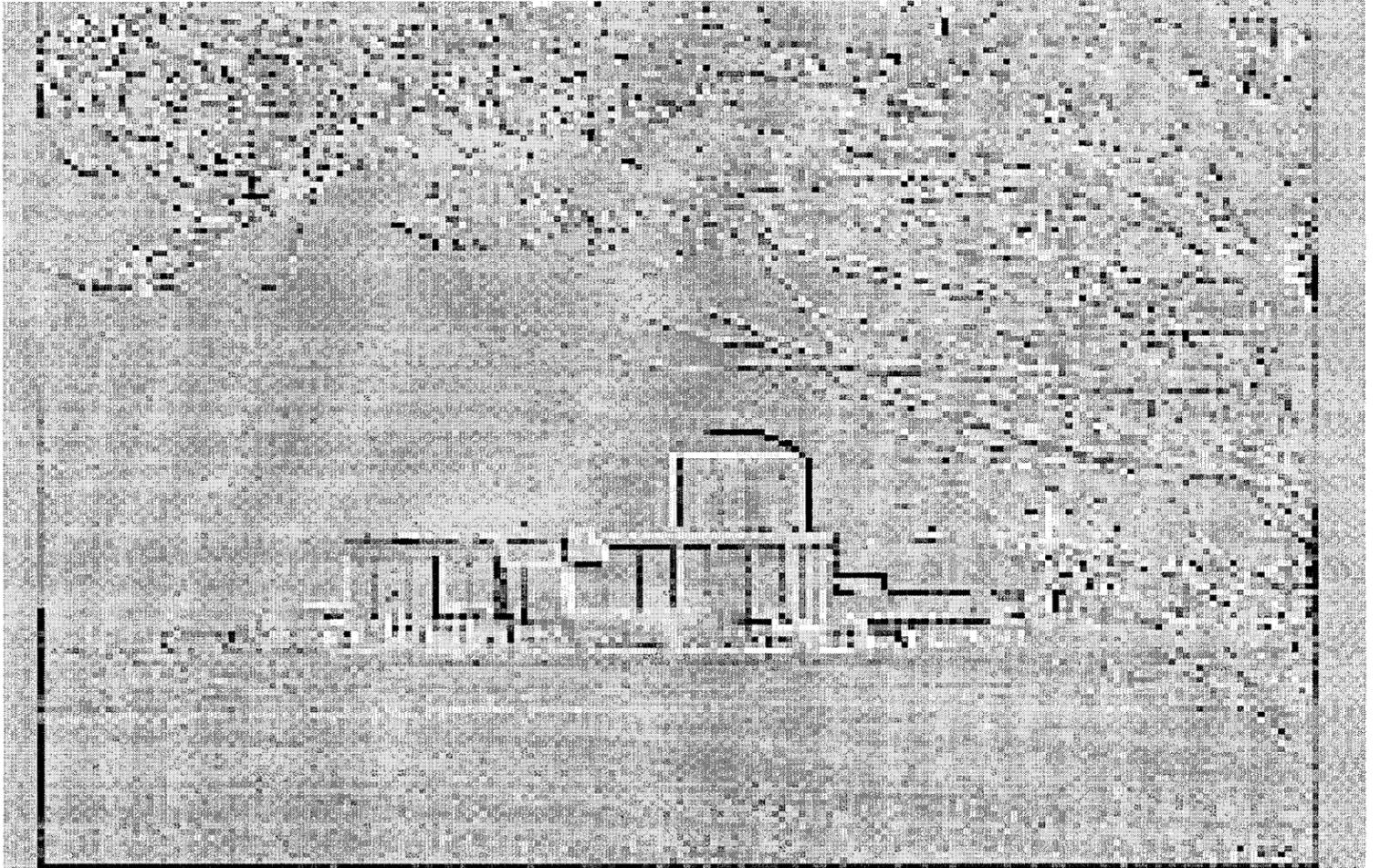
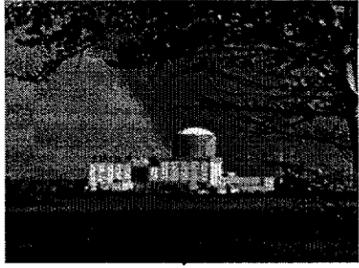


