

# Crystal River Unit 3 Update

**NRC Region II Meeting  
September 19, 2003**

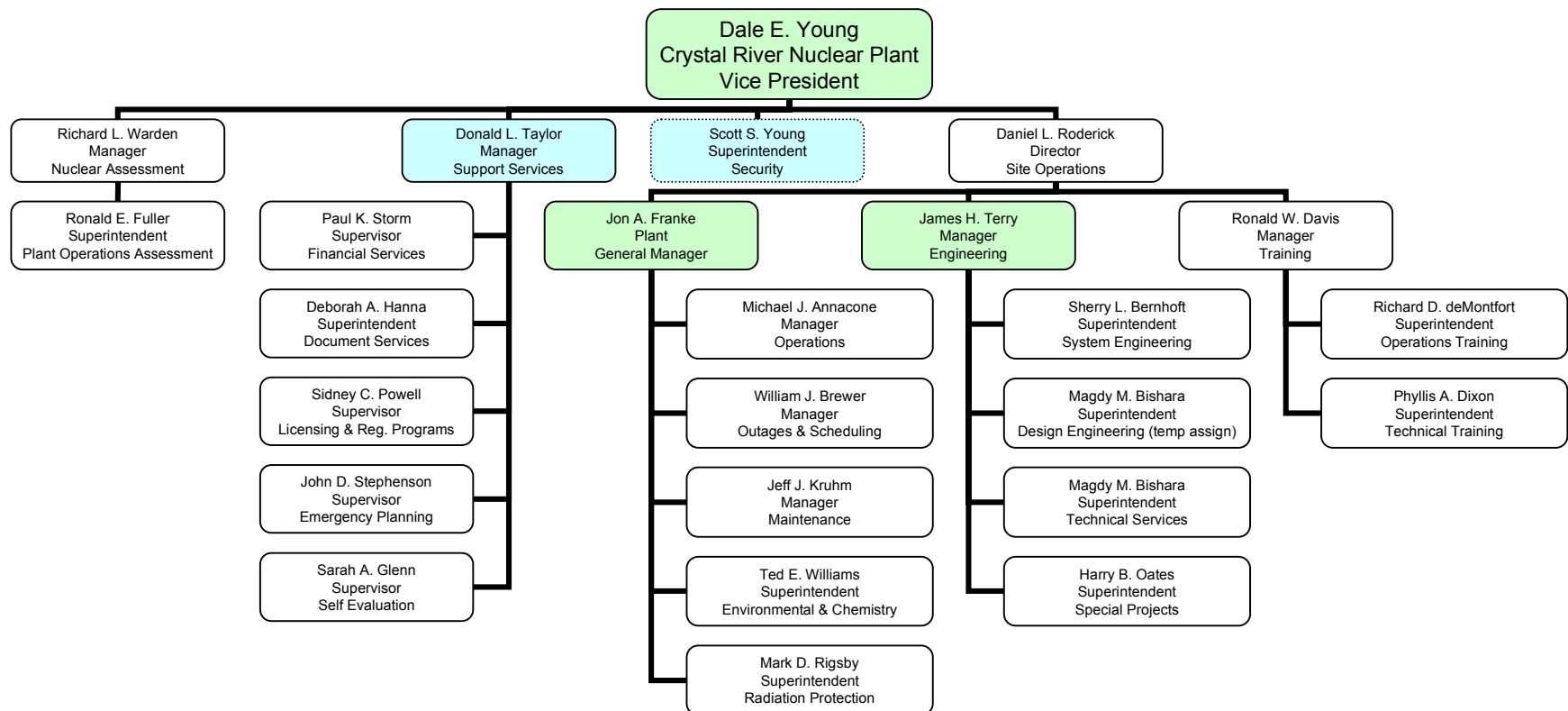


# Agenda

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- **Introductions** Dale Young
- **Plant Performance and Outage Status** Jon Franke
- **Major Projects and Initiatives** Jim Terry
- **Security Update and Order Response Status** Scott Young
- **Future Initiatives** Dale Young

