

**NRCREP - Solicitation of Public Comments on the Implementation of the Reactor Oversight Process (ROP)**

**From:** "BUTLER, John" <jcb@nei.org>  
**Date:** 12/07/2007 3:11 PM  
**Subject:** Solicitation of Public Comments on the Implementation of the Reactor Oversight Process (ROP)

December 7, 2007

Mr. Michael T. Lesar  
Chief, Rulemaking, Directives and Editing Branch  
Office of Administration  
Mail stop: T-6D59  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

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**Subject:** Solicitation of Public Comments on the Implementation of the Reactor Oversight Process (ROP)

**Project Number: 689**

Dear Mr. Lesar:

On behalf of the nuclear energy industry, the Nuclear Energy Institute (NEI) is submitting the enclosed comments on the implementation of the ROP, as requested by the Nuclear Regulatory Commission in the Federal Register on October 11, 2007 (72 Fed. Reg. 57975).

We believe the ROP, in general, is meeting established performance goals. However, the need for improvements in program guidance and implementation are noted in a number of areas. These improvements will help to better align the ROP with the Commission's key ROP objectives noted in SECY 99-007. These objectives call for an objective process that has clear ties to licensee performance and is focused on those aspects of performance that have the greatest impact on safe plant operation.

Efforts by NRC and industry to improve the objectivity of guidance used for issue screening (Inspection Manual Chapter 0612 Appendix B) should continue. Current guidance is subjective and does not prove a clear nexus to safe plant operation. We also request that guidance on the performance of significance determinations contained in Risk Assessment Standardization Project (RASP) Notebooks be made publicly available as soon as possible to enable a review and comparison of this guidance with PRA methods used by licensees. Resolution of any differences in methods and assumptions employed by NRC and licensees will improve the efficiency of the significance determination process.

As noted in the enclosed comments, full evaluation of changes to supplemental inspection procedure 95003 awaits completion of its first use at Palo Verde station. However, reviews thus far have pointed to several areas of concern. We encourage NRC to perform a focused lessons learned review of this procedure with industry involvement following completion of the Palo Verde inspection.

We support NRC efforts to periodically review the effectiveness of ROP inspection procedures (Inspection Manual Chapter 0307, Appendix B) and are encouraged by the results of the recent assessment. These activities should continue with greater emphasis placed on development of critical review criteria necessary to ensure inspection activities are focusing on areas important to safety. The inspection procedure review process should also be expanded to solicit and consider external stakeholder comments.

If you have any questions regarding these comments, please contact Julie Keys at (202) 739-8128; jyk@nei.org or me

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at (202) 739-8108; [jcb@nei.org](mailto:jcb@nei.org).

Sincerely,

John C. Butler  
Director, Safety Focused Regulation

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**nuclear. clean air energy.**

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Junk Mail using personal address books is not enabled  
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NUCLEAR ENERGY INSTITUTE

**John C. Butler**  
DIRECTOR, SAFETY FOCUSED REGULATION  
NUCLEAR GENERATION DIVISION

December 7, 2007

Mr. Michael T. Lesar  
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<sup>1</sup> NEI is the organization responsible for establishing unified nuclear industry policy on matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include all utilities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect/engineering firms, fuel fabrication facilities, materials licensees, and other organizations and individuals involved in the nuclear energy industry.

Mr. Michael T. Lesar

December 7, 2007

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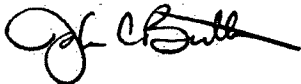
(RASP) Notebooks be made publicly available as soon as possible to enable a review and comparison of this guidance with PRA methods used by licensees. Resolution of any differences in methods and assumptions employed by NRC and licensees will improve the efficiency of the significance determination process.

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If you have any questions regarding these comments, please contact Julie Keys at (202) 739-8128; [jyk@nei.org](mailto:jyk@nei.org) or me at (202) 739-8108; [jcb@nei.org](mailto:jcb@nei.org).

