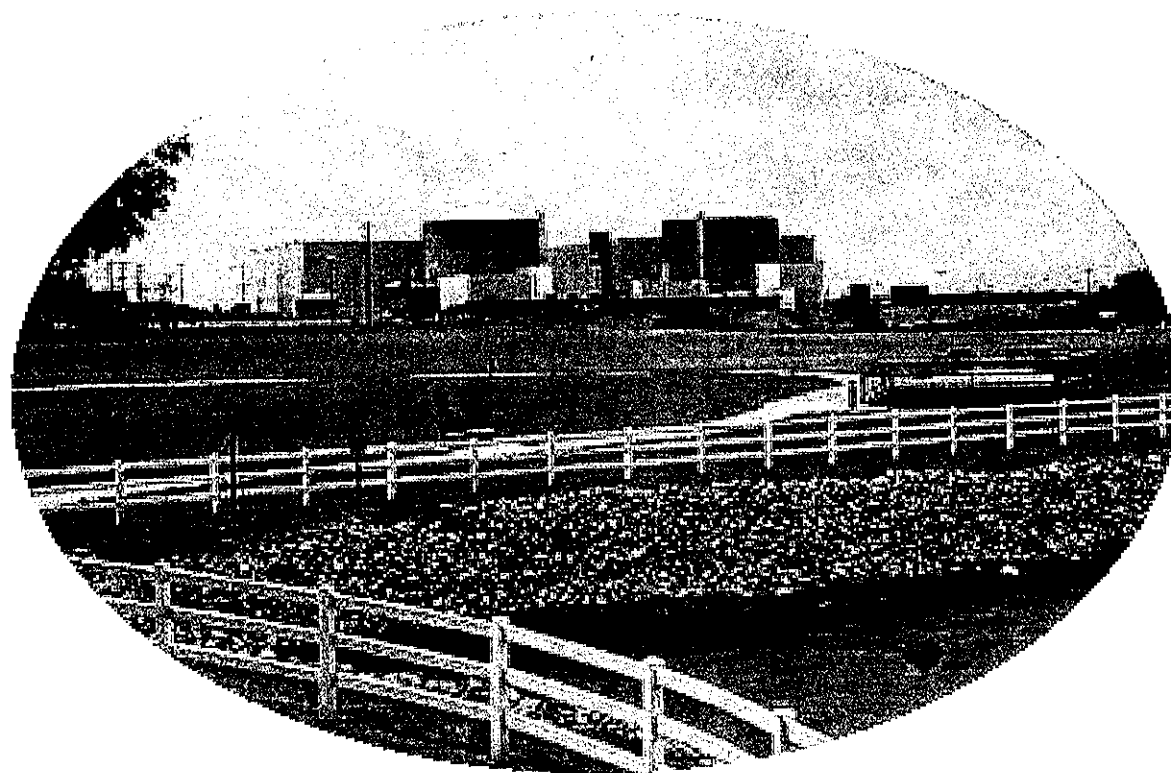


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# Plant Performance Update Meeting



