

# **International Workshop: Kiev, Ukraine**

## **Use of Probabilistic Safety Analysis in Operation of Nuclear Power Plants and Regulatory Decision Making**

### **Control Room: Risk-Informed Environment**



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**U.S. Nuclear Regulatory Commission**

# Integrated Operational Decision Making Versus AOT

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- ◆ **Paradigm Change**
- ◆ **Insights, Uncertainties, not just Number**
- ◆ **Actions to Achieve Safe State**
- ◆ **Risk-Informed Performance Indicator(s)**
  - MSPI or Similar?

# Personnel

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- ◆ **Operators**
- ◆ **Shift Technical Advisor**
- ◆ **PSA Staff**
- ◆ **Operations Management**
- ◆ **Maintenance & Work Planning Staff**
- ◆ **Inspectors**

# Functions Impacted

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- ◆ **Operations**
- ◆ **Training**
- ◆ **Maintenance**
- ◆ **Communication of PSA Insights**
- ◆ **PSA Information Access and Control**

# Control Room Staff

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- ◆ **Who Derives Insights?**
- ◆ **Evaluate PSA Each Shift & Configuration Change**
- ◆ **Configuration Control**
  - Preventive Maintenance — Level of Comfort
  - Corrective Maintenance — Less Comfort
  - CRMP  $\geq$  MR (4)(a)      MR (4)(a)  $\neq$  CRMP
- ◆ **Consistent: Operators, STA, Inspectors**

# Operators

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- ◆ **Licensed Responsibility**
- ◆ **Various Levels Comfort**
  - **Trained, Understand Current AOTs**
  - **Backstop AOT**
  - **Flexible AOT**
- ◆ **Safety Monitor, R&R Workstation in CR**
- ◆ **Decisions should Not be Unilateral**

# Training & Understanding

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- ◆ Intuitive Plant Operation & PSA
- ◆ Different Views
  - PSA Insights
  - Design Basis Accidents
  - Severe Accidents
- ◆ Control Room Personnel Capability
  - Manipulate PSA
  - **Know PSA Limitations**

# Licensed Operator Training

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- ◆ **Include PSA Aspect**
  - **Newest INPO Accreditation**
    - » **Industry Program**
  - **NUREG Operator Training**

# Inspectors

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- ◆ **Access to Licensee PSA**
  - Ask Questions (Learn)
  - Ask Questions (Probe)
  - Challenge
- ◆ **Formalize Consistent Training**

# Risk Insight Communication

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- ◆ **Plan of the Day**
- ◆ **“Stoplight”**
- ◆ **Highlight & Insight Card**
- ◆ **Daily Meetings**
  - **Management**
  - **Operations**
  - **Maintenance**

# Access to Risk Information

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- ◆ Licensee Model and Interface
  - Safety Monitor
  - Risk & Reliability Workstation
- ◆ SPAR
- ◆ SDPs
- ◆ Data

# Progress

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- ◆ **As Part of Progressive Applications**
  - Owner's Groups' TS item 4b
- ◆ **Synchronize Expectations**
- ◆ **Synchronize Training**
- ◆ **Expand Consistency and Access**

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