Sincerely,

A handwritten signature in black ink, appearing to read "John C. Butler". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

John C. Butler

Enclosure

c: NRC Document Control Desk

**NEI Response to NRC Survey on Reactor Oversight Process  
(72 Fed. Reg. 57975)**

- (1) Does the Performance Indicator Program provide useful insights to help ensure plant safety?

Comments:

The Performance Indicator (PI) Program, in conjunction with the Inspection Program, continues to support the NRC's overall mission to ensure that commercial nuclear power plants are operated in a manner that provides adequate protection of public health and safety. Useful insights are provided by the performance indicators. The level of insight provided is improved when a clear nexus can be made between performance indicator results and plant safety. The Mitigating Systems Performance Index (MSPI) provides very useful insights by providing a risk-informed measure of performance for key systems and components. Efforts should continue to better risk-inform the performance indicators and improve the level of insight they provide

- (2) Does appropriate overlap exist between the Performance Indicator (PI) Program and the inspection program to provide for a comprehensive indication of licensee performance?

Comments:

Performance Indicators are most effective in areas where clear performance thresholds can be developed. This then allows the inspection program resources to be more appropriately allocated to areas that are best addressed through direct evaluation and inspection. Some overlap between performance indicator and inspection is inevitable and appropriate. However, it takes vigilance on the part of NRC to ensure the objectives of the ROP are not compromised by double counting inspection findings and performance indicator results that arise from the same event.

One area where overlap exists is in the Mitigating Systems cornerstone. There have been recent instances where inspection findings and greater-than-green PIs have resulted from the same event/conditions. Because the risk-significance of component failures is directly measured in the Mitigating Systems Performance Index (MSPI), the performance of an SDP evaluation for the same component failures should be limited to circumstances where contributing factors, beyond the measure of MSPI, are identified. In instances where an SDP evaluation and MSPI result address the same event, it is important to ensure that the ROP recognizes the overlap and avoids "double counting" of PI and SDP results in the determination of appropriate regulatory actions.

- (3) Does NEI 99-02, "Regulatory Assessment Performance Indicator Guideline" provide clear guidance regarding Performance Indicators?

Comments:

Although NEI 99-02 provides sufficient guidance for most situations, questions do arise. The FAQ process and the monthly ROP meetings are the mechanisms to resolve questions with the guidance. The ROP meetings are held monthly with the NRC to discuss and resolve questions. When resolution is not achieved, an FAQ appeal process is available and has proved to be an effective means to resolve plant specific issues.

- (4) Can the Performance Indicator Program effectively identify declining performance based on risk-informed, objective, and predictable indicators?

Comments:

The Performance Indicator Program is a useful and effective tool for identifying adverse performance trends in those areas where measures have been established. By design, not all areas of the ROP are monitored by the PI program. The PI program is supplemented in all areas by the Inspection Program. While Performance Indicators are effective in providing an indication of performance trends, there remains a need for licensees and NRC to investigate performance trends to determine if the indications are valid.

One measure of the effectiveness of performance indicators in identifying declining performance is the number of instances where greater-than-green performance indicators occur in advance of any greater-than-green inspection findings in the associated area.

- (5) Does the inspection program adequately cover areas important to safety, and is it effective in identifying and ensuring the prompt correction of any performance deficiencies?

Comments:

It is important that NRC continually monitor the inspection program to identify inspections that are inadequate or highly inefficient in identifying meaningful results. The recent ROP Realignment review conducted under IMC 0307, Appendix B is an example of how NRC can perform such monitoring. However, large-scale efforts such as the realignment review are only one method for monitoring and may not be the most efficient. Obtaining, reviewing and acting on continuous feedback from licensees and inspection personnel can be more timely and efficient. Maintaining a self-critical, questioning position regarding the value of inspection activities is a key to keeping the inspection program vital and robust.

- (6) Is the information contained in inspection reports relevant, useful, and written in plain English?

