CRYSTAL RIVER UNIT 3

MANAGEMENT CORRECTIVE

ACTION PLAN

PHASE II

(MCAP II)

MANAGEMENT CORRECTIVE ACTION PLAN
PHASE II

Statement from P. M. Beard, Jr.

to

Nuclear Operations Personnel

This is the Crystal River Unit 3 (CR-3) Management Corrective Action Plan, Phase II (MCAP II). It charts the course for bringing our plant to the standards the owners, regulators, and public expect and deserve. MCAP II will not be an easy task to accomplish. We have learned to live with and accept certain conditions and ways of doing business. Changing these ways, changing these conditions, and changing what we expect of ourselves and others, is what this document is all about.

Safe plant operation is our first and foremost obligation. The plant and its equipment must be operated in a manner that minimizes the potential for adverse safety consequences. A cornerstone of safe operation involves conservative decision-making, practiced in all aspects of plant operation and management. Any potential problem related to safety must be promptly identified, evaluated, communicated, and resolved. Some recent issues have necessitated an examination of how well we are meeting this obligation.

As you are aware, several assessments have been conducted over the last few months. These assessments were conducted by our staff, the Nuclear Regulatory Commission, as well as teams of highly-qualified, experienced, nuclear industry professionals. I have used these assessments to help me determine what needed to be fixed and, more importantly, whether the plant should be operated while we make the fixes. I have evaluated these assessments and concluded that certain design and configuration issues must be resolved during our current forced outage in order to assure that the plant will be operated with appropriate design margins while we make further improvements.

How we got where we are today is useful only in pointing out what we need to do to improve and assure ourselves we won't repeat those mistakes tomorrow. In my assessment of CR-3's past performance, I conclude that management was the key ingredient to the shortcomings. As you read this MCAP II document, it should be no surprise that many of the corrective measures relate to enhancing management effectiveness. I and my management team are committed to providing the leadership and management necessary to take CR-3 to the top.

There is one area that I particularly want to stress because it is so critical to the successful operation of a nuclear power plant. I am referring to oversight. At CR-3, as is the case at all nuclear plants, there are multiple groups that serve the purpose of monitoring all phases of the plant's performance. There is external oversight such as the NRC and INPO, and there is internal oversight such as QA, NGRC, PRC, and NSAT. While those responsible for CR-3's internal oversight activities cannot be blamed for the plant's shortfalls in performance, they can be criticized for failure to recognize and help assure

they were corrected. However, oversight organizations can not be effective if line management fails to respond appropriately to critical appraisals. There is some indication that this has occurred at CR-3. Accordingly, I emphatically affirm that it is my policy to support the proper functioning and effectiveness of all internal oversight activities. All levels of management will look upon oversight as a positive and beneficial attribute and will respond accordingly.

For a number of reasons, some design margins of the plant are at a level where there is little or no flexibility to resolve emergent issues. We intend to aggressively address this problem. As we restore the design margins of the plant, we will be putting in place an effective program which will ensure the margins and configuration are maintained.

There is no reason CR-3 cannot become the best plant in the United States. Although it may take time, I am convinced we can rise to the occasion. I encourage each and every one of you to work together. If you think of ways to improve areas that are not being addressed, tell your supervisor. If you don't think you are getting through, come and talk to me. We need everyone to be a part of this program.

P. M. Beard, Jr.

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I personally accept my responsibility for the present conditions. I also reaffirm my resolve to ensure we move ahead to become a top industry performer. I ask you to do the same.

Pat

1. Introduction and Overview:

This document is the Florida Power Nuclear Operations Phase II Management Corrective Action Plan (MCAP II). It is the follow on plan to the Management Corrective Action Plan (MCAP) initiated in the Spring of 1995 to address specific performance issues arising from events that had occurred in late 1994.

The Management Corrective Action Plan Phase II redirects improvement efforts to incorporate the results from numerous internal and external assessment and evaluation activities during 1996. The MCAP II identifies the root and contributing causes (barriers) to achievement of excellence, assigns responsibility to an appropriate management or supervisory level individual, and establishes completion dates for specific corrective actions to address the identified root and contributing causes. The original MCAP has been completed. Several individual issues have been transferred to MCAP II for completion. Further, where analysis of completed MCAP issues has indicated that previous corrective actions did not achieve the desired results, additional actions have been incorporated in MCAP II. These are shown in Appendix A.

The MCAP II communicates management expectations and provides direction to the entire Florida Power Corporation Nuclear Operations Organization. It supports the fundamental "Performance Triad" of Safety, Production, and Cost. The MCAP II is predominantly directed at the safety aspects of the triad. It is principally focused upon improvement of the safety culture of Crystal River Unit 3 using the broadest definition of safety culture.

Nuclear Operations line management has developed the MCAP II with two fundamental principles in mind: (1) to identify the major issues and deficiencies in Crystal River 3's performance and to (2) direct action to resolve those deficiencies. The MCAP II consists of five major areas, all bearing directly on the safety culture, that were identified during the evaluation process:

Leadership Oversight and Involvement
Configuration Management/Design Basis
Regulatory Compliance
Engineering Performance
Operations Performance

Specific root and contributing causes are identified within each area as are comprehensive action plans to correct the root and contributing causes. Specific Managers and Supervisors have been assigned completion date and content accountability. Measures of monitoring progress and effectiveness have been established.

2. Expected Results

This plan begins the process of bringing Crystal River 3 into the community of top performing nuclear power organizations. It is a road map designed to provide the basic performance competencies which will permit rapid progress along that road. It will provide the fundamental foundation to enable subsequent plans to complete the journey to excellence in all areas of the "Performance Triad."

