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RECIP. NAME RECIPIENT AFFILIATION
Office of Enforcement (Post 870413)

SUBJECT: Responds to NRC 870721 ltr re violations noted in Insp Repts 50-250/87-14 & 50-251/87-16. Corrective actions: containment leaks will be inspected & documented for evaluation & safety review enhancements performed. Civil penalty payment encl.

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FPL

AUGUST 2 0 1987

L-87-350
10 CFR 2.201

Director, Office of Enforcement
U.S. Nuclear Regulatory Commission
Attention: 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
Imposition of Civil Penalty (EA 87-97)

Attached is the Reply of Florida Power & Light Company (FPL) to the Notice of Violation and Proposed Imposition of Civil Penalty (NOV) transmitted by letter of July 21, 1987, from the Regional Administrator, Region II of the Nuclear Regulatory Commission (NRC). Our check in full payment of the assessed penalty is enclosed.

Finding IA addresses inadequacies in the evaluation of a reactor coolant leak at Turkey Point Unit 4 and the associated corrective measures. This event is dealt with extensively in FPL's letter L-87-186, "Report on Instrumentation Port Column Assembly Leakage" dated April 27, 1987 and the NRC's AIT Report No. 50-251/87-16 dated May 15, 1987. Although, as noted in the attached Reply, FPL does not take issue with the penalty imposed for Finding IA, the deficiencies in the Safety Evaluation are not fairly characterized as attributable to haste in its preparation. Of particular importance in this regard, FPL would observe that:

(1) The time for performance and review of the Safety Evaluation was not constrained by schedule. Corporate and Plant Management fully recognized the need to complete a thorough evaluation of the leak prior to authorizing restart of the unit. Operators, for example, were instructed not to take the reactor critical until the Evaluation was complete.

(2) The Safety Evaluation was comprehensive in scope; it covered relevant Technical Specifications, consideration of the amount and potential for increase in leakage, the potential for corrosion of the clamp and provisions for monitoring leakage. The Safety Evaluation also considered the potential for certain secondary impacts, concluding that: (1) the leakage was local to the conoseal; (2) no electronic components were exposed to the leak; and (3) the leakage would not impact the Inadequate Core Cooling System (ICCS).

(3) The fact that the Safety Evaluation did not consider the secondary effects of boric acid on the head can be better attributed to the observations of the inspection team than to a hasty evaluation. The team did not observe liquid going down the instrument port column and therefore the Safety Evaluation was oriented to the areas where the leakage was directed.

(4) The Safety Evaluation was reviewed and approved by members of the Plant Nuclear Safety Committee (PNSC). Members of the PNSC were informed of the conoseal leak during the day of August 30, 1986, and discussed the leak among themselves. Formal approval of the Safety Evaluation by the PNSC took place later the same day via individual phone calls to the committee members.

FPL believes that these facts demonstrate that the Safety Evaluation was conducted in a deliberate manner. Nevertheless, FPL's review of this event indicates the need for improvement in the conduct and review of Safety Evaluations, as well as other fundamental corrective measures which are set forth in the Reply. In addition, Turkey Point has adopted a zero reactor head joint leakage policy, as this event has demonstrated that complex mechanisms can significantly effect any leakage in an unpredictable manner.

Finding IB occurred, in part, as a result of an interruption of the activities of maintenance personnel who were in the process on April 8, 1987 of moving a lifting rig over the reactor vessel to move certain upper internals to facilitate an IAEA inspection. While some failure in communications on the part of the maintenance staff may have contributed to this finding, FPL believes this is an exception to an otherwise improving situation. FPL had previously reflected its concern about the coordination of operations and maintenance activities in the steps it had taken to improve communications between the two groups. The most recent SALP, while noting this event, generally recognizes improvements in the coordination of operations and maintenance activities (p. 9) and further states that "maintenance liaison with the Operations Department has improved through the efforts of an Operations/Maintenance Coordinator and because frequent planning meetings are held" (p.20).

The NOV also included two additional Severity Level IV findings not assessed a civil penalty. FPL's response to these findings is also included in the Reply.

