



NUCLEAR ENERGY INSTITUTE

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76 FR 73738

January 13, 2012

Ms. Cindy K. Bladey  
Chief, Rules, Announcements and Directives Branch  
Office of Administration  
Mail stop: TWB-05-B01M  
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 (Docket ID NRC-2011-0270)

**Project Number: 689**

Dear Ms. Bladey:

On behalf of the nuclear energy industry, the Nuclear Energy Institute<sup>1</sup> is submitting the enclosed comments on the implementation of the Reactor Oversight Process (ROP), as requested by the U.S. Nuclear Regulatory Commission (NRC) in the *Federal Register* on November 29, 2011 (76 *Fed. Reg.* 73738). We appreciate this opportunity to contribute to the NRC's request for feedback on the ROP.

As you will see in the enclosed responses to the NRC's survey questions, we believe the ROP is generally meeting its goals, is effective in assessing and communicating licensee performance, and is helping the NRC allocate inspection and oversight resources. We also offer more detailed comments and suggestions in response to many of the survey questions. These identify opportunities to improve the ROP further. We appreciate the NRC's interest in this feedback and are happy to discuss our responses further at any time.

<sup>1</sup> The Nuclear Energy Institute (NEI) is the organization responsible for establishing unified industry policy on matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include all entities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect/engineering firms, fuel fabrication facilities, nuclear materials licensees, and other organizations and entities involved in the nuclear energy industry.

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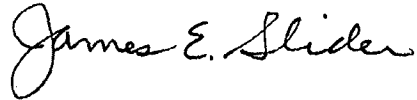
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If you have any questions regarding these comments, please contact me (202-739-8015; [jés@nei.org](mailto:jés@nei.org)).

Sincerely,

A handwritten signature in black ink that reads "James E. Slider". The signature is written in a cursive style with a large, looped initial "J".

James E. Slider

Attachment

c: NRC Document Control Desk

**Nuclear Energy Institute Response to the NRC's  
2011 Solicitation of Public Comments on the Implementation of the Reactor Oversight Process (ROP)<sup>1</sup>**

1. **The performance indicator (PI) program provides useful insights, particularly when combined with the inspection program, to help ensure plant safety and/or security. Respond "Yes", "No" or "Unable to Answer". Can you recommend any improvements?**

Response

Yes, the PI program provides useful insights when combined with the inspection program.

Additional Comments or Recommended Improvements

The PI program provides an effective way for NRC and industry to communicate with one another and with the public about the state of performance at U.S. nuclear power plants. This helps maintain public confidence in the safety of US plants and the NRC's independent oversight of the U.S. fleet.

2. **Appropriate overlap exists between the PI and inspection programs to provide for a comprehensive indication of licensee performance. Respond "Yes", "No" or "Unable to Answer". Can you recommend any improvements?**

Response

Yes, in general, appropriate overlap exists.

Additional Comments or Recommended Improvements

PIs look at the areas where clear performance thresholds have been developed and tested. As envisioned in the development of the ROP, this allows the inspection program to look at cornerstone attributes not covered by the PIs, and to spend more time looking at areas that require more evaluation and investigation. The process is well integrated and some overlap does exist—in some cornerstones more than others.

In the Initiating Events and Mitigating Systems cornerstones, the inspection overlap can be excessive. This is especially noticeable in the Problem Identification and Resolution inspections and large team inspections such as the Component Design Bases Inspections (CDBI), where substantial inspection effort is focused on events and issues reported under the PI program. In addition, CDBIs rarely yield more than a few Green findings. This suggests the considerable amount of NRC and licensee resources put into these inspections could be better spent in other areas.

3. **NEI 99-02, "Regulatory Assessment Performance Indicator Guideline" provides clear guidance regarding performance indicators. Respond "Yes", "No" or "Unable to Answer". Can you recommend any improvements?**

Response

Yes, NEI 99-02 provides clear guidance.