3. Planning Assumptions

Several key assumptions guide plan development, including:

- The overall objective is to reach (and maintain) top performance.
- The planning horizon extends through the end of FY 97 (December 31, 1997).
- The plan needs not only to address issues identified in assessments, it must also include strategic initiatives necessary to achieve the overall objective.
- The plan assumes that necessary resources (people and money) will be available. It includes resources required over present level of effort to accomplish goals.
- Meaningful measures of effectiveness are required to monitor and communicate progress both internally and externally (e.g., NRC).
- Continuous improvement on the part of industry is assumed in developing where CR-3 needs to be at the end of FY 97.

SECTION A

I. Area of Concern and Management Sponsor:

Leadership Oversight and Involvement

Sponsor: P. M. Beard, Jr.

II. Problem Description:

Leadership oversight and involvement in plant issues has been inadequate in emphasizing its safety culture role. This has occurred in areas ranging from communication and reinforcement of core values and expectations to site processes and priorities. Further, where assessments have been conducted, they have neither focused on elements from the safety culture perspective, nor have they been sufficiently self-critical to enable assessment of root or apparent causes.

III. Present Condition:

In response to plant events over the past two years, several initiatives have been implemented, including:

a. Establishment of a formalized self-assessment and performance monitoring program.
b. Restructuring the NGRC, including an annual review of the self-assessment program by the NGRC.
c. Establishment of a Nuclear Safety Assessment Team (NSAT).
d. Creation of a Management Review Panel (MRP) to review the effectiveness of a corrective action taken in response to more significant events (those involving NOVs, LERs, and other significant management concerns).
e. Increasing the emphasis of on-shift oversight, including redefining the role of the Shift Manager and adding a position (Operations Manager) directly over the Shift Supervisor.

Despite these efforts, a difference in performance standards exists between CR-3 and INPO 1/SALP 1 plants in areas such as safety culture, procedural adherence, event investigation, root cause determination, sensitivity to operability issues, adherence to design bases, QA organizational effectiveness, and implementation of the corrective action process for emergent issues. These differences should have been determined through leadership oversight and involvement, but were not.

IV. Corrective Actions to Address the Root Causes of the Problem:

The following are the root causes of the problem and the corrective actions that have been/will be taken to achieve top performance in leadership oversight and involvement.

Root Cause 1

Site leadership has not been effective in carrying out its safety culture role because it has not:

1. Clearly and consistently communicated and reinforced core values and expectations with emphasis on safety culture.
2. Implemented site processes with appropriate emphasis on safety culture.
3. Established site wide priorities with proper emphasis on safety culture.
4. Implemented balanced accountability with respect to safety.
5. Established constructive self criticism and self improvement as an integral way of doing business.

Corrective Actions:

Action	Responsible	Target Completion Date
A-RC1-1. Conduct a Safety Culture Index	J. S. Baumstark	11/15/96
A-RC-2. Plan a Supervisor's workshop which emphasizes: a) Lessons learned from the Safety Culture Index b) Manager/supervisor role in implementing a safety culture c) The relationship between accountability, authority, and responsibility d) Behavioral expectations related to a safety culture - Explains the seriousness of the problem - Explains the benefits of self-criticism - Provides positive reinforcement for self-identified criticism	J. S. Baumstark/ R. C. Widell	2/21/97
A-RC1-3. Conduct the Supervisor's workshop discussed in 2 above.	Mgmt. Team	3/28/97
A-RC1-4. Evaluate and revise mission statement, core values, and expectations with emphasis on safety culture; the evaluation will include a review by a cross functional/level team.	J. S. Baumstark	12/6/96
A-RC1-5. Establish site wide priorities which emphasize a safety culture.	Mgmt. Team	11/15/96
A-RC1-6. Independently assess the senior site management team and determine "best fit" roles for carrying out transition to the new safety culture.	P. M. Beard	11/29/96
A-RC1-7. Establish a self-critical view from the top down that accepts identification of problems and takes action to address them rather than rationalizing it away.	P. M. Beard/ Mgmt. Team	Continuing

	Action	Responsible	Target Completion Date
A-RC1-8.	Communicate, advertise, coach, and constantly reinforce our Mission Statement, Core Values and Expectations down throughout the organization. a. Advertise b. Establish performance standards in writing for each department c. Stand down to launch the program d. Directors and Managers recruit each individual (Core Values to a personal level and expectations to a job specific level) e. Measure results f. Conduct periodic reinforcement sessions with employees g. Hold management sessions to discuss progress and problems	Mgmt. Team	Continuing
A-RC1-9.	Conduct human error reduction training for selected site supervisors (90).	R. C. Widell	12/31/96
A-RC1-10.	Conduct human error recognition and reduction techniques training for selected site workers (120).	R. C. Widell	4/25/97
A-RC1-11.	Ensure appropriate management level attendance at NRC entrances and exits.	Mgmt. Team	Continuing
A-RC1-12.	Formally enhance the Operating Experience Review Program which identifies emerging industry issues (both equipment and organizational & programmatic).	J. S. Baumstark	12/5/96

Root Cause 2:

Excessive and ineffective organizational and programmatic changes have increased human error rates.

Corrective Actions:

	ACTION	RESPONSIBLE	TARGET COMPLETION DATE
A-RC2-1	Develop a change management process for significant organizational and programmatic changes to include: • Communications plan including new standards expected. • Evaluation of personal/personnel impacts. • Workload assessment prior to and after the change. • Monitoring the effectiveness of the change. • Required training or re-training.	J. S. Baumstark	1/3/97
A-RC2-2	Monitor and control the number of significant organizational and programmatic changes being implemented simultaneously. Establish a policy to limit such changes to no more than 2-3 having significant impact on a single work group.	Mgmt. Team	1/3/97 Business Plan

Root Cause 3:

An inadequate root and common cause analysis process inhibits management from addressing the right issues in the right priority.

