

**Operator Initial and  
Requalification Training  
and Evaluation -  
an Operator's  
Perspective  
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# **PROS Introduction**

- **PROS (Professional Reactor Operator Society)**
- **Our mission is to serve individuals involved with safe nuclear operations. The society will work to communicate and promote the knowledge and professional values of our members, and to offer constructive input to the regulatory process on issues related to Operators.**

# **NRC/INPO Reactive Impacts on Training**

- **Fukushima Recommendations**
- **INPO SOER 10-2 Response**
- **INPO LER/SOER Response**
- **Regulatory Violations OE Response**

# **Historical Operator Through put**

- **Varies across the 4 NRC regions**
- **Historically, NRC region 2 has lower through put as compared to other regions**
- **Through put can improve by facility training management and PROS working with INPO and the NRC on clear and concise testing requirements**

# Through put compared to Pass rate

- **2010: SRO Through put = 73%**  
**SRO Pass rate = 91%**
- **2010: RO Through put = 68%**  
**RO Pass rate = 95%**
- **2011: SRO Through put = 80%**  
**SRO Pass rate = 97%**
- **2011: RO Through put = 66%**  
**RO Pass rate = 98%**

# **Through put compared to Pass rate**

- **2012: SRO Through put = 80%**  
**SRO Pass rate = 94%**
- **2012: RO Through put = 84%**  
**RO Pass rate = 94%**

**(Through 3<sup>rd</sup> quarter of 2012)**

# **Increase NUREG & ACAD experience requirements**

- **Six months on site experience for direct SRO candidates is not adequate.**
- **One year reactor operator experience for upgrade SRO is not adequate.**
- **Education cannot replace operating experience**

# **Increase NUREG & ACAD experience requirements**

- **Allows an inexperienced candidate to progress from SRO to OSM in short period without invaluable operating experience.**
- **Process should require a candidate to have more experience in the non-licensed operator and reactor operator positions**

# **INPO ACAD documents & NUREG 1021 differs on Exams**

- **ACAD 10 - 001: Recommends using essay, drawings and short answer questions during ILT training**
- **ACAD 07-001: A variety of question types (essay, drawings, and so forth) are considered to evaluate the knowledge required for operating the plant.**

# **INPO ACAD documents & NUREG 1021 differs on Exams**

**Questions with no single correct answer or for which the credit given can vary, depending on who graded it or when it was graded, have *no* place on an NRC examination.**

# **Initial License Exam issues**

- **ILT exam questions - two part questions to meet K/A requirements**
- **Focus on system/interrelation knowledge questions**
- **All answers to questions must be plausible**

# **License Requalification exam issues**

- **Increased closed reference questions (50% to 80%)**
- **Open reference is not direct lookup**
- **Knowledge tested and not memorization of trivial items**
- **K/A should be direct link to exam questions**
- **PWR Exam Example Questions**

# **Fukushima Recommendation impacts**

**Increased staff required to perform walk-downs and Engineering support for plant modifications.**

**Increased operator staffing to meet additional mitigation requirements**

# **Fukushima Recommendation impacts**

**Increased staffing for procedure  
upgrades:**

- External Flood Mitigation**
- Spent Fuel Pool operations**
- SAMG/Beyond Design Basis**

**Facility/Corporate development of  
Fukushima Response Organizations**

# **Fukushima Recommendation impacts**

## **Operator Training**

- Increased emphasis on multiple unit event scenarios**
- Increased emphasis on Time Critical Actions in classroom and simulator training**

# **Conclusion**

## **INPO/NRC Impacts on Training**

- Policy and Regulation changes have large impact on Training**

## **K/A catalog and ILT Exam improvements**

- Increases operator throughput and NRC exam pass rates**

# **Conclusion**

## **K/A catalog and LOR Exam improvements**

- Allows for a fair and practical evaluation of licensed operator knowledge**

## **Plant operating experience**

- Should be earned with time and not replaced with previous education or experience**

# Conclusion

## Fukushima Impact

- **Staffing requirements increased to ensure plant equipment and procedures are adequate to protect against similar occurrence at U.S. facilities**
- **U.S. facilities performing further analysis of Design Basis Events**

# Conclusion

## Fukushima Impact

- **Operator training has been expanded to ensure operators are prepared for mitigating multiple unit or beyond design basis events.**