April 29, 2003

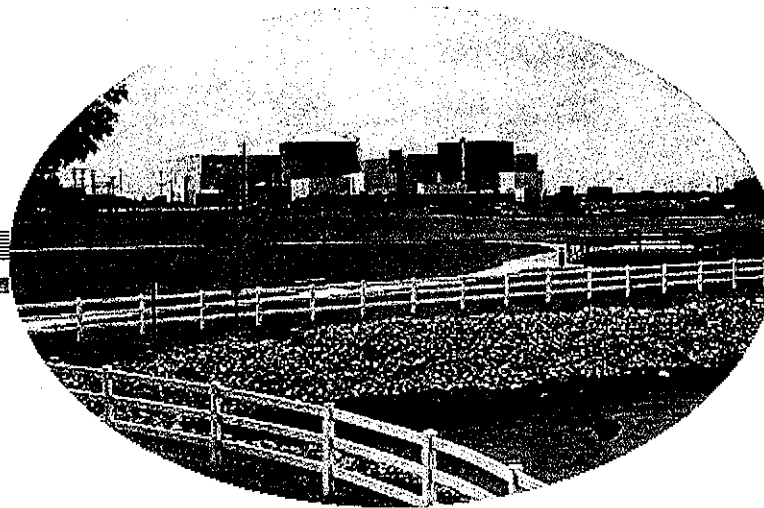
**McGuire Nuclear Station**

*Enclosure 2*

# Agenda

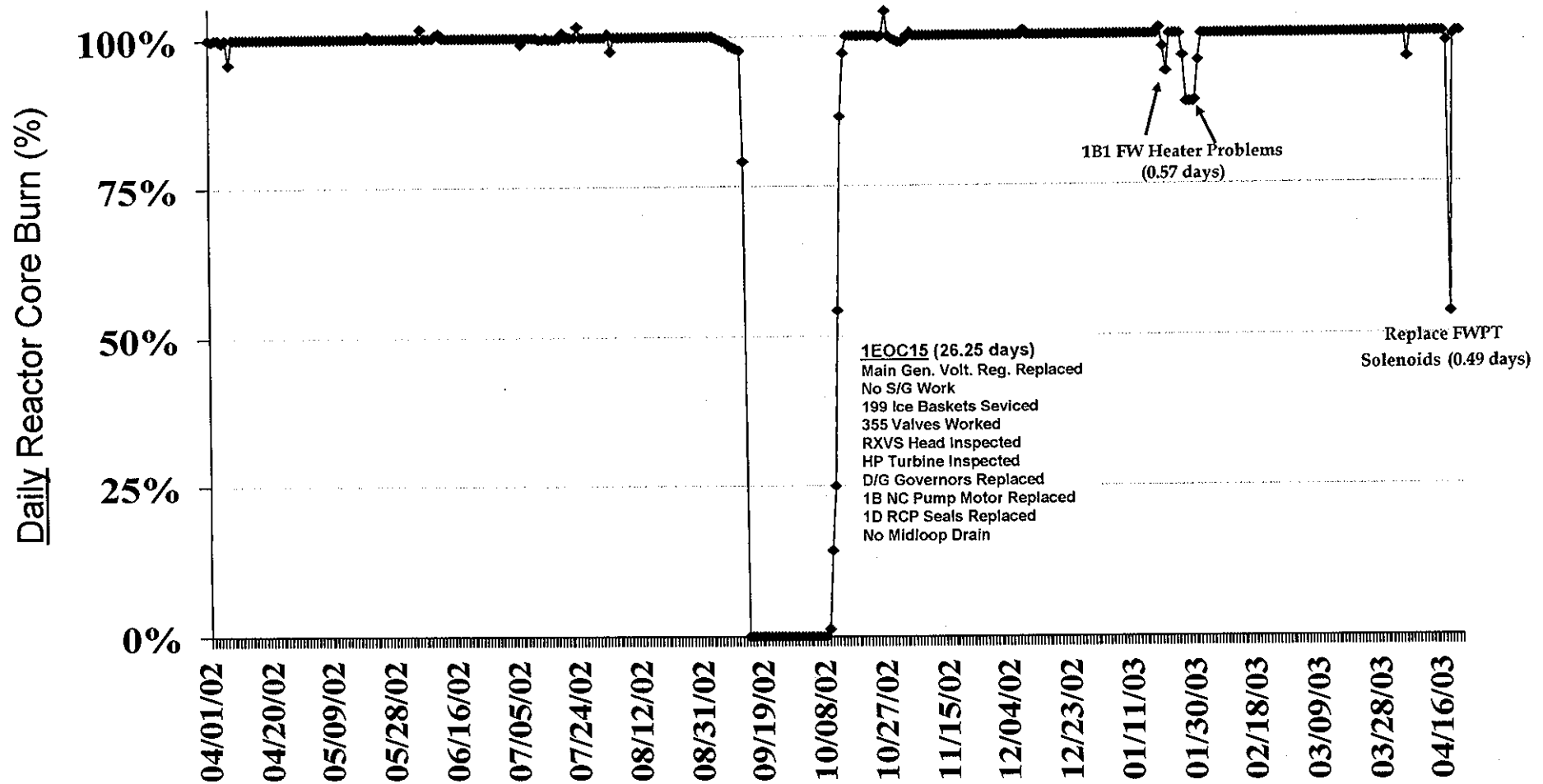
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- **Generation Trending Status** – *Dhiaa Jamil*
- **Nuclear Excellence Review Board** - *Dhiaa Jamil*
- **Equipment Reliability / Plant Health Teams** – *Jack Peele*
- **Human Performance** – *Tom Harrall*
- **Security** – *Bryan Dolan*

