



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
611 RYAN PLAZA DRIVE, SUITE 400  
ARLINGTON, TEXAS 76011-4005**

August 22, 2003

Gary Taylor, Chief Executive Officer  
Entergy Operations, Inc.  
P.O. Box 31995  
Jackson, Mississippi 39286-1995

**SUBJECT: NRC/ENTERGY OPERATIONS, INC. MANAGEMENT MEETING**

Dear Mr. Taylor:

This refers to our meeting conducted at your Echelon One Auditorium in Jackson, Mississippi, on August 12, 2003. At this meeting, NRC and Entergy management discussed the performance of Arkansas Nuclear One, Grand Gulf Nuclear Station, Riverbend Station, and the Waterford Steam Electric Station. Recent Entergy and NRC organizational changes and current regulatory issues were also discussed, as indicated in the enclosed slide presentations.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosures will be available electronically for public inspection in the NRC Public Document Room 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/reading-rm/adams.html> (the Public Electronic Reading Room).

Should you have any questions concerning this matter, we will be pleased to discuss them with you.

Sincerely,

*/RA/*

Arthur T. Howell III, Director  
Division of Reactor Projects

Dockets:  
ANO: 50-313; 50-368  
GG: 50-416  
RBS: 50-458  
WAT: 50-382

Licenses:  
ANO: DPR-51; NPF-6  
GG: NPF-29  
RBS: NPF-47

Entergy Operations, Inc.

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WAT: NPF-38

Enclosures:

1. Attendance List
2. Presentation Slides

cc:

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State of Mississippi  
Jackson, Mississippi 39201

Mike Moore, Attorney General  
Frank Spencer, Asst. Attorney General  
State of Mississippi

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Department of Environmental Quality  
Permits Division  
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Public Utility Commission  
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Manager - Licensing Manager  
Waterford 3 SES  
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Entergy Operations, Inc.

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Parish President  
St. Charles Parish  
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Joseph E. Venable  
Vice President Operations  
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Electronic distribution by RIV:  
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 DRP Director **(ATH)**  
 Acting DRS Director **(CSM)**  
 Senior Resident Inspector **(TLH4)**  
 Senior Resident Inspector **(PJA)**  
 Senior Resident Inspector **(RWD)**  
 Senior Resident Inspector **(MCH2)**  
 Branch Chief, DRP/A **(WDJ)**  
 Branch Chief, DRP/B **(DNG)**  
 Branch Chief, DRP/D **(LJS)**  
 Branch Chief, DRP/E **(WBJ)**  
 Senior Project Engineer, DRP/A **(TRF)**  
 Senior Project Engineer, DRP/B **(RAK1)**  
 Senior Project Engineer, DRP/D **(JAC)**  
 Senior Project Engineer, DRP/E **(VGG)**  
 Staff Chief, DRP/TSS **(PHH)**  
 RITS Coordinator **(NBH)**

To view enclosures in ADAMS use Accession Number ML

R:\\_ANO\2002\AN8-12-03MS-DRP-All Entergy.wpd  
 R:\\_GG\2002\GG8-12-03MS-DRP-All Entergy.wpd  
 R:\\_RB\2002\RB8-12-03MS-DRP-All Entergy.wpd  
 R:\\_WAT\2002\WT8-12-03MS-DRP-All Entergy.wpd

RIV:C:DRP/A	D:DRP			
WDJohnson;mjs	ATHowell			
<b>/RA/</b>	<b>/RA/</b>			
8/22/03	8/22/03			

**NRC/EOI  
SENIOR MANAGEMENT MEETING**

**August 12, 2003  
7:00 a.m. – 3:00 p.m.  
Echelon One Auditorium; Jackson, MS**

**ATTENDANCE LIST**

**ENTERGY OPERATIONS, INC.**

Gary Taylor, CEO, EOI, ECH  
John McGaha, President, EOI, ECH  
Bill Campbell, Senior VP/COO, EOI, ECH  
Jeff Forbes, VP, Operations, GGNS  
Paul Hinnenkamp, VP, Operations, RBS  
Craig Anderson, VP, Operations, ANO  
Joe Venable, VP, Operations, W-3  
George Williams, VP, Operations Support, ECH  
Bill Eaton, VP, Engineering, ECH  
Randy Hutchinson, Senior VP, Business  
Development, ECH  
Joe Blount, General Attorney, Generation, ECH  
Greg Pierce, Director, Nuclear Support, ECH  
Early Ewing, Director Oversight, ECH  
Mike Krupa, Director, NS&L, ECH  
Jerry Roberts, Director, NSA, GGNS  
Rick King, Director, NSA, RBS  
Joe Kowalewski, Director, Engineering, ANO  
Ken Peters, Director, NSA, W-3  
Brad Edwards, General Manager, Plant  
Operations, GGNS  
Drew Bottemiller, Manager, Licensing, GGNS  
Joe Leavines, Manager Licensing, RBS  
Glenn Ashley, Manager Licensing, ANO  
Gautam Sen, Manager Licensing, W-3  
John Kelly, Director, Licensing, ENI, WPO  
Chris Kelley, Director, Security, ECH  
Kelle Barfield, Director, Generation,  
Communications, ECH

**NUCLEAR REGULATORY COMMISSION**

Pat Gwynn, Acting Regional Administrator, Region IV  
Bruce Mallett, Deputy Regional Administrator, RII  
Art Howell, Director, Division of Reactor  
Projects, Region IV  
Bill Johnson, Chief Project Branch A  
David Graves, Chief Project Branch B  
Herbert Berkow, Project Director, Project Directorate IV  
Linda Smith, Chief Project Branch D  
Bill Jones, Chief Project Branch E  
Robert Gramm, Chief, Section I, Project Directorate IV  
John Minns, Project Manager, ANO-1  
Thomas Alexion, Project Manager, ANO-2  
Bhalchandra Vaidya, Project Manager, GGNS  
Nageswaran Kalyanam, Project Manager, W-3  
Rick Deese, Senior Resident Inspector, ANO  
Tim Hoeg, Senior Resident Inspector, GGNS  
Peter Alter Senior Resident Inspector, RBS  
Mike Hay, Senior Resident Inspector, W-3