Several of the matters discussed in this Reply are discussed in the NRC's most recent SALP Report on Turkey Point. That Report notes the tremendous investment in resources by FPL dedicated to improving programmatic activities in support of safe and reliable operations at Turkey Point. While these programmatic improvements are not complete, we believe that the findings addressed in this Reply (and in other recent issues awaiting consideration for escalated enforcement action) indicate that additional emphasis must be devoted to execution -- specifically to conveying proper attitudes to plant personnel at all levels through improved training, closer "hands-on" supervision, and other steps to upgrade personnel performance and implementation of programmatic requirements.

Very truly yours,

C. O. Woody
Group Vice President
Nuclear Energy

COW/TCG/cn:M017
Att./Enc.:Check No. 64961

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

STATE OF FLORIDA)
) ss.
COUNTY OF PALM BEACH)

C. O. Woody being first duly sworn, deposes and says:

That he is a Group Vice President 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.

C. O. Woody

Subscribed and sworn to before me this
30 day of August, 1987.

NOTARY PUBLIC, in and for the County
of Palm Beach, State of Florida

NOTARY PUBLIC STATE OF FLORIDA
MY COMMISSION EXP SEPT 18,1989
BONDED THRU GENERAL INS. UND.

My Commission expires: _____

ATTACHMENT 1

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
IE Inspection Reports 50-250/87-14 and 50-251/87-14
NRC Augmented Inspection Team Report 50-251/87-16
Notice of Violation and Proposed Imposition of Civil Penalty (EA 87-97)

Findings Assessed A Civil Penalty

Finding I.A:

10 CFR Part 50, Appendix B, Criterion XVI, states, in part, that conditions adverse to quality be promptly identified and corrected.

Technical Specifications 4.0.3 requires that in-service inspection of ASME Code Class 1, 2 and 3 components shall be performed in accordance with Section XI of the Boiler and Pressure vessel Code and applicable Addenda as required by 10 CFR 50.55a(g).

IWA-5250(b) of the Code requires that the detection of boric acid residues on ferritic steel components shall require the location of the leakage source and the areas of general corrosion, if any.

Operating Procedure 1004.1, Reactor Coolant System - System Leak Test Following RCS Opening, states that during the visual examination, particular attention shall be given to the insulated areas of components constructed of ferritic steels to detect evidence of boric acid residues resulting from reactor coolant leakage.

Contrary to the above, on August 30, 1986, the licensee identified the leakage of reactor coolant from an Instrument Port Column Conoseal connection on the reactor vessel head of Unit 4, a condition adverse to quality, and did not properly evaluate the effect of the leakage and take appropriate corrective action. Consequently, substantial corrosion of vessel head pressure boundary components occurred. Specifically, the following events contributed to the situation:

1. On August 30, 1986, a safety evaluation was prepared by the licensee which failed to adequately address the possible damage to surrounding ferritic steel components from boric acid residue.

2. On October 24, 1986, an examination of the fitting leakage was inadequate in that large quantities of boric acid residue were found on the reactor vessel head .reflective insulation, yet attention was not given to the examination of ferritic steel components under the insulation.

Response

(1) FPL concurs with the finding.

(2) The reason for the finding is that the safety evaluation which provided the initial justification for continued operation failed to consider as fully as possible the secondary effects of boric acid leakage or information available from other sources concerning the effects of boric acid on carbon steel. FPL was not aware of any previous information regarding minor leaks on the reactor head area.

The Safety Evaluation of the conoseal leak in August did address a wide range of issues associated with the leak. However, the observations of the inspection team did not lead the engineer to consider the potential for boric acid to leak down inside the vent shroud and reflective insulation and collect and concentrate on the reactor vessel head. Because no water was observed going down the instrument column the emphasis of the evaluation was on the components which were expected to come into contact with the observed leakage. These components were discussed in the evaluation.

As stated in the inspection report and the finding, an amount of boric acid crystals was subsequently found in the vicinity of the conoseal and on the reflective insulation during the October inspection. The placement of these crystals were interpreted by the evaluating engineer to confirm his original assumptions regarding which components were to be addressed in the evaluation. Again, during this inspection because no liquid was observed going down the opening for the instrument port column, the inspection results did not readily lead to the conclusion that boric acid might be collecting inside the vent shroud and the reflective insulation.

