

United States Nuclear Regulatory Commission
Protecting People and the Environment


RIC Session TH26
Reactivity Events at Millstone Unit 2
Pilgrim Station

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Millstone Unit 2 Reactivity Management Event

- Occurred during quarterly Main Turbine Valve testing on 2/12/2011
- Resulted in 8 percent upward power excursion from 88 to 96 percent power
- Special Inspection Team initiated
- Finding of Low to Moderate Safety Significance (*White*)


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Millstone Unit 2 Event Specifics

- During turbine control valve testing, a control room operator mistakenly increased main turbine load.
- The operator pushed the "increase load" button several times before he was corrected.
- Pressing the "increase load" button on the turbine caused power to increase unexpectedly.


 **Millstone Event Specifics (cont'd)**

- In response to increasing power, control room operators took the following actions:

Action/Evolution	Effect on Plant
SRO withdrew control rods	Added positive reactivity
SRO reset high power trip setpoint	Increased reactor trip setpoint
Manually opened a turbine bypass valve	Added positive reactivity
Dilution in progress	Added positive reactivity

 **Millstone Unit 2 Event Issues**

- Command and control, and loss of Reactivity Management SRO oversight role
- Multiple reactivity additions made without clear understanding of reactor condition- **Lack of conservatism**
- Variable High Power Trip setpoint raised without knowing why power was increasing- **Lack of conservatism**
- Dominion procedures meant to reinforce conservative decision making and reactivity management not completely followed

 **Pilgrim Station Reactivity Management Event**

- Occurred during reactor startup from a refueling outage on 5/10/2011
- A Reactor Scram occurred due to reactivity control issues
- Special Inspection Team initiated
- Finding of Low to Moderate Safety Significance (**White**)



Summary of Event Causes

- Procedures for control of reactivity not completely followed
- Some basic knowledge weakness
- Proceeding in the face of uncertainty, lack of conservative decision making
- Loss of Command and Control function
- Loss of operational "Big Picture" during key reactivity adjustments
