

ANS RIPB Community of Practice



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Is the NRC's Reactor Oversight Process RIPB?

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AGENDA

- What is the Reactor Oversight Process (ROP)?
- How is ROP relevant to RIPB methods and Advanced Reactor standards?
- Current state of RIPB methods
- Current state of Advanced Reactor standards
- NUREG/BR-0303 and follow-on work
- Envisioning modernized ANS standards within a systems engineering framework
- Summary



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What is the ROP?

The ROP is the monitoring program to assure safety of US operating nuclear power plants

- Every day, every plant's operating data is examined to address the question, "Is this plant adequately protecting health and safety of the public?"
- Hence, the ROP is a framework to make decisions regarding "adequate safety"
- ROP started 20 years ago, but "adequate safety" decisions have been made for 50 years



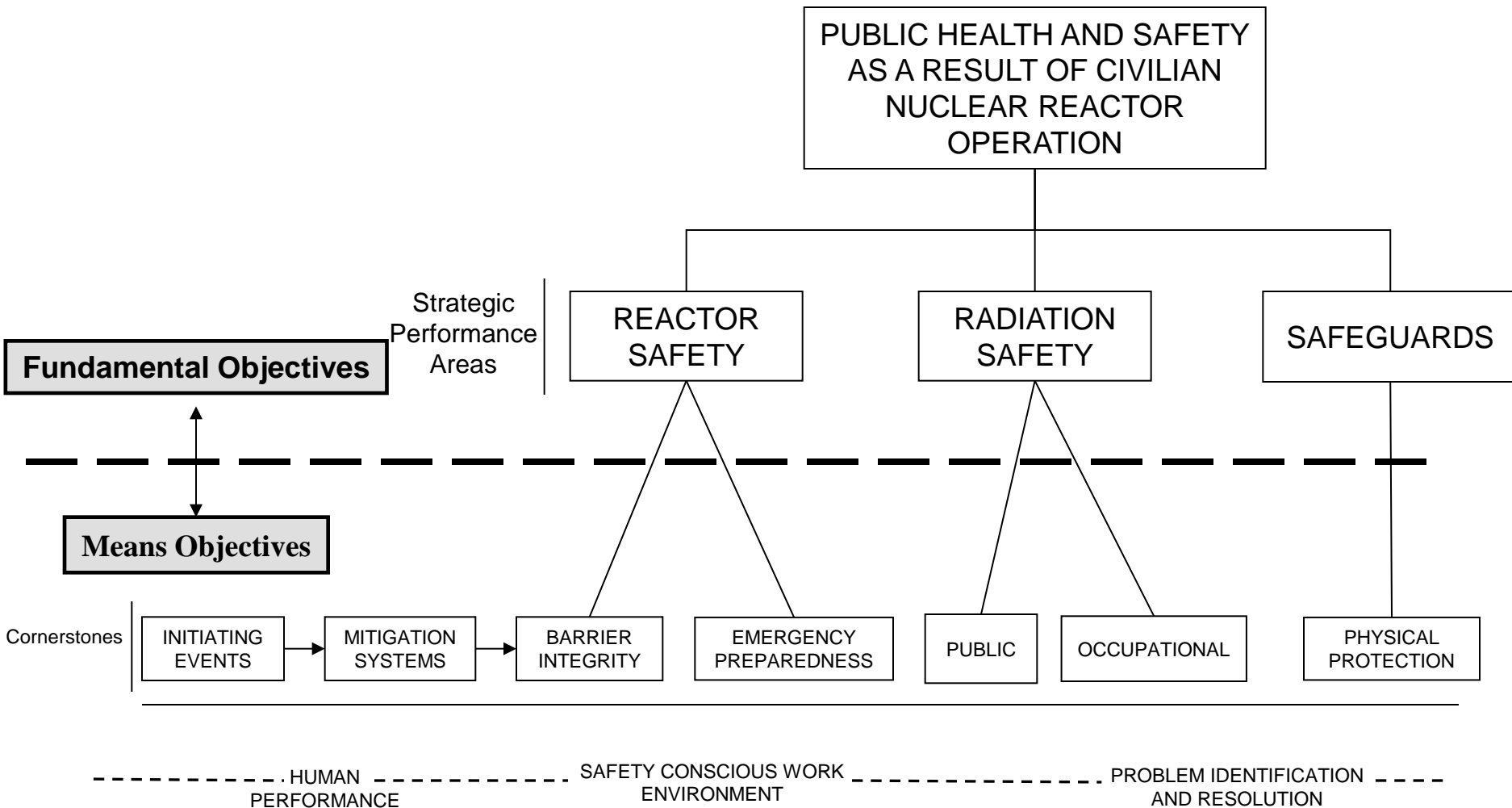
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Why ROP?