Corrective Actions:

ACTION		RESPONSIBLE	TARGET COMPLETION DATE
A-RC3-1	Redefine the corrective action process to include a single graded approach for development of root and apparent causes as well as corrective action plans.	J. S. Baumstark	Nov. 18, 1996
A-RC3-2	Establish a core group of in-depth root cause analysis experts.	J. S. Baumstark	Nov. 18, 1996
A-RC3-3	Establish apparent cause reviewers in each line department.	J. S. Baumstark	Nov. 18, 1996
A-RC3-4	Develop training package on corrective action program changes for delivery by site supervisors.	R. C. Widell	Nov. 8, 1996
A-RC3-5	Conduct training for site personnel on changes to corrective action program.	Site Supervisors/ Mgmt. Team	Nov. 15, 1996

Contributing Cause 1:

Inadequate performance monitoring and trending which inhibits proactive identification of emerging issues and results in an excessive number of investigations with little value added.

Corrective Action:

	ACTION	RESPONSIBLE	TARGET COMPLETION DATE
A-CC1-1	Establish centralized monitoring and trending of "real time" process performance indicators and repeat events/failures.	D. Wilder	Feb. 28, 1997

Contributing Cause 2:

Inadequate analysis of performance monitors has resulted in ineffective detection of adverse trends related to site programs, processes, and procedures.

Corrective Action:

	ACTION	RESPONSIBLE	TARGET COMPLETION DATE
A-CC2-1.	Establish a method for identifying trends needing further analysis with respect to root cause.	D. Wilder	Feb. 28, 1997

Contributing Cause 3:

An inadequate feedback process has resulted in self-assessments not being controlled by the corrective action process and consequently, missed opportunities to improve.

Corrective Actions:

	ACTION	RESPONSIBLE	TARGET COMPLETION DATE
A-CC3-1.	Establish standards for self-assessment performance.	R. Yost	Nov. 18, 1996
A-CC3-2.	Formally incorporate results obtained thru self-assessments into the corrective action process for follow-up, tracking, and trending.	R. Yost (NOD-45) D. Wilder (CP-111)	Nov. 18, 1996

Contributing Cause 4:

Inadequate adjustments (corrective actions) have resulted in frequent ineffective changes that may cause additional problems.

Corrective Actions:

	ACTION	RESPONSIBLE	TARGET COMPLETION DATE
A-CC4-1.	Establish standards for corrective actions which: a. Ensure changes are supported by and directly relate to root cause analysis. b. Will reduce recurrence rate significantly and in a timely manner without creating another undesirable condition. c. Can be implemented within a management control. d. Are consistent with industry standards. e. Can be implemented cost-effectively.	D. Wilder (CP-111)	Nov. 18, 1996

Contributing Cause 5:

The Quality Assurance process has not effectively communicated or followed up on issues.

Corrective Actions:

	ACTION	RESPONSIBLE	TARGET COMPLETION DATE
A-CC5-1.	Establish new management in QA.	J. S. Baumstark	Completed
A-CC5-2.	Provide new guidance for the conduct of audits.	R. E. Yost	Nov. 1, 1996
A-CC5-3.	Establish 18 to 24 month rotational assignments in QA for approximatley 30% of assigned positions.	J. S. Baumstark/ R. E. Yost	Dec. 13, 1996
A-CC5-4.	Recruit new talent for QA from both on-site and off-site assets.	J. S. Baumstark/ R. E. Yost	Jan. 10, 1997

V. Measures of Effectiveness

The following measures will be used to monitor progress and gauge the effectiveness of corrective actions in addressing the problem:

1. Number of LERs attributable to human performance errors.
2. Number of NOVs attributable to human performance errors.
3. Self-identified issues on NRC plant issues matrix.
4. Percent of violations that are not cited.
5. Percent of problem reports that reflect a recurring problem.
6. Number of CR-3 NOVs compared to regional/national NOVs (per unit).
7. Number of CR-3 LERs compared to regional/national LERs (per unit).

Appendix A
Action Items Carried Over from Previous MCAP Submittals and Meetings

Section A: Leadership Oversight and Involvement

Action	Responsible	Target Completion Date
A-FU-1: Ensure applicable elements of the Event Free Operation Program continue to be a focus of the day-to-day way we do business with emphasis on: • Direct observation of work in progress • Audits and surveillance • Independent review group oversight (NGRC and PRC)	Management Team	Continuing
A-FU-2: Establish a single user-friendly action tracking system.	J. S. Baumstark	Sept. 26, 1997
A-FU-3: Determine the most effective role for Issue Managers. Coordinate this effort with establishment of responsibility for managing site Top 10 Priority elements.	Management Team	Jan. 31, 1997
A-FU-4: Probabilistic Safety Analysis (PSA) - identify enhanced applications.	D. Wilder	May 1, 1997

SECTION B
ENGINEERING PERFORMANCE

I. Area of Concern and Management Sponsor:

The engineering department has not supported plant operations well, particularly in maintenance and application of the plant design basis.

Sponsor: G.L. Boldt

II. Problem Description:

The focus of the concern in engineering is primarily on design and analytical work, configuration management, and teamwork with other departments. The systems engineering area is generally perceived to be satisfactory, although some performance problems have been noted here too.

Overall, the engineering department has had an inconsistent record of performance. Over the last several SALP periods it was rated SALP 3, SALP 2, SALP 2 (and IMPROVING), and SALP 1 only to decline back to SALP 2 in 1995.

Although inspection reports identify some engineering strengths, they are overshadowed by weaknesses in the following areas: timeliness and accuracy of design and analytical support for plant operation, adequacy of regulatory correspondence, quality of 10CFR50.59 evaluations, planning and prioritization of work load, and maintenance/communication of the plant design basis.

III. Present Condition:

The engineers were challenged to self-identify the key factors contributing to the problems described above. Their input is summarized below:

1. For the first eighteen years of plant operation there was a heavy reliance upon A/E, contractor, and NSSS resources for performance of design activities. Corporate engineering personnel served as project managers over these resources and were not intimately involved with the details. As a result, there was ineffective technology transfer from the external resources to CR3 engineers.

