



# NEA Learning Workshop for the Introduction of the Reactor Oversight Process

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Nuclear Regulatory Commission

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# NRC's Oversight History

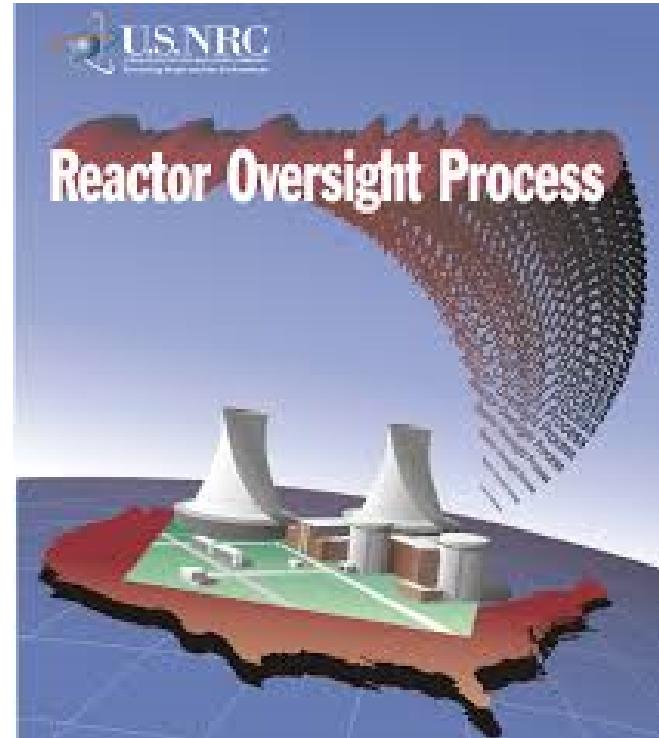


- Prior program (SALP) was too subjective, not predictive and caused unnecessary regulatory burden
- Numerous attempts made to improve SALP
- External stakeholder feedback was highly critical
- Decision made to develop a more risk-informed and performance based program

# Phases of ROP

## Introduction

- Six-month pilot (1999)
- One year initial implementation (2000)
- Evaluations performed after each phase
- Significant stakeholder involvement





# Change Management (1)



- Introduction of risk-informed and performance based philosophy
- Enforcement de-emphasized
- Baseline inspection program highly prescriptive
  - Inspectors were accustomed to having more flexibility
  - Requires more effective time management skills to complete

# Change Management (2)



- PRA skills/tools needed to be developed
- Negative perception by inspectors on their added value
- More concise inspection reports

# Risk-informed Decision-Making (1)

- Consider use of the risk triplet
- Decisions should include both quantitative and qualitative information
  - What are appropriate qualitative inputs?

		Impact				
		Trivial	Minor	Moderate	Major	Extreme
Probability	Rare	Low	Low	Low	Medium	Medium
	Unlikely	Low	Low	Medium	Medium	Medium
	Moderate	Low	Medium	Medium	Medium	High
	Likely	Medium	Medium	Medium	High	High
	Very likely	Medium	Medium	High	High	High

# Risk-informed Decision-Making (2)

## Significance Threshold

### Performance Indicators



### Inspection Findings



Use caution in over reliance on PRA point estimates for the SDP and misapplication of PRA

# Relationship Between NRC and Licensees



## Principles of Good Regulation

- ✓ Independence
- ✓ Clarity
- ✓ Openness
- ✓ Reliability
- ✓ Efficiency



NRC is a “trust but verify” regulator

# Interactions with Stakeholders (1)

Main reason for ROP success is intensive and frequent engagement with industry and other external stakeholders

# Interactions with Stakeholders (2)

- Intensive discussions on program elements and more significant inspection findings
- Most meetings open to public
- Oversight program and results available on public web page



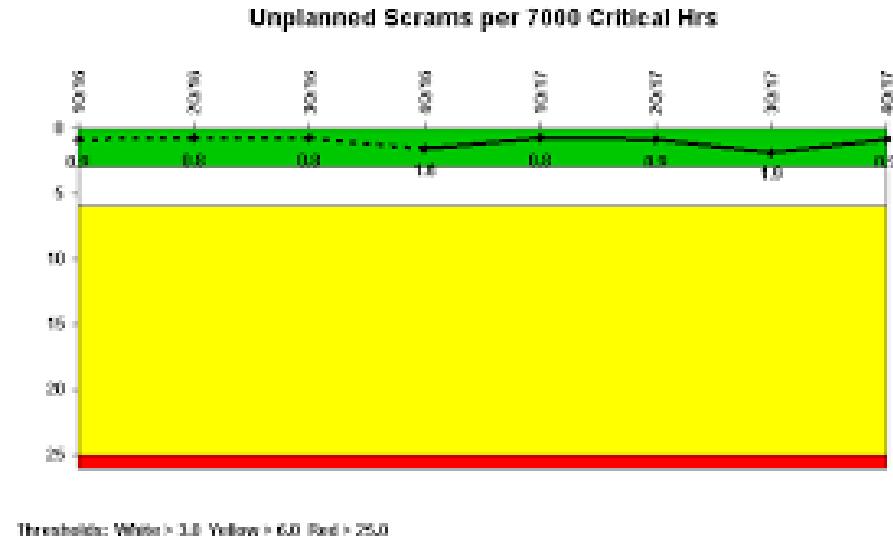
# Performance Indicator Program Management (1)



- PI Program was industry suggestion
- PIs and inspections designed to overlap
- Industry developed guidance that NRC endorsed (recommended) – NEI 99-02
- Licensees voluntarily report PI's quarterly

# Performance Indicator Program Management (2)

- All PI's inspected on an annual basis
- FAQ Program continues to require much attention
- MSPI calculation is complex and verification challenging





# ROP Challenges (1)



- Making consistent distinctions between minor/more than minor issues
- Designing/implementing a meaningful Cross-Cutting Issues Program
- Maintaining ROP is resource intensive.

# ROP Challenges (2)



- Re-aligning baseline inspections
- Conducting Design Basis Assurance inspections
- Achieving safety/security significance equality among cornerstones
- Resources for supplemental inspections

# ROP Challenges (3)



- Balancing reliability and efficiency of decisions
- Efficient use of resources for findings of greater safety significance





# Best Practices (1)



- ROP Feedback/Procedure Change Processes
- ROP monthly public meetings with industry
- Senior Reactor Analysts

# Best Practices (2)



- SDP Phase 1 Screening Process
- SERP Process/Regulatory Conferences
- Use of graded approach for assessment (i.e. Action Matrix)



# Human Resources

# Human Resources (1)



- NRC attracts highly educated and motivated individuals
- NRC salary and benefits package is highly competitive
- Qualification programs are extensive requiring 2 years to complete

# Human Resources (2)



- Many staff have nuclear experience prior to NRC
- NRC encourages a broad experience base giving staff career flexibility
- Staff experience and attrition becoming more challenging

# Conclusion



Introduction of an oversight program similar to NRC's is a significant decision requiring a large degree of commitment, time, resources and stakeholder involvement!