

Template RGN-002

March 2, 2000

Florida Power and Light Company
ATTN: Mr. T. F. Plunkett
President - Nuclear Division
P. O. Box 14000
Juno Beach, FL 33408-0420

SUBJECT: MEETING SUMMARY - EMERGENCY OPERATING PROCEDURES
ST. LUCIE 1 AND 2 - DOCKET NOS. 50-335 AND 50-389

Dear Mr. Plunkett:

This refers to the meeting conducted at your request at the NRC Region II office in Atlanta, Georgia on February 8, 2000. The meeting's purpose was to discuss Emergency Operating Procedures (EOP) issues and recent St. Lucie Unit 1 reactor trips. Enclosed are a list of attendees and the presentation handouts.

The discussions included the following topics: Summary of EOP Issues, EOP Program evaluation results, and status of corrective actions. A brief discussion of recent St. Lucie Unit 1 reactor trips followed. It is our opinion that this meeting was informative, and provided a candid assessment of your EOP program issues and corrective actions.

In accordance with Section 2.790 of NRC's "Rules of Practice," Part 2, Title 10 Code of Federal Regulations, a copy of this letter and its enclosures will be placed in the NRC Public Document Room.

Should you have any questions concerning this letter, please contact me at (404) 562-4540.

Sincerely,

/RA/

Leonard D. Wert, Chief
Reactor Projects Branch 3
Division of Reactor Projects

Docket Nos. 50-335, 50-389
License Nos. DPR-67, NPF-16

Enclosures: 1. List of Attendees
2. Handouts - Emergency Operating
Procedures Issues and St. Lucie Unit 1
Reactor Trips

cc w/encls: (See page 2)

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cc w/encls:

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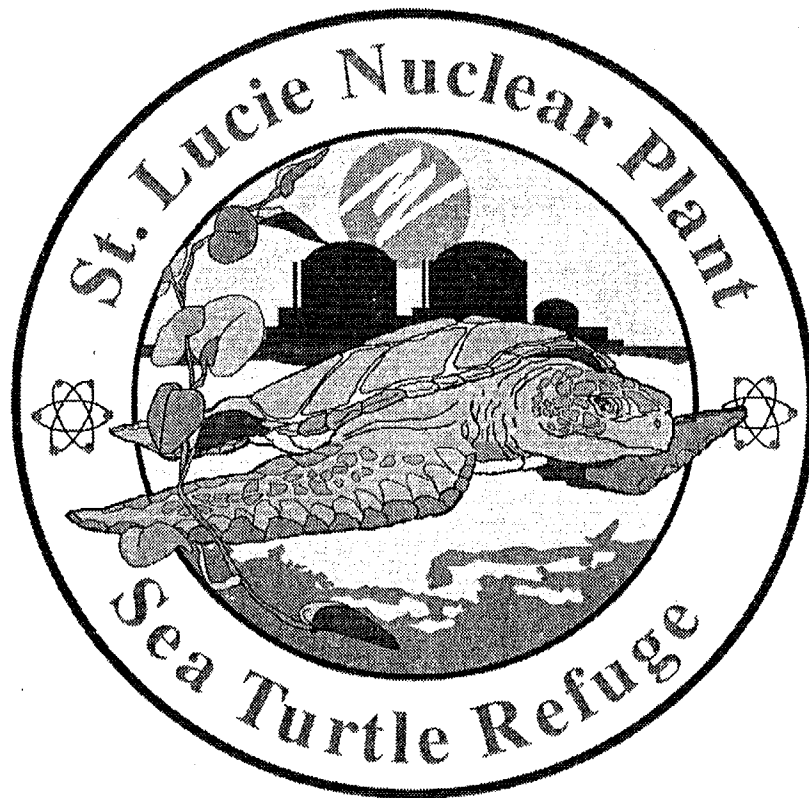
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DOCUMENT NAME: G:\STLUCIE\MEETING\2-8-00 summary.wpd



**Emergency Operating Procedures Issues
Florida Power & Light Company**

St. Lucie Plant

February 8, 2000



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Emergency Operating Procedures Issues Agenda

