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St. Lucie Status Meeting Agenda

	Opening Remarks	A. Stall
	Operating Report	J. Scarola
	Operations	H. Johnson
	Maintenance	J. Marchese
	Engineering	D. Denver
ŀ	Services	D. Fadden
	Licensing	E. Weinkam
	Business Systems	R. Heroux
•	Outage Management	C. Wood
	Steam Generator Replacement Project	J. Tepley
	Quality Assurance	W. Bladow

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OPENING REMARKS

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Focus For 1997

- Improve Industrial Safety
- Eliminate Backlogs
- Improve Outage Performance
- Improve Regulatory Performance
- Improve Budgetary Performance

Accomplishments

- Conduct of Operations Strengthened
- Equipment Reliability has Improved
- Plant Material Condition has been Upgraded
- Implemented a Plan of The Day and Rolling Work Schedule
- Standardized Several Key Processes with Turkey Point

Challenges

- Maintenance of Design Basis (FSAR) through Procedures
- Procedure Quality and Upgrade Progress
- Increasing the Number of Licensed Operators Available on Shift
- Unit 2 Refueling and Unit 1 Steam Generator Replacement Outages
- Improving Communications with Employees
- Strengthening Budget Controls





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Accomplishments

- No Automatic Trips
 - Control of Maintenance Activities
 - Reliable Equipment Performance
 - Operators Attentive to Instrumentation
- Annunciators kept as "Blackboard"
- Operator Work Arounds Resolved
- 3 Way Communications
- Improved Conduct of Operations Procedure
- Monthly Shift Supervisors Meetings
- Weekly Senior Management Requal Meetings
- Shift Turnovers Improved

Challenges

- Ensuring Adequate Depth in Staff
- Operation Consistent with USFAR
- Work Control Processes
 - Clearance Procedure
 - Equipment Status Tracking
 - Post Maintenance Test

Staffing

- Commence ANPO Class January 6
- Commence three instant SRO's in January to be licensed in October 1997
- Upgrade five NPO's from ANPO to NPO prior to outage
- Use license class (Group thirteen) personnel during outage
- Begin license class of fifteen in June, which will license in October 1998
- Group thirteen licensed in October to support Unit 1 outage
- Start SRO upgrade class after Unit 1 outage

Training

- SOER 96-1 Operations Management Training on Control Room Supervision, Operational Decision Making, and Team work
- BOS Training
- Supervisory Assessment of Crew Performance







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Accomplishments

- Reduction in Backlogs
- Improved Equipment Performance
- Resolution of Long Standing Equipment Issues

Challenges

- •Maintaining Equipment Performance
- •Successful Refueling Outages
- Procedures and Processes
- Workforce Issues
 - Labor Relations
 - •Employee Training
 - Conduct of Maintenance
 - Personnel Safety

POWER BLOCK TROUBLE & BREAKDOWN BACKLOG

PWO Backlog:

 PWO backlog are non-outage corrective work orders (Work Type 5 status 22-48) on components/equipment in the power block. Total includes all Work Type 1, Work Type 3 & Work Type 5. (all hold codes)



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Maintenance





Weekly Scaffolding Progress Report



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Final Safety Analysis Report Procedure Consistency Review

- Background
 - Unit 1 Boron Dilution Event 1/22/96
 - Commitment to NRC Violation Corrective Action
 - Review FSAR and Procedures for Consistency
- Program
 - FSAR Project Team Formed August 1996
 - 11 Senior Level Members
 - Established Pre-Screening Process
 - Condition Report (CR) for operability/reportability concerns
 - Plant Manager Action Item (PMAI) for inconsistencies which are not operability issue
 - FSAR Change Package (FCP) for editorial changes
 - Procedure Change Request (PCR) for procedure FSAR ties

- Conclusion (Unit 1 Review Only)
 - 798 Findings Identified
 - No Significant Safety Issues Identified
 - No Plant Modification Required
 - Majority of Findings are Editorial in Nature



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ST. LUCIE UNIT 1 FSAR REVIEW FINDINGS BY CLASSIFICATION



Maintenance Rule

- Systems/Structure/Components in A(1)
 - U1 PORVs
 - U1 & U2 RCP Seals
 - U1 'C' AFW Train for Reliability
 - U1 and U2 4.16 Kv AC Switchgear
 - U1 & U2 Emergency Diesel Generators
 - U1 B Emergency Diesel Generator

Unit 1 and 2 EDG Governors Were Placed In A(1) Due To Repetitive Maintenance Preventable Failures

