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AUTH. NAME AUTHOR AFFILIATION
WOODY, C. O. Florida Power & Light Co.
RECIP. NAME RECIPIENT AFFILIATION
Ofc of Enforcement (Post 870413)

SUBJECT: Forwards response to NRC 871019 notice of violation & proposed civil penalty & confirmatory order from listed insp repts. Corrective action: sys realigned to proper configuration using procedure 4-OP-065.2.

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NOVEMBER 1 8 1987

L-87-479

Director, Office of Enforcement
U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

Dear Sir:

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Reply to Notice of Violation and Proposed Civil Penalty
EA 87-85 (Inspection Reports 87-27, 87-28 and 87-33)

Florida Power & Light Company (FPL) has reviewed the NRC letter dated October 19, 1987 which forwarded a Notice of Violation, Proposed Civil Penalty and the Confirmatory Order.

FPL's reply to this Notice of Violation is attached, concurring with them and setting forth the reasons for their occurrence and corrective actions which have been and will be taken. Additional long-term corrective action will be addressed in our response to the Order discussed above which will be provided by separate letter.

A check for the full amount of the Civil Penalty is attached.

Very truly yours,

C. O. Woody
Executive Vice President

COW/SDF/gp

Attachment
FPL Check No. 66752

cc: Dr. J. Nelson Grace, Regional Administrator, Region II, USNRC
Senior Resident Inspector, USNRC, Turkey Point Plant

Paid w/ check
$225,000.00

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STATE OF FLORIDA)
) ss.
COUNTY OF BROWARD)

J. W. Dickey being first duly sworn, deposes and says:

That he is Vice President of Nuclear Operations of Florida Power & Light Company, the Licensee herein;

That he has executed the foregoing document; that the statements made in this document are true and correct to the best of his knowledge, information, and belief, and that he is authorized to execute the document on behalf of said Licensee.

J. W. Dickey

Subscribed and sworn to before me this
18 day of November, 1987.

Deborah M. Stanfpoole

NOTARY PUBLIC, in and for the County
of Broward, State of Florida

Notary Public, State of Florida at Large
My Commission Expires Sept. 10, 1988
BONDED THRU HUCKLEBERRY SIBLEY
& HARVEY INSURANCE & BONDS, INC.

My Commission expires: _____

ATTACHMENT

Re: Turkey Point Units 3 & 4
Docket Nos. 50-250 and 50-251
Notice of Proposed Violation and Civil Penalty
EA 87-85 (Inspection Reports 87-27, 87-28 and 87-33)

Finding A

10 CFR, Part 50, Appendix B, Criterion V, requires that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings.

Technical Specification 6.8.1 requires that written procedures shall be established and implemented for activities recommended in Appendix A of Regulatory Guide 1.33. Appendix A recommends, in part, that procedures for the operation of safety-related systems should be established.

NUREG-0737, Item I.C.6, Independent Verification, requires the implementation of procedures to verify the correct performance of operating activities. This item was implemented by an Order dated July 10, 1981.

Contrary to the above, the licensee did not establish or implement adequate procedures to assure configuration control over emergency boration, a safety-related system, between May 28 and June 3, 1987. Examples include the following:

1. The boration flowpath established on May 28, 1987 from the discharge of the 3B boric acid (BA) pump to the Unit 4 Reactor Coolant System (RCS) was not authorized by established procedures, the administratively allowable alternatives of a Plant Work Order, or an approved temporary procedure.

2. Non-licensed personnel without SRO direction or an approved procedure established a boration flow path from Unit 4 BA system to the suction of the 3B BA pump. Establishment of the flowpath resulted in nitrogen intrusion from the Unit 4 BA system to the Unit 3 BA system and a loss of all boric acid flowpaths.

3. Independent verification to ensure valving alignment documentation and restoration from the above unauthorized valve line-up was not implemented in accordance with Administrative Procedure 0-ADM-31, Independent Verification, and NUREG-0737, Item I.C.6.

4. Off-Normal Operating Procedure ONOP-046.1, Emergency Boration, did not provide directions to operators for a loss of all boration flowpaths, including flow from the RWST.

5. Between May 30 and June 3, 1987 additional valve operations of the boration systems were performed without approved procedures, proper documentation or independent verification. These evolutions allowed additional nitrogen intrusion from the failed seal in the 4B BA pump into Unit 4 and an additional loss of the 3B BA pump.