- **Opening Remarks (Stall / Kundalkar)**
- **Summary (Guldemon)**
- **Evaluation Results**
- **Actions / Project Plan**
- **Status**
- **Conclusions**



Emergency Operating Procedures Issues Summary

Issue

- **Problems With Administration of Emergency Operating Procedure (EOP) Changes**

Initial Actions

- **Assembled Team to Evaluate Extent of Condition**
- **Quality Assurance (QA) Asked to Independently Review Issue**
- **Informed Resident Inspectors**



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Emergency Operating Procedures Issues Summary

Findings

- **Inconsistent Adherence to FPL Administrative Requirements**
- **Backlog of Open EOP Issues**
- **Untimely Identification and Correction of Issues**

QA Independently Reached Same Conclusions



Emergency Operating Procedures Issues Summary

Response

- **Generated Root Cause Condition Report to Evaluate Condition**
- **Existing EOPs Determined to Be Acceptable to Mitigate Accidents**
 - Prepared Using Owners Group Guidance (CEN-152) As Base Document
 - Performed Reviews by Licensed Personnel, Engineering, and the Facility Review Group (FRG)
 - Conducted Validation Activities
 - Successfully Exercised in Simulator and in Plant



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Emergency Operating Procedures Issues Summary

- **Established Project to Evaluate Conditions and Implement Remedial Actions (November 1999)**
- **Suspended Issuance of All but Essential EOP Changes (November 1999)**



Emergency Operating Procedures Issues Evaluation Results

- **Insufficient Management Oversight of EOP Changes**
 - Integrated Plan Not Established for Managing the Upgrade Process to Completion
 - Integrated Schedule Not Established for EOP Changes
 - Involved Personnel Not Fully Conversant in Administrative Requirements
 - Lack of Regular Review of Project Status and Identified Deficiencies Including Condition Reports



Emergency Operating Procedures Issues Actions / Project Plan

Plan Management

- **Developed Integrated Plan to Manage Efforts to Reestablish Conformance With Administrative Requirements and Resolve Near Term Outstanding Issues**
 - Established Single Point Management Accountability
 - Identified Resource Needs Based on Plan Activities
 - Obtained Resource Commitments From Affected Departments
 - Conducted Indoctrination of Involved Personnel
 - Monthly Progress Reports
 - QA Overview Ongoing



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Emergency Operating Procedures Issues Actions / Project Plan

Plan Elements

- **Establish a New Baseline Document for EOPs**
- **Conduct Review of EOPs and Plant Specific Technical Guidelines (PSTGs) to Identify and Evaluate Departures From New Baseline**
- **Review Existing Verification / Validation and Training Documentation**



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Emergency Operating Procedures Issues Actions / Project Plan

Plan Elements

- Evaluate Outstanding Condition Reports and Plant Management Action Items**
- Validate EOP Change Process to Regulatory Requirements**
- Incorporate Necessary Changes and Issue Single Package of Enhanced EOPs**
- QA Oversight of Project Plan and Implementation**



Emergency Operating Procedures Issues Status

<u>ACTIVITY DESCRIPTION</u>	<u>START</u>	<u>FINISH</u>	<u>STATUS</u>
DEVELOP INDICATOR TO TRACK PROGRESS OF EOP RECOVERY	13 DEC 99	21 DEC 99	COMPLETE
UPDATE EPG MAINT BOOK WITH CHANGE NOTICES (FRRs) AFTER REVISION 3	13 DEC 99	03 JAN 00	COMPLETE
OBTAIN RESOURCE COMMITMENT EOP RECOVERY EFFORT FROM DEPTs	13 DEC 99	03 JAN 00	COMPLETE
REVIEW / REVISE / VALIDATE EOP CHANGE PROCESS	13 DEC 99	14 JAN 00	COMPLETE
REVIEW CONDUCT OF OPS FOR EOP USAGE GUIDANCE	20 DEC 99	28 JAN 00	COMPLETE
MARK UP CEN-152 REVISION 3 WITH CHANGE NOTICES (FRRs) IMPLEMENTED @ PSL	31 DEC 99	15 FEB 00	88%
REVIEW 1998-2000 CRs AGAINST EOPs FOR TECH ISSUES	03 JAN 00	28 JAN 00	COMPLETE
UPDATE PSTGs FOR PSL EOPs RELATIVE TO REVISION 3+	14 JAN 00	28 FEB 00	60%
PROCESS REVISIONS PSTGs & EOPs	24 JAN 00	01 JUL 00	5%
MONTHLY REPORT TO NRC AND MANAGEMENT	27 DEC 99	01 JUL 00	ONGOING



Emergency Operating Procedures Issues Status

Findings

- **Once Through Cooling Requirements**
- **S/G Tube Rupture - Containment Isolation for Simultaneous Events**
- **RCP Seal Controlled Bleed-Off Control**



Emergency Operating Procedures Issues Status

Assessments

- **Once Through Cooling Requirements**
 - Requires Multiple Simultaneous Failure of Redundant HPSI Pumps
 - Covered in Operator Training on Once Through Cooling Strategy
- **S/G Tube Rupture - Containment Isolation for Simultaneous Events**
 - Reprioritizes Containment Isolation Safety Function
 - Condition Would Be Addressed by Functional Recovery Guidelines



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Emergency Operating Procedures Issues Status

Assessments (cont.)

- **RCP Seal Controlled Bleed-Off Control**
 - Preceding Steps Appropriately Isolated Seals
 - Covered in Operator Training on Seal Failure LOCAs
 - Would Require Operators to Consciously Undo an Action Just Taken
 - Rugged Seal Design



Emergency Operating Procedures Issues

Conclusions

- **Current EOPs Capable of Being Used to Successfully Mitigate Accidents**
- **Insufficient Management Oversight of EOP Processes**
- **Staff Not Fully Conversant in Processes**



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Emergency Operating Procedures Issues Conclusions

Integrated Project

- **Plan Establishes**
 - EOPs With Proper Documentation
 - EOP Quality
 - Completed Training
 - Correction of Outstanding Weaknesses



**St. Lucie Unit 1 Reactor Trips
Florida Power & Light Company**

St. Lucie Plant

February 8, 2000



St. Lucie Unit 1 Reactor Trips

Issues

Recent St. Lucie Unit 1 Reactor Trips

- **Unit 1 Manual Scram - Loss of Condenser Vacuum on August 23, 1999**
- **Unit 1 Turbine / Reactor Trip - Ruptured Turbine Low Bearing Oil Trip Diaphragm on October 29, 1999**
- **Unit 1 Manual Reactor Trip - Low Steam Generator Level on October 30, 1999**
- **NRC Performance Indicator**



St. Lucie Unit 1 Reactor Trips

Unit 1 Manual Scram - Loss of Condenser Vacuum on August 23, 1999

- **Event Description**

- 100 Percent Reactor Power
- Annunciation of “Abnormal Gland Seal Steam Pressure” and “Turbine Vacuum Low”
- Prepared for a Rapid Downpower
- Manual Trip Ordered When Backpressure Reached the Administrative Limit of 5.5 Inches Hg



St. Lucie Unit 1 Reactor Trips

Unit 1 Manual Scram - Loss of Condenser Vacuum on August 23, 1999

- **Cause**
 - Malfunction of Turbine Gland Seal Steam Regulating Valve
- **Corrective Actions**
 - Faulty Regulator Replaced
 - Unit 1 Turbine Gland Seal Steam Regulators Tested
 - Unit 2 Turbine Gland Seal Steam Regulators to Be Tested in SL2-12



St. Lucie Unit 1 Reactor Trips

Unit 1 Manual Scram - Loss of Condenser Vacuum on August 23, 1999

- **Conclusions**
 - Cause Was Failure of Reliable Component
 - Operators Responded Conservatively
 - Corrective Actions Appropriate to Prevent Recurrence



St. Lucie Unit 1 Reactor Trips

Unit 1 Turbine / Reactor Trip - Ruptured Turbine Low Bearing Oil Trip Diaphragm on October 29, 1999

