UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET SW SUITE 23T85
ATLANTA, GEORGIA 30303-8931

June 26, 2002

Tennessee Valley Authority
ATTN: Mr. J. A. Scalice
Chief Nuclear Officer and
Executive Vice President
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: PUBLIC MEETING SUMMARY - PLANT PERFORMANCE AND PLANNED MAJOR PROJECTS - SEQUOYAH DOCKET NOS.: 50-327, 50-328

Dear Mr. Scalice:

This refers to the meeting conducted at your request at the Region II Office in Atlanta, Georgia, on June 25, 2002, at 1:00 p.m. The meeting's purpose was to discuss plant performance and planned major projects. Enclosed are a list of attendees and the presentation handout.

The discussions included the following topics: Plant Performance Summary, Site Focus Areas, Performance Indicators, and Long Term Projects. The meeting was informative and did not result in specific action items or decisions.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room (PDR) or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/NRC/ADAMS/index.html (the Public Electronic Reading Room).

Should you have any questions concerning this meeting, please contact me at (404) 562-4530.

Sincerely,

***/RA/***

Paul E. Fredrickson, Chief
Reactor Projects Branch 6
Division of Reactor Projects

Enclosures: 1. List of Attendees
2. Handout - Watts Bar Nuclear Plant - Plant Performance

Docket Nos.: 50-390, 50-39128
License Nos.: DPR-77, DPR-79

cc w/encls: (See page 2)

cc w/encls:
Karl W. Singer
Senior Vice President
Nuclear Operations
Tennessee Valley Authority
Electronic Mail Distribution

Jack A. Bailey, Vice President
Engineering and Technical Services
Tennessee Valley Authority
Electronic Mail Distribution

Richard T. Purcell
Site Vice President
Sequoyah Nuclear Plant
Electronic Mail Distribution

General Counsel
Tennessee Valley Authority
Electronic Mail Distribution

Robert J. Adney, General Manager
Nuclear Assurance
Tennessee Valley Authority
Electronic Mail Distribution

Mark J. Burzynski, Manager
Nuclear Licensing
Tennessee Valley Authority
Electronic Mail Distribution

Pedro Salas, Manager
Licensing and Industry Affairs
Sequoyah Nuclear Plant
Tennessee Valley Authority
Electronic Mail Distribution

D. L. Koehl, Plant Manager
Sequoyah Nuclear Plant
Tennessee Valley Authority
Electronic Mail Distribution

Lawrence E. Nanney, Director
TN Dept. of Environment & Conservation
Division of Radiological Health
Electronic Mail Distribution

County Executive
Hamilton County Courthouse
Chattanooga, TN 37402-2801

Ann Harris
341 Swing Loop
Rockwood, TN 37854

John D. White, Jr., Director
Tennessee Emergency Management Agency
Electronic Mail Distribution

Distribution w/encls: (See page 3)

Distribution w/encls:
R. W. Hernan, NRR
RIDSNRRDIPMLIPB
C. Evans (Part 72 Only)
PUBLIC

PUBLIC DOCUMENT (circle one): YES NO

| OFFICE | DRP/RII | | | | | | |
|---|---|---|---|---|---|---|---|
| SIGNATURE | PTaylor:vyg | | | | | | |
| NAME | pt | | | | | | |
| DATE | 6/26/2002 | | | | | | |
| E-MAIL COPY? | YES NO | YES NO | YES NO | YES NO | YES NO | YES NO | YES NO |

OFFICIAL RECORD COPY DOCUMENT NAME: I:\RPB6\SQ\MEETINGS\SQ Meeting Summary 6-25-02.wpd

## LIST OF ATTENDEES

**Nuclear Regulatory Commission**

L. Reyes, Regional Administrator, Region II (RII)
B. Mallett, Assistant Regional Administrator, (RII)
H. Christensen, Deputy Director, Division of Reactor Safety, RII
V. McCree, Deputy Director, Division of Reactor Projects (DRP), RII
P. Fredrickson, Branch Chief, Reactor Projects Branch 6, DRP, RII
S. Cahill, Branch Chief, Reactor Projects Branch 2, DRP, RII
P. Taylor, Senior Project Engineer, Branch 6, DRP, RII
R. Carrion, Project Engineer, Branch 6, DRP, RII

**Tennessee Valley Authority**

R. Purcell, Site Vice President
D. Koehl, Plant Manager
M. Lorek, Assistant Plant Manager
L. Clift, Maintenance & Modifications Manager
P. Salas, Licensing & Industry Affairs Manager
P. Lawrence, Outage & Site Scheduling Manager
C. Kent, Jr., Radiological & Chemistry Control Manager
K. Stevens, Security Manager
D. Lundy, Engineering Manager

# Sequoyah Nuclear Plant

## Plant Performance

TVA/NRC Meeting

Region II, Atlanta Ga.

June 25, 2002

# Agenda

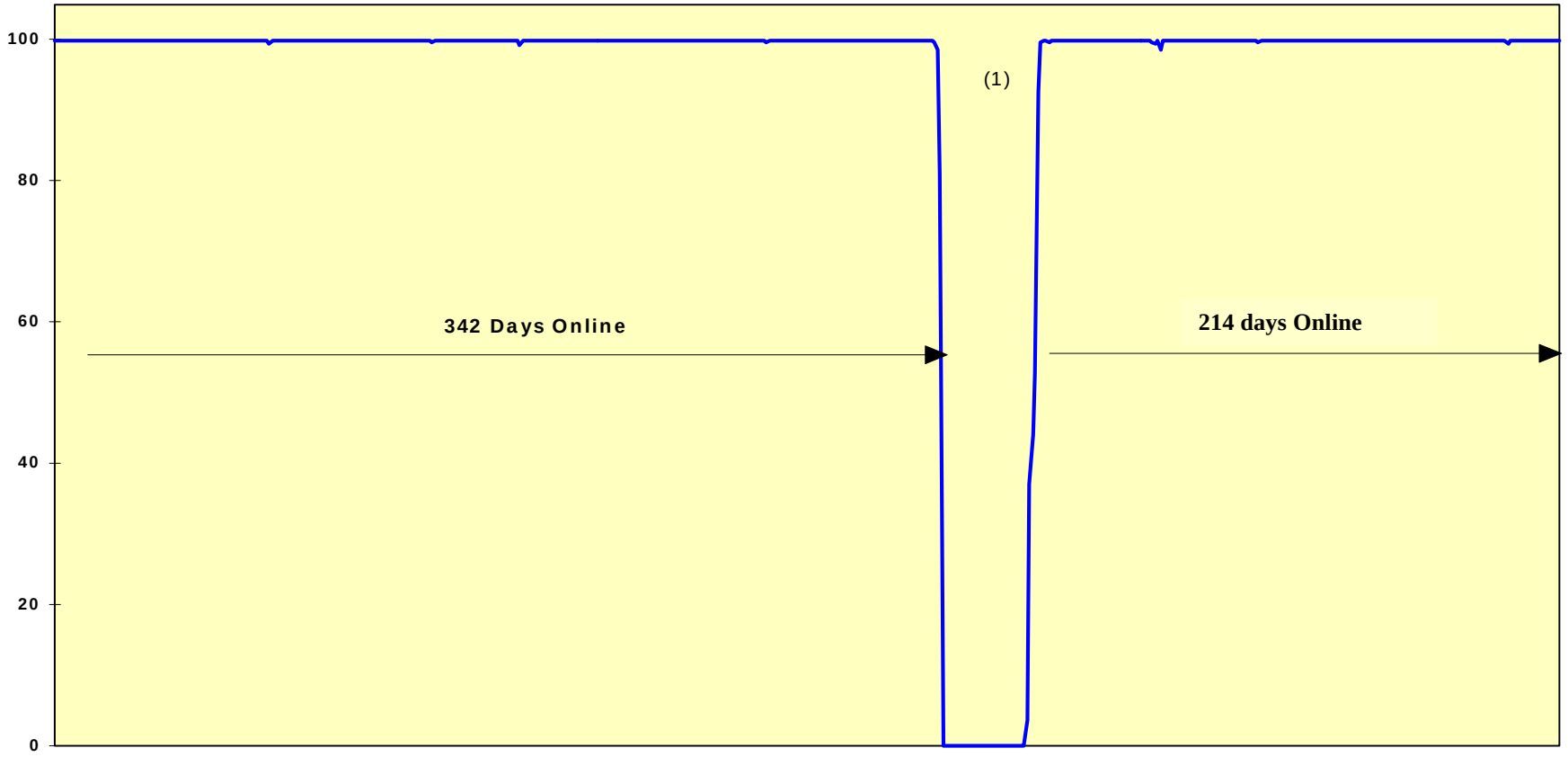
| | |
|---|---|
| • Introduction | R. T. Purcell |
| • Plant Performance | D. L. Koehl |
| • Cross Cutting Issues | M. J. Lorek |
| • Performance Indicators | M. J. Lorek |
| • Initiating Events, Barrier Integrity, and Mitigating Systems Cornerstones | D. L. Lundy |
| • Occupational Radiation Safety | C. E. Kent |
| • Physical Protection | K. T. Stevens |
| • Long-Term Projects / Pending Licensing Actions | P. Salas |
| • Conclusion | R. T. Purcell |