**NUCLEAR SAFETY & LICENSING STAFF**

Steve Bennett, ANO  
Bill Brice, ECH  
Charles Brooks, ECH  
Jerry Burford, ECH  
Ron Byrd, ECH  
Matt Crawford, GGNS  
Les England, ECH  
Glenn Griffin, ECH  
Dana Millar, ECH  
Rick Thomas, ECH

**\*Attendance Taken by Jerry (F. G.) Burford**



# Executing for Fleet Excellence

## EOI/NRC Senior Management Meeting

August 12, 2003



# Morning Session

7:00	Early Morning Coffee	
<b>7:15</b>	<b>Welcome &amp; Introductions</b>	<b>Gary Taylor</b>
7:20	Entergy Organization	John McGaha
7:30	Regional Perspectives	Pat Gwynn/ Bruce Mallett
8:15	Review of Plant Performance	Bill Campbell
9:00	NRR Perspectives	Herbert Berkow, et. al.
9:45	Break	
10:00	Waterford 3 Performance	Joe Venable Mike Hay, et. al.
10:45	River Bend Performance	Paul Hinnenkamp Peter Alter, et. al.
11:30	Grand Gulf Performance	Jeff Forbes Tim Hoeg, et. al.
12:15	Lunch	



Entergy

# Afternoon Session

12:45	ANO Performance	Craig Anderson Rick Deese, et. al.
1:30	Engineering Issues	Bill Eaton
2:15	Operations Support	George Williams
2:45	Closing Remarks	Entergy/NRC
3:00	Adjourn	



# Welcome and Introductions

Gary Taylor  
Chief Executive Officer, EOI



# Goals for Today's Meeting

- Open Dialogue
- Discuss our priorities, initiatives and results
- Understand each others points of view



# Entergy Organization

John McGaha  
President, EOI



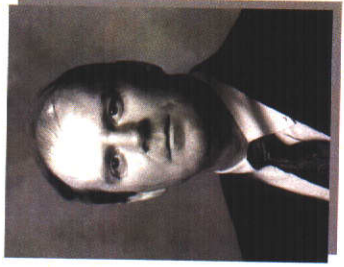


**CEO, EOI**  
Gary Taylor

**President, ENO**  
Mike Kansler



**ENO Sr. VP & COO**  
John Herron



**Sr. VP, Bus. Dev.**  
Randy Hutchinson

**President, EOI**  
John McGaha



**Sr. VP & COO**  
Bill Campbell



**Engineering VP**  
Bill Eaton



**Sr. VP & COO**  
Bill Campbell

**Ops Support VP**  
George Williams



**Grand Gulf VP**  
Jeff Forbes



**ANO VP**  
Craig Anderson



**River Bend VP**  
Paul Hinnenkamp



**Waterford 3 VP**  
Joe Venable





## Other Organizational Changes

- General Manager, RBS – Tom Trepanier \*
- General Manager, ANO – Cliff Eubanks
- Director, Training – Ron Barnes
- Director, SG Replacements – Dwight Mims
- Director, Oversight – Early Ewing
- Director, Nuclear Support – Greg Pierce
- Director, Power Uprate Project – W3 - Ted Leonard
- Director, Alliances – Ricky Lane
- Director, Business Services Mike Bellamy

\* From Pilgrim

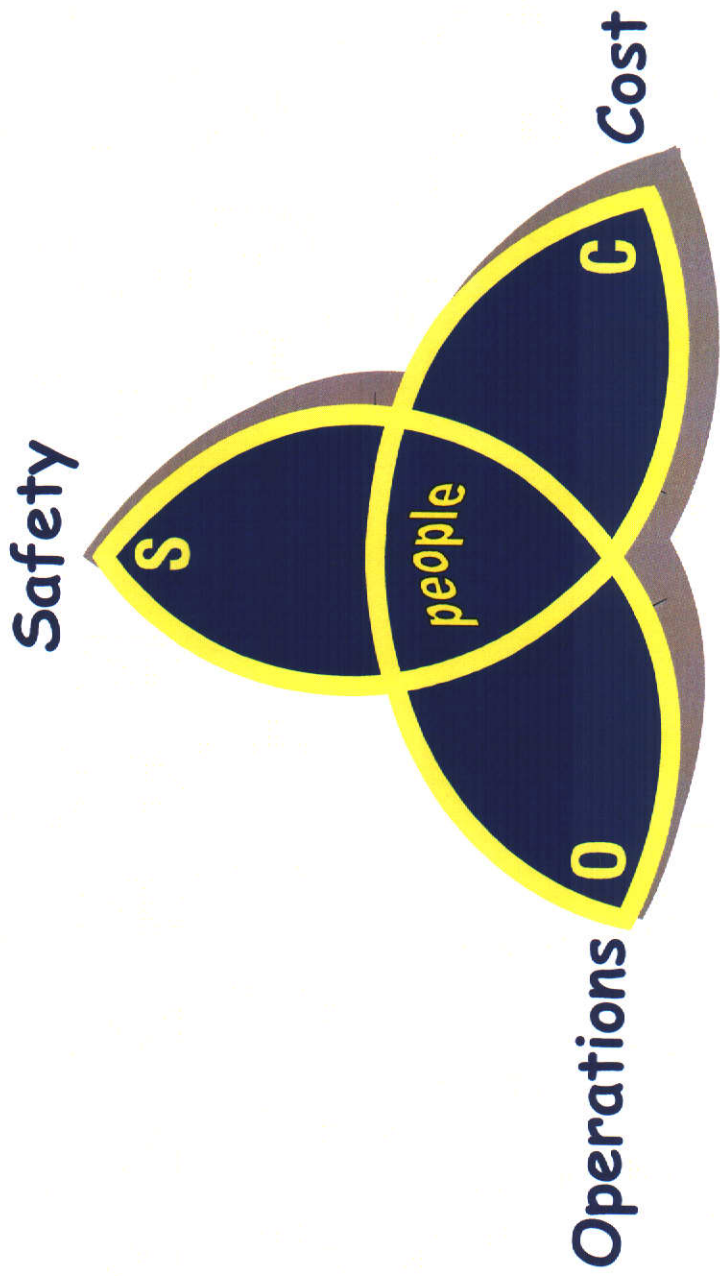
# 2003 Review of Plant Performance

Bill Campbell

Senior VP/COO, EOI



Entergy



# Line of Sight to Nuclear Excellence

“Our vision is to operate a fleet of plants better than we could operate our best unit, with our best team, standing alone.”

