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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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