# Introduction

# Plant Performance

## Unit 1 Daily Rx Power Level Averages

Nov. 29, 2000 - Jun. 25, 2002

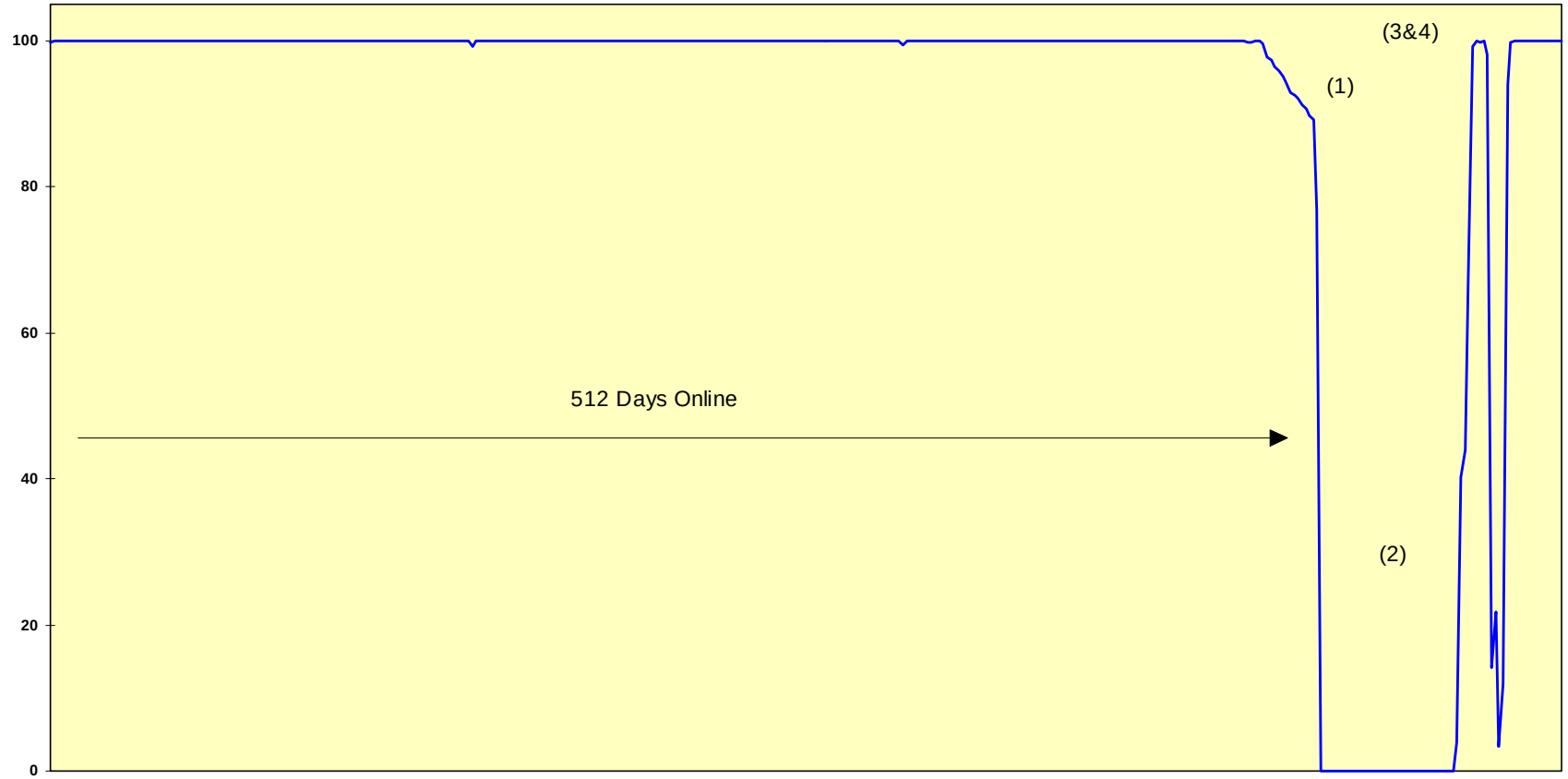



(1) 10/21/01 - U1C11 Refueling Outage (32 day duration)

# Plant Performance

## Unit 2 Daily Rx Power Level Averages

May 22, 2001 - Jun. 25, 2002



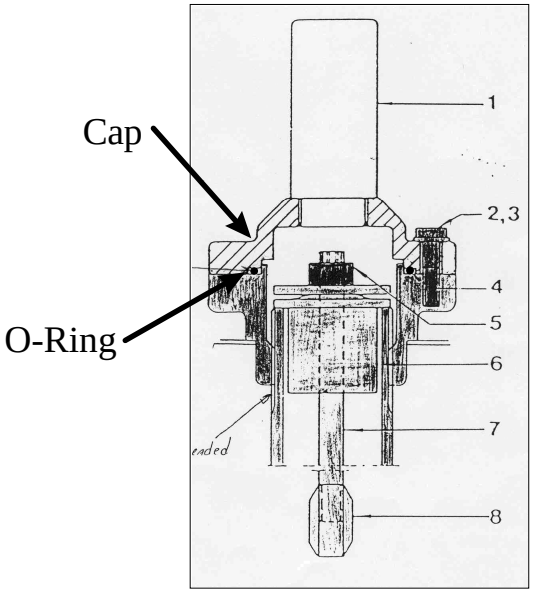

(1) 04/14/02 - U2C11 Refueling Outage
(2) 05/19/02 - Rod Urgent Alarm
(3) 05/29/02 - Unit Removed From Service - Elevated Temperatures on “B” and “C” Main Transformers
(4) 05/31/02 - Unplanned Automatic SCRAM on Stator Cooling Water Temperature High



Koehl

# Plant Performance

- Unit 2 Main Transformer
  - Predictive Maintenance Thermal Scans Identify Elevated Temperatures on 5 Main Transformer Bushing Top Connections
  - Well Controlled Down-Power
  - Installed O-Ring Was 6.35 mm Diameter
  - O-Ring Should Have Been 5.7 mm Diameter
  - O-Ring Replaced - No Damage to Equipment
  - Upgrade Procedures / Vendor Manual