Why we need ROP is the same reason that RIPB methods are relevant to modernized ANS standards

- Prior to ROP, monitoring used the “Systematic Assessment of Licensee Performance” (SALP)
- SALP had many issues, and in the late 1990s the Commission directed the staff to find a better way
- The ROP was created by approval of SECY-99-007, “Recommendations for ROP Improvements”
- The ROP represents a radical departure from the prior system for monitoring operating plants
- The ROP structure was adopted as the basis for performance-based methods in NUREG/BR-0303, “Guidance for Performance-Based Regulation” issued in 2002

Reactor Oversight Process Objectives Hierarchy





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Relevance of ROP to RIPB Methods in ANS Standards

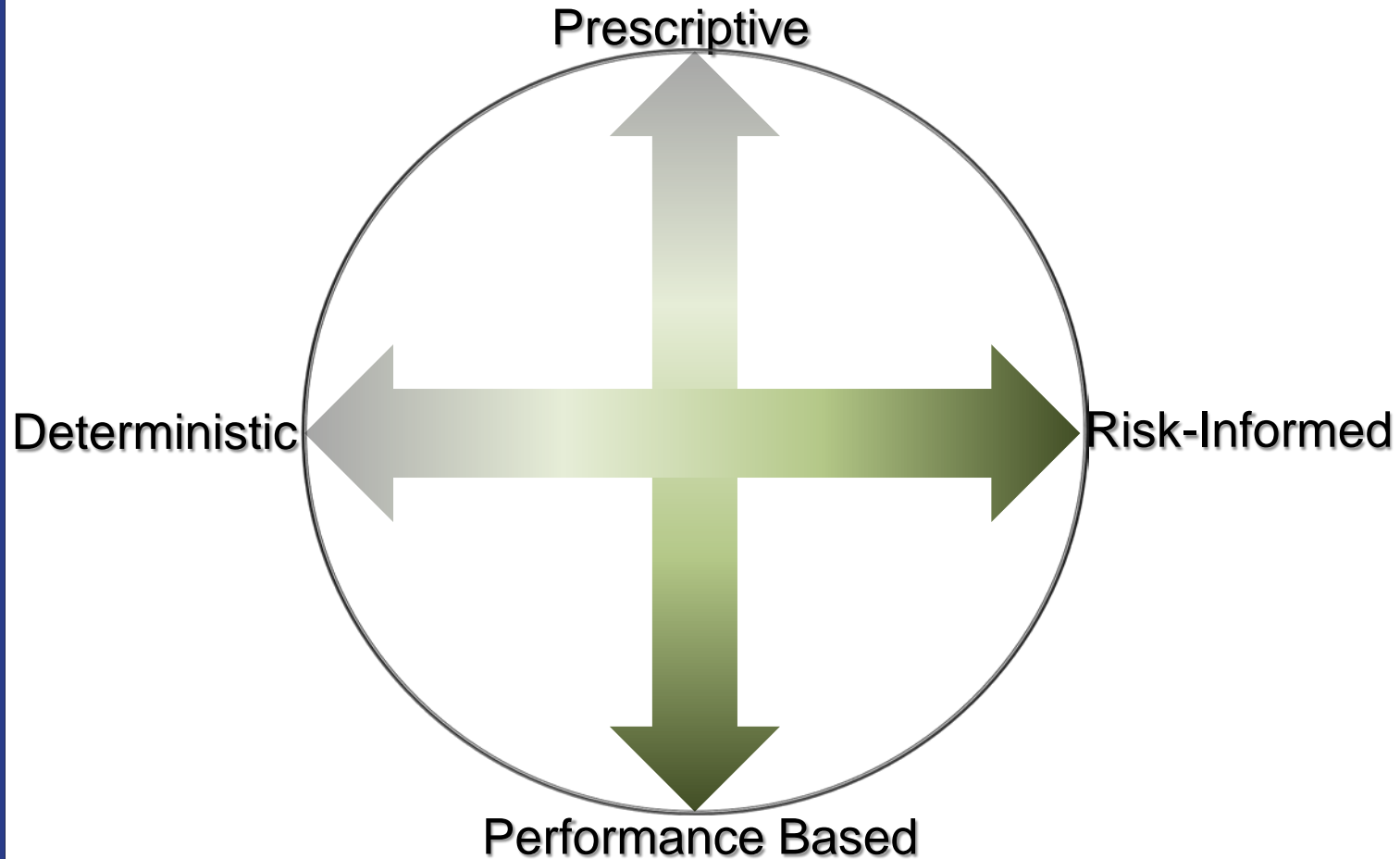
RIPB methods are important to ANS standards to avoid unnecessary requirements

