



FPL

MAR 13 2006

L-2006-066
10CFR50.4

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

Subject: Florida Power and Light Company
Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Response to NRC Integrated Inspection Report
Preliminary White Finding Apparent Violation

Reference: Letter, C. A. Casto to J. A. Stall, Turkey Point Nuclear Plant - Integrated
Inspection Report 05000250/2005005 and 05000251/2005005; Preliminary White
Finding, dated January 27, 2005[6]

Gentlemen:

On December 31, 2005, the Nuclear Regulatory Commission ("NRC") completed its final 2005 integrated inspection at Turkey Point Units 3 and 4. The results of that inspection were discussed during an exit meeting held on January 12, 2006, documented in the above referenced letter, and received at Turkey Point Plant on January 31, 2006.

Florida Power and Light Company ("FPL") appreciates this opportunity to provide the NRC with its perspectives on the facts and assumptions used by the NRC to arrive at the preliminary White finding and its significance. In its letter dated February 24, 2006 (FPL letter L-2006-069), FPL committed to submit its position on the finding in writing by March 13, 2006.

The FPL response is provided in three (3) attachments. Attachment 1 addresses the apparent violation of Technical Specification ("TS") 3.7.1.2 for the Auxiliary Feedwater ("AFW") System, and the apparent contributing violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action". Attachment 2 outlines the additional information considered by FPL regarding the applicable Significance Determination Process ("SDP") Phase 3 Risk Analysis. Attachment 3 provides the corresponding FPL SDP Phase 3 calculation.

FPL agrees that a violation of TS 3.7.1.2 occurred as a result of the inoperable "B" AFW pump and that a violation of 10 CFR Part 50, Appendix B, Criterion XVI occurred as a result of the failure to promptly identify and correct this problem. Corrective action included prompt replacement of the defective pump bearing, improvement in FPL risk assessment processes, and long-term corrective action focused on improved vendor oversight for critical equipment/components.

JE01

FPL's assessment of safety significance, as set forth more fully in Attachments 2 and 3, concludes that the event is of very low safety significance (Green). FPL performed its assessment using additional plant-specific factors beyond those included in the NRC's SDP assessment. These included the following:

- Time-dependent degradation of the "B" AFW pump
- More recent industry generic failure data [MSPI guidance]
- Additional and diverse plant-specific features for secondary heat removal

If there are any questions regarding this letter, please contact Walter Parker at 305-246-6632.

Sincerely Yours,



Terry O. Jones
Vice President
Turkey Point Nuclear Plant

- Attachments: 1) Turkey Point Response to Preliminary White Finding Apparent Violation 05000250/2005005-02 and 05000251/2005005-02:
- Apparent Violation (AV) of Technical Specification (TS) 3.7.1.2 for the Auxiliary Feedwater (AFW) System
 - Contributing Violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action"
- 2) Turkey Point Response to Preliminary White Finding Apparent Violation 05000250/2005005-02 and 05000251/2005005-02:
- Comments on NRC Phase 3 SDP of Turkey Point "B" AFW Pump
- 3) Calculation PTN-BFJR-06-001, Phase 3 SDP For Turkey Point "B" AFW Pump Failure

cc: NRC Regional Administrator
Director, Division of Reactor Projects
Senior Resident Inspector, USNRC, Turkey Point

ATTACHMENT 1
Turkey Point Response to Preliminary White Finding
Apparent Violation 05000250/2005005-02 and 05000251/2005005-02

1. Apparent Violation (AV) of Technical Specification 3.7.1.2 for the Auxiliary Feedwater (AFW) System:

FPL agrees that a violation of Technical Specification 3.7.1.2 occurred, due to the "B" Auxiliary Feedwater (AFW) Pump being inoperable beyond its allowed outage time of 30 days. The "past operability" assessment for this pump determined that the pump would not have been able to fulfill its safety function mission run time of 19 hours for some period of time in the past. Based upon the required mission run time, it is estimated that the "B" AFW pump was inoperable (would not have been able to perform its safety function mission run time) from at least December 14, 2004 to its inservice test failure date on November 7, 2005. This TS violation, pursuant to the requirements of 10 CFR 50.73(a)(2)(i)(B), was reported under Licensee Event Report (LER) 250/251-2005-006-00, dated February 21, 2006.

2. Contributing Violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action":

FPL agrees that a violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action" contributed to the inoperable "B" Auxiliary Feedwater (AFW) pump, due to a failure to promptly identify and correct a significant condition adverse to quality affecting the pump. Although numerous corrective actions were taken throughout the 2-year period during which the "B" AFW pump inboard journal bearing was misaligned, these corrective actions failed to identify the cause of the pump high vibration condition during this period.

This condition has been entered into the FPL corrective action program under Condition Report 2005-30750. In order to reduce recurrence of untimely and/or ineffective corrective action for critical equipment, FPL has implemented a Risk Screening and Prioritization work management process that includes documented operational decision making for risk sensitive equipment. The steps in this process are focused on identification of the consequences of the intended corrective actions and a determination regarding whether the planned actions are sufficiently intrusive to resolve the root cause of the observed condition. Additionally, the corrective actions have been implemented in the specification, procurement and inspection processes as long-term commitments to improving vendor oversight for critical equipment/components. Improved vendor controls is focused on providing appropriate technical purchase/repair guidance in the procurement and contracting process to ensure that delivered products will perform their intended functions, without experiencing unexpected defects from materials or workmanship.