Response

1. FPL concurs with this finding.

2. The flowpath established from the discharge of the 3B boric acid pump to the Unit 4 reactor coolant system was not established per an established procedure due to a misinterpretation by the Plant Supervisor-Nuclear (PS-N) of the allowances of Operating Procedure O-OP-046, CVCS-Boron Concentration Control. This procedure stated that other valve line-ups which accomplish the intent of the Technical Specifications can, at the discretion of the PS-N, be utilized under Administrative Procedure AP-103.4, In-plant Equipment Clearance Orders, or AP-109.6, Temporary Procedure. The PS-N interpreted this statement to allow other valve line-ups to be used at his discretion, but did not document the changes per the requirements of the referenced administrative procedures. No independent verification of the discretionary line-up was performed since it had not been initiated in full complicance with proper plant procedures. Similar valve line-up changes were performed later during the week in an attempt to locate a boric acid blockage that was believed to be the source of the flowpath loss problems. Once again these were performed at the discretion of a licensed operator but were not documented since they were believed to be within the authorized valve line-ups of O-OP-046. The possibility of nitrogen intrusion thru a failed seal was not believed to be a credible failure. Therefore, no procedural cautions had been established and numerous line-ups were tried to locate a believed blockage until the failed seal problem was discovered.

   The boration flowpath from the Unit 4 boric acid system to the 3B boric acid transfer pump was established with the assistance of a system engineer who had been sent by the PS-N to meet a non-licensed nuclear operator with the intent of troubleshooting the apparent loss of the boric acid flowpath on Unit 4. The system engineer believed he had been authorized by the PS-N to alter the system alignment in an attempt to determine the root cause of the lost flowpath.

3. a) Training brief 201 was issued to describe to the operators the sequence of events, the significance of what happened and the procedure changes made to ensure nitrogen intrusion does not recur.

   b) Administrative Procedure 0-ADM-207 was written to provide instructions to plant personnel as to the proper procedure to use when a situation not covered by existing procedures is found.

   c) System engineers have been provided instruction to ensure that cognitive personnel with the responsibility for maintaining the plant in a safe condition are informed and directly involved with troubleshooting activities.

   d) A new Off-normal Operating Procedure O-ONOP-046.3 is being written to provide operator guidance in the event of total loss of boron injection flowpaths.

4. Additional immediate, short-term, and long-term corrective measures which FPL is taking in response to these and other Turkey Point performance problems has been provided in FPL letters dated October 7, 1987 and October 19, 1987. These include the on-going Management-on-Shift program which consists of around-the-clock coverage of plant operations by an off-site individual with senior reactor operator experience or previous experience in assessing the operation of commercial nuclear power plants and an independent evaluation by a third party to identify root causes of our continuing performance problems. The third-party evaluation will be further discussed in our reponse to the NRC Order accompanying EA 87-85.

5. Full compliance for item 3a was achieved June 11, 1987.

Full compliance for item 3b was achieved July 2, 1987.

Full compliance for item 3c was achieved July 30, 1987.

Full compliance for item 3d will be achieved December 24, 1987.

Full compliance with our October 19, 1987 Management-on-Shift commitment was achieved October 26, 1987.

Full compliance with the third-party independent evaluation will be discussed in FPL response to the NRC Order accompanying EA 87-85.

Finding B

Technical Specification 3.18 requires, in part, that two independent auxiliary feedwater (AFW) trains and associated flowpaths shall be operable in reactor modes 1, 2 and 3. With both required AFW trains inoperable, and neither is returned to service within two hours, then the affected unit must be placed in at least hot standby (mode 3) within the next six hours and in hot shutdown (mode 4) within the following six hours.

Technical Specification definition 1.4, entitled Operable-Operability, specifies, in part, that a train or system shall be considered operable when it is capable of performing its specified functions.

The AFW nitrogen system is a necessary auxiliary system installed to provide at least two hours of automatic AFW flow control in the event of the loss of the instrument air system.

Contrary to the above, on July 15, 1987 with the Unit 4 in mode 1, a turbine operator improperly aligned both trains of the AFW nitrogen supply system on Unit 4 such that all bottles were isolated. Consequently, for the approximately 20 hours the AFW nitrogen supply sytem was isolated the AFW system was not capable of performing its specified function.

