

## Nuclear Information and Resource Service

1424 16<sup>th</sup> Street NW Suite 404  
Washington, DC 20036  
Tel. 202 328 0002 <http://www.nirs.org>

### Memorandum

Date: June 29, 2004

By Email

To: Eva Brown, NRR/NRC, <[eabl@nrc.gov](mailto:eabl@nrc.gov)>  
David Diec, NRR/NRC <[dtd@nrc.gov](mailto:dtd@nrc.gov)>

From: Paul Gunter, Director, Reactor Watchdog Project, NIRS, <[pgunter@nirs.org](mailto:pgunter@nirs.org)>

Re: Potential Willful Non-compliance with NRC Confirmatory Orders for Inoperable Thermo-Lag 330-1 Fire Barriers and NRC Non-Enforcement of Observed Long Standing Fire Protection Violations as per 10 CFR 50 Appendix R III.G.2

Dear Ms. Brown and Mr. Diec;

Since 1991 Nuclear Information and Resource Service (NIRS) has been actively engaged in monitoring nuclear power station fire protection violations of 10 CFR 50 Appendix R III.G.2.

In 1992, NIRS petitioned the NRC under 10 CFR 2.206 on inoperable and non-compliant Thermo-Lag 330-1 fire barriers in U.S. nuclear power stations. While NRC by Director's Decision dismissed the requested emergency enforcement actions of the NIRS 2.206 on Thermo-Lag, ultimately the agency arrived at the central NIRS requested action in 1998 with the issuance of Confirmatory Orders to 17 nuclear utilities to perform Thermo-Lag corrective action programs including the removal, replacement and upgrading of inoperable Thermo-Lag 330-1 fire barriers in lieu of requirements for 10 CFR 50 Appendix R III.G.2(a) and (c). The Orders were issued by NRC to licensees who had not provided a timely resolution to Thermo-Lag Corrective Action Programs for the protection of control room operation of redundant trains of reactor safe shutdown equipment.

NIRS has continued to monitor the consistent lack of industry cooperation and progress toward achieving effective fire protection of the control room operation of reactor safe shutdown equipment and compliance per current NRC fire protection regulations.

As NRC SECY 03-100 identifies, many nuclear power station licensees in lieu of their Thermo-Lag Corrective Action Programs instead substituted unanalyzed operator manual actions without NRC approval through the alternatively required exemption and deviation process. As mentioned earlier, a number of these licensees were already under

Confirmatory Orders issued in 1998 with specified and consented to actions and completion dates. NIRS notes that SECY 03-100 does not directly state that many of these unapproved and largely unanalyzed operator manual actions were substituted by licensees in place of analyzed and staff agreed upon actions designated in Corrective Action Programs at numerous nuclear power stations for their respective Thermo-Lag Confirmatory Orders.

Although there are numerous examples, NIRS would like to bring to your attention one specific case identified in part by FOIA 2003-0358 as an example of what we believe to be willful non-compliance with NRC fire protection regulations that is further compounded by a NRC policy of non-enforcement.

Crystal River, Florida Power Corporation/Progress Energy, Docket 50-302

1) NRC Bulletin No. 92-01: “Failure of Thermo-Lag 330 Fire Barrier System To Maintain Cabling in Wide Cable Trays and Small Conduits Free From Fire Damage,” June 24, 1992. Thermo-Lag 330-1 fire barriers are declared inoperable. Licensees, including Florida Power Corporation, relying upon Thermo-Lag 330 for one-hour and/or three-hour fire barriers begin to meet with NRC staff for resolution of non-compliances with 10 CFR 50 Appendix R III.G.2 that mandates protection of all redundant safe shutdown circuitry that is co-located in the same fire zones.

2) Nearly six years later, by letter dated April 10, 1998 from Florida Power and Light (FPL) to NRC, “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”, FPL informs NRC of progress on Thermo-Lag Reduction Program as:

- 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 330-01 reduction;

As well as;

- Resolution of other identified design problems, including separation/protection of instrument and power cables and installation of additional emergency lighting.

To the best of our knowledge, NIRS points out that there are no “operator manual actions” or “local manual actions” acknowledged to or approved by NRC as part of an identified Thermo-Lag Reduction Program for Crystal River in the April 10, 1998 resolution plan.

3) May 06, 1998, Florida Power Corporation Response to NRC Letter “Consent to Confirmatory Order Modifying License Regarding the Final Implementation Date for the Crystal River Unit 3 (CR-3) Thermo-Lag Resolution Program.” At that time, FPC agreed that it would comply with following commitment:

***“Florida Power Corporation shall complete final Implementation of Thermo-Lag 330-1 fire barrier corrective action at Crystal River Unit 3 described in Florida Power Corporation submittal to the NRC dated April 10, 1998, by June 30, 2000.”<sup>1</sup>***

4) May 21, 1998, NRC issues “Confirmatory Action Order Modifying License” to Crystal River confirming FPC commitment to complete final Implementation of Thermo-Lag 330-01 fire barrier corrective action program as identified in licensee submittal dated April 10, 1998 by June 30, 2000.

5) Two years later, May 25, 2000, FPC provides NRC with “Response to NRC Letter ‘Confirmatory Order Modifying License’ Regarding the Final Implementation Date for Crystal River Unit 3 (CR-3) Thermo-Lag Resolution Program. FPC identifies “major accomplishments” in completing its Thermo-Lag Corrective Action Program as:

- Mecatiss fire barrier material installed on 71 circuits required for safe shutdown.
- Additional sprinkler systems installed to protect existing Thermo-Lag installation per exemption accepted by NRC for specified configurations in lieu of fire barrier upgrades.
- Additional eight hour Emergency Lights installed to support operator actions during Appendix R fire.
- The Safe Shutdown Analysis has been revised to credit alternative equipment and shutdown procedures.
- Documentation revisions to support these changes.

FPC requests closure of subject Confirmatory Order.

6) June 24-28, 2002 and July 8-12, 2002, NRC conducts Triennial Fire Protection Baseline Inspections. Inspections verified “several examples where local manual actions were taken in lieu of complying with the requirements of 10 CFR 50 Appendix R Section III.G.2. ... The licensee concurred with the inspection team that current guidelines suggest that FPC should have formally requested Appendix R exemptions or deviations. No such exemptions or deviations were requested during correspondence with NRR concerning the use of manual actions.”<sup>2</sup>

The Briefing Summary of the Crystal River Triennial Fire Protection Baseline Inspection further identified;

“A significant number of local manual actions have been incorporated in OP-880 in order to resolve various Thermo-Lag issues. The 10 CFR 50.59 Evaluation performed to incorporate these local manual actions did not consider the following factors:

- Complexity of the new local manual actions
- The number of manual actions and time available for completion
- Availability of instruments to detect system/component mal-operations
- Human performance under high stress

---

<sup>1</sup> ML040990150

<sup>2</sup> FOIA 2003-0358 Appendix NN-4

- Effects of products of combustion on operator performance
- Available man power, timing, and feasibility of local manual actions<sup>3</sup>

7) July 19, 2002 in an email from Charlie Payne, NRC Region II, to Eric Weiss, NRC Headquarters, Crystal River's operator manual actions are identified as actions taken in lieu of completion of commitments under Thermo-Lag corrective action programs. It is further identified that Crystal River is still not complying with Appendix R III.G.2. by choosing manual actions in lieu of cable protection of one redundant train to achieve and maintain hot shutdown.

The email identifies that "The licensee did not pursue with NRR an exemption from complying with III.G.2 for any of its manual actions."<sup>4</sup> The email identified that one of the manual actions may be considered as greater than green. The local manual action in question was located in the same locale as the postulated fire. The licensee had not performed an analysis or timeline to verify adequate resources and capability to successfully accomplish local manual actions. "Despite not having any written analysis, the licensee claims to have appropriately considered these issues while revising their Fire Protection Plan (after determining that their Thermo-Lag barriers were not adequate and deciding to use local manual actions to compensate for not protecting cables in III.G.2. areas) ... The inspectors identified, and the licensee acknowledged, that many other operator manual actions would be performed as a result of other cable protection issues in the plant."<sup>5</sup>

The email continues, "Region II does not believe that Crystal River's use of local manual actions is only a matter of not receiving an exemption from NRR. The use of local manual actions is extensive and has not been comprehensively analyzed by the licensee. During our inspection, the team found one example where the licensee failed to properly evaluate the ability of the operator to successfully accomplish a local manual action. Other examples may or may [sic] exist. It is indeterminate pending completion of the licensee's analysis (in mid-October 2002) or additional NRC inspection. We intend to pursue appropriate enforcement action and color these findings per the ROP."<sup>6</sup>

In fact, no such enforcement action was taken against Crystal River for unanalyzed and unapproved operator manual actions in lieu of compliance with 10 CFR 50 Appendix R III.G.2 and Confirmatory Action Order Modifying License as issued to Crystal River on May 21, 1998.

Therefore, NIRS alleges:

- 1) Crystal River's current illegal operator manual actions are a direct result of long standing and ongoing fire protection regulation violations of 10 CFR 50 Appendix

---

<sup>3</sup> Ibid

<sup>4</sup> FOIA 2003-0358 Appendix N-2

<sup>5</sup> Ibid.

<sup>6</sup> Ibid.

- R III.G.2 as generically communicated to industry in NRC Bulletin 92-01, over 12 years ago, and;
- 2) Crystal River failed to complete the identified Thermo-Lag Corrective Action Program per Confirmatory Order as consented to by FPC by letter dated May 06, 1998 to be completed by June 30, 2000, by instead substituting illegal and largely unanalyzed operator manual actions in lieu of compliance with 10 CFR 50 Appendix R III.G.2 without NRC approval as required through the exemption and deviation process and without the appropriate analysis under 10 CFR 50.59.

Crystal River is not an isolated example. NIRS is extremely disturbed that it is in this climate of long standing industry non-compliance and non-cooperation that the agency and the industry seek to achieve a “compliance strategy” that in our view sacrifices Defense-In-Depth Philosophy as intended to reasonably protect the public safety by protecting redundant trains of reactor safe shutdown capability in the event of fire at nuclear power stations as currently required.