(3) After discovery of the boric acid crystals on the reactor head area in March 1987, FPL performed extensive inspections to identify the extent of the items which were in contact with boric acid deposits. These included inspections of items in the area of the reactor vessel head, walkdowns and analysis of equipment in containment which have been environmentally qualified under 10 CFR 50.49, and a more general walkdown of equipment in the containment to identify any other items which may have been affected by the conoseal leakage.

Following these walkdowns and inspections, FPL took several actions for those items which had evidence of boric acid deposition. In general, these actions consisted of noting the conditions of items; cleaning the items which had boric acid deposits; performing visual inspections and non-destructive examinations (NDE), as appropriate for the cleaned items; evaluating the results of the inspections and NDE; and repairing or replacing items as warranted. Details of those inspections are included in the April 27, 1987 "Report on Instrumentation Port Column Assembly Leakage."

(4) To correct the program weaknesses identified FPL has taken the following action:

A. Enhancement Related to Inspection and Documentation of Leaks

In its April 1987 Report on the conoseal leak, FPL committed to the following corrective actions relating to the inspection and documentation of leaks. For any leak discovered in the containment, whether or not the leak is found as a result of a scheduled or required inspection, an inspection of the leak will be performed and the results will be documented for subsequent evaluation. Procedures for inspection of leaks in the reactor coolant system require that particular attention be given to the insulated areas of components constructed of ferritic steels to detect evidence of boric acid residue resulting from reactor coolant leakage. Additionally, these procedures require documentation of all indications of leakage, the type of leak (gasket leak, packing leak, etc.), the specific location of the leak, and the estimated amount of the leak. These measures will help ensure that leaks are appropriately inspected and documented for further evaluation.

B. Improvements Related to Industry Operating Experience

FPL's Nuclear Licensing Department administers a number of information services and databases that are available for use by FPL personnel in the retrieval of nuclear plant operating experience data. These services include:

1. The Operating Experience Feedback Program
2. INPO databases such as NPRDS and LERs
3. Nuclear Network computer based communciations system
4. Contractor licensing services
5. Regulatory document distribution system
6. CTRAC (regulatory commitment tracking system)

Information regarding these services and databases, and at least one point of contact to assist in using them, has been provided to Power Plant Engineering Department personnel for their use in performing safety evaluations.

C. Upgrades Related to Evaluation of the Secondary Impacts of Boric Acid Leaks

In its April 1987 report on the conoseal leak, FPL committed to reviewing and upgrading, as appropriate, its guidelines for performing evaluations, with particular attention concerning the secondary effects of boric acid leaks. Subsequently, Power Plant Engineering issued guidelines which, among other things, state that safety evaluations of leaks in the reactor coolant system should include consideration of:

- o Corrective measures as indicated in Section XI of the ASME Code for leakage detected during the conduct of system pressure tests.
- o Potential for change in leaking fluid properties with time.
- o Potential for change in flow path of the leaking fluid with time.
- o Potential for interaction of the leaking fluid with other equipment.
- o Consideration for thermal stress, erosion, structural overload, corrosion mechanisms, materials, jet impingement, and chemical properties of the leaking fluid.
- o Plant operating parameters (change in pressure and temperature).

These guidelines will provide additional assurance that safety evaluations of boric acid leaks will consider the potential corrosive effects of leaks on nearby components.

D. Enhancements in the Review of Safety Evaluations

Senior discipline engineers will normally review (and discipline management endorse) safety evaluations involving complex technical issues, such as the conoseal leak. This will help ensure that safety evaluations receive formal review by management and qualified individuals who did not perform the initial evaluation.

E. Other Enhancements Related to Evaluations of Leaks

In addition to the actions described above, FPL has taken other steps to improve its evaluation of leaks. Specific procedural guidance has been developed for performing evaluations based on the results of leak inspections. This guidance includes criteria for determining if a given leak is acceptable or if immediate repairs are required. In particular, if leakage occurs in the reactor head area which can be retained by insulation or other structures so that the boric acid can accumulate and create corrosion problems, the leakage shall be promptly repaired once detected.

