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Institute of Nuclear Power Operations

## Improving Operator Fundamentals Performance

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### What Are Operator Fundamentals?

- Closely monitoring plant conditions
- Precisely controlling the plant evolutions
- Having a bias toward conservatism
- Working effectively as a team
- Having a solid understanding of plant design and theory



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### Event Trends:

- INPO has tracked events associated with operator fundamentals since 2004
  - Precursor as well as significant events
  - Significant Event Report issued in 2005
  - Reducing trend through 2008, then rising trend in 2009-2010
  - Industry Event Report (IER) Level 1 issued in 2011 – resulting in changes to INPO and industry approach to operator fundamentals



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### Industry/INPO Actions

- **Operations:**
  - Improved Crew Performance Evaluation
  - Focus on Results – Observable Application
- **Training:**
  - Training Focus on Operator Fundamentals
  - Improved Training Techniques



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### Crew Performance Evaluation:

- **More realistic**
  - Scenarios reflect operating experience, challenge decision-making, run longer, DAS
  - Crews represent actual shift staffing
- **Deeper**
  - System and integrated plant understanding
  - Post-scenario questioning, plant walkthroughs
- **Broader**
  - More crews
  - Evaluate all positions (SM, CRS, STA, RO, NLO)



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### Improve Industry Performance Monitoring:

- **Management observations**
  - Actively monitor and engage operators
  - Observe crew decision-making activities
  - Probing inquiry
- **Trending**
  - Leverage corrective action processes
  - Develop and use better metrics
- **Clarify and communicate standards**
  - Consistent understanding and application of expectations



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**Training Focus on Fundamentals:**

- **Embedding fundamentals reinforcement in training materials and venues**
  - Training material design and development
  - Classroom, simulator, dynamic learning activities
- **Evaluating crew performance for application of operator fundamentals**
  - Improve line manager and instructor focus on operator fundamentals when evaluating crews
  - Better incorporate evaluation of fundamentals application in initial training and qualification activities



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**Improved Training Techniques:**

- **Training for instructors**
  - Techniques to better reinforce operator fundamentals in training
  - Evaluating crew performance for application of operator fundamentals – better evaluation tools and how to apply those tools
- **Training for instructional technologists**
  - How to better embed operator fundamentals in all phases of the systematic approach to training (SAT)



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**Additional INPO Actions:**

- **Initial instructor training**
  - Additional focus on how to teach/reinforce operator fundamentals
- **Sharing of industry best practices**
  - Web site, courses, seminars, workshops
- **A fresh look at crew teamwork models and training methods**



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