



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

November 27, 1991

Docket No. 50-440

LICENSEE: The Cleveland Electric Illuminating Company

FACILITY: Perry Nuclear Power Plant, Unit 1

SUBJECT: SUMMARY OF NOVEMBER 14, 1991 MANAGEMENT MEETING

On November 14, 1991, a routine management meeting was held in Rockville, Maryland between personnel from the Cleveland Electric Illuminating Company (CEI) and the NRC staff to discuss issues of current interest regarding Perry Unit 1. A list of attendees is provided in Enclosure 1. Enclosure 2 consists of the slides presented by CEI at the meeting.

Mr. Mike Lyster, Vice President Nuclear-Perry, discussed his view that the Perry plant has continued to show positive progress in safe operation. He emphasized the licensee's recent initiatives in cooperating with industry, citing Perry's participation in INPO programs, a recent visit to European BWR plants to exchange information and operating experience, and coordination with the three other domestic BWR-6 plants and the seven other members of the Single Large Utilities Group on issues of mutual interest. He also expressed interest in holding a future meeting with the NRC to discuss the licensee's long-term goals as outlined in their 5-Year Plan.

Mr. Steve Kensicki, Director of the Perry Nuclear Engineering Department, provided an overview of plant performance during the current operating cycle, which began in January 1991. Improving trends in several NRC performance indicators and relatively high plant availability were noted. The licensee's actions in response to problems with scram solenoid pilot valves were discussed. Mr. Kensicki indicated that personnel radiation exposures have been kept within the licensee's goals, but that the number of personnel contaminations continues to be greater than expected. The licensee indicated that, for Perry, the RWCU system piping is the major contributor to the relatively high source term observed at BWR-6 plants. However, the planned replacement of sections of that piping during the 1992 refueling outage may have to be deferred, due to procurement delays. The licensee also acknowledged that the number of LERs issued for Perry to date was higher than the industry average, but believed that the personnel error rate has declined recently.

Mr. Ken Pech, Manager of Outage Planning, discussed the licensee's goals and objectives, and major work activities for the third refueling outage, scheduled to commence on March 21, 1992. A major outage issue involves the planned actions and contingencies upon the reinspection of two previously identified feedwater nozzle weld indications. The licensee plans to perform a mechanical stress improvement process on all RPV nozzles to mitigate the effects of intergranular stress corrosion cracking. The staff agreed to set up a meeting shortly to discuss different scenarios that could arise based on the results of

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the outage inspections. Mr. Pech then discussed how shutdown risks were considered in the planning of the upcoming outage. The staff suggested that PRA insights gained from the licensee's ongoing Individual Plant Examination could be of value in outage planning.

Mr. Mel Gmyrek, Operations Manager, and Mr. Bill Coleman QA Manager, discussed the licensee's corrective actions for problems identified in the EOP program. The licensee has evaluated the root causes and has instituted improvements to assure adequate management and QA involvement in the process. The licensee's conclusion is that the management problems were isolated to the EOP program. The staff expressed the hope that the licensee would benefit from the lessons learned by assuring the quality of the Perry EOP program in the future.

Mr. Vince Concel, Manager of Systems Engineering, concluded the meeting with a discussion of licensee initiatives to improve MSIV performance. Modification packages will be staged (and the work included in the outage scope) to repair the MSIVs in the event that they are again identified as the primary cause of failed local leak rate tests of the main steam line penetrations. Other measures to allow improved trending of MSIV performance were discussed.