- **Event Description**

- 100 Percent Reactor Power
- Annunciation of “Turbine Bearing Oil Pressure Low”
- A Small Amount (Approximately Two Drops Per Minute) of Oil Was Leaking From the Cover of the Turbine Protective Device Trip Block
- Turbine / Generator and Reactor Automatically Tripped



St. Lucie Unit 1 Reactor Trips

Unit 1 Turbine / Reactor Trip - Ruptured Turbine Low Bearing Oil Trip Diaphragm on October 29, 1999

- **Cause**
 - Failure of Diaphragm Installed During Recent Outage for the Turbine Low Bearing Oil Trip Protective Device
- **Corrective Actions**
 - Faulty Diaphragm Was Replaced
 - Other Potentially Defective Diaphragms Were Replaced on Unit 1
 - Prompt Notification to Industry Thus Avoiding Other Units' Trips
 - Commitment From Vendor



St. Lucie Unit 1 Reactor Trips

Unit 1 Turbine / Reactor Trip - Ruptured Turbine Low Bearing Oil Trip Diaphragm on October 29, 1999

- **Conclusions**

- Cause Was Failure of Vendor Supplied Component
- Operators Responded Appropriately
- Corrective Actions Appropriate to Prevent Recurrence



St. Lucie Unit 1 Reactor Trips

Unit 1 Manual Reactor Trip - Low Steam Generator Level on October 30, 1999

- **Event Description**
 - Unit 1 in Process of Reactor Startup
 - During Operations Turnover, Level of 1A Steam Generator Began Dropping
 - Attempts to Recover the 1A Steam Generator Level Were Unsuccessful
 - Reactor Manually Tripped on Receipt of Steam Generator Low Level Pre-Trip Alarms



St. Lucie Unit 1 Reactor Trips

Unit 1 Manual Reactor Trip - Low Steam Generator Level on October 30, 1999

- **Cause**
 - Personnel Error in Manual Steam Generator Level Control
- **Corrective Actions**
 - Operations Manager Reviewed Event and How It Could Have Been Avoided with Operations Personnel
 - Night Orders Included a Briefing Summary of Event and Included Additional Guidelines for the Conduct of Crew Turnovers
 - Simulator Time Being Devoted to Trip Initiating Scenarios



St. Lucie Unit 1 Reactor Trips

Unit 1 Manual Reactor Trip - Low Steam Generator Level on October 30, 1999

- **Human Performance Initiatives**
 - Reemphasis of Management Expectations
 - Pre-Evolution Brief Emphasis on Vulnerabilities
 - Post-Evolution Critiques
 - Management Overview Expectations Strengthened
 - Facilitative Error Review Process
 - Collective Significance Evaluation of Operator Errors



