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Chief, Operating Experience Risk Analysis Branch  
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Office of Nuclear Regulatory Research  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Subject: Risk-Based Performance Indicator White Paper

Dear Mr. Baranowsky:

We have reviewed the U.S. Nuclear Regulatory Commission (NRC) April 14, 2000 white paper, which outlines the NRC's preliminary overview and approach to incorporate risk-based performance indicator (RBPI) in the recently implemented NRC commercial nuclear power plant oversight program. We appreciate the NRC's openness in inviting comment on the white paper, and hope that we will have continuing interaction as you consider our comments.

The use of risk informed performance indicators would be an improvement over the current performance indicators because you are establishing a scientific basis for the performance indicators. We have previously commented to the NRC on the revised oversight process for nuclear power plants and we focused on the lack of a connection between the performance indicators and risk. We first learned of the Office of Nuclear Regulatory Research's efforts during the "lessons learned" meeting in January 2000. We support your efforts. The connection between performance indicators and risk, including the basis for each color threshold is necessary if the overall oversight program is to have credibility.

Your white paper makes it clear, however, that the NRC does not intend to focus on the current performance indicators but examines the process for developing new risk based performance indicators. The exact characterization of the effort is that the development of RBPI's is a "possible enhancement to the Revised Reactor Oversight Process". Though we support your efforts to bring some logic and risk basis to the performance indicators, it is puzzling that there is no effort to examine the risk basis of the current performance indicators. It appears that the addition of the RBPIs, as described in Figure ES-i will simply add a new layer.

An already complicated system will be made more complicated without addressing the original complications. We suggest that the basis for the current performance indicators be reviewed and justified by the Office of Nuclear Regulatory Research.

In the process of developing the RBPIs, NRC will be looking at IPEs, IPEEEs, and existing PRA studies to develop more plant specific indicators. Similar plants will be grouped together in an effort to reflect risk significant differences in plant designs. This seems like an improvement, but there are concerns with the accuracy of the PRAs on an individual plant basis. They were never intended for the development of performance indicators. How will the Office of Nuclear Regulatory Research ascertain that the PRAs reflect actual conditions at the plant?

In grouping plants of "similar" design, there is a question of how similar. In using the PRA data, the NRC will have to also determine the uncertainty introduced by the PRA data itself and then add the uncertainty introduced by grouping plants of similar design.

According to page 10 of the white paper, the SPAR model will then evaluate plant-specific baseline values. So another level of uncertainty will be added by taking information from similar plants and then reapplying it to particular plants. The levels of uncertainty seem to be multiplying as the methodology for developing RBPIs is sequentially applied.

The description of the "integrated indicator" which combines the risk significance of changes occurring in all monitored performance areas seems to be so far removed from the individual indicators that its significance is questionable. The combined uncertainty could be so great that the integrated indicator would have no relevance to risk.

While the white paper is very careful to say that use of the RBPIs is only a possible enhancement, and no implementation decisions have been made, there is some speculation about how the RBPIs could be used. In the first full paragraph on page ii, you state that the greater coverage of risk significant performance afforded by the RBPIs will allow for concomitant changes to inspections in those areas covered by the RBPIs and the explicit identification of risk significant areas that the inspection program must cover. This statement can be taken two ways. Either it means that less inspection will be required and the current inspection program will be trimmed down or that new inspections will be developed to cover any new risk significant findings keeping the overall inspection effort constant. Our position is that the total number of inspections in the baseline inspection program is too little now and the overall level should not be reduced but increased. With our lack of confidence in the current oversight program's ability to capture performance, current or declining, we do not support reduced inspections or inspectors.

On page iv, you state that RBPI's will be developed in all cornerstones except in the areas of emergency preparedness, radiation and security. What is your plan for developing a risk basis for the performance indicators in those areas?

Finally, we would like to participate in public meetings on this new initiative. The summary of expected accomplishments on page 16 contains no indication of the allocation of time to each phase. Can you provide specific dates when products will be available for review and comment? This will help our staff better plan to participate in this process. We need at least 30 days notice prior to the meeting in order to have approval to travel

Regards,

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