- Avoiding unnecessary requirements is an important aspect of reducing costs of nuclear technology
- An NRC approved decision-making framework should provide a basis for requirements management (RM)
- However, adopting and adapting the ROP framework for better ANS standards is the challenge
- RP3C was created because the problems with RM in ANS standards faces similar challenges to what ROP was developed to correct



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Regulatory Approaches





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Current State of RIPB Methods

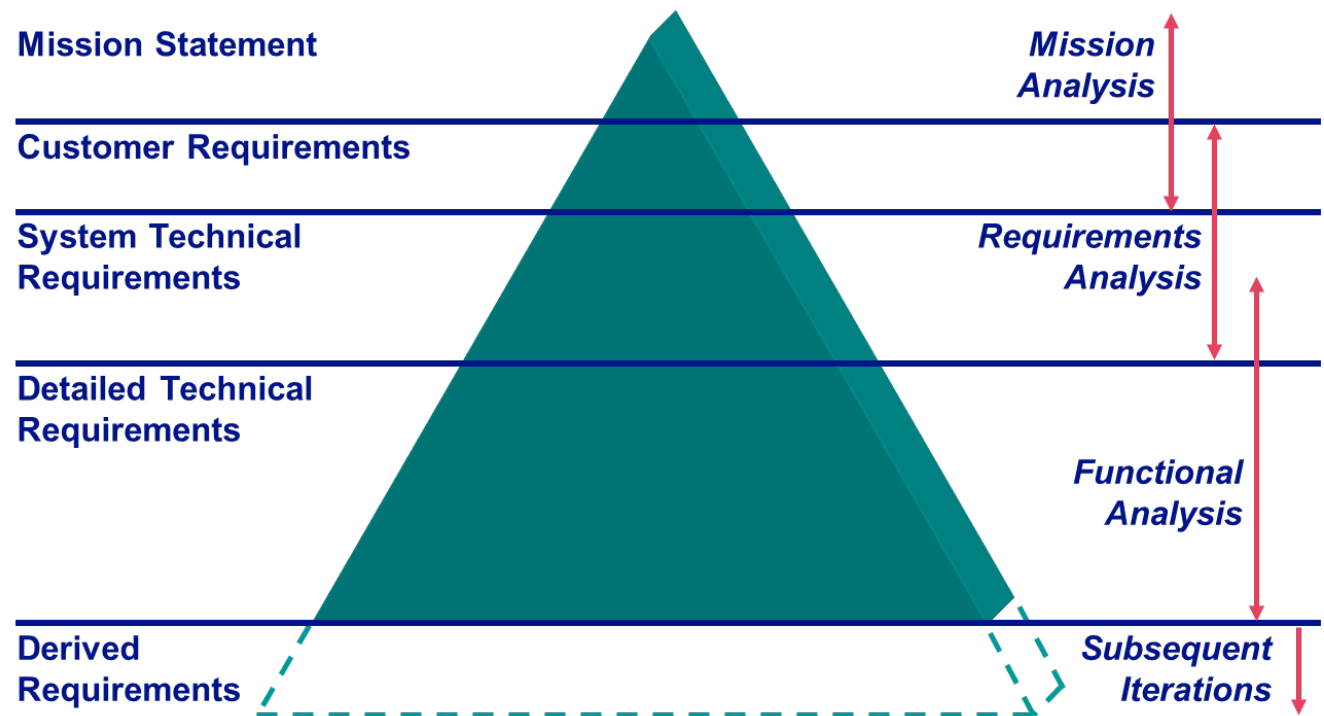
Disparate views of RIPB elements are evident from observing several activities