Response

1. FPL concurs with this finding.

2. The cause of the inadvertent isolation of the AFW Nitrogen Backup System was personnel error due to failure to follow procedures.

   The AFW system alignment requirements were changed during a recent Unit 4 outage in conjunction with work related to Plant Change Modification (PCM) 85-176. This design change was turned over to the plant on June 26, 1987. The change was made in order to provide a 2-hour nitrogen supply backup to the AFW flow control valves. The previous design called for a total of 5 bottles for both trains, with only the #1 bottle to be in service and the rest of the bottles being valved out. At the time the non-licensed operator performed the realignment, 3 bottles were valved in, however the operator's understanding was that only 1 bottle was required. The operator failed to seek supervisory assistance when he noticed a condition he felt was not normal and failed to notify his supervisor of the valve alignment changes he made. While procedure 4-OP-065.2 was updated to be in accordance with the PCM, the shift surveillance log sheet did not reflect any acceptance criteria, it only proper alignment.

3. a) The system was realigned to the proper configuration using procedure 4-OP-065.2

   b) A training brief on the Nitrogen Backup System was prepared and issued.

   c) A training brief on operator required actions upon the discovery of a perceived abnormal condition was issued.

d) New labeling was attached to the nitrogen bottle station.

e) Procedures O-OSP-200.1, "Schedule of Plant Checks and Surveillances," and OP-0204.2, "Periodic Tests, Checks, and Operating Evolutions," were revised to add a weekly nitrogen pressure gauge surveillance.

f) Procedure 3/4-OSP-201.3, "Nuclear Plant Operator Daily Logs," was revised to change the logs to delineate the requirement for three nitrogen bottles to be valved in.

g) The subject operator was counseled on the seriousness of his error and the requirements for strict adherence to procedures.

4. Additional immediate, short-term and long-term corrective measures which FPL is taking in response to these and other Turkey Point performance problems have been provided in FPL letters dated October 7, 1987 and October 19, 1987. These include the on-going Management-on-Shift program which consists of around-the-clock coverage of plant operations by an off-site individual with senior reactor operator experience or previous experience in assessing the operation of commercial nuclear power plants and an independent evaluation by a third party to identify the root causes of continuing performance problems. The third-party evaluation will be further discussed in our response to the NRC order accompanying EA 87-85.

5. Full compliance for item 3 was achieved on or before August 14, 1987.

Full compliance with our October 19, 1987 Management-on-Shift commitment was achieved October 26, 1987.

Full compliance with the third party independent evaluation will be discussed in FPL response to the NRC Order accompanying EA 87-85.

Finding C

10 CFR 50, Appendix B, Criterion XVI, as implemented by Florida Power and Light Topical Quality Assurance Report FPLTQAR 1-76A, Revision 10, and TQR 16.0, Revision 5, entitled Corrective Action, requires in part, that measures be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition.

FPLTQAR 1-76A defines significant conditions adverse to quality as failures, malfunctions, deficiencies or deviations in material and equipment and other nonconformances which require engineering evaluation and/or evaluation for reportability as required by 10 CFR 50.55(e), reportable occurrences (LERs) or 10 CFR 21 deficiencies.

Administrative procedures O-ADM-913, entitled Corrective Action for Conditions Adverse to Quality, revision dated July 15, 1986, specifies in section 5.3 that supervisors shall be alert to significant conditions adverse to quality when recommending or approving changes based on observed or reported discrepancies.

Turkey Point FSAR, Section 9.3 states, following a loss of coolant accident, two Component Cooling Water CCW heat exchangers accomodate the heat removal loads. If a CCW heat exchanger fails, the standby heat exchanger provides a 50 percent backup. Additionally, FSAR Table 9.3-5 specifies that two CCW heat exchangers can carry the total emergency heat load. The FSAR specifies, in Section 9.6, that only one Intake Cooling Water (ICW) pump is required following a Maximum Hypothetical Accident (MHA) and that the minimum operating requirements for the ICW sytem are met by one pump and one loop header.

FPL's Substantial Safety Hazards Evaluation for Intake Cooling Water System, JPE-L-85-38, determined that the ICW system was susceptible to single active failures. The licensee subsequently determined that the active failures were inconsequential during a MHA provided that a manual isolation valve was shut, and ICW (Cooling Canal) temperature and CCW heat exchanger cleanliness were maintained within given parameters.