## 2003 Executing for Excellence

### *Safety*

- INPO acknowledges improvement
- Average INPO Index >98.6
- NRC windows all green
- All training reaccredited

### *Production*

- Capability factor 93% or higher
- Avg outage duration < 25 days

### *Cost*

- Avg prod cost \$14.75



## The Road to Nuclear Excellence

### *Safety*

- No noteworthy or significant events
- Average INPO index 100
- All plants INPO 1
- No recordables or LTAs

### *Production*

- Breaker-to-breaker runs
- 15 day/\$15m refueling outages

### *Cost*

- Lowest fleet average production cost

### *People*

- Create an environment where high performing people want to work



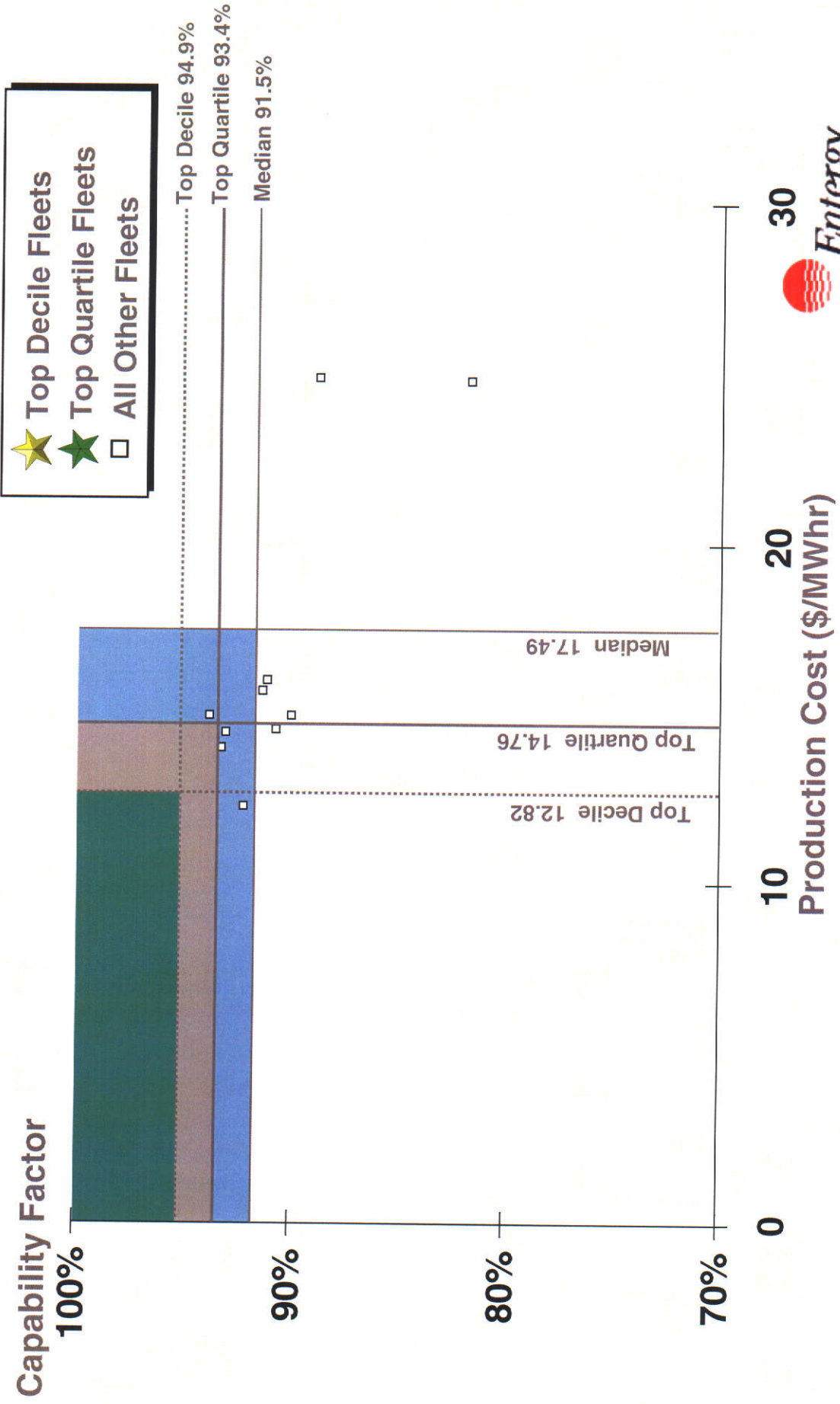
Entergy

# ENS Highlights

- Completion of GGNS Transmission Reliability Review
- RBS Operations Training Reaccreditation
- Waterford 3 Emergency Plan Drill
- Completion of RBS Fuel Inspections
- Renewed County Support of ANO Emergency Plan
- Fleet Benefits From Standardization
- Davis-Besse SOER