2. Ineffective management of change within the engineering organization had a negative affect on its performance. The combined effect of downsizing, relocation of corporate personnel to the Crystal River plant site, implementation of the business process improvement (BPI) recommendations to the design processes, and the reduction in reliance upon external engineering resources, negatively influenced

productivity and product quality, frustrated personnel, and increased engineering work backlogs.

The reduction in reliance in external resources, although recognized by all as a potentially positive move, was performed in a more aggressively than the FPC team was prepared to accommodate given the existing level of engineering knowledge and skills.

In response, several initiatives have been implemented over the last two years, including:

a. Recombined systems engineering with design engineering, configuration management, procurement engineering, and engineering projects under a single engineering director.

b. Increased management oversight within engineering by creating a new manager position and group to control engineering programs [inservice inspection; new/finite term programs (e.g. GL 96-01, setpoint verification, tank calculations); and continuing life-of-the-plant programs (e.g. boron corrosion, erosion corrosion, maintenance rule, charcoal testing, and tendon inspections)].

c. Increased teamwork among departments by:

- Teaming operations and engineering personnel in calculation development, design inputs, and assessments of impact on documents and procedures,
- Teaming licensing, operations, and engineering personnel in system and equipment operability assessments, and
- Implementing the use of Project Teams for conceptual design (alternatives), final design, construction, and startup of significant plant changes.

Despite these actions, developed as an integral part of the nuclear operation's Management Corrective Action Plan (MCAP) beginning in March of 1995, performance differences remain between CR-3 and SALP 1 plants.

The actions described above, dealt with symptoms in many cases rather than root cause(s). To correct this condition, FPC teams working together with Failure Prevention Incorporated (FPI) conducted a structured root cause determination of the engineering performance problem.

IV. Corrective Actions to Address the Root Causes of the Problem:

The following are the root and contributing causes determined by the FPC/FPI team along with the respective corrective actions to achieve top performance in engineering effectiveness:

Root Cause 1

An appropriate safety culture was not effectively emphasized. As a result, activities were not given a level of safety attention commensurate with that given to production or cost priorities. This led to design basis concerns being primarily resolved through analytical means in lieu of physical means (such as plant modifications and equipment testing) directed at maintaining or improving design margins.

Corrective Action:

Action	Responsible Manager	Target Completion Date
B-RC1		
-1 Implement a "stand down" in Nuclear Operations Engineering to emphasize the importance of improving safety culture. Stress the need to enhance safety sensitivity, quality, and attention to detail in the performance of 10CFR50.59 safety evaluations and the lessons learned from the recent USQ experience.	F. Sullivan	Complete
2 Institute an interim change to require 50.59 evaluations be performed for engineering activities in lieu of a screening evaluation. This action is to remain in place until formal training and establishment of qualified reviewers for 50.59's are completed.	F. Sullivan	Complete

Corrective Action (cont'd)

Action	Responsible Manager	Target Completion Date
B-RC1		
-3 Incorporate improved safety sensitivity into 50.59 evaluation training in the Technical Staff and Management continuing training curriculum.	R. Widell	Complete
-4 Hold a special meeting with NOE (design) personnel to further increase safety sensitivity to 50.59 reviews. Use industry experience (FP&L, Cooper, and FPC) to reinforce the points made.	F. Sullivan	Complete
-5 Extend the current outage to achieve immediate, near term improvements in plant safety/design margins.	FPC Management Team	Complete
-6 Evaluate personnel in managerial and supervisory roles.	G. Boldt Engineering Managers	Interim Actions Complete
-7 Increase authorized engineering staffing level. Seek engineering talent from outside FPC that can bring in fresh ideas, practices and increased design competency.	G. Boldt Engineering Managers	Interim Actions Complete, Continuing to Hire
-8 Issue a directive to restore system design margins primarily through physical means (modification or testing) as opposed to analytical means.	G. Boldt	Complete

Root Cause 2

Insufficient communication of management expectations - particularly with respect to safety culture.

Corrective Actions:

Action	Responsible Manager	Target Completion Date
B-RC2		
-1 Establish a clear departmental mission statement with emphasis on plant safety, and a concise set of expectations for engineering managers.	G. Boldt	12/31/96
-2 Develop a department wide Administrative Instruction "Conduct of Nuclear Engineering and Projects" and supporting instructions in each departmental group to promulgate management expectations to each engineering employee.	G. Boldt, Engineering Managers, Supervisors, and Work Group Employee Teams	3/1/97
-3 Communicate, coach, and continually reinforce adherence to mission and expectations through frequent department wide meetings, balanced accountability, and site wide teamwork.	G. Boldt, Engineering Managers and Supervisors	Interim Actions Complete
-4 Establish and promulgate the top ten plant priorities for Nuclear Engineering and Projects.	FPC Management Team	Complete
-5 Ensure resources are provided to achieve quality engineering support for plant operations commensurate with established priorities, goals, and expectations.	FPC Management Team	Interim Actions in Progress

Contributing Cause 1

Inadequate performance monitoring, trending, and self-assessment within engineering which precludes:

- Early identification of equipment reliability problems.
- Highlighting repeat failures.
- Identification of organizational and programmatic issues.

Corrective Actions:

Action	Responsible Manager	Target Completion Date
B-CC1 -1 Establish an engineering tracking and trending program that includes: • Measures of the resources needed versus workload (including that necessary to address MAR/REA/precursor backlog). • Organizational and Programmatic (O&P) indicators. • Equipment reliability, end-of-life, and repeat failure indicators (for human events and systems/components).	K. Baker	1/1/97
-2 Implement a program of engineering self-assessments that detects and corrects problems before the NRC, INPO, and other external agencies do.	C. Boldt All Engineering Managers	1/1/97

Contributing Cause 2

Inadequate deviation analysis of performance indicators which results in ineffective detection of adverse trends related to O&P issues.

