

NRC Response to Forsmark and Lessons Learned

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NRC Actions

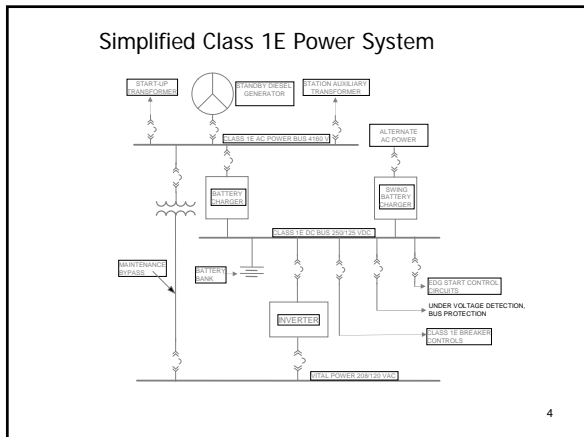
- Evaluated the susceptibility of operating U.S. plants.
- Coordinated with public affairs to respond to media questions on the event and the susceptibility of U.S. plants
- Issued the following documents to highlight the potential problems to the U.S. industry
 - NRC Information Notice 2006-18, Dated August 17, 2006
 - NRC Information Notice 2006-18, Supplement, Dated August 10, 2007

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Lessons Learned

- Uninterruptible Power Supply (UPS)
 - The under-voltage setpoint for rectifiers and over-voltage setpoint for inverters should consider voltage transients resulting from maximum excitation, protective relaying failures, etc.
 - Operators need training and procedures to recover from UPS lockouts
- DC operated control system with a dedicated battery improves the availability and reliability of Emergency Diesel Generator and core cooling systems

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- ### Lessons Learned
- Design modifications should have specific verification steps to ensure proper function of all attributes
 - Phase sequence sensitivity, UPSs
 - Failure mode on loss of power
 - All AC sources need periodic maintenance and surveillance testing to confirm availability
 - The operational readiness of alternate AC sources
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- ### Lessons Learned
- New Reactor Design Challenges
 - The onsite power system could be subjected to 140 to 150% of rated voltage when the main generator trips from the grid and goes into islanding
 - The voltage regulator on the main generator cannot instantly reduce the voltage spike to the onsite safety and non-safety systems
 - Direct DC control systems for EDG and core cooling systems could avoid dependence on UPS
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