Additional Comments or Recommended Improvements

Discussions with the staff about NEI 99-02 in the past two years have sometimes led to disagreements about the meaning or intent of certain passages in the document. These disagreements have turned on differing understandings of what the authors intended the passages to mean. These discussions have highlighted gaps in the transfer of knowledge from NRC and industry personnel who worked on previous

<sup>1</sup> NRC solicitation published in the Federal Register on November 29, 2011 (76FR73738).

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versions of NEI 99-02 to those maintaining and using the document today. Past contributors to NEI 99-02 wrote the document with a presumption that readers would share their understanding of intent and context. Examples such as the discussion of the wording on Unplanned Scrams with Complications in the Wolf Creek<sup>2</sup> and Palo Verde<sup>3</sup> FAQ cases in 2010 highlight what was mutually understood by earlier NRC staff and ROPTF members, but not made explicit in the wording of NEI 99-02. It would be helpful to capture as much of this implicit knowledge as practical while at least some of those individuals remain accessible to NRC staff and ROPTF members. We believe the guidance can be made clearer and more accessible to readers who do not have the original authors' shared background and assumptions. We expect to work with the NRC staff to effect such improvements in future updates to NEI 99-02.

The formal process for resolving questions on the guidance (identified in NEI 99-02 as the Frequently Asked Question (FAQ) Process) appears to be working well. Questions are discussed at monthly public meetings of the Reactor Oversight Process Task Force (ROPTF) and the inspection and assessment branches of the NRC. Questions appear to be discussed and resolved in a timely and effective manner. There have been some challenges in meeting expectations for timely posting of approved (i.e., resolved/completed) FAQs, but the ROPTF and NRC staff are taking steps to improve the process.

4. **PI program effectively contributes to the identification of performance outliers based on risk-informed, objective, and predictable measures. Respond "Yes", "No" or "Unable to Answer". Can you recommend any improvements?**

Response

Yes, generally, the PI program contributes to the identification of outliers.

Additional Comments or Recommended Improvements

The PI Program, in conjunction with the Inspection Program, effectively identifies performance outliers based on risk-informed, objective and predictable measures.

In recent years, some in NRC have questioned the value of performance indicators that are "too green". The implication is that PIs are meaningful only if they easily and often change color (i.e., cross thresholds). This perspective appears based on a misunderstanding of the purpose and basis for the PIs.

The PI thresholds are based on analysis in SECY 99-007<sup>4</sup> demonstrating that the overall performance of industry had dramatically improved in the 1990s and that, with the occasional exception, operating performance was safe enough. The Commission agreed with this conclusion. Thresholds then were set at levels that would recognize outliers against the overall acceptable safety levels.

Since then, performance has continued to improve in almost all the indicators. This reflects the influence of operating experience, the industry's pursuit of excellence through the Institute of Nuclear Power Operations (INPO), business needs and other forces that have prompted licensees to improve plant performance and reduce risk since the PI program began. For example, in 2010 the ROPTF identified ways in which the Mitigating Systems Performance Index (MSPI) has helped spread awareness of risk-significant operations and design features.<sup>5</sup> This increased awareness has fostered significant improvements in plant design and procedures that contribute to better plant performance, greater safety margins and as a result, more "green" PIs.

<sup>2</sup> ROPTF FAQ 10-03

<sup>3</sup> ROPTF FAQ 10-05

<sup>4</sup> SECY 99-007, "Recommendations for Reactor Oversight Process Improvements", January 8, 1999.

<sup>5</sup> Transmitted to NRC in an e-mail from James Slider (NEI) to Audrey Klett, et.al. (NRC) on September 23, 2010.

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The PIs were designed to provide a timely indication of meaningful changes in the state of performance, appropriate for supporting NRC decisions about allocation of oversight resources. They were not designed to provide continuous indication of the smallest variations in performance. (Such indicators are used by plant management to control performance, and would be too "noisy" for NRC to use in oversight.) In this sense, the NRC PIs are analogous to the "Check Engine" light on a car's dashboard. Green indicators provide useful confirmation that conditions are nominal and that operations and baseline inspections are adequate to assure public safety. The PIs were designed to respond to meaningful trends in performance, rather than flutter with minor variations in performance. Thus, the frequency of updates and other features of the PI program were thoughtfully designed to serve the oversight and public communications roles of the PI program.