Sincerely,

Original Signed By:

James R. Hall, Sr. Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Enclosures: as stated

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ATTENDANCE LIST

11/14/91 PERRY MANAGEMENT MEETING

NAME

TITLE/ORGANIZATION

James R. Hall	Sr. Project Manager - NRC/NRR
John N. Hannon	Project Director, PD III-3, NRC/NRR
John A. Zwolinski	Asst. Director for RIII Reactors, NRC/NRR
Patrick L. Hiland	Sr. Resident Inspector-Perry, NRC/RIII
Roger D. Lanksbury	Chief, Reactor Proj. Section 3B, NRC/RIII
Eric J. Leeds	Technical Assistant, DRPW, NRC/NRR
Bruce A. Boquer	Director, DRPW, NRC/NRR
Warren H. Swenson	Technical Assistant, DRPW, NRC/NRR
Jesse A. Arildsen	Sr. Operations Engineer, DLPQ, NRC/NRR
Steven F. Kensicki	Director-Perry Nuclear Eng. Dept., CEI
Kevin P. Donovan	Manager-Licensing and Compliance, CEI
Kenneth R. Peck	Manager-Outage Planning, CEI
Michael D. Lyster	VP Nuclear-Perry, Centerior Energy Corp
Melvin W. Gmyrek	Operations Manager, CEI
Vincent J. Concel	Manager-Systems Engineering, CEI
William E. Coleman	Manager-Quality Assurance, CEI

