Nuclear Engineering
NRC / FPL Interface Meeting

December 6, 2004

Region II

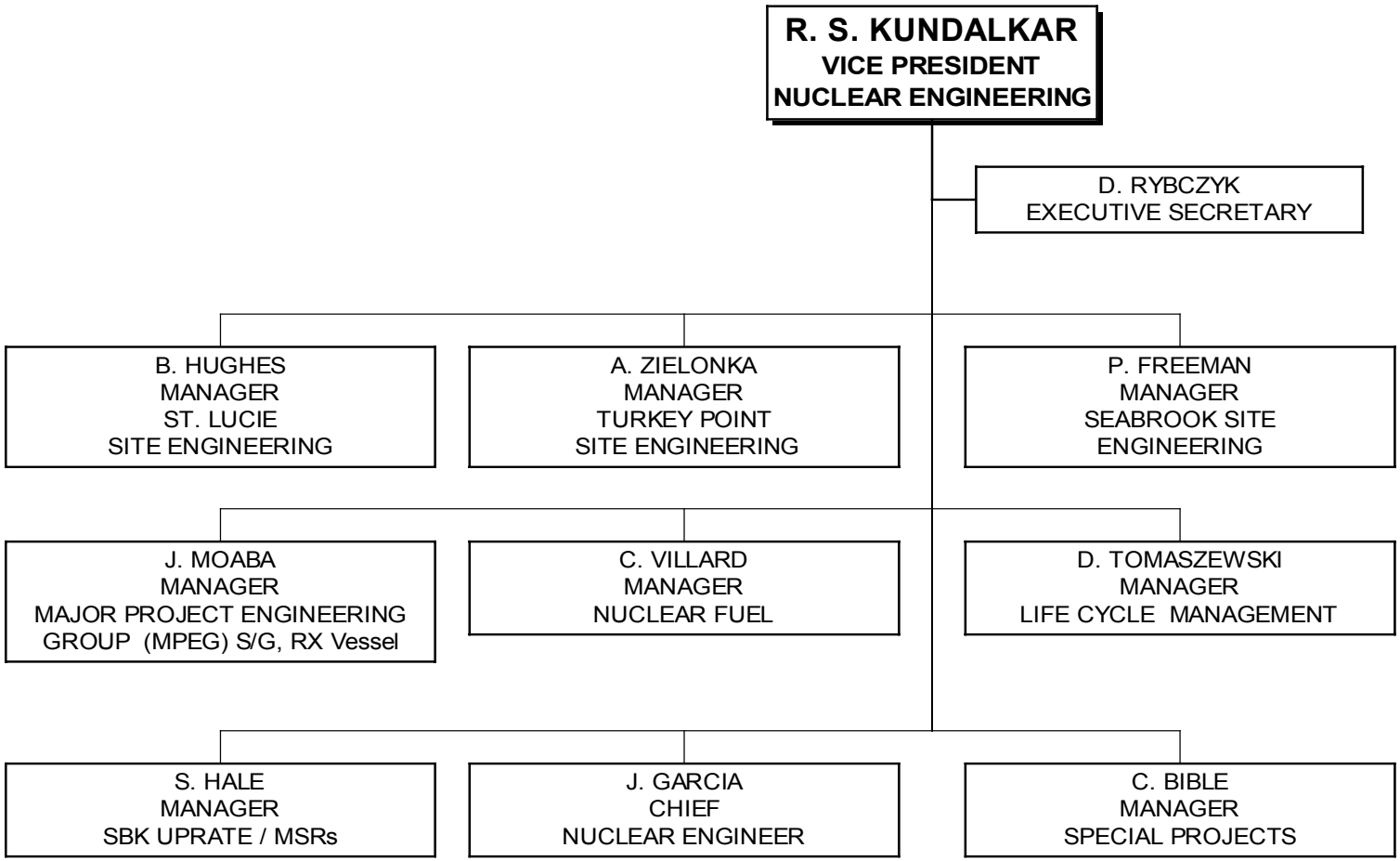
Atlanta, Georgia

ENCLOSURE 2

Agenda

Opening Remarks	R. Kundalkar
Engineering Performance	B. Hughes /A. Zielonka
Corrective Action	C. Bible
Equipment Reliability	A. Pell
Life Cycle Management	W. Busch
Materials Management	R. Gil
2004 Hurricane Season	B. Hughes
Summary	R. Kundalkar

Nuclear Engineering Organization



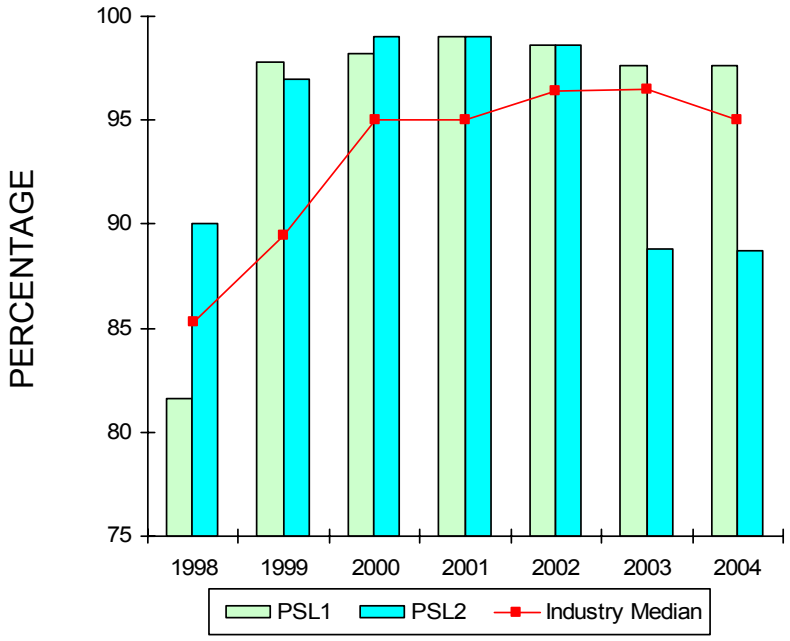
Engineering Performance

St. Lucie / Turkey Point
Engineering

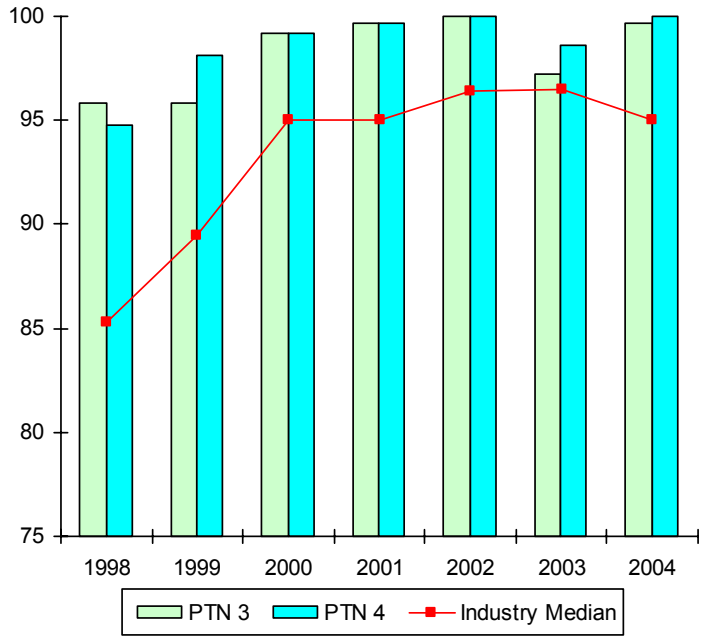
B. Hughes / A. Zielonka

WANO Weighted Overall Performance

St. Lucie



Turkey Point



Data Through 9/04

Engineering Department Indicators and Goals

Nuclear Safety Focus (Data Through 9/30/04)					
	Indicators	Goals		St. Lucie Actuals	Turkey Point Actuals
		Green	Red		
A.	Unplanned Scrams Per 7000 Hours	≤1	>6	Unit 1 - 0.0 Unit 2 - 1.7	Unit 3 - 0.0 Unit 4 - 0.9
B.	Safety System Unavailibility - EAC (1)(2)(3)	<1.25%	>5%	Unit 1 - 0.6% Unit 2 - 0.5%	Unit 3 - 0.4% Unit 4 - 0.5%
C.	Safety System Unavailibility - HPSI (1)(2)	<0.75%	>5%	Unit 1 - 0.4% Unit 2 - 0.4%	Unit 3 - 0.2% Unit 4 - 0.2%
D.	Safety System Unavailibility -AFW (1)(2)	<1.0%	>6%	Unit 1 - 0.5% Unit 2 - 0.7%	Unit 3 - 0.4% Unit 4 - 0.6%
E.	Safety System Unavailibility - RHR (1)(2)	<0.75%	>5%	Unit 1 - 0.6% Unit 2 - 0.6%	Unit 3 - 0.5% Unit 4 - 0.4%
F.	NRC Violations due to Engineering	≤2	>6	2 NCV's	4 NCV's
G.	QA Findings	<2	>6	3	1
H.	Wano FRI	≤5 E-4	>2.0 E-2	Unit 1 - 1.13E-5 Unit 2 - 4.01E-5	Unit 3 - 1.64 E-5 Unit 4 - 2.15 E-6
I.	OSHA Recordable Injuries	0	2	0	0
J.	ALARA	10% <Budget	>5% Over Budget	Outage 7%< Non-Outage 11%<	Outage 26%< Non-Outage 10%<
K.	Reactivity Events Due to Engineering	0 Major <4 Minor	≥5 Major > 8 Minor	0 Lvl 1 0 Lvl 2	0 Lvl 1 0 Lvl 2

(1) All green by NRC criteria
(2) FPL criteria more stringent
(3) Unit 3 EAC significant improvement

Engineering Department Indicators and Goals

Problem Identification and Correction (Data Through 9/30/04)					
Indicators		Goals		St. Lucie Actuals	Turkey Point Actuals
		Green	Red		
A.	Condition Report Evaluations (Late)	0 Late	≥5 Late	0	1
B.	Condition Report Action Items (CAQ SITRIS ACTIONS Late)	0 Late	≥5 Late	0	0
C.	Condition Report Action Items (Non CAQ SITRIS ACTIONS Late)	0 Late	>11 Late	0	0
D.	Self Assessments	1 in 6 mos	<2 per year	2	5
E.	System Walkdowns	90%-100% W/D Complete	<70% W/D Complete	100%	100%
F.	Drawing/VTM/TEDB Changes	0-2 Late	≥10 Late	0	18 (1) (2)

(1) No safety significant items late.
(2) No late priority 1 drawings, all were priority 3 and 4 drawings.

Engineering Department Indicators and Goals

Quality of Engineering (Data Through 9/30/04)					
Indicators		Goals		St. Lucie Actuals	Turkey Point Actuals
		Green	Red		
A.	Engineer Initial Training Not Started Within 12 Months of Hire	<1	>6	0	0
B.	Training Performance Indicators	GREEN	RED	GREEN	GREEN
C.	Plant Modification Revisions due to ENG Error	0	≥5	4	0
D.	Procurement Engineering Backlog (>4 Weeks Old)	<2	>11	0	121

Engineering Department Indicators and Goals

Cost/Plant Operation Performance (Data Through 9/30/04)					
Indicators		Goals		St. Lucie Actuals	Turkey Point Actuals
		Green	Red		
A.	Summer Capacity Factor	>99.8%	<98%	100.00%	Unit 3 - 95.5% Unit 4 -99.17%
B.	Thermal Performance Indicator	>99.70%	<99.5%	Unit 1 - 99.98% Unit 2 - 99.91%	Unit 3 - 99.9% Unit 4 - 100%
C.	Refueling Outage Duration	<30 Days	>35 Days	Unit 1 35	Unit 3 66 (1)
D.	Forced Loss Rate 18 Month Running Average	0% - 1%	>2.0%	Unit 1 - 0.1% Unit 2 - 4.24%	Unit 3 - 2.16% Unit 4 - 1.35%

(1) Special Reactor Head Replacement Outage for Turkey Point (Goal ≤ 65 days)

Engineering Performance

NRC Performance Indicator On Reactor Trips: Green to White

- Causes
- Actions
- Status of Corrective Actions
- Future Initiatives

Corrective Action

C. Bible

Corrective Action

- Performance Improvement Initiatives
  - Programmatic
  - Organizational
  - Strategic
- Examples

Performance Improvement Initiatives

- Programmatic Improvements
  - Electronic Condition Report system
  - Equipment Reliability Improvement Program
  - Utilizing enhanced troubleshooting procedure
    - Form multi-discipline team
    - Obtain Industry Experience and Vendor Input
    - Develop Fault Tree and Cause Validation Matrix

Performance Improvement Initiatives

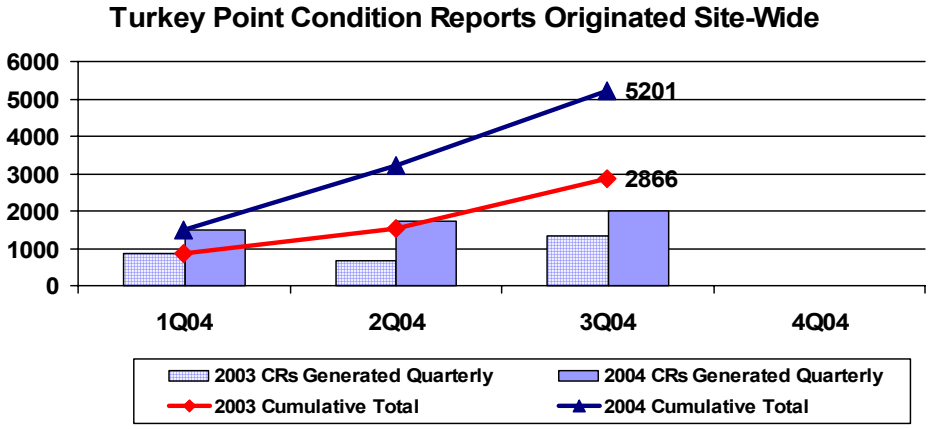
- Organizational Initiatives
  - Performance Improvement Departments
  - Corporate equipment reliability manager
  - Increased engineering staffing levels
    - Improved focus on equipment reliability
    - More proactive approach for equipment health
    - Dedicated corrective action program coordinator
    - Engineering “FIX IT NOW” rapid response teams

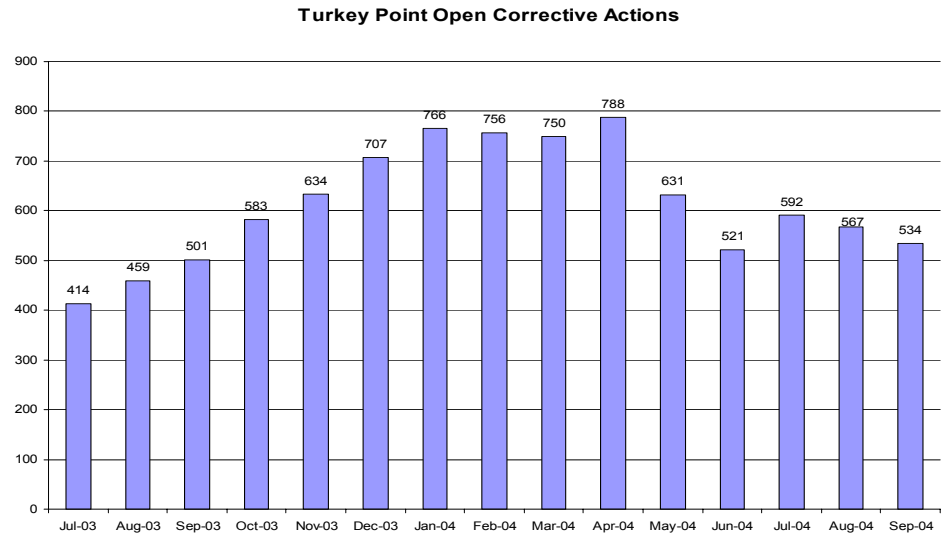
Performance Improvement Initiatives

- Strategic Initiatives
  - Equipment Reliability
  - Preventative Maintenance Optimization
  - Breaker Reliability
  - Life Cycle Management

Performance Improvement Initiatives

- Increased number of condition reports
- Increased sensitivity to initiate condition reports for unexpected/unwanted conditions
- Increased identification of opportunities for improvement
- Open corrective action backlog remaining constant
- New trending tool developed, training in progress





St. Lucie Unit 2
Auxiliary Feedwater
Pump Overspeed

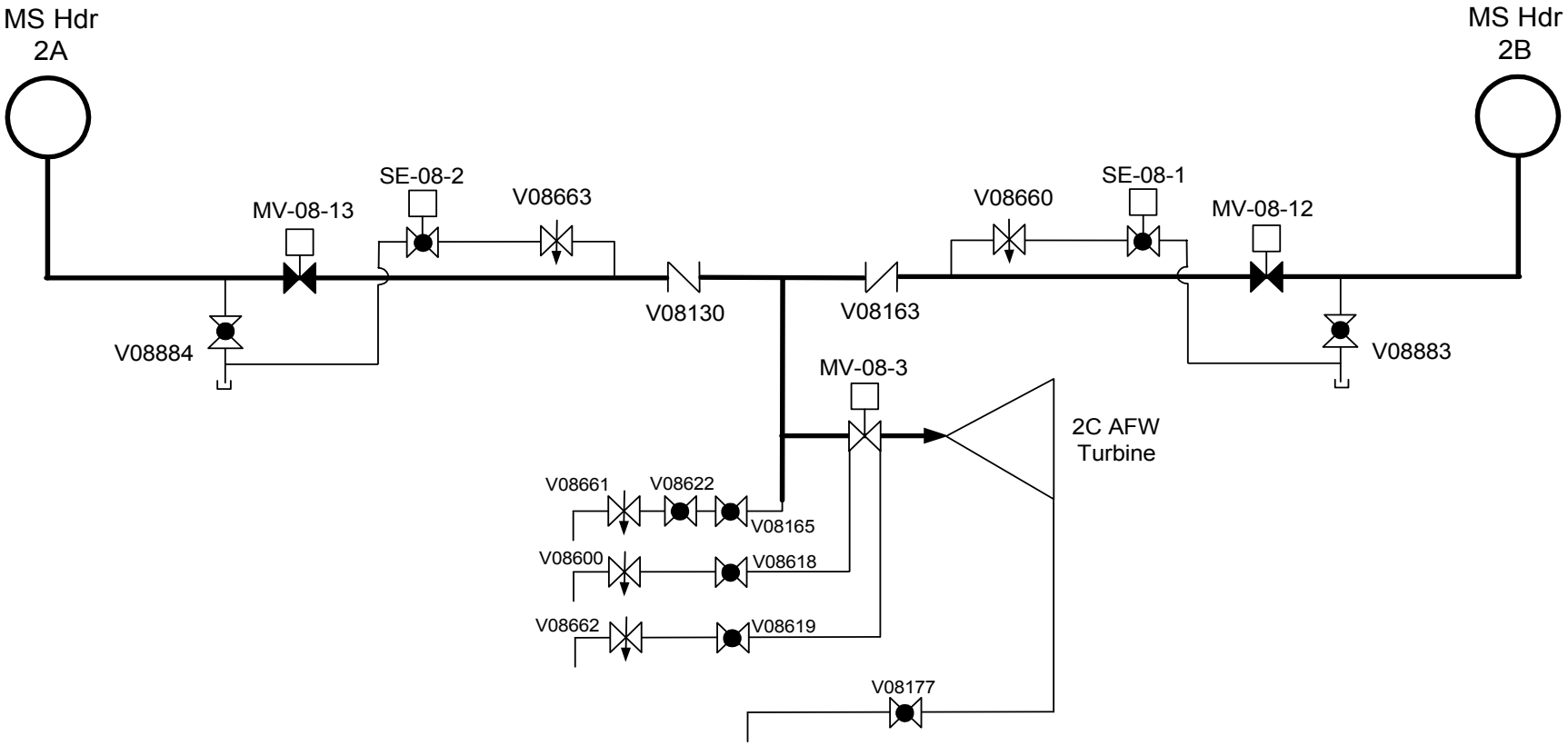
- Event
  - Steam driven pump tripped on overspeed while starting
- Design
  - Two electric driven pumps
  - One steam driven pump
    - Pump has two steam admission valves from A and B steam headers
    - Steam admission valves open independently based on respective steam generator level

St. Lucie Unit 2
Auxiliary Feedwater
Pump Overspeed

- Root Cause
  - Design of AFAS start logic
    - Staggered pump start results from different timing on actuation of two steam admission valves causing governor instability
    - Staggered starts were not tested during monthly surveillance's
  - Design of steam supply piping
    - Condensate in steam supply challenges governor when second steam admission valve opens

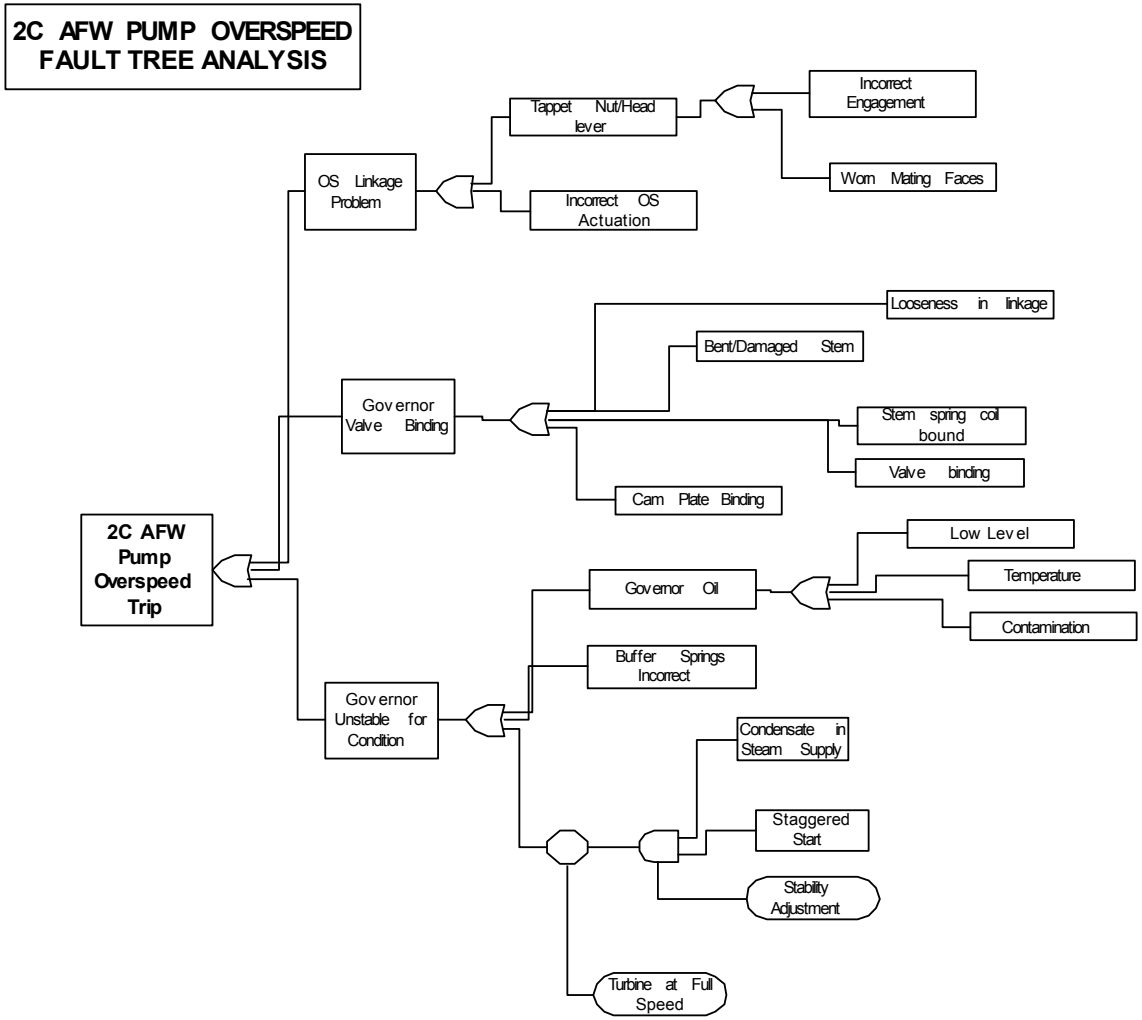
St. Lucie Unit 2
Auxiliary Feedwater
Pump Overspeed

Unit 2 AFW 2C Turbine Supply/Drain Piping



St. Lucie Unit 2
Auxiliary Feedwater
Pump Overspeed

CR 03-4548
Attachement 23, Page 1 of 4



St. Lucie Unit 2
Auxiliary Feedwater
Pump Overspeed

2C AFW Pump Turbine Trip Fault Validation Matrix

Potential Cause	Potential Fault	Validation	Results	Root Cause
Overspeed linkage vibration/wear	Tappet/head lever engagement	Measure trip tappet/head lever engagement (0.030"-0.060")	0.038"	Ruled Out- 0.038" within spec.
		Agitate linkage to test health	Agitated linkage and could not get mechanism to trip	
	Condition of head lever/tappet nut surfaces	Inspect head level/tappet nut surfaces	Surfaces in good condition	Ruled Out based on inspection and agitation test.
	Incorrect OS actuation	Replicate event to see if actual overspeed occurs.	Test duplicated valid OS – max turbine speed 5200 rpm, OS setpoint – 4690 rpm	Ruled Out base on test results
Governor valve binding/improper operation	Bent/damaged stem	Inspect for bent stem. Monitor during operation. Manual stroke.	Vendor and SCE observed operation, no indication of improper operation.	Ruled Out based on inspection and operational performance.
	Valve binding	Check for smooth stroke by manual actuation	Inspection performed; no indication of adverse condition. Manual stroke Sat.	Ruled Out based on inspection and operational performance.
	Cam plate binding	Monitor during operation. Manual stroke.	Vendor and SCE observed operation, no indication of improper operation.	Ruled Out based on inspection and operational performance.
	Looseness or free play of linkage	Check for looseness or free play	Vendor and SCE inspected linkage. No looseness noted.	Ruled Out
	Spring coil bound on closing	Check to determine if spring is coil bound	Vendor observed operation, spring not coil bound	Ruled Out

St. Lucie Unit 2
Auxiliary Feedwater
Pump Overspeed

2C AFW Pump Turbine Trip Fault Validation Matrix

Governor Unstable for Condition	Oil level adequate	Check Oil Level	3/8" below top of sightglass. Verified correct during test runs.	Ruled Out.
	Correct buffer springs	Check springs	Checked with Woodward that correct springs are installed.	Ruled Out, stable operation achieved with current springs.
	Oil Temperature/ Viscosity	Verify correct oil for operating range.	R&O 32 oil is acceptable to temperature as low as 40 ^{o}F.	Temperature ruled out as contributor.
	Governor mis-adjusted	Review traces for divergent speed behavior	Test traces indicated that adjustment was needed.	**Potential Contributor**
	Load Change challenges governor.	Perform testing to determine possibility of load change causing instability	No abrupt load changes were witnessed during tests.	Ruled out based on testing.
	Staggered start causes governor instability	Review surveillance data, previous events and current test data.	Governor response satisfactory during single start scenarios and staggered start scenarios without condensate. Turbine vulnerable to overspeed when upset at nominal speed.	**Potential Root Cause**
	Condensate in steam supply challenges governor.	Perform replicate testing to determine presence of condensate	Testing demonstrated that water present during start sequence.	**Potential Root Cause**

St. Lucie Unit 2
Auxiliary Feedwater
Pump Overspeed

- Interim Corrective Action
  - Adjusted governor compensating needle valve and verified proper operation with extensive testing replicating staggered starts
  - Optimized condensate removal and heating of piping
  - Perform staggered starts during monthly surveillance's
- Final Corrective Action
  - Modify AFAS start logic to simultaneously open both steam admission valves (Currently planned for unit outages in 2005)

Turkey Point
4A EDG Lockout

- Event
  - 4A EDG lockout relay actuated while EDG was in the standby condition
  - Initial indications pointed to a problem with the Electronic Speed Switch (ESS)
- Design
  - ESS receives input from magnetic speed sensor on engine flywheel and provides relay outputs of engine speed to various components
  - Power source for ESS is shared with EDG annunciator panel power supply

Turkey Point
4A EDG Lockout

- Root Cause
  - ESS sensed electrical noise from faulty annunciator panel power supply as pulses from speed circuit magnetic pickup
  - Power supply filtering capacitor failed
- Corrective Action For Similar Power Supplies
  - Replace 4B EDG and Unit 3 and 4 control room ‘J’ panel capacitors
  - Establish PM for 8 year replacement of filtering capacitors

Turkey Point
4A EDG Lockout

Attachment 2
EDG 4A Annunciator Power Supply (PS-1) Root Cause Matrix

Cause	Validation/Action Steps	Expected Results	Actual Results	Status
Failed PS1 inverter section	Replace PS1 inverter section	False speed indication would clear. Annuciator power would be restored	Annuciator power supply failed; Fuse 2 on new inverter opened. Obtain good replacement inverter with new parts.	Complete
	Troubleshoot for failed component on original PS1 inverter	Failed open C1 capacitor would not filter feed back noise. In Progress	Inverter input capacitor (C1-1200 mfd) found open circuited.	Complete
	Troubleshoot for failed component on replaced PS1 inverter	Identify failed components	Found a mounting screw (larger than normal) shorting transistor to chassis	Complete
Failed PS1 rectifier circuit	Implement TSA to isolate inverter and test PS1 rectifier circuit with 120 Vac.	Annunciator circuits function properly	Annunciator circuits function properly	Complete
Failure of annunciator cards or circuitry.	Implement TSA to isolate inverter and test PS1 rectifier circuit with 120 Vac.	Annunciator circuits function properly.	Annunciator circuits function properly.	Complete
Excessive loading from annunciator.	Use temporary power supply. Measure load currents.	Load currents within specification.	Load currents within specification.	Complete

Turkey Point
4A EDG Lockout

Attachment 2
EDG 4A Lockout Due to Electronic Speed Switch Actuation - Root Cause Matrix

Failure Mode: Electronic Speed Switch (ESS)				
Cause	**Validation/Action Steps**	**Expected Results**	**Actual Results**	**Status**
Noise on magnetic pickup	Disconnect magnetic pickup from ESS.	False speed indication would remain	False speed indication remained. NOT A CAUSE	Complete
Failed ESS	Bench check ESS. Replace ESS.	ESS bench checks out good. False speed indication would clear.	ESS bench checks good. False speed indication remained. NOT A CAUSE	Complete.
Noise on 125 Vdc power supply	Contact vendor and OE to determine susceptibility to noise.	ESS not susceptible to noise.	Both vendor and OE (VC Summer) indicate that ESS can give false speed indication with noise on input power. **POTENTIAL CAUSE**	Complete
	Measure noise (ripple) on 125 Vdc.	Approximately 1-3 Vac peak to peak.	Acceptable with annunciator circuit isolated. **POTENTIAL CAUSE**	Complete
	Identify noise source. Most likely source is the annunciator circuitry since false speed signal cleared when Annuciator 125 Vdc power supply fuse blew.	Failed power supply	Failed Power Supply	Complete

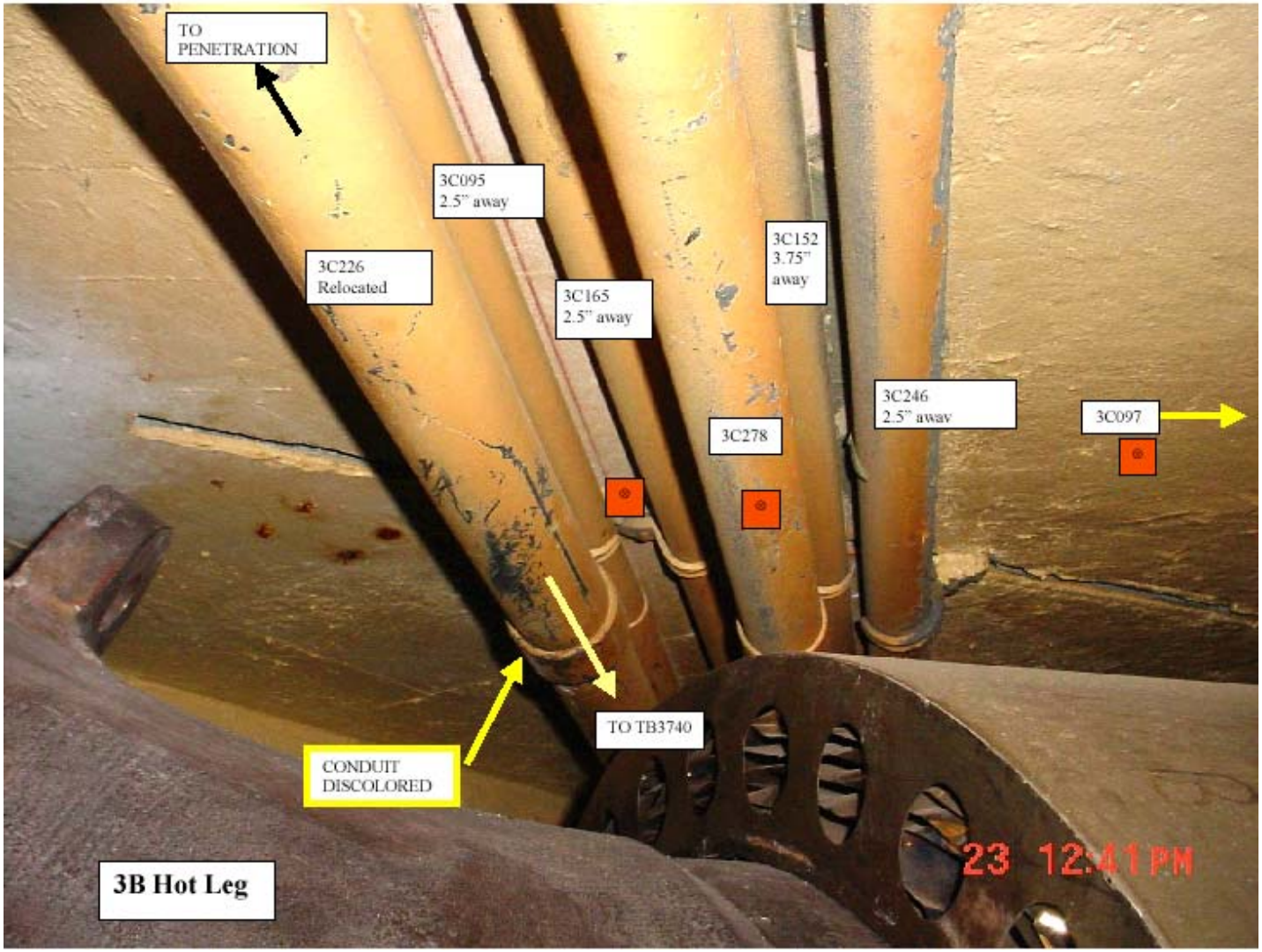
Turkey Point Unit 3 Cable Failure

- Event
  - After Unit 3 was shutdown for 20 days, valve PCV-456 (PORV) unexpectedly opened when its control switch was placed in auto
  - Investigation revealed that instrument cable had shorted conductors where cable/conduit passed over 3B Hot Leg RCS piping
  - Majority of cables over 3B and 3C Hot Legs were degraded, cables in all other locations were in good condition
- Design
  - Various cables/conduits are routed in close proximity to RCS piping