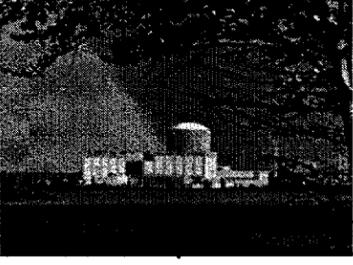
Kewaunee Nuclear Power Plant





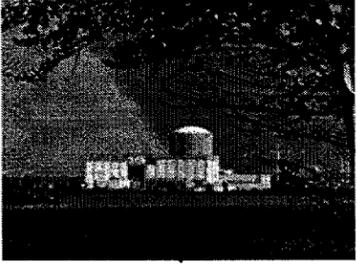
Agenda

- ✓ Introduction (Mark Reddemann)
- ✓ Alert and Notification System (Rick Repshas)
 - ✓ Root Cause
 - ✓ Corrective Actions
 - ✓ Extent of Condition
- ✓ Shift Augmentation (Rick Repshas)
 - ✓ Root Cause
 - ✓ Corrective Actions
 - ✓ Extent of Condition
- ✓ EP Independent Assessment (Kyle Hoops)
 - ✓ Background
 - ✓ Improvement Areas
 - ✓ Corrective Actions
- ✓ Significance Determination (Tom Webb)
- ✓ Closing Statement (Charlie Schrock)



Introduction

- ✓ Corrective Action Program failed to correct declining EP program performance.
- ✓ Enhancements to Kewaunee's Corrective Action Program are an ongoing plant priority.
- ✓ Root cause analyses using Kewaunee's strengthened process have been completed for both the siren reliability and staff augmentation issues.
- ✓ Corrective actions taken have remedied these EP weaknesses.
- ✓ Plan implemented to improve overall EP program performance.
- ✓ Effective management oversight, along with successful implementation of Kewaunee's enhanced Corrective Action Program, will ensure continued good EP program performance.

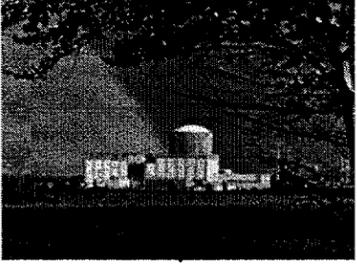


Alert & Notification System *And Staff Augmentation*

Rick Repshas

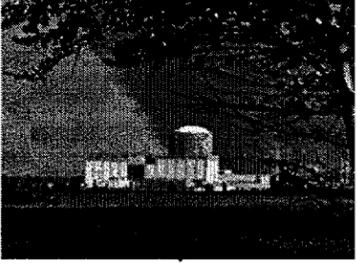
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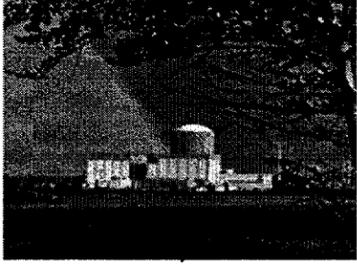
Root Cause Method

- ✔ Formed teams to investigate siren and staff augmentation performance
- ✔ A root cause evaluation was performed by an experienced root cause analyst using our new root cause evaluation guideline
- ✔ All group members attended root cause training
- ✔ Reviewed maintenance records and corrective action documents, test data, and procedures
- ✔ Performed failure mode analysis
- ✔ Conducted interviews
- ✔ Developed root causes, contributing causes, and corrective actions to prevent recurrence
- ✔ Evaluated extent of condition



