

**Florida  
Power**

CORPORATION  
Crystal River Unit 3  
Docket No. 50-302  
Operating License No. DPR-72

April 10, 1998  
3F0498-22

U.S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, DC 20555-0001

Subject: Notification of Revised Schedules for Completion of Appendix R Work Identified in NRC Inspection Report No. 50-302/97-18, NRC Inspection Report No. 50-302/96-15, and Revision of Thermo-Lag Resolution Schedules

Dear Sir:

On February 10, 1998, Florida Power Corporation's (FPC) Crystal River Unit 3 (CR-3) returned to 100% power after being shut down for approximately 17 months correcting design deficiencies. A significant portion of this work included correcting Appendix R design deficiencies. The Appendix R project completed all compliance and restart commitments, including:

- Revalidation of the Appendix R Fire Study
- Repair of Degraded Seal Materials in the Reactor Building Expansion Joint
- Modification of the Reactor Coolant Pump 1A Motor Oil Collection system and repair of the three remaining original oil collection systems
- Installation of Current Transformer Secondary Protection
- Correction of Remote Shutdown Panel Isolation and Remote Shutdown Circuit Reroutes
- Independent Assessment of the Appendix R Program and implementation of corrective actions
- Design and implementation of plant changes that accommodate the potential for hot short induced mechanical failure of motor operated valves (NRC Information Notice 92-18)
- Revision of procedure AP-990, "Shutdown from Outside the Control Room"

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- Thermo-Lag Reduction Program
  - Resolution of approximately 40% of identified cable re-routes
  - Implementation of portions of the safe shutdown re-analysis changes
  - Installation of Mecatiss fire barriers in support of circuit changes and Thermo-Lag reduction
- Resolution of other identified design problems, including separation/protection of instrument and power cables and installation of additional emergency lighting

The Appendix R project shifted key resources from other planned work in order to achieve Appendix R compliance prior to restart. This shift in key resources caused subsequent delays in certain remaining Appendix R commitments. Following restart, a reevaluation of the remaining Appendix R work was completed for post restart commitments and near-term milestones for Thermo-Lag resolution. Attachment B provides a complete listing of these items including those that require schedule changes.

#### **Post Restart Schedule Commitments**

Many of the post restart commitments, contained in References 1, 2 and 3, are related to the update and enhancement of current Appendix R documentation to assure better configuration control in the future. The original scheduled commitments of "90 days following Restart" did not properly accommodate the time required for reviews of these changes under current site procedures. Hence, one to two month changes in the scheduled commitments for documentation update are required as identified in Attachment B.

The Independent Assessment recommended enhancements and revised control procedures for CR-3 Appendix R documentation in order to provide for better configuration control in the future. Further review of this commitment indicates that the enhancement of the documentation should be conducted in conjunction with the latter portions of the Thermo-Lag resolution engineering work discussed below. Hence the enhancement and revised control procedures for Appendix R documentation will be completed by April 30, 1999.

A preliminary design study comparing CR-3 penetration seals to certain tested configurations is complete. The balance of the Penetration Seal Resolution Program for CR-3 has been split into three implementation phases in order to efficiently manage the remaining work. The first two phases complete the final engineering evaluations and plant walkdown verifications prior to Refueling Outage 11. A final phase is planned during this refueling outage in the event that penetration seal replacements or repairs are required.

### Thermo-Lag Resolution Program

As discussed in Reference 4, the original basis for completing this project was tied to Refueling Outage 12 and resulted in a final commitment date of December 2000. Since the recent outage has delayed Refueling Outage 11 to the fall of 1999, FPC will complete outage related Thermo-Lag reduction work during this refueling. This results in an improved scheduled completion date for the Thermo-Lag resolution program of June 30, 2000.

As discussed earlier, FPC made significant progress on the Re-analysis and Plant Modification portions of the Thermo-Lag Resolution Program during the recent outage. However, a review of the balance of the Re-analysis plan concluded that prior to continuing implementation, additional analysis, evaluation, and supporting plant changes are required.

As an example, the original Re-analysis effort credited the manual actuation of the auxiliary feedwater system as an acceptable alternative to the emergency feedwater system. This would allow for the removal of Thermo-Lag on emergency feedwater related cabling. Preliminary review of this change under the current site 10 CFR 50.59 procedure concluded that an unreviewed safety question would exist. Hence, additional evaluation of this option and other Re-analysis options is being conducted to assure proper implementation of Thermo-Lag resolution strategies.

