



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

SECRETARY

June 30, 2014

COMMISSION VOTING RECORD

DECISION ITEM: SECY-13-0137

TITLE: RECOMMENDATIONS FOR RISK-INFORMING THE  
REACTOR OVERSIGHT PROCESS FOR NEW REACTORS

The Commission acted on the subject paper as recorded in the Staff Requirements Memorandum (SRM) of June 30, 2014.

This Record contains a summary of voting on this matter together with the individual vote sheets, views and comments of the Commission.

A handwritten signature in black ink, appearing to read "Annette L. Vietti-Cook", written over a horizontal line.

Annette L. Vietti-Cook  
Secretary of the Commission

Attachments:

1. Voting Summary
2. Commissioner Vote Sheets

cc: Chairman Macfarlane  
Commissioner Svinicki  
Commissioner Apostolakis  
Commissioner Magwood  
Commissioner Ostendorff  
OGC  
EDO  
PDR

VOTING SUMMARY - SECY-13-0137

RECORDED VOTES

	APRVD	DISAPRVD	ABSTAIN	NOT PARTICIP	COMMENTS	DATE
CHRM. MACFARLANE	X	X			X	5/29/14
COMR. SVINICKI	X	X			X	6/16/14
COMR. APOSTOLAKIS	X	X			X	4/11/14
COMR. MAGWOOD	X	X			X	5/16/14
COMR. OSTENDORFF	X	X			X	5/27/14

**NOTATION VOTE**

**RESPONSE SHEET**

TO: Annette Vietti-Cook, Secretary  
FROM: Chairman Allison M. Macfarlane  
SUBJECT: SECY-13-0137 – RECOMMENDATIONS FOR RISK-  
INFORMING THE REACTOR OVERSIGHT PROCESS  
FOR NEW REACTORS

Approved  X  Disapproved  X  Abstain

Not Participating

COMMENTS: Below   Attached  X  None

  
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5/29/14  
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DATE

Entered on "STARS" Yes  X  No



**Chairman Macfarlane's Comments**  
**SECY-13-0137, "RECOMMENDATIONS FOR RISK-INFORMING THE REACTOR  
OVERSIGHT PROCESS FOR NEW REACTORS"**

I join my fellow Commissioners in commending the staff on their efforts to address the issues associated with providing an appropriate level of oversight for new reactors that are designed to have enhanced severe accident safety performance and enhanced margins of safety. This issue has been before the Commission a number of times since 2009 when the staff first presented a white paper that identified potential issues associated with applying the current guidance for risk-informed changes to the licensing basis, including operational programs (e.g., risk-managed technical specifications) and the ROP to new reactors with lower risk estimates.

I approve in part and disapprove in part of the staff recommendations, as follows:

1. I approve the staff's recommendation to develop appropriate Performance Indicators (PIs) and thresholds for new reactors, specifically those PIs in the Initiating Events and Mitigating Systems cornerstones or develop additional inspection guidance to address identified shortfalls to ensure that all cornerstone objectives are adequately met.
2. I disapprove of the staff's recommendation to develop an integrated approach for evaluating the safety significance of inspection findings for new reactor designs using qualitative measures to supplement the risk evaluations.

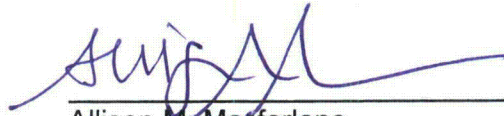
In the previous Commission Paper on this topic, SECY-12-0081, "Risk-Informed Regulatory Framework for New Reactors," the staff recommended an approach that followed the current Reactor Oversight Process (ROP) but augmented the ROP's qualitative tools with deterministic backstops to ensure an appropriate regulatory response for the new reactor designs. Based in part on the ACRS review of SECY-12-0081, the Commission directed the staff in the subsequent Staff Requirements Memorandum (SRM) to "give additional consideration to the use of relative risk metrics, or other options, that would provide a more risk-informed approach to the determination of the significance of inspection findings for new reactors."