# CR3 Management Team



# **Plant Performance and Outage Status**

## **Jon Franke**



# Plant Status

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- **Current**

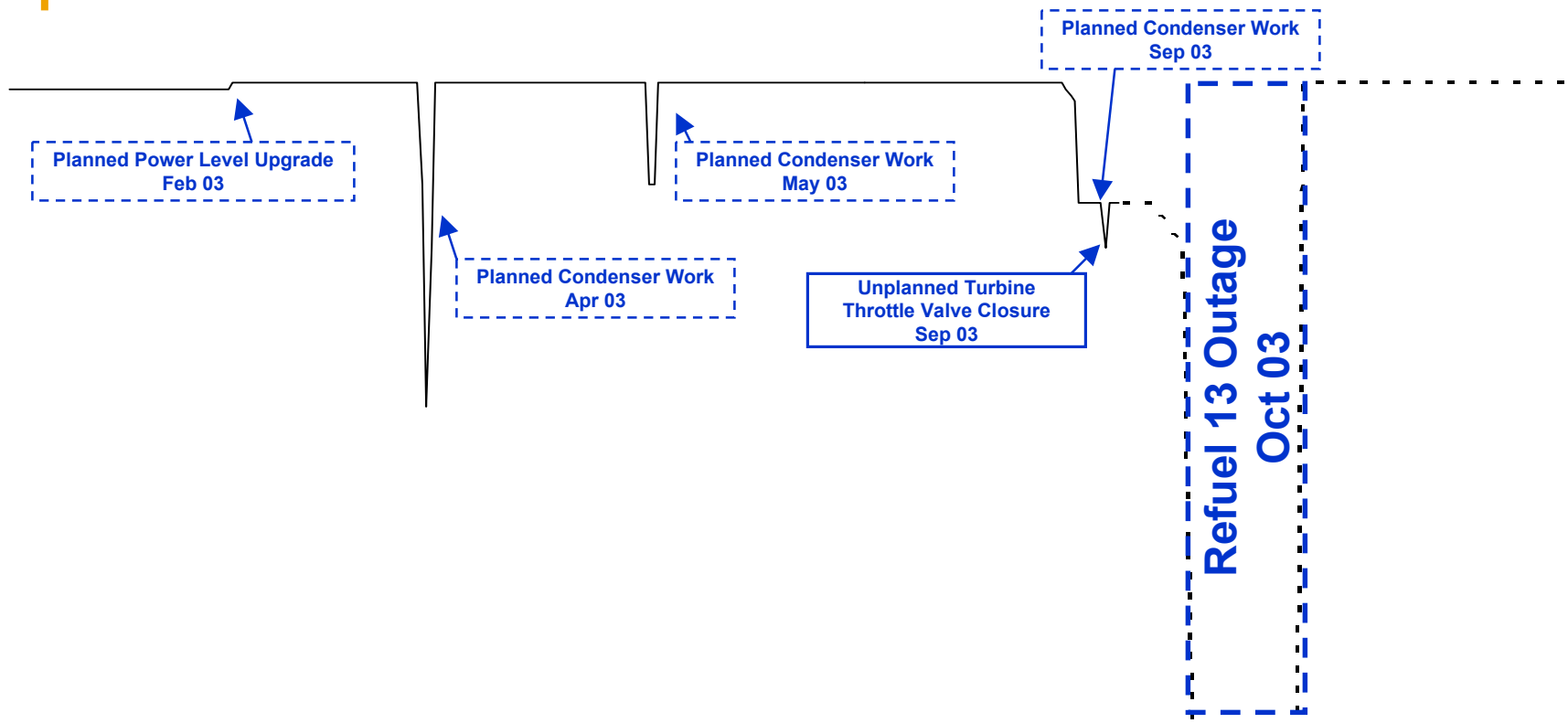
- ▶ **82 % power**
- ▶ **685 mWe net**

- **September 1 Year-to-Date**

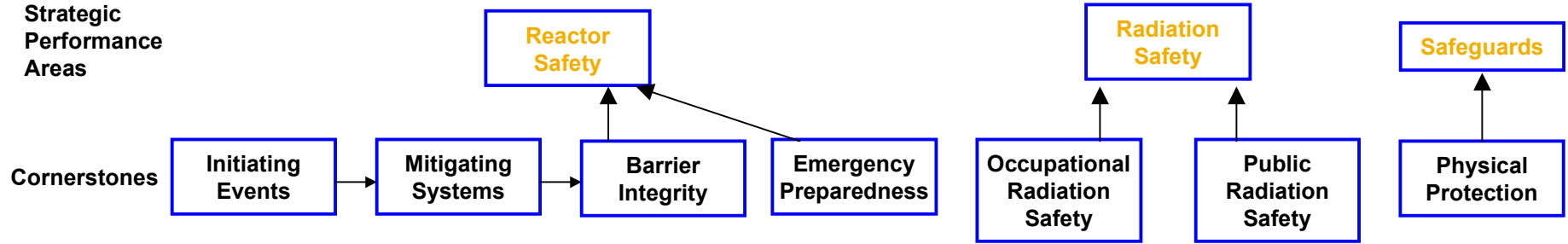
- ▶ **101.6 % capacity factor**
- ▶ **5.1 Rem**
- ▶ **0 Lost Time Accidents / 1 Recordable**
- ▶ **99.6 INPO Performance Indicator Index (2<sup>nd</sup> Qtr)**

# Crystal River – Unit 3 Power History

January 1 – December 31, 2003

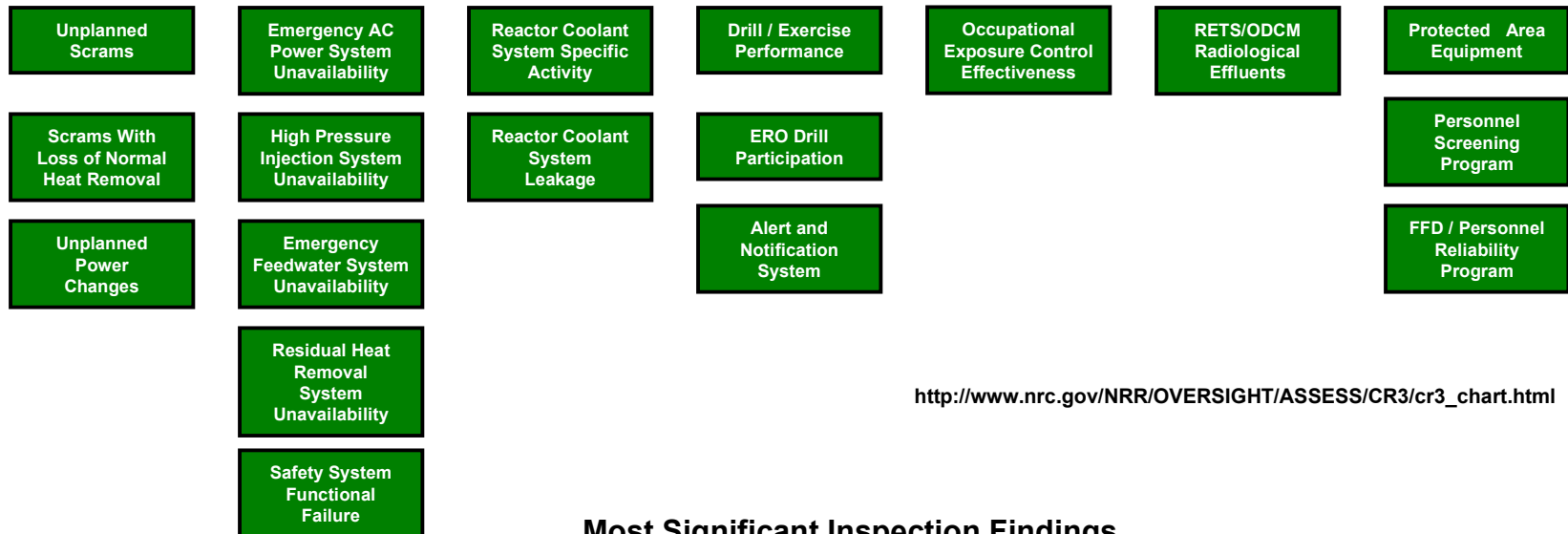


## 2Q/2003 Plant Performance Summary



## Performance Indicators

**Based on data through June 30, 2003**



[http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/CR3/cr3\\_chart.html](http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/CR3/cr3_chart.html)

## Most Significant Inspection Findings

[illegible]

# Refuel 13 Outage

## Goals and Schedule

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- **Goals**

- ▶ 26 days
- ▶ 100 Rem
- ▶ 0 human performance events
- ▶ 0 OSHA recordable injuries

- **Critical Path**

- ▶ Shutdown – head area maintenance – testing and startup
- ▶ Two reduced inventory windows
- ▶ No-Mode window
- ▶ Polar crane and equipment hatch management

# Outage Scope

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- **Primary Side Maintenance**
  - **Steam generator inspection / replacement walkdowns**
  - **Under-vessel penetration inspections**
  - **RCS leak inspections**
  - **RCP seal replacement**
  - **DHV-4 pressure seal ring replacement**
  - **Containment sump inspections**
  - **RWP-2A pump refurbishment**
  - **Thermal sleeve inspection**

# Outage Scope (continued)

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- **Balance of Plant Work**

- **Circulating Water system maintenance**
- **Turbine and support system maintenance**
- **Flow Accelerated Corrosion (FAC) inspections**
- **Electrical bus inspections (safety and non safety)**
- **Main transformer maintenance**

# Outage Scope (continued)

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- **Modifications**

- ▶ **Reactor vessel head replacement**
- ▶ **Condenser cleaning system replacement**
- ▶ **New fuel design**
- ▶ **Fuel handling equipment enhancements**
- ▶ **Raw Water system isolation valves**
- ▶ **Large bore piping supports**

# **Major Projects and Initiatives**

## **Jim Terry**



# Major Projects and Initiatives

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- **Reactor Vessel Head Replacement**
- **Elimination of Low-Level Fuel Defects**
- **Appendix R Fire Protection Strategy**

# RV Head Replacement

- **New Head Design Features**
  - Alloy 690 welds – Improved Resistance to PWSCC
  - Mono-block forging reduces ISI requirements
- **New Type C CRDMs**
  - Eliminate industry concern with slow drop times



# RV Head Replacement (continued)

- **CRDM Service Structure Design Features**
  - Improved ventilation for Position Indication of CRDs
  - Easy access openings for visual inspections of head
  - Improved head insulation
  - Improved shielding for workers
  - Improved design for CRDM cooling water
  - Improved design for cable routing



# RV Head Replacement (continued)

- **Outage Preps**

- Heavy lift equipment tested and on-site.
- Complete Assembly Activities (9/26/03)

- **Outage Activities**

- Transport new head to Equipment Hatch (10/11/03)
- Encapsulate old head (10/15/03)
- Transport old head to storage bldg. (10/16/03)



# Elimination of Low-Level Fuel Defects

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- **First Cycle for Mark-B-HTP Fuel Assemblies.**
  - **M5™ cladding and guide tubes**
  - **HTP (High Thermal Performance) spacer grids**
  - **FUELGUARD™ debris resistant lower end fitting**
- **85 Fresh Fuel Assemblies During Refuel 13**
  - **12 low (2.50%) enrichment assemblies for peripheral locations**
  - **Reduces grid-to-rod fretting symptoms at important core locations**
- **Extensive Vendor Oversight**
  - **Six audits conducted**
  - **Several Issues identified and reconciled during audits**

# Appendix R Strategy

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- **Background Information:**

- July 2002 Triennial Inspection – 1 URI
- Sept. 2003 resolution to URI – potential green finding

- **Follow Up Actions:**

- Completed Thermo-hydraulic analysis of events.
- Completed Feasibility Analysis of Manual Actions.
  - ◆ Developed Safe-Shutdown Logic
  - ◆ Identified Improvement Opportunities

## **Appendix R Strategy** (continued)

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- **Implemented proactive strategy for fires**
  - **Identify potential failure scenarios**
  - **Implement actions prior to fire-related failures**
  - **Preserve safe shutdown equipment from spurious actuations**
  - **Procedure provides improved operational guidance**
- **Opened dialogue with NRC on manual actions**
- **Participating in NGG Program for manual actions / hot shorts**

# **Security Update and Order Response Status Scott Young**



# General Security Update and Status on Response to Orders

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- **New Superintendent-Security - June 2, 2003**
- **Several program enhancements completed or in progress**
- **Update status on the following**
  - **Fatigue Order Response**
  - **Training Order Response**
  - **Design Basis Threat (DBT) Order Response**

# Fatigue Order

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- **On track for Order compliance**
- **Following activities underway**
  - **Tracking and trending weekly work force hours**
  - **Conducted “Train the Trainers” class on effects of fatigue - September 9, 2003**
  - **Developing corporate procedure**
  - **Strengthening Securitas policy on overtime controls (notification to Union on changes)**

# Training Order

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- **On track for Order compliance**
- **Following activities underway**
  - **Designing new firing range  
(more details on slide 26)**
  - **Upgrading new hire curriculum**
  - **Upgrading / adding lesson plans**
  - **Enhancing In-Service Training Program (ISTP)  
to permit small unit training (on-shift)**

# Design Basis Threat Order

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- **On track for Order compliance**
- **Following activities underway**
  - **Adding significant adversary delay fences and barriers in protected area (targeting YE 2003)**
  - **Adding bullet resistant (BR) secondary fighting positions (SFPs) in protected area and within power block (targeting YE 2003)**
  - **Revising defensive strategy**
  - **Adding manned BR defensive fighting positions (DFPs) on towers and rooftops for enhanced strategy**

# Design Basis Threat Order (continued)

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- **Adding optics to contingency rifles**
- **Purchasing additional rifles**
- **Equipment enhancements**
  - **Tactical BR vest carriers**
  - **Tactical holsters**
  - **Gas masks**
  - **Improved flashlights**
  - **Radios**
  - **Rifle optics**
- **Major changes to firing range to support training for DBT response (next slide)**

# Firing Range Modifications

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- **Major changes to firing range under design**
  - **100 yard firing line**
  - **Towers (replicating site configurations)**
    - ◆ **~100 yards**
    - ◆ **~175 yards**
  - **Moving target system**
  - **New classroom / range building**
  - **Reactive targets (“pepper poppers”) for stress course of fire**
  - **Improved range lighting (area and target face)**
  - **“Hogan’s Alley”**

# Other Security Program Improvements

- **Established field observation program**
- **Established CR3 Security “Standards of Excellence”**
- **Establishing drill observation program**
- **Performed human performance fundamentals training for security force**
- **Installed vehicle trap at main protected area gate – better controls for vehicle search**
- **Union contract recently ratified**

# Future Initiatives

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- **Power up-rates – 2005 and 2007**
- **License renewal submittal – 2009**
- **Steam generator replacement – 2009**

# Closing Remarks