Agenda for PNPP Management
Meeting with NRC
November 14, 1991

Introduction

M. Lyster

Performance Review

S. Kensicki

- Cycle 3 Performance (through October)
- NRC Performance Indicators

Refueling Outage 3 Planning

K. Pech

- Schedule and Organization
- Shutdown Risk Initiatives

EOP Violation Issues

M. Gmyrek

MSIV Improvement Plans

V. Concel

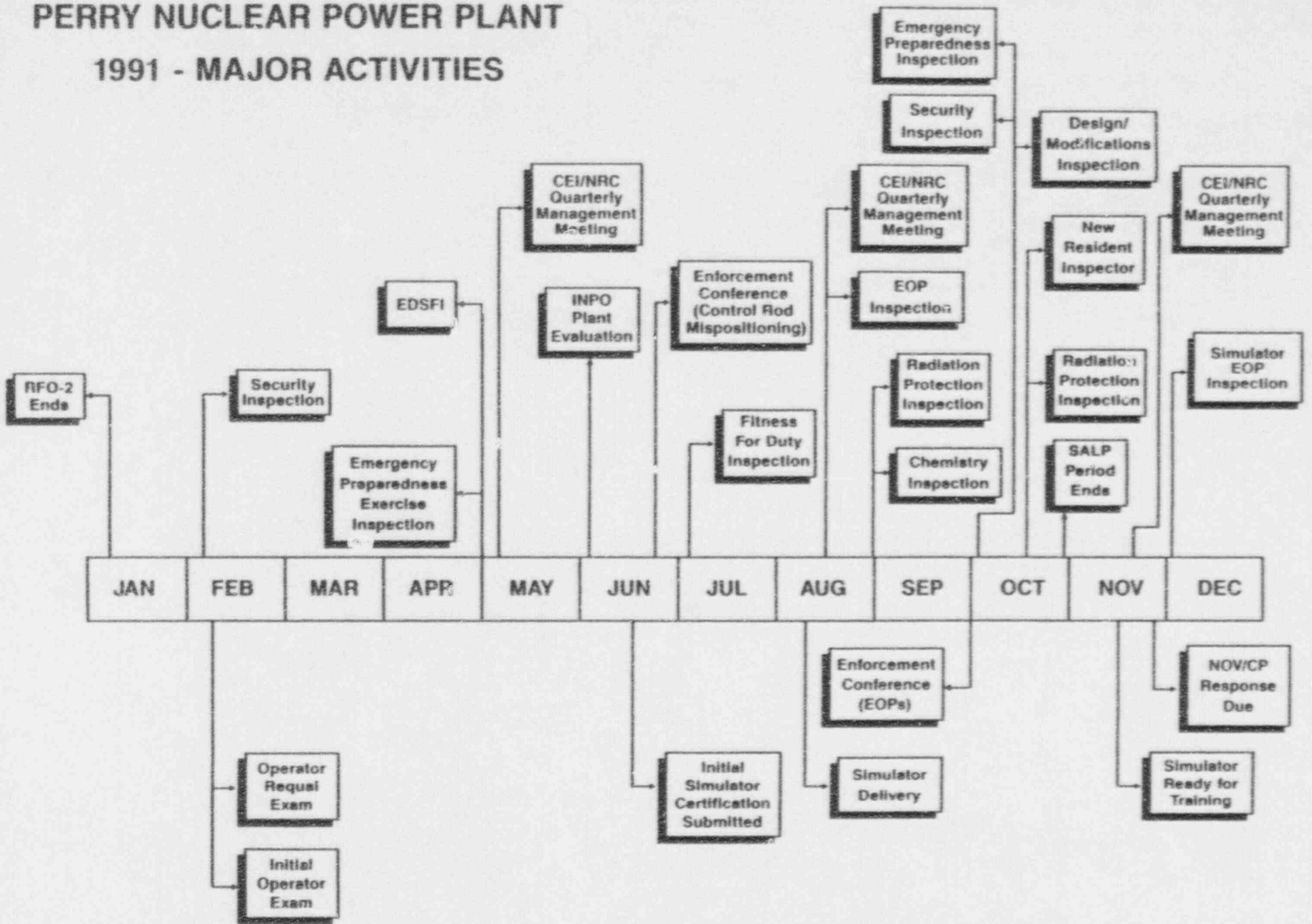
PERFORMANCE
REVIEW

CYCLE 3 Performance (Through October, 1991)

- Net Capacity Factor - 88.6%
- Availability Factor - 93.3%
- 3 Unanticipated Power Reductions
 - Recirculation system leak
 - Turbine control hydraulic leak
 - SSPV failure
- Low personnel radiation exposure (135 man-rem vs goal of 138).
- Higher than expected personnel contaminations
- Corrective Maintenance Work Order backlog well below INPO median (47.6% vs 52%)
- Preventive Maintenance Ratio better than industry median (76% vs 46%)
- New simulator installed and ready for training
- 22 LERs, higher than expected

PERRY NUCLEAR POWER PLANT

1991 - MAJOR ACTIVITIES



NRC Performance Indicators Perry

PI	90-2	90-3	90-4	91-1	91-2	91-3	BWR Avg.
Scrams	0	0	0	0	0	0	0.3/qtr
Safety System Actuations	0	0	0	0	0	0	0.2/qtr
Significant Events	0	0	0	1	0	0	0.2/qtr
Safety System Failures	7	4	1	2	0	0	1.2/qtr
Forced Outage Rate	0	0	0	0	18	0.8	7%/qtr
Equip. Forced Outages/1000 Commercial Hours	0	0	0	0	0.55	0.45	0.4
Radiation Exposure Man-rem	48	163	392	33	60	30	120/qtr

RFO-3 PLANNING

RFO-3 GOALS & OBJECTIVES

Objective:

Safe Outage Execution

Goals:

- Minimize Collective Radiation Exposure
- Minimize Personnel Safety Incidents <0.19% Lost Work Frequency CEI and Contractors.
- Minimize Events Due to Personnel/Procedure Errors

Objective:

Effective Work Control

Goals:

- Outage Duration of 57 days or less.
- Outage Completed Within Target Budget.
- Scope Control in Accordance With Established Guidelines < 30% Scope Additions

Objective:

Prepare Unit For Safe/Reliable Cycle 4 Operation

Goals:

- Complete at least 90% of Original Work.
- Complete All Commitments to Regulatory Agencies.
- Complete All Surveillance Requirements to Allow Continuous Operation until September 1993.