I commend the staff for their efforts to address the Commission direction in SRM-SECY-12-0081. In SECY-13-0137, the staff has provided a well-reasoned argument for not pursuing the relative risk approach as advocated by the ACRS. However, the arguments for the proposed integrated approach for evaluating the safety significance of inspection findings were not persuasive. The difficulties that the staff suggests in the communication of significance determination outcomes would exist whether the staff pursued a relative risk approach or the proposed integrated approach. In addition, the arguments about diverting resources to address lower risk issues can and would still exist under the proposed integrated approach. I would suggest that explaining the decisions that go into the qualitative factors in the integrated approach, given the potential for subjectivity, would create difficulties in explaining the outcomes as well. On balance, I believe that the move toward increased use of qualitative measures as described by the staff would add significant subjectivity to the significance determination process, making the ROP less risk-informed and moving the ROP away from its stated goal of predictability.

I agree with the staff that additional work is required in the area of Performance Indicators. In SECY-12-0081, the staff discussed the series of cases studies that showed that the existing Mitigating System Performance Index (MSPI) is not adequate for new reactor designs and would be largely ineffective in determining an appropriate regulatory response. The staff should develop the necessary updates to the Performance Indicators and submit them to the Commission for approval prior to power operation for the first new reactor units.

I join Commissioner Apostolakis in calling on the staff to enhance the significance determination process by developing a structured qualitative assessment for events or conditions that are not

evaluated in the supporting plant risk models. I agree that areas involving passive system performance will require additional consideration in the Reactor Oversight Process. Finally, the staff should continue to monitor the operating experience and report on the effectiveness of the ROP in providing appropriate regulatory oversight for new reactors. The staff should notify the Commission through the annual report on the ROP self-assessment should they identify any further changes that are necessary.



Allison M. Macfarlane

5/29/14

Date



NOTATION VOTE

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary  
FROM: COMMISSIONER SVINICKI  
SUBJECT: SECY-13-0137 – RECOMMENDATIONS FOR RISK-  
INFORMING THE REACTOR OVERSIGHT PROCESS  
FOR NEW REACTORS

Approved XX In-Part Disapproved XX In-Part Abstain \_\_\_\_\_  
Not Participating \_\_\_\_\_

COMMENTS: Below \_\_\_ Attached XX None \_\_\_

  
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06/6/14  
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**Commissioner Svinicki's Comments on SECY-13-0137  
Recommendations for Risk-Informing the Reactor Oversight Process  
for New Reactors**

I approve in part and disapprove in part the staff's recommendations contained within SECY-13-0137, as follows.

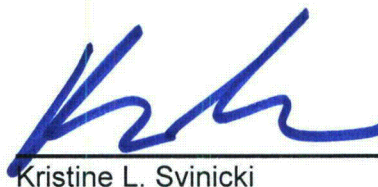
I disapprove the staff's Recommendation 1 to develop an integrated risk-informed approach for evaluating the safety significance of inspection findings for new reactor designs. I agree with my Commission colleagues that this qualitative approach has the potential to diminish the strength of the Reactor Oversight Process (ROP) by introducing unacceptable levels of subjectivity and unnecessary complexity. The Significance Determination Process should continue to place primary reliance on the use of the existing quantitative measures of the change in plant risk for both operating and new reactors.

I approve staff's Recommendation 2 to develop performance indicators (PI) and thresholds appropriate to new reactor applications for the Initiating Events and Mitigating Systems cornerstones or, as alternatively proposed by the staff and also acceptable, the staff may address this matter through the development of additional inspection guidance. Any new PIs or thresholds should be submitted for the Commission's review and approval, prior to their implementation.

The purpose of the ROP is to monitor licensee performance relative to absolute measures of plant safety, such as the Commission's safety goals and subsidiary objectives; to take regulatory actions commensurate with that level of performance; and to communicate these outcomes to the public. In this regard, I agree with my colleagues that the existing ROP should be preserved. Moreover, the Commission reaffirmed, as recently as 2011, that the existing safety goals, safety performance expectations, subsidiary risk goals, associated risk guidance, and quantitative metrics for implementing risk-informed decision making are sufficient for new plants. In recognition of their enhanced margins of safety, new reactors should have greater operational flexibility than current reactors.