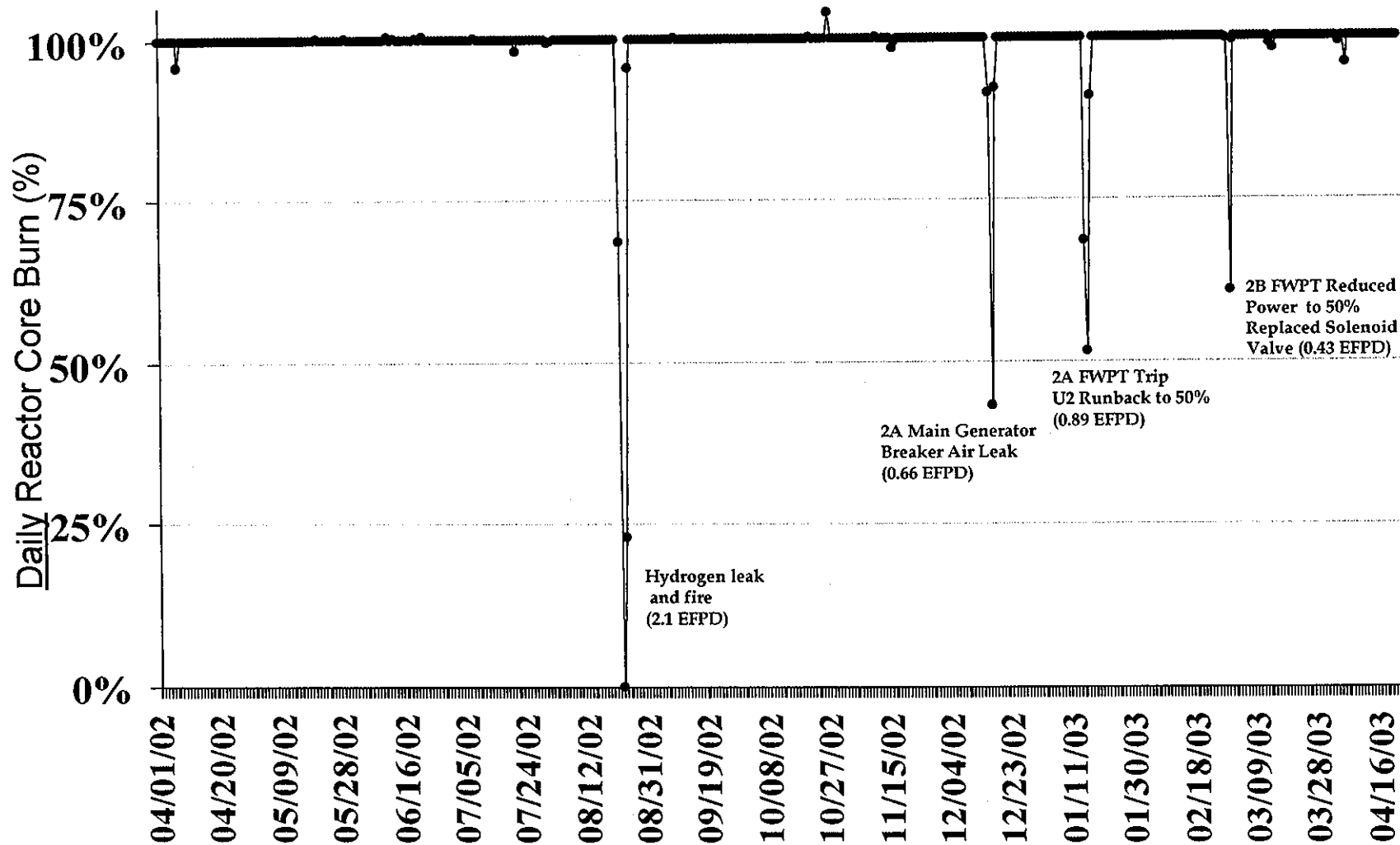


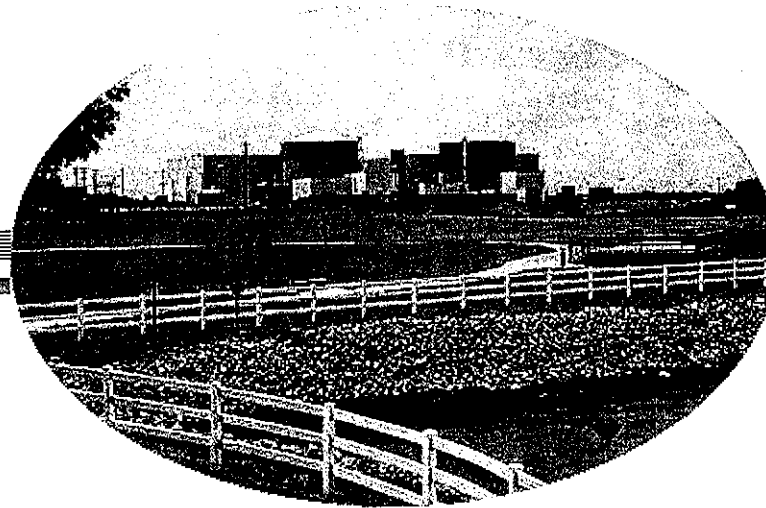
# Generation Trending Status

# Unit 1 Power History Curve



# Unit 2 Power History Curve





# **Nuclear Excellence Review Board**

# Nuclear Excellence Review Board

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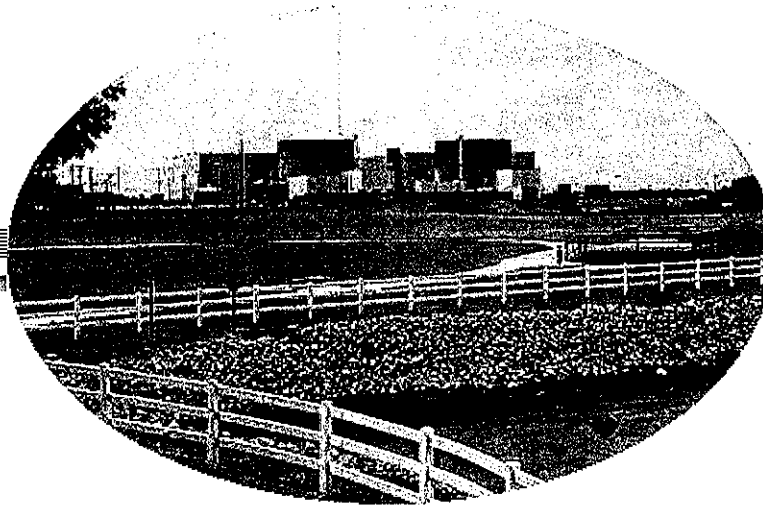
- Identify and oversee key drivers for successful operation
  - Members
    - Dhiaa Jamil
    - Tom Harrall
    - Jack Peele
    - Jack Boyle
    - Bryan Dolan
    - External member
  - Key Drivers
    - Self assessment
    - Corrective action
    - Emergency planning
    - Security
    - Environmental
    - Regulatory health
    - Industrial safety
    - Radiological safety
    - Equipment reliability
    - Configuration management
    - Budget
    - Human performance
    - Training