Refueling Outage 3 Planning

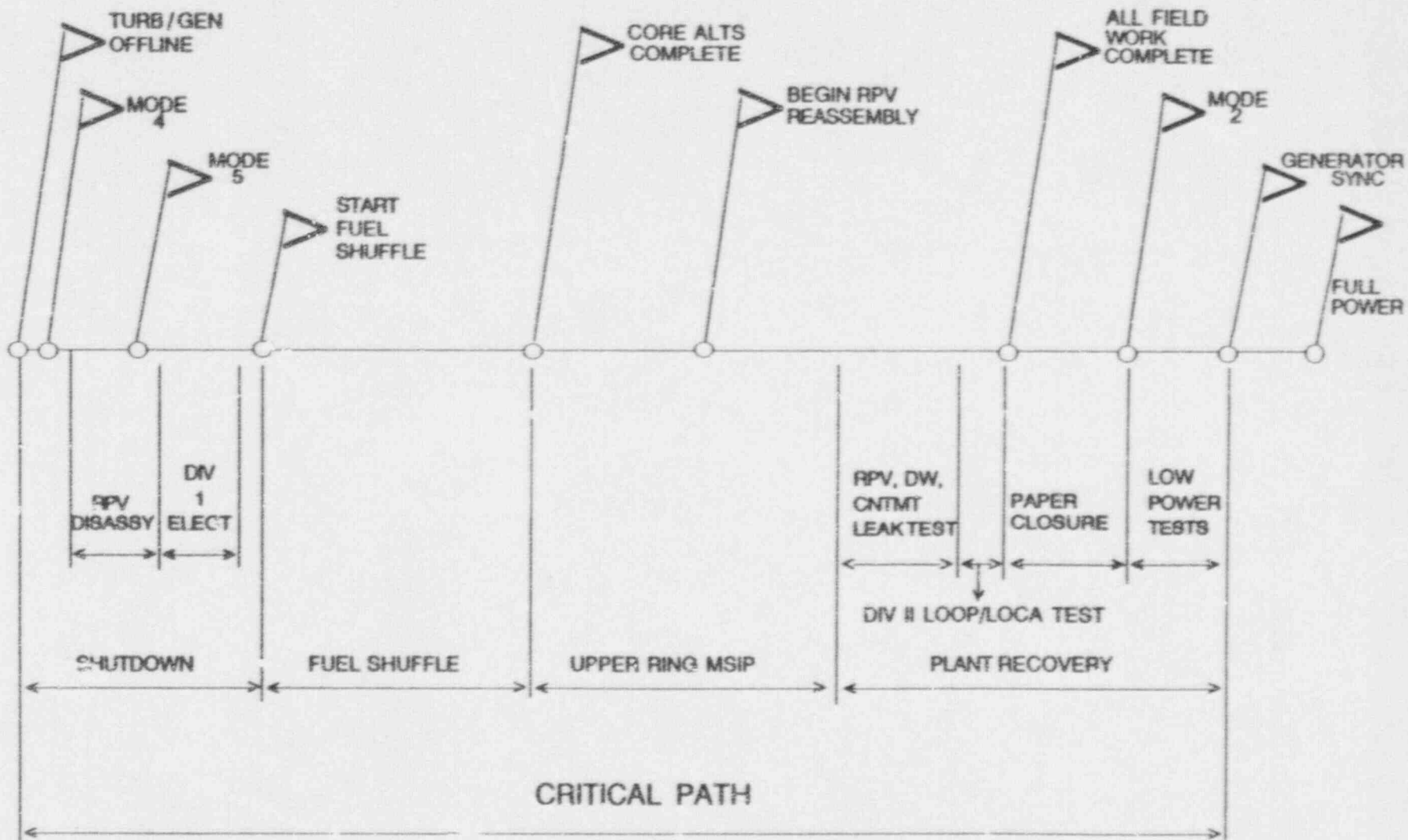
- Planned 57 days - Beginning March 21, 1992

- Work Scope
 - 40 Design Changes
 - 800 Work Orders
 - 800 Repetitive Tasks
 - 500 Surveillances

- Critical Path
 - Plant Shutdown/Cool-down
 - Refueling Activities
 - Mechanical Stress Improvement Process
 - Integrated Leak Rate Testing
 - Plant Startup/Power Ascension