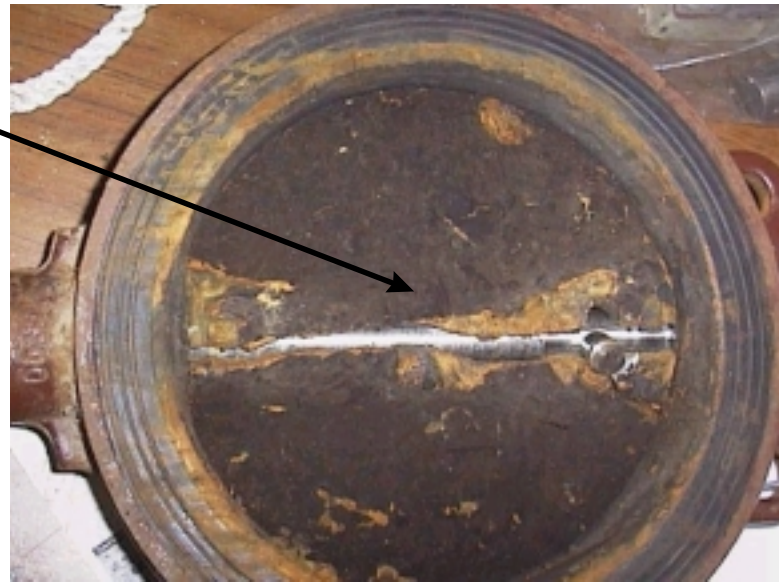



Top of Bushing

O-Ring As Found

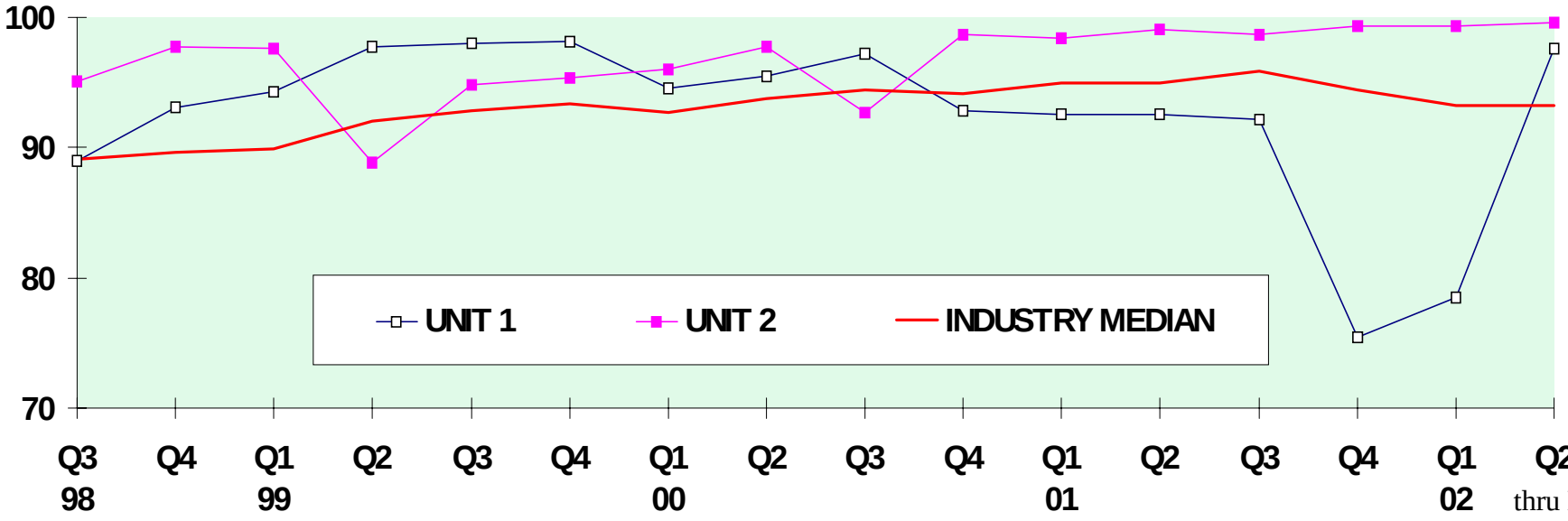
# Plant Performance

- Unit 2 Trip on Stator Cooling Water Temperature
  - Automatic Trip As-Designed, No Significant Anomalies
  - Failure of Raw Water Valve Resulted in Loss of Main Generator Stator Cooling Water
  - Valve Has Been Replaced
  - Preliminary Cause - Seat Swelling Resulting in Increased Disk Load
  - Extent of Condition Review Identified Henry Pratt Valve Locations
  - MOVATS Data Provides Good Trend Information
  - Developing Maintenance Action Plan



# Plant Performance

## INPO Performance Index




**Date: MAY 2002**

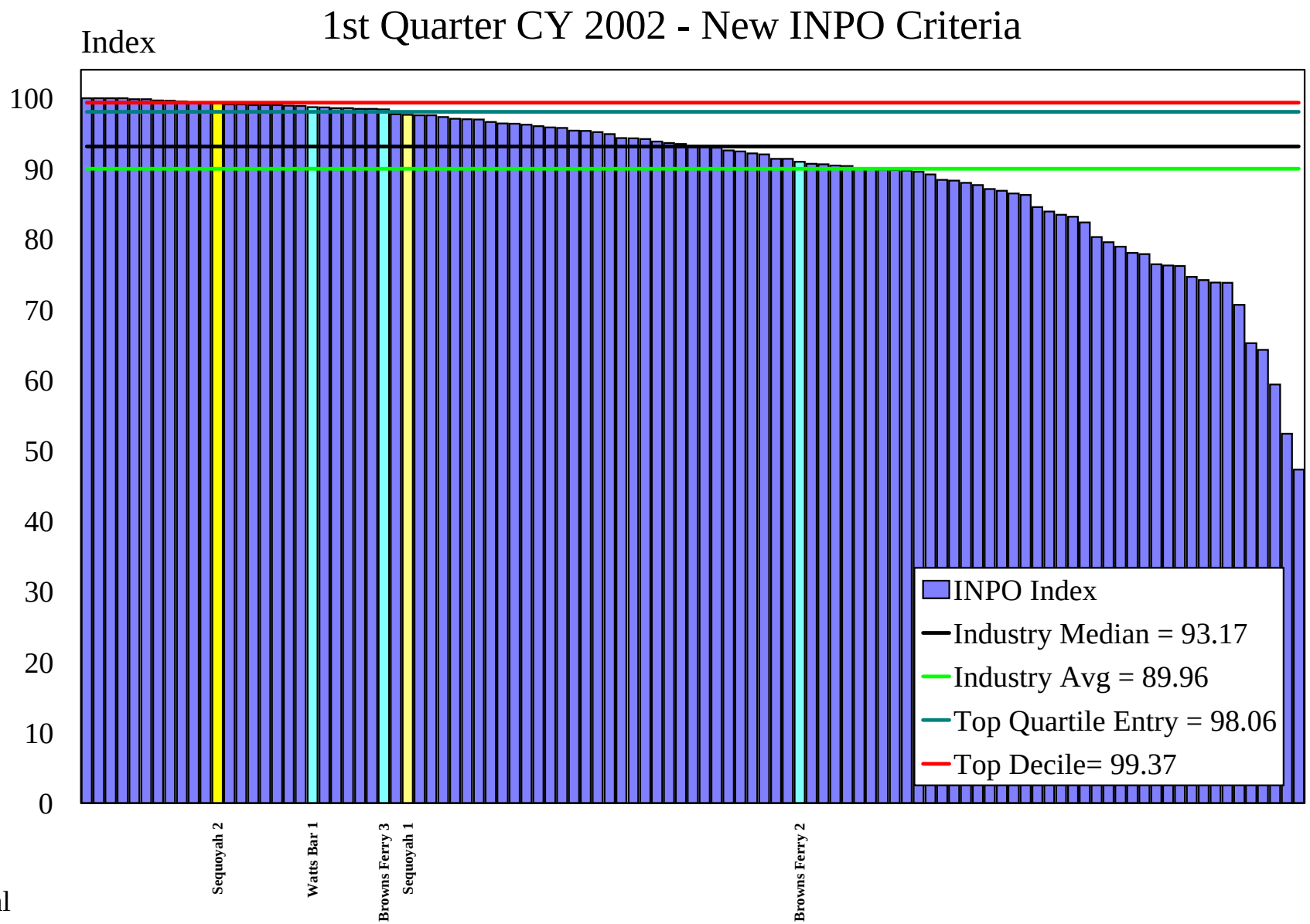
| Station: Sequoyah | | Unit 1 | | | Unit 2 | | |
|---|---|---|---|---|---|---|---|
| OVERALL PERFORMANCE INDICATOR | WEIGHT | VALUE | INDEX | PRODUCT | VALUE | INDEX | PRODUCT |
| Unit Capability Factor (18 MNTH) | 0.15 | **93.6** | 100.0 | 15.00 | **92.2** | 100.0 | 15.0 |
| Forced Loss Rate (18 MNTH) | 0.15 | **0.3** | 100.0 | 15.00 | **0.6** | 100.0 | 15.0 |
| Unplanned Auto Scrams (18 MNTH) | 0.08 | **0.000** | 100.0 | 8.00 | **0.571** | 100.0 | 8.0 |
| Safety System Performance: | | | | | | | |
| PWR High Press. Inj. (3yr) | 0.10 | **0.003** | 100.0 | 10.00 | **0.004** | 100.0 | 10.0 |
| PWR Aux. Feedwater (3yr) | 0.10 | **0.005** | 100.0 | 10.00 | **0.005** | 100.0 | 10.0 |
| Emergency AC Power (3yr) | 0.10 | **0.013** | 100.0 | 10.00 | **0.013** | 100.0 | 10.0 |
| Fuel Rel. (Most recent qtr) | 0.10 | **1.0E-06** | 100.0 | 10.00 | **1.4E-05** | 100.0 | 10.0 |
| Chemistry Perf. Ind. (18 MNTH) | 0.07 | **1.03** | 100.0 | 7.00 | **1.05** | 100.0 | 7.0 |
| Collective Rad. Exposure (18-MNTH) | 0.10 | **96.76** | 76.5 | 7.65 | **70.48** | 95.9 | 9.6 |
| Ind. Safety Acc. Rate (18 MNTH) | 0.05 | **0.00** | 100.0 | 5.00 | **0.00** | 100.0 | 5.0 |
| | | **WEIGHTED INDEX =** | | **97.65** | **WEIGHTED INDEX =** | | **99.6** |



Koehl

# Plant Performance

## INPO Index



# Cross Cutting Issues

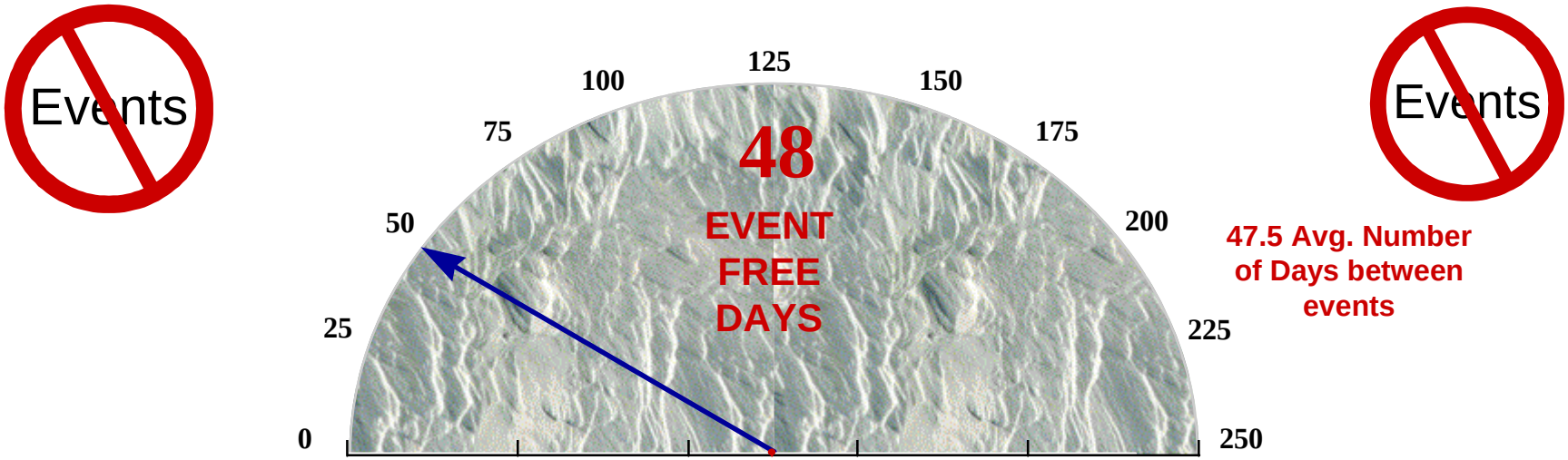
## Human Performance

- Senior Level Oversight of Human Performance (HP) Improvements
  - HP Steering Committee
  - HP Sub-Committee
  - Periodic Self-Assessments to Gauge Effectiveness
- Increase Work Knowledge of HP Fundamentals
  - One Day HP Fundamentals Provided to SQN Personnel
  - Training Based on INPO “Excellence in Human Performance”
  - Training Facilitated by Line Managers
- Provide Consistent and Effective Observation and Coaching
  - Outage Behavior Observation Program
  - Enhancement in the Excellence in Performance Program (EIP)
  - EIP Results Discussed Daily in POD and Bi-Weekly in HP Steering Committee
- Improve Effectiveness of Front Line Supervisors in Changing Behaviors
  - Off-Site Workshop Provided to 270 Managers and Supervisors
  - Provided Fundamentals of Leaders Role in HP and Observation and Coaching Skills
  - Introduced Performance Management Concepts
- Continuing Actions
  - Completion of “Back at the Ranch” Actions for Changing Behaviors in Specific Areas
  - Continuing Emphases on Increasing the Effectiveness of the EIP Program
  - Integrating HP Fundamentals Principles Into Initial and Continuing Training
  - Using Innovative Techniques to Increase Worker Skills in Use of Error Prevention Tools
  - Standardize HP Program Under a TVAN Procedure

# Cross Cutting Issues

## Human Performance

### Event Free Clock

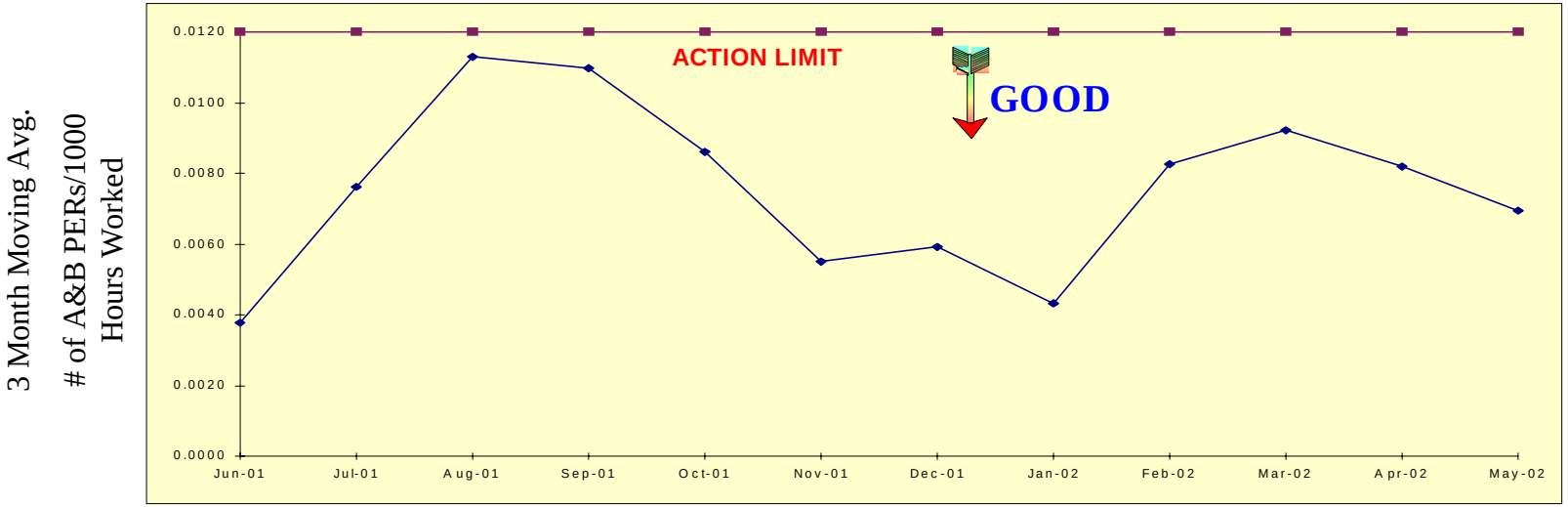



| **Areas:** | **Latest Event Description:** |
|---|---|
| **Nuclear Safety:** | No Events this Fiscal Year. |
| **Regulatory:** | No Events this Fiscal Year. |
| **Industrial Safety**: | 3/4/02 - A SQN Fire Ops employee was injured during a training evolution at Nickajack. The injury was a laceration to the left thumb which required stitches. |
| **Radiological Safety:** | No Events this Fiscal Year. |
| **Generation/Cost:** | 05/08/02 - 2-FCV-62-132 closed isolating the suction flow path from the VCT to the 2B-B CCP. The 2B-B CCP ran for approximately 5 to 6 minutes without a suction path from the VCT or the RWST. The suction valve was reopened and 2B-B CCP ran for an additional estimated 11 minutes before it was manual stopped due to a report of abnormal noise coming from the pump. |

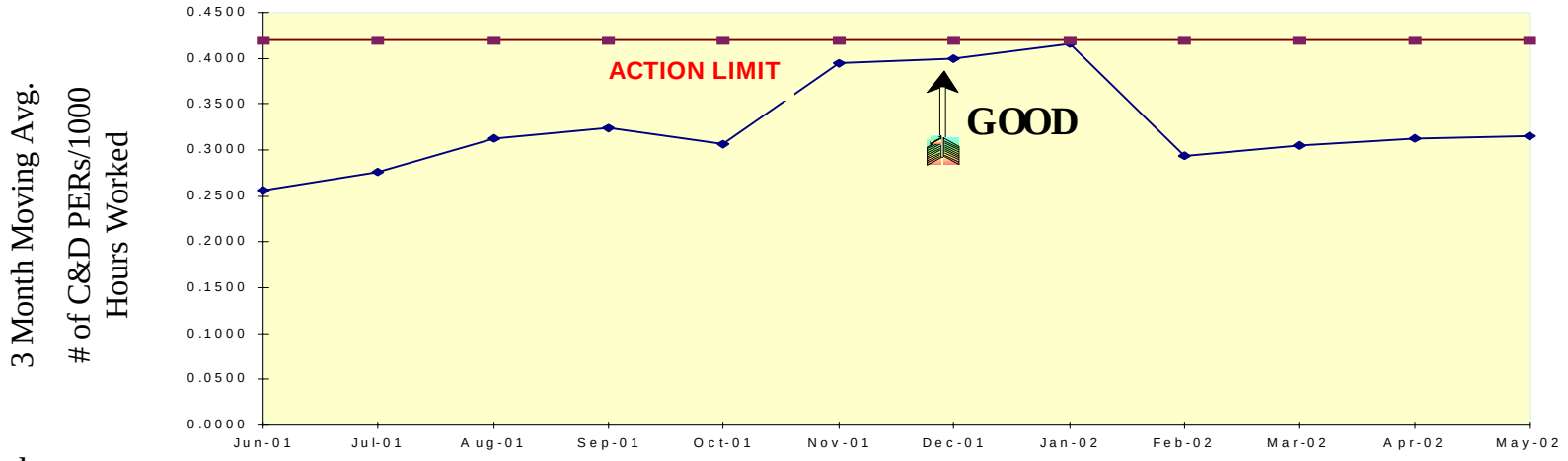
# Cross Cutting Issues

## Human Performance (Continued)

### Human Performance Success Rate




### Human Performance Leading Indicator






Lorek

# Cross Cutting Issues

## Continuous Improvement/Learning Organization

- Excellence in Performance (EIP)
  - Industry Recognized Program
    - NEI Provided Top Industry Practice Award to TVA on May 2, 2002
  - Program Is a Structured Approach to Enhancing Human Performance With Special Emphasis on Reducing Human Errors and Minimizing Their Consequences
  - Program Provides Reinforcement of Key Work Processes and Performance Standards Through Two Methods
    - Self-Evaluations of Knowledge and Understanding Practices and Standards
    - Supervisory Observation and Coaching on Actual Practices
  - Core Program Groups Are Established for Engineering, Maintenance & Modifications, Operations, and Radchem
  - Program Administered Via Web-Based Computer Software
    - Software Reports Results of Knowledge Self-Evaluations and Coaching Observations
    - Self-Evaluation May Be Used by Other Groups, Including Training and Management

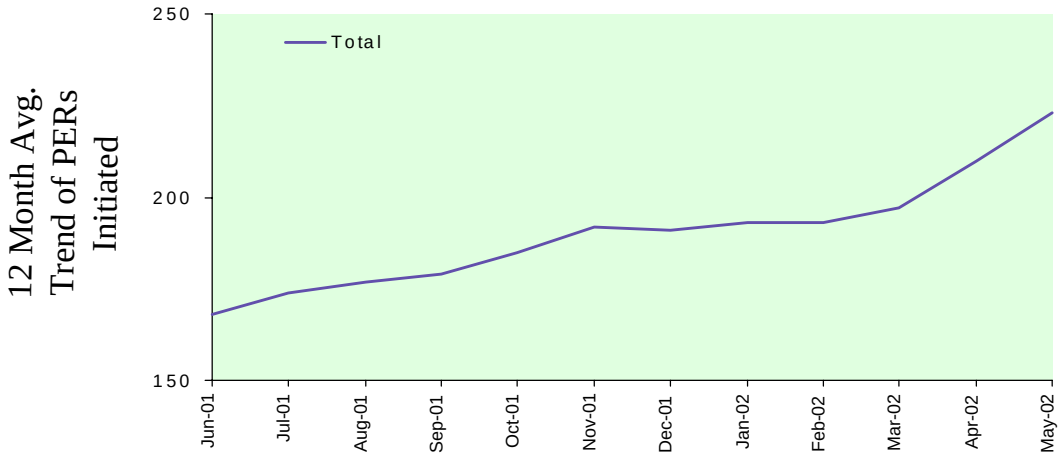
# Cross Cutting Issues

## Problem Identification and Resolution

– Corrective Action Program - Root Cause Analysis (RCA) Improvement

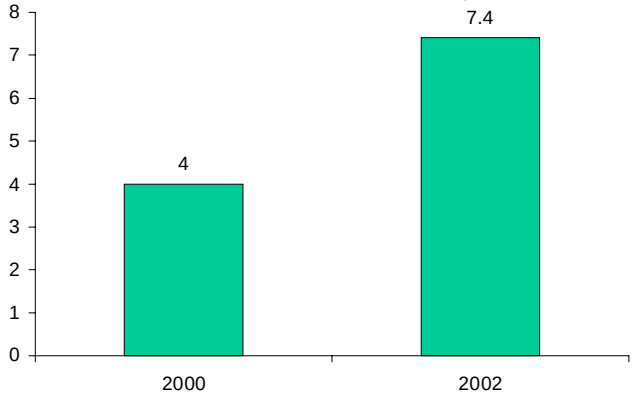
- RCA Training (Including Kepner-Tregoe Equipment Root Cause) Provided to all Personnel Performing RCA's - FY 2001
- Established RCA Review Committee To Grade RCA's and Provide Feedback to departments
- Management Review Committee Reviews all RCA's
- Use "Why" Staircase for Apparent Cause on Human Performance PERs
- Significant Improvement in Quality of RCA's Over the Last One and One-half Years

**Problem Identification Threshold Indicator**




**Overall Root Cause Quality Comparison**

(Evaluation Performed By PII)



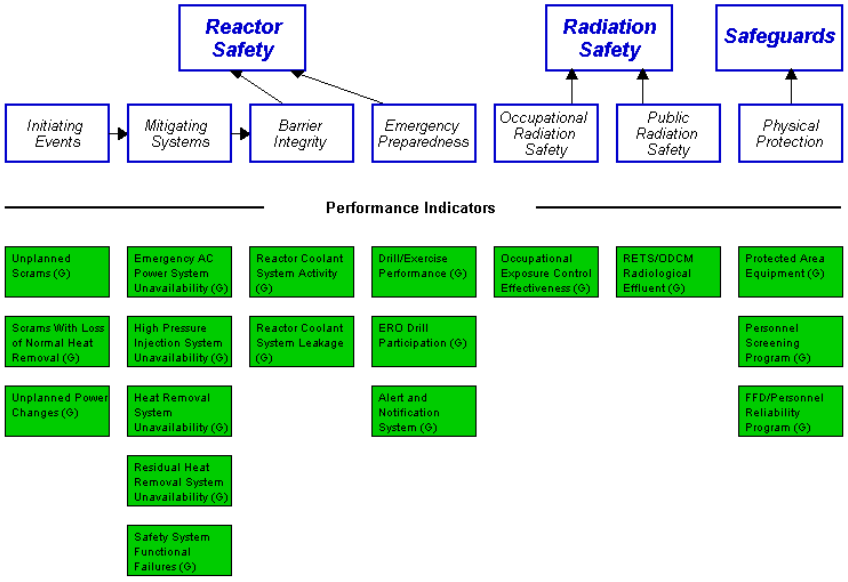

| PII Scoring Index | |
|---|---|
| Mature Program - Good Quality | > 8.0 |
| Development Stage - Average Quality | 4.1 - 7.9 |
| Infancy Programs - Marginal Quality | 2.0 - 4.0 |

Lorek

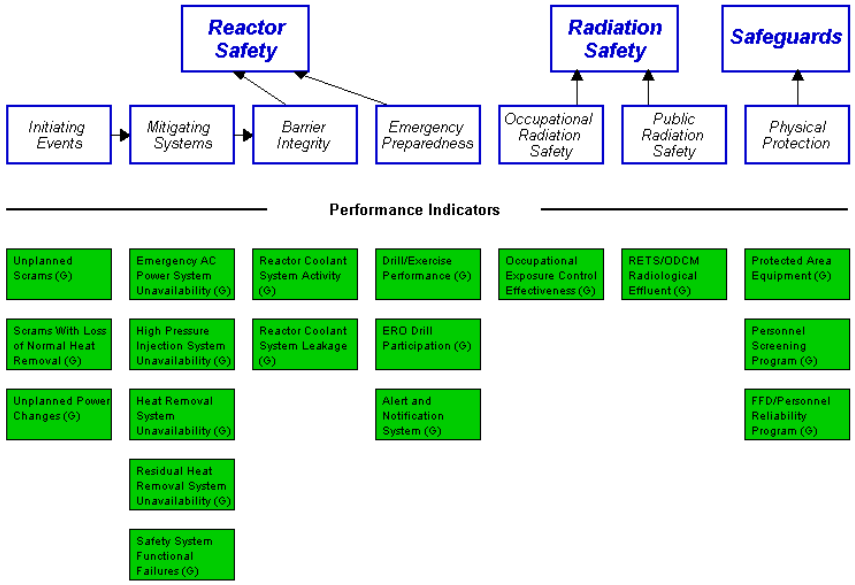
# Performance Indicators

## NRC Performance Indicators

### Sequoyah 1




### Sequoyah 2






Lorek

# Performance Indicators

## Initiating Events Cornerstone

- RCP Indications
  - Ultra Sonic Test (UT) Performed on Unit 2 RCPs During the U2C11 Refueling Outage (RFO)
  - UT Analysis of the U2 RCP No. 1 Similar to U1 RCP No 4
  - EPRI Reviewed the UT Data / Technique and Concurred With TVA Analysis
  - Conservative Decision Made to Replace the Pump Rotating Assembly
  - U2 RCP No. 1 Rotating Assembly Replaced During the U2C11 RFO
  - RCP Rotating Assembly Shipped to Westinghouse for Disassembly
  - Inspection Verified Shaft Crack

# Performance Indicators

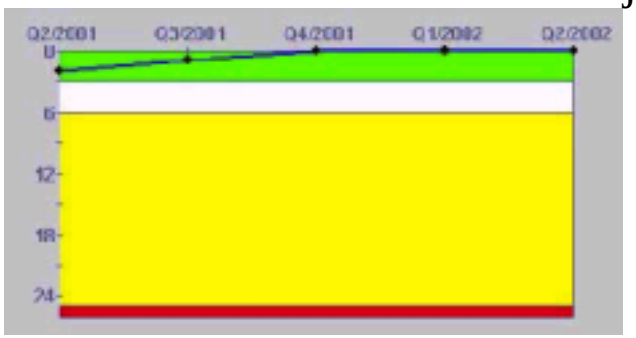
## Initiating Events Cornerstone (Continued)