    - Work management
    - Outage
    - Supervisory/management development
    - Workforce planning
    - Community relations

# Nuclear Excellence Review Board

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- 2003 Initiative
  - Determine for each one of the key drivers the answer to two questions:
    - How do you know the health of program/process? (How do you know you're looking at the right stuff?)
    - What is the health?





# **Equipment Reliability / Plant Health Teams**

# Challenge

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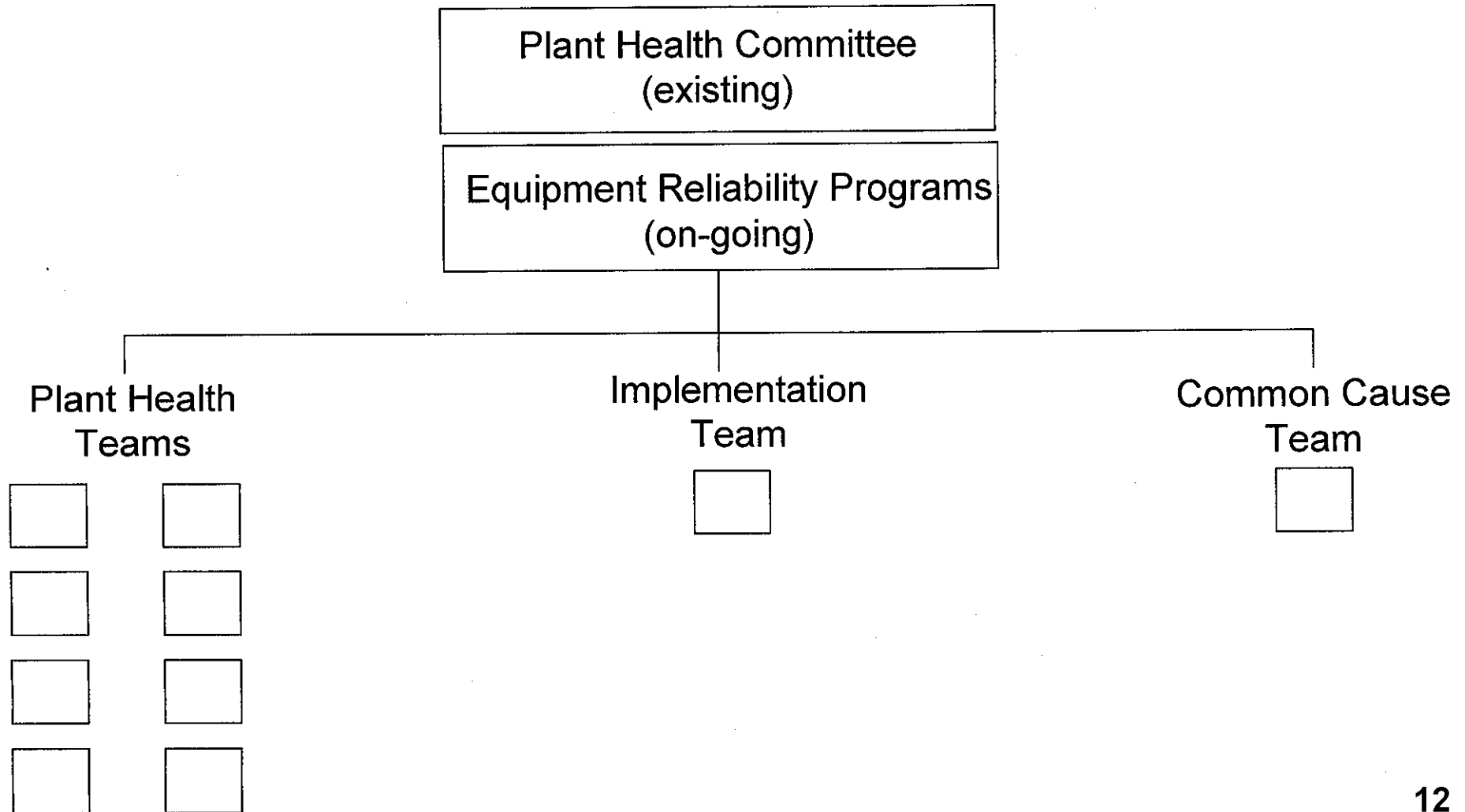
- Equipment performance was not meeting our expectations during 2002 and early 2003:
  - Upward trend in actual generation losses
  - Frequent unplanned challenges to generation
  - Resources often pulled from prevention to reactive duties