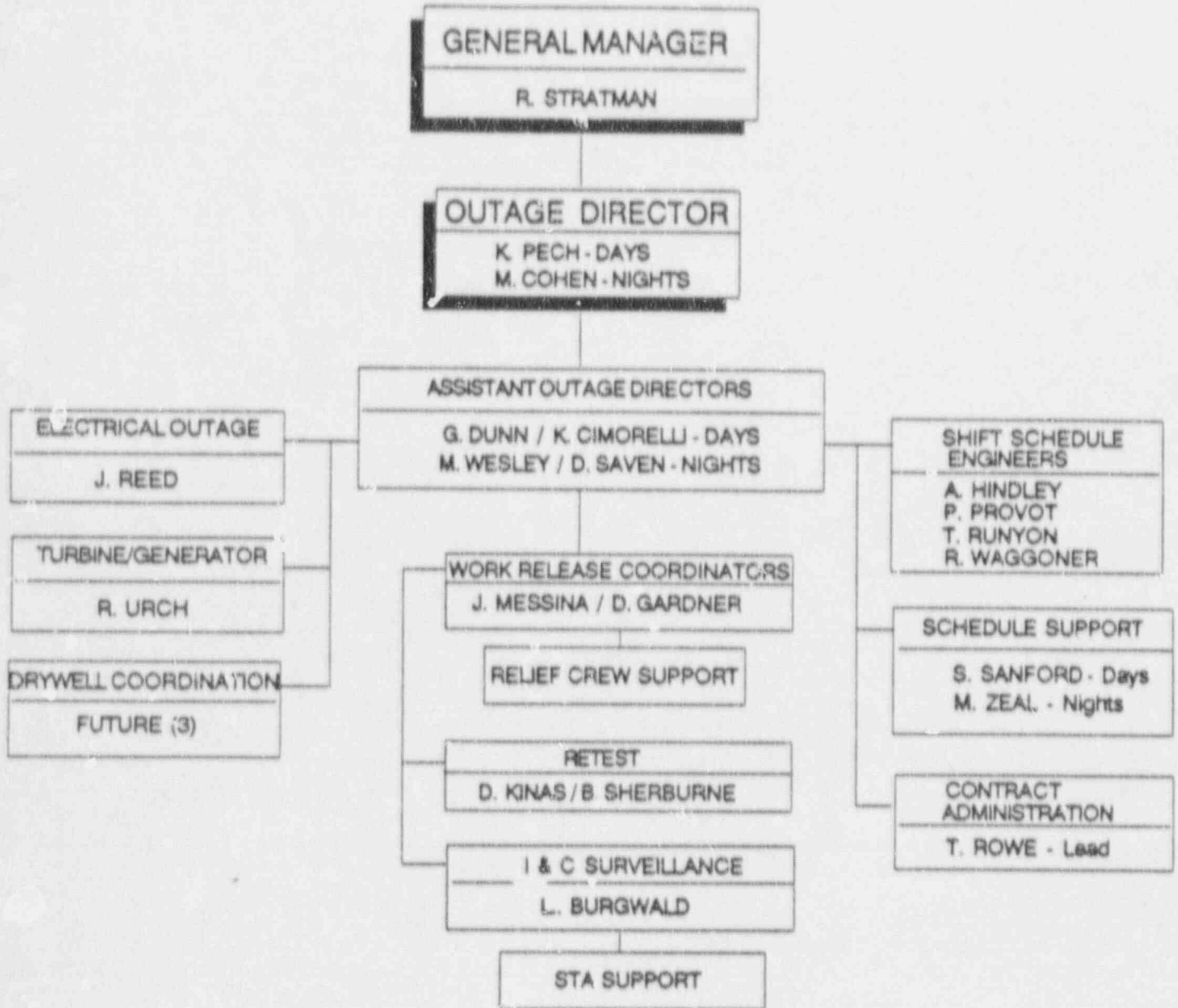
RF03 CRITICAL PATH

MARCH			APRIL		MAY			
21	28	4	18	25	2	9	16	23



PERRY NUCLEAR POWER PLANT

THIRD REFUELING OUTAGE ORGANIZATION



Major Work

Design Activities

- Mechanical Stress Improvement Process on RPV Nozzles (MSIP)
This activity requires NRC review of as-left conditions prior to Plant Restart
- MSIV Rebuild/ Modification Kit Implementation
- Reactor Water Cleanup Drywell Pipe Replacement
- Snubber Reduction Program
- Control Room Ventilation System Control Logic Design Modification

