process in Inspection Manual Chapter 0608, "Performance Indicator Program." Further, the staff should evaluate the effect of any significant changes in the scope of information provided by performance indicators on the action matrix and the baseline inspection program, and should identify any additional costs and benefits. (P-3)
- Continue efforts to incorporate the answers to frequently asked questions into the performance indicator guidance document, NEI 99-02, and to make the answers more generic where possible. (P-4)
- Evaluate the inspection approach for the physical protection cornerstone and revise the inspection program as necessary after the pending safeguards performance assessment pilot program and the physical security rulemaking are completed. (I-1)
- Evaluate and revise guidance to inspectors as necessary to clarify and promote consistency in documenting inspections. Continue conducting periodic audits of inspection reports to identify and correct inconsistencies. The new documentation thresholds for issues that have a defined level of safety or regulatory significance are appropriate. Inspection observations and insights that do not reach the threshold should continue to be communicated verbally to licensees for their consideration. (I-2)
- Evaluate inspection findings and performance indicator results for the first year's implementation and determine the appropriate level of effort to adequately assess risk-significant areas in the baseline inspections. Modify the process as appropriate. (I-3)
- After further experience with the ROP, review the results and consider whether to waive certain parts of the baseline team inspections and let licensees assess themselves under defined circumstances. (I-4)
- Validate and issue the revised reactor safety significance determination process Phase 2 worksheets. (S-1)
- Continue efforts to obtain improved and standardized risk analysis tools for the reactor analysts. (S-2)
- Review lessons learned from use of the fire protection significance determination process, and improve the risk characterization tool to make it more meaningful, effective, and efficient. (S-3)

- Continue development of an improved physical protection significance determination process. (S-4)
- Evaluate the need for other significance determination tools. The staff should carefully evaluate any potential changes against the Agency's goals. For example, a new significance determination process that increases regulatory burden should have a corresponding benefit in maintaining safety or increasing the Agency's effectiveness. (S-5)
- Evaluate lessons learned from initial implementation and revise the ALARA significance determination process as necessary. (S-6)
- Use lessons learned from initial implementation to make the risk characterization process expedient, scrutable, and understandable to all stakeholders. (S-7)
- Use lessons learned from initial implementation to clarify the definition of a performance deficiency. (S-8)
- Evaluate a graded approach for resetting non-Green inspection findings as entry conditions into the action matrix. (A-1)
- Evaluate and clarify the guidance on the designation, definition, and use of what are presently called no color findings, and find a more appropriate term for these findings. (A-2)
- Clarify the guidance on the objectives and structure of regulatory conferences and communicate this guidance to the external and internal stakeholders. (A-3)
- Develop clear guidance on how to handle multiple related inspection findings, and communicate the guidance to all stakeholders. (A-4)

The following five sections provide the consensus of the panel with respect to the description of the issues, the priority, the primary performance goals affected, and the panel's recommendations. Where appropriate, the panel has referred to the recommendations of the Pilot Program Evaluation Panel when the two panels identified similar issues or made similar recommendations.

Panel members expressed two minority views:

- (1) The initial implementation does not appear to demonstrate that the ROP has improved identification of design basis issues or validated recent initiatives to scope design basis issues. NUREG-1275, Volume 14, "Causes and Significance of Design-Basis Issues at U.S. Nuclear Power Plants," draws a clear connection between the number of engineering (and design) inspection hours expended and the number of design basis issues discovered. However, the number of engineering inspection hours in the first year's implementation has not yet been compiled, indicating to some observers that the staff is not focused on design basis issues under the new process. Public confidence will not be enhanced unless there is assurance that plants are properly designed, built

as designed, modified only with proper analysis, and properly maintained including sufficient attention to "aging" phenomena. Uncertainties regarding design basis issues serve to undermine confidence in Probabilistic Risk Assessments and the concept of "maintaining" safety. In an October, 17, 1996 All Employees NRC meeting, Chairman Shirley Jackson opined that one reason for the events at Millstone was that ". . . we stopped doing design basis inspections too early, and relied on industry . . . without maintaining an appropriate regulatory focus to assess whether in fact they were dealing with the issue in a timely manner."

- (2) The IIEP make-up was weighted with regulators and industry to the extent that common interest in moving the ROP forward, and other commonalities, may have limited the panel's perspective. Given the common working culture, it is not surprising that the IIEP critique was quite similar to the staff review group critique. Future panels might benefit from inclusion of some additional individuals from outside of the NRC-licensee set, for example, attorneys with nuclear specialties or academics. Panel builders might also add to the quality of deliberation by a more even gender mix. While it enriches dialogue and broadens perspective to add members from public interest groups, adding only one or two with views likely to be quite alien to the remainder of the group on some issues is problematic in terms of free and meaningful consensus building.

Overall Reactor Oversight Process

The ROP is a notable improvement over the previous licensee performance assessment program and should be continued. The reactor oversight process has made progress toward achieving the Agency's four performance goals: 1) maintain safety, 2) increase public confidence, 3) increase regulatory effectiveness and efficiency, and 4) reduce unnecessary regulatory burden. In addition, the process provides a more objective, risk-informed, predictable, and understandable approach to the oversight of commercial nuclear reactor facilities. However, the panel identified the following issues that the staff should address:

Issue O-1: Process improvements and stakeholder feedback

Priority 1

Primary performance goals affected: Public confidence/effectiveness and efficiency

Issue description: As with any regulatory process, it is important that a formal infrastructure be established to allow for stakeholder comments and questions. The infrastructure should promptly review feedback and implement process improvements. The frequently asked questions process used in the performance indicator program is a good mechanism for raising and resolving licensee and inspector issues. This process promotes the open exchange of information and establishment of uniform and consistent guidance. Other elements of the ROP, such as the significance determination process, would benefit from a similar approach. This process should also include a mechanism for the public to retrieve information on past questions and answers and ensure that lessons learned and feedback information are communicated to the other regions.