The current NRC staff initiative to update the guidance in NUREG-1022<sup>6</sup> has the potential to change a PI by changing the safety system functional failure (SSFF) reporting criteria. (See also response to Survey Question 20.) The documentation of historical SSFF in a Licensee Event Report may be counterproductive for both the NRC and licensees as the result could lead to a unit entering Column 2 of the NRC Action Matrix and require supplemental inspection activity for issues that are not reflective of current licensee performance.

- 5. Information contained in inspection reports is relevant, useful, and written in plain English. Respond "Yes", "No" or "Unable to Answer". Can you recommend any improvements?**

Response

Yes, information contained in inspection reports is relevant, useful and written in plain English.

- 6. The inspection program adequately covers areas that are important to plant safety and/or security, and is effective in identifying and ensuring the prompt correction of performance deficiencies. Respond "Yes", "No" or "Unable to Answer". Can you recommend any improvements?**

Response

Yes.

Additional Comments or Recommended Improvements

The resident inspectors are usually effective in ensuring areas important to safety are appropriately addressed through the baseline inspection program. The inspection program and the ROP assessment methodology are effective in ensuring identified performance deficiencies are promptly corrected. However, the larger team inspections (such as the CDBI) have a tendency to inspect the same systems and re-inspect issues that have already been inspected, come up with very little useful information, and should be reviewed for improvement or elimination.

- 7. The Significance Determination Process (SDP) results in an appropriate regulatory response to performance issues. Respond "Yes", "No" or "Unable to Answer". Can you recommend any improvements?**

Response

Yes, in general the SDP results in an appropriate regulatory response to performance issues.

Additional Comments or Recommended Improvements

The SDP does an adequate job of assigning risk significance to findings and violations, but is not as transparent or efficient as it should be. We believe that improvements in the NRC guidance (e.g., the RASP

<sup>6</sup> NUREG-1022, "Event Reporting Guidelines: 10 CFR 50.72 and 50.73", Draft Revision 3.

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Handbook<sup>7</sup>) could provide greater transparency and efficiency. Our observations and recommendations are presented below.

1. Application of human recovery credit in the SDP continues to be an issue. In many cases, the preliminary SDP performed by the Senior Reactor Analysts failed to credit recovery proposed by the licensee or conservatively assessed the human error probability (HEP). However, for a substantial number of those cases, the final SDP applied additional recovery credit. In some cases, this resulted in the final risk significance being lowered by one color in the final SDP. Two specific issues related to human recovery credit continue to be a problem:
  - a. The NRC typically rejects credit for non-proceduralized recovery actions, including *ad hoc* recovery actions that may be developed by the Emergency Response Organization. This was specifically cited as a basis for rejecting licensee proposed recovery credit in at least three reviewed SDPs. In one case, the proposed recovery is credited in the baseline PRA and is in plant procedures, but was not in plant procedures for the dominant risk contributor. Improved guidance for providing partial credit for these types of recovery actions would result in more realistic SDPs.
  - b. The NRC typically rejects additional recovery credit for equipment using different success criteria than specified in the baseline PRA, even if supported by analysis. Given the iterative nature of PRA model development, use of realistic success criteria for determining the risk significance of events should be an acceptable option.
2. Common cause failure (CCF) modeling in SDPs is the source of many disagreements between the NRC staff and licensees. The criteria for determining a failure to be independent in the SDP process are unduly stringent. The result is that licensee assessments of appropriate CCFs often differ significantly from the NRC's assessment.
3. As a result of unclear guidance in the RASP Handbook, the NRC continues to be somewhat inconsistent in application of initiating event frequencies for performance deficiencies resulting in an actual plant trip. In most cases, a conditional core damage probability (CCDP) is used with the initiating event set to a probability of 1.0. However, in some cases, an initiating event frequency of 1.0/exposure time is used to represent the initiating event frequency. Further guidance in this area would yield consistent treatment of initiating event frequencies.
4. The guidance in the RASP Handbook Volume 2 (External Events) is at a much higher level than the guidance in Volume 1 (Internal Events). While this may be due to the fact that the state-of-the-art for external events is somewhat in flux, it may result in providing inadequate guidance to the intended audience for the more detailed analyses needed to support a Phase 3 SDP.
5. Recent SDPs seem to be using NUREG/CR-6850<sup>8</sup> guidance rather than the information presented in Section 2.0 of Volume 2 of the RASP Handbook for the evaluation of internal fire risks. This is problematic for two reasons. First, this creates a disconnect between the referenced methodologies and those actually used in the process. Second, Fire PRA methodologies have evolved appreciably since the issuance of NUREG/CR-6850, and use of the data and methods in that document may not yield accurate or appropriate assessments. The methodologies included in the RASP Handbook should be updated to include reference to recently-issued EPRI documents on

