



# NMCC

*Committed to Nuclear Excellence*



## Kewaunee Improvement Initiatives

## Presentation to NRC Region III

## April 20, 2005

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# Agenda

- Introduction
- Meeting Purpose
- Overview
- Plant Systems Readiness
- Management Readiness
- Commitments
- Continued Improvement
- Summary and Conclusions

The logo for NMC (Nuclear Management Center) features the letters "NMC" in a bold, black, sans-serif font. To the right of the text is a stylized blue swoosh that curves upwards and then downwards, resembling a nuclear symbol or a dynamic motion line.

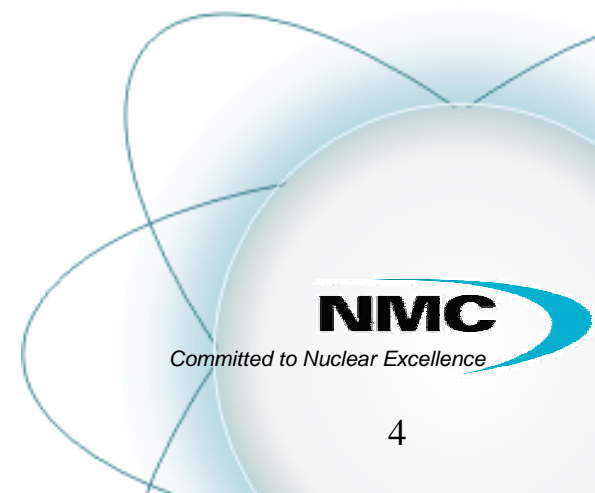
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# Meeting Purpose

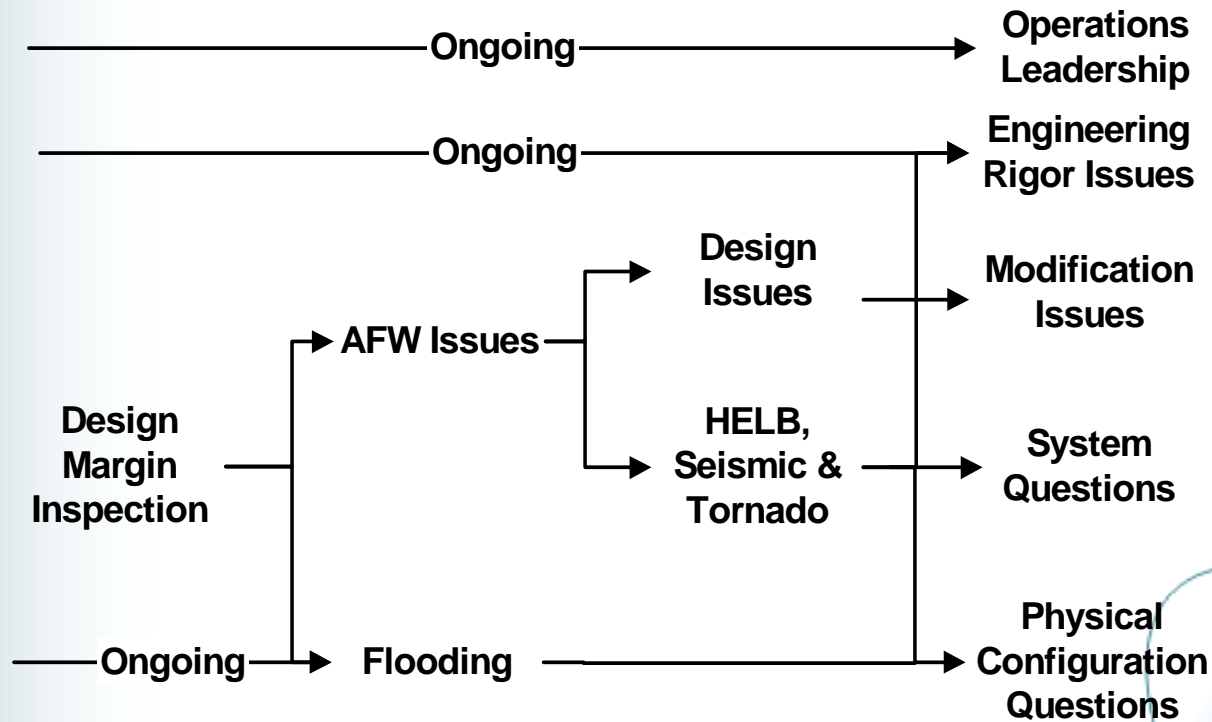
- Discuss how we got here
- Discuss the Kewaunee Improvement Plan and status to date
- Establish a common understanding
  - Near term actions to be completed prior to restart
  - Long term actions to be completed after restart