Major Work

Maintenance and Inspection

- Fuel Shuffle
- 5-Year Teardown/Inspection Division 1 and Division 3 Diesel Generators
- Div 1 Electrical Distribution Cleaning/Inspection
- Drywell Cable Replacement (29 cables)
- 12 LPRM Replacements
- Disassembly, inspection and reassembly of one Turbine Stop Valve, one Turbine Control Valve and one Combined Intermediate Valve
- One Main Turbine Low Pressure Stage Inspection
- 19 Safety Relief Valve Replacements
- RPV Vibration Monitoring Instrumentation Removal (VMIR)
- RHR 'A' and 'C' Heat Exchanger Cleaning/Inspection
- Containment Integrated Leak Rate Test
- Drywell Leak Rate Test
- Approximately 500 Surveillance Tests
- Approximately 150 Local Leak Rate and High Pressure Seat Leakage Tests
- Approximately 10 Full Flow Movats Tests

Shutdown Risk Initiatives

- Active Role On BWROG Shutdown Issues Subcommittee
BWR 6 Subcommittee on Shutdown Risk Management
- Planning Guidelines added to PAP-0115 "Outage Planning"
- Group Formed (Davis Besse/Perry) to Study Switchyard Safety
- ISEG Project - Activities with Potential for Draining Vessel
- Independent Outage Risk Schedule Review Team Being Formed
- Documenting Actions on Shutdown Safety Issues

Perry Status On Shutdown Issues

- Decay Heat Removal
 - Diesel Backed Decay Heat Removal System Required Entire Outage
 - Divisional Crosstie Contingency Plan For Fuel Pool Cooling System
 - Alternate Systems/Lineups Under Engineering Evaluation for Availability
 - Off-Normal Instructions Under Review for Shutdown Applicability