Alert Notification System *Contributors to the Decline in* *Siren Test Results*

- ✓ August 1998
 - ✓ Automatic growl test
- ✓ April 1999
 - ✓ Software change
- ✓ January 2000
 - ✓ Switch mispositioning
- ✓ February 2000
 - ✓ Automatic growl during system change out
- ✓ Component degradation results in declining performance trend

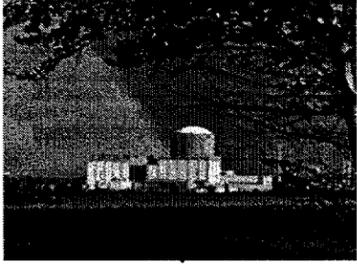


Alert and Notification System

August 19, 1998

Growl Test

- ✓ Description of Test
 - ✓ A routine automatic growl test was conducted
 - ✓ 7 of 13 sirens indicated a failure
 - ✓ Apparent cause is believed to be a system communication failure
- ✓ Root Cause
 - ✓ Unknown
- ✓ Consequence
 - ✓ Insufficient information to determine siren performance
 - ✓ Subsequent testing on September 2, demonstrated at least 11 of 13 would have likely operated

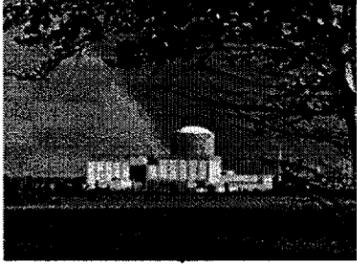


Alert & Notification System

April 7, 1999

Full Test

- ✓ Description of Test
 - ✓ Software changes to address concerns during the mink welping season
- ✓ Root Causes
 - ✓ There was no requirement to use the design change process to modify the system (RC#1)
 - ✓ The guidance for siren activation did not identify alternate methods to activate the system (RC#2)
- ✓ Consequences
 - ✓ Insufficient indication of siren activation
 - ✓ Software change would only affect testing and not a siren activation in a real event
 - ✓ Subsequent testing on May 5 demonstrated that at least 9 of 13 sirens would have operated

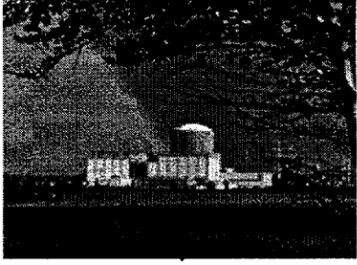


Alert & Notification System

January 5, 2000

Full Test

- ✓ Description of Test
 - ✓ Power switch turned off
- ✓ Root Cause
 - ✓ The guidance for siren activation did not identify alternate methods to activate the system (RC#2)
- ✓ Consequences
 - ✓ Failed to perform an adequate test
 - ✓ County demonstrated that in an actual event, they would use the backup transmitter
 - ✓ Subsequent testing on February 2 demonstrated that at least 12 of 13 sirens would have operated 9

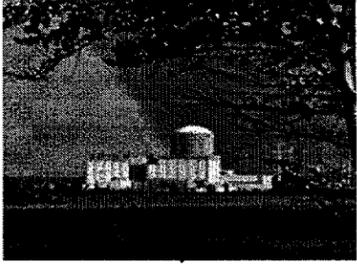


Alert & Notification System

February 16, 2000

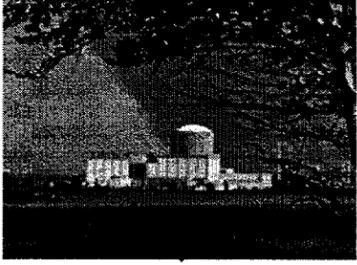
Growl Test

- ✓ Description of Test
 - ✓ During activation system replacement an automatic growl test did not adequately test new siren system
- ✓ Root Causes
 - ✓ There was no requirement to use the design change process to modify the system (RC#1)
 - ✓ Management developed a complacent attitude regarding siren performance (RC#3)
- ✓ Consequences
 - ✓ Inadequate test because only the old portions of the system were tested
 - ✓ County had guidance for activating both old and new systems during an actual event and had been briefed on the need to actuate both systems
 - ✓ Subsequent testing on March 1 demonstrated that at least 12 of 13 sirens would have operated