The revised schedule combines the remaining Plant Modification and Re-analysis work into an integrated package. A summary of the overall schedule for remaining Thermo-Lag Resolution work is provided below:

#### **SUMMARY SCHEDULE OF REMAINING THERMO-LAG RESOLUTION WORK**

<b>Work Description</b>	<b>Current Scheduled Dates</b>	<b>Original Committed Dates</b>
Final Engineering evaluation and conceptual design changes	January 8, 1999	Added to original work scope and schedule
Final Engineering work packages (Improved Schedule)	April 30, 1999	~Fall 1999
Complete Outage related work (Improved Schedule)	Fall 1999 Refueling Outage 11	Spring 2000 Refueling Outage 12
Final completion of non-outage work and documentation update (Improved Schedule)	June 30, 2000	November 30, 2000

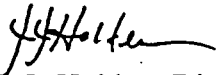
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We welcome a meeting with the NRC to discuss these schedule revisions, and also propose quarterly briefings on schedule progress with the NRC Project Manager and the CR-3 Resident Inspectors.

Attachment A provides a list of references that were utilized in preparation of this submittal. A list of commitments made in this letter is provided in Attachment B.

If you have any questions regarding this letter, please contact Ms. Sherry Bernhoft, Manager, Nuclear Licensing at (352) 563-4566.

Sincerely,



J. J. Holden, Director  
Site Nuclear Operations

JJH/jnb  
Attachments

xc: Regional Administrator, Region II  
Senior Resident Inspector  
NRR Project Manager

**ATTACHMENT A  
LIST OF REFERENCES**

1. NRC to FPC letter, 3N0198-04, dated January 6, 1998, "NRC Inspection Report No. 50-302/97-18"
2. FPC to NRC letter, 3F0897-19, dated August 13, 1997, "Revision to FPC letter 3F1296-17, dated December 20, 1996"
3. FPC to NRC letter, 3F0997-02, dated September 25, 1997, "Response to NRC Request for Additional Information Related to Restart Matrix Item D-11, Appendix R (TAC No. M98943)"
4. FPC to NRC letter, 3F1295-05, dated December 21, 1995, "Thermo-Lag Resolution Strategy"
5. FPC to NRC letter, 3F0797-34, dated July 26, 1997, "Current Status and Schedule Overview of Crystal River 3 (CR-3) Thermo-Lag Resolution Program"
6. FPC to NRC letter, 3F0298-09, dated February 9, 1998, "Non-Restart Follow-up Items"
7. NRC to FPC letter, 3N1097-42, dated October 29, 1997, "Crystal River 3 - Denial of Exemption from Certain Requirements of 10 CFR Part 50, Appendix R, Fire Protection Program for Nuclear Power Facilities (TAC No. M95817)"

**ATTACHMENT B  
LIST OF COMMITMENTS**

The following table identifies those actions committed to by Florida Power Corporation in this document. Any other actions discussed in the submittal represent intended or planned actions by Florida Power Corporation. They are described to the NRC for the NRC's information and are not regulatory commitments. Please notify the Manager, Nuclear Licensing of any questions regarding this document or any associated regulatory commitments.

Commitment ID Number	Description of Commitment Activity	Reference(s) for Schedule Commitment	Previously Committed Date <sup>1</sup>	Status/Comments on Committed Work Activity	Current/Revised Commitment Date(s)
3F0498-22-01	Provide proper documentation of Spurious Operation criteria in the Fire Study.	Reference 1: NRC IR No. 50-302/97-18, Section F1.8, IFI 97-11-10.	5/1/98 ("90 days post restart")	A draft of the criteria is under review. Since these criteria are derived from the regulations and related guidance documents, they will be added in the Topical Design Basis Document. Final completion has moved 45 days from the original schedule.	Commitment Date Revised <u>6/15/98</u>
3F0498-22-02	Add Information Notice (IN) 85-09 and IN 92-82 to the Appendix R Topical Design Basis Document (TDBD).	Reference 1: NRC IR No. 50-302/97-18, Section F1.8, IFI 97-11-10.	5/1/98 ("90 days post restart")	A draft of the revised Topical Design Basis Document is under development. Final completion has moved 45 days from the original schedule.	Commitment Date Revised <u>6/15/98</u>
3F0498-22-03	Revise/Update the Fire Protection Plan Appendix R Remote Shutdown instrumentation and surveillance requirements, including Emergency Feedwater Flow Indication.	Reference 1: NRC IR No. 50-302/97-18, Section F1.8, IFI 97-11-10, and Reference 2: VIO 50-302/96-15-01.	5/1/98 ("90 days post restart")	Work currently in progress. Revision of the Engineering Design Basis Document for the Remote Shutdown System is being prepared in parallel with the Fire Protection Plan revision. Final completion has moved two months from the original schedule.	Commitment Date Revised <u>7/1/98</u>
3F0498-22-04	Revise/Update the Fire Study to include Appendix R diagnostic instrumentation.	Reference 1: NRC IR No. 50-302/97-18, Section F1.8, IFI 97-11-10.	5/1/98 ("90 days post restart")	Work currently in progress. Final completion has moved one month from the original schedule.	Commitment Date Revised <u>6/1/98</u>