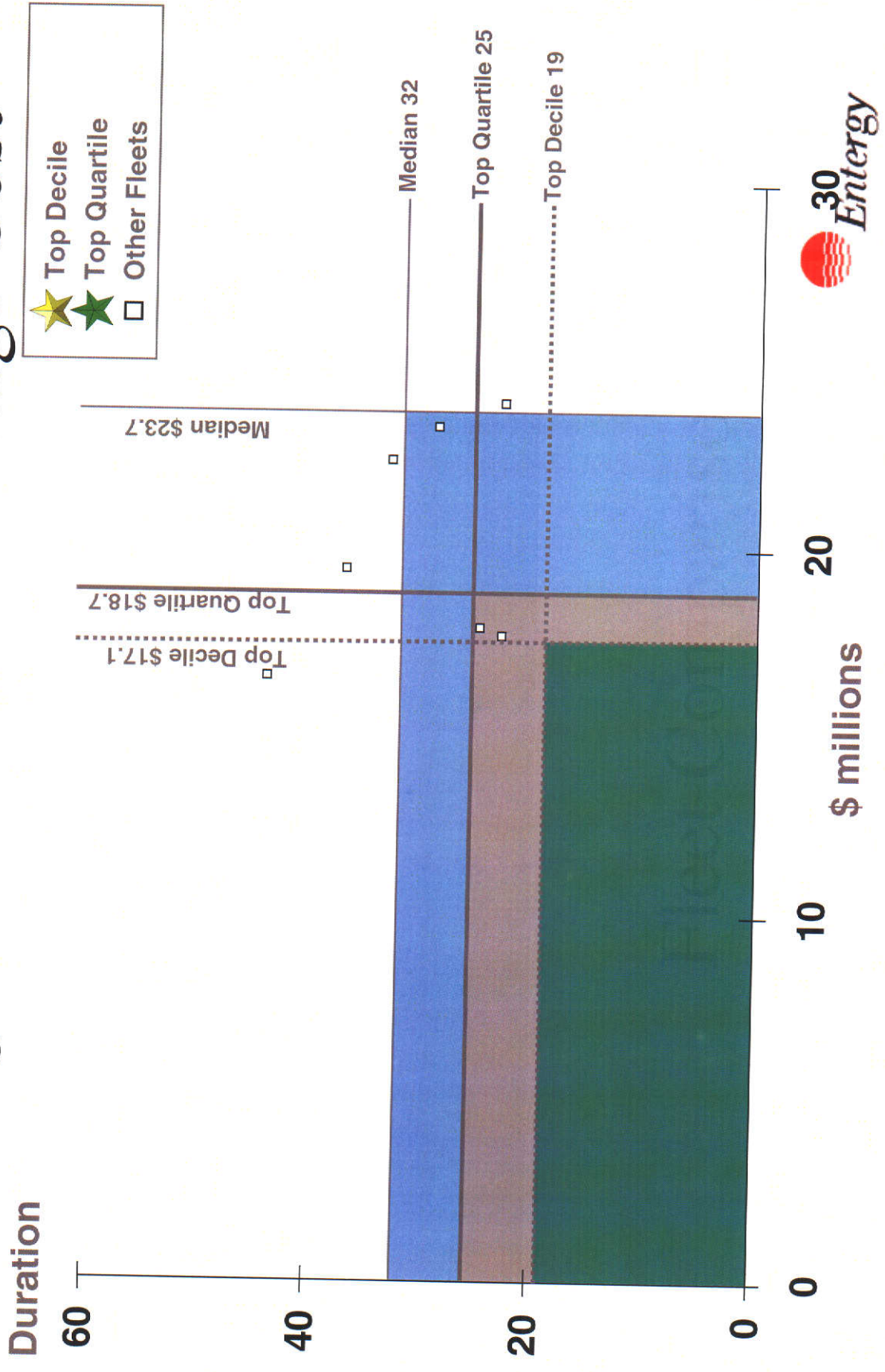
# Fleet Comparison

## Capability Factor vs. Production Cost



# Fleet Comparison

## Outage Duration vs. Outage Cost



# ENS Challenges

- Events/Regulatory Issues
  - ANO Appendix R Compliance
  - Reactor Vessel Head Relief Request
  - RBS 9/18/02 Scram
  - RBS Refuel Floor Contamination
  - GGNS 4/24/03 Scram



# ENS Challenges

- Transmission/Switchyard Reliability
- Radiological Protection
- Security
- Material Condition
- Fuel Performance
- Alloy 600
- Continued Improvement of Corrective Action Program
- NRC Identified vs Licensee Identified NCVs

# ENS Challenges

- Fall Outage Challenges
  - ANO2 – Reactor Vessel Head Inspection
  - WF3 – Reactor Vessel Head Inspection
  - WF3 – Steam Generator Chemical Cleaning

# ENS Challenges

- Voluntary Severance Offering
  - Basis: Support Business Units Cost Targets
  - Scope: Entergy-wide
  - Schedule: 12/31/03 completion date
  - Change Management: Ongoing Communications



# Entergy Nuclear

*...a fleet with a focus*



# EOI / NRC SENIOR MANAGEMENT MEETING

NRR Issues

Herbert Berkow

Project Director

Project Directorate IV

With Robert Gramm, Thomas Alexion,  
Bhalchandra Vaidya, N. (Kaly) Kalyanam  
Division of Licensing Project Management

August 12, 2003

# NRR OVERVIEW

## Senior Management Changes

- Sam Collins, Deputy Executive Director for Reactor Programs/Office of EDO
- Jim Dyer, Director/NRR
- Bill Borchardt, Deputy Director/NRR
- John Craig, Associate Director/Inspection & Programs

## DLPM Changes

- Tad Marsh, Director/DLPM
- Eric Leeds, Deputy Director/DLPM

## Project Director Changes

- Cornie Holden, PDI
- Ed Hackett, PDII
- Bill Ruland, PDIII
- Herb Berkow, PDIV

## Numerous NRR Section Chief changes

# NRR OVERVIEW (continued)

- A/D for Inspection and Program Changes
  - 3<sup>rd</sup> branch added to DIPM: Reactor Operations Branch, in addition to Inspection Program Branch and Emergency Preparedness & Plant Support Branch
  - New, Research and Test Reactors Program added to DRIP: combines former New Reactor Licensing Project Office with Research and Test Reactors, in addition to Policy & Rulemaking Program and License Renewal & Environmental Program

# LICENSING OVERVIEW

- Vessel Bottom Head
- License Amendment Threshold
  - OGC Interpretation and Guidance from Sam Collins to NEI dated January 23, 2003 (ML023580087)
  - License amendment applications are required to process changes to plant-specific licensing bases where NRC approval is required and no other specific approval mechanism exists in the regulations



# LICENSING OVERVIEW

## (continued)

- Use of NRC-approved topical reports and 50.59

- 50.59(a)(2)(ii)
- Changes in methodology described in the UFSAR

- Davis-Besse Lessons Learned

- Better PM guidance
- Better documentation of decisions
- Biannual site visits by PMs

- Post 9/11 Impacts

# LICENSING OVERVIEW

## (continued)

### ● NRR Licensing Action Goals

- 1500 licensing actions
- Age Goals
- Impact of late RAI responses on age goals
- Submittal of LAR implies commitment to support staff's timeliness goals

# SIGNIFICANT LICENSING ACTIONS AND ACTIVITIES

- ANO-1&2
- Grand Gulf
- River Bend
- Waterford

# ANO-1&2

## Quality and Timeliness

Use of Metamic in fuel pool: requested NRC to review Holtec topical report, SE issued June 03

- Proactive in engaging NRC staff early
- SE w/conditions

## Emergency Plan change: approved Aug 02

- First-of-a kind nature of the application for a dual-unit site
- Complex issue, i.e., Table B-1 (min staff req's)

## ANO-1&2 (continued)

- Spent fuel crane application: upgrade to 130 tons
  - EOI holds review for 3 months
  - approved July 03
- ANO-1 vessel head & bottom inspections: fall 02
  - kept staff well informed, in a very timely manner
  - EOI initially desired to not consider PWSCC as well as fatigue, in flaw growth calculations of nozzle 56

## ANO-1&2 (continued)

- ANO-2 relaxation requests (Head Order) - 1 late, 2 were incomplete, EOI needs to proceed quickly
  - BMV exam - 05/08 request – the 06/26 supplement provided very little additional information, 08/02 supplement under review
  - nozzle threads exam - 06/11 request - information provided was inadequate, resubmit by 08/25
  - combination of exam techniques - 07/01 & 7/24
  - exam of the counter-bore & nozzle tip areas - 08/30?

# Grand Gulf

## Quality and Timeliness

### Upper Containment Pool Drainage in Mode 3 - approved Sept 02

- Lead Plant for BWR-6 Mark III
- Large number of questions & phone calls
- NRC and EOI worked cooperatively

### 1.7% power uprate – approved Oct 02

- Took about 9 months instead of 6 expected
  - Resolution of proprietary information issues - compilation theory not accepted by NRC
  - Late response to RAI

# River Bend

## Quality and Timeliness

### 1.7% Power Uprate - approved Jan 03

- Grand Gulf precedents provided “road map”
- Timely application

### Alternative Source Term - approved Mar 03

- good example of collaborative effort

One amendment application was problematic - use of GOTHIC Code for HELB analysis



# Waterford

## Quality and Timeliness

DB Change on Realignment of RWSP Isolation Valves to Purification System – approved Mar 03

- EOI delayed RAI responses ~ 1yr
- Also, NRC unable to immediately resume review

Emergency Plan change: approved Dec 02

- 09/11 held up NRC staff review
- Also, NRC staff errors in initial approval

# Waterford (continued)

## Appendix R Deviation request

- NRC late in giving request to tech staff
- NRC advised EOI that if deviation adversely impacts ability to S/D, then need to submit license amendment request
- Good example of License Amendment Threshold
- EOI withdrew in July 03

## Waterford EPU application Sept 03 - 7.5%

- Approval requested by spring 2005 outage
- One meeting so far
- Subsequent information flow

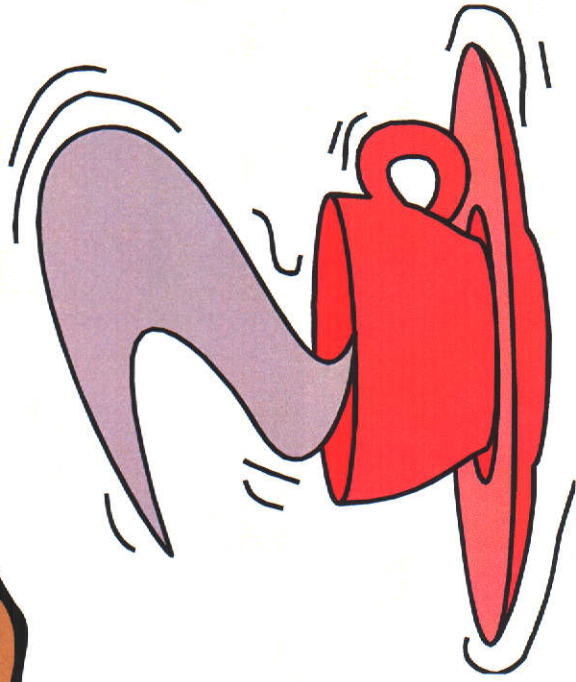
# Quality of Interactions

- Generally good
- Regularly scheduled licensing status calls help focus on the important issues
- Phone calls promptly returned
- Timeliness needs better support
- How is NRC/Projects staff doing?

# Summary

- NRR Management Changes
- Entergy/NRR Communications/Interactions
- Quality & Timeliness of Submittals

# BREAK



# Waterford 3

Joe Venable

Site Vice - President, Operations

Mike Hay

NRC Region IV, Senior Resident

Waterford 3



# Highlights Since Last Meeting (June 2002)

- Strong Personnel, Nuclear, and Radiological Safety Performance
  - VPP Star of Stars
  - Zero Lost Time Accidents and Two OSHA Recordable (Zero OSHA Recordables in last Refuel Outage)
  - Best Ever Dose Performance YTD
- Good Plant Performance
  - YTD Capability Factor of 97.7
  - INPO Index YTD of 99.3
  - All Green and Stable NRC Performance Indicators
  - Successful Emergency Planning Exercise and Strong Response to Hurricanes
  - Strong Operations Culture and Leadership



Entergy

# Highlights Since Last Meeting (Cont')

- Progress Made on Plant Reliability
  - Several long standing equipment issues resolved
  - Solutions in place for top ten issues and executing
  - PM optimization in progress
  - Backlogs reduced in all areas
- Improving Self Assessment Culture
  - Lowered CR threshold
  - Raised self assessment standards and results
  - Performed safety culture assessment
- Strengthening Performance Through Leadership
  - Communicating clear expectations and reinforcing critical behaviors
  - Robust management through goal setting, planning, prioritization, and accountability (stretch goals)