ATTACHMENT 2
Turkey Point Response to Preliminary White Finding
Apparent Violation 05000250/2005005-02 and 05000251/2005005-02
Comments on NRC Phase 3 SDP of Turkey Point "B" AFW Pump

FPL reviewed the Turkey Point Nuclear Plant Integrated Inspection Report, 5000250/2005005 and 05000251/2005005 Preliminary White Finding, dated January 27, 2006.

- FPL believes that the time-dependent nature of the "B" AFW pump failure does contribute to the SDP analysis and determines certain assumptions and inputs used in the analysis approach. It has been demonstrated that the "B" AFW pump has had sufficient run-time available from its installation in 2003 to the discovery of the misaligned bearing in November 2005 (61 pump starts for 54 hours run time), such that it would have started and run upon demand throughout this period. If the pump were to then fail after start, plant off-normal procedures would direct the recovery of heat removal capability through the diverse plant-specific features available for secondary heat removal. The version of Turkey Point PSA model used by the NRC is overly conservative for Phase 3 SDP analysis and may not adequately account for this type of degradation.
- The risk impact of one failed AFW pump for Turkey Point must be analyzed considering the unique plant features of Turkey Point, its multiple heat sink capabilities and its proceduralized operator response to loss of auxiliary feedwater.

The following provides FPL's insights on the Phase 3 Significance Determination Process (SDP).

- 1) Because the degradation of B AFW pump is time-dependent, its safety significance is assessed by including the following factors:
 - A. Based on the test data and operating experience of the B AFW pump, the B AFW pump would run at least one hour on or before October 30, 2005. Afterwards, the performance of B AFW pump is not determined, and is conservatively assumed to fail within the first hour. See Table 1 in Attachment 3.
 - B. If B AFW pump runs for an hour and then fails, the decay heat is significantly lower, allowing more time for operators to take actions stipulated in the EOP.
 - C. The lower decay heat after one hour from hypothetical accidents also allows a less stringent success criterion for feed and bleed.
 - D. Credit for operator actions (e.g., certain offsite power recovery actions) not included in the original baseline PSA model, which were not important due to lower probability of the sequences, should be included for consistency.
 - E. Using a mission time of 24 hours for 3 AFW pumps and 2 standby steam generator feed pumps overestimates the probability of selected sequences.

When these factors are incorporated in the SDP, the CDP increase over a year is estimated to be approximately 4.3×10^{-7} ; this is below the threshold of 1.0×10^{-6} for the risk significance color of GREEN.

- 2) The version of the Turkey Point PSA model used was appropriate for a Phase 2 SDP, but overly conservative for a Phase 3 SDP. As part of the effort to prepare Mitigation Systems Performance Index (MSPI) basis document, it was determined that the generic data used in the PSA model overestimates the failure probability of Turbine Driven AFW pumps by as high as a factor of 6. The new generic data in the MSPI and SPAR programs were used in the Turkey Point PSA model to perform a sensitivity study. The resulting Turkey Point PSA CDP increase over a year is comparable to that based on the NRC's SPAR model using the new generic data, with time-dependent considerations. The same conclusion is reached; the CDP increase is below the threshold of 1.0×10^{-6} for the risk significance color of GREEN.

The details of the above two items are elaborated in Attachment 3, a signed off calculation entitled: PHASE 3 SDP FOR TURKEY POINT "B" AFW PUMP FAILURE.

- 3) Fault exposure time does not reflect the time-dependent nature of the "B" AFW condition. The Mitigation System Performance Index (MSPI) program eliminates the fault exposure time by considering the failures explicitly in the unreliability index. Based on the conservative weighting factors, the 12-quarter performance data, and the INPO MSPI calculator, MSPI for the AFW system is GREEN.
- 4) Qualitatively, the risk impact of failing one AFW pump for Turkey Point is minimal, due to the plant unique features. Turkey Point secondary heat removal function can be accomplished by the three turbine-driven AFW pumps, two main feedwater pumps, one motor-driven standby steam generator feedwater (SSGFW) pump, one diesel-driven SSGFW pump, three condensate pumps, and bleed and feed via four high head safety injection (HHSI) pumps. EOP FR-H.1, Response to Loss of Secondary Heat Sink, includes the following recovery strategies, in order of priority:
 - A. Restore AFW
 - B. Re-establish Main Feedwater (FW)
 - C. Establish SSGFW
 - D. Establish feed from Condensate Pumps
 - E. Feed and Bleed

Compared with a majority of other PWRs, even with a failure of one AFW pump, the secondary heat removal function at Turkey Point still has the same degree of defense-in-depth and margin of safety. The number and the diversity of the systems that can accomplish secondary heat removal at Turkey Point provides a strong basis that loss of one AFW pump is not risk-significant.

In conclusion, three different approaches were used in evaluating the safety significance of the degraded condition of the "B" AFW pump. When realistic time-dependent factors are incorporated and more recent generic failure data are incorporated, all three approaches, the SPAR model, the MSPI model, and the revised Turkey Point PSA model (Attachment 3), yield comparable results of delta CDF increase less than $1.0E-6/\text{Yr}$. The risk impact of B AFW pump degradation is determined to be low safety significance, i.e., GREEN.