- Corrective Actions
 - Maintenance procedure for periodic overhaul developed
 - Implemented on both units during refueling outages

(Vendor overhaul of actuators)

- Monitoring
 - No failures of EDG governor actuators due to aging
 - EDG exhibits stable load while operating
- Results
 - No EDG governor aging failures in 1996 since overhauls

Unit 1B EDG Was Placed In A(1) Due To Excessive Unavailability ·

- Corrective Actions
 - PCM replaced voltage regulator compression terminal blocks
 - PCM to replace relay sockets
 - PCM to relocate cooling system relief valves
 - PCM to add manual isolation valve to air start system
 - Overhauled governor actuators to improve reliability
 - Replaced radiators to improve thermal performance
- Monitoring
 - Trend the OOS hours for the 1B EDG until 12/31/96
- Results
 - 1B EDG unavailability within limits during 3rd Qtr '9







PSL Generation Enhancements

- Condenser Tube Cleaning
 - This system maintains condenser tube cleanliness at a higher average level and affords increased generation

Average generation improvement : 14.4 MW/unit

- Status: Completed
- Debris Filter System
 - This system prevents seashells and other debris from clogging condenser tube inlets and has eliminated generation loss due to downpowers for waterbox cleaning

Average generation improvement: 9.9 MW/unit Based on the average generation losses over the previous two cycles

• Status: Completed



PSL Generation Enhancements

- Leading Edge Flow Meter
 - This system will prevent generation loss due to reduced reactor power caused by fouling of current flow meters

Expected average generation improvement: 18MWe (Unit 2)

Status: Expect to achieve following 1997 Unit 2

Refueling Outage





Goal=5

Temporary System Alteration

TSA	ISSUE	COMPONENT AFFECTED	FINAL ACTION	CLOSURE	OWNER
	DATE		TO CLOSE TSA	DATE	
1-96-28	10/29/96	FIS-13-12B removed for	Reinstall instrument	12/6/96	Newhouse
		calibration			
2-96-02	1)2196-1	Booster/Relaysion/PCV-8801and	PCMI96011	12/16/96	Motley State
		8802 PCW/ISseed			
2-96-24	4/15/96	HVS-4A	PCM 96174	12/29/96	Korte
		PCM 12/15/96			
2-96-32	5/26/96	PRZRCHAR Bank B41	PCM96168	12/31/96	Korte
A		PCM-Issued representation and			
1596332	7/26/96	HVIC-SA-SCIB IF CONTACT AND A STATE	PCM396023	12/31/26 11 21	KORE
		Remnissiells			
1-96-33	7//31/96	SB1330610	PCM-96180	19231179/61 70	MOLEVESSE
-		PCM Isnel Street			
2596-28	4125/96	2AvPurationan Killer	PCM 96167 THE	1215111967-5-500105	Hansen
	REALE	PCM Issued to set the set of the set			
2-96-41	11/15/96	Revise LIA 9006 setpoint	РСМ	12/31/96	Pawley
		PCM 12/20/96			
2-94-25	510945	18 for the larbine inlet Mehi-	PCM2961/5		COV/CY/S
		PCM2ssued States Transferration			
1-95-58	11/7/95	Fire detector computer	Splice cable	3/31/97 .	Anthony
	016/06		CI DI NUNDOND	0	Develop
1-96-40	9/6/96	1.1-07-12	CLEAN PROBE	Outage	Pawley
2.06.04	1/02/07		INCOAT A NEW	Outo <i>r</i> o	Dowlow
2-90-04	1/25/90	Gov viv 3 position indic lights	CARLE NEW	Outage	rawley
1.06.24		Toubles says anod musuimites	DEDLACE	SNO	Powley
1-90-34	//31/90	i urbine zero speca proximity	REPLACE	210	rawley
		hione			
2-96-38	8/29/96	#2 bearing seismic probe	REPLACE	SNO	Pawley





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Services Procedure Upgrade

Challenges

- Timely Technical Reviews
- Managing Backlog Procedure Maintenance vs. Procedure Upgrade
- Incorporating Technology

Performance Trends

• Procedures with Temporary Changes

Services Procedure Upgrade

- Annunciator Procedures Upgrade Program
 - Unit 1 A and B Panels Written
 - Unit 2 A and B Panels in Process

- Evaluating and Benchmarking Upgrade Process in Industry
 - On-line Procedures
 - First Time Procedure Use
 - Level of Usage

Services Procedure Upgrade

- Centralized Procedures Development Group (One Supervisor and Five Operations, Five Maintenance)
- Low Number of Procedures with Temporary Changes
- Matching Writer with Worker for Development Time
- Upgraded Unit 1 Procedures
 - Turbine Start-Up
 - Reactor Start-Up
 - Turbine Shut Down
 - Reactor Shut Down
 - Reactor Coolant System Cooldown
 - Reactor Coolant System Heat Up

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PROCEDURES WITH TEMPORARY CHANGES



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Services Training Department

Strengths

- Implemented Real Time Training Coaches
- Conducted Basics of Supervision (BOS) Class for Plant Supervisors
- Developing a Method to Determine/Display Training Effectiveness
- Enhanced Management Observations of Training Classes
- Developed a Group to Review Changes and Perform Internal Audits
- Departmental Training Plans
- Dynamic Learning Activity (DLA) Hands-on Training



MANAGEMENT OBSERVATIONS (NP-914)



Challenges

- Establish Increasing Standards for Corrective Actions as the Organization Matures
- Identify Training Needs
 - Improve Root Cause Capabilities On-Site
 - Establish a Hierarchy to Effectively Manage Backlog
 - Reduce Unnecessary Burden to Engineering on Short Term Operability Review

Equipment Events

- Repeat Event Equipment Component Categories for the Last Two Quarters Have Been:
 - Charging Pumps
 - CEA Controls
 - Auxiliary Feedwater MOV
 - Radiation Monitoring
 - RCP Seals

Performance Trends

- Self-Identified Condition Reports Improved
- Condition Reports Initiated By Department Improved
 - Condition Reports Initiated By Quarter Improved

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1996 YTD CONDITION REPORTS GENERATED BY QUARTER



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1996 YTD CONDITION REPORTS BY INITIATING DEPARTMENT



Services Security Department

Tampering Event Actions

- Standdown Meetings Held with Plant Personnel Informing Them of the Tampering Event
- Random Security Patrol Frequency Increased in Vital Areas of the Plant
- Historical Review Performed to Identify Any Potential Additional Instances of Tampering
 - Vital Area Access/Reduced the Number of Personnel with Access
 - Inspections for Tampering Have Been Incorporated into Plant Material Inspection Activities
 - System Engineering Walkdowns Include Inspections for Tampering
 - Remote Shutdown Rooms Have Been Locked with "Break Away" Locks
- Security Surveillance Equipment Installed Throughout the Plant

Services Security Department

Strong Operational Assessment

- Valve Line-Up Verification
- Surveillance of Stand-By Equipment
- Site-Wide Inspections
- Standardized Response by Procedure Development

Licensing

1996 NRC Inspection Status

- Over 8000 NRC Inspection Hours, as of November 30, 1996
- Violation Status
 - 25 Cited Violations, 14 Pending and Apparent Violations
 - 22 Non-Cited Violations, 2 Pending proposed Non-Cited Violations
- National Violation Trend shows an increasing number of violations cited when compared to 1995
- Systematic Assessment of Licensee Performance (SALP)
 - Current 14-month interval ends March, 1997
 - Previous SALP covered 24-month interval (1/94 1/96)
 - Operations 2; Maintenance -2; Engineering 1; Plant
 Support 1

Licensing

Current and Upcoming Inspection through March 1997

- Architect Engineer Safety System Functional Inspection (ongoing)
- Radioactive Material Transportation
- Occupational Radiation Exposure
- Physical Security Program
- Maintenance Rule Team Inspection Follow-up
- Steam Generator Integrated Inspection
- Engineering (Title 10 CFR 50.59)











Business Systems

1996 Projected Year End O&M Variance \$18,200,000.

- What went wrong?
 - Cash flow loaded too early in the year.
 - > Masked spending problem
 - Lack of contractor controls
 - Unknowingly over spent contracted services budget
 - Outage extensions
 - > PSL 2 outage extended into 1996
 - > PSL 1 outage scope too large for budget

Business Systems

- <u>Countermeasures</u>
 - Strong expenditure controls established
 - Approvals and accountability raised to the appropriate level
 - Performance against current year end forecast strictly monitored and controlled
 - Aggressive inventory reduction begun
 - > 1996 Year end inventory value \$38M
 - > 1997 Year end inventory value \$34M

Business Systems

'97 FOCUS Preparing for 1 cent/Kwh in 1998

- Cost Controls
 - Improved system to be in place in January
 - Closely control outage costs
 - Reduce outage durations
 - Unit 2 42 Days
 - Unit 1 70 Days
Business Systems