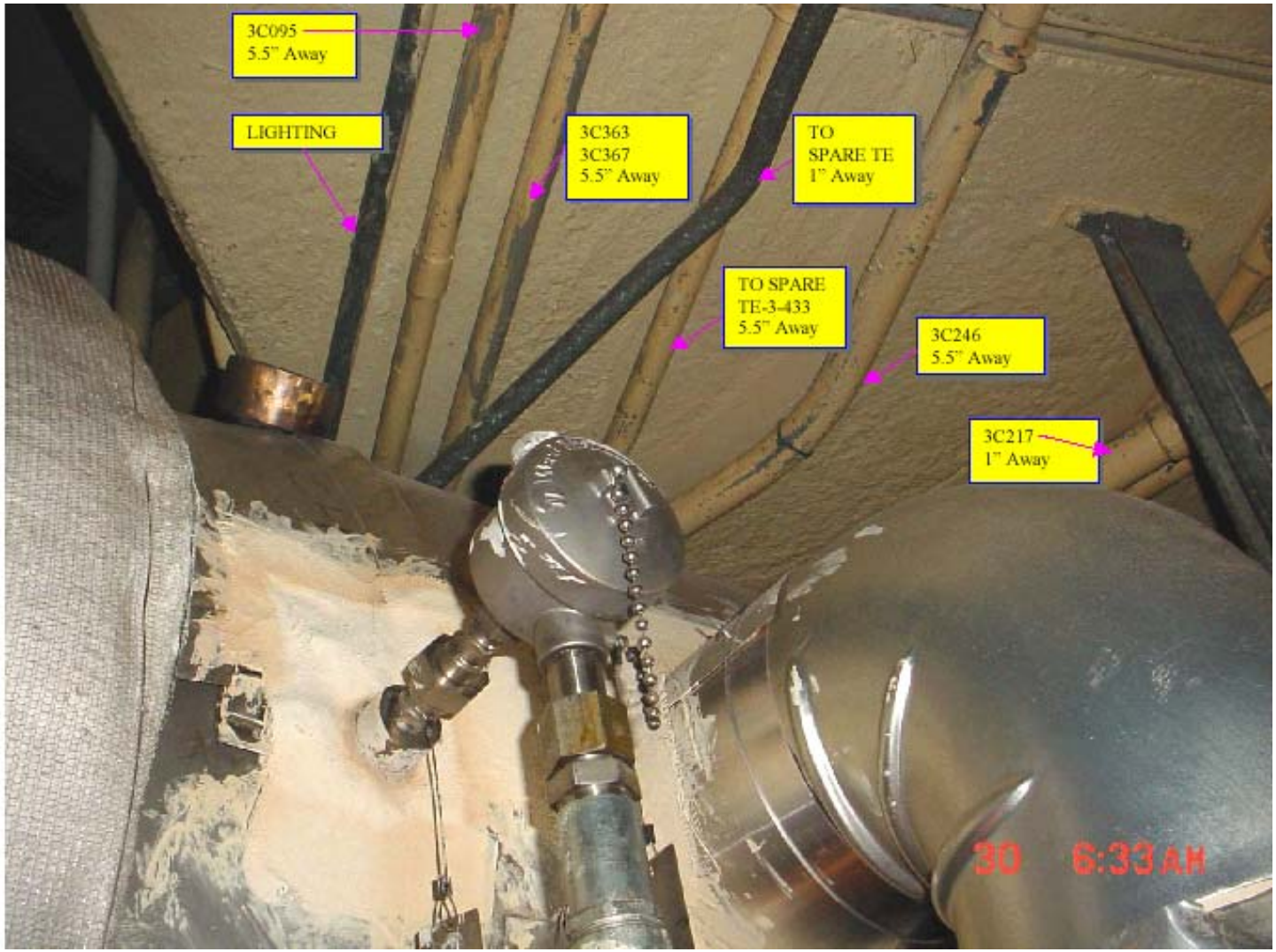
Turkey Point Unit 3
Cable Failure

- Cause
  - Cable accelerated aging due to temperature
    - Root Cause
      - Conduits routed in enclosed areas
      - Limited heat dissipation capability
      - High heat sources
    - Contributing Factors
      - Normal Containment cooling ventilation register found failed closed
      - Insulation gaps and deficiencies
      - Uninsulated pipe stubs on RCS piping

Turkey Point Unit 3
Cable Failure



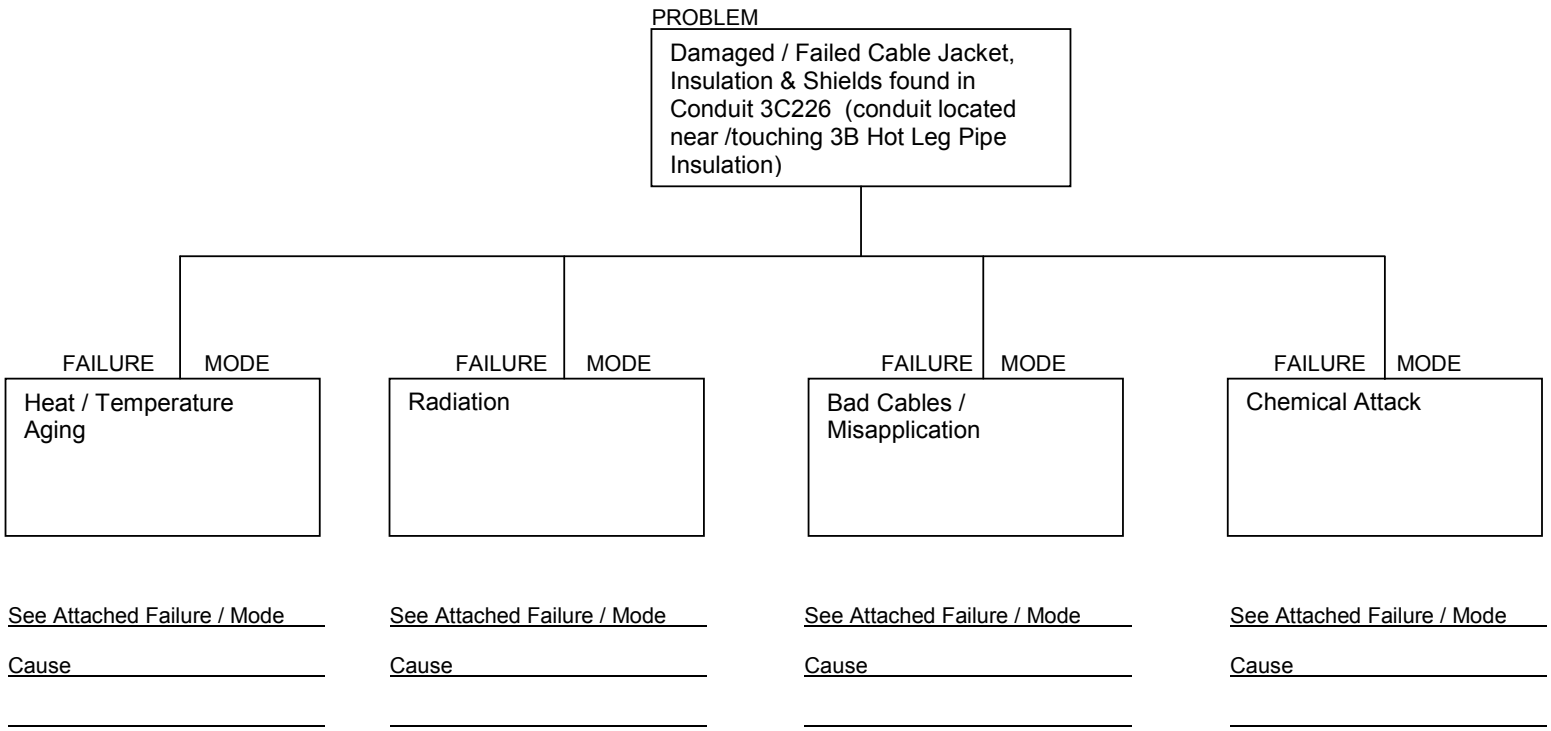
Turkey Point Unit 3 Cable Failure



Turkey Point Unit 3
Cable Failure

Pressurizer Pressure Channel PT-3-445 Cable Failure
Attachment 1 to CR 2004-11329

Failure Mode Tree



Turkey Point Unit 3
Cable Failure

- Corrective Action
  - All active cables above and in close proximity to Hot and Cold Legs of RCS piping were removed, visually inspected and replaced
  - Sample inspection of cables in other locations in proximity to high temperature piping (i.e. RCS intermediate legs, blowdown lines, main steam, feedwater, letdown and pressurizer)

Turkey Point Unit 3
Cable Failure

- Corrective Action (continued)
  - Insulation deficiencies corrected
  - Normal Containment cooling ventilation register restored to service
  - Temperatures obtained on 11/27/04 at RCS temperature of 533 degrees; resulted in highest conduit temperature of 124 degrees.
  - Dataloggers installed to obtain temperature readings over an operating cycle
  - Operating experience report issued
  - Operability assessment for Unit 4 issued

Conclusions

- Equipment Performance Improvements
  - Programmatic
  - Organizational
  - Strategic
- Starting to See Positive Benefits
  - Increased number of Condition Reports
  - Improved root cause analysis

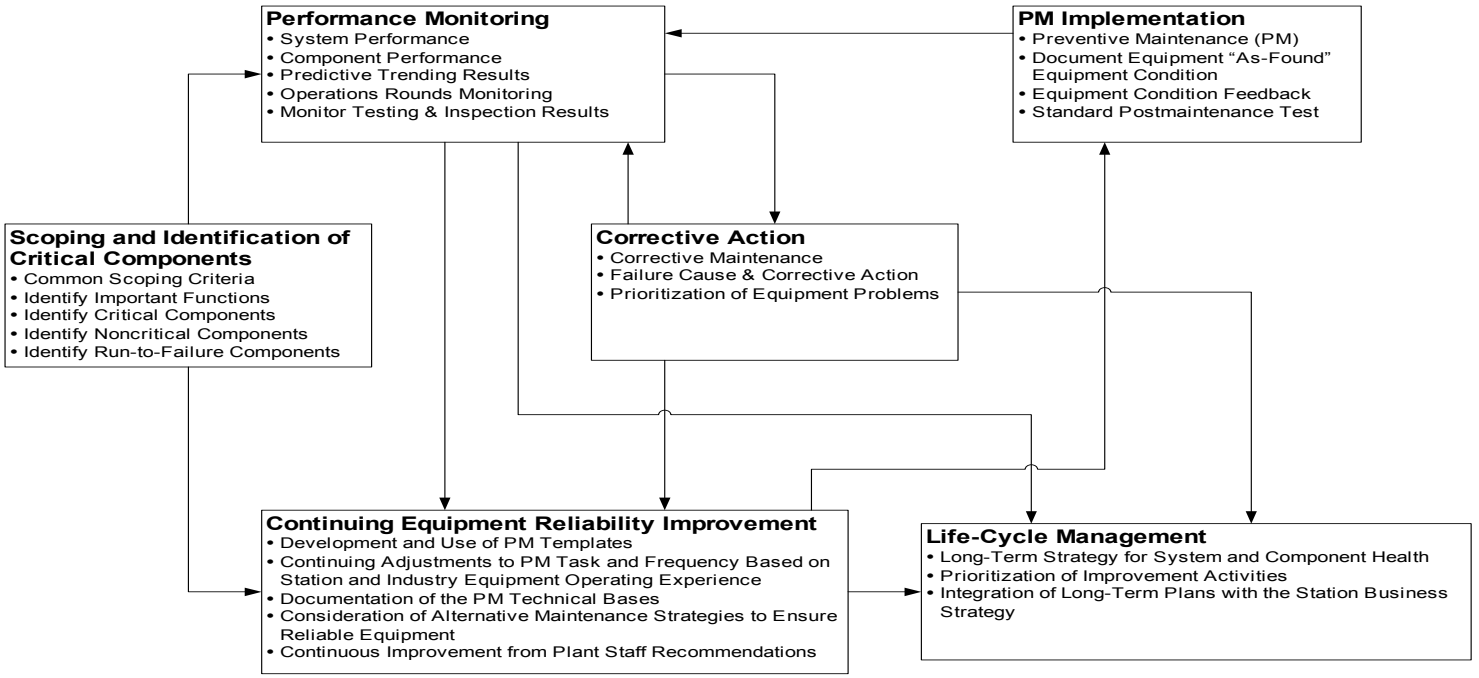
Equipment Reliability

A. Pell

Equipment Reliability

Equipment Reliability Improvement Program (ERIP)