# Top Plant Priorities

- Safety
- Equipment Reliability
- Human Performance
- Personnel Development



# Plans to Address Top Plant Priorities

- **Safety**
  - Rigorous and consistent focus on personnel, nuclear, and radiological safety
  - Apply conservative decision making and low threshold for identifying problems
  - Renewed focus on process improvement
- **Equipment Reliability**
  - Management focus on problems and solutions at first line level
  - Continuously improve equipment reliability through maintenance ownership, engineering trending / proactive execution, and strong operational focus
  - Ongoing prioritization of issues

# Plans to Address Top Plant Priorities (Cont')

- Human Performance
  - Maintain High Expectations and Standards for Individual / Group Behavior
  - Improve Coaching at first line level
  - Continue Improving Effectiveness of WF-3 Corrective Action Program
- Personnel Development
  - Develop key WF-3 leaders through
    - Succession Planning
    - Mentoring
    - Rotational Assignments
    - Intern Program



Entergy

# Focus on the Future

- Plant priority assignments based on
  - Safety
  - Quality
  - Cost
  - Schedule
- Refuel 12 (October 2003)
  - Exciter Reband
  - SG Chemical Cleaning
- 8 % Power Uprate in 2005  
(Industry Lessons Learned)

# Nuclear Regulatory Commission Region IV



## PLANT PERFORMANCE INSIGHTS

WATERFORD 3

RIVER BEND

GRAND GULF

ARKANSAS NUCLEAR ONE

# **WATERFORD 3 PERFORMANCE INSIGHTS**

**Presented by Mike Hay  
Senior Resident Inspector**



# PERFORMANCE INSIGHTS FROM OVERSIGHT PROCESS

- **Corrective Action Cross Cutting Issue**
- **Design and Configuration Control Issues**



# **CORRECTIVE ACTION CROSS CUTTING ISSUE**

- **Extent of Condition Evaluations**
- **Corrective Actions**





# **DESIGN AND CONFIGURATION CONTROL ISSUES**

- **Potential Adverse Impact From  
Modifications**
- **Maintenance Configuration Control**



# PERFORMANCE INSIGHTS FROM EVENTS

- **Maintaining and Operating Balance of Plant Equipment**



# River Bend Station

**Paul Hinnenkamp**

Site Vice- President, Operations

**Peter Alter**

NRC Region IV, Senior Resident



# Highlights Since Last Meeting

- **Successes**
  - Strong Operational Performance
  - Operations Leadership – Daily Activities and Long Term Planning
  - Engaged Maintenance Ownership Teams
  - Work Management Organizational Alignment – Reduced Backlog and Managed Inventory
  - Good Industrial and On-line Radiation Safety Performance
  - Successful Emergency Planning Evaluated Exercise
  - Enhanced Chemistry Performance – Condensate Filtration and Hydrogen Water Chemistry
  - Self-Critical Approach to Performance



# Highlights Since Last Meeting

## (Continued)

- Challenges
  - Generation Losses
    - Fuel Failures
    - Reactor Recirc Control Valve Position Indicator
    - EHC Power Supply Failure and Fluid Loss
  - Severe Weather Management
  - Outage Radiological Performance
  - Resolution of Union Contract

## Top Plant Priorities

- Safety (Nuclear, Radiological, Industrial)
- Equipment Reliability
- Fuel Performance
- Human Performance
- Employee Engagement

# Plans to Address Top Plant Priorities

- Employee Engagement
  - Active Employee Advisory Boards
  - Implement Maintenance Ownership Initiatives
  - Focus on First Line Supervisor Role
- Safety
  - Continued Focus on Nuclear, Industrial and Radiological Safety
  - Reduce Operational Source Term
  - Reinforce Radworker Best Practices



# Plans to Address Top Plant

## Priorities (Continued)

- **Equipment Reliability**
  - Zero Tolerance for Unanticipated Equipment Failures
  - System Engineering Ownership
  - Rigorously Execute Work Management Process
  - Strong Emphasis on Maintenance Ownership to Address Rework
  - Enhanced Performance Monitoring, Long Term Planning, Preventive Maintenance
- **Fuel Performance**
  - Implemented Conservative Operating Strategies
  - Performing Detailed Root Cause Analysis & Identifying Long Term Actions
- **Human Performance**
  - Emphasize Use of Human Performance Tools
  - Improve Job Briefs and Coaching
  - Execute Human Performance Plan



Entergy



# Focus on the Future

- Preparation for RF 12 – Fall 2004
- Dry Cask Storage Implementation
- Execution of Operating Plan Initiatives
- Strong Safety Culture & Performance

# **RIVER BEND STATION PERFORMANCE INSIGHTS**

**Presented by Peter Alter  
Senior Resident Inspector**



# PERFORMANCE INSIGHTS FROM EVENTS

- **Equipment Failures**
- **Event Recovery/Responses**



# **TWO REACTOR SCRAMS WITH FEEDWATER PROBLEMS**

- **September 18, 2002 EHC Power Supply Problem**
  - **Condensate Filtration System Bypass Valve Failed Closed**



# **TWO REACTOR SCRAMS WITH FEEDWATER PROBLEMS**

**(continued)**

- **February 22, 2003 Turbine Control Oil Leak – Manual Scram**
  - **Feedwater Regulating Valve “C” Failed to Close**
  - **FRB “C” Blocking Valve Failed to Close**



# PERFORMANCE INSIGHTS FROM THE OVERSIGHT PROCESS

- **Effectiveness of Corrective Actions**
  - **Low Pressure ECCS minimum flow valves**
  - **SBO Diesel Generator**
  - **Reactor Vessel Bellows Decontamination**



# Grand Gulf

Jeff Forbes

Site Vice- President, Operations

Tim Hoeg

NRC Region IV, Senior Resident

Grand Gulf



*Entergy*

# Highlights Since Last Meeting

- Site Management Changes
- RF 12
- INPO 1
- People



# Highlights Since Last Meeting

- **Performance Improvements**

- Work Scheduling
- Aux Cooling Tower
- Appendix K Uprate
- Safety
- Fire Protection
- Maintenance Rule