The PPEP recommended continued feedback from inspectors and the ongoing modification of procedures during the industrywide implementation to assure that the procedures are clear and appropriately address the cornerstones.

Panel recommendation: Establish a formal program and assign sufficient resources to enhance communications necessary for improving the ROP. The program should accumulate lessons learned, provide multiple and diverse opportunities for comment to all internal and external stakeholders, respond to stakeholders' comments, and have a process for making timely process changes.

Issue O-2: Public access to ROP information

Priority 1

Primary performance goals affected: Public confidence/understandable

Issue description: It is important that the public have confidence that the ROP provides the regulator a means for accurately assessing the safety of plants and taking action where necessary and that the process and actions be effectively communicated to the public. Likewise, it is essential that the public have clear, unfettered access to accurate and meaningful information to be able to reach its own conclusions.

The staff made significant improvements to the public's access to plant performance information during the initial implementation period. The staff established a Web site that displayed information about the ROP. The public's response to the Web site was generally

very positive. The panel observed that the staff actively solicited stakeholder input throughout initial implementation, as it did during development and piloting of the ROP. Public workshops, public meetings near all facilities, and surveys provided opportunities for valuable input to the staff as they sought to further refine the ROP.

However, much remains to be done to make the ROP understandable and accessible to public stakeholders. At first, the public and media thought the new process relied solely on performance indicators because the indicators were highlighted on the Web page. The highlighting caused a few public stakeholders to believe that the NRC had abandoned the resident inspector program. Many stakeholders did not understand that insights from both performance indicators and inspection findings were used to assess overall licensee performance.

The staff has improved the structure and format of the Web pages to correct this perception. However, the Web pages need additional improvements. The ROP Web pages should start with overview information and provide layered access to more detailed information (i.e., links to the site-related documents). Site-specific pages could include a bulletin board with the status of enforcement items and inspections. This would enable the public to understand, without conducting exhaustive research, the status of important issues at the plant in their locale. A high-level summary would also provide a means to differentiate the performance of one plant from another. The timely posting of information is important to enhancing public confidence.

Panel recommendation: Revise the ROP communication plan to include outreach activities designed to inform the public about the process and its relationship to the Agency's mission of protecting the public health and safety. Appropriate resources should be provided to revise and implement the communication plan. Evaluate additional improvements to the information on the ROP Web page to improve and simplify public access to the information. Identify methods, using stakeholder input, to improve public outreach efforts.

Issue O-3: Long-term process effectiveness

Priority 1

Primary performance goals affected: Maintain safety/effectiveness and efficiency/public confidence

Issue description: The panel recognizes and agrees with the concern of members and stakeholders that there are limits to what may be learned from a 1-year test of the ROP. The staff should evaluate the long-term effectiveness of the process to determine whether the performance indicators and inspection findings identify poorly performing plants.

The significance determination process tools are a key element in ensuring the effectiveness of the ROP. However, the significance determination process Phase 2 worksheets were not available for much of initial implementation (see S-1).

The ROP is based on certain assumptions (e.g., that licensee corrective action programs are mature and support the basis for the licensee response band concept, that degraded performance will reveal itself by ever increasing significant issues and crossed performance indicator thresholds, and that all violations of NRC regulations do not require followup by the NRC). As sufficient information and experience is obtained, assumptions either will be

confirmed or refuted. Whatever the result, there must be a validation process. In addition, there may be unintended consequences of the ROP elements such as with some performance indicators (see P-1). The final oversight process must focus on identifying issues of safety significance, eliminating any underestimation of risk characterization determinations (false negatives), and minimizing overestimation of issues (false positives).

The PPEP recommended that the staff continue to monitor industrywide implementation to ensure that when a risk-significant event occurs, the event-specific response requires reevaluation of the performance indicators and inspection results to address whether they missed a crosscutting or common-mode failure issue. The PPEP also concluded those process assumptions had not been tested sufficiently.

Panel recommendation: Establish a structured ongoing program to evaluate long-term ROP effectiveness and to test ROP assumptions. As a minimum, this includes integrating the insights of the ROP self-assessment program and the overall assessment of industry performance. The staff should also consider periodically engaging internal and external stakeholders to independently assess the ROP.

Issue O-4: Crosscutting issues

Priority 1

Primary performance goals affected: Maintain safety/public confidence

Issue description: During the development of the ROP, and initial implementation, some inspectors were concerned about the identification and disposition of crosscutting issues. The concern was that licensee performance in the crosscutting areas of human performance, safety-conscious work environment, and problem identification and resolution could become degraded without being detected by the baseline inspection program and performance indicators. The ROP addresses crosscutting issues by highlighting them in inspection reports when they are notable contributors to inspection findings or if an appreciable trend or pattern has emerged. The staff further amplifies these concerns in assessment letters to the licensee when the concerns constitute a substantive issue.

The current process does not have sufficient criteria, thresholds, and definitions of crosscutting issues to ensure consistency in handling these issues. In addition, there is no predefined NRC action if the inspection program identifies a substantive crosscutting issue such as a deficient corrective action program. The ROP does not provide for additional NRC engagement on crosscutting issues unless they are contributing causes to performance indicators or inspection findings that have been characterized as White or greater. Some inspectors are also concerned about the lack of a process to handle low-level human performance trends when it appears that NRC actions could prevent the occurrence of a significant performance issue. The industry believes the ROP should focus on performance outcomes, of which crosscutting issues are but one possible cause.

One premise of the ROP is that either performance indicators or inspection findings will detect degradation in the crosscutting areas in time to allow for Agency action to protect the public health and safety. Early data obtained from initial implementation suggests that there is a correlation between crosscutting issues and crossed thresholds consistent with the premise of

the process (i.e., the number of crosscutting findings per plant appears to increase as you move to the right in the action matrix).

The PPEP final report also highlighted the divergent views on the identification and disposition of crosscutting issues.

Panel recommendation: Continue the efforts of the crosscutting issues task force and clarify the ROP guidance on the identification and disposition of crosscutting issues.

Issue O-5: Basis of Green/White thresholds

Priority 1

Primary performance goals affected: Public confidence/understandable

Issue description: The bases for the performance indicator Green/White thresholds are not risk-informed. The thresholds were selected to identify the 95-percent performance level (i.e., industry outliers). Since NRC action is the same for both White performance indicators and White inspection findings, which are risk-informed, several problems have resulted. First, the NRC and the licensee have a different perception of the impact and importance of White issues. Second, it is difficult to communicate to public stakeholders that a White performance indicator may not be risk-significant when the NRC increases its regulatory response according to the action matrix. This could impact public confidence in the NRC.

Panel recommendation: Evaluate lessons learned from initial implementation to achieve parity in the treatment of risk-significant inspection findings and crossed performance indicator thresholds. The evaluation should verify that the outcomes from the performance indicators and inspection findings accurately reflect the significance of the issues. The staff should consider addressing this issue by adjusting the Green/White thresholds or modifying the action matrix.

Performance Indicators

The integration of performance indicators into the ROP has provided objective measures for assessing licensee performance. Additionally, licensees can accurately report performance indicators without an excessive burden, and the public can easily understand the performance data. The initial implementation period has verified that the performance indicators can focus both licensee and NRC attention on issues that are either risk significant or relevant to promoting desired performance. However, the panel identified the following issues that the staff should address:

Issue P-1: Unintended negative consequences of performance indicators

Priority 1

Primary performance goals affected: Maintain safety/unnecessary regulatory burden

Issue description: The use of performance indicators may have unintended negative consequences when they measure both desirable actions and performance issues. This could lead to nonconservative decisions by licensees. In addition, NRC may impose unnecessary regulatory burden when it takes actions based, in part, on licensee actions that are desirable and appropriate.

The staff has noted that some licensees have altered normal operating and maintenance practices solely to avoid conditions that may contribute to crossing a performance indicator threshold. For example, the Unplanned Power Change performance indicator may cause a licensee to delay needed equipment repairs for 72 hours to avoid counting a power reduction. In contrast, a plant that appropriately conducts equipment repairs in a well-planned manner within 72 hours may be considered a poor performer. Another example is the Safety System Unavailability performance indicator, which includes unavailability time for planned preventive maintenance as well as unplanned corrective maintenance and equipment failures. A licensee may consider delaying discretionary maintenance if it is near the performance indicator threshold. Despite these concerns, there have not been any known instances to date of unsafe actions by a licensee because of the performance indicators.

Panel recommendation: Ensure that the staff's ROP self-assessment program identifies and evaluates any unintended consequences or unnecessary regulatory burden caused by the performance indicators and that changes are made where appropriate.

Issue P-2: Safety System Unavailability performance indicators

Priority 1

Primary performance goals affected: Maintain safety/risk-informed/understandable

Issue description: Many of the performance indicator frequently asked questions (FAQs) during initial implementation involved the safety system unavailability performance indicators definitions and guidance. The performance indicator definition of equipment unavailability is different from that used by other NRC and industry programs that monitor or consider unavailability of safety equipment (e.g., maintenance rule program and licensee's probabilistic risk assessments). The major hurdle in resolving this problem is determining whether the unavailability is to be measured against the design basis or the risk analyses (i.e., operable

versus functional). For example, consideration of operator recovery actions are limited by this indicator but are allowed in other programs.

Other issues are how to treat fault exposure hours and what allowances should be made for planned overhaul maintenance when a quantitative risk assessment has been previously performed and approved by the NRC. The large number of generic and site-specific exceptions to what equipment unavailability is counted in these performance indicators has made them difficult to understand and may erode public confidence. Finally, these indicators also measure appropriate actions by the licensee, such as planned preventive maintenance, so there is a potential for unintended consequences (see P-1).

Panel recommendation: Expedite the efforts to resolve the concerns about the safety system unavailability performance indicators and implement any needed revisions to NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," to achieve consistency with other applications.

Issue P-3: New performance indicators

Priority 2

Primary performance goals affected: Maintain safety/risk-informed

Issue description: Some current performance indicators and associated thresholds do not directly correlate with risk. In addition, the panel found at least one unintended consequence of performance indicators, specifically the misunderstanding that can occur because the Green/White threshold for performance indicators is not related to risk, as with inspection findings (see O-5). This misunderstanding causes the application of the action matrix to sometimes appear inconsistent and calls into question the value of some performance indicators as an input to performance assessment. For example, some emergency preparedness and physical protection performance indicators do not directly correlate to risk to the public health and safety, but are rather intended to identify weaknesses in licensee programs. The staff specifically avoids the identification of such weaknesses in the more risk-focused cornerstone areas.

Panel recommendation: Continue the efforts to identify and evaluate improvements to performance indicators. The staff should thoroughly evaluate any significant changes to the performance indicators following the structured process in Inspection Manual Chapter 0608, "Performance Indicator Program." Further, the staff should evaluate the effect of any significant changes in the scope of information provided by performance indicators on the action matrix and the baseline inspection program, and should identify any additional costs and benefits.

Note: The panel cautions the staff not to eliminate a performance indicator solely because it does not provide risk-informed information. The performance indicator may provide information useful for other purposes (e.g., increasing public confidence, identifying programmatic issues). In this case, the staff may need to adjust the threshold.

Issue P-4: Frequently asked questions

Priority 2

Primary performance goals affected: Understandable/effectiveness and efficiency

Issue description: During initial implementation of the ROP, licensee and NRC staff members asked many questions regarding the performance indicator guidance. These questions were documented, answered, and posted on the NRC's ROP Web site. Although this was a useful approach for clarifying and interpreting the guidance in NEI 99-02, the large number of questions made it difficult for all stakeholders to understand the guidance on the performance indicators. In addition, the inspectors noted that some licensees used site-specific answers to the questions out of context when applying it to their specific situation.

Panel recommendation: Continue efforts to incorporate the answers to frequently asked questions into the performance indicator guidance document, NEI 99-02, and to make the answers more generic where possible.

Inspection

The new inspection process has been effective in focusing the NRC's inspection efforts on areas more important to risk and safety. The combination of baseline and supplemental inspections provides sufficient coverage of the attributes of the seven safety cornerstones. The planning for both the overall inspection effort at a given site and for the selection of individual procedural samples has been more risk-informed. The improvements in procedural guidance have focused NRC resources on reviewing and assessing performance as opposed to providing subjective views of various licensee processes and programs. The new procedural guidance, being more objective and risk-informed, has also improved the consistency among the regions and the individual inspectors. Since the outcomes of the new inspection program are more risk-informed, the dialogue between the licensee and NRC is now primarily focused on safety. However, the panel identified the following issues that the staff should address:

Issue I-1: Physical protection cornerstone inspections

Priority 1

Primary performance goals affected: Objective/unnecessary regulatory burden

Issue description: Licensees have expressed concern regarding the NRC's approach to inspecting the licensee's response to contingency events (i.e., force-on-force drills) and applying the physical protection significance determination process (see S-4). Before initial implementation, the staff removed the evaluation of force-on-force exercises from the baseline inspection procedure (71130.03 "Response to Contingency Events (Protective Strategy and Implementation of Protective Strategy)") and continued the Operational Safeguards Response Evaluation (OSRE) inspections under inspection procedure 81110. The industry has proposed a pilot program for industry-conducted drills and exercises (SECY-01-0060). The industry has requested that self-assessment initiatives be considered as part of the inspection process similar to how the staff handles the evaluation of emergency drills in the emergency preparedness cornerstone.

Panel recommendation: Evaluate the inspection approach for the physical protection cornerstone and revise the inspection program as necessary after the pending safeguards performance assessment pilot program and the physical security rulemaking are completed.

Issue I-2: Inspection report documentation threshold

Priority 2

Primary performance goals affected: Public confidence/effectiveness and efficiency

Issue description: The staff significantly revised the guidance for documenting inspections under the ROP to provide a more structured approach for deciding the issues to be documented. NRC Inspection Manual Chapter 0610*, "Power Reactor Inspection Reports," changed the documentation threshold by eliminating discussions of positive performance attributes, minor violations, licensee-identified findings, and nonregulatory concerns (such as general weaknesses in programs or inspector observations) from the reports. The staff implemented these documentation changes, in part, to address industry concerns that subjective performance observations and inspector opinions in past reports were not based on regulatory requirements and did not correspond to any observable performance problems. In parallel with development of the ROP, the Office of Enforcement also developed improved

guidance to clarify the threshold for minor violations. This guidance was incorporated into MC 0610*. With the higher threshold for issues discussed in the inspection reports, some public stakeholders are concerned that they may receive less performance information than under the previous program. On the other hand, some stakeholders have noted that the more focused, albeit reduced, information in inspection reports allows for a more effective identification of significant regulatory and performance issues. Some inspectors are also concerned that they may miss low-level performance trends if they do not include them in the inspection reports. Stakeholders have also expressed a concern that the staff is not consistently implementing the new report documentation thresholds.

NRC Inspection Manual Chapter 2515, "Light Water Reactor Inspection Program - Operations Phase," endorses action by inspectors to provide licensees well-considered insights beyond those to be documented in the inspection report. Although the documentation threshold has changed, most licensees request that inspectors continue to share all of their observations at exit meetings. Since these observations do not meet the report documentation threshold, inspectors do not provide them to the public. This practice creates the appearance that relevant performance information is being intentionally withheld from the public. Some public stakeholders have suggested that all exit meetings should be open to the public to address this concern.

Panel recommendation: Evaluate and revise guidance to inspectors as necessary to clarify and promote consistency in documenting inspections. Continue conducting periodic audits of inspection reports to identify and correct inconsistencies. The new documentation thresholds for issues that have a defined level of safety or regulatory significance are appropriate. Inspection observations and insights that do not reach the threshold should continue to be communicated verbally to licensees for their consideration.

Issue I-3: Appropriate level of baseline inspection

Priority 2

Primary performance goals affected: Effectiveness and efficiency/unnecessary regulatory burden

Issue description: The inspection resource expenditures are about the same under the ROP as under the previous inspection program. The staff has noted wide ranges in actual resource expenditures, however, for certain procedures during the first year of implementation. Licensees have commented that specific cornerstones, such as occupational radiation exposure, appear to have too many resources applied when licensee performance trends and the previous inspection program are considered objectively (i.e., inspection resources have increased although overall occupational exposure has decreased).

The PPEP recommended that the resource levels required to plan and implement the baseline inspection program be evaluated during industry wide implementation, but cautioned that process effectiveness not be measured solely by increases or decreases in resource utilization. They also recommended that the appropriateness of the inspection frequency and scope continue to be assessed during industry wide implementation.

Panel recommendation: Evaluate inspection findings and performance indicator results for the first year's implementation and determine the appropriate level of effort to adequately assess risk-significant areas in the baseline inspections. Modify the process as appropriate.

Issue I-4: Use of licensee self-assessment information

Priority 2

Primary performance goals affected: Unnecessary regulatory burden/effectiveness and efficiency/public confidence

Issue description: In the previous inspection program, there were cases where the NRC did not conduct portions of specific team inspections if the licensee had conducted a rigorous self-assessment of the same area and placed the self-assessment in the public domain. The staff outlined this process in Inspection Procedure 40501, "Licensee Self-Assessments Related to Team Inspections." When NRC management approved the use of this procedure as an alternative to independent NRC inspection, the staff reviewed the scope and results of the licensee's self-assessment and the qualification of team members, and monitored ongoing portions of the licensee's review. The ROP has not provided this flexibility for reducing unnecessary regulatory burden. While this approach did not save a significant amount of NRC inspection resources, it reduced regulatory burden on the licensees, and the licensee staff gained a better understanding of their systems. However, it could reduce public confidence in the NRC as an independent regulator.

Panel recommendation: After further experience with the ROP, review the results and consider whether to waive certain parts of the baseline team inspections and let licensees assess themselves under defined circumstances.

Significance Determination Process

The significance determination process (SDP) has shown that risk information can be used in a systematic, practical, and repeatable manner. The SDP has given NRC inspectors an objective process for consistently characterizing inspection findings, and it has provided the NRC with improved tools for prioritizing emergent issues and selecting individual inspection samples. The SDP has focused both NRC and licensee attention on the risk associated with identified issues, as opposed to focusing attention and resources on the compliance implications. However, the panel identified the following issues that the staff should address:

Issue S-1: SDP Phase 2 Worksheets

Priority 1

Primary performance goals affected: Effectiveness and efficiency/unnecessary regulatory burden

Issue description: The primary tools to be used by field inspectors in determining the risk significance of reactor safety cornerstone inspection findings, the Phase 2 worksheets, were not available to the inspectors during initial implementation. The draft Phase 2 worksheets did not accurately reflect the current site probabilistic risk assessments and equipment configurations and needed to be revised. It was necessary for the regional risk analysts to perform resource-intensive Phase 3 analyses of all potential non-Green reactor safety issues to determine the risk significance of findings. The lack of adequate Phase 2 worksheets negatively affected the effectiveness and efficiency of the ROP during the first year.

The PPEP highlighted the importance of having plant-specific SDP worksheets before industrywide implementation.

Panel recommendation: Validate and issue the revised reactor safety SDP Phase 2 worksheets.

Issue S-2: Quality of NRC PRA tools

Priority 1

Primary performance goals affected: Maintain safety/public confidence

Issue description: The ROP relies on the quality and consistency of the probabilistic tools used by the NRC risk analysts and inspectors for their risk characterizations and decisions. Currently, the NRC relies heavily on the individual plant probabilistic risk assessments developed by the licensees, but the quality of these tools varies. The lack of validated Phase 2 worksheets magnified this concern during initial implementation (see S-1). For some findings that reached the Phase 3 analysis stage, the licensees with state-of-the-art tools felt penalized when the staff used their less sophisticated results to determine the risk significance of an issue. Their concern was predictability, since the calculated risk significance may have been greater with a less sophisticated tool. The lack of defined standards for methods and models also hampers the staff's ability to obtain timely and consistent results when evaluating findings.

Panel recommendation: Continue efforts to obtain improved and standardized risk analysis tools for the reactor analysts.

Issue S-3: Fire Protection SDP**Priority 1****Primary performance goals affected: Effectiveness and efficiency/understandable**

Issue description: The application of the fire protection SDP during the first year showed that it was excessively complex and subjective. This has limited its usefulness as a tool in evaluating some fire protection findings. Besides the complexity of the fire protection SDP, the resulting risk characterization of the findings did not seem consistent with findings in other cornerstone significance determinations.

Panel recommendation: Review lessons learned from use of the fire protection SDP, and improve the risk characterization tool to make it more meaningful, effective, and efficient.

Issue S-4: Physical Protection SDP**Priority 1****Primary performance goals affected: Effectiveness and efficiency/risk-informed**

Issue description: The physical protection SDP was initially aligned to the reactor safety SDP. The staff found that the process was problematic in several cases during initial implementation. The SDP results seemed inconsistent with the actual risk significance. The staff made interim revisions to the physical protection SDP to incorporate direction contained in Staff Requirements Memorandum COMSECY-00-0036 dated January 25, 2001.

Panel recommendation: Continue development of an improved physical protection SDP.

Issue S-5: Development of SDPs for other areas**Priority 1****Primary performance goals affected: Effectiveness and efficiency/predictable**

Issue description: Substantial work is needed to complete the suite of SDP tools. During the first year's implementation, the established SDP did not provide an effective tool for evaluating all inspector findings in certain areas (e.g., the staff identified the need for effective significance determination tools concerning shutdown, containment, and external events). The staff cannot easily assess other process-oriented inspection findings, such as those involving inadequate application of the maintenance rule, with the existing SDP unless there is a measurable impact on plant equipment.

Panel recommendation: Evaluate the need for other significance determination tools. The staff should carefully evaluate any potential changes against the Agency's goals. For example, a new SDP that increases regulatory burden should have a corresponding benefit in maintaining safety or increasing the Agency's effectiveness.

Issue S-6: ALARA SDP**Priority 1****Primary performance goals affected: Effectiveness and efficiency/unnecessary regulatory burden**

Issue description: During initial implementation, the staff experienced problems when using the ALARA SDP. The SDP screened out all issues identified at plants that had a 3-year average collective dose equal to or below the screening criteria based on the median industry performance. The unintended consequence of this SDP structure is that the inspectors cannot document the occurrence of an ALARA failure at these better performers in the inspection report, but they document the identical finding at a plant above the screening criteria. In addition, the staff designed the SDP structure to evaluate the licensee's performance in ALARA on a per job basis, but did not define a job. Another potential unintended consequence is that some licensees may estimate exposure in a very conservative manner during ALARA planning. Some stakeholders have commented that the SDP screening criteria are an inappropriate de facto definition of ALARA for occupational doses at nuclear power plants.

Panel recommendation: Evaluate lessons learned from initial implementation and revise the ALARA SDP as necessary.

Issue S-7: Process for evaluating and communicating SDP conclusions**Priority 2****Primary performance goals affected: Effectiveness and efficiency/understandable/public confidence**

Issue description: Using an SDP to place all inspection insights into a risk-informed context has been beneficial, but it has resulted in challenges. The breadth of potential issues and the uniqueness of each plant's design and associated risk profile are leading to a highly complex and time-consuming process that is challenging public confidence. The experience with implementation of the SDP during the first year has been that the final risk characterizations are often untimely and the process is not always transparent to the licensees and external stakeholders.

Inherent to the SDP is the fact that regional risk analysts and inspectors discuss technical information and risk analysis assumptions with the licensee's technical staff. These discussions are used to ensure the NRC's risk analysis is technically sound, but they have given the perception to many stakeholders that the finding is being debated out of the public view. Several public stakeholders have expressed concern that "negotiations" occur between the NRC staff and licensees during the risk characterization process. Public stakeholders have also observed that the communication of the basis for the final risk significance determination is not clear in all inspection reports, and does not always provide sufficient information for any interested party to independently reconstruct the analysis. Some stakeholders have suggested that all of the information used in the SDP, including licensee probabilistic risk assessments, should be docketed.

The time and resources committed to process individual potential non-Green issues have been higher than expected, and many final determinations have not met the Agency's timeliness goals. The guidance concerning Agency decisions emphasizes risk-based criteria as opposed

to risk-informed. This could encourage protracted “PRA battles” that will hold up NRC actions and could reduce the public’s confidence in the new process’s effectiveness and efficiency. Stakeholders have observed that excessive time is also spent resolving disagreements regarding Green inspection findings, which appears contrary to being risk-informed and efficient.

The PPEP noted that the staff needs to shorten the turnaround time for Phase 3 evaluations. The PPEP also recommended that the process for interactions between the NRC and licensee during SDP evaluations be better defined, and that attention be focused on explaining the basis for color assignments.

Panel recommendation: Use lessons learned from initial implementation to make the risk characterization process expedient, scrutable, and understandable to all stakeholders.

Issue S-8: Definition of a performance deficiency

Priority 2

Primary performance goals affected: Public confidence/maintain safety

Issue description: Early in the implementation of the ROP, the staff developed guidance in NRC Inspection Manual Chapter 0609, “Significance Determination Process,” that required inspectors to demonstrate a licensee performance deficiency before entering the SDP. This policy caused concern among some inspectors because the NRC might appear to be overlooking risk-significant issues simply because it had not established a clear performance deficiency. In addition, the staff had difficulty developing a licensee performance deficiency if the licensee could not establish a root cause for an equipment failure. There is a potential to erode public confidence by giving the appearance that the NRC is not taking consistent actions on risk-significant issues.

Panel recommendation: Use lessons learned from initial implementation to clarify the definition of a performance deficiency.

Assessment and Enforcement

The assessment process associated with the ROP has effectively reduced the subjectivity of the previous assessment process. The use of a predetermined action matrix, which places objective performance indicators and inspection findings in a risk-informed context, has made the determination and communication of NRC actions more streamlined and predictable. This has improved public confidence by providing a clear road map for understanding Agency- licensee interactions and regulatory decisions. Enforcement actions are now performance-based, with an emphasis on placing the significance of the noncompliance into a safety context and ensuring that the licensee is taking corrective actions. The response of the Agency is more timely under the new assessment scheme than under the previous process. However, the panel identified the following issues that the staff should address:

Issue A-1: Length of time inspection finding is included in action matrix

Priority 1

Primary performance goals affected: Unnecessary regulatory burden/understandable

Issue description: According to NRC Inspection Manual Chapter 0305, "Operating Reactor Assessment Program," a non-Green inspection finding is normally carried forward in the assessment program (i.e., action matrix) for a total of four calendar quarters. Performance indicators are recalculated quarterly. Licensees have proposed that there be a graded approach for how long findings remain active rather than the fixed 1 year. Considering the risk significance of the various findings, it may be beneficial to establish a graded approach for resetting inspection findings in the action matrix.

Panel recommendation: Evaluate a graded approach for resetting non-Green inspection findings as entry conditions into the action matrix.

Issue A-2: No-color inspection findings

Priority 1

Primary performance goals affected: Understandable/public confidence

Issue description: The ROP has proceduralized the use of no-color findings. The role of no-color findings, however, is not clear and has contributed to process inconsistencies and confusion among many stakeholders. No-color findings are associated with specific extenuating circumstances listed in NRC Inspection Manual Chapter 0610*. These findings typically address regulatory issues that are more than minor violations, but do not meet the threshold for entry into the existing cornerstone significance determination process. These issues do not receive a severity level or color and, therefore, the NRC does not characterize their importance. Early in the process, the staff guidance was nonspecific and the result was the appearance of a new finding classification.

Licensees are concerned that these findings may be inappropriately used to artificially inflate the significance of individual issues; likewise, they believe that many of the issues do not warrant inclusion in inspection reports. External stakeholders have noted that the staff has established a new undefined category of findings. Furthermore, no-color findings are colored blue on the NRC's Web page, and their role in the process is not understandable.

Panel recommendation: Evaluate and clarify the guidance on the designation, definition, and use of what are presently called no-color findings, and find a more appropriate term for these findings.

Issue A-3: Purpose of the Regulatory Conference

Priority 2

Primary performance goals affected: Public confidence/effectiveness and efficiency/understandable

Issue description: The purpose of a regulatory conference is to gain a complete understanding of the risk significance of an inspection finding and to obtain information pertinent to understanding any apparent violations. During initial implementation of the ROP, stakeholders noted that the objectives of the regulatory conferences were not clear. The structure of the regulatory conferences was very similar to that of the enforcement conferences in the previous program. The regulatory conference discussions sometimes focused more on enforcement and corrective actions rather than on the determination of the risk significance of the issue. Additionally, licensee and NRC managers have expressed discomfort with holding public meetings concerning a potentially risk-significant issue and not including all potential decision-makers.