# Response

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- Create a short-term recovery strategy
- Promote shared site-wide focus like a refueling outage
- Charter team leaders via formal pre-job briefing
- Enlist entire workforce via written “time-out”
- Maintain a sense of urgency, “something is different”
- Identify equipment reliability concerns that could lead to unit trip or power reduction
- During the recovery strategy, preserve and continue the established equipment reliability program

# Structure



# Plant Health Teams (8)

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- Each co-chaired by engineering and station division managers, staffed by subject matter experts
- Reviewed known open challenges such as significant corrective actions, corrective maintenance tasks, tech spec items, operator workarounds, single point vulnerabilities, recurring plant action register items, etc.
- Surveyed site teammates to probe for challenges not previously documented
- Sorted the challenges into five action item categories (1 = most urgent)
- Reported weekly to Plant Health Committee and to each other

# Implementation Team

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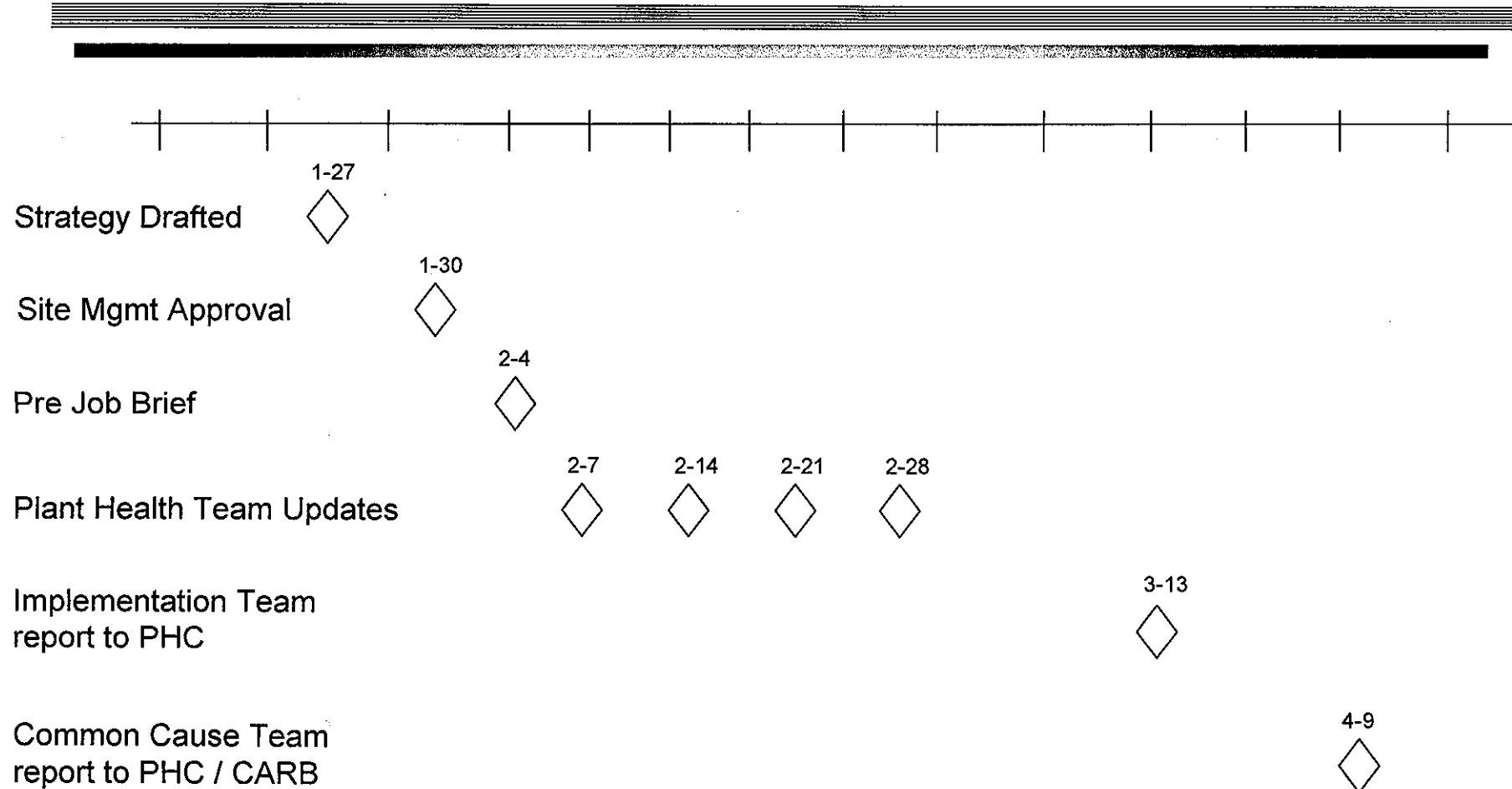
- Staffed by managers of work execution processes
- Collected input from Plant Health Teams
- Confirmed priorities of action items and performed review for consistency
- Entered the most urgent action items into the appropriate work process and began tracking to completion
- Reported results to Plant Health Committee