- **Issues**

- Fuel
- Switchyard/Grid
- Regulatory Interface

# Top Plant Priorities

- Outage Preparations/Execution
- Dose Reduction
- Equipment Reliability
- Work Destruction

# Plans to Address Top Plant Priorities

- **Outage**
  - Long Range Planning
  - Milestone Pullback
  - Team Concept
  - Focus
- **Dose Reduction**
  - Hit Teams
  - EN-S ALARA Plan
  - Dose Saving Initiatives
  - Focus

# Plans to Address Top Plant Priorities

- **Equipment Reliability**
  - Maintenance Ownership Expansion
  - PM Optimization
  - System Health PI's
  - Latent Equipment Problems/Obsolescence
- **Work Destruction**
  - 6 Sigma Plan
  - Living PM Process
  - CR Backlog/Age



# Focus on the Future

- RF 13
- Dry Cask Storage Implementation
- Operational Excellence Plan

# **GRAND GULF PERFORMANCE INSIGHTS**

**Presented by Tim Hoeg  
Senior Resident Inspector**



# **PERFORMANCE INSIGHTS FROM OVERSIGHT PROCESS**

- **Design Control**
- **Reactor Plant Transient Vulnerabilities**
- **Two Special Inspections**



# **DESIGN CONTROL**

- **Residual Heat Removal Piping**
- **Standby Service Water Basin Piping  
and Hangers**
- **Agastat Relays**





# **REACTOR PLANT TRANSIENT VULNERABILITIES**

- **Switchyard Area**
  - **Wildlife Ground (Raccoon Scram)**
  - **500kV Breaker Disconnects**
  - **Carrier Blocking and Fault Relaying**
- **BOP System Contributors**



# **SPECIAL INSPECTIONS**

- **Agastat Relay Failures**
- **Complicated Scram  
(April 2003)**



# PERFORMANCE INSIGHTS FROM EVENTS

- **Partial LOOP Scram**
- **Manual Scram Upon Loss of Feed Flow  
(Jan 2003)**
- **Residual Heat Removal Piping Failures**



# **PARTIAL LOOP SCRAM**

- **Special Inspection**
- **Inadequate Instrument Air Procedure**
- **Importance of Switchyard / Entergy  
Mississippi Interface**



# **MANUAL SCRAM UPON LOSS OF FEED FLOW**

- **Single Fault Isolated All Condensate Demineralizers**
- **Missed Opportunity in 2001**
- **Operating Experience - Limerick 1999**

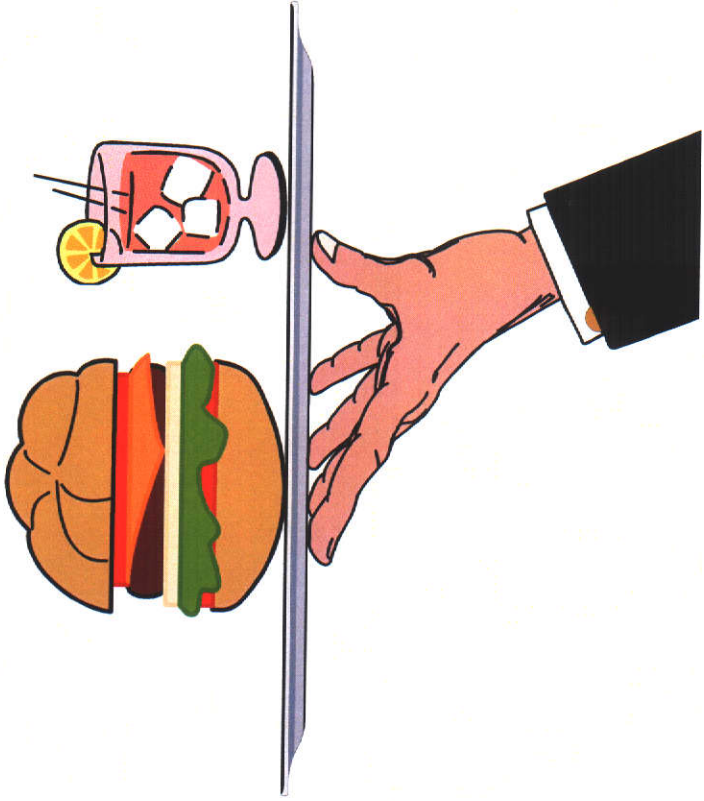


# **RESIDUAL HEAT REMOVAL PIPING FAILURES**

- **Interruption of Decay Heat Removal  
in Reduced Inventory**
- **System Vibration Over Long Term**
- **Corrective Action Violation**



# LUNCH



# Arkansas Nuclear One

Craig Anderson

Site Vice- President, Operations

Rick Deese, NRC Region IV

Senior Resident Inspector

Arkansas Nuclear One





# Highlights Since Last Meeting

- INPO Evaluation
- Improved Tech Specs Implementation
- Unit 1 Refueling Outage
- Equipment Reliability
- Infrastructure Improvements



# Top Plant Priorities

- Equipment Performance
- Spent Fuel Management
- Engineering Performance Improvement
- Emergency Planning

# Top Plant Priorities

- Equipment Performance
- Spent Fuel Management
- Engineering Performance Improvement
- Emergency Planning

# Plans to Address Top Plant Priorities

- ANO Operating Plan
  - Includes initiatives in safety, operations, cost, and people
  - Specific objectives, measures, and targets for each initiative
  - Target focus on achieving excellence
- Long Range Plan
  - Focuses on capital and infrastructure
  - Will enable better resource loading
  - Leverage needs of the fleet

# Plans to Address Top Plant Priorities (Con't)

- Functional and Organizational Effectiveness Assessments
  - Identify gaps to excellence
  - Action plans to address gaps and other performance issues
  - Feedback into Operating Plan

# Focus on the Future

- Reactor Vessel Head Replacement
- Unit 1 Steam Generator Replacement
- Unit 2 License Renewal
- Human Performance and Equipment Reliability