Alert & Notification System **Event Root Cause Summary**

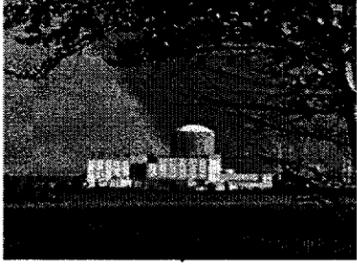
- ✓ There was no requirement to use the design change process to modify the system (RC#1)
- ✓ The guidance for siren activation did not identify alternate methods to activate the system (RC#2)
- ✓ Management developed a complacent attitude regarding siren performance due to the planned replacement of the siren activation system (RC#3)



Alert & Notification System *Component Degradation*

√ Root Causes

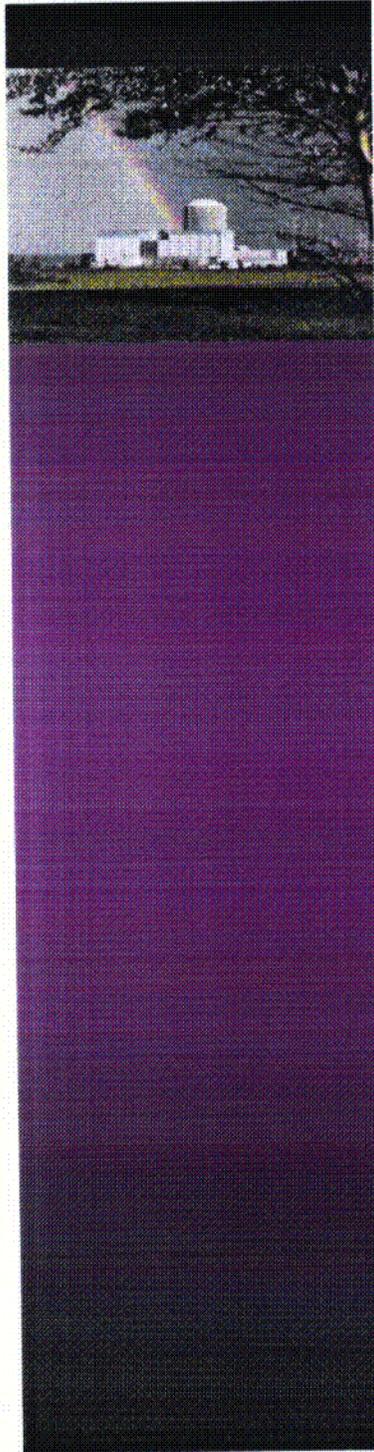
- √ Management did not initiate root or apparent cause investigation for declining system performance (RC#4)
- √ Management developed a complacent attitude regarding siren performance due to the planned replacement of the siren activation system (RC#3)