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<sup>7</sup> Risk Assessment of Operational Events (RASP) Handbook, Volumes 1-4, available on the NRC web site at URL <http://www.nrc.gov/reactors/operating/oversight/program-documents.html>.

<sup>8</sup> NUREG/CR-6850, "EPR/NRC-RES Fire PRA Methodology for Nuclear Power Facilities", US Nuclear Regulatory Commission, September 2005.

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state-of-the-art Fire PRA methods to ensure that the process is supported by the best resources available

6. The internal flood guidance provided in Section 3.0 of Volume 2 of the RASP Handbook does not use the pipe failure frequencies developed in EPRI TR-1013141<sup>9</sup> or EPRI TR-1021086<sup>10</sup> based upon more recent industry experience than the 1991 and 1993 vintage documents referenced in the handbook. In addition, the methodologies do not represent the state-of-the-art internal flooding analysis guidance presented in EPRI TR-1019194.<sup>11</sup> The guidance in Section 3.0 should be updated to incorporate information from these more current sources.
  7. The guidance provided for assessment of seismic risks in Section 4.0 of Volume 2 of the RASP Handbook provides a relatively complete treatment of the analysis elements involved in seismic PRA. However, in many areas the guidance is simplified compared to the current state-of-the-art. For example, the number of seismic bins used and use of generic fragility data are not consistent with current state-of-the-art methodologies. In addition, more guidance is needed related to use of the seismic equipment list to identify impacts resulting from failure of equipment not modeled in the internal events PRA, screening of equipment, modeling of seismic influences on modeled HFEs, and treatment of seismically induced internal flooding.
  8. Section 5.0 of the Volume 2 of the RASP Handbook does not provide sufficiently detailed guidance for evaluating other external events (e.g., river flooding and high winds hazards) to ensure consistent treatment. The section should be revised to ensure that all three elements of external hazards PRA (i.e., hazard definition, fragility analysis, and plant response) are discussed at a sufficient level of detail to support the analysis of external hazards other than seismic.
  9. More sophisticated modeling methods for various external events will become available over the next few years. As they do, the affected portions of the RASP Handbook should be updated accordingly, to avoid major discrepancies between the licensee and NRC assessment methodologies.
8. **The NRC takes appropriate actions to address performance issues for those plants outside the Licensee Response Column of the Action Matrix. Respond "Yes", "No" or "Unable to Answer". Can you recommend any improvements?**

Response

Yes.

Additional Comments or Recommended Improvements

While it appears that, in general, NRC takes appropriate actions, the decision-making process to get to those actions is not always transparent. We would urge the NRC to ensure that each performance deficiency that is formally documented in an inspection report is consistent with the deficiency as it was presented at the inspection exit meeting. When performance deficiencies are poorly specified, or are substantially modified after being presented to the licensee as "fully formed", the NRC undermines confidence in the inspection and performance assessment process.