Comments:

Inspection reports generally provide sufficient detail for knowledgeable persons to understand the areas that were inspected and the conclusions that were reached. When documenting findings or violations, often more effort is spent documenting the details of the issue than in providing insights as to why the issue is an issue of concern (finding, violation) and the nature and true magnitude of the risk significance of the issue. Specifically, it is often difficult for a reader to determine why a finding is considered to be of greater than minor significance based solely on the language in the inspection report. On many occasions the justification is a simple assertion that one of the criteria of IMC 0612, Appendix B, Section 3 is met with no further elucidation (e.g., "the finding is associated with one of the cornerstone attributes" or "finding affects the associated cornerstone objective").

When cross-cutting aspects are assigned to findings/violations, the inspection report documentation sometimes lacks a clear explanation as to how the cross-cutting aspect is a significant contributor to the cause of the issue. Again, in many cases, the documentation only asserts that the cross-cutting aspect is related to (or affects) the cause of the issue, but

fails to explain how. The link between the cross-cutting aspect and the cause of the finding should be clear to the reader of the inspection report.

- (7) Does the Significance Determination Process result in an objective and understandable regulatory response to performance issues?

Comments:

The Significant Determination Process (SDP), while generally risk informed, contains significant subjective elements. For reactor SDPs supported by SPAR modeling, the methodology appears to minimize realistic factors such as operator actions and tends to utilize hypothetical worst case assumptions. The incorporation of a bounding, "worst-case" bias in SDP evaluations is contrary to standard PRA practices and is inconsistent with the thresholds against which SDP results are judged. As a result, while the steps in an SDP decision are well outlined, the bases and rationale for these steps are often neither objective nor predictable and can be inconsistent with industry norms for PRA decisions.

A long recognized weakness in the significance determination process is the level of consistency across ROP cornerstones. Specifically, issues and events in the areas of Physical Protection, Fire Protection, Emergency Preparedness and Public Radiation Safety and Occupational Radiation Safety are evaluated using processes that are more subjective or qualitative in nature and may result in exaggeration of actual risk. In some cases, the SDP conclusions appear to be reached based on predetermined outcomes rather than allowing risk based measures to drive the characterization.

- (8) Does the NRC take appropriate actions to address performance issues for those plants with identified performance deficiencies?

Comments:

Actions taken by the NRC to address performance issues follow the process and are consistent and predictable.

- (9) Is the information contained in assessment reports relevant, useful, and written in plain English?

Comments:

The information contained in assessment reports is relevant, useful and clearly worded. Recent improvements have been noted in Assessment Report documentation of the basis for assignment and non-assignment of substantive cross-cutting issues.



- (10) Are the ROP oversight activities predictable (i.e., controlled by the process) and reasonably objective (i.e., based on supported facts, rather than relying on subjective judgment)?

Comments:

ROP oversight activities are generally predictable and reasonably objective. However, the implementation of the SDP for Initiating Event and Mitigating System cornerstones by NRC staff appears to involve use of prescribed guidance instead of relying upon "risk-informed" methods. This guidance, particularly in the areas of common cause and human factors, prescribes use of conservative values and appears to constrain the analyst's capability to incorporate the specifics and circumstances of the event being analyzed. The methods, which have not been made publicly available, have been noted to require the assumption that common cause factors contribute to the event being analyzed. This can readily lead to an order of magnitude impact on assessment results.

The reduction of subjectivity in methods must be achieved in order to ensure that the objective of obtaining a risk-informed assessment based upon supported facts is achieved. There remains a high degree of subjectivity in guidance addressing safety culture, most notably in guidance for determining whether or not a cross cutting aspect is ascribed to a finding.

In addition, the predictability and objectivity of the results of the ROP process are reduced in some cornerstones (i.e., EP, Radiation Protection, and Physical Protection) that are not closely tied to risk analysis.

- (11) Is the ROP risk-informed, in that the NRC's actions are appropriately graduated on the basis of increased significance?

