

Risk-Informed Regulation Industry Perspective

US Nuclear Regulatory Commission

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Overview

- Risk-Informed Regulation Perspective
- Successes
- Challenges
- Industry Priorities - 2009
- NRC PRA Policy Statement
- Conclusion



Risk-Informed Regulation

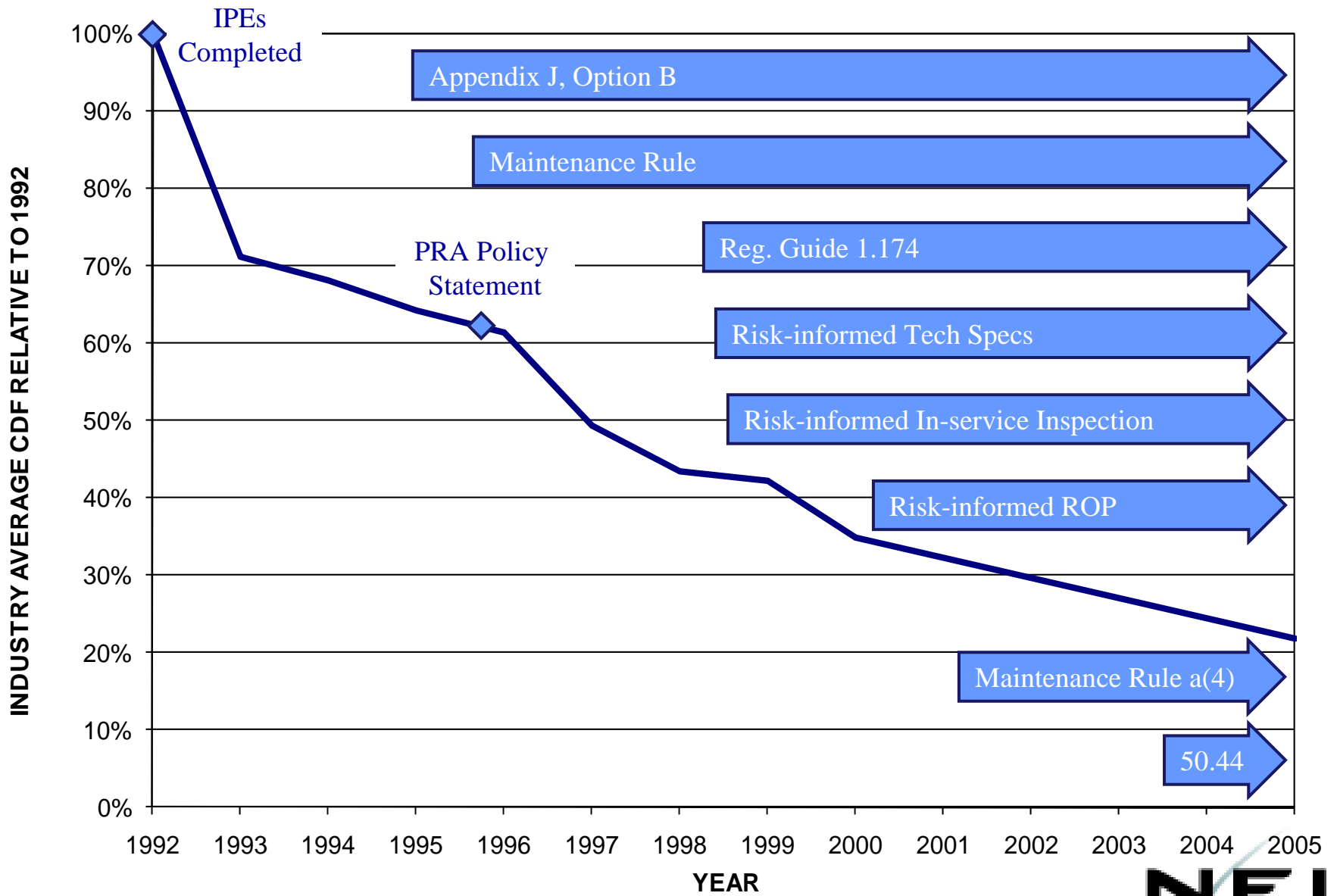
- NRC has been a world leader in the use of risk methods
 - Safety goal policy statement
 - PRA policy statement
- Risk is ingrained into plant operation and culture
 - Safety benefits have been demonstrated



Successes

- Outage risk management
- Containment leak rate testing intervals
- Maintenance Rule
- Risk-informed Inservice Inspection
- Reactor Oversight Process
- Mitigating Systems Performance Index
- Technical Specifications reform
- Combustible gas control rulemaking





Challenges

- Demonstrating progress on essential rulemakings that were intended to achieve a risk-informed regulatory framework
- Expectations for PRA scope and pedigree are outpacing industry infrastructure
- Separating deterministic mindset from risk analysis



Challenges

- Ensuring NFPA 805 is implemented in a technically sound manner
 - Extremely complex risk application
 - Fire PRA technology is maturing as quickly as practicable but is still evolving
 - Need to do it once and do it right



Industry Priorities

- Meeting NRC Regulatory Guide 1.200 Revision 1 for internal events PRAs
- Developing realistic Fire PRAs suitable for NFPA 805 and other risk applications
- Achieving expected improvements in the focus of Part 50
 - Large Break LOCA
 - Special Treatment Requirements



Industry Priorities (Continued)

- Maintaining and improving current successful uses of PRA (ROP, MSPI, online maintenance)
- Ensuring adequate PRA infrastructure
 - Substantial training activities underway
- Implementing available voluntary applications
 - Technical Specifications improvements



Commission's PRA Policy Statement

- *“Use of Probabilistic Risk Assessment Methods in Nuclear Regulatory Activities,” 8/16/1995*
- Four main statements:
 - ◆ **Increase use of PRA** to the extent supported by the state-of-the-art and in a way that **complements** traditional engineering approaches
 - ◆ Use PRA both to **reduce unnecessary conservatism** in current requirements and to support proposals for additional regulatory requirements
 - ◆ Be as **realistic** as practicable
 - ◆ Consider **uncertainties** appropriately when using the Commission's safety goals and subsidiary numerical objectives



Conclusion

- We're not done
- Without risk-informing Part 50 itself, improvements to safety will be limited
- Commission leadership is essential to achieving significant improvements in risk-informed regulation



Acronyms

- PRA – Probabilistic Risk Analysis
- ROP – Reactor Oversight Process
- MSPI – Mitigating Systems Performance Index
- NFPA – National Fire Protection Association