# Cause Analysis Team

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- Staffed by Safety Review Group and Outage Manager
- Searched problem reports for events on highest risk category systems (Apr 02 – Feb 03), selecting approximately 200 for trending
- Screened 11 of 200 events for more comprehensive review
- Performed common cause analysis
- Presented results to Plant Health Committee and CARB

# Timeline





# Action Category 1 Activities

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- Main feedwater pump trip solenoid valves
- Control Room chiller refrigerant low temperature switch
- Auxiliary Feedwater System isolation valve operator limit and torque switches
- SG Blowdown demineralizer resin loading area, threat to main generator stator cooling control panel
- ECCS motor start time extensions
- Turbine valve movement test difficulties

# Cause Analysis Team Areas for Improvement

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- Comprehensiveness of health reports need improvement
- Over-reliance on equip failures to effect changes rather than proactive efforts
- Input from plant-side groups could more effectively be utilized
- Programs may be too rigid to effect timely resolutions
- Over-reliance on programmatic structure vs. mentoring / experience
- Declining vendor support

# Long-Term Transition

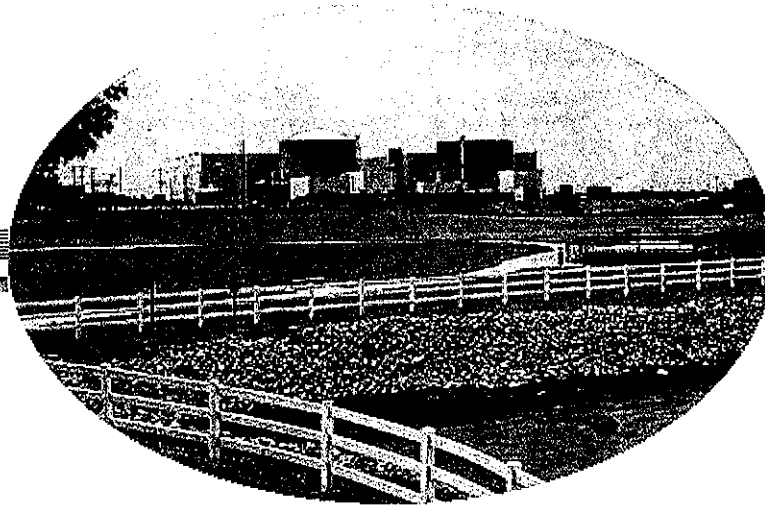
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- PHT's will be part of the trimester system health reporting cycles
- Will provide cross-organizational input concerning reliability concerns and system health "color"
- Plant Health Committee will provide oversight

