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SUBJECT: Responds to violations noted in Insp Repts 50-250/89-07 & 50-251/89-07.

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AUGUST 29 1989

L-89-302

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

Gentlemen:

Re: Turkey Point Units 3 and 4  
Docket Nos. 50-250 and 50-251  
Results of Investigation into Main Steam Safety  
Valve Ring Settings (Unresolved Item 89-07-01)

As requested by NRC Inspection Report Nos. 50-250/89-07 and 50-251/89-07, Florida Power & Light Company has completed an investigation of the unresolved item regarding main steam safety valve ring settings, and the results are attached.

Very truly yours,

C. O. Woody  
Acting Senior Vice President - Nuclear

COW/JRH/cm

Attachment

cc: Stewart D. Ebnetter, Regional Administrator, Region II, USNRC  
Senior Resident Inspector, USNRC, Turkey Point Plant

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## Unresolved Item 89-07-1

The Main Steam Safety Valve (MSSV) ring settings are required to be strictly controlled in order to maintain the valve's design blowdown and flow capacities. During the MSSV setpoint program review, NRC inspectors noted the following areas where the MSSV ring settings were not adequately maintained. During the 1985 and 1987 refueling outages (RFO), all Unit 3 MSSVs were sent to WYLE Laboratories for testing. The 1985 and 1987 MSSV WYLE Test Reports document the as-found ring settings which are determined prior to performing any testing, and the as-left ring settings which are the ring settings after all maintenance and testing has been completed. In several instances, the 1985 MSSV as-left ring settings were not the same as the 1987 as-found ring settings. Once adjusted, the MSSV rings are locked in place; therefore, the 1985 as-left and 1987 as-found ring settings should have been the same. The Unit 4 1984 and 1986 MSSV WYLE Test Reports also identified similar discrepancies between ring settings.

### Response

NRC Inspection Report Number 50-250, 251/89-007, identified discrepancies between the "as-left" Main Steam Safety Valves' (MSSV) ring settings documented in the 1984 (Unit 4) and 1985 (Unit 3) WYLE Laboratory Test Reports, and the "as-found" MSSVs' ring settings documented in the 1986 (Unit 4) and 1987 (Unit 3) WYLE Laboratory Test Reports. Section 3a of the NRC Inspection Report stated that a review of the setpoint and seat leakage data for the MSSVs demonstrated that all setpoints were within the allowed setpoint tolerance. In addition, Westinghouse evaluated excessive blowdown and concluded that 15% MSSV blowdown is acceptable. The blowdown resulting from each of the documented ring settings is within this value. Because the MSSVs were operable, this response only addresses the differences in the recorded ring settings.

Prior to 1987, when the discrepancies between the "as-found" and "as-left" settings were noted, full flow blowdown testing was not performed. Full flow blowdown testing, which is currently being performed, measures the valve's actual blowdown in addition to the valve setpoint. After an acceptable blowdown is obtained, any adjustments made to the ring settings are recorded and the seal is placed on the ring pin. This ensures that the ring is set at the correct position to provide the required blowdown.

The following is an outline of the process used to overhaul/test the MSSVs from 1984-1986:

1. FPL removes the valves from the system and ships them to WYLE Laboratory.
2. WYLE performs a general receipt inspection, any required decontamination, and then performs an "as-received" setpoint and leakage test on each valve.
3. WYLE turns the valves over to a Dresser Valve representative for overhaul (the valve work is done at the WYLE Laboratory site).
4. Dresser performs an inspection and disassembles the valves. The "as-received" ