

Issue: (P-1) Unintended consequences of performance indicators

Priority: 1

Primary Program Goals: Maintain Safety/Unnecessary Regulatory Burden

Issue Description: The staff has noted a number of examples where licensees have altered operating practices and maintenance practices solely to minimize situations that may lead to crossing a performance indicator threshold. This is sometimes called “managing the indicator.” The staff is concerned that this approach may lead to licensees taking unsafe actions to keep an indicator in the green band. 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 is proactive in conducting equipment repairs in a well planned manner, but less than 72 hours, may be categorized as a poor performer by taking the appropriate action. Another example is Unplanned Scrams performance indicator, which some industry managers perceive as having the potential for negative consequences from counting manual scrams. The concern is that an operator may be influenced by the indicator to not scram the reactor when required. The potential for an unintended consequence occurs when the performance indicator measures actions that are not necessarily an undesirable action. In addition, there may be unnecessary regulatory burden when the regulator takes action based on performance indicators that measure actions that are appropriate.

Panel Recommendation: The staff’s ROP self-assessment process should identify and evaluate any instances of unintended consequences and unnecessary regulatory burden of performance indicators and make program adjustments where necessary.

Issue: (P-2) New performance indicators

Priority: 2

Primary Program Goals: Maintain Safety/Risk-informed

Issue Description: The reactor oversight process would be significantly enhanced by the use of risk-informed performance indicators and thresholds. Performance indicators need to be risk-informed to improve consistency in the assessment process. Since the current performance indicators and thresholds do not correlate with risk, the application of the action matrix appears inconsistent and calls into question the value of the performance indicators as an input to performance assessment. For example, external stakeholders have recommended performance indicators for steam generator tube integrity and corrective action programs.

Note: The panel cautions the staff to not eliminate a performance indicator solely because it does not provide valuable assessment information (i.e. identification of outliers) where the performance indicator provides information useful for enhancing public confidence.

Panel Recommendation: Expedite the efforts to identify and evaluate new risk-informed performance indicators.

Issue: (P-3) Safety System Unavailability performance indicators

Priority: 1

Primary Program Goals: Maintain Safety/Risk-informed/Understandable

Issue Description: The largest percentage of performance indicator frequently asked questions were regarding the safety system unavailability performance indicators. There are a number of issues and concerns regarding the definitions and guidance for this indicator. The performance indicator definition of what is considered equipment unavailability is different than other programs that monitor or consider unavailability of safety equipment, such as the maintenance rule. For example, considerations for allowed operator recovery actions and the impact of cascading of support systems vary in the other programs. Other issues that have resulted in extensive discussion are the treatment of fault exposure hours and exempting planned overhaul maintenance when a quantitative risk assessment has been performed. The number of exceptions to what equipment unavailability is counted, generic and site-specific, has made this indicator difficult to understand and may erode public confidence.

Panel Recommendation: Evaluate the concerns regarding the safety system unavailability performance indicator and implement any needed revisions to NEI 99-02.

Issue: (P-4) Frequently Asked Questions

Priority: 2

Primary Program Goals: Understandable/Efficiency and Effectiveness

Issue Description: During initial implementation of the reactor oversight process, many questions were asked by licensee and NRC staff members regarding the performance indicator guidance. These questions were specifically answered and posted on the NRC web site. Although this was a useful approach, the large number of questions made it difficult for the stakeholders to understand the guidance for the performance indicators. In addition, the inspectors noted that some licensees would take 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.

Issue: (I-1) Appropriate level of baseline inspection

Priority: 2

Primary Program Goals: Efficiency and Effectiveness/Unnecessary Regulatory Burden

Issue Description: The reactor oversight process baseline inspection program resource estimates are greater than for the previous core inspection program. Wide ranges in actual resource expenditures have been noted for certain procedures during the first year of implementation. Licensees have noted that specific areas, such as occupational radiation exposure, appear to have too many resources applied when licensee performance trends and the previous inspection program are considered objectively.

Panel Recommendation: Evaluate the resource expenditures for the first year of implementation and determine the reasons for any significant deviation from the resource estimates at a procedure level.

Issue: (I-2) Inspection Report documentation threshold

Priority: 2

Primary Program Goals: Public Confidence/Efficiency and Effectiveness

Issue Description: The program guidance for documenting inspections, Manual Chapter 0610* was significantly revised for the reactor oversight process. The threshold for documenting inspector findings was changed and a more structured process was developed to determine if issues should be documented. These changes were implemented, in part, to address industry concerns regarding subjective performance observations and inspector opinions which were not based on regulatory requirements that had been in past reports. In parallel with development of the reactor oversight process, improved guidance was also developed to clarify the threshold for “minor violations.” This guidance was incorporated into MC 0610*. With the significantly reduced level of detail in the inspection reports, the staff was concerned that the public may receive less performance information than in the previous program. Some inspectors are also concerned that low level performance trends may not be developed if they are not included in the inspection reports. There has also been concern that the new thresholds may not be consistently implemented. Another related concern is that most licensees have requested the inspectors to continue to provide the low level observations that are not provided in the inspection report at exit meetings, but this information is not provided to the public.

Panel Recommendation: Evaluate the effectiveness of the current inspection report documentation guidance and make any necessary guidance changes.

Issue: (I-3) Physical protection cornerstone inspections

Priority: 1

Primary Program Goals: Objective/Unnecessary Regulatory Burden

Issue Description: Licensees have expressed significant concern regarding the NRC's approach to inspecting the licensees response to contingency events (i.e., force on force drills). The industry has requested that self-assessment initiatives be considered.

Panel Recommendation: Reevaluate the inspection approach for physical protection cornerstone and revise the inspection program as necessary.

Issue: (I-4) Event response

Priority: 2

Primary Program Goals: Efficiency and Effectiveness/Public Confidence/Predictable

Issue Description: During the initial implementation of the reactor oversight process, the staff used a draft Management Directive 8.3 to make decisions regarding the agency's response to events and significant conditions. The draft MD revised the incident response guidance to include preliminary risk-insights in the decision-making process, but the previous narrative criteria were retained. Some experience was gained during the first year and problems with the procedure were noted. For example, for the first several days following an event, the necessary facts needed to conduct a risk assessment are not available. In several other cases, significant plant conditions were identified that were too complex for a quick risk assessment.

Panel Recommendation: Update the Management Directive and supporting procedures to incorporate lessons learned from the first year and to clarify the decision-making considerations.

Issue: (I-5) Use of licensee self-assessment information

Priority: 2

Primary Program Goals: Unnecessary Regulatory Burden/Efficiency and Effectiveness

Issue Description: In the previous inspection program, there were cases where the NRC did not conduct specific inspections if the licensee had conducted a rigorous self-assessment of the same area. The NRC only reviewed the results of the licensee's self-assessment and monitored portions of the review. This flexibility has not been provided in the reactor oversight process. The baseline inspection program has decoupled inspection resource expenditures from plant performance.

Panel Recommendation: Review the results from the first year of the reactor oversight process and evaluate the feasibility of allowing licensee self-assessments in place of baseline inspections under certain defined circumstances.

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

Priority: 1

Primary Program Goals: Unnecessary Regulatory Burden/Understandable

Issue Description: In accordance with IMC 0305, Operating Reactor Assessment Program, a non-green inspection finding is normally carried forward in the assessment process (i.e., action matrix) for a total of four calendar quarters. Performance indicators are recalculated on a quarterly basis. Licensees have proposed that there be a graded approach for the findings rather than the fixed one year for all findings. Considering the risk significance of the various findings, it may be beneficial to establish a graded approach to reset of the inspection finding in the action matrix.

Panel Recommendation: Evaluate the feasibility of a graded approach to resetting the non-green inspection findings.

Issue: (A-2) Purpose of the Regulatory Conference

Priority: 2

Primary Program Goals: Public Confidence/Efficiency and Effectiveness/Understandable

Issue Description: The purpose of a Regulatory Conference is to gain a complete understanding of the risk significance of an inspection finding as well as information pertinent to understanding any apparent violations. During the initial implementation of the reactor oversight process, stakeholders noted that the objectives of the regulatory conferences were not clear during the conduct of the conference. The structure of the regulatory conferences appeared to be very similar to enforcement conferences in the previous program. The participation of enforcement staff and technical staff in the regulatory conferences sometimes focused the meeting discussion on enforcement and corrective actions rather than determination of the risk significance of the issue.

Panel Recommendation: Clarify the staff guidance regarding the objectives and structure of the regulatory conferences.

Issue: (A-3) “No color” inspection findings

Priority: 1

Primary Program Goals: Understandable/Public Confidence

Issue Description: The reactor oversight process has proceduralized the use of no-color findings. The no color findings are associated with specific extenuating circumstances that are listed in Manual Chapter 0610*. These findings typically address issues that are more than minor violations, but can not pass through the Group 2 questions for entry into the significance determination process. These issues were intended to be associated with traditional enforcement issues that involve actions that are willful or which impede the regulatory process, substantive cross-cutting issues, issues of an agency-wide concern, or closing out an open item from an LER. The staff guidance was non-specific early in the process and the result was the appearance of a new finding classification. In addition, the NRC’s actions for these findings are not covered by the action matrix so it is not clear what role they play in the oversight process. Licensees are concerned that these findings may be inappropriately used to support trends for cross-cutting issues and believe that many of the issues do not warrant inclusion in inspection reports. External stakeholders have noted that these findings are colored blue on the NRC’s ROP web page. The role of no color findings is not clear and has contributed to confusion to many stakeholders and program inconsistencies.

Panel Recommendation: Reevaluate the need for and use of “No-color” findings and clarify the program guidance regarding the definition and use of these findings.

Issue: (A-4) Multiple inspection findings

Priority: 2

Primary Program Goals: Unnecessary Regulatory Burden/Efficiency and Effectiveness

Issue Description: It is not clear how the NRC should disposition multiple, yet related, inspection findings. 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 impact on entry into the action matrix will change. NRC experience has been that significant events and conditions often involve more than one performance failure.

Panel Recommendation: Develop clear policy guidance regarding the handling of multiple related inspection findings.

Issue: (O-1) Process improvements and stakeholder feedback

Priority: 1

Primary Program Goals: Public Confidence/Efficiency and Effectiveness

Issue Description: As with any process, it is important that a formal infrastructure be established to allow for stakeholder feedback, comments, and questions. In addition, the infrastructure should ensure timely review of feedback and implementation of process improvements. The Frequently Asked Question process used for the Performance Indicator program was a positive mechanism to raise and resolve licensee and inspector issues. This process provided for the open exchange of information and establishment of uniform and consistent guidance. The other elements of the Reactor Oversight Process would benefit from a similar process. This process should also include a mechanism for the general public to get information on past questions and answers, and ensure lessons learned and feedback information is shared across regional boundaries.

Panel Recommendation: Establish a formal program and assign resources to continue to improve the reactor oversight process. The process should accumulate lessons learned, pursue multiple avenues for all stakeholders to provide feedback and obtain responses to questions, and include an infrastructure to make timely program changes

Issue: (O-2) Public access to timely and clear reactor oversight information

Priority: 1

Primary Program Goals: Public Confidence/Understandable

Issue Description: Significant improvements to public access of reactor oversight information were made during initial implementation. However, much remains to be done to make the reactor oversight process understandable and accessible to external stakeholders. Early in the process, it appeared that the public perceived the new process as solely the performance indicators because of the focus on the indicators on the web page. Additional improvements to the structure and format of the web pages can be made to enhance public confidence in the process. For example, the public information could be organized by site starting with an overview of plant performance, with all of the site-related documents linked to the site page. This page could include a status board posting the status of enforcement items and inspections so that the public does not have to conduct exhaustive searches to understand the important issues at the plant in their locale. The timely posting of information is also important to enhancing public confidence.

Panel Recommendation: Evaluate additional improvements to the reactor oversight information on the Web page to improve and simplify public access to the information.

Issue: (O-3) Long-term program effectiveness

Priority: 1

Primary Program Goals: Maintain Safety/Efficiency and Effectiveness/Public Confidence

Issue Description: The panel recognizes that there are limits to what may be learned from a one year test of the reactor oversight process. The long-term effectiveness of the program should be evaluated to determine if the performance indicators and inspection findings are identifying the plants with poor performance. The reactor oversight process was based on certain presumptions and assumptions and when sufficient information and experience has been attained these should be validated. In addition, there will likely be unintended consequences resulting from the program elements, such as we have seen in some performance indicators. The evaluation should also focus on the elimination of any potential for false negatives and to minimize the number of false positives.

Panel Recommendation: Establish a structured process to evaluate long-term program effectiveness and to test program assumptions.

Issue: (O-4) Cross-cutting issues

Priority: 1

Primary Program Goals: Maintain Safety/Public Confidence

Issue Description: Since the reactor oversight process was implemented, there has been a concern among the inspection staff regarding the identification and disposition of cross-cutting issues. The current process does not have sufficient criteria, thresholds, and definitions of cross-cutting issues to ensure consistency in dispositioning these issues. In addition, there is no pre-defined NRC action if the inspection program identifies a deficient corrective action program. The staff is also concerned about the lack of a process to handle human performance trends when it appears that NRC actions could prevent a risk-significant issue from occurring.

Panel Recommendation: Continue the efforts of the Cross-Cutting issues task force and clarify the program guidance regarding identification and disposition of cross-cutting issues.

Issue: (O-5) Basis of Green-to-White Thresholds

Priority: 1

Primary Program Goals: Public Confidence/Understandable

Issue Description: The basis for the Green/White threshold for the performance indicators is not risk-informed. The thresholds were selected to identify the 95 percent performance level - or outliers. Since NRC action is the same for White performance indicators and inspection findings, which are based on risk significance, several problems result. First, there is a difference between the NRC's and the licensee's perception regarding the impact and importance of white issues. It is also difficult to communicate to external stakeholders that a white performance indicator is not risk-significant when the NRC increases its regulatory response in accordance with the action matrix.

Panel Recommendation:

Issue: (S-1) Process for evaluating and communicating SDP conclusions

Priority: 2

Primary Program Goals: Efficiency and Effectiveness/Understandable

Issue Description: Experience with implementation of the significance determination process during the first year has found that the final risk characterizations are untimely and the process is not transparent to the licensees and external stakeholders. External stakeholders believe that “negotiations” occur between the NRC staff and licensees during the risk characterization process. During the significance determination process, 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 correct, but can give the perception that the finding is being debated out of the public view. Some have suggested that the information used in the significance determination process be docketed. Licensees have commented that they do not understand the process sufficiently to determine when they should communicate with the NRC staff to ensure the technical details regarding an issue are correct. Other stakeholders have observed that excessive time is spent resolving disagreements and appeals of low-level inspection findings, contrary to being risk-informed and efficient. The time and resource commitment to process individual potential non-green issues has been higher than expected, and many final determinations have not been within the staff timeliness goals. Stakeholders have also observed that the communication of the basis for the final risk significance determination is not clear in the inspection reports and does not provide sufficient information to reconstruct the analysis.

Panel Recommendation: Use lessons learned from the initial implementation of the reactor oversight process to improve the process for evaluating and communicating SDP conclusions in a timely and open manner.

Issue: (S-2) Fire Protection SDP

Priority: 1

Primary Program Goals: Efficiency and Effectiveness/Understandable

Issue Description: Experience with the Fire Protection Significance Determination Process, Manual Chapter 0609 Appendix F, was that it is too complex and subjective to be a useful tool in the reactor oversight process. In addition to the complexity of the SDP, the risk characterization of the findings early in the first year of the reactor oversight process did not appear to be consistent with findings in other SDPs.

Panel Recommendation: Review lessons learned from use of the fire protection SDP and improve the risk characterization tool

Issue: (S-3) Significance Determination Process Phase 2 Worksheets

Priority: 1

Primary Program Goals: Efficiency and Effectiveness/Regulatory Burden

Issue Description: The primary tool to be used by inspectors in determining the risk-significance of reactor safety cornerstone inspection findings, the Phase 2 worksheets, were not available to the inspectors during the first year of implementation. The draft Phase 2 worksheets did not accurately reflect the current site PRAs and equipment configurations. It was necessary for the regional risk analysts to perform Phase 3 analyses on all potential non-green reactor safety issues to determine the risk significance of findings. The lack of adequate Phase 2 worksheets hampered the effectiveness of the SDP process during the first year.

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

Issue: (S-4) Quality of NRC PRA tools

Priority: 1

Primary Program Goals: Maintain Safety/Public Confidence

Issue Description: The reactor oversight process relies on the quality and consistency of the probabilistic tools used by the NRC risk analysts and inspectors as a basis for its risk characterizations and decisions. Currently, the NRC relies heavily on the individual plant PRAs developed by the licensees, but the quality of these tools vary. In some cases, the plants with state-of-the-art tools feel penalized when the staff uses results from their tool to determine the risk significance of an issue, where the risk-significance may be less in a less sophisticated tool. The lack of standards for methods and models also hampers the staff's ability to have consistent results when evaluating findings.

Panel Recommendation: Continue efforts to provide improved risk analysis tools to the reactor analysts.

Issue: (S-5) Physical Security SDP

Priority: 1

Primary Program Goals: Efficiency and Effectiveness/Risk-Informed

Issue Description: On initial implementation of the reactor oversight process, the Physical Security SDP was aligned to the reactor safety SDP. After attempting to characterize the risk significance of some OSRE findings, this alignment was determined to be inappropriate.

Panel Recommendation: Continue development of an improved SDP for physical security

Issue: (S-6) Definition of a performance issue

Priority: 2

Primary Program Goals: Unnecessary Regulatory Burden/Efficiency and Effectiveness

Issue Description: Early in the implementation of the reactor oversight process, the staff developed guidance that required the inspector to demonstrate a licensee performance deficiency before entry into the significance determination process. This policy caused some concern among inspectors because in some cases it appeared that the NRC was not dispositioning risk-significant issues because a clear performance deficiency was not established.

Panel Recommendation: Use lessons learned during initial implementation to clarify the definition of a performance issue

Issue: (S-7) SDPs for other areas

Priority: 1

Primary Program Goals: Efficiency and Effectiveness/Predictable

Issue Description: During the first year of implementation, the established SDPs did not provide an effective tool to evaluate issues in certain areas. For example, the staff identified the need for effective significance determination tools in the areas of shutdown, containment, and external events.

Panel Recommendation: Evaluate the need for other significance determination tools

Issue: (S-8) ALARA SDP

Priority: 1

Primary Program Goals: Efficiency and Effectiveness/Unnecessary Regulatory Burden

Issue Description: During initial implementation of the reactor oversight process, problems were experienced when using the ALARA significance determination process. There is a potential for unintended consequences in licensee's ALARA programs by the SDP. For example, licensees may set dose estimates higher to minimize the impact of the decision points in the SDP.

Panel Recommendation: Revise the ALARA SDP

Issue: (S-9) Evaluation of SDPs

Priority: 1

Primary Program Goals: Maintain Safety/Efficiency and Effectiveness

Issue Description: The significance determination process tools are a key element in ensuring the effectiveness of the reactor oversight process. Since the use of the phase 2 tools has been limited, it is important that a process be in place to periodically evaluate and identify improvements in the SDPs. In addition, the evaluation process needs to review the results from the SDPs to ensure significance determinations are not underestimated - false negatives.

Panel Recommendation: Establish a formal process to review the effectiveness of the SDPs