<sup>9</sup> EPRI TR-1013141, "Pipe Rupture Frequencies for Internal Flooding PRAs", Electric Power Research Institute, March 2006 [See also TR-1021086].

<sup>10</sup> EPRI TR-1021086, "Pipe Rupture Frequencies for Internal Flooding Probabilistic Risk Assessments", Electric Power Research Institute, November 2010 [TR-1021086 is the current version of TR-1013141].

<sup>11</sup> EPRI TR-1019194, "Guidelines for Performance of Internal Flooding Probabilistic Risk Assessment", Electric Power Research Institute, December 2009.

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9. Information contained in assessment reports is relevant, useful, and written in plain English. Respond "Yes", "No" or "Unable to Answer". Can you recommend any improvements?

Response

Yes.

Additional Comments or Recommended Improvements

The information contained in assessment reports is, for the most part, relevant, useful, and well written. Inspection schedules in particular are good to have in advance even if they are not fully refined. When significant changes are made to inspection schedules, revised schedules should be made publicly available.

An element of the assessment letters that could be improved is the discussion about substantive cross cutting issues. Greater consistency in the language and the detailed discussion used across regions would be appropriate. Historically, the criteria for opening and closing SCCIs have not been clear; therefore it is not surprising that assessment letters have done a poor job of explaining why SCCIs have been opened or closed. We are waiting to see whether relatively recent revisions in the NRC guidance on SCCIs will make a noticeable difference in the treatment SCCIs get in assessment reports.<sup>12</sup> At the same time, we are optimistic that implementation of the industry's safety culture initiative (see response to Question 10 below) will demonstrate that it provides a far more effective means of gauging and managing safety culture than do SCCIs.

10. The ROP safety culture enhancements help in identifying licensee safety culture weaknesses and focusing licensee and NRC attention appropriately. Respond "Yes", "No" or "Unable to Answer". Can you recommend any improvements?

Response

Yes, somewhat.

Additional Comments or Recommended Improvements

The ROP safety culture changes to the ROP consist of identifying cross-cutting aspects of performance deficiencies, and accumulating them into substantive cross-cutting issues (SCCI).

The identification of cross-cutting aspects associated with inspection findings does provide value to the licensee to consider in the assessment of safety culture. Note, however, that the association by NRC is done without conducting a formal root or apparent cause, and may very well be mistaken. Licensees should incorporate the NRC's association into their ongoing assessment of safety culture, using all available site data (for example, safety culture assessments, employee concerns issues, site PI data, self-assessments, audits, benchmarking, industry evaluations, operating experience, etc.). More accurate conclusions can be reached by integrating all of the information available on the site safety culture through the NEI 09-07<sup>13</sup> process that was implemented October 1, 2011.<sup>14</sup>

Industry does not believe that the practice of accumulating aspects into SCCIs is appropriate or effective. First, the number (usually four in a year) is arbitrary and not based on research, and its appropriateness

<sup>12</sup> For example, the revised description of cross-cutting themes presented in the July 6, 2011 revision of Inspection Manual Chapter 0305, "Operating Reactor Assessment Program".

<sup>13</sup> NEI 09-07, "Fostering a Strong Nuclear Safety Culture", Revision 0, November 2010.

<sup>14</sup> A. R. Pietrangelo (NEI) letter to R. W. Borchardt (NRC), "Industry Initiative on Nuclear Safety Culture", January 4, 2011.