Panel recommendation: Clarify the guidance on the objectives and structure of regulatory conferences and communicate this guidance to the external and internal stakeholders.

Issue A-4: Multiple related inspection findings

Priority 2

Primary performance goals affected: Unnecessary regulatory burden/effectiveness and efficiency

Issue description: It is not clear how the NRC should disposition multiple inspection findings that are related to the same technical problem or root cause. For example, would it be appropriate to characterize an inspection finding involving five related issues (3 Green, 1 White, 1 Yellow) as one finding or five separate findings? If they are handled as separate findings, the NRC response, as determined by the action matrix, will be different from if they are considered one finding. Experience has shown that significant events and conditions are often caused by multiple performance failures.

Panel recommendation: Develop clear guidance on how to handle multiple related inspection findings, and communicate the guidance to all stakeholders.

ROP Self-Assessment Program

Through briefings to the IIEP by the NRC staff and review of the preliminary self-assessment metrics, the panel evaluated the ROP self-assessment program to determine whether the developed program was sound and whether it included mechanisms for self-correction. The staff developed the self-assessment program to determine whether the ROP is meeting its objectives (including the Agency's performance goals), to gather information about overall industry performance, and to develop information to support possible improvements. The self-assessment program includes more than 75 metrics for measuring the success of the overall ROP and how effectively it supports the four ROP elements (performance indicators, inspection program, significance determination process, assessment program). The metrics are aligned to the ROP objectives (risk-informed, predictable, understandable, objective) and the Agency's performance goals (maintain safety, increase public confidence, increase effectiveness and efficiency, reduce unnecessary regulatory burden). The staff evaluates the metrics on a periodic basis using information from various sources, including the inspection program, performance indicators, periodic audits, stakeholder surveys, and public comments.

Based on the timing of the panel's activities and the parallel collection and assessment of self-assessment data, limited data and results were available for the panel to review. Although the panel acknowledges the significant efforts of the staff in developing the self-assessment program, it is best described as a noteworthy work in progress, which may require further enhancements and refinements based upon the evaluation of the data collected. Although individual panel members provided comments to the staff for consideration in further defining and revising the individual metrics, the panel, as a whole, took no consensus position on the overall adequacy and acceptability of the metrics. They are, even now, continuing to be refined by the staff and the data for assessing their overall efficacy were not available. Nevertheless, the panel concluded that the self-assessment program has the necessary elements to evaluate the ROP against the Agency's performance goals. The panel, however, could not evaluate the effectiveness of the program given that the first year's assessment data was not yet available. The panel was encouraged by the fact that, for the most part, the staff had identified the same issues the panel identified.

IIEP CHARTER

UNITED STATES NUCLEAR REGULATORY COMMISSION CHARTER REACTOR OVERSIGHT PROCESS INITIAL IMPLEMENTATION EVALUATION PANEL

1. The Committee's official designation:

Reactor Oversight Process Initial Implementation Evaluation Panel (IIEP)

2. The Committees objectives and the scope of its activity:

The NRC has implemented a revised reactor oversight process (ROP) for commercial nuclear power plant licensees. The ROP is described in NRC Inspection Manual Chapter 2515. Background information on the development of the ROP is contained in Commission papers SECY-99-007, "Recommendations For Reactor Oversight Process Improvements," dated January 8, 1999, SECY-99-007A, "Recommendations For Reactor Oversight Process Improvements (Follow-up to SECY-99-007)," dated March 22, 1999, and SECY-00-049, "Results of the Revised Reactor Oversight Process Pilot Program," dated February 24, 2000. These Commission papers describe the scope and content of performance indicator reporting, a new risk-informed baseline inspection program, a new assessment process, and revisions to the enforcement policy. Commission paper SECY-00-049 also describes the results from the Pilot Program Evaluation Panel (a previous Federal Advisory Committees Act (FACA) panel), including a recommendation from the panel to proceed with initial implementation of the ROP at all power reactor facilities. On March 28, 2000, the Commission approved initial implementation of the ROP, and on May 17, 2000, the Commission directed the NRC staff to convene another evaluation panel under FACA to evaluate the first year of implementation of the ROP. The staff has established this IIEP in response to the Commission's directions.

The IIEP will function as a cross-disciplinary oversight group to independently monitor and evaluate the results of the first year of initial implementation of the ROP and provide advice and recommendations to the Director of the Office of Nuclear Reactor Regulation on reforming and revising the ROP. IIEP meetings will be announced to the public in advance and (unless closed according to the provisions of FACA) open to the public. Subject to the Freedom of Information Act, all material made available to or prepared for or by the IIEP will be made available to the public. Meetings will be transcribed and meeting summaries will be prepared following each meeting to document the results of the meetings. The transcripts and meeting summaries will be publicly available.

The IIEP will evaluate the ROP results against performance measures. The IIEP will provide a written report containing an overall evaluation of the ROP to the Director of the Office of Nuclear Reactor Regulation. This report will include the consensus views of the panel, or the majority and minority views when panel consensus cannot be achieved. The NRC staff will use the IIEP evaluation as a major input to its deliberative process to determine what modifications, if any, are needed to the ROP following initial implementation.