Contrary to the above, on December 1, 1986, a performance test conducted on the Unit 3 Component Cooling Water (CCW) heat exchangers indicated degraded performance. Revised data and a proposed immediate cleaning schedule were forwarded to the Shift Technical Advisors on December 4, 1986, but the changes required by the revised performance data were not adhered to and the cleaning schedule was not followed. As a result of this failure to perform corrective action, with the 3b CCW heat exchanger out of service for cleaning during a seventeen hour period on December 11, 1986, the two CCW heat exchangers remaining in service would not have been able to dissipate the maximum hypothetical heat load even with the ICW flow provided by two ICW pumps as described in safety evaluation JPE-L-85-38, Rev. 2, and the turbine plant cooling system isolated.

Response

1. FPL concurs with this finding.

2. The reason for the finding was personnel error in that the cleaning schedule set up for the CCW heat exchangers was not followed. This resulted in the performance of the heat exchangers degrading to the point where a heat exchanger could not be cleaned during unit operation. Another contributor to this event was that the curves used for determining CCW heat exchanger cleaning frequency were revised after cleaning based on an expected level of cleanliness. Actual performance tests were run only periodically with the resulting data being used to correct the curves. This method did not adequately assess the level of cleanliness achieved after each cleaning.

3. a) A plant change/modification (PC/M) 86-194 has been installed on Unit 3 which established an on-line mechanical tube cleaning capability for the CCW heat exchangers. The new cleaning system operates by introducing sponge rubber balls into the cooling water supply line of each heat exchanger. The normal process flow then forces the balls through the heat exchangers tubes, wiping them clean. Screens in the discharge lines collect the balls, and a centrifugal pump recirculates the balls to the injection point. A ball collector is also included to allow addition or retrieval of the cleaning balls.

   b) Until satisfactory completion of performance testing of the tube cleaning system discussed in item 3a, routine heat exchanger performance tests on Unit 3 will be performed and updated curves plotted assuming that no cleaning benefit is received from this system. The decision to remove a heat exchanger from service for cleaning or to update the curves will be based on the as-found fouling condition.

   c) After each cleaning of the Unit 4 CCW heat exchanger(s), performance tests will be conducted to assure consistency in cleaning. The fouling data from these tests will then be used to plot updated curves to determine when and which heat exchangers need to be removed for cleaning.

4. a) Similar modifications to those described above in 3a are planned to be implemented on Unit 4. Unit 4 will continue to operate under the existing evaluation until the modifications are completed.

   b) After installation of the tube cleaning system on Unit 4, routine heat exchanger performance tests similar to those discussed in 3c will be performed until system optimization is achieved. At that time a revised engineering evaluation and appropriate operating procedure changes will be issued.

   c) Upon satisfactory completion of the performance testing of the Unit 3 tube cleaning system, a revised engineering evaluation and appropriate operating procedure changes will be issued to include the optimized tube cleaning system.

d) Additional immediate, short-term and long-term corrective measures which FPL is taking in response to these and other Turkey Point performance problems have been provided in FPL letters dated October 7, 1987 and October 19, 1987. These include the on-going Management-on-Shift program which consists of around-the-clock coverage of plant operations by an off-site individual with senior reactor operator experience or previous experience in assessing the operation of commercial nuclear power plants and an independent evaluation by a third party to identify the root causes of our continuing performance problems. The third-party evaluation will be further discussed in our response to the NRC order accompanying EA 87-85.

5. Full compliance with item 3a was achieved on August 13, 1987.

Full compliance with item 3b was achieved October 22, 1987.

Full compliance with item 3c was achieved October 22, 1987.

Full compliance with item 4a will be achieved prior to completion of the Unit 4 refueling outage scheduled for late 1988 or early 1989.

Full compliance with item 4b will be achieved six months after return to service of Unit 4, following the installation of the tube cleaning system.

Full compliance with item 4c will be achieved on August 6, 1988.

Full compliance with our October 19, 1987 Management-on-Shift commitment was achieved October 26, 1987.

Full compliance with the third-party independent evaluation will be discussed in FPL response to the NRC Order accompanying EA 87-85.