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has not been assessed (benchmarked against actual safety performance) since the changes were implemented. For example, it does not appear reasonable that four procedure adherence issues (usually all green, or of very low safety significance) over a year's period represents a cultural problem. (The thousand people at a station likely perform more than one procedure per person per day, for 365 days a year, which would be hundreds of thousands of opportunities, with only four failures.) Furthermore, the number four is not normalized based on the inspection hours or the number of units on site, and therefore can create a false impression of cultural weakness merely because there were more opportunities to identify violations which are assigned an aspect. Second, many of the aspects are not safety culture issues *per se*, but rather process errors (for example an error in a procedure step, or a deficiency in the corrective action program). A more thorough examination of multiple process errors is needed to determine whether there was a common cultural aspect that deserves corrective action beyond just fixing the process error. Third, much time and effort is expended discussing which aspects apply, particularly as one approaches the number of four. Fourth, it is not at all clear what the objective criteria are for determining whether the licensee is taking appropriate action to address the supposed substantive issue, or what needs to be done to clear the issue if it in fact exists. Fifth, the use of two different languages to discuss safety culture (the NRC's and the industry's) can lead to confusion in identifying and resolving cultural issues. (The recent NRC workshop to develop common language is an important step in the right direction.) In summary, industry believes that the SCCI process results in excessive use of NRC and licensee management resources, and it diverts resources to address perceived problems from correcting actual safety issues, including safety culture issues.

The industry wants to be proactive in ensuring plants have a strong nuclear safety culture. Licensees are responsible for the safe operation and safety culture of their plants; the NRC is responsible for providing effective oversight. Therefore industry is working with the NRC and other stakeholders to: (1) develop a common language of safety culture to be used by the regulator and the licensee; (2) implement an integrated approach for licensees to assess their safety culture on an ongoing and proactive basis with the NRC providing effective, transparent oversight, and (3) develop a common methodology for conducting self, independent and third-party safety culture assessments.

- 11. ROP oversight activities are predictable (i.e., controlled by the process) and reasonably objective (i.e., based on supported facts, rather than relying on subjective judgment). Respond "Yes", "No" or "Unable to Answer". Can you recommend any improvements?**

Response

Yes.

Additional Comments or Recommended Improvements

Overall, the ROP is predictable and reasonably objective. Some opportunities for improvement include the following.

1. The assumptions used by the NRC in the Significance Determination Process are at times subjective and arbitrary (refer to comment on Question 7). This has in some cases resulted in delays in finalizing the final results of an SDP. Industry encourages the use of licensees' PRA models which accurately reflect the as-built, as-operated plant. We also encourage additional work in the areas of common cause and human performance.
2. The process is not objective in the area of fire protection/Alternate Safe Shutdown (ASSD) capability, and this issue will be exacerbated due to NRC expectations for conservative fire PRA assumptions as the basis for NFPA 805 implementation. These models do not provide results consistent with operat-

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ing experience or internal events PRA models, and this bias will need to be accommodated in the SDP process, because insights and experience from the piloting of transitioning to NFPA 805 have not been incorporated into the ROP.

3. The availability definitions have been somewhat confusing (in that there are several) and are continually a topic of discussion. Recent difficulty regarding the definition of availability centers around how much credit can be taken for simple actions that restore equipment and make it usable; for example, a manual action that has been determined to be feasible to allow the equipment to be ready to perform its risk significant function (Note that this does not involve trying to take credit for the actions to avoid counting a failure; only to restore availability). Since differences exist, and regulatory interpretations are not consistent, issues regarding availability and the definition of availability have become distracting.
  4. When MSPI was developed the intent was to align the definitions of availability between the PI manual, NEI 99-02, and the Maintenance Rule definition of unavailability in NUMARC 93-01. More work is needed in this area (understanding of the definitions of availability and alignment.) NEI submitted proposed revisions to NUMARC 93-01 to address this inconsistency.<sup>15</sup>
  5. There is room for improvement in the closure of unresolved items (URIs) identified in inspection reports. There are numerous cases of URIs remaining open for extended periods. When they are eventually closed, they often result in findings or violations that are no longer reflective of current performance. When dealt with in the aggregate, they may result in increased inspection activity via supplemental inspections or substantive cross cutting issue closure. To support the ROP principle of predictability, the NRC staff should have a goal on the order of six months for closure of URIs.
- 12. Is the ROP risk-informed, in that the NRC's actions are appropriately graduated on the basis of increased significance? Respond "Yes", "No" or "Unable to Answer". Can you recommend any improvements?**

Response

Yes, in general: the NRC's Action Matrix provides appropriate graduation on the basis of increased risk for NRC actions to be taken.