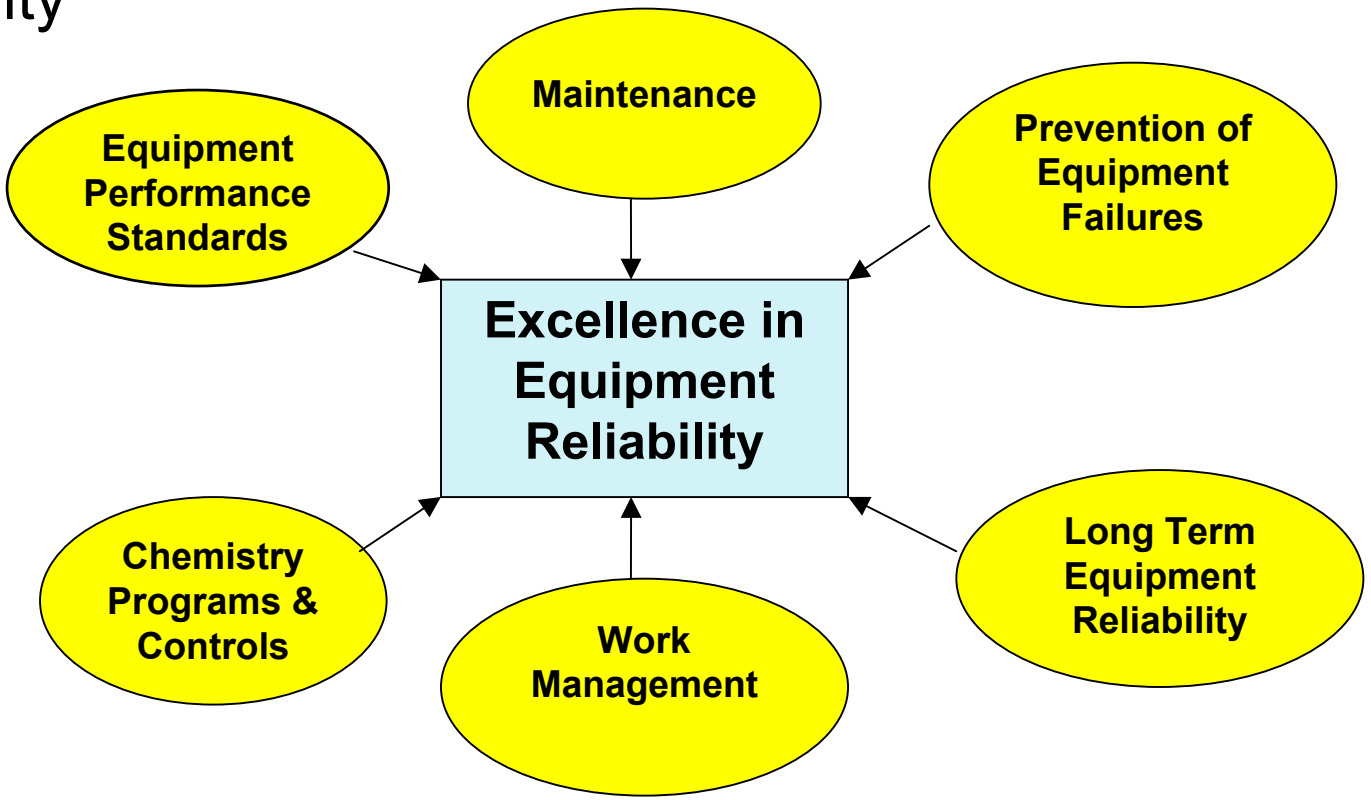
- Key Success Factors from INPO 01-004 “Achieving High Equipment Reliability – A Leadership Perspective”
- In 2004, > 200 Formal Actions Completed YTD
- Implements INPO AP-913, Equipment Reliability & 10 NRC Part 50.65 “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants”



Equipment Reliability

NAP-407, Equipment Reliability

- Responsibilities defined for each Station Organization
- Defined Priority Actions for System Health & Equipment Reliability



Equipment Reliability

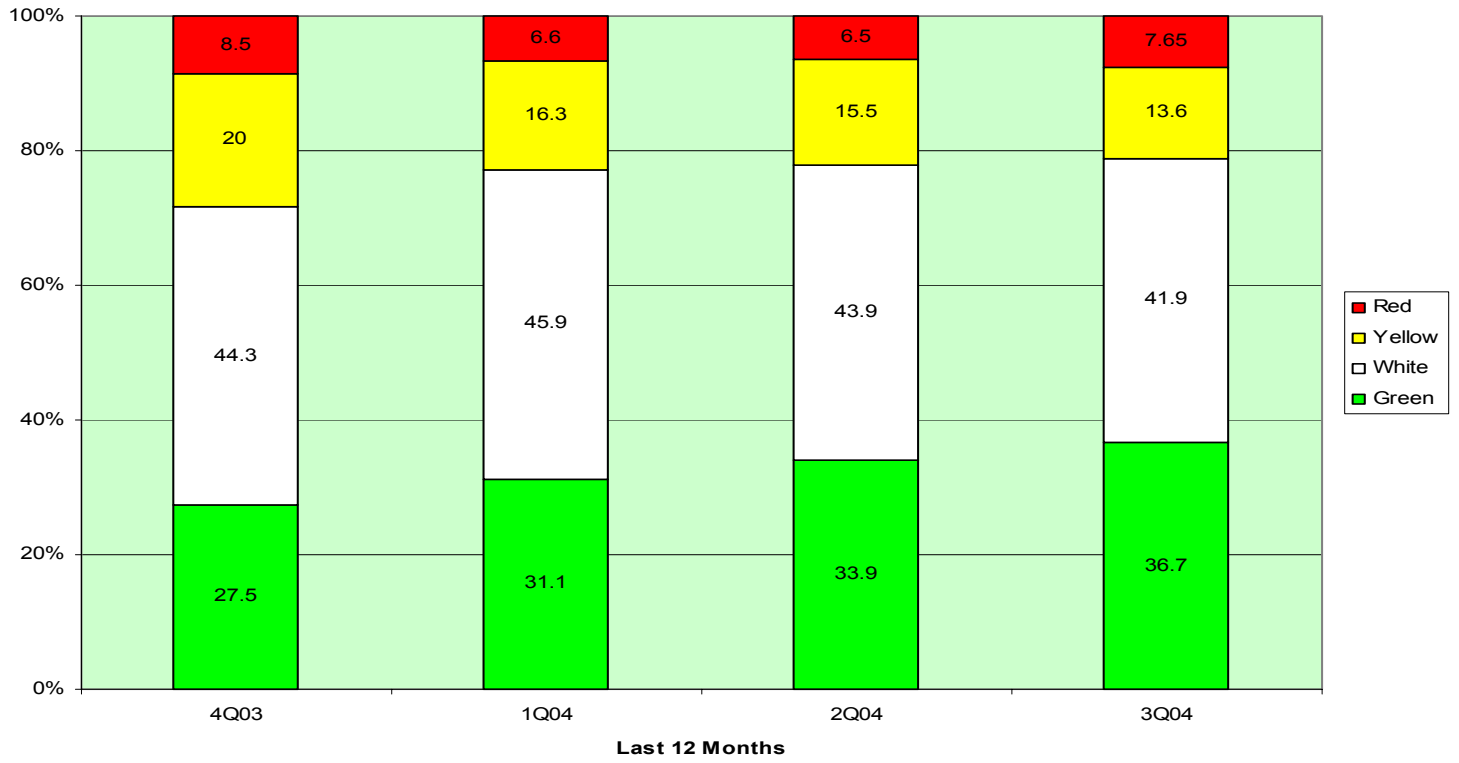
System Health Reporting

- **Assesses System Health and incorporates:**
  - INPO AP-913, “Equipment Reliability Process Description”
  - 10 NRC Part 50.65 “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants” – Maintenance Rule
- **Action Plans defined for improving System Health**
  - Highest Priority established for Red & Yellow WOs
- **Key Performance Measures & Indicators track progress**
  - Top 10 Equipment Issues at each Station
  - System Health Metrics
  - Equipment Reliability Indicator
- **Action Plans reviewed by Plant Health Committees & VPs**

Equipment Reliability

System Health Improvement in 2004

System Health – Turkey Pt. & St. Lucie
Status thru end of 3rd Quarter 2004



Equipment Reliability

Breaker Program - St. Lucie 4 KV Breaker Replacement

- SF6 breakers selected
  - Simple operating mechanism with less failure modes
  - Reduced required maintenance
- SL1-19 Installation
  - Extensive OE review to minimize potential issues
  - Maintenance and testing on key interfaces
  - Additional oversight dedicated to Project

Equipment Reliability

Breaker Program

The result:

6 Non Safety breakers installed with no issues

Equipment Reliability

Breaker Program

4 kV and 6.9 kV Breakers

Plan for Breaker Replacements

ACTIONS	PLANT	#	OUTAGE	2004	2005	2006
REPLACE 4C 4160 BREAKERS	PTN	9	PTN4-21			
REPLACE 6 NNS 4.16 kV BREAKERS	PSL	6	SL1-19			
REPLACE 3C 4160 BREAKERS	PTN	10	PTN3-21			
REPLACE 24 UNIT 2B TRAIN 4.16kV BREAKERS	PSL	24	SL2-15			
REPLACE REMAINING UNIT 1 4.16/6.9kV BREAKERS	PSL	50	SL1-20			
REPLACE REMAINING UNIT 2 4.16/6.9kV BREAKERS	PSL	39	SL2-16			

Equipment Reliability

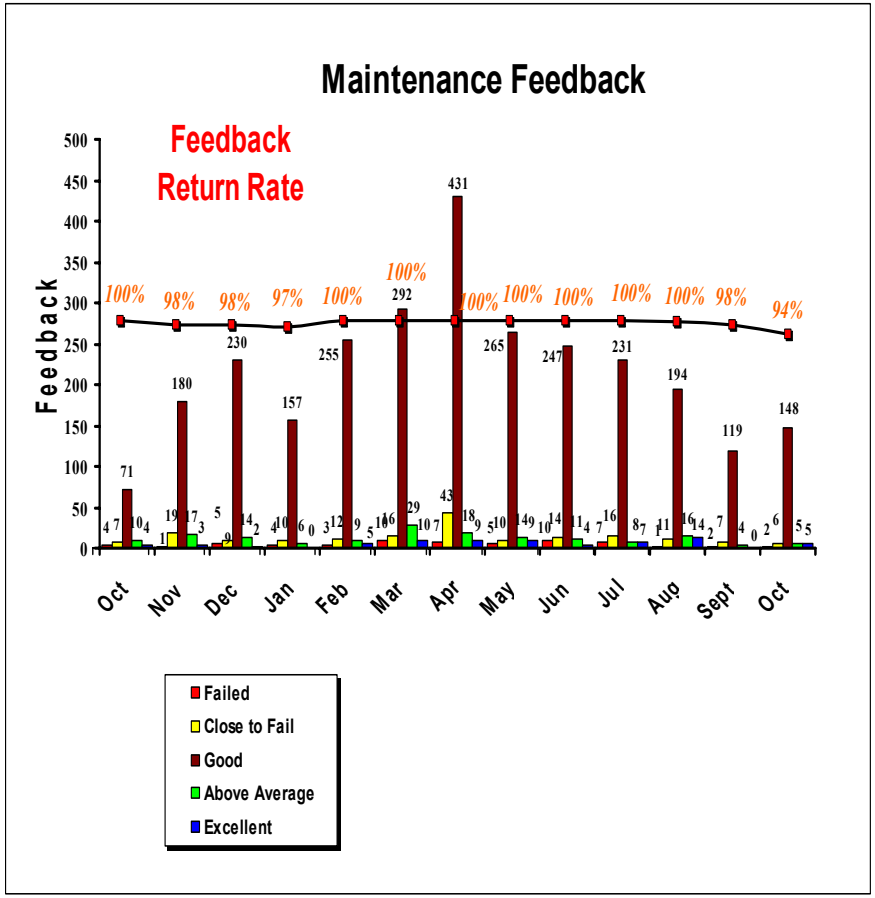
Breaker Program

- St. Lucie Outdoor Switchgear Floor Repair
  - 2B4 floor repaired in March 04
  - No problems encountered upon return to service
- Turkey Point 4.16 KV switchgear interface
  - Ensured interface/tolerances were correct on all GE Magna-Blast breakers
  - Utilizing the new Operations and Maintenance Procedures to optimize the breaker interface