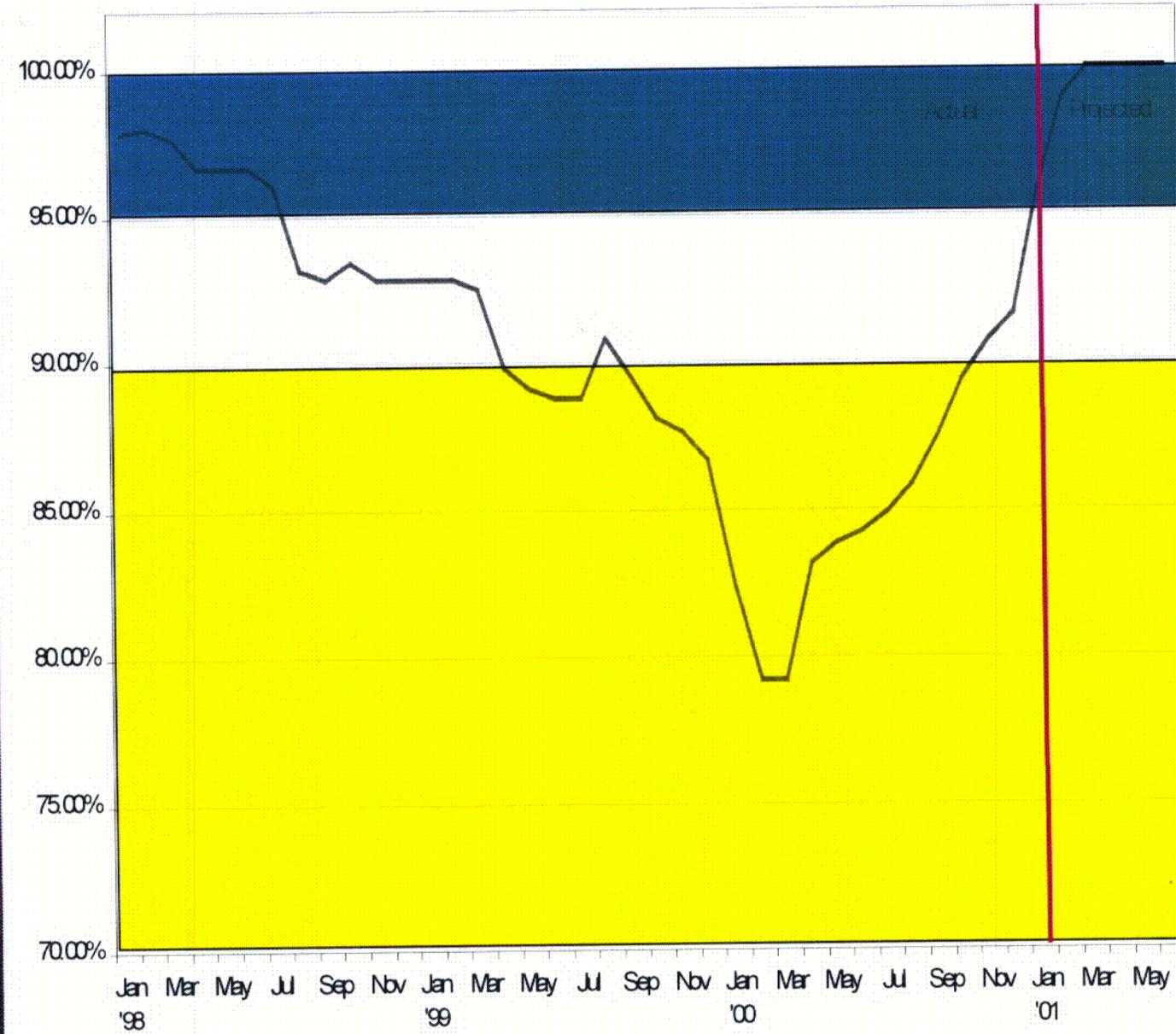
Alert & Notification System

Corrective Actions

- ▼ Siren Maintenance
 - ▼ System and software configuration changes to be processed through KNPP Design Change Process (RC#1)
 - ▼ Preventive and corrective maintenance established under KNPP procedures (RC#1)
 - ▼ Detailed test procedure has been established (RC#2, RC#4)
- ▼ Management Oversight
 - ▼ KAP initiation criteria set for siren system (RC#3, RC#4)
 - ▼ QA improved oversight
- ▼ Results Achieved



12 Month Rolling Average Siren Availability

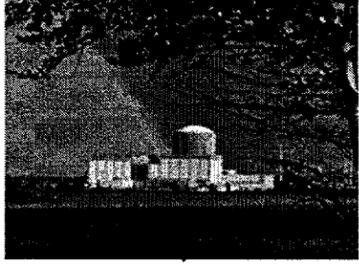


COI



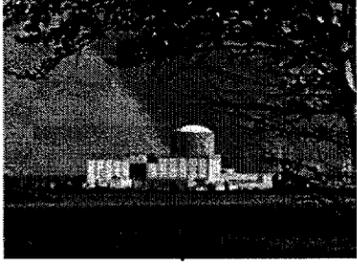
Alert & Notification System **Extent of Condition**