I have also reviewed the staff's thorough presentation of options for a relative risk approach. I endorse their conclusion that the potential for a number of undesirable effects from this approach outweighs its relative merits.

As cautioned by the Advisory Committee on Reactor Safeguards (ACRS) in a letter report dated September 19, 2013, "It is essential that the reactor oversight process (ROP) for new reactors remains objective, risk-informed, understandable, and predictable. An increased reliance on qualitative assessments deserves close scrutiny." I agree and assess that the staff in its evaluation and the Commission in weighing the decision record have both been quite thorough in this regard.



Kristine L. Svinicki

06/16/14

**NOTATION VOTE**

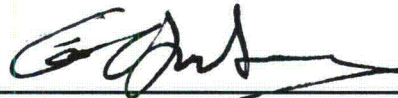
**RESPONSE SHEET**

**TO:** Annette Vietti-Cook, Secretary  
**FROM:** Commissioner Apostolakis  
**SUBJECT:** SECY-13-0137 – RECOMMENDATIONS FOR RISK-  
INFORMING THE REACTOR OVERSIGHT PROCESS  
FOR NEW REACTORS

Approved  X  Disapproved  X  Abstain  \_\_\_\_\_

Not Participating  \_\_\_\_\_

**COMMENTS:** Below  \_\_\_\_\_  Attached  X  None  \_\_\_\_\_



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April 11, 2014

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DATE

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**Commissioner Apostolakis' Comments on SECY-13-0137  
Recommendations for Risk-Informing the Reactor Oversight Process  
for New Reactors**

In SECY-13-1037, the staff is responding to the Staff Requirements Memorandum (SRM) from the previous notation vote paper on this topic, SECY-12-0081, "Risk-Informed Regulatory Framework for New Reactors." In that SRM, the Commission disapproved the staff's recommendation to use the existing risk-informed Reactor Oversight Process (ROP) tools augmented by qualitative tools with deterministic backstops for new reactor designs. The Commission directed the staff to give additional consideration to the use of relative risk metrics, or other options, that would provide a more risk-informed approach to the determination of the significance of inspection findings for new reactors and to provide a technical basis if it concluded that this was not a viable option for new reactor oversight.

I commend the staff for a very comprehensive and thoughtful response to the Commission's direction. I partially approve the staff's recommendations, as follows:

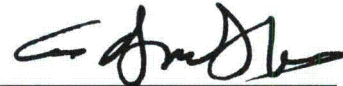
1. I approve the development of appropriate Performance Indicators (PIs) and thresholds for oversight of new reactors, specifically those PIs in the Initiating Events and Mitigating Systems cornerstones, or, as necessary, additional inspection guidance to address identified shortfalls to ensure that all cornerstone objectives are adequately met.
2. I do not approve the staff's proposal to develop an integrated approach for evaluating the safety significance of inspection findings for new reactor designs using qualitative measures to supplement the risk evaluations in the manner proposed by the staff. The significance determination process (SDP) should continue to place primary reliance on the use of the existing quantitative measures of the change in plant risk for both operating and new reactors.
3. The staff should enhance the SDP by developing a structured qualitative assessment for events or conditions that are not evaluated in the supporting plant risk models. Areas where such a qualitative assessment may prove useful include evaluation of performance deficiencies associated with passive safety systems and digital instrumentation and controls.

The Commission has been wrestling with the issue of how to provide the most meaningful oversight for new reactors since well before the first combined licenses were issued in 2012. In my view, this question comes down to the fundamental purpose of the ROP. Some may say that its purpose is to monitor licensee performance relative to the level of safety to which the plant was originally licensed. A relative risk approach to new reactor oversight might accomplish such an objective. Others would say that the purpose of the ROP is to monitor licensee performance relative to absolute measures of plant safety (such as the Commission's safety goals and subsidiary objectives) and to communicate the results to the public. After considering the information provided by the staff in this paper, and reviewing, once again, the history behind this issue, I conclude that it is the latter. Therefore, the overall structure of the existing ROP should be preserved.