Corrective Action:

Action	Responsible Manager	Target Completion Date
B-CC2 -1 Assure the tracking and trending of measures and indicators established as corrective action for Contributing Cause 1 (above) are assessed by engineering managers to uncover: • Adverse trends requiring increased management attention. • Potential common causes of both equipment and human performance issues.	G. Boldt All Engineering Managers	1/1/97

Contributing Cause 3

Inadequate root and common cause analysis process precludes engineering from addressing the right issues in the correct priority.

Corrective Action:

NOTE: Corrective action for this item is addressed under Root Cause 3 in Section A, *Leadership Oversight and Involvement*, of this plan.

Contributing Cause 4

Inadequate communication among managers, supervisors, and engineering personnel which leads to:

- Lack of common awareness of problem extent,
- Expended effort to resolve problems at too low a level in the organization,
- Focus on inappropriate priorities,
- Denial, or rationalization, of problem existance.

Corrective Actions:

Action	Responsible Manager	Target Completion Date
B-CC4		
-1 Conduct a series of small group meetings between the engineering director and the engineering personnel (no managers or supervisors present) to discuss problems and concerns.	G. Boldt	Complete
-2 Conduct a small group meeting between the engineering director with engineering supervisors (no managers or non-supervisors present to discuss problems and concerns).	G. Boldt	Complete
-3 Increase the frequency of engineering staff (manager level) meetings.	G. Boldt	Complete
-4 Increase the use of engineering stand downs and other all-hands communication and training forums to communicate expectations and lessons learned from events.	G. Boldt Engineering Managers	Interim Actions Complete
-5 Increase formal and informal opportunities for improving horizontal communications at each level.	Engineering Managers	4/1/97

V. Measures of Effectiveness:

The following measures will be used to monitor progress and gauge the effectiveness of corrective actions in addressing engineering performance:

- REA, MAR, and precursor backlogs
- Engineering resource needs versus workload
- Number of FCN's per MAR
- Number of engineering personnel changes (absolute and as a percent of total staff)
- Number of significant, active O&P changes with impact on engineering
- The number of precursors and problem reports that identify engineering problems as a percent of the total number of precursors and problem reports.
- Repeat failures (human events and system/component failures)

Appendix A
Action Items Carried Over From Previous MCAP
Submittals and Meetings

Section B: Engineering Performance

	Action	Responsible Manager	Target Completion Date
B-FU -1	Complete a manager level review and prioritization of all backlogged REA's.	F. Sullivan J. Terry (other engineering managers as necessary)	4/1/97
-2	Revise Administrative Instructions and/or NEP's to capture the need to review design basis calculations and procedures when either document is changed.	K. Baker	4/1/97
-3	Complete the action plan for resolution of Control Complex Habitability Envelope issues.	S. Powell	Tied to CCHE corrective action plan
-4	Complete corrective actions resulting from the self-assessment performed on interdisciplinary interaction in engineering	K. Baker Engineering Managers	5/1/97
-5	Enhance the use of lessons learned to improve performance in engineering.	K. Baker Engineering Managers	4/1/97

SECTION C
CONFIGURATION MANAGEMENT AND DESIGN BASIS

I. Area of Concern and Management Sponsor:

Weaknesses have existed in implementing programs for maintaining plant configuration consistent with design basis.

Sponsor: Gary L. Boldt

II. Problem Description:

The NRC's expectation, as contained in the commission's policy statement dated August 10, 1992, is *"...the licensee will have current design documents and adequate technical bases to demonstrate that the plant physical and functional characteristics are consistent with the design basis, the systems, structures and components can perform their intended functions, and the plant is being operated in a manner consistent with the design basis."*

FPC has not fully met this expectation. Weaknesses that have been identified include:

- Discrepancies between the physical plant and design documentation.
- Inaccuracies in the technical content of design documents including incorrect assumptions and calculational errors.
- Discrepancies between operational configuration (procedures) and the supporting design documentation.
- Inconsistencies among design documents and between the design basis and licensing basis.

Examples of deficiencies in these areas have been documented by FPC and the NRC. Some of these deficiencies date back to the original design of the plant. We are concerned with the number and cumulative potential effect of these issues on continued safe plant operation. The identification and resolution of these issues has impacted the workload and priorities of the entire nuclear operations organization, and in particular on engineering, operations and licensing. FPC has had to operate in a reactionary mode to address these issues as they arose.

FPC's 10CFR50.59 process is also viewed as inconsistent and examples of weak 50.59 reviews have been cited in NRC inspection reports and PRC reviews. A quality 10CFR50.59 process is reliant on readily available, consistent and accurate design information.

III. Present Condition:

A number of actions have been taken to date which are focused on assuring future engineering design work is properly performed and all changes affecting plant design are appropriately documented.

These actions are as follows:

a. Process changes have been implemented to correct weaknesses and eliminate problems from future work.

- Positive controls have been added to assure modifications are not turned over to operations unless appropriate procedures have been revised.
- A requirement to obtain an operations signoff on inputs and assumptions to calculations has been implemented.
- A requirement for engineering review and sign off changes to the Emergency Operating Procedures has been implemented.

b. A review of the potential cumulative effect of design basis issues on plant safety has been completed.

c. A review of the plant Emergency Operating Procedures has been completed to assure the accident mitigation strategies utilized have a complete and accurate technical basis.

d. The modification process has been revised to incorporate Project Teams to assure all groups within nuclear operations have input to the project design and can more readily assess impact of the project on their area.

e. Utilization of the precursor card process has been increased for documenting and resolving configuration and design issues.

f. Design Review Panels are formed to review large modifications and provide a critical, questioning assessment of the design to assure all design requirements have been addressed and the design impacts are reasonable.