Comments:

The Initiating Events, Mitigating Systems and Barrier Integrity cornerstones are risk-informed. For other cornerstones, while their thresholds are graduated on the basis of increased significance, the risk basis for the thresholds is not, in all cases, clear. This results in more subjective and less predictable outcomes in these cornerstones.

- (12) Is the ROP understandable and are the processes, procedures and products clear and written in plain English?

Comments:

In general the ROP is understandable and the processes, procedures and products are clear. However, there is some disagreement about being written in "plain English." It was noted that some documents can be difficult to follow without the appropriate technical background. In addition, areas that lack objective guidance, as discussed in comments provided for question 10, call into question that adequacy of the "plain English".

- (13) Does the ROP provide adequate assurance, when combined with other NRC regulatory processes, that plants are being operated and maintained safely?

Comments:

The ROP, in combination with other NRC regulatory processes, does provide adequate regulatory assurance that plants are being operated and maintained safely.

- (14) Is the ROP effective, efficient, realistic and timely?

Comments:

The ROP is generally timely and measures have been established by NRC to identify areas for continued improvement. Performance measures have not been established for effectiveness, efficiency and realism. Changes to the significance determination processes are needed to improve efficiency and reduce the level of subjectivity. Early and increased interaction with the licensees on SDP evaluations can assist the process in these two areas. Current ROP appeal practices could be improved by assuring an appropriate level of independence at the various stages of the appeal process and through greater licensee involvement.

Efficiencies can also be achieved by ensuring direct communication with the licensee whenever possible. The current process appears to limit direct communication between the licensee and NRR PRA personnel; requiring indirect communication via regional personnel. This introduces inefficiencies and delays and increases the potential for miscommunication.

- (15) Does the ROP ensure openness in the regulatory process?

Comments:

The ROP is acknowledged as an open regulatory process. Most process descriptions and procedures are available on the NRC Public Website. The ranking of any plant in the Action Matrix is also readily available on the NRC public website. Annual and Mid-cycle assessment letters are publicly available and their issuance is announced by a NRC Press Release. The Annual Assessment meeting for each site is accompanied by a public meeting that is announced prior to the meeting. Individual inspections reports are made available on the NRC ADAMS system. Monthly public meetings are held to discuss ROP issues in which members of the public are invited to participate in person or by teleconference. During these meetings, significant dialogue between the industry and the NRC is held with meaningful discussions and both sides are typically able to come to reasonable resolutions. However, some documents that the NRC staff utilize to reach decisions, such as the Risk Assessment Standardization Project (RASP) Notebooks, are not publicly available.

- (16) Has the public been afforded adequate opportunity to participate in the ROP and to provide inputs and comments?

Comments:

The public has been afforded adequate opportunity to participate in the ROP and to provide inputs and comments. These opportunities include the monthly public meetings, the annual assessment meetings at each site, and the ROP survey. Members of the public are frequently present at these meetings.

- (17) Has the NRC been responsive to public inputs and comments on the ROP?

Comments:

We believe that NRC has generally been responsive to both industry and public inputs and comments on the ROP.

- (18) Has the NRC implemented the ROP as defined by program documents?

Comments:

The ROP is generally implemented as defined by program documents.

- (19) Does the ROP result in unintended consequences?

Comments:

SECY 99-007, "Recommendations for Reactor Oversight Process Improvements" outlines the key objectives for the ROP as:

1. Improve the objectivity of the oversight processes so that subjective decisions and judgment are not central process features.
2. Improve the scrutability of these processes so that NRC actions have a clear tie to licensee performance.
3. Risk-inform the processes so that NRC and licensee resources are focused on those aspects of performance having the greatest impact on safe plant operation.

Unintended consequences result whenever actions taken by NRC or licensees are not in full alignment with these objectives. For example, significant NRC and licensee resources are spent characterizing the significance of findings. The majority of these resources are focused on findings that have minimal risk significance. This result is inconsistent with the ROP objective to "focus resources on aspects of performance having the greatest impact on safe plant operation."