3. The period of time necessary for the Committee to carry out its purpose:
Nine months
4. The NRC official to whom this Committee will report:

Committee Chairman
Loren Plisco
Director, Division of Reactor Projects
Region II
5. The NRC office and individual responsible for providing support for the Committee:

Office of Nuclear Reactor Regulation

Designated Federal Official
John Monninger
Technical Assistant, Associate Director for Inspection & Programs
Office of Nuclear Reactor Regulation
6. A description of the duties for which the Committee is responsible, and if such duties are not solely advisory, a specification of the authority for such functions:

The panel will provide advice and recommendations only.
7. The estimated annual operating costs, in dollars* and staff years, for the Committee:
 - a. \$120,000 (*Includes travel and per diem)
 - b. 0.50 FTE
8. The estimated number and frequency of the Committee meetings:

Approximately 3 meetings will be held, on an as needed basis, during the period the panel is in existence.
9. Organization - The IIEP will create any subcommittees which may be necessary to fulfill the IIEP's mission. In addition, NRC and IIEP will establish such operating procedures as are required to support the group, consistent with the Federal Advisory Committee Act, as amended.
10. The Committee's termination date, if less than two years from the date of establishment:

July 31, 2001
11. Charter Filing Date:

October 17, 2000

/RA/

Andrew L. Bates
Advisory Committee Management Officer
Office of the Secretary of the Commission

IIEP MEMBERS

In selecting members for the Initial Implementation Evaluation Panel, the NRC considered interested persons and groups with professional, technical, or personal qualifications or experience that could contribute to the functions and tasks of the panel. The NRC considered several factors in appointing IIEP members, including (1) the requirements in 10 CFR Part 7, "Advisory Committees," directing balance in advisory committee membership in terms of the points of views represented and the functions to be performed, (2) Commission direction in the staff requirements memorandum for SECY-00-0049 for a panel with a cross-section of stakeholders similar to those who participated in the original evaluation panel, and with the addition of at least one resident inspector and one senior reactor analyst, (3) a desire for independence from the NRC office responsible for development and oversight of the ROP (Office of Nuclear Reactor Regulation) and a focus on those stakeholders most affected by the ROP, and (4) a desire to provide both continuity and new perspectives in terms of the individual panel members selected.

Panel Members

Loren Plisco, NRC, Region II (Chairman)
Randolph Blough, NRC, Region I
Kenneth Brockman, NRC, Region IV
Richard Borchardt, NRC, Office of Enforcement*
Mary Ferdig, Benedictine University; Ferdig, Inc.**
Steve Floyd, Nuclear Energy Institute
David Garchow, PSEG Nuclear LLC
Richard Hill, Southern Nuclear Operating Company
Rod Krich, Exelon Corporation
Robert Laurie, California Energy Commission
David Lochbaum, Union of Concerned Scientists**
James Moorman, NRC, Region IV (Senior Resident Inspector)
Steven Reynolds, NRC, Region III
Edward Scherer, Southern California Edison
James Setser, Georgia Department of Natural Resources
Raymond Shadis, New England Coalition on Nuclear Pollution**
James Trapp, NRC, Region I (Senior Reactor Analyst)

Support to the Panel

Facilitator: Francis X. Cameron - NRC, Office of the General Counsel
Designated Federal Official: John D. Monninger - NRC, Office of Nuclear Reactor Regulation

* Richard Borchardt was originally appointed to the panel and participated in all panel activities through the fourth meeting of February 26-27, 2001. Subsequently, he was appointed to the position of NRR Associate Director for Inspection and Programs and assumed those duties as of March 19, 2001. In recognition of the desire for independence in panel membership from NRR, Mr. Borchardt decided to recuse himself from panel activities effective April 2, 2001.

** David Lochbaum was originally appointed to the panel and participated in the first panel meeting on November 1-2, 2000. He resigned from the panel on November 6, 2000. On December 4, 2000, Mary Ferdig and Ray Shadis were appointed to the panel.

BIBLIOGRAPHY OF PANEL ACTIVITIES

1. Results of the Revised Reactor Oversight Process Pilot Program, SECY-00-049, February 24, 2000, ADAMS ML003683227
2. Staff Requirements Memorandum on SECY-00-0049, "Results of the Revised Reactor Oversight Process Pilot Program (Part 2)," May 17, 2000, ADAMS ML003715823
3. IIEP Charter, October 17, 2000, ADAMS ML003760300
4. Letter to General Services Administration, October 17, 2000, ADAMS ML003760307
5. Letter to Library of Congress, October 17, 2000, ADAMS ML003760327
6. Letters to Congressional Oversight Committees, October 17, 2000, ADAMS ML003763800
7. First IIEP Meeting Summary and Transcript, November 1-2, 2000, ADAMS ML003774521
8. Second IIEP Meeting Summary and Transcript, December 11-12, 2000, ADAMS ML010090359 & ML010530300
9. Third IIEP Meeting Summary and Transcript, January 22-23, 2001, ADAMS ML010530104
10. Fourth IIEP Meeting Summary and Transcript, February 26-27, 2001, ADAMS ML010880350
11. Fifth IIEP Meeting Summary and Transcript, April 2-3, 2001, ADAMS ML011140513
12. Sixth IIEP Meeting Summary and Transcript, April 25, 2001, ADAMS ML011280333
13. Final IIEP Report, May 10, 2001, ADAMS ML011290025

SOURCES OF PANEL INFORMATION

December 11-12, 2000

Bill Sherman, Vermont Department of Public Service
Gary Wright, Illinois Department of Nuclear Safety

January 22-23, 2001

Joseph Brady, NRC Senior Resident Inspector
Sonia Burgess, NRC Senior Reactor Analyst
Stephen Campbell, NRC Senior Resident Inspector
Jeffrey Clark, NRC Senior Resident Inspector
Steven Jones, NRC Senior Resident Inspector
William Jones, NRC Senior Reactor Analyst
Jill Lipoti, New Jersey Department of Environmental Protection
James Trapp, NRC Senior Reactor Analyst
Dennis Zannoni, New Jersey Department of Environmental Protection

February 26-27, 2001

Victor Dricks, NRC Office of Public Affairs
Steve Floyd, Nuclear Energy Institute
Rich Janati, Pennsylvania Department of Environmental Protection
Judith Johnsrud, ECNP, Sierra Club
Steve Kerekes, Nuclear Energy Institute
David Lochbaum, Union of Concerned Scientists
Jenny Weil, McGraw Hill's *Inside NRC*