The above efforts are primarily forward looking, and FPC remains challenged to complete focussed reviews of past design efforts (including the original plant design/basis). Some problems were also identified by the NRC IPAP team with more recent engineering work. This has indicated that FPC may have taken actions based on treating symptoms rather than the root cause(s) of the problems. For this reason, FPC formed a team to apply the methodolgy of Failure Prevention Incorporated (FPI) to determination of the root and contributing causes of the configuration management-design basis concern.

IV. Corrective Action to Address the Root Causes of the Problem:

The following paragraphs describe the root causes, contributing causes, and corrective actions to address them to achieve top performance in management of plant configuration and design basis documentation/understanding.

Root Cause 1

Limited emphasis on nuclear safety culture in relation to more traditional production priorities, such as capacity and cost, resulting in:

- Inadequate design margins that have not been addressed.
- Limited definition, documentation, and on-site understanding of the plant design basis.
- Lack of comphrehensive plant configuration controls.
- Lack of networking with other B&W plants to maintain consistent designs/design margins.

Corrective Actions:

Action	Responsible Manager	Target Completion Date
C-RC1		
-1 Establish an Independent Design Review Panel (IDRP) to review the cause and extent of CR3's design basis problem.	P.M. Beard	Complete
-2 Complete review, approval, and disposition of the IDRP final report recommendations (to be included as Appendix B).	FPC Management Team	12/31/97
-3 Improve nuclear safety culture. NOTE: This issue is being addressed as an integral part of Leadership Oversight and Engineering Performance in Sections A and B of this plan.	FPC Management Team	See Sections A and B of This Plan
-4 Extend the current forced outage to improve selected system design margins by physical plant modification or equipment testing.	G. Boldt	Completion tied to end of the forced outage
-5 Develop and implement longer lead time plans to further improve plant design margins and restore consistency with "typical" B&W plant configurations in Refuel 11.	G. Boldt	Completion tied to end of Refuel 11
-6 Establish a clear understanding of what constitutes the plant "design basis" which is consistent with industry standards and regulatory expectations. Then promulgate through plant procedures and training.	K. Baker F. Sullivan	4/1/97

Corrective Actions (cont'd):

Action	Responsible Manager	Target Completion Date
C-RC1		
-7 Establish a comprehensive management control process for the design basis which includes requirements for: • Implementation (how to) • Maintenance • Training and qualifications • Reportability/operability • Prioritization/timely action	K. Baker F. Sullivan	6/30/97
-8 Coordinate future design basis issues through the B&W Owners Group.	P. M. Beard R. Widell	Continuing

Contributing Cause 1

Inadequate self assessment which precludes comprehensive, proactive identification and resolution of design basis issues.

Corrective Actions:

Action	Responsible Manager	Target Completion Date
C-CC1		
-1 Conduct a comprehensive failure modes and effects analysis (FMEA) of LOCA, LOOP, and loss of DC Power scenario(s).	J. Maseda	Prior to restart from the current forced outage
-2 Include SSFI style self-assessments of safety significant systems in the next five CR3 annual plans.	G. Boldt	Each year through 2001

V. Measures of Effectiveness:

The following measures will be used to monitor progress and gauge the effectiveness of corrective actions in addressing the configuration management-design basis concern:

- The number of precursors and problem reports that identify discrepancies in the design basis as a percentage of all precursors and problem reports.
- The number of design basis LER's compared to industry benchmarks and the trend in this measure.
- Age of design basis calculation reviews.
- Number of operator work-arounds created by design basis issues.
- Feedback from operability/reportability review teams.
- The number of completed and open IDRP recommendations.

SECTION D
REGULATORY COMPLIANCE

I. Area of Concern and Management Sponsor:

Regulatory Compliance

Sponsor: Larry Kelley

II. Problem Description:

Crystal River Unit 3 (CR-3) does not have a sufficient understanding of NRC regulations and does not assign full compliance with the intent of NRC regulations a sufficiently high priority. Also, there appears to be a perception that conservative decision making regarding regulatory issues is seen as secondary to plant availability.

This is supported by the following specific concerns:

A. Examples of failure to report or untimely reporting of events or conditions.

B. Examples of questionable interpretations of the regulations by both licensing and non-licensing personnel.

C. Examples of not meeting commitments made in licensing correspondence.

D. Examples of questionable or incorrect technical information provided in NRC submittals.

III. Present Condition

The licensing organization has been modified to infuse knowledge and skills from other areas of Nuclear Operations into the department. The Assistant Director, Site Support position was created and filled by the former operations manager. This new position is dedicated to interfacing with the resident inspectors, facilitating NRC inspections, and developing licensee event reports and violation responses. This dedicated resource has improved the ability to identify and respond to regulatory issues in a more timely manner. Nevertheless, the regulatory interface in some areas of the organization is still inconsistent and more reactive than proactive.

The Manager, Nuclear Licensing was previously a supervisor in the design engineering organization. This experience has improved the capability of the licensing department to review the technical information in NRC submittals and more fully participate in design basis issues and operability evaluations. The focus of this position is on managing the NRR interface, preparing all licensing submittals (except those noted above) and supporting teamwork throughout Nuclear Operations. However, additional improvement is necessary in at least two aspects of licensing submittals:

1. Technical quality of submittals, which will require line organizations to take more of a front-end ownership role in submittals for which they provide the technical input.

2. More timely and accurate root cause analyses to support LER development.

It is also apparent that the knowledge of regulations and of the general regulatory process is not to the necessary level in the other departments. To facilitate spreading this knowledge to the other organizations, the previous Licensing Manager was transferred to Operations Support to provide the benefit of his experience to the procedure writers group and Operations Manager. Additionally, a three-day training course on the regulatory process is being offered to all managers and supervisors in Nuclear Operations. The training course provides the information needed for non-licensing management to understand the foundation for the regulatory process. We expect a better understanding of the regulations and associated requirements governing nuclear power plant operation. This will result in improved compliance and reinforce the expectation that compliance is a fundamental aspect of nuclear safety.