**Questions related to the Safety Culture aspects of the ROP**

(As appropriate please provide specific examples and suggestions for improvement)

- (20a) Do the ROP assessment and inspection safety culture enhancements help to focus licensee and NRC attention on performance issues associated with aspects of safety culture?

Comments:

The safety culture enhancements have only been in place for two assessment periods. No clear evidence exists to indicate that the additional attention brought to performance issues due to issuance of Substantive Cross-Cutting Issues (SCCI) have brought any appreciable increase in ability to determine deteriorating performance or performance issues that would have otherwise gone undetected. The NRC's 18-month assessment of this process may provide some useful insight.

- (20b) Do the baseline Identification and Resolution of Problems inspection procedure (71152) and the special inspection procedures (93800 and 93812 respectively) provide an appropriate level of guidance on safety culture aspects and on the consideration of causal factors related to safety culture?

Comments:

The procedures appear to direct inspectors to be aware of potential impacts of safety culture components on any identified issues. That level of guidance appears appropriate for inspectors.

- (20c) Do supplemental inspection procedures (Inspection for One or Two White Inputs in a Strategic Performance Area (95001), Inspection for One Degraded Cornerstone or any Three White Inputs in a Strategic Performance Area (95002)) respectively provide an appropriate level of guidance to evaluate whether safety culture components have been adequately considered as part of the licensees' root cause, extent of condition, and extent of cause evaluations and to independently determine if safety culture components caused or significantly contributed to the risk significant performance issues?

Comments:

The guidance directs a level of involvement that escalates based on the potential indication of degrading plant performance. At the level of one or two white inputs, it is appropriate that the inspector check that the licensee is appropriately considering the possibility of safety culture components being a significant contributor to the cause(s) of the issues that resulted in the inputs.

- (20d) Does the procedure for a Supplemental Inspection for Repetitive Degraded Cornerstones, Multiple Degraded Cornerstones, Multiple Yellow Inputs or One Red Input (95003) provide an appropriate level of guidance to independently assess the licensee's assessment of their safety culture?

Comments:

It is too early to determine if the guidance in 95003 is adequate. It should be evaluated after the Palo Verde inspection has been completed. However, the procedure appears to overly-emphasize the possible contribution of safety culture. The procedure appears to be built with an inherent presumption that a failure to address safety culture attributes is a significant contributor to the issues identified in the findings. The procedure may more appropriately be directed to first determine if a predominant cause of the findings was a licensee failure to implement one or more safety culture attributes.

- (20e) Do the ROP inspection reports clearly describe inspection finding cross-cutting aspects?

Comments:

The inspection reports clearly describe the cross-cutting aspects associated with the findings. However, improvements could be achieved in explaining in the inspection report how the inspector concluded that the cross-cutting aspect significantly contributed to the cause of the finding. Often the explanation is a mere assertion that the aspect was a contributor to the cause without a discussion of how the inspector determined that the aspect was a significant contributor to the cause(s).

- (20f) Do the Operating Reactor Assessment Program (0305) cross-cutting components and cross-cutting aspects provide an adequate coverage of the cross-cutting areas?

Comments:

Although the components and aspects provide an adequate coverage of the cross-cutting areas a review of all findings associated with cross-cutting aspects indicates that most fall into a few aspects. Specifically, cross-cutting aspects H.4(b) (Human Performance, Work Practices, Procedural Compliance) and P.1(c) (Problem Identification and Resolutions, Corrective Action Program, Evaluation of Causes) are too broad in comparison with other aspects and are therefore assigned a disproportionate number of findings.

- (21) Please provide any additional information or comments related to the Reactor Oversight Process.

Monthly interactions between NRC and Industry through the ROP Working Group are critical to continued improvement of the ROP. The willingness to devote resources to these meetings is a clear indication of NRC's commitment to making the process as predictable and efficient as possible.