In 2011, in the SRM for SECY-10-1212, "Modifying the Risk-Informed Regulatory Guidance for New Reactors," the Commission reaffirmed that the existing safety goals, safety performance expectations, subsidiary risk goals, associated risk guidance, and quantitative metrics for implementing risk-informed decision making were sufficient for new plants. The Commission also reiterated its expectation that the advanced technologies incorporated in new reactors would result in enhanced margins of safety and noted that new reactors with these enhanced margins and safety features should have greater operational flexibility than current reactors.

I previously supported a further evaluation of the relative risk approach. The staff has done a good job of analyzing this approach in SECY-13-0137. The staff stated that they view the relative risk approach as inconsistent with the Commission decision not to approve the development of lower numerical thresholds for new reactors noted above. The staff also highlighted other negative aspects of the relative risk approach, including the potential to inadvertently focus licensee and staff attention on less significant safety issues, concerns with public perception issues in communicating the safety significance of findings, and concerns with creating less incentive for licensees to enhance safety margins. I am convinced that these negative aspects, especially the concerns with public perception, would outweigh any value gained through use of a relative risk approach for new reactor oversight.

I agree with the staff that it should submit a paper to the Commission with its proposed approach for any revisions to the SDP at least one year before the scheduled implementation of any changes to the ROP.



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George Apostolakis  
4/11/14



**NOTATION VOTE**

**RESPONSE SHEET**

**TO:** Annette Vietti-Cook, Secretary  
**FROM:** Commissioner Magwood  
**SUBJECT:** SECY-13-0137 – RECOMMENDATIONS FOR RISK-  
INFORMING THE REACTOR OVERSIGHT PROCESS  
FOR NEW REACTORS

Approved  Disapproved  Abstain \_\_\_\_\_

Not Participating \_\_\_\_\_

**COMMENTS:** Below \_\_\_\_\_ Attached  None \_\_\_\_\_

  
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16 May 2014  
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**DATE**

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**Commissioner Magwood's Comments on SECY-13-0137,  
"Recommendations for Risk-Informing the Reactor Oversight Process for New Reactors"**

I commend staff for the careful thought it has invested in this important matter. The approach by which we best to incorporate Generation III+ reactors into our regulatory framework is one that has generated considerable discussion and debate. I very much appreciate staff's hard work to develop and evaluate a range of options for the oversight of new, advanced power reactors.

However, I do not support staff's recommendation. I have seen no compelling case to alter our current oversight approach and philosophy because we will oversee reactors with greater safety margins than those currently in operation. I find that staff's recommended approach is predicated on the concern that licensees might not take actions that staff might prefer which, because of the advanced features of Generation III+ plants, do not have a significant impact on safety. As best I can determine, this recommendation is motivated by the instinct that it is better to have a consistent response to actions taken or not taken by all licensees.

But this ignores the simple fact that Generation III+ plants are, by design, different from currently operating plants and far more resilient to the failure of active equipment and human actions. If we are a safety regulator, we should focus on the matter of assuring safety, not on regulating consistency for consistency's sake across inconsistent designs and conditions. If the operator of a Generation III+ plant forgoes maintenance or otherwise adopts poor operational practices, the agency has the ability to highlight and compel correction of inappropriate programmatic practices.

I believe that my colleague, Commissioner Apostolakis, captured fully my concerns in his April 11, 2014 vote on SECY-13-0137, and I subscribe to the entirety of his comments and recommendations. I add, however, with respect to the development of appropriate performance indicators and thresholds for oversight of new reactors, I do not believe that the analysis of the current Safety System Functional Failure (SSFF) performance indicator discussed in Enclosure 4 of SECY-13-0137 supports any conclusion. Since the safety-related components in the Generation III+ reactors are passive, this indicator may not yield any meaningful performance data, as the majority of current failures currently reported under this performance indicator are associated with active components. Staff should explore this issue further with stakeholders before deciding upon whether or how to apply this performance indicator for new reactors.

In addition, as noted in Commissioner Apostolakis' vote, the structured qualitative assessment should include consideration of performance deficiencies associated with passive equipment. I recommend that these assessments also capture human performance issues.

Finally, once staff has gained operating experience with the new Generation III+ plants, staff should review the reactor oversight process and notify the Commission should further changes be warranted.