# Overview



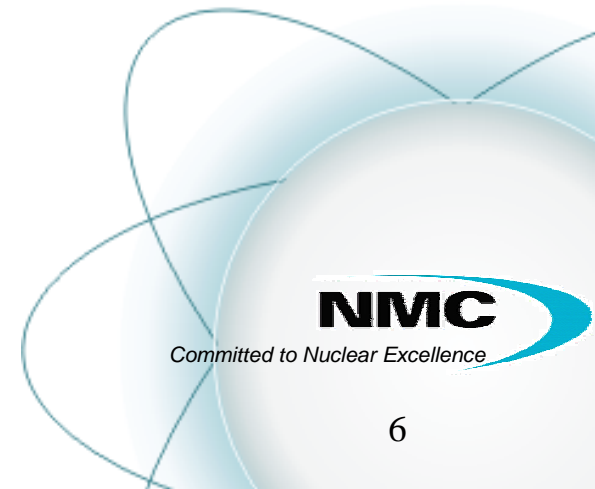
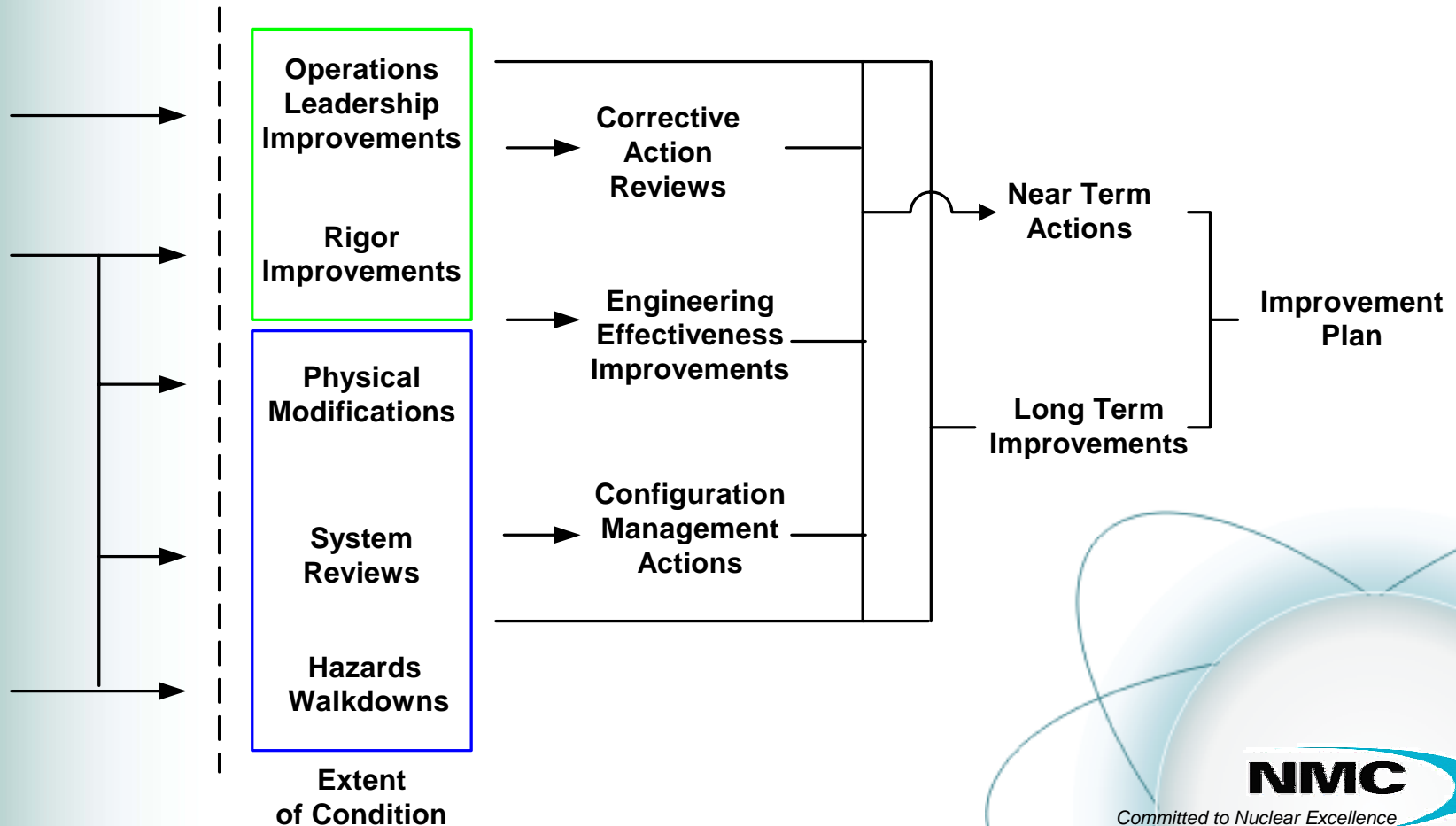
# Overview