Equipment Reliability

Preventive Maintenance Optimization (PMO)

- **PMO Phases in 2004**
  - Criticality Determinations (FID) - Complete
  - Standard Equip Clearance Boundaries (FEG) - Complete
  - Maintenance Feedback System & Database - Complete
- **Upcoming PMO Phases**
  - Maintenance Optimization of PMs & Model WO Revisions
  - PM Scheduling & Integration
  - Key: Living Program & Ownership going forward



Equipment Reliability

Summary

- Extensive Fleet ERIP Actions completed across the Fleet
- Improvements made in plant performance
- In 2004, FPL successfully put into place an Equipment Reliability Improvement Program
- ERIP is a 3-5 year program - We're clearly not complete
  - Future work remains in driving change throughout station organizations, culture, and behaviors
  - Key improvements required include long term modifications/actions
  - Feedback, indicators, monitoring process loops required for sustainability

Life Cycle Management

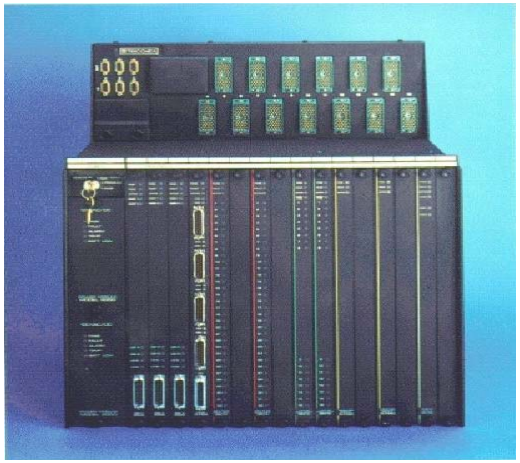
Warren Busch

Life Cycle Management

- Program to Cope with Obsolescence of Components and Systems
- Implements a Long Term Strategy to Improve Reliability and Reduce Maintenance and Training Costs
- Projects to Replace I&C Systems and Electrical Components are in process
- Systems not supported by OEM and Parts Unavailable

Life Cycle Management

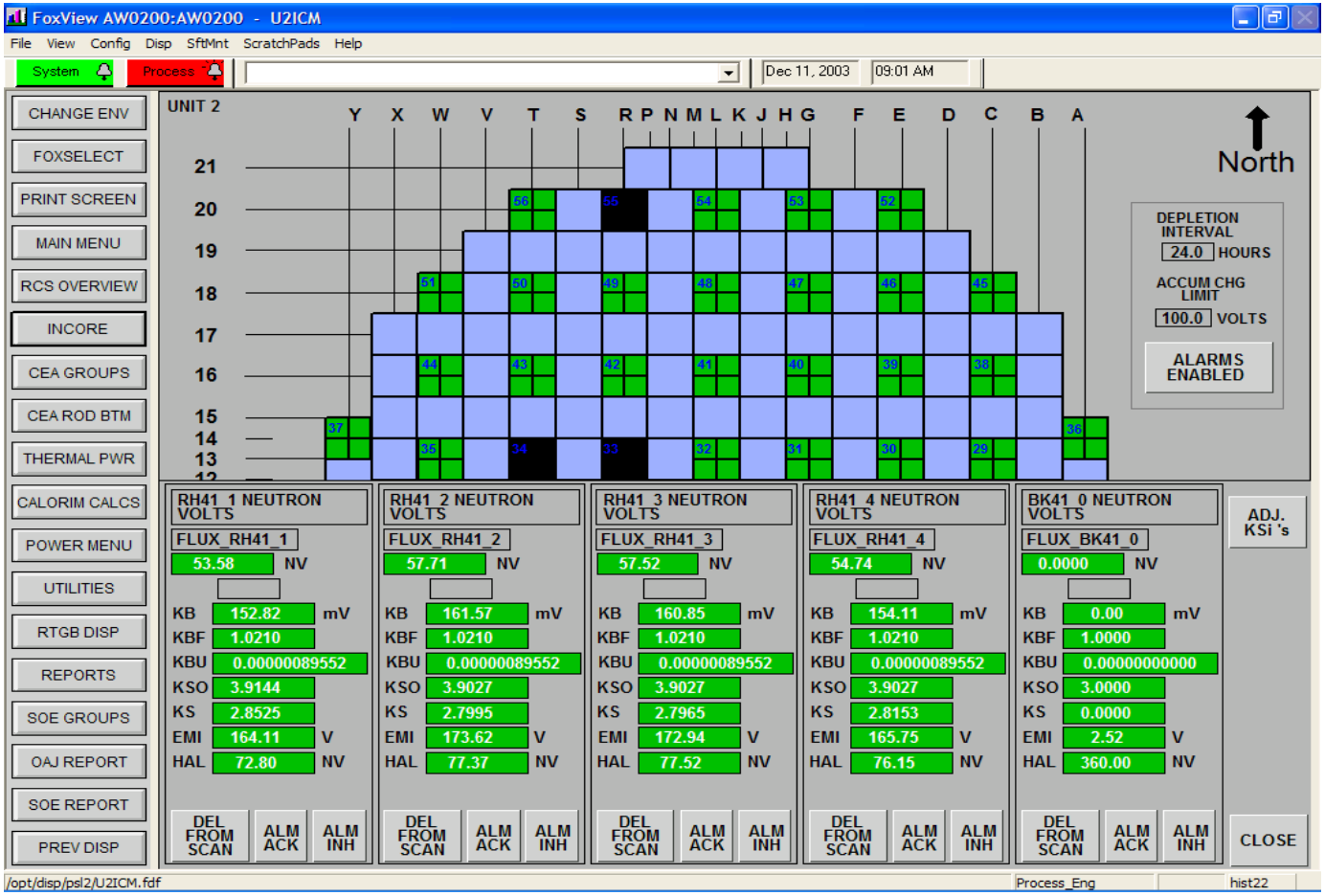
- Standard Platform Approach to I&C System Replacements
  - Distributed Control System, Foxboro I/A
  - Safety Related Platform, Triconex
- Redundancy and Diversity Even for Non-Safety Systems



Life Cycle Management

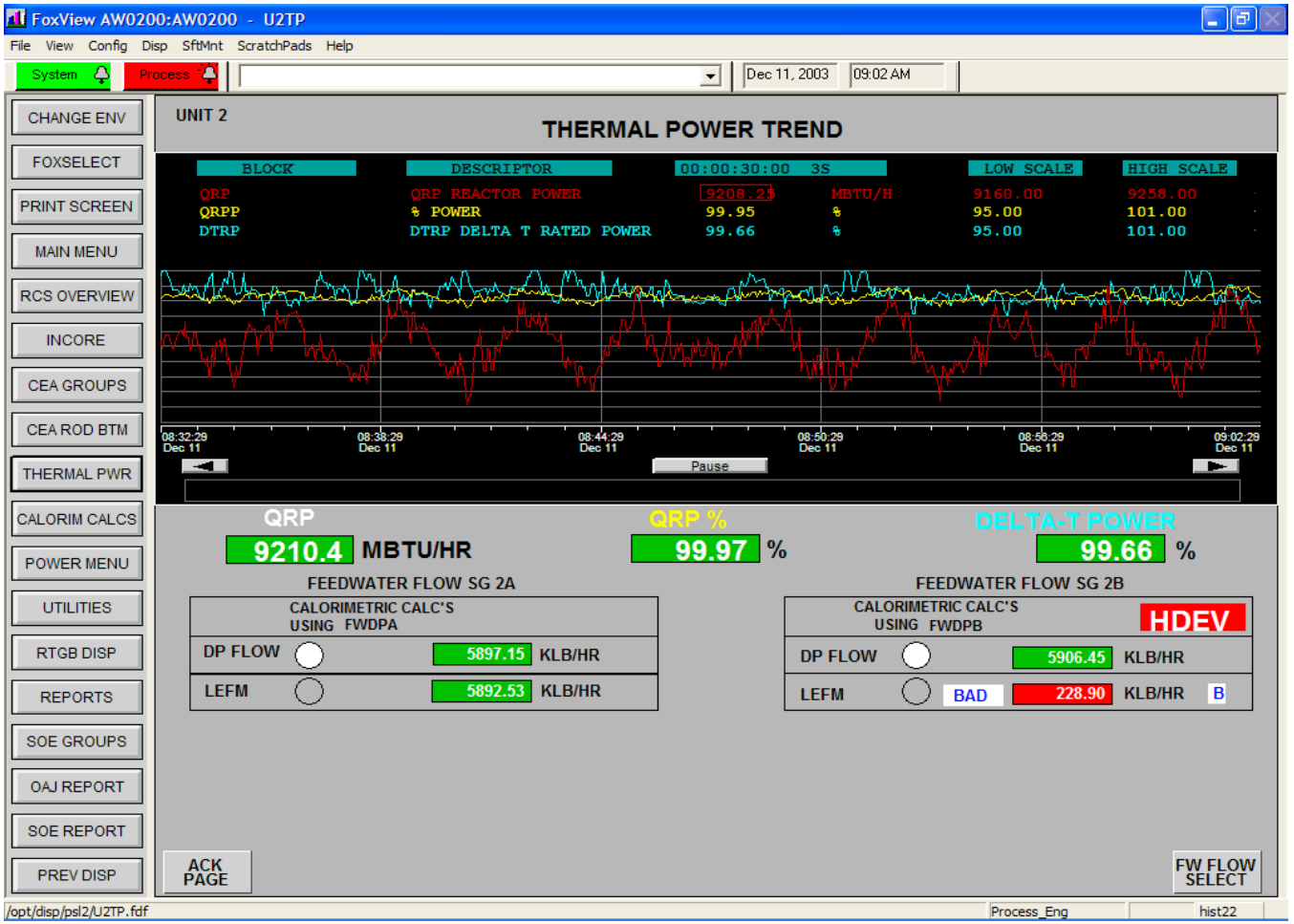
- St. Lucie Digital Data Processing System Replacement
  - Both units in service (May 2003, March 2004)

Life Cycle Management



- Incore Detectors/Linear Heat Rate Monitoring

Life Cycle Management



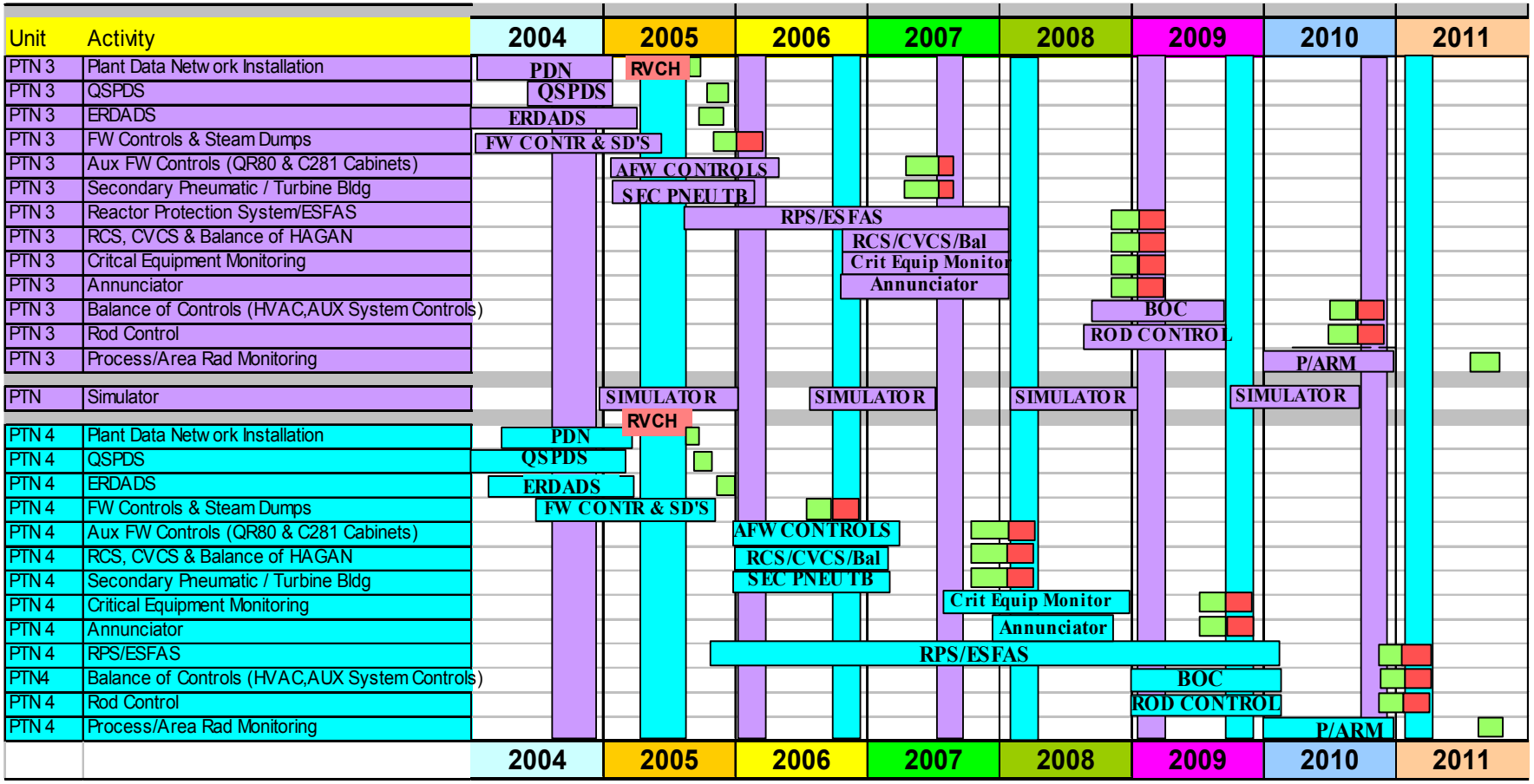
- Calorimetric Power Determination

Life Cycle Management

- Major Projects In Process
  - Qualified Safety Parameter Display Systems
    - License amendments for on line implementation
  - Emergency Response Data Acquisition and Display Systems
  - Feedwater and Steam Dump Control Systems
    - License amendments for Steam>Feed and turbine trip reactor trip setpoint at Turkey Point

Life Cycle Management

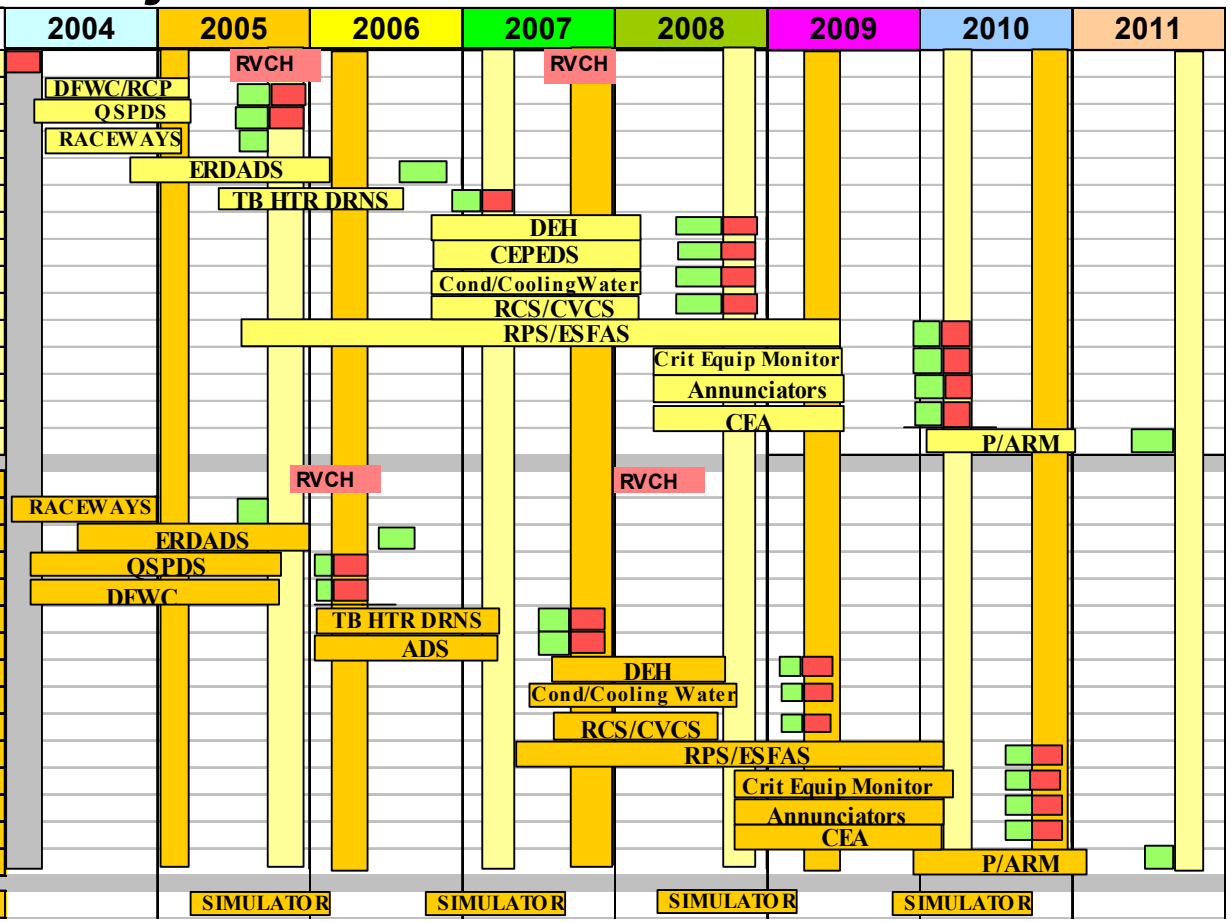
- Turkey Point Project Plans



Life Cycle Management

- St. Lucie Project Plans

Unit	Task Title
PSL 1	DDPS/SOE/PDN **(Installed Spring 2004)**
PSL 1	DIGITAL FW CONTROLS /RCP Indicators/DCS
PSL 1	QSPDS
PSL 1	DCS RACEWAYS
PSL 1	ERDADS
PSL 1	Turbine Building Heater Drains
PSL 1	DEH Control System & RTGB 101
PSL 1	CEPEDS/Core Mimic (RTGB 103 &104)
PSL 1	Condensate and Cooling Water (RTGB 102)
PSL 1	RPS/ESFAS
PSL 1	RCS & CVCS Control (RTGB 3-6)
PSL 1	Critical Equipment Monitoring
PSL 1	Annunciators
PSL 1	CEA Control System
PSL 1	Process/ Rad Monitoring
PSL 2	DDPS/SOE/PDN **(Installed Spring 2003)**
PSL 2	DCS RACEWAYS
PSL 2	ERDADS
PSL 2	QSPDS
PSL2	DIGITAL FW CONTROLS (DFWC)
PSL 2	Turbine Bldg Heater Drains
PSL 2	ADS/Core Mimic (RTGB 203 &204)
PSL 2	DEH Control System
PSL 2	Condensate and Cooling Water (RTGB 202)
PSL 2	RCS & CVCS Control (RTGB 3-6)
PSL 2	RPS/ESFAS
PSL 2	Critical Equipment Monitoring
PSL 2	Annunciators
PSL 2	CEA Control System
PSL 2	Process/ Rad Monitoring
PSL	Simulator

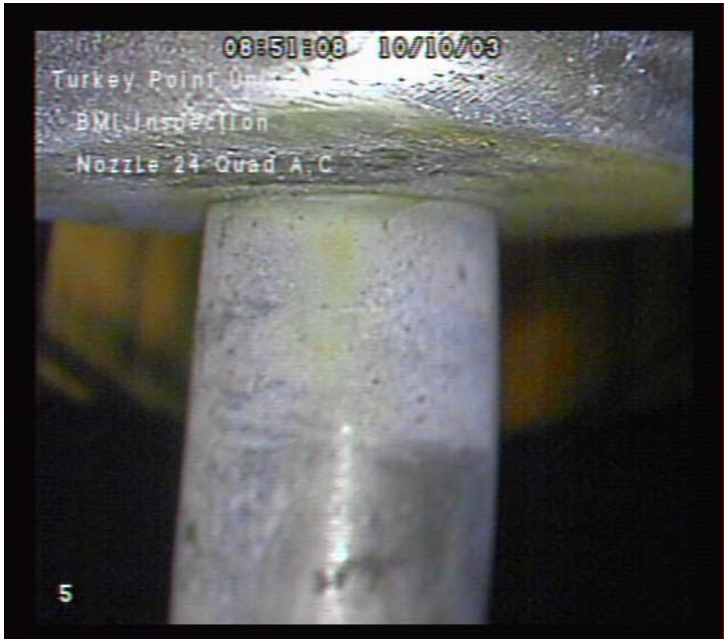


Materials Management

R. Gil

Materials Management

- Alloy 600 and other materials issues continue to be a focus area
- Bottom Mounted Instrumentation (Turkey Point)
  - Bare metal visual (BMV) completed at Turkey Point Unit 4 – No Leaks
  - Performed Unit 3 UT – No indications
  - Committed to perform Unit 4 UT during spring 2005



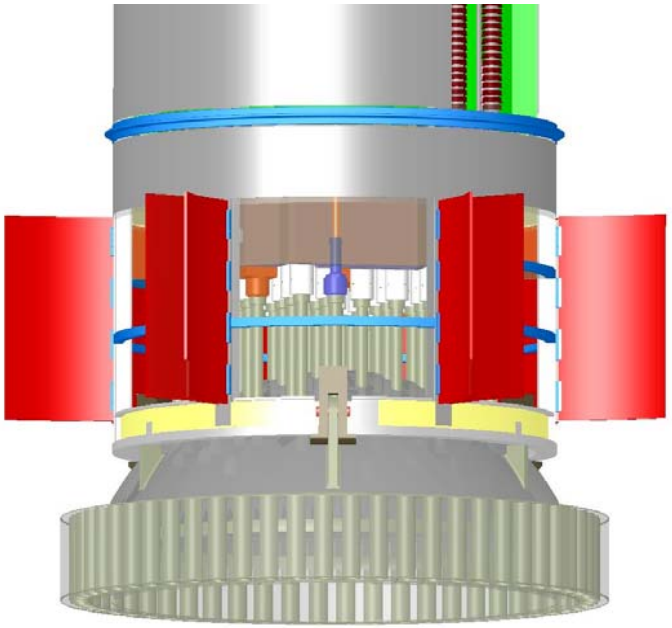
Turkey Point Unit 4
BMI Visual

Materials Management

- Small Bore Instrument Nozzles (St. Lucie)
  - Hot leg and pressurizer BMVs performed each outage
  - Replacing on prioritized basis
  - Unit 2 Hot Leg and pressurizer nozzles already replaced
- Pressurizer Heater Sleeves (St. Lucie)
  - Unit 1 PZR to be replaced in fall 2005
  - Plan to replace Unit 2 PZR sleeves in 2007
  - BMV inspections per WOG recommendations

Materials Management

- Butt Welds (St. Lucie)
  - Augmenting ISI with bare metal visuals
  - Mitigation options being evaluated
- Reactor Head Penetrations
  - All four heads UT inspected
  - St. Lucie Unit 2 repaired two cracked penetrations
  - No leaks or wastage identified
  - Turkey Point 3 head replaced
  - Plans in place to replace three remaining heads



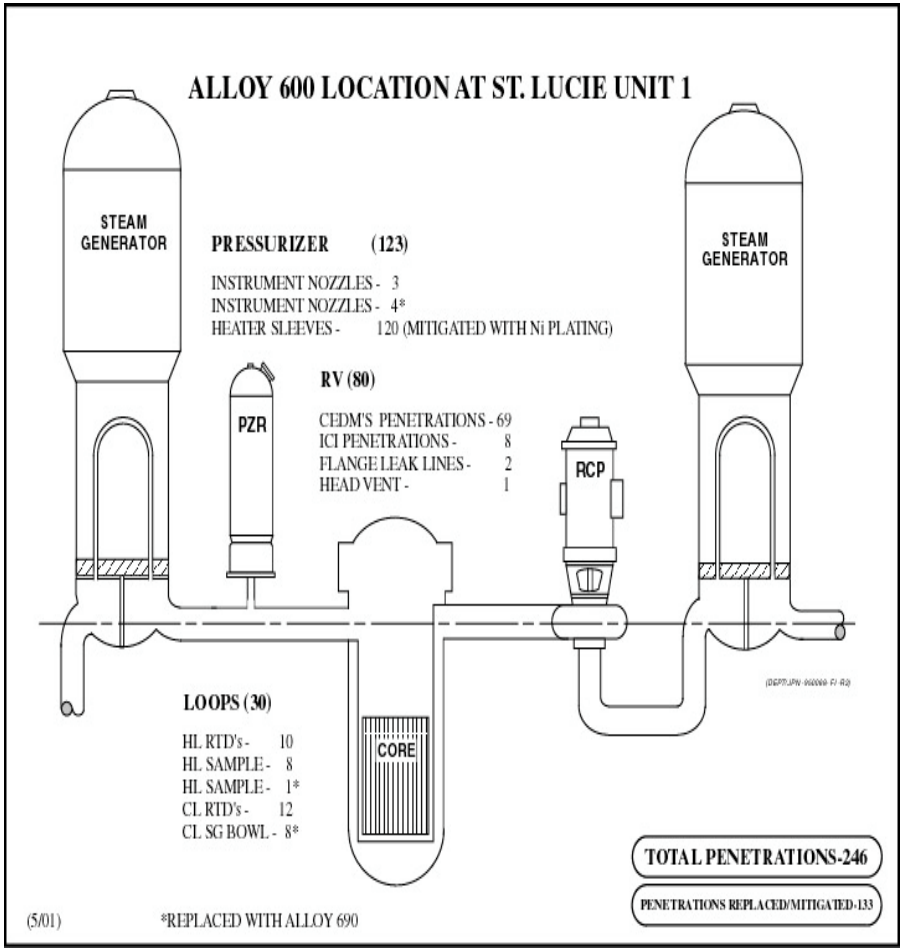
External Corrosion Management

- Challenge at both sites
  - Open structures/ coastal salt laden environment
- Mechanical piping health reports developed
  - Increased management oversight
  - Action plans for improvement
  - PSL: Red, PTN: White
- System health reports
  - Material condition status attribute
  - Walkdown report of degradation
  - Action plans for improvement

External Corrosion Management

- Established external corrosion coordinator at each site
- Feedback on degradation precursors from System Engineering walkdowns
- External corrosion (XCI) monitoring program for insulated piping
- Protective coating maintenance program in place at both sites
  - Improvement in tracking process being pursued

Conclusions



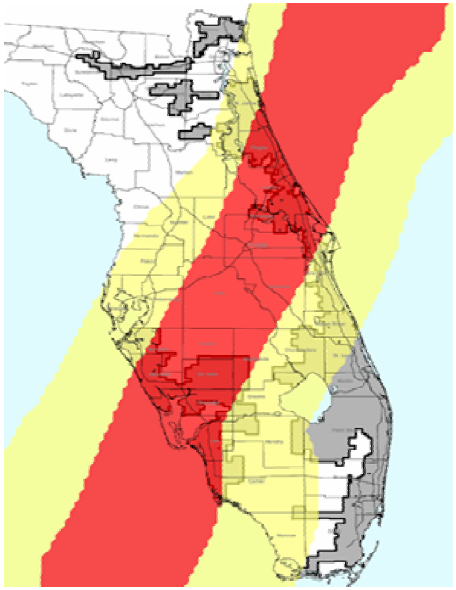
- FPL continues to be active industry participant
- All Alloy 600 locations at FPL plants have been identified and plans are in place, or actively being developed, to provide long-term resolution
- Improvements in overall material condition programs being actively pursued

2004 Hurricane Season

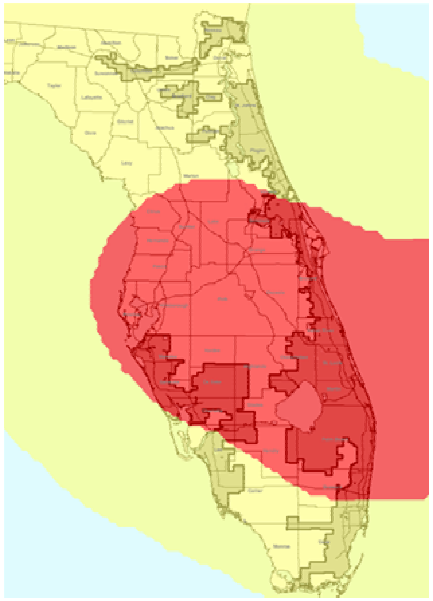
B. Hughes

2004 Hurricane Season

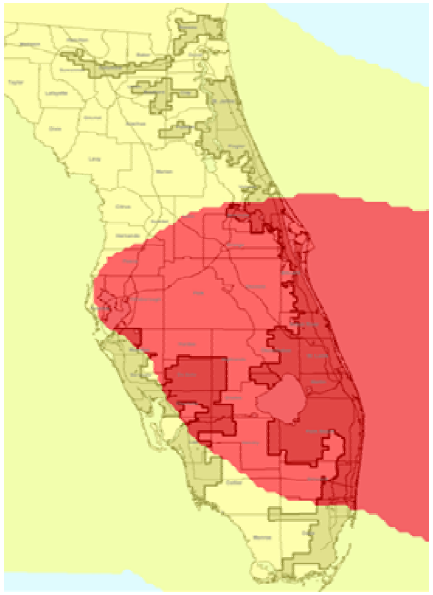
Charley



Frances



Jeanne



Transmission & Substations

Transmission & Substations

- Execution Strategy
  - System Stability
  - Energize Every Substation Bus
  - Restore Customer Service

Transmission & Substations

	CHARLEY Aug. 13, 2004	FRANCES Sept. 3, 2004	JEANNE Sept. 25, 2004
Sections Locked Out	44	108	80
Distribution Substation Out	14	54	30
Transmission Structures Affected	220	150	129
Trans. Structures Down	75	56	48
Trans. Structures Leaning	145	94	81
Transformer Failures	1	1	1
Breaker Failures	8	20	14
Number of Days to Restore	2	2	2

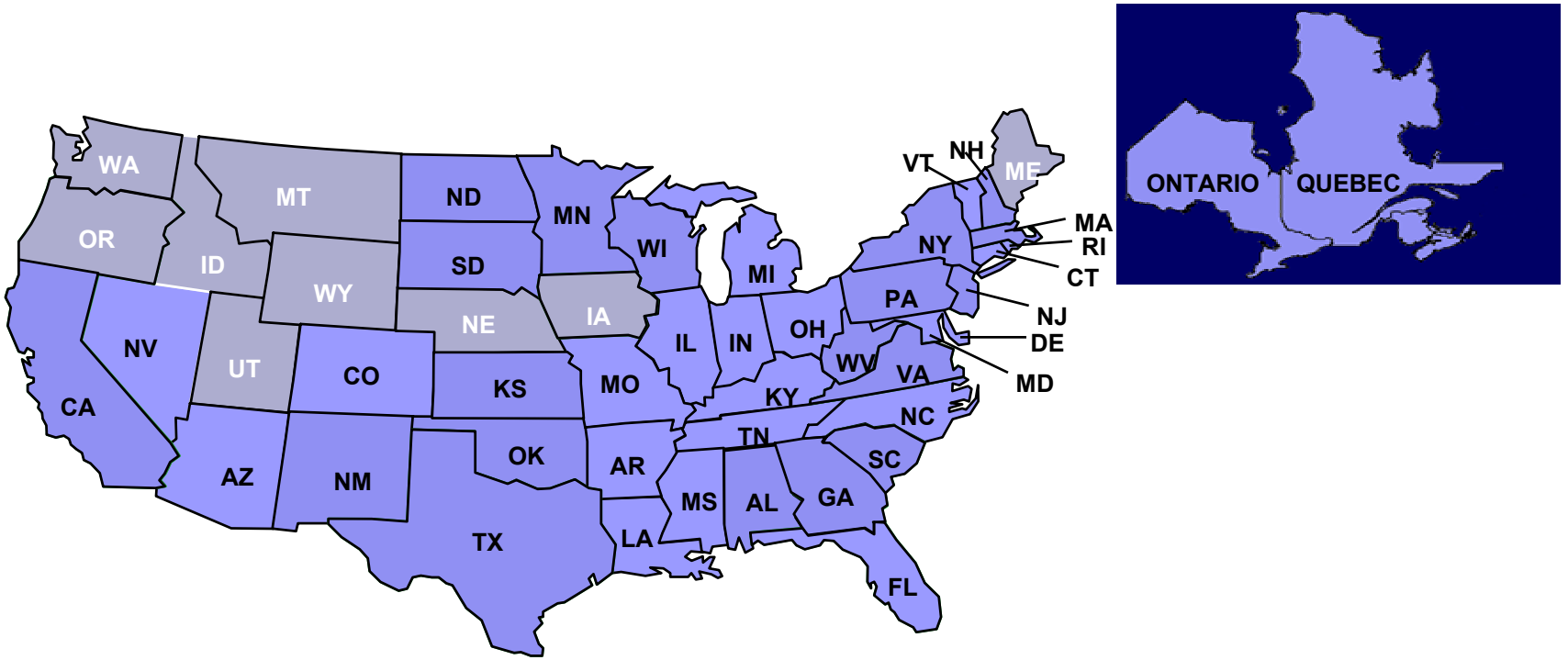
Integrated Supply Chain

- Resources
- Logistics
- Material

Results .... A Great Success

Peak external resources reached over 7,400:

- 39 states and Canada
- 43 utilities
- 66 line contractors



A Mammoth Logistical Success

- 26 staging sites established
  - Several sites used more than once
- On average we housed, fed and supported over 14,000 workers daily providing
  - 38,000 meals
  - 20,000 gallons of water
  - 7,500 trucks with 180,000 gallons of fuel per day
- Over 1,800 truckloads of material delivered and utilized in the field:
  - 1,700 miles of wire
  - 13,200 poles
  - 11,100 transformers
  - 416,000 splices

Nuclear

Key Challenges

- Damage assessment (X2)
- Recovery and restart (X2)
- Nuclear security
- Access to the site
- Water intrusion
- Secondary water chemistry
- Turkey Point outage
- Regulatory permission to restart
- Employee personal impact
- Fatigue, stress and morale

Key Successes

- Recovery organization
- No personnel injuries or human performance errors
- Excellent operating crew performance
- Good use of operating experience
- Met all security requirements
- Teamwork

Impact on Nuclear Plants

- Extensive Hurricane preparation at both sites
- Dedicated Hurricane / Emergency Plan staffing
- Two dual-unit outages
- Loss of all offsite power at St. Lucie during Jeanne
- St. Lucie outage rescheduled
- Infrastructure damage

Restoring Power ... Restoring Lives