- Engineering Quality
  - Initiatives
    - Performance Indicators Developed for in-Process and Post-Issue
    - Peer Reviews - Design Review Boards
    - Failure Modes and Effects Analysis
    - Post Modification Critiques
    - Procedure Re-Alignment
    - Engineering Human Performance Training
  - Single Point Failure Elimination
    - Comprehensive Studies / Reviews
    - Identification and Implementation of Hardware Improvements
    - Prioritization
    - Predictor Methodology
  - Operating Experience
    - Aggressive Use
    - Reduce Vulnerability

# Performance Indicators

## Initiating Events Cornerstone Performance Indicators

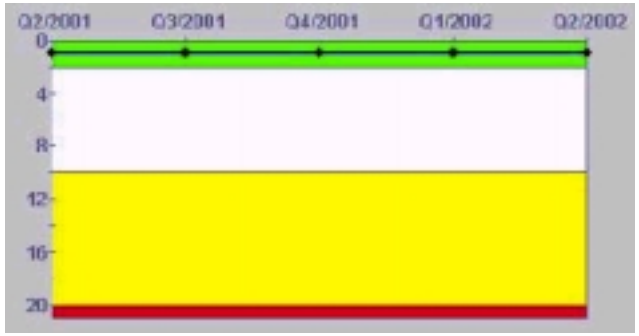
Unit 1 | Projection Through 2nd Qtr 2002 | Unit 2




Unplanned Scrams per 7000 Critical Hours

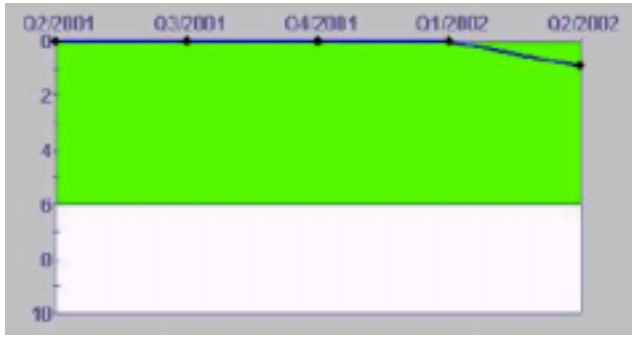


Unplanned Scrams with Loss of Normal Heat Removal





Unplanned Power Changes per 7000 Critical Hour






Lundy

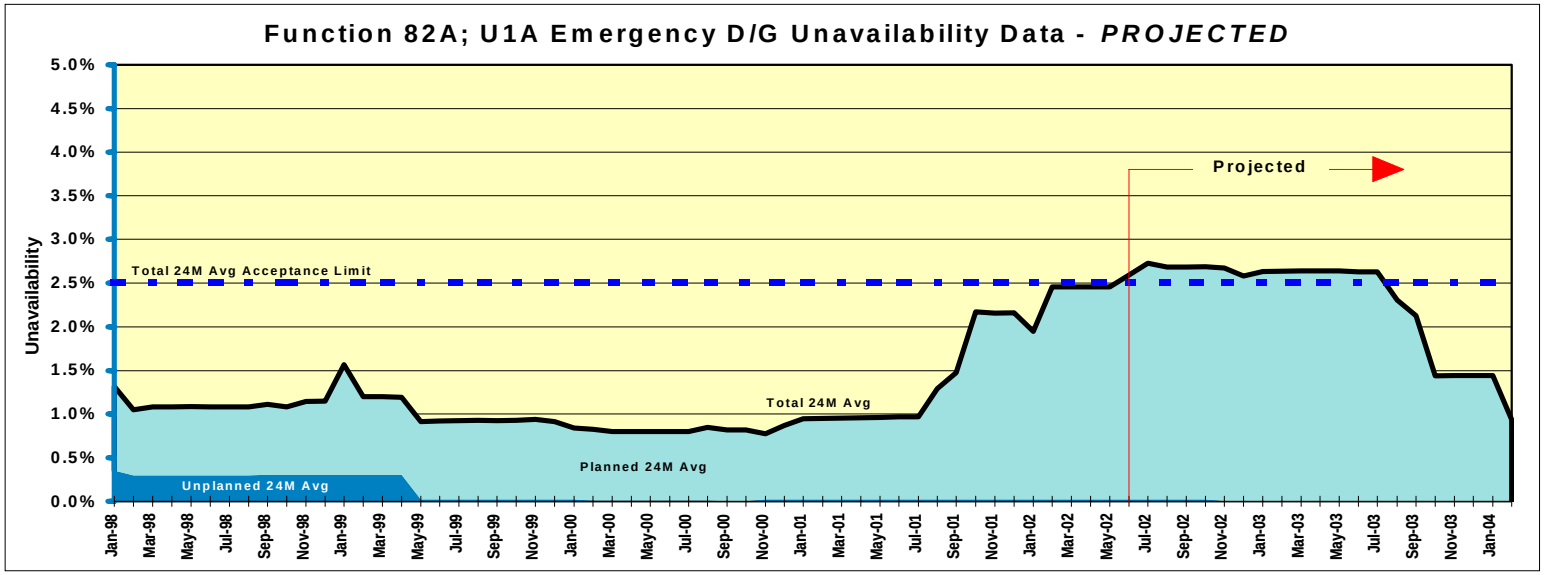
# Performance Indicators

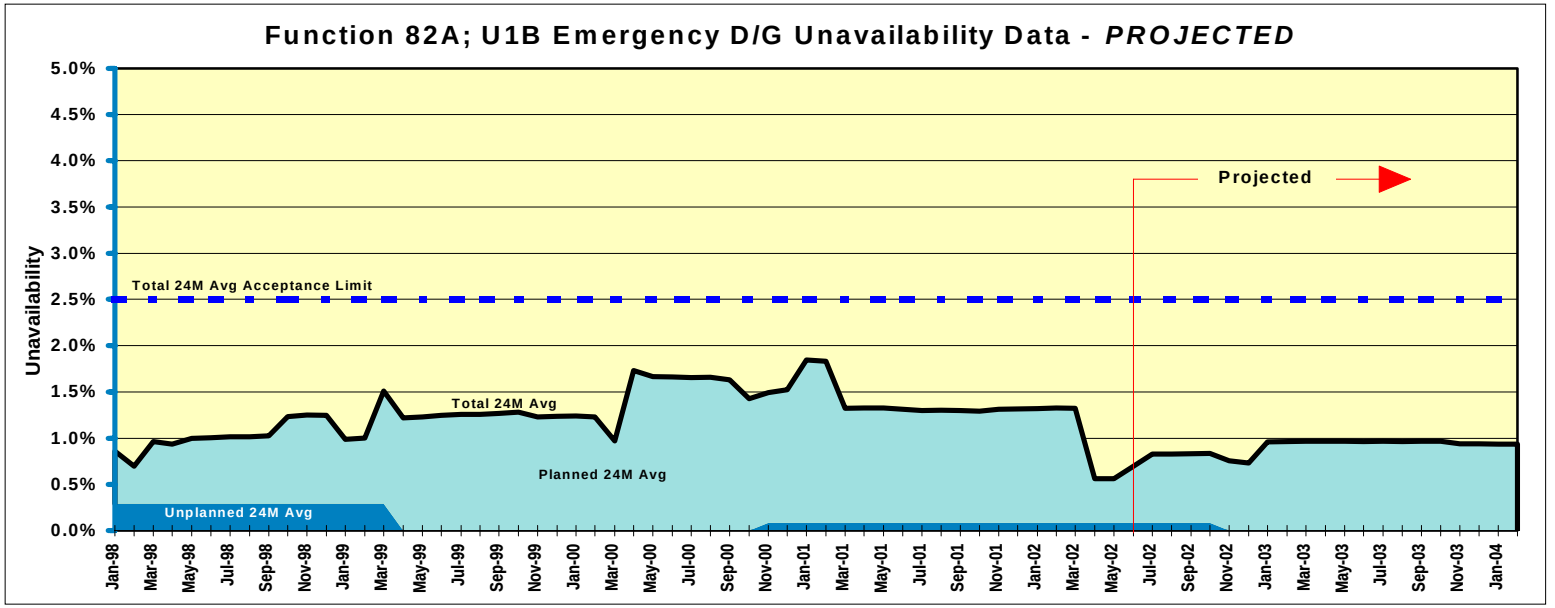
## Mitigating Systems Cornerstone (Continued)