St. Lucie Unit 1 Reactor Trips

Unit 1 Manual Reactor Trip - Low Steam Generator Level on October 30, 1999

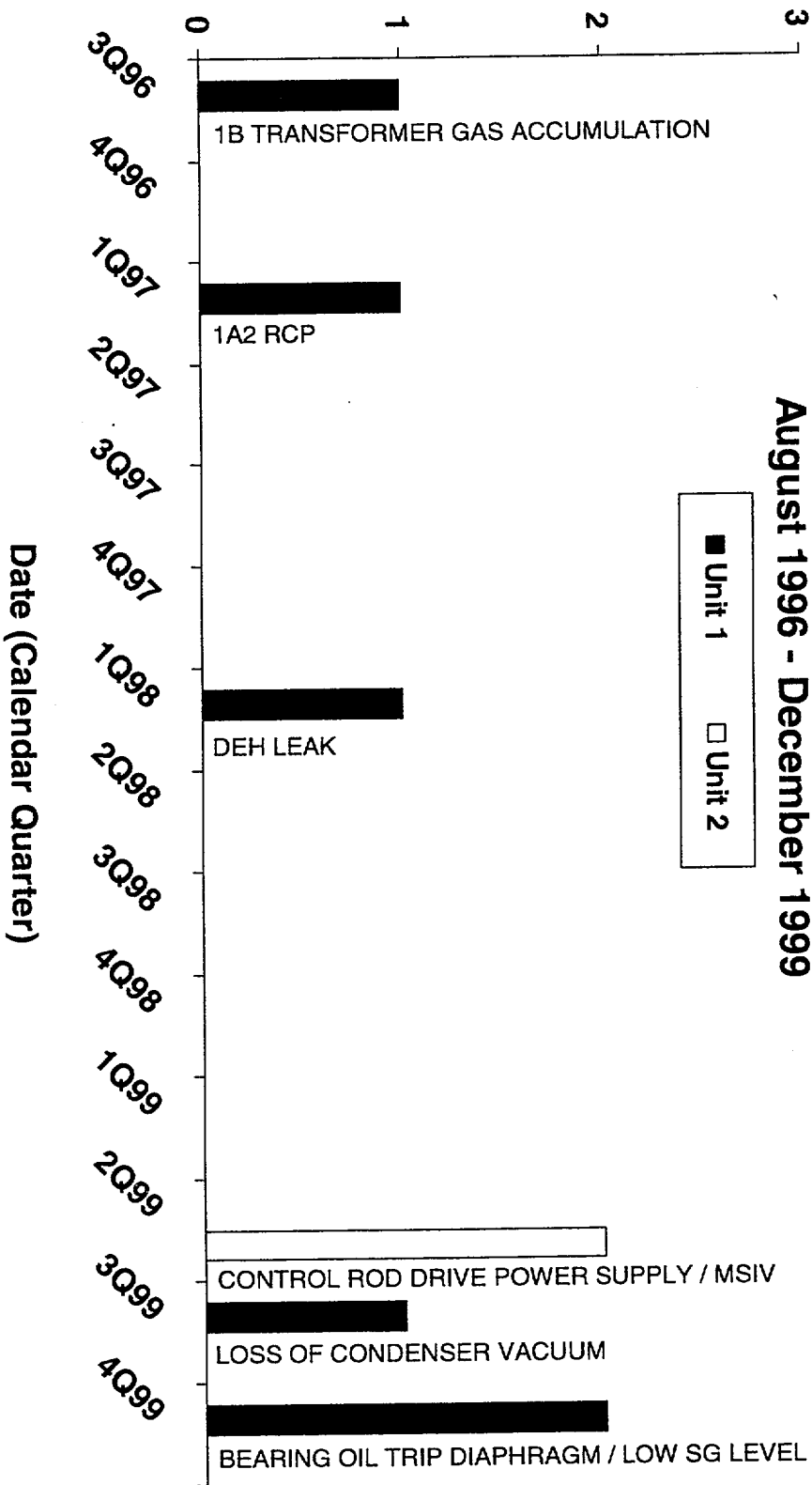
- **Conclusions**
 - Cause Was Failure to Manage Plant Conditions
 - Specific Actions to Address Event Appropriate
 - Personnel Errors and Improved Human Performance Are
St. Lucie Plant Focus Areas for 2000



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St. Lucie Reactor Trip History

Number of Manual & Automatic Trips at Power





St. Lucie Reactor Trip History

- **PSL 1 & 2 Trip History Review 8/96 - 6/99**
 - 5 Trips; 3 Manual and 2 Automatic
 - 3 Equipment Related, 1 Personnel Error Related, and 1 Procedure Related
- **Causes Unrelated to Recent Unit 1 Trips**
- **No Repeat Events**
- **Conclusion**
 - Trip Potential Appropriately Managed



St. Lucie Unit 1 Reactor Trips

Processes in Place to Minimize Potential for Reactor Trips

- **Load Threatening Surveillance Activities Receive Management Attention**
- **“Red Sheet” Reviews of Trip-Likely Activities**
- **Pre-Job Briefs / Post-Evolution Critiques**
- **Human Performance Initiatives**
- **Reactivity Manager for Startups**
- **Work Management Process in Place to Control Plant Maintenance on a Day-to-Day Basis**
- **Simulator Training**



St. Lucie Unit 1 Reactor Trips

Conclusions

- **Trips Are Unrelated**
- **Causes of Equipment Induced Trips Addressed**
- **Processes for Managing Trip-Likely Situations
Appropriate**
- **Human Performance Issues Are Being
Addressed**