# Additional Comments

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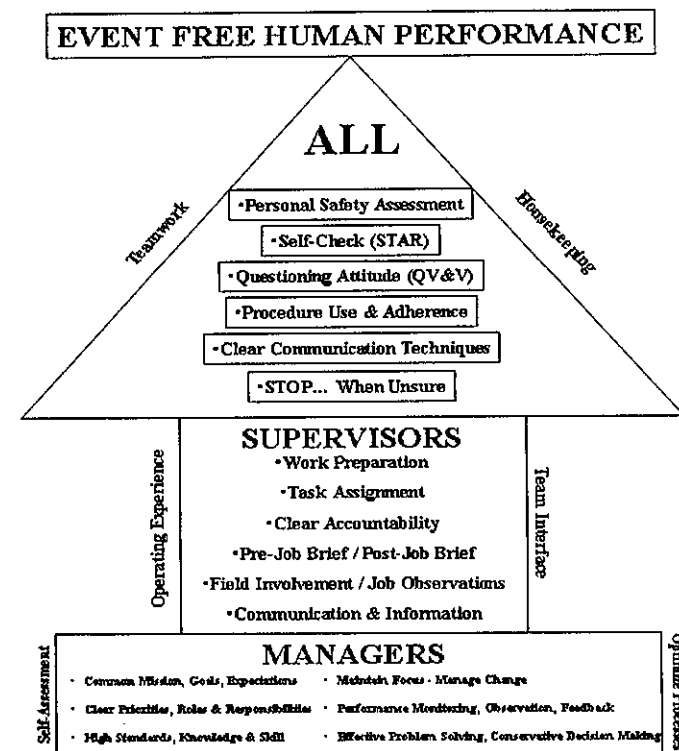
- Nuclear Safety System availability has remained high
  - HPI
  - RHR
  - Aux Feed
  - Emergency AC
- For fourth quarter 2002, all these systems on both units were in second quartile
- Emergency Diesel / Generator system performance 1995-2002 was subject of special NRC inspection in December 2002, with no findings of significance identified



# Human Performance

# McGuire Nuclear Station Human Performance

- McGuire continues to focus on human performance
- Foundation is “6 Tools for Event Free Human Performance”



HUMAN PERFORMANCE MODEL

# McGuire Nuclear Station Human Performance

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- Created a structure to manage/oversee site human performance
  - HPRB – senior site management oversight
  - HPRC – each group chaired by group management
  - HPRC Lead – each group represented by a group coordinator
  - OPI Manager – site lead

# Human Performance Site Focus

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- Initial Training (1993 - current)
  - Human error reduction training for workers and supervisors (8 hours)
- Continuing Training
  - Bhopal – 1998/99 – “6 tools reinforced”
  - Titanic – 2000/01 – the 5 INPO principles
  - Communications Competence – 2001/02 – site trend
  - Summit Fever – 2001/02 – reinforce conservative decision making
  - Bringing Out the Best in People – 2002 – reinforcing correct behaviors



# Human Performance Group Focus

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- Each group develops focus areas based on trends/issues/events
- Examples
  - MNT – correct component verification (CCV)
  - OPS – supervisory involvement/oversight
  - CHEM – removing distractions