The overall result of these corrective measures is to assure that decisions on matters such as continuing operations in the presence of detectable leaks, will be made on the basis of the fullest possible information. FPL believes that these changes and corrective measures will significantly reduce the probability of having these or similiar events occur in the future.

(5) The items in (3) and (4) above were completed prior to the restart of Unit 4 on July 8, 1987.

Finding I.B:

Technical Specification 3.10.1 requires, in part, that while performing core alterations each penetration providing direct access from the containment atmosphere to the outside atmosphere shall be either closed by an isolation valve, blind flange, or manual valve, or capable of being closed by an operable automatic containment ventilation isolation valve.

Technical Specification 3.10.2 requires the containment ventilation isolation system to be operable during core alterations.

Technical Specification 3.10.6 requires direct communciations to be maintained between the control room and personnel at the refueling station during core alterations.

Technical Specification 6.2.2.e requires that all core alterations be directly supervised by either a licensed Senior Reactor Operator or Senior Reactor Operator Limited to Fuel Handling who has no other concurrent responsibilities.

Contrary to the above requirements, on April 9, 1987, without apparent knowledge or consent of the Plant Supervisor - Nuclear and the control room, core alterations, consisting of lifting of the Unit 4 reactor core upper internals, were conducted without the required prerequisites being met. The containment purge valves were open providing direct flow path from the containment to the outside atmosphere. Also, the containment ventilation system automatic isolation function was inoperable in that the purge valves closure circuitry was jumpered such that the valves would remain open. The evolution was initiated without direct communication being established between the control room and personnel at the refueling station and without being directly supervised by persons of the requisite qualifications.

Response

(1) FPL concurs with the finding.

(2) The failure to ensure that the required prerequisites and approvals were met prior to commencing core alterations was primarily due to an inadequate procedure, although ineffective communication between FPL maintenance personnel and operations personnel contributed to the finding.

Maintenance Procedure MP 1407.21, "Refueling Activities Check-off List," was inadequate in that no hold point assuring compliance with Technical Specification 3.10 and 6.2.2.e just prior to the lift were included in the procedure.

Outage coordination and operations meetings which emphasized the preparations and coordination of efforts for the Unit 4 upper internals lift were held prior to performing the lift. Both operations and maintenance personnel were present at the meetings. The lift was started on April 8, 1987 with a Senior Reactor Operator (SRO) in supervision. Due to an interruption caused by a problem with the polar crane, work was delayed until the following day. Prior to resumption of the lift, an operator was dedicated to the supervision of the lift and was standing by waiting for the lift to resume. Maintenance personnel, unaware that the Technical Specification requirements were not met because the procedure in use did not include the above noted hold point, began the lift without notifying the control room and without meeting the prerequisites.

(3) During the lift the Area Radiation Monitor System (ARMS), alarmed in the control room and the lift was immediately terminated by the Plant Supervisor - Nuclear. Containment integrity was established by removing the jumpers on the containment purge valves and closing the valves. On-the-spot changes to MP 1407.21 and related procedures were implemented. These changes established hold points assuring that containment integrity was established.

(4) a) Procedures involving core alterations were reviewed and revised as required, in order to assure that a hold point assuring compliance with Technical Specification and 6.2.2.e was established, immediately prior to any core alterations.

Although not fully effective in this instance due to the circumstances discussed above, programmatic actions to improve the operation/maintenance interface and the operational readiness of the plant are in place, and have resulted in a noticeable improvement in coordination between the two organizations.

b) To resolve the problem of inclusion of all applicable portions of Technical Specification 3.10 into the core alteration procedures, a new procedure on prerequisites for core alterations will be written which will include the applicable portions of Technical Specification 3.10. All other affected procedures will be revised to invoke by reference the new procedure as a prerequisite to core alterations.

(5) a) The actions in item (3) were completed by April 10, 1987.

b) The actions in item (4 a) were completed by June 30, 1987. The actions in item (4 b) will be completed by September 30, 1987.

Findings Not Assessed A Civil Penalty

Finding II.A.