<sup>1</sup> For dates tied to "restart", the previously committed date is derived using Mode 2, which was achieved on January 31, 1998.

Commitment ID Number	Description of Commitment Activity	Reference(s) for Schedule Commitment	Previously Committed Date <sup>1</sup>	Status/Comments on Committed Work Activity	Current/Revised Commitment Date(s)
3F0498-22-05	Enhance/Consolidate and Update Appendix R documentation to better facilitate future configuration control.	Reference 1: NRC IR No. 50-302/97-18, Section F1.8, IFI 97-11-10.	7/1/98 ("Mid-1998")	Preliminary work has begun, however, development of Appendix R Documentation Enhancement and update of Thermo-Lag reduction activities requires a revised schedule.	Commitment Date Revised <u>4/30/99</u>
3F0498-22-06	Provide necessary administrative controls to assure proper configuration control of enhanced Appendix R documentation.	Reference 1: NRC IR No. 50-302/97-18, Section F1.8, IFI 97-11-10.	7/1/98 ("Mid-1998")	Work on this Enhancement has not begun. This effort will be conducted in parallel during the latter stages of Documentation Enhancement.	Commitment Date Revised <u>4/30/99</u>
3F0498-22-07	Complete remaining Thermo-Lag Re-analysis activities and update the Fire Study.	Reference 1: NRC IR No. 50-302/97-18, Section F1.14, IFI 97-11-10.	7/1/98 ("Mid-1998")	Thermo-Lag Re-analysis work that was completed during the recent outage was included in the Fire Study and appropriate procedures prior to restart. For discussion of remaining scope and final completion see Commitment ID Number 3F0498-22-17 below.	Outage Work Complete, see 3F0498-22-17 for balance of schedule
3F0498-22-08	Revise/update the Fire Protection Plan to include the Dedicated Appendix R Chiller equipment.	Reference 1: NRC IR No. 50-302/97-18, Section F1.17, IFI 97-11-10.	5/1/98 ("90 days post restart")	Work currently in progress. As discussed above under Commitment ID Number 3F0498-22-03, the final update of the Fire Protection Plan is delayed two months from the original commitment.	Commitment Date Revised <u>7/1/98</u>
3F0498-22-09	Install sprinkler for the Operations Office during upgrades to the Auxiliary Building automatic sprinkler system.	Reference 1: NRC IR No. 50-302/97-18, Section F1.19, IFI 97-11-10.	"Post Restart"	Work scheduled to be completed during sprinkler system modifications to be made in support of Thermo-Lag Exemption. As discussed below under Commitment ID Number 3F0498-22-18, completion of sprinkler work is scheduled for Refuel 11.	Commitment Date Set <u>Refuel 11</u> (Currently fall 1999)