- 13. The ROP is understandable and the processes, procedures and products are clear and written in plain English. Respond "Yes", "No" or "Unable to Answer". Can you recommend any improvements?**

Response

Yes. The ROP procedures and products are generally clear and understandable. We have been pleased to see in recent revisions of ROP procedures and products that the staff is striving to improve clarity and readability.

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<sup>15</sup> Biff Bradley (NEI) letter to F. D. Brown (NRC), "NUMARC 93-01, Revision 4A, Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants", April 26, 2011.

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- 14. The ROP provides adequate assurance, when combined with other NRC regulatory processes, that plants are being operated and maintained safely and securely. Respond "Yes", "No" or "Unable to Answer". Can you recommend any improvements?**

Response

Yes. The NRC's internal analysis of industry performance data demonstrates that plant operations and safety margins have improved greatly since the adoption of ROP.<sup>16</sup> The ROP provides adequate assurance, when combined with other regulatory processes, that plants are being operated and maintained safely and securely.

- 15. NRC actions related to the ROP are high quality, efficient, realistic, and timely. Respond "Yes", "No" or "Unable to Answer". Can you recommend any improvements?**

Response

Yes, the PI program provides useful insights.

Additional Comments or Recommended Improvements

For the most part, the ROP is effective, efficient, realistic, and timely. However, some areas could be improved, specifically timeliness in finalizing the characterization of a finding using the SDP. One reason for the delay is the use of subjective assumptions by the NRC. Industry encourages the use of licensees' PRA models which have been evaluated and peer reviewed against consensus PRA standards and NRC Regulatory Guide 1.200 to support the SDP process as they become available and believes that by doing so, improvements would be made in timely application of the SDP.

Continuing efforts to make the Mitigating Systems Performance Index more elegant and theoretically pure, but which result in miniscule changes in results, are diverting resources that could be applied more productively for other improvements. It must be remembered that the MSPI is an indicator of performance which is "risk-informed." The resources being applied by NRC and industry to "perfect" MSPI are not available to make plants safer and will not improve the allocation of NRC inspection resources.

- 16. The ROP ensures openness in the regulatory process. Respond "Yes", "No" or "Unable to Answer". Can you recommend any improvements?**

Response

Yes.

Additional Comments or Recommended Improvements

The ROP process, with its many public meetings and opportunities for involvement, promotes openness not available in the previous process. However, improvements could be made in soliciting stakeholder feedback when revising or developing regulatory documents such as Inspection Procedures, Manual Chapter guidance, or Regulatory Issue Summaries (RIS). At times, the staff appears unduly reluctant to solicit or consider industry input for ROP documents. We appreciate all opportunities to contribute the wealth of industry experience to the betterment of the ROP and its implementation documents.

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<sup>16</sup> See, for example, long-term industry average trends presented in Enclosure 1 of SECY-11-0044, "Fiscal Year 2010 Results of the Industry Trends Program for Operating Power Reactors".

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- 17. There are sufficient opportunities for the public to participate in the process. Respond "Yes", "No" or "Unable to Answer". Can you recommend any improvements?**

Response

Yes.

Additional Comments or Recommended Improvements

The public has been afforded adequate opportunity to participate in most of the ROP and to provide inputs and comments by way of the public monthly ROP meetings, ROP feedback surveys, and the annual assessment public meetings. This is not the case however in the area of Physical Protection. The Physical Protection area of the ROP is not very open to the public, which may be appropriate in most cases; however, program and process changes should go through a change management process (similar to the ROP).

- 18. NRC is responsive to public's comments and inputs on the ROP. Respond "Yes", "No" or "Unable to Answer". Can you recommend any improvements?**

Response

Yes.

Additional Comments or Recommended Improvements

The NRC for the most part has been responsive to public inputs and comments on the ROP.