 5/16/14

**William D. Magwood, IV**

**Date**



**NOTATION VOTE**

**RESPONSE SHEET**

TO: Annette Vietti-Cook, Secretary  
FROM: COMMISSIONER OSTENDORFF  
SUBJECT: SECY-13-0137 – RECOMMENDATIONS FOR RISK-  
INFORMING THE REACTOR OVERSIGHT PROCESS  
FOR NEW REACTORS

Approved XX Disapproved XX Abstain \_\_\_\_\_

Not Participating \_\_\_\_\_

COMMENTS: Below \_\_\_\_\_ Attached XX None \_\_\_\_\_

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*5/27/14*  
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DATE

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**Commissioner Ostendorff's Vote Comments on SECY-13-0137,  
"Risk-Informed Regulatory Framework for New Reactors"**

I join Commissioner Apostolakis in commending the staff for their comprehensive and thoughtful response to the Commission's direction on SECY-12-0081. I appreciate Commissioner Apostolakis' leadership on this issue, as he has provided time and again on policy matters involving risk-informed regulation. In this case, Commissioner Apostolakis made sure that the views of the ACRS on the merits of a 'relative risk' approach were fully considered and that the Commission had the benefit of this information on which to base its decision.

In my vote on SECY-12-0081, I supported the staff's effort to develop qualitative criteria to supplement the ROP for new reactors. After careful consideration of the staff's analysis and the significance determination examples presented, I have concluded that the use of qualitative factors in the significance determination process should continue to be limited to those circumstances where PRA methods and tools are not available or appropriate to provide reasonable and timely estimates of safety significance.

Existing processes are available in Inspection Manual Chapter (IMC) 0609, Appendix M, "Significance Determination Process Using Qualitative Criteria," to consider qualitative factors when necessary, and through the deviation process described in IMC 305, which allows the agency to either increase or decrease agency action in rare cases where the actions dictated by the Action Matrix may not be appropriate. Both of these processes should be applied in a consistent and predictable manner for operating and new reactors to ensure that agency and licensee attention is appropriately focused on the most risk-significant issues. Therefore, I do not approve the staff's first recommendation to develop an integrated risk informed approach for evaluating the safety significance of inspection findings for new reactor designs using qualitative measures to supplement the risk evaluations.

I propose two modest enhancements to the ROP as follows. The staff should update IMC 0609, Appendix M, to address circumstances that are unique to new reactors with regard to the determination of when PRA methods or tools are not appropriate, for example due to uncertainty of the reliability of passive systems, structures and components (SSCs) or other SSCs with limited operational experience. The staff should also update the guidance in Appendix M to provide additional clarity on the use of qualitative factors for both operating and new reactors to provide more transparency and predictability to the process. The ROP is mature and robust and self-assessment mechanisms exist to allow the staff to identify any areas where additional enhancements are warranted after experience is gained in implementing the ROP for new reactors.

I recognize the concern that has been raised that certain deficiencies may not rise above the level of a "green" finding for new reactors due to the lower baseline core damage frequency of these plants and the increased margins in these designs, and there is a concern that this could result in an erosion of safety margins that were approved at the time of licensing. However, other processes are in place to ensure that plant margins are appropriately maintained. These include the Reliability Assurance Program (RAP) that has been imposed on all new reactor designs through the design certification process. The RAP ensures that the reliability and availability of risk-significant SSCs is maintained over the life of a plant commensurate with their risk significance. The RAP can be implemented during the operational phase through other existing programs such as the Maintenance Rule program and Quality Assurance programs. Further, new reactor licensees are required to maintain and update their probabilistic risk

assessments (PRAs). Any changes to the PRA results or insights in Chapter 19 of the final safety analysis report (FSAR) must be reported to the NRC in accordance with 10 CFR 50.71(e).

Lastly, I approve the staff's second recommendation to develop appropriate Performance Indicators (PIs) and thresholds for new reactor applications, specifically those PIs in the Initiating Events and Mitigating Systems cornerstones, or develop additional inspection guidance to address identified shortfalls to ensure that all cornerstone objectives are adequately met.