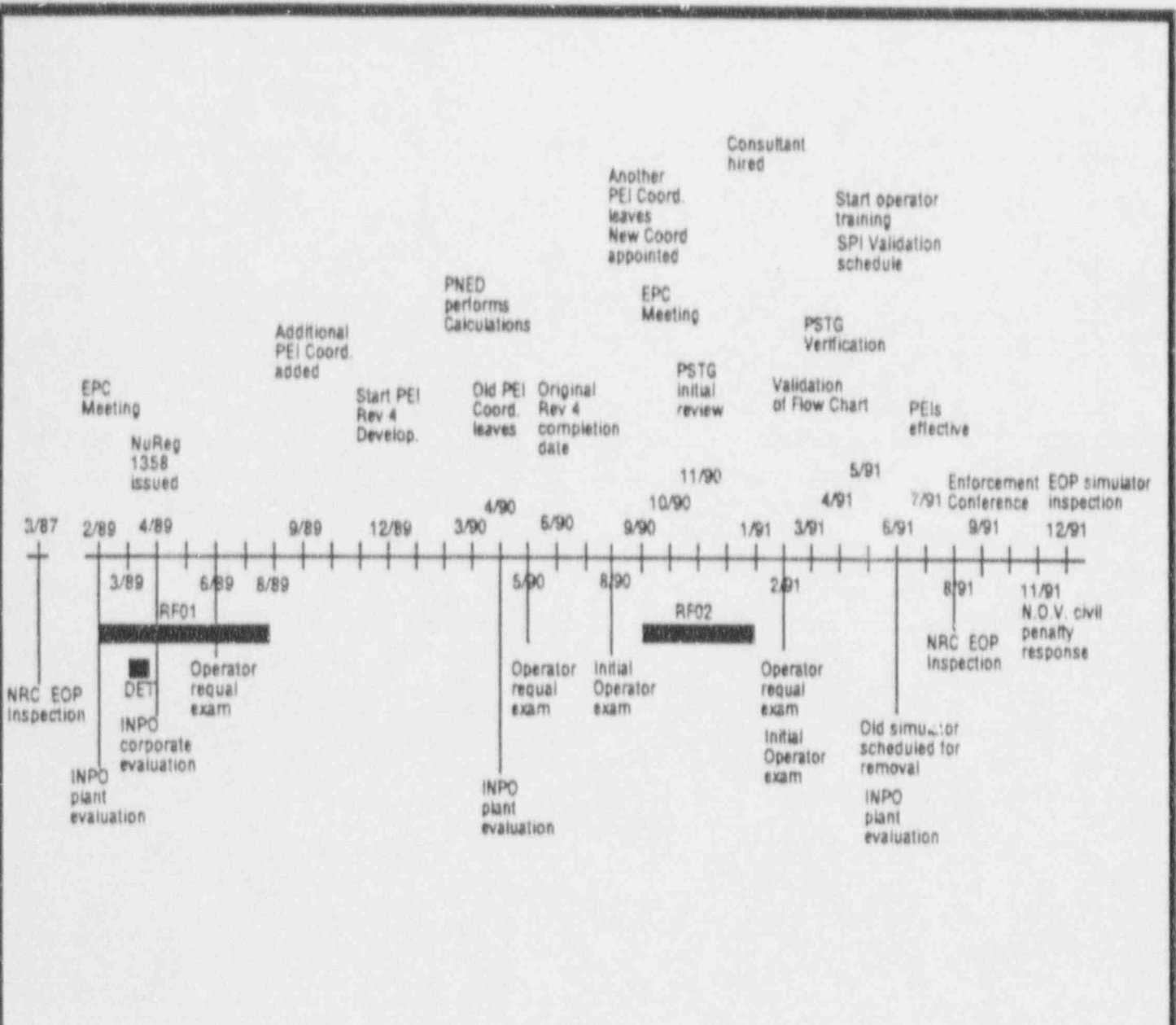
- Inventory Control
 - Diesel Backed ECCS Required Entire Outage
 - Fuel Movement Checklist Precludes Coincident Blade/CRDM Removal
 - Shutdown Cooling Low Level Isolation Maintained Operable
 - Maximize "Cavity Flooded" Schedule Period

- Electrical Power Availability
 - Two Offsite Sources Maintained Available to Supply Class 1E Power
 - One Diesel Generator Maintained Operable Entire Outage
 - Guidelines For Switchyard Safety Developed
 - Increased Controls and Contingency Planning Under Development for Interbus Transformer Maintenance

- Capability To Close Containment
 - Containment Integrity Maintained During Core Alterations and Potential Inventory Loss Activities
 - Contingency Plan Under Development For Low Pressure Containment/Fission Product Barrier

- Shutdown Margin/Fuel Transfer Events
 - Procedural Controls For Maintaining Vessel/Pool Temperatures for all Fuel $> 68^{\circ}$ F
 - Fuel Movement Checklist/Multiple Verification For Precluding Misposition Events
 - Two Independent Analysis Methods to Validate Shutdown Margin
 - All Control Rods Required To Be Fully Inserted During Fuel Movement

**EOP
VIOLATION
ISSUES**



EOP PROGRAM DEVELOPMENT TIME LINE

Violation

- A. Failure to comply with OAP-0507
 - PEI-SPIs not verified
 - New sequences not validated
 - Technical accuracy of Verification Checklist not performed

- B. PEI-SPIs not appropriate for implementation
 - Bypass of RWCU Isolation on SLCS Initiation
 - RPV Venting using RCIC

- C. Failure to provide specific procedures
 - Defeat of RPS and ARI logic trips
 - Bypass MSIV high radiation isolation

Collectively considered a severity level III problem

Corrective Actions

PEI-SPI, Rev 1, Draft 1, Technical Verification performed August 27 and 28, 1991

Four Subsections Identified as Deficient

RPV Venting on MSIV High Rad Isolation

RHR Loop B Containment Flooding

Condensate Alternate Injection

Containment Spray Realignment Following Venting

Verification and Validation of these Four PEI-SPI Sections, August 29, 1991

Temporary Changes to PEI-SPI, Rev 0 to correct above four deficiencies, August 30, 1991