- 19. The ROP has been implemented as defined by program documents. Respond "Yes", "No" or "Unable to Answer". Can you recommend any improvements?**

Response

Yes.

Additional Comments or Recommended Improvements

For the most part, the ROP is implemented as defined by program documents. On occasion, the staff has put a lot of weight on whether there was a performance deficiency when determining if a condition should count in the performance indicators. The existence of a performance deficiency is not a criterion in NEI 99-02 for determining whether a condition should count as a PI hit, and, in fact, many PI counts are not performance deficiencies.

Industry is also concerned about apparent inconsistencies in number of findings, violations, and safety culture cross-cutting aspects issued across the four regions. We encourage NRC to continue efforts to ensure that the ROP is consistently implemented across the regions.

- 20. The ROP does not result in unintended consequences. Respond "Yes", "No" or "Unable to Answer". Can you recommend any improvements?**

Response

Yes.

Additional Comments or Recommended Improvements

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

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- a. Improve the objectivity of the oversight processes so that subjective decisions and judgment are not central process features.
- b. Improve the scrutability of these processes so that NRC actions have a clear tie to licensee performance.
- c. 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 the NRC or licensees are not in full alignment with these objectives. In general, the ROP has been a success and has avoided unintended consequences. Several areas for improvement are listed below.

1. 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."
2. Responses to several questions above have discussed the need for improvement in the safety culture approach of the ROP. Removing the subjectivity of the SCCIs and replacing it with an integrated industry approach with robust NRC oversight (i.e., the industry's safety culture initiative) should help.
3. Problems exist in the interpretation of safety system functional failures. Modifications of NUREG-1022 presented in Draft Revision 3 would alter what constitutes reportable SSFFs in a way that would undermine the basis for the current SSFF performance indicator.<sup>17</sup>
4. A desire to make the MSPI risk-based rather than risk-informed has unintended consequences resulting in wasted resources for little or no gain.

NEI 99-02 Revision 6 states (emphasis added):

"Mitigating System Performance Index (MSPI) is the sum of changes in a **simplified core damage frequency evaluation** resulting from differences in unavailability and unreliability relative to industry standard baseline values."

"The MSPI is an **approximation** using information from a plant's PRA and is intended as an indicator of system performance. More accurate calculations using plant-specific PRAs or SPAR models cannot be used to question the outcome of the PIs computed in accordance with this guideline."

At times the staff has lost sight of the fact that MSPI was designed to be simple and understandable. The paragraph that discusses licensees not being able to use their plant-specific PRA model and the NRC not being able to use the plant-specific SPAR model to challenge the output of the MSPI calculation was added specifically because it was recognized that we were calculating an **approximation** of the change in core damage frequency.

SECY-99-007, "Recommendations for Reactor Oversight Process Improvements," states the following:

(Page 5): "An efficient oversight process is one that applies agency resources in a risk-informed manner."

<sup>17</sup> Chris Earls (NEI) letter to C. K. Bladley (NRC), "NEI Comments on Draft NUREG-1022, Revision 3, "Event Reporting Guidelines: 10 CFR 50.72 and 50.73", December 6, 2011.

**Nuclear Energy Institute Response to the NRC's  
2011 Solicitation of Public Comments on the Implementation of the Reactor Oversight Process (cont.)**

(Page 6): "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."

Unfortunately, NRC and industry resources continue to be used on efforts attempting to improve the perceived accuracy of MSPI beyond what is practical with the current state of the PRA modeling. This diverts resources from investigating real improvements to the index.

Monthly interactions between the 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 the NRC's commitment to making the process as predictable and efficient as possible.

Consideration should be given to updating bases documents for all of the performance indicators, similar to what was developed when the Scrams with Complications indicator was revised. Mastery of the body of knowledge on which the ROP is based is at risk because of attrition and turnover in the industry and the NRC. NEI and the industry are prepared to work with the NRC to address this challenge in 2012.