- "ONE CENT in '98" campaign
 - Employee awareness
 - Informal "Socials"
 - Awards for cost improvement ideas
 - Awareness items
 - "1 cent" Shirt
 - Hard hat stickers
 - Distribute Industry and FPL Corporate Information
 - Monthly management briefings
 - 'On the Line' articles
 - Site Television articles





• Scheduled Duration - 42 Days

• October - Unit 1

• Scheduled Duration - 70 Days

Unit 2 Outage Scope

- 16 major Modifications
 - GL-95-07 Pressure Locking
 - Pressurizer Code Safety
 - Incore Quick Lock
- 28 Minor Modifications
 - 1030 Corrective Work Orders
 - 623 Preventative Work Orders
 - Main Generator Rotor Out Inspection
 - MSIV Overhaul
 - SG 100% ECT

Unit 1 Outage Scope

18 Major Modifications

- Steam Generator Replacement
- Pressurizer Heater Sleeve
- RWT Bottom Repair
- Incore Quick Lock
- RCP N-9000 Seal
- Control Rod Drive Upgrade
- 14 Minor Modifications
 - 437 Corrective Work Orders
 - 33 Preventative Work Orders

Challenges

- Outage Planning Horizon
- Outage Budget Controls
- Outage Scope Control
- Process to Ensure Parts and Materials Inventories Meet Schedule Requirements
- Standardization of Work Processes

STEAM GENERATOR REPLACEMENT PROJECT

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		Millions of Dollars
	• Steam Generator Fabrication	\$ 49
-	• Engineering and Implementation	\$ 75
	• Old Steam Generator Disposal	\$ 12
	Project Management	\$ 46
	Total Budget	\$182

Cash Flow

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MILLIONS OF DOLLARS

Project Milestones

- SGT Onsite January 2, 1997
- RSG Delivery May 10, 1997
- Project Readiness complete August 20, 1997
- September 1 to October 20, 1997 Ready to Go Window
- Outage Start October 20, 1997
- 70 Day Outage w/36 Day SGR Critical Path
- Unit online December 29, 1997
- Last Old Steam Generator Offsite January 28, 1998

Outage Milestones

- SGT Critical Path begins. Final Cut/Remove Construction Hatch. November 4, 1997
- Temporary Lifting Device (TLD) Erected in Containment. November 14, 1997
- First Steam Generator (1A) Removed from Containment. November 17, 1997
- Last Steam Generator (1B) Set in Place. November 25, 1997
- Construction Hatch Reinstalled to Support Loading Fuel.
 December 8, 1997
- SGT Critical Path Ends. RCS Pipe Welded & Manways Installed. December 10, 1997

Challenges

- Barnwell Burial Cost
- RCS Pipe Movement
- Outage Date Shift
- 50.59 Acceptance

Contingencies

- Storage Onsite
- Use restraining or PC/M with New Elbow
- Ready to Go Window (September 1 October 20)
- Plan Developed

Summary

- Dedicated Team
- Industry Experience
- Proven Technologies
- Self Assessment Program





Overall Assessment

- Cautiously optimistic that observed signs of improvement will continue
 - Improved consistency in unit operation
 - Major initiative in procedure improvement
 - Improvements noted in Critical Maintenance Management activities

• Opportunities for improvement

- Welding program
- Preventative maintenance program
- Evaluation of reportability for plant events

Quality Assurance Audits

• Welding Program Audit - Four administrative findings in Welding Program Administration, Instrument Calibration, Procurement, Welding Control Measures





Quality Assurance

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Quality Report (QR) Has Been Implemented at PSL

- Process replicated from PTN
- Improvement in real-time feedback on plant performance - resulting in prompt corrective actions
 - Excessive fouling of 2A CCW Heat Exchanger due to silt may not be considered in heat exchanger performance curves
 - Reportability of 1AB DC Bus Breaker Prompted by QA
 - Identified Problems with VT2 Inspection Process

Facilitated Team Review of Work Packages for Quality and Customer Usability

- 5 Journeymen (Customers), 2 QC Inspectors, 2 Work Planning Supervisors from PTN, 3 Managers
- Results Were a Better Understanding of Problems/Solutions for Work Processes Relating to Efficiency of Maintenance

Quality Assurance

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Significant Contributor to Condition Report Process

• Quality Department - largest per-capita initiator of CRs

• Meaningful feedback to plant management

- Repetitive maintenance caused by incomplete work
- Problems with items stored in warehouse
- TSA process deficiencies
- Valve configuration control problem

Quality Assurance

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QA Process Improvements

- More timely issuance of QA Findings
- New format for quarterly trend report tailored to end users
- Standardization of procedure review process with PTN
- Elimination of SQM
- Quality Department trending of CRs