- RP3C is working to employ systems engineering concepts and practices for harmonization of elements
- Successful RM implies achieving performance objectives and realizing desired outcome attributes
- NRC's RIPB White Paper (SECY-98-144) should provide the unifying vision
- Achieving consensus on use of decision-making framework (viz. ROP or similar) would enable better RIPB standards



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Typical Requirements Set





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Current State of Advanced Reactor Standards

Advanced reactor standards have been essentially stalled for several years

- Industry is slowly recognizing the role and importance of consensus standards (NEI-19-03)
- Among SDOs, only ANS and ASME appear to recognize the value of modernized standards
- NRC has tried to promote standards with limited success
- RP3C has not been as successful as had been hoped



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NUREG/BR-0303 and Follow-on Work

There has been a long lag time in gaining recognition that RIPB is an integrating approach

- RIPB is not RI+PB
- Alternative approach to treatment of uncertainty in decision-making was proposed (NUREG/CR-6833)
- Reg. Guide 1.174 included integrated decision framework
- NUREG-2150 offered risk management framework that is RIPB
- Much work that is identified as RIPB is siloed and much more RI and insufficiently PB
- RP3C has been working to offer remedies



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ROP and NUREG/BR-0303

NUREG/BR-0303, “Guidance for Performance-Based Regulation” was issued about two years after ROP

- Process used by ROP did not have PB guidance available in NUREG/BR-0303
- ROP has been consistently called “risk-informed”
- Later work showed that ROP could be RIPB but fell short on account of Significance Determination Process
- RP3C has been trying to apply lessons in guidance developed for WGs



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Systems Engineering Framework for Standards

The Systems Engineering framework is ideally suited to think of standards development as Requirements Management

- ANS-30.1, “Integrating Risk and Performance Objectives into New Reactor Safety Design” has formally introduced SE into standards development
- ASME BPV Section III is working on a “Plant Systems Design” standard incorporating SE to cover the entire life cycle of any plant, including fossil fuels



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Summary

Even though the ROP is not fully RIPB in its application, the results show integrated safety decision making

- The plant is given a color-coded grade
- The operator has flexibility to show that the performance objectives of the “cornerstones” are met
- There is margin in the performance indicators for the “cornerstones” to show that any non-conformance is “green”
- Twenty years of experience shows how making ROP truly RIPB would significantly improve it



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QUESTIONS & SUGGESTIONS?



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Next CoP Discussion

Date: Friday, May 29, at 3:00 p.m. Eastern

Topic:

Lead:



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RIPB CoP Related Links

- Access the RIPB CoP site on ANS Collaborate at <https://collaborate.ans.org/communities/group-home?CommunityKey=0984f3cf-63e2-4c9a-8538-84c2c97c034d>

Then look for the “Join Group”
button to stay informed of CoP
activities and be included in discussions



- Find CoP presentations posted on RP3C’s public website at <http://www.ans.org/standards/rp3c/>
Just scroll down the page to find presentations



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