# **ARKANSAS NUCLEAR ONE PERFORMANCE INSIGHTS**

**Presented by Rick Deese  
Senior Resident Inspector**



# PERFORMANCE INSIGHTS FROM OVERSIGHT PROCESS

- **Problem Recognition and Evaluation**
- **License Basis Control**





# **PROBLEM RECOGNITION AND EVALUATION**

- **Unit 2 Battery (2D12)**
- **Reactor head bare metal inspection**
- **Unauthorized temporary alteration to water-tight door (door 48)**
- **Combustible material loading**
- **L-3 Crane**



# LICENSE BASIS CONTROL

- **L-3 Crane Modification**
- **Control of Closed System  
Containment Isolation Valves**



# PERFORMANCE INSIGHTS FROM EVENTS

- **No adverse trends identified from plant events**



# Entergy Nuclear Engineering

Bill Eaton, VP Engineering



# Engineering Focus

- Support Safe and Reliable Plant Operations
- Improvements in Equipment Reliability
- Fuel Performance
- Materials Issues
- Recognition of Margins

# Support Safe and Reliable

## Plant Operations

- Rigor and Expertise in all facets of engineering support
  - Inadequate performances in some areas.
  - Assessment of infrastructure of programs as a foundation of future performance
  - Workload Management will include recognition and maintenance of design and operational margins.
  - Near term and long term C/A's are in place.



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# Safe Operation (cont.)

- Alignment across the fleet to optimize the use of engineering resources
  - Long range planning
  - Pilots and sequenced projects that amplify the learning over time
  - Shared resources and teams that bring the best of the fleet to bear on an issue
- Identification of design and configuration latent issues
  - Corrective Actions from design control and latent configuration issues



# Equipment Reliability

- Equipment Reliability is the key to safety and efficiency
  - Supported by a Fleet Level Plan with owners and specific actions
  - Focus on behaviors as well as projects and hardware
  - Integrated into the Work Management and the Operational Decision Making processes



# Equipment Reliability

(cont.)

- Examples of E/R actions:
  - PM Optimization
  - Single Point Vulnerability Reviews
  - Industry involvement in Alloy 600 and Fuels issues
  - Maintenance Ownership
  - System Health Monitoring
  - Focus on Rework and Unplanned LCO's



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# Fuel Performance

- Significant Industry Issue that touches all fleet and reactor types
- BWR's
  - River Bend corrosion induced failures, with ongoing inspections and analysis
  - Single assembly failure at GGNS indicative of defect
  - Channel Bowing is a related fuel performance issue
- PWR's
  - Fretting and debris failures

## Fuel Performance (cont.)

- Chemistry Processes and Controls
  - Investments in River Bend condensate filtration
  - Continued evaluation of Noble Metal Injection for BWR's
  - Daily Focus on chemistry performance at the fleet level
  - Actions to improve power operations and shutdown chemistry

# Materials Issues

- PWR Alloy 600 issues
  - Aging and performance of A600 components is the single most critical industry issue
  - Investments in inspection, analysis, and mitigation are ongoing and parallel efforts
  - Industry must develop a proactive approach in PWR space
  - BWR VIP is a model approach
  - Evidence that the Industry is changing its perspective on PWR A600 issues



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# Entergy Near Term Challenges

- Fall 2003 Campaigns at ANO-2 and W3
  - RVH inspections with significant technical investments to achieve optimum outcomes
  - Long Range Planning of replacements and repair contingencies
  - Determination to achieve safe and reliable performance based on sound technical solutions
- Spring 2004 Campaign at ANO-1
  - BMI Nozzle Inspections
  - Working with the MRP initiative to establish an industry wide inspection plan

# Entergy Longer Term View

- ANO-1 RVH and Steam Generator Replacements
- ANO-2 Pressurizer Strategy
- Push industry development of generic solutions and approaches
- Enhance the ability to predict and prevent emergent issues via inspection and mitigation

# Recognition of Margins is an Engineering Responsibility

- Conservative decision making is a core training element for SRO's and Reactor Engineers
- Fleet level challenge meetings occur to review work plans and operational decisions
- Engineering Workload is a recognized factor in management and restoration of margins
- Long range project planning supports the restoration of margins via reliability improvements
- Engineering Pipeline practices support addition of new talent into the organization
- Deliberate development of Power Uprates indicates an awareness of risk and margins in core design



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**Entergy Nuclear  
Operations Support**

**George Williams, VP  
Operations Support**





# ENS Security Activities

- ENS leadership in NEI Security Working Group
  - High involvement in DBT, Force on Force, Order response, clarification & industry guidance and legislation
- Overarching Issues
  - Entergy is on track for timely compliance
  - Security workload is high
  - Need for regulatory stability and implementation consistency

# Improved PI&R Effectiveness

- **Increased CR Initiation & Lower Backlog**
  - 50% Increase In CR Initiation Rate
  - 15% Reduction in CR Backlog
- **Trending**
  - Update coding structure. Improve process for developing trends and communicating results through site lead team. Investigate on demand trending tool options for single event evaluation. Reinforce departmental trending.
- **Root Cause**
  - Improve timeliness, effectiveness reviews, identification of organizational/programmatic issues, and the use of higher tier operating experience.
- **Self-Assessment and Benchmark Results**
  - Reduce the amount of time spent on report generation and grading of assessments. Increase focus on planning and preparation, and on results.
- **CA&A Program Integration and Understanding**
  - Improved understanding of each tool's purpose and how they integrate. Establish experts within each major department.
- **Function as One Site**
  - Raise common issues to regional level. Share Internal Operating Experience. Develop best possible common solutions. Prevent repeat occurrences at other sites. Implement standard corrective actions.



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# Work Destruction Activities

## Goals

- 50 Person-Years per Plant Site
  - Challenging but Achievable based on ANO & GGNS Identified Savings
- 200 Person-Years Total for ENS
  - ~64% Implemented (conservative)
- Incorporate Work Destruction in Future Departmental Plans

# EN-S Peer Groups

## Derived Benefits

- Process improvements and cost reductions
- Resource leveraging
- Shared internal/external lessons learned and Operating Experience
- Common resolution of industry issues
- Simplify acquisition/transition process

## Peer Group Functions

- Drive Standardization
- Continuously improve work processes
- Benchmark against industry best practices
- Identify and resolve emergent plant and industry issues



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# Executing for Fleet Excellence