- ✓ Kewaunee Assessment Process (KAP)
- ✓ Equipment Configuration Control



Extent of Condition *Equipment Configuration Control*

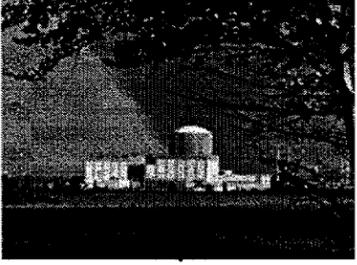
- ▼ Siren maintenance and modifications were not performed using established processes



Extent of Condition *Equipment Configuration Control* *(cont.)*

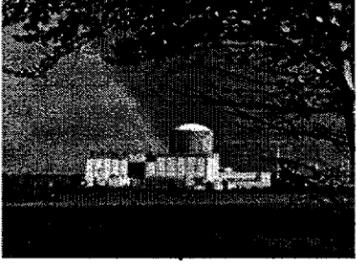
✓ Results

- ✓ There are controls on all equipment identified that ensure its continued safe operation.
- ✓ The design change process has been changed to explicitly include offsite equipment.
- ✓ The level of plant documentation for work performed by the WPSC substation and transmission group needs to be improved.
- ✓ Maintenance personnel's understanding of the design change process needs to be improved.



Shift Augmentation

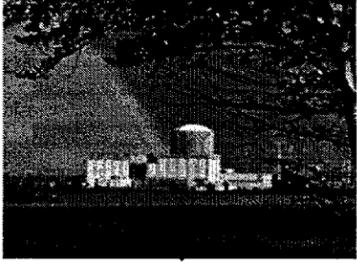
- ▼ Kewaunee has not consistently performed successful shift augmentation drills.



Shift Augmentation

Root Cause

- ✓ Management has not effectively acted to provide increased depth and flexibility in the emergency response organization. (RC#1)
 - ✓ Only a few individuals are assigned to required positions.
 - ✓ Test and ERO notification process weaknesses



Shift Augmentation

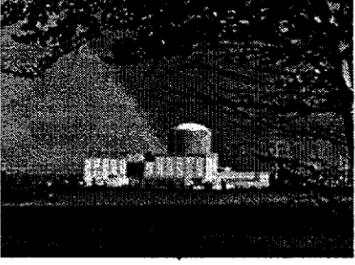
Root Cause

- ✓ Management has accepted an adverse trend of pager test failures without requiring investigation into root causes (RC#2)
 - ✓ Decreasing trends were identified but no root cause was initiated
 - ✓ Corrective actions were not adequately assessed for effectiveness



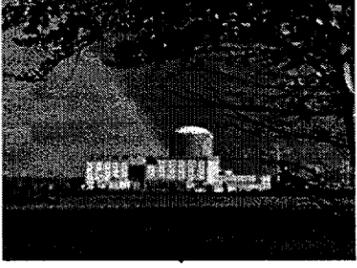
Shift Augmentation *Corrective Actions*

- ✓ KAP improvements described during January 10 meeting. (RC#2)
- ✓ Plant Manager issued a letter to ERO stating pager response expectations. (RC#1)
- ✓ Training to increase depth in the number of qualified members to fill required positions has been started and is continuing (RC#1)
- ✓ An “on-call” rotation was established for required positions (RC#1, RC#2)
- ✓ Adding an additional notification system (RC#1)



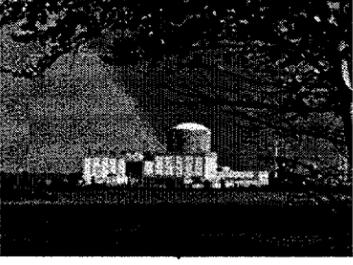
Shift Augmentation *Extent of Condition*