Additional emphasis needs to be given to internal processes that assure regulatory compliance. For example, the safety evaluation process must include regulatory compliance as a necessary condition for acceptance of an alternative. The processes that maintain the current licensing basis must have the proper checks and balances to ensure changes are consistent with the regulations. Also, processes that do not directly change the current licensing basis, but deal with the decisions and implementing documents used in the plant, must likewise have the checks and balances to ensure activities are performed within the proper authorization of the licensee.

IV. Root Causes, Contributing Factors and Corrective Actions

The following are the root and contributing causes determined by the FPC/FPI team along with the respective corrective actions to improve regulatory compliance throughout the CR-3 organization.

Root Cause 1

Inadequate communication of management expectations and priorities with respect to safety culture and regulatory compliance resulting in:

- FPC positions on some regulatory issues not meeting the safety intent of regulations.

- Regulatory compliance not being considered pro-actively and with high priority when dealing with site activities.

- A perception by personnel that regulatory requirements should be addressed only from a perspective of minimum cost.

- Inadequate and inconsistent explanations of technical issues to the NRC.

- Imprecise or unclear commitments to the NRC.

Corrective Action Root Cause 1:

Action		Responsible Manager	Target Completion Date
D-RC1-1.	Establish a safety culture from the top down that clearly understands and values the relationship between safe plant operations and regulatory compliance.	P. M. Beard	Ongoing
D-RC1-2.	Train managers and supervisors on the elements of achieving and maintaining regulatory compliance and its priority in plant activities.	B. Gutherman	12/31/96
D-RC1-3.	Establish a method which will identify early on issues with regulatory impact and ensure these issues are appropriately integrated into site priorities for resolution.	B. Gutherman	12/31/96
D-RC1-4.	Develop a site issue integration matrix that parallels the NRC Resident's matrix. Make comparisons to ensure accuracy.	G. Halnon	12/31/96
D-RC1-5.	Conduct a third party facilitated self-assessment of Licensing.	B. Gutherman	12/31/96
D-RC1-6.	Benchmark key regulatory processes against SALP 1 plants and revise processes as necessary:		
	• Safety Evaluation Process (AI-400C, NEP-210)	G. Boldt/G. Halnon	12/31/96
	• Maintaining of Current Licensing Basis Process (NOD-11, 52)	L. Kelley	2/28/97
	• Conduct of the On-Site Safety Review Committee (AI-300)	G. Halnon	12/31/96
	• FSAR Update Process (NL-7)	B. Gutherman	12/31/96
	• Operability Process (CP-150)	R. Davis	2/28/97
	• Reportability Process (CP-111 presently)	B. Gutherman	12/31/96

Root Cause 2

Inadequate performance monitoring and trending from a regulatory compliance perspective which preclude:

- Focussing on the right issues in the right priority.
- Obtaining first-hand information on issue content and sensitivity.
- Obtaining real-time information on emerging issues
- Effective implementation of the safety evaluation process.

Corrective Action:

Action	Responsible Manager	Target Completion Date
D-RC2-1. Ensure a Licensing representative is part of the graded precursor screening team to provide regulatory perspective to the corrective action program.	B. Gutherman	Completed
D-RC2-2. Assure appropriate levels of management meet with the SRI on a weekly basis at his convenience for open, candid communication.	G. Boldt L. Kelley B. Hickle	11/1/96
D-RC3-3. Identify and monitor emerging industry issues in the regulatory area using the CR-3 monitoring/trending program.	L. Kelley/ J. Baumstark	2/28/97
D-RC4-4. Provide periodic case studies of regulatory issues and events, both internal and external, to help provide parallels to CR-3 experiences.	B. Gutherman	On-going on a periodic basis

Contributing Cause 1:

Inadequate root cause/common cause analysis process which precludes resolution of long term, high visibility regulatory issues.

Corrective Actions:

See corrective actions for Root Cause 3 of Leadership Oversight and Involvement section.

V. **Measures of Effectiveness:**

The following measures will be used to monitor progress and gauge the effectiveness of corrective actions in addressing the problem:

- Safety Performance Index
- CR-3 Violations vs. Region II Average
- Ratio of Non-Cited/Total Violations
- Ratio of Strengths to Strengths + Weaknesses
- CR-3 Licensee Event Reports (LERs) - Compared to the Region II Average

Appendix A
Action Items Carried Over from Previous MCAP Submittals and Meetings

Section D: Regulatory Compliance

	Action	Responsible	Target Completion Date
D-FU-1	Review the CR-3 50.59 Program and associated processes to ensure it is consistent with the 50.59 rule, industry guidance, and current regulatory feedback.	B. Gutherman	2/28/97
D-FU-2	Review the FSAR system chapters and compare the description information to the implementing plant documents to ensure they are consistent.	G. Halnon	3/1/97
D-FU-3	Provide training to managers and supervisors on the overall regulatory process. Customize course for 3 days of training by outside professionals with regulatory expertise, facilitated by in-house Licensing personnel to answer plant-specific questions.	B. Gutherman	12/31/96

SECTION E
OPERATIONS PERFORMANCE

I. **Area of Concern and Management Sponsor:**
Operations Performance/B. J. Hickle

II. **Problem Description:**

The Operations Department has not attained a level of performance equivalent to those measured as excellent by INPO and the NRC. Recent outside and internal audits have detailed several areas in need of improvement in order to attain operational excellence.