Technical Specification 6.8.1 states, in part, that written procedures shall be established, implemented and maintained that meet or exceed the requirements and recommendations of Section 5.1 and 5.3 of ANSI N18.7-1972.

ANSI-N18.7 specifies that maintenance and modification which may effect functioning of safety-related components shall be performed in a manner to ensure quality at least equivalent to that specified in the original design bases and requirements. It also states that maintenance and modifications shall be performed in accordance with written procedures, documented instructions or drawings appropriate to the circumstances.

Contrary to the above, maintenance was performed on the Unit 4 conoseal fitting, a safety-related component, in a manner that did not ensure quality at least equivalent to the original design and in accordance with written procedures appropriate to the circumstances. Specifically:

1. From 1972 through March 1985, Maintenance Procedure 1407.15 for the installation of reactor vessel head conoseals did not contain sufficient information in that the shims necessary for the installation of the Unit 4 conoseal clamps were not mentioned.

2. After November 1985, Maintenance Procedure 4-GMM-043.2 requirements were changed to allow relaxation of clamping forces prior to torquing of clamp bolts which did not ensure quality equivalent to that specified in original design bases.

3. During the 1984 Unit 4 refueling outage, new shims were fabricated for the NE conoseal and at least one other conoseal by maintenance personnel without written instructions, using carbon steel instead of stainless steel.

Resonse

(1) FPL concurs with the finding.

(2) The reason for the finding was that design controls during plant construction were not sufficient in this instance to ensure that internal NSSS design requirements regarding the shim were reflected in procedures and drawings relating to the conoseal.

(3) The conoseal fittings in both units have been replaced with a new simplified design which does not require the use of a shim.

(4) The concern regarding adequate design controls was previously recognized by FPL. As one of the corrective measures, FPL instituted a standard Engineering Package (EP) for Plant Change/Modifications (PCM). Each EP utilizes a standard checklist for safety evaluations associated with the EP, including a requirement to evaluate the impact of the modification on other systems. The previously installed shim was designed and installed prior to the implementation of the EP process. The requirement to use the EP process for PCMs should preclude recurrence of this problem.

Turkey Point's Verbatim Compliance Policy and the initiatives of the Turkey Point Performance Enhancement Program, including the Configuration Controls, Procedure Review and Update, and QA/QC Review and Involvement provide additional measures and assurance that recurrence will be prevented. The select system/design basis reconstitution program has been successful in finding other design configuration issues for the important plant systems.

(5) a) Full compliance for (3) above was achieved on Unit 4 by July 8, 1987 and Unit 3 by August 17, 1987.

b) Full compliance for (4) above was achieved by December 1985.

Schedules for PEP Projects have previously been provided to the Commission.

Finding II.B.

Technical Specification 6.8.1 states, in part, that written procedures shall be established, implemented and maintained that meet or exceed the requirements of Appendix A of USNRC Regulatory Guide 1.33.

Appendix A to USNRC Regulatory Guide 1.33 states that procedures be provided for the performance of required surveillances such as the daily evaluation of reactor coolant system leakage required by Technical Specification Table 4.1-2, item 11.

Contrary to the above, Surveillance Procedure 4-OSP-041.1, Reactor Coolant System Leakage Rate Calculation, was not adequately established in that it contained temperature and level correction factors which were neither correct nor conservative for all applications of the procedure or changes in the temperature or level.

Response

(1) FPL concurs with the finding.

(2) Incorrect conversion factors were incorporated in a revision to the RCS daily leak calculation procedures. The cause of the incorrect factor could not be firmly established because no basis or calculations substantiating the factors could be located. As noted in the AIT report, the FPL leak calculation procedure would probably have been adequate to meet the intent of the surveillance.

(3) The correction and conversion factors were reviewed. Procedure 4-OSP-041.1 was revised to include the corrected factors.

(4) The generation and handling of calculations at Turkey Point is presently being reviewed. Enhancements to the present controls will be implemented in a timely fashion as required. Training will be performed in those areas where enhancements are implemented.

(5) a) Compliance for item (3) above was achieved by May 8, 1987.

b) Compliance for item (4) above will be achieved by November 30, 1987.