- ✓ The failure to escalate the continuing trends with ERO response is considered a weakness in the corrective action process
- ✓ Emergency Preparedness Program Assessment



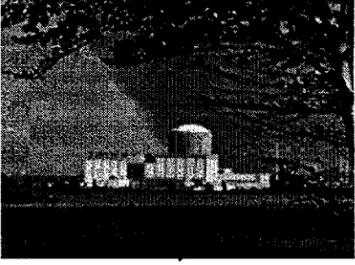
EP Independent Assessment

KYLE HOOPS



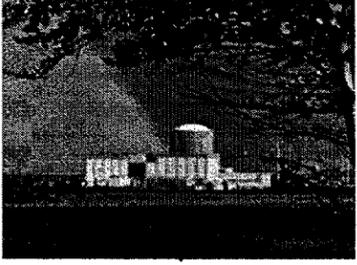
Background

- ✔ Compared EP Program to Regulatory Requirements and Industry Standards
- ✔ Completed Late October 2000
- ✔ Conducted by Industry, NMC, and INPO Personnel



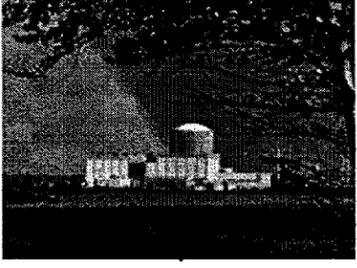
Improvement Areas

- ✓ Staff Augmentation
- ✓ Protective Action Response Activities
- ✓ Medical Services Support
- ✓ EP Program Review of Changes
- ✓ Periodic Drill/Exercise Performance
- ✓ EP Procedure Revisions
- ✓ Performance Indicator Implementation



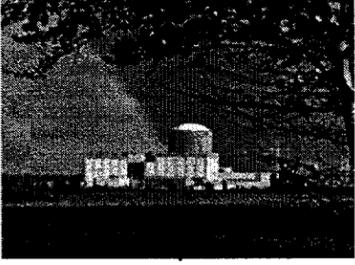
Corrective Actions

- ✓ Providing Resource Support
- ✓ Action Plan Implementation



Significance Determination

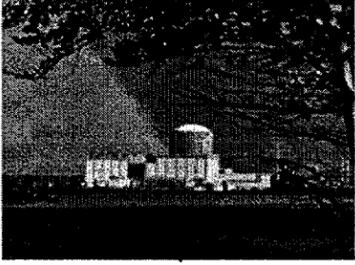
Tom Webb



Significance Determination

▼ **Shift Augmentation**

- ▼ NMC concurs that this issue meets the NRC definition of a white finding as described in the Significance Determination Process

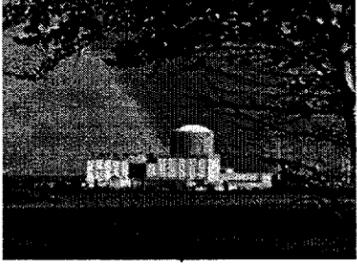


Significance Determination

Sirens

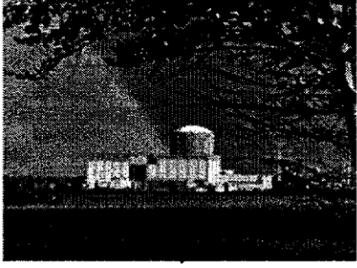
▼ Sirens

- ▼ NMC concurs siren testing resulted in a yellow performance indicator
- ▼ The NMC could not conclude from guidance provided for the Revised Reactor Oversight Process that a yellow finding is appropriate
- ▼ NMC does not believe that the siren finding has substantial safety significance; therefore, it should not be a yellow finding



Comments on the RROP

- ✓ The NMC considers the implementation of the Revised Reactor Oversight Program for these issues a success.
 - ✓ Highlighted weaknesses in the corrective action program
 - ✓ Corrective actions are being taken to address the equipment issues and the process problems.



Closing Summary

Charlie Schrock