Commitment ID Number	Description of Commitment Activity	Reference(s) for Schedule Commitment	Previously Committed Date <sup>1</sup>	Status/Comments on Committed Work Activity	Current/Revised Commitment Date(s)
3F0498-22-10	Verify Penetration Seals are bounded by test data or provide engineering justification of the design. Conduct design verification walkdown of seals. As outliers are identified, implement compensatory measures and initiate resolution. Complete Penetration Seal outlier resolution and finalize documentation.	Reference 1: NRC IR No. 50-302/97-18, Section F1.19, IFI 97-11-10.	12/31/98 ("Late 1998")	The Penetration Seal Resolution program has been restructured into three phases.  Phase I: Verify Penetration seals are bounded by test/engineering analysis.  Phase II: Design verification walkdown of Penetration Seals.  Phase III: Finalize Penetration Seal outlier resolution and complete documentation.	Commitment Date Revised  Phase I <u>12/7/98</u>  Phase II <u>7/16/99</u>  Phase III <u>10/15/99</u>
3F0498-22-11	Complete evaluation of maintenance and inspection requirements of fire service water tanks and update necessary procedures.	Reference 1: NRC IR No. 50-302/97-18, Section F1.21, IFI 97-11-10.	None Stated ("subsequent Inspection")	Work currently in progress.	Commitment Date Set <u>5/1/98</u>
3F0498-22-12	Revise the Fire Hazards Analysis to include Thermo-Lag combustibility.	Reference 3: FPC to NRC letter, 3F0997-02, dated 9/25/97	5/1/98 ("90 days post restart")	Work currently in progress. Final completion has moved two months from the original schedule.	Commitment Date Revised <u>7/1/98</u>
3F0498-22-13	Revise the FSAR to include Appendix R outage work and lessons learned.	Reference 3: FPC to NRC letter, 3F0997-02, dated 9/25/97	5/1/98 ("90 days post restart")	Work currently in progress. Completion of this effort will be conducted in support of the current FSAR Revision 25 schedule. Final completion has moved two months from the original schedule.	Commitment Date Revised <u>7/1/98</u>
3F0498-22-14	Revise Engineering Design Basis Documents for Appendix R outage work and lessons learned.	Reference 3: FPC to NRC letter, 3F0997-02, dated 9/25/97	5/1/98 ("90 days post restart")	Work currently in progress: Final completion has moved two months from the original schedule.	Commitment Date Revised <u>7/1/98</u>



Commitment ID Number	Description of Commitment Activity	Reference(s) for Schedule Commitment	Previously Committed Date <sup>1</sup>	Status/Comments on Committed Work Activity	Current/Revised Commitment Date(s)
3F0498-22-15	Revise/update Drawings to include Appendix R outage work and lessons learned.	Reference 3: FPC to NRC letter, 3F0997-02, dated 9/25/97	5/1/98 ("90 days post restart")	Work currently in progress. Final completion has moved two months from the original schedule.	Commitment Date Revised <u>7/1/98</u>
3F0498-22-16	Complete remaining Thermo-Lag Re-analysis activities.	Reference 5: FPC to NRC letter, 3F0797-34, dated 7/26/97	5/1/98 ("90 days post restart")	Work currently in progress. During the recent outage a review of the Re-analysis plan indicated that subsequent implementation required additional review, analysis, and supporting plant changes. Implementation of Thermo-Lag reduction via Re-analysis has been combined with Plant Modifications. See 3F0498-22-17 below for remaining scheduled work.	Commitment Date Revised Re-analysis combined with Plant Modifications, see 3F0498-22-17 below for schedule
3F0498-22-17	Plant Modifications to eliminate reliance on Thermo-Lag.	Reference 6: FPC to NRC letter, 3F0298-09, dated 2/9/98	11/30/00 (Revised original commitment of December 2000)	This work was begun during the recent outage. Scheduled completion of remaining Plant Modification work has been combined with Re-analysis work. Engineering evaluation and final conceptual design has been added to the original scope and will be completed by 1/8/99. Final Engineering work packages will be completed by 4/30/99. Outage related work will be completed during Refuel 11. The balance of non-outage work and updates of documentation and plant procedures will be completed by 6/30/00. This will complete the CR-3 Thermo-Lag Resolution program and allow for the removal of Thermo-Lag related fire watches. <u>It is noted that these revised schedules are improvements on past committed schedules.</u>	Commitment Date Revised Final Conceptual Design, <u>1/8/99</u>  Engineering work packages, <u>4/30/99</u>  Complete Outage Related Work, <u>Refuel 11</u>  Final non-outage work and documentation, <u>6/30/00</u>

Commitment ID Number	Description of Commitment Activity	Reference(s) for Schedule Commitment	Previously Committed Date <sup>1</sup>	Status/Comments on Committed Work Activity	Current/Revised Commitment Date(s)
3F0498-22-18	Installation of Sprinkler system modifications in support of Thermo-Lag Exemption issued by NRC letter to FPC, 3N1097-29, dated October 29, 1997.	Reference 5: FPC to NRC letter, 3F0797-34, dated 7/26/97	Refuel 11	Engineering work currently in progress. Outage related installation work will be completed during Refuel 11.	Commitment Date Revised <u>Refuel 11</u>
3F0498-22-19	Installation of New Emergency Lighting required following NRC denial of Emergency Lighting Exemption in NRC letter to FPC, 3N1097-42, dated October 29, 1997.	Reference 7: NRC to FPC letter, 3N1097-42, dated 10/29/97	Not Established	Final determination and placement of this lighting can not be conducted until the balance of the Thermo-Lag reduction is completed and post-fire operator actions are finalized.	Commitment Date Set <u>6/30/00</u>