III. **Present Condition:**

Although Operations has some noted strengths such as the conduct of shift turnovers, the use of STAR by control board operators and the use of alarm response procedures, additional effort is needed to address areas needing improvement. A number of initiatives have been undertaken since March 1995, as part of MCAP I and in response to the MUT event to address these areas. These have included:

- Implementation of the Event Free Operations Program.
- Establishment of a mentoring program for NSS's and individuals selected for the SRO upgrade program.
- Creation and staffing of a work controls position for day shift.
- Creation of an additional level of management to improve management oversight of day to day operations; especially in the control room.
- Additional staffing with seven engineers including outside hires to infuse new talent into the Operations Department.
- Performance of an outside team self-assessment to enhance operators questioning attitude and self-critique behaviors.

Notwithstanding these efforts, some problem areas have not been fully corrected as evidenced by:

- Component mispositioning events.
- Failure to follow procedure events.
- Inconsistent log keeping practices.
- Failure to properly self-identify mistakes with the problem reporting process.

Consequently, MCAP II actions to address root and contributing causes of Operations problems have been developed as described in the following.

IV. Corrective Actions to Address the Root Causes of the Problem:

The following are the root and contributing causes with the corrective actions to upgrade Operations performance.

Root Cause 1

Inadequate implementation of established standards. Supervision has not consistently reinforced operating standards and this has resulted in:

1. Challenges to plant safety.
2. Inadequate work practices.
3. Failure to follow operational and administrative procedures.

Corrective Actions:

	Action	Responsible	Target Completion Date
E-RC1-1	Present a two hour class in Event Free Operations which focuses on safety culture to all shifts. Specific items to be covered included: self-disclosure of problems, the need for self-assessments, conservative decision making, importance of increasing margin of safety and the fuel handling event from 10R.	R. W. Davis	10/31/96
E-RC1-2	Develop and implement a recurring training class on Event Free Operations with a major focus on safety culture and self-assessment to be given annually to NLO's, RO's, SRO's and Operations management. Special attention will be given to the need to be self-critical, self-disclosing, and to do self-assessments.	J. Lind	6/30/97
E-RC1-3	Develop and implement a scheduling/tracking program that will ensure increased management observation of daily shift activities.	R. W. Davis	11/30/96
E-RC1-4	Develop structured program for benchmarking by Operations personnel to ensure awareness of current industry best practices.	R. W. Davis	12/31/96
E-RC1-5	Develop structured and recurrent program for self assessment.	D. Kurtz	12/30/96
E-RC1-6	Ensure administrative procedures are included in required reading program and in the licensed operator requalification program.	J. Lind	12/31/96
E-RC1-7	Fine tune performance indicators which will monitor shift to shift performance consistency.	R. W. Davis	12/31/96

Contributing Cause 1:

Inadequate resources within Operations.

Corrective Actions:

	Action	Responsible	Target Completion Date
E-CC1-1	Recruit six degreed SRO's for the purpose of providing an STA/SRO Work Control Supervisor to each operating shift. This will allow the NSM to assume Emergency Coordinator responsibilities full time and allow the Shift Supervisor to focus solely on command and control of operating crew.	R. W. Davis	11/30/97 (or completes STA training)
E-CC1-2	Reduce the operating procedure backlog to less than 25 outstanding comments through the use of contract procedure writers.	R. W. Davis	12/31/97
E-CC1-3	Improve Operations ability to support Engineering by adding additional resources to Operations Engineer section.	R. W. Davis	3/31/97
E-CC1-4	Reduce the abnormal procedure backlog to less than 10 outstanding comments through the use of contract procedure writers.	R. W. Davis	12/31/97
E-CC1-5	An Instant SRO class is in progress with seven (7) candidates.	R. W. Davis	6/30/98

Contributing Cause 2:

Vague and unclear operating expectations or standards have resulted in operating short falls.

Corrective Actions:

Action	Responsible	Target Completion Date
E-CC2-1 Benchmark through plant visits and INPO contacts, those plants noted for strengths in clear, concise expectations and standards.	R. W. Davis	12/31/96
E-CC2-2 Review and revise Operations administrative procedures to reflect the information gained through benchmarking.	R. W. Davis	3/31/97
E-CC2-3 Ensure Operations standards reflect the core values and principals for conducting business of Nuclear Operations.	R. W. Davis	12/31/96

Contributing Cause 3:

Inadequate root and common cause analysis resulting in management failure to address the right issues with proper priority.

Corrective Action:

E-CC3-1 - See Management oversight and involvement.

Contributing Cause 4:

Inadequate performance monitoring and trending which precludes proactive identification of emerging issues.

Corrective Action:

E-CC4-1 - See Management oversight and involvement.

V. **Measures of Effectiveness:**

The following measures will be used to monitor progress and gauge the effectiveness of corrective actions in addressing the problem:

- Procedure Compliance Indicator
- Precursor Cards by Shift
- Watch Station Appraisals/Shift
- Component Not in Expected Position
- Number of Weaknesses, Violations, and LER's
- RAD Dose/Shift
- TPM Signoffs/Shift

Appendix A
Action Items Carried Over from Previous MCAP Submittals and Meetings

Section E: Operations Performance

	Action	Responsible	Target Completion Date
A-FU-1	Nuclear Shift Supervisor (NSS), targeted NSSs, and SRO upgrade mentor program established.	R. W. Davis	Continuing
A-FU-2	Implemanted NSS annual performance goals that address weaknesses identified by FPC/NRC/INPO.	D.deMontfort	12/31/96
A-FU-3	Address all identified EOP weaknesses.	G. A. Becker	11/30/96
A-FU-4	Operations weaknesses are evident in work practices outside the control room, self-critical attitude, and operating procedure backlogs. Operability assessments require increased sensitivity.	R. W. Davis	12/31/97
A-FU-5	Mentor Program meetings are continuing, mentors receiving more frequent communications from operations personnel regarding on-shift concerns.	R. W. Davis	Continuing