Verification and Validation of remaining sections of PEI-SPI completed on September 10, 1991, including:

RPV Venting - RCIC

Bypassing RWCU Isolation

RPS and AXI Trip Signals Bypass

Flow Chart Technical Verification, September 27, 1991

PEI-SPI, Rev 1, was PORC approved on September 27, 1991 and became effective October 1, 1991

Followup Activities

60 Day Response to Inspection Report Due November 22, 1991

30 Day Response to NOV/CP Due November 29, 1991

Followup Inspection using Simulator, week of December 2, 1991

Root Cause

Management Oversight and Control

Turnover Inadequate

Inattention to Program Requirements

Limited Application of Resources

inadequate Review

Quality Assurance Activities

Inadequate Emphasis on EOP Process and Program

Development Activities

Corrective Actions to Correct Root Cause Problems

Management Initiatives

Not a Global Management Problem

All Levels of Involved Management Coached and Counseled

Enhanced Sensitivity To Impact of Personnel Changes On Program
Implementation

Quality Assurance Initiatives

HPES Evaluation of Cause

Independent Assessment of QAS Activities

Integrated QA Surveillance Plan Covering EOP
Correction/Enhancement Activities

Why we are comfortable with procedures today

MSIV
IMPROVEMENT
PLANS

MSIV Leakage History

Test Condition 04 Outage Results (Summer, 1987)

- 6 MSIVs
- 3 Drain/LC MOVs

RFO1 Results

- 5 MSIVs
- 7 Drain/LC MOVs

RFO2 Results

- 6 MSIVs
- 6 Drain/LC MOVs

Insufficient Improvement Shown

- Creation of Task Force
 - Total Quality Focus Group

MSIV Task Force

Charter:

Improve Main Steam Line Penetration
Sealing Reliability

- Evaluate Maintenance
- Evaluate Design
- Evaluate Testing
- Perform Problem Analysis

Membership

Multi-Disciplinary Approach

- Engineering: MDS, EDS, SES
- Work Groups: Maintenance, I&C
- GE
- Operations

Similar Efforts

Offgas System Operation and Design
TDI Emergency Diesel Generator Reinspection

Problem Analysis

Overall Objective

- Determine Causes and Recommend Corrective Actions

Methodology - Kepner Tregoe

- State Problem
- Specify Problem
 - Review of Past Work
 - Review of Industry Reports
 - Discussions with Personnel
 - Contacts with Other Plants
- Develop Causes
 - Brainstorm
- Test Causes Against Facts

Possible Cause Identification

- Piping (1)
- Testing (2)
- Valve Leakage
 - MSIVs (28)
 - MOVs (25)

Primary Cause Conclusions

- Incomplete/Inadequate/Incorrect Maintenance of MSIVs
 - Ability to Measure Internal Geometry of MSIVs
 - Poppet/Seat Centerline
- Incomplete/Inadequate/Incorrect Maintenance of MOVs
 - Packing Gland Torque
 - Housekeeping
- Pre-Test Draining Activities Sweep Crud Into Seats
 - Slow Velocity Fluid During Draining Activity
- Numerous Contributing Causes

Corrective Actions

Ten Recommended Actions

- Design
- Maintenance
- Procedures

RFO3 Corrective Actions

DCP 87-715 - MSIV Upgrade

- Poppet With Nose Cone
 - Misalignment Correction
- Anti-Rotation Device
- Significant Improvement at Other Plants. Hatch, Duane Arnold, etc.

Measurements of Internals

- Internal Mapping - 0.005 Resolution
- Restoration To Design

Long Term Corrective Actions

- Change Line Slope if Necessary
- Improved Trending
- Proactive vs. Reactive
- Changes to Improve Testability
 - Flanges to Isolate Other Lines