- Diesel Generators
  - Emergency Diesel Generator Are Reliable
    - Performance at or Slightly Above Maintenance Rule (MR) Threshold for Total Unavailability
    - Planned Maintenance Is Improving Reliability
    - Unplanned Maintenance Remains Low
    - Performance Has Been on MR Expert Panel Watch List
    - Projected Total Unavailability Is Not Expected to Exceed MR Threshold by More Than 0.2% for Two EDGs. The Other Two EDGs Are Expected to Remain Well Within MR Threshold
    - No Valid Failures in the Last 24 Months for the 1A, 1B, and 2B EDGs
    - One Valid Failure in the Last 24 Months for the 2A EDG (fail to start because start air circuit did not sense air start motor engagement in the required time)
  - Wrist Pins
    - Oil Changed From Shell to Mobile
    - Completed Two 24 Hour Runs With New Oil
    - Working With EMD Owners Group to Determine “Best” Oil for Standby Units
  - Air Start
    - Replaced PCV Internals and Air Start Timers and Changed Pressure Switch Setpoints on Two EDG
    - Other EDGs Are to Be Completed in August 2002

# Performance Indicators

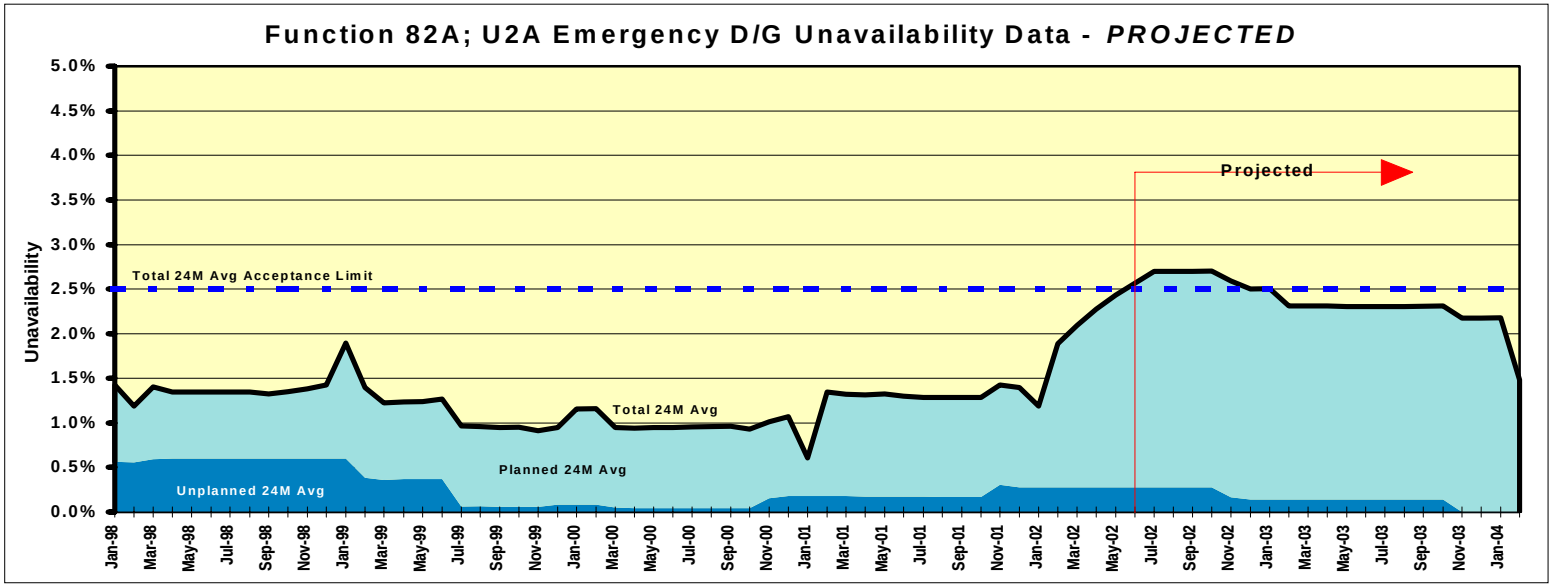
## Mitigating Systems Cornerstone (Continued)

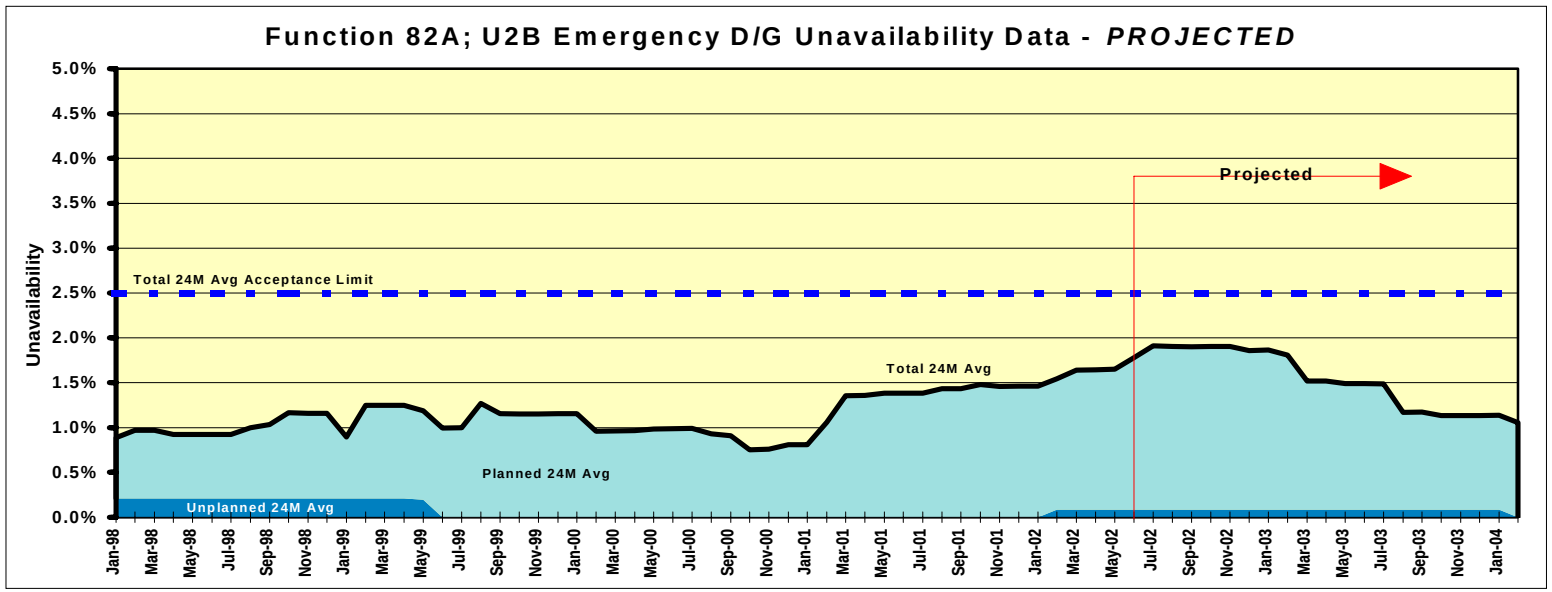


# Performance Indicators

## Mitigating Systems Cornerstone (Continued)



# Performance Indicators

## Mitigating Systems Cornerstone (Continued)

- Main Control Room Handswitches
  - Replaced High Cycle Switches in Unit 2
  - Evaluating Changes in Logic / Components to Increase Reliability
- Breakers
  - Performance Problems Identified With 6.9kV Siemens Breakers
  - TVA Working With Vendor
  - Evaluating Installed Breaker Locations - Placing Breakers in Low Vulnerability Locations

# Performance Indicators

Barrier Integrity Cornerstone

– RPV Head Inspections

- Remote Camera Inspection Completed on Unit 2
- No Degradation Identified
- One Instrument Column Conoseal (Mechanical Joint) Leak Identified, Area Has Been Cleaned
- Borated Water Corrosion Program Reviewed and Enhancements Are in Progress

L-15 Conoseal leakage path at penetration to head interface(as-found)

L-15 Conoseal penetration to head interface(as-left)

# Performance Indicators

## Mitigating Systems Cornerstone Performance Indicators

Unit 1 | Safety System Unavailability | Unit 2


Emergence AC Power System



High Pressure Injection System



Residual Heat Removal System

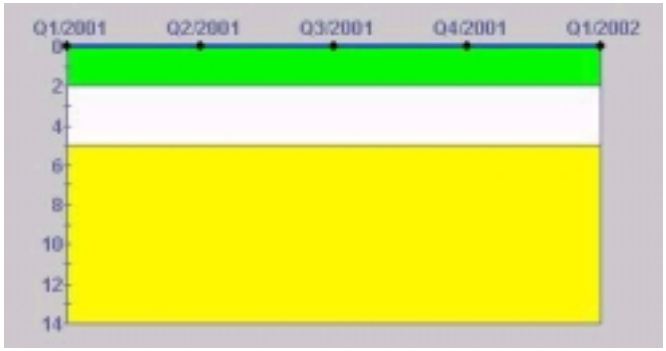



Lundy

# Performance Indicators

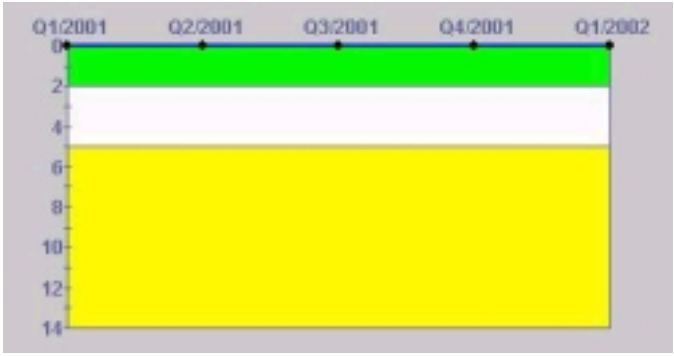
## Occupational Radiation Safety Cornerstone