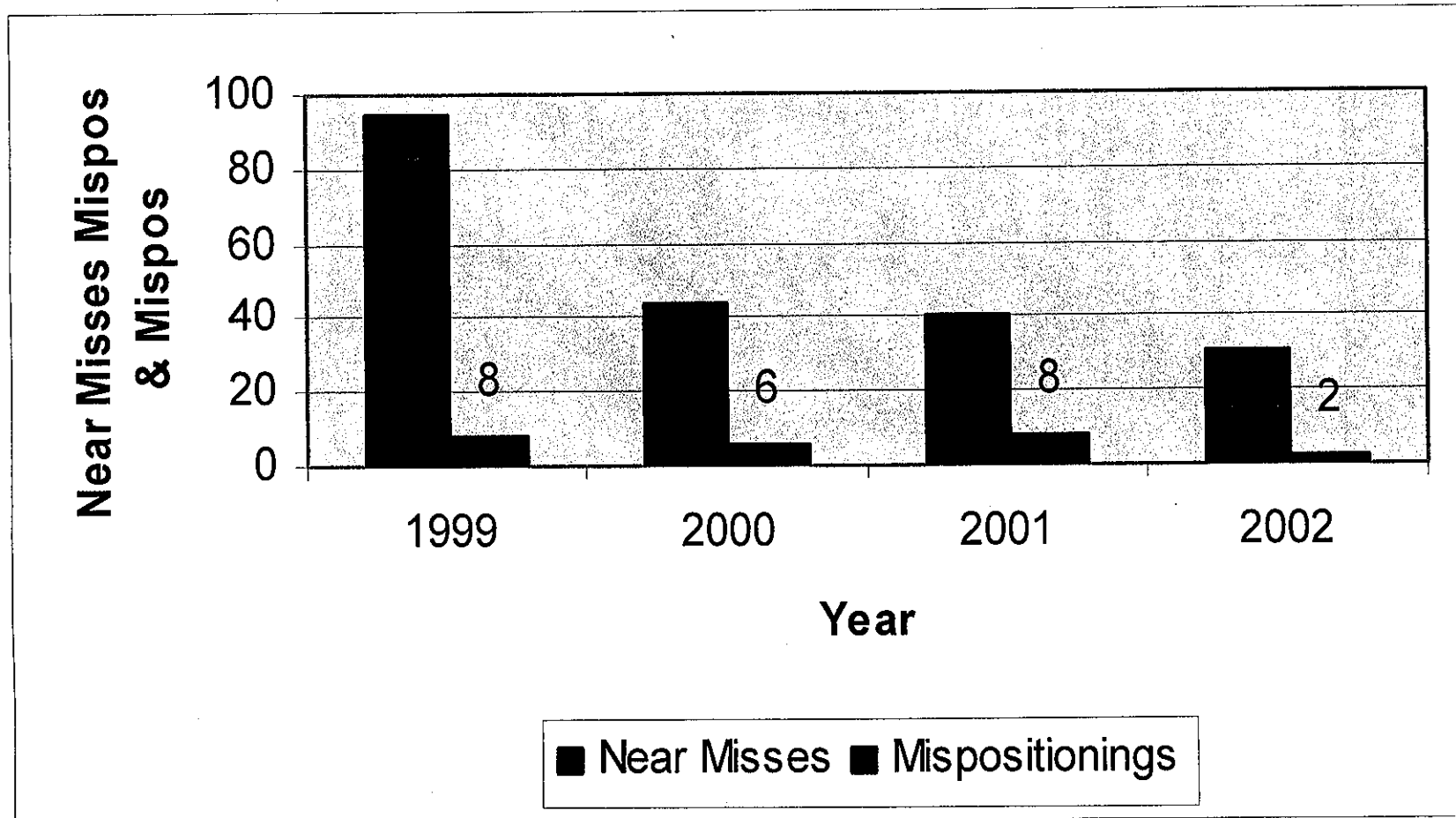
# Success Stories

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- Correct Component Verification (CCV)
  - MNT CCV focus - prior to implementation  
(July 2000 to February 2002)
    - 5 events (including a reactor trip)
  - MNT CCV Focus - following implementation  
(February 2002 to current)
    - Two minor incidents

# Successes – CCV/Mispositionings

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# 2003 Focus for McGuire

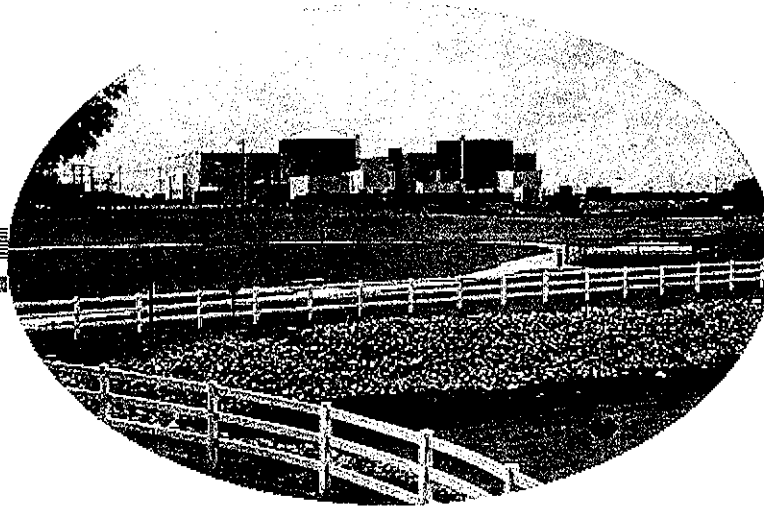
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- Formality in human performance
  - Improve rigor in execution of processes

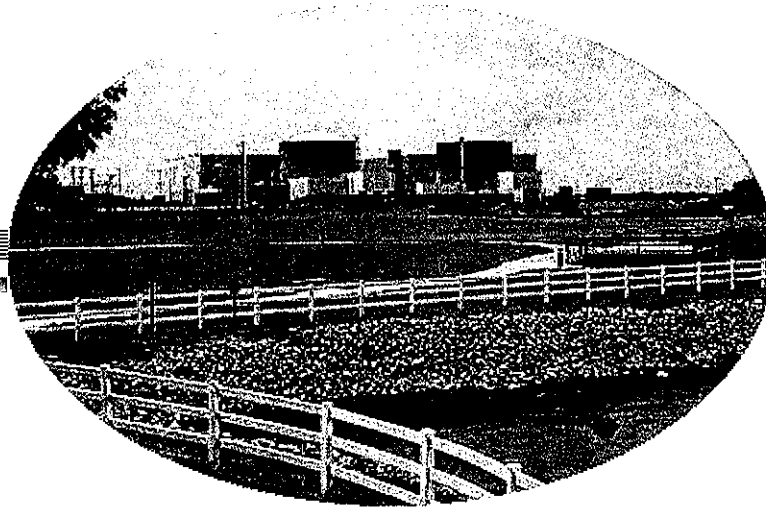
# Human Performance Measures

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- Human performance error rate (new in 2003)
  - Currently 5.12 errors per 10000 work-hours
- Average number of days between human performance events
  - Currently 30.4 days



# Security



# Questions