## Issues Identified



# Overview

## Extent of Condition



# Improvement Plan Objectives

- **Operations Leadership**
  - **Operations sets and reinforces high standards to ensure sufficient margin is maintained in the operation of Kewaunee**
- **Configuration Management**
  - **The availability of design basis information meets or exceeds industry standards**
- **Engineering Effectiveness**
  - **Engineering performance meets or exceeds industry standards relative to rigor applied during conduct of work**
- **Corrective Action**
  - **Kewaunee is effective in recognizing the significance of issues and ensures timely resolution**
- **Manager/Supervisor Effectiveness**
  - **Managers and Supervisors establish and maintain a culture of accountability and continuous improvement**

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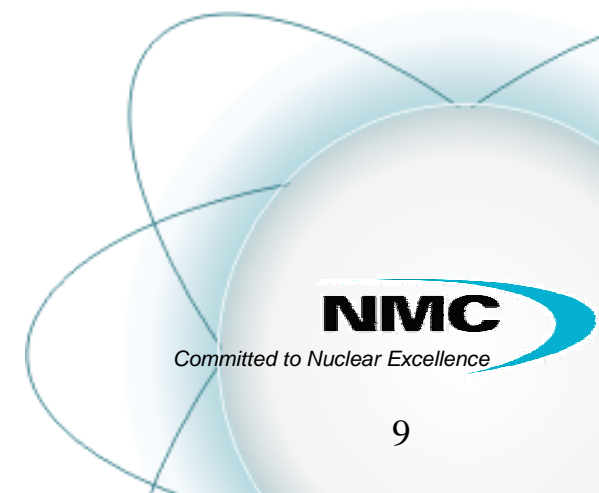
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# Improvement Plan Outcomes

- Plant systems support safe operation
- Right management team with the right picture in the right jobs
- Commitments being met
  - Validation is being performed by Nuclear Oversight
- Actions in place to ensure long term continued improvement



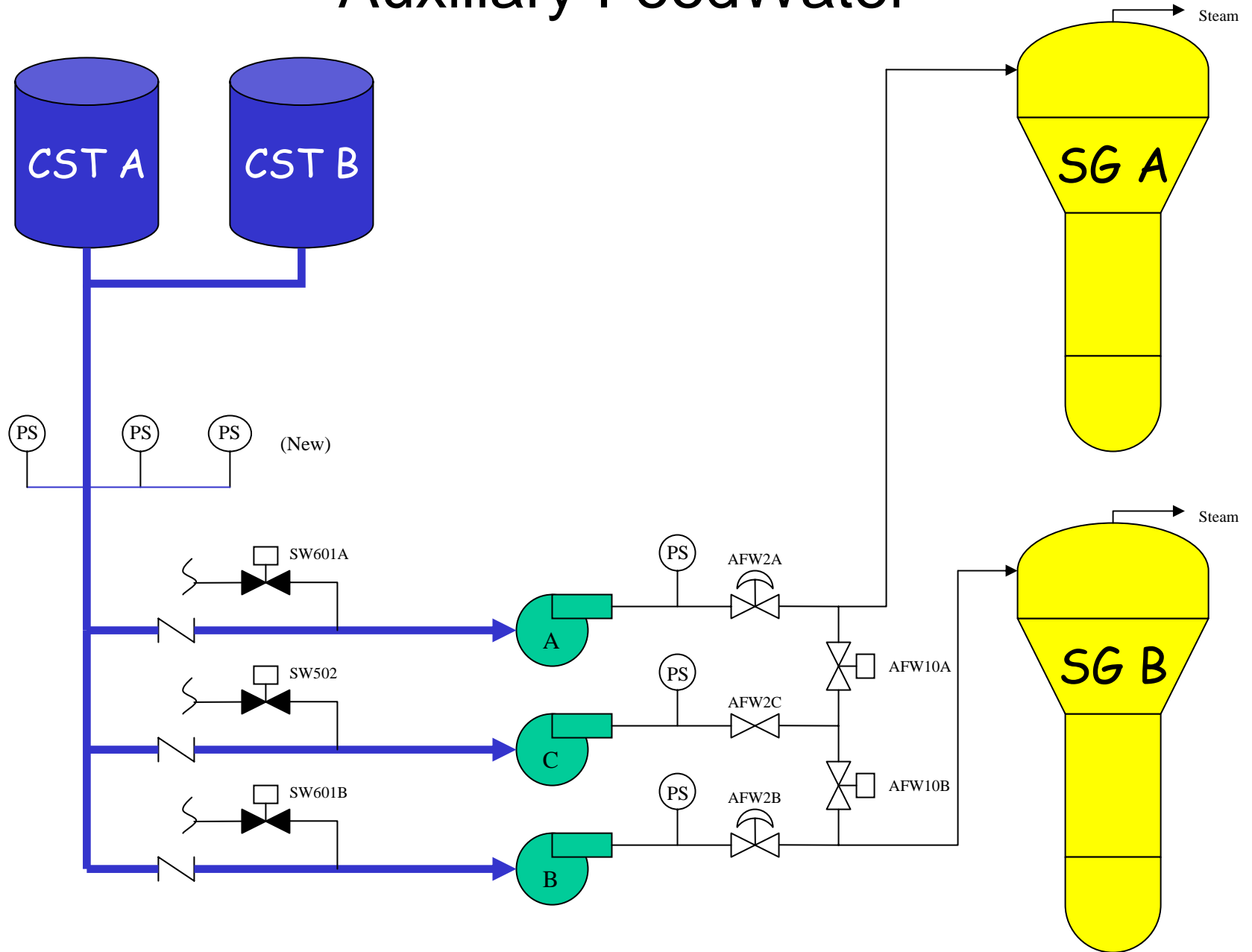
# Plant Systems Support Safe Operation



# Actions to Ensure Plant Systems Support Safe Operations

- Modifications to Correct Issues
- Extent of Condition Reviews
  - Internal/External hazards review
  - Systems expert panel review
- Additional Actions
  - Time critical Operator Actions
  - Corrective Work Order/Corrective Action Review

# Auxiliary FeedWater



# Auxiliary Feedwater Modifications

- Issue
  - Discharge pressure switch design
- Corrective Actions
  - Reroute protected suction water volume
  - Add pump trip and automatic closure
- Remaining Actions
  - Complete calculations and design
  - Complete installation and testing
- NRC Interface

# Internal Flooding Modifications

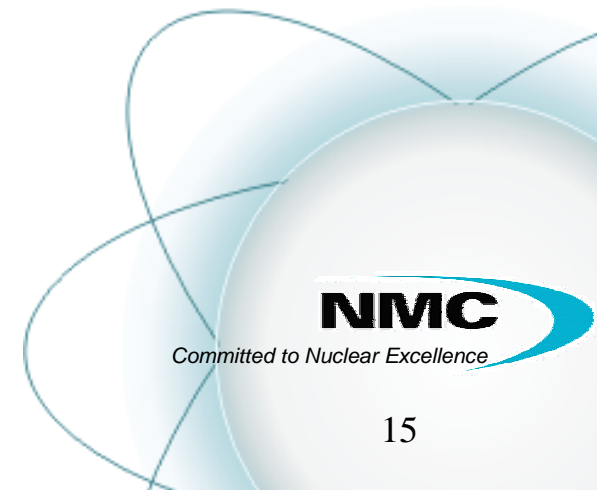
- Issue
  - Turbine building internal flooding
- Corrective Actions
  - Modify doors and barriers to be leak tight
  - Add circulating water pump trip
  - Reroute AFW cooling water to the turbine building
  - Add check valves to interconnecting drain lines
- Remaining Actions
  - Complete modification calculations and design
  - Complete installation and testing
- NRC Interface

# Emergency Diesel Generator Exhaust Duct Modification

- Issue
  - Tornado wind load qualification
- Corrective Actions
  - Perform analysis and modifications to qualify exhaust ducts
- Remaining Actions
  - Complete qualification analysis
  - Design and install resulting modifications
- NRC Interface

# Internal/External Hazards Review

- Hazards Reviews
  - High Energy Line Break (HELB)
  - Seismic
  - Tornado
  - Internal Flooding
- Team Members
  - KNPP Engineering
  - KNPP Operations
  - NMC Fleet
  - Industry Expertise



# Internal/External Hazards Review

- Walk Down Plan and Criteria
- Experience from team members
- Design and licensing basis input
- Documented questions/concerns during walk downs
- Resolution in progress



# Internal/External Hazards Review

Internal/External Hazard Area	Potential Discrepancy Summary
HELB	51 potential discrepancies; 36 researched – no action required 13 in Corrective Action Program 7 require resolution prior to restart (1 resolved) 2 under evaluation
Seismic	33 potential discrepancies; 20 researched – no action required 13 in Corrective Action Program 4 require resolution prior to restart (4 resolved) 0 under evaluation
Tornado	12 potential discrepancies; 11 researched – no action required 1 in Corrective Action Program 1 requires resolution prior to restart (0 resolved) 0 under evaluation
Internal Flooding	In Progress

# System Review Methodology Overview

- Approach
  - Used expert panel approach
    - Outside experts
    - System engineers
  - Categorize information by safety function
  - Assess risk significant components
  - Document results in report

# System Review Prioritization

Plant System	PRA Importance of Plant System	Cumulative PRA Importance of Plant Systems	KNPP SSFA	NRC Inspection	Expert Panel Review	Hazard Walk-down	Comments
Diesel Generator Mechanical	37%	37%	Yes	2005	Full System	Yes	In Progress
Diesel Generator Ventilation							
Component Cooling	20%	57%	Yes	2005, 2002	Full System	Yes	In Progress
Auxiliary Feedwater	15%	72%	Yes	2005, 2000	Full System	Yes	In Progress
<b>Risk Based Component Review Prioritization</b>							
Chemical and Volume Control	6%	78%	Yes	2005	Risk Based Component	Yes	
Instrument Air	4%	82%	Yes		Risk Based Component		
Service Water	4%	87%	Yes	2005, 2004, 2000	Risk Based Component	Yes	
<b>ECCS Pump Review (RHR, SI, and CS)</b>	2%	89%					

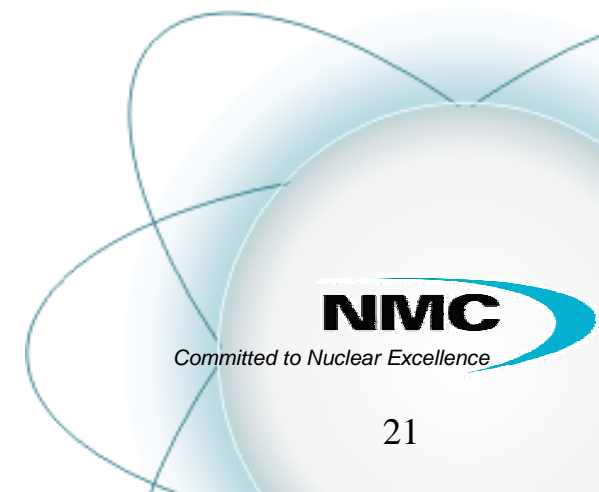
Note: PRA Percentages are Rounded to the Closest Whole Number.

# Results of Reviews

- In progress:
  - Component cooling water
  - Auxiliary feedwater
  - Emergency diesel generator mechanical & Ventilation
- Results to Date
- Schedule

# Additional Actions to Ensure Safe Operations

- Time critical operator actions
- Corrective work order screening
- Corrective Action Program screening



# Summary of Actions to Ensure Safe Operations

- Modifications to correct issues
- Internal/External hazards review
- Risk significant system expert panel review
- Validation of time critical operator action
- Corrective work order / CAP screening
- Degraded or non-conforming condition review

# Right Management Team with the Right Picture in Right Job

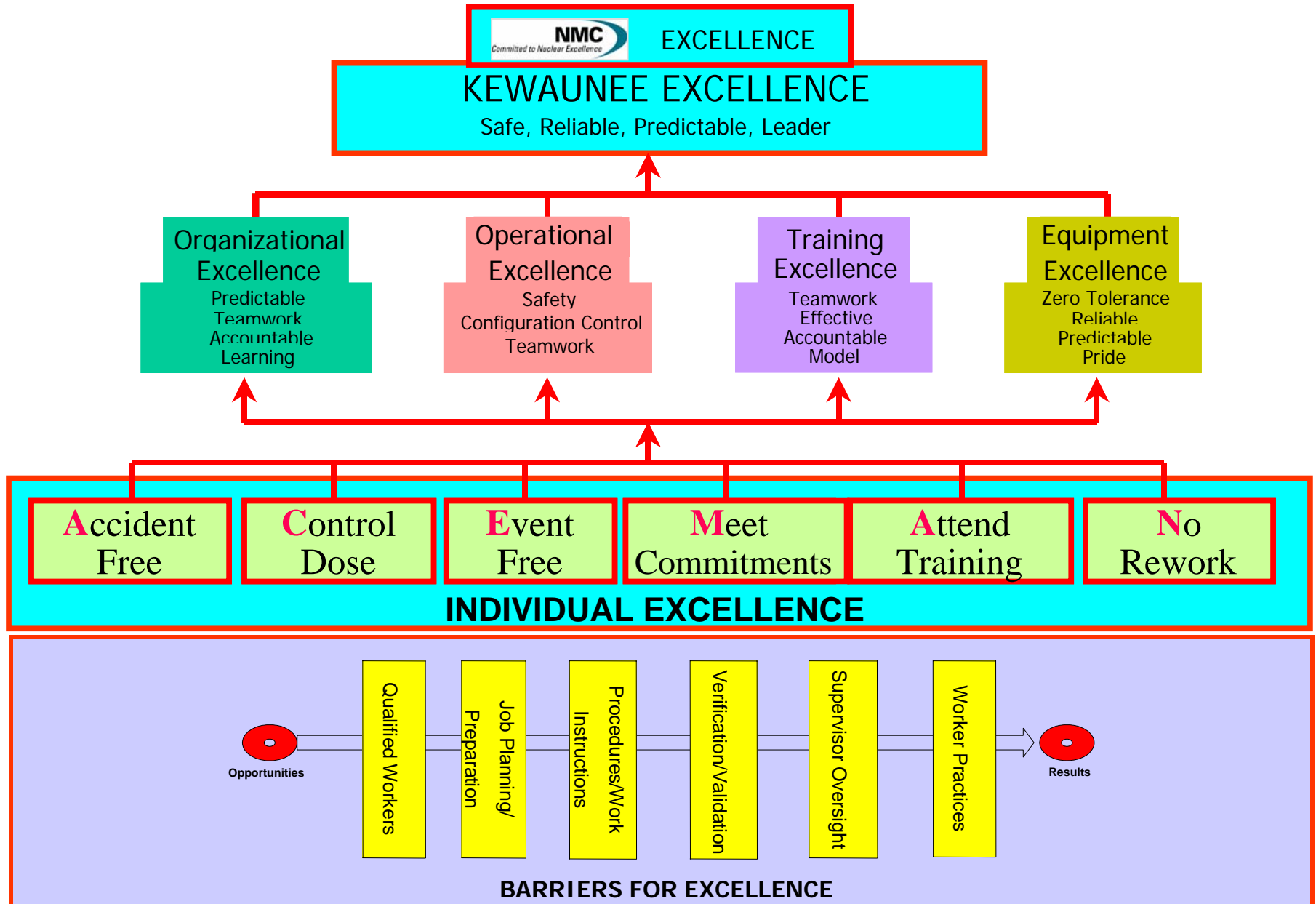


# Right Management Team with the Right Picture is in Right Job

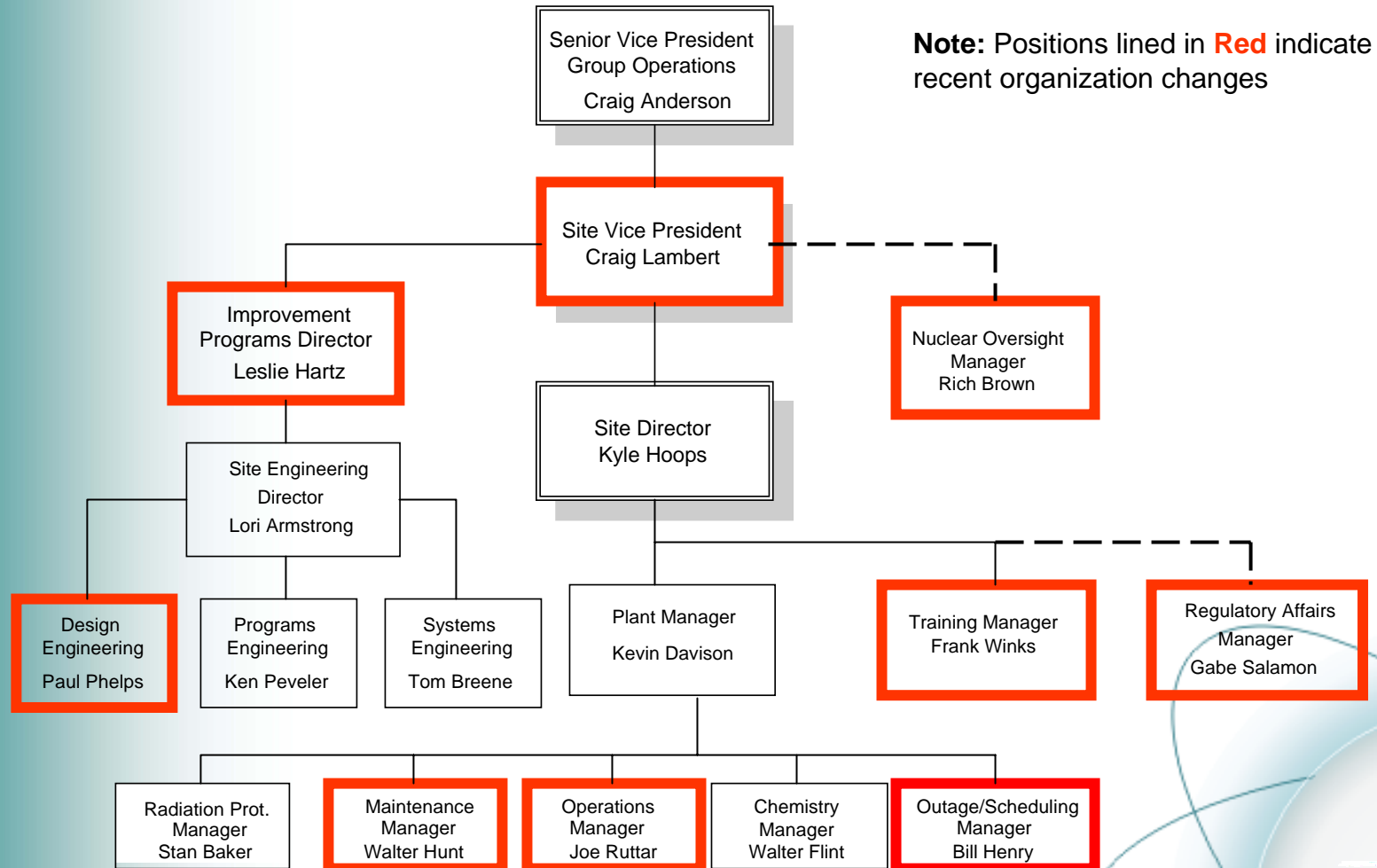
- Organizational changes
- Picture of excellence implementation
- Feedback on individual performance
- Operations leadership/supervisory effectiveness assessments
- Fleet mentoring - operations and operations training
- Engineering effectiveness



# Picture of Excellence



# Site Leadership



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# Improve Operations Leadership

- Leadership/Supervisory Effectiveness Assessment

## Method

- Behavior type interviews
- Assessment tool used at Point Beach & industry

## Results

- Identified next Shift Manager
- Identified Control Room Supervisor (CRS) for rotation
- CRS placed on Performance Improvement Plan (PIP)
- Identified Shift Manager for rotation

# Improve Operations Leadership

- Fleet Mentoring of Operations and Operations Training

## Method

- NMC Fleet Senior Reactor Operator's (SRO's) and Institute of Nuclear Power Operators
- Focused on Conduct of Operations, Behaviors, and Leadership

- Benchmark Operations Led Organization

## Method

- All Shift Managers and Assistant Operations Managers participated
- Focused on Human Performance Tools, Conduct of Operations, Training, and Work Control Center

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# Improve Operations Leadership

- Benchmark/Mentoring– results
  - Simulator Debrief Process
  - Operations Decision Making Process
  - Operations Excellence Plan
  - New Shift Turnover Process
  - Electronic Station Log
  - Operator at the Control and Command & Control SRO

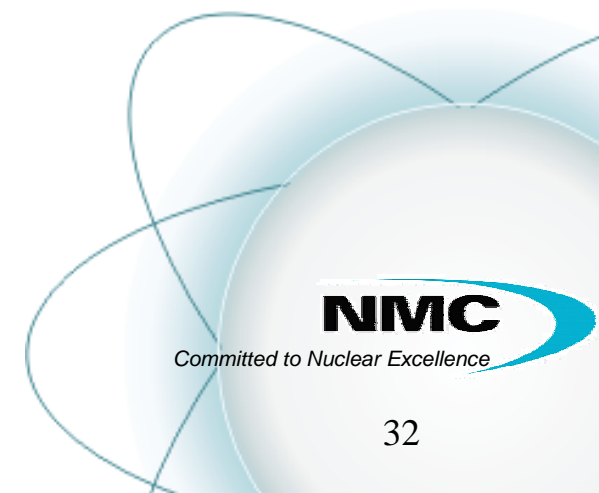
# Improve Operations Leadership

- What's Next?
  - Operations Excellence Plan – a “Living Document”
  - Continue to evaluate operations leadership (existing and future)
  - Conduct of Operations revision
    - Align with INPO
    - Align with Dominion Nuclear Operations Standards
    - Change Management Plan

# Improve Engineering Effectiveness

- Recent actions:
  - Implemented independent review group
  - Performed an engineering effectiveness review to define key improvement areas
- Long term actions
  - Perform leadership assessments
  - Use the performance management process to monitor and improve standards

# Commitments Being Met



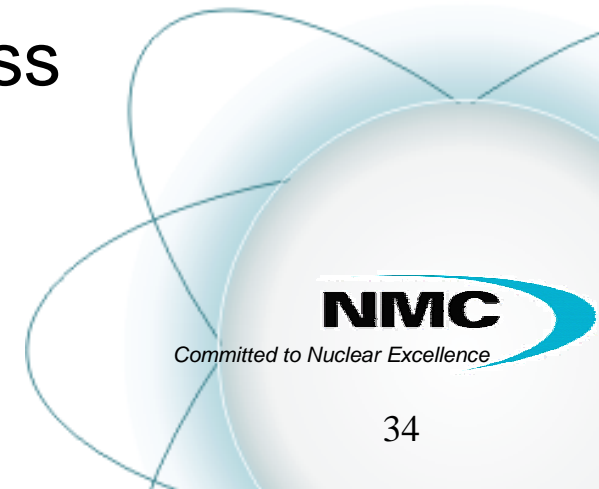


# Restart Action Completion Validation

- Restart commitments are being verified complete via a thorough close-out process
- Nuclear Oversight validation
- Fleet restart readiness review will be conducted
- Post restart effectiveness reviews

# Restart Commitment Status

- 17 Restart actions
  - 3 Operations Leadership
  - 6 Configuration Management
  - 2 Engineering Effectiveness
  - 4 Corrective Action Process
  - 2 Management Effectiveness
- 10 actions are complete



# Corrective Action Plan in Place to Ensure Continued Improvement

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# Corrective Action Plan in Place to Ensure Continued Improvement

- March 18<sup>th</sup> improvement plan letter
- Project plan contains details of long term improvement activities
- Additional items will be added as appropriate
- Actions are tracked in corrective action program

# Long Term Actions

- 4 Operations Leadership
- 6 Configuration Management
- 3 Engineering Effectiveness
- 4 Corrective Action Process
- 4 Management Effectiveness

# Improvement Plan Objectives

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# Summary and Conclusions

- We understand our issues
- Our improvement actions are comprehensive
- We will continue to implement our improvement plan after restart
- We will meet our improvement plan outcomes
  - Plant systems support safe operation
  - Right management team with the right picture is in right jobs
  - Commitments being met
  - Actions in place to ensure long term continued improvement
- We are better today than during the Design Margin Inspection



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Suction**

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**AFW  
Suction**

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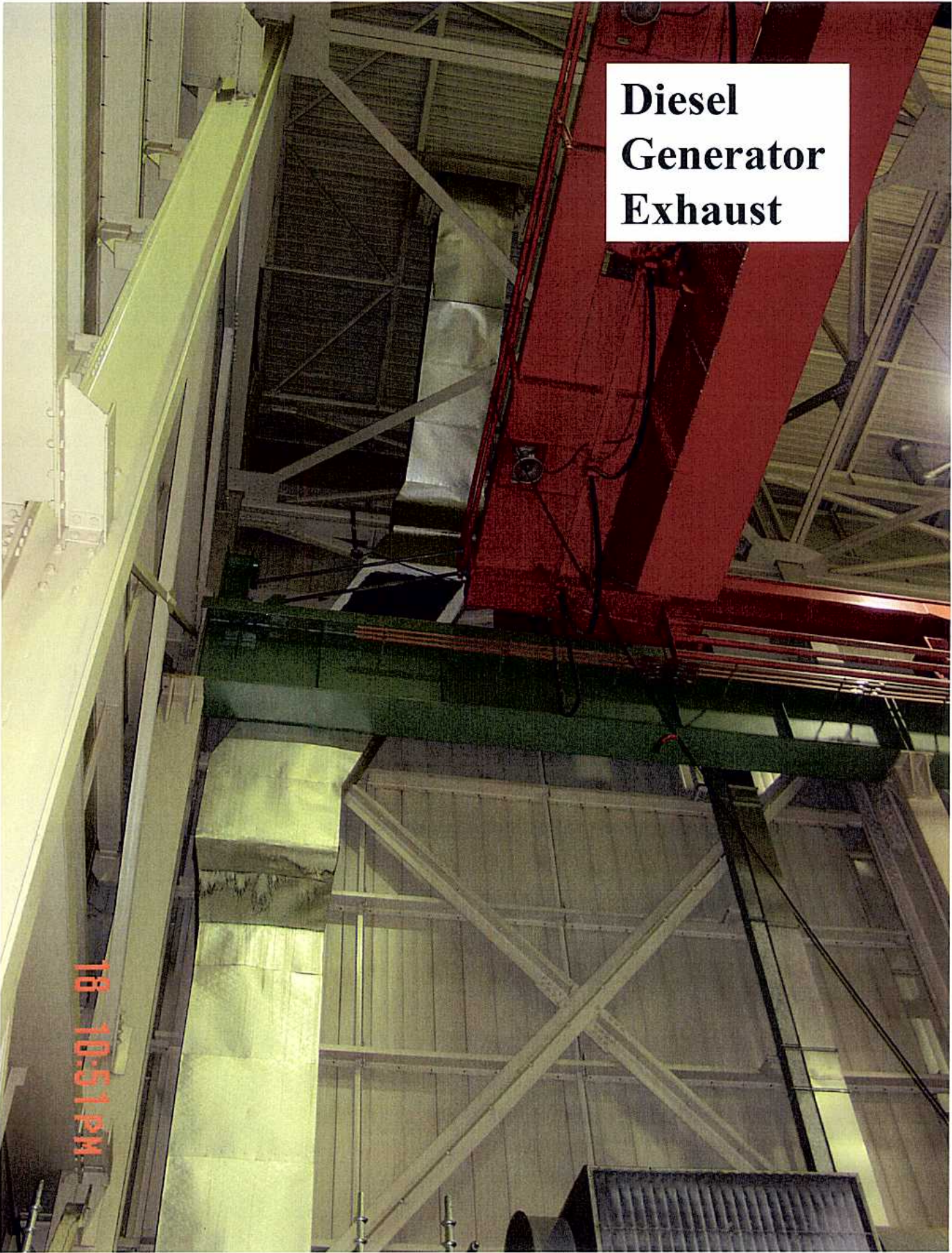
# Diesel Generator Exhaust



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