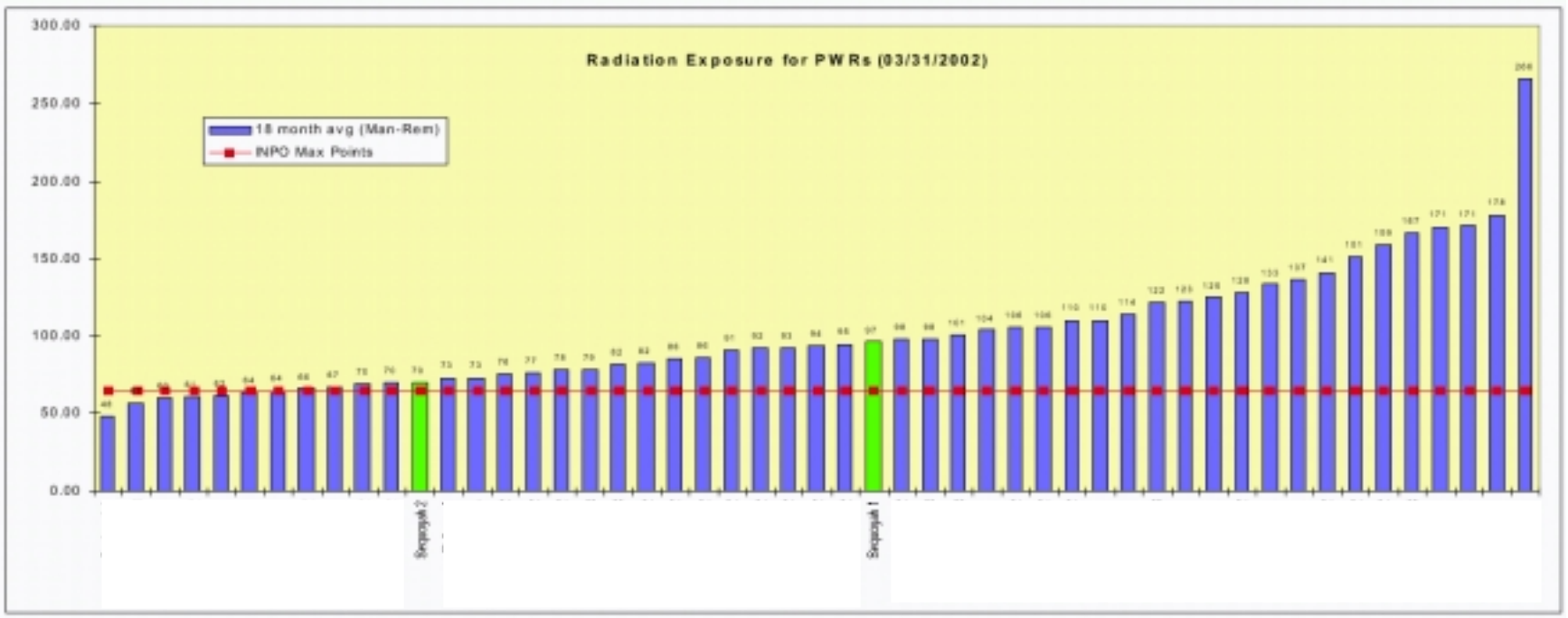
Unit 1




Occupational Exposure Control Effectiveness

Unit 2

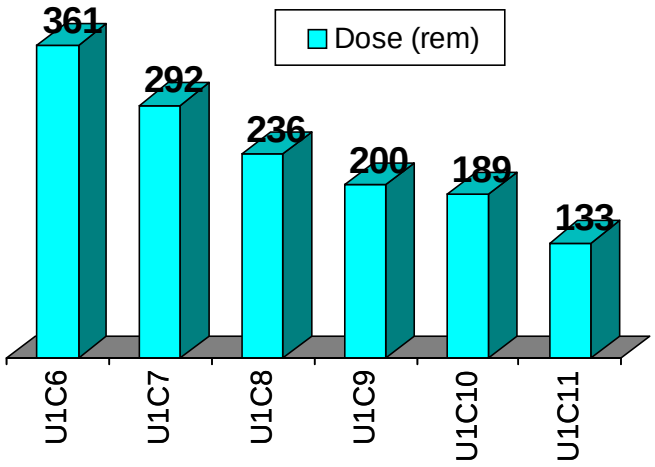


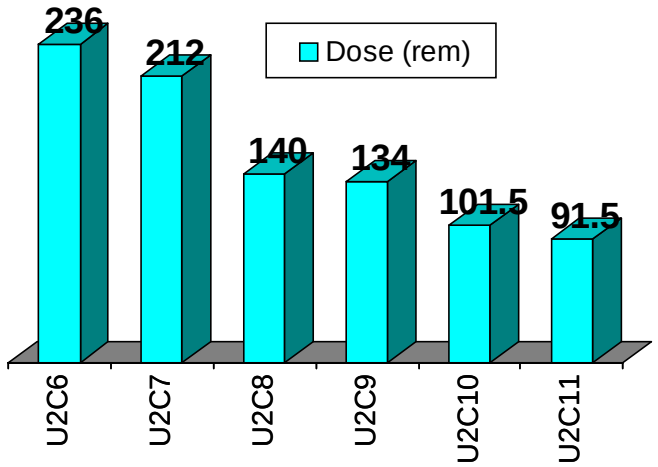
# Performance Indicators

## Occupational Radiation Safety Cornerstone

- Source Term Reduction Ongoing
  - PRC Resin, Zinc Injection, Constant Ph, Improved Shutdown Chemistry, Low Cobalt Components, Electropolish Replacement Steam Generators
- Improve Engineering Controls
  - Permanent Platforms, Scaffolding, and Shielding
- Develop & Implement Efficiency/Process Improvements
  - Telemetry (Video & Data), PWR Multi-Stud Tensioner, Vendor Contract Incentives, Outage Scope Management, Limit Plant Modifications




SQN U1 Outage Exposure History




SQN U2 Outage Exposure History

# Performance Indicators

## Physical Protection Cornerstone

- 9/11 Events Resulted in a 34% Increase in Security Personnel Headcount
- Site Security Manager Provides Weekly Updates to NRC Site Residents
  - Staffing
  - Drills and Exercises
- Site Access Restricted
- Implementing NRC Interim Compensatory Measures, to Complete by Aug. 31, 2002
  - Actions Coordinated With the Other TVA Nuclear Sites
  - Actions Approximately 50% Complete for SQN
  - Majority of the Remaining Actions Require Material Procurement
  - Material Delivery is on Schedule to Support Action Completion Schedule

# Long-Term Projects

## Pending Licensing Actions

- Power Uprate - Leading Edge Flow Meters
  - Installed on Both Units
  - Technical Specification Change
    - Approved 04/30/02
    - Unit 1 Implemented 05/09/02
    - Unit 2 Implementation Planned for 06/2002
- Dry Cask Storage
  - Designs Complete for Modifications
  - Project Moving Into Construction Phase
  - TVA/NRC Status Meeting Planned for Aug. 2002 In Atlanta

Re-bar for engineered beam to support cask and overpack container

Track Channels for low profile transporter

# Long-Term Projects

## Pending Licensing Actions

- Unit 1 Steam Generator (S/G) Replacement
  - Replacement Scheduled for U1C12 RFO (2003) Under the 50.59 Process
  - Three Topical Reports Have Been Submitted for NRC Staff Approval
    - 03/18/02 - Alternate Rebar Splice - Bar-Lock Mechanical Splices (24370-TR-C-001)
    - 03/28/02 - Steam Generator Compartment Roof Modification (24370-TR-C-003)
    - 04/15/02 - Rigging and Heavy Load Handling (24370-TR-C-002)
  - Technical Specification Change for Heavy Load Handling Impacts to Unit 2 Is in Process, Expected to Submit to NRC July 2002
  - Project Status Meeting With NRC (NRR) Scheduled for July 9, 2002
  - Site Pre-Outage Work Starting

Replacement steam generator tubing installation in the first few rows of the 5000 tubes installed in each new steam generator

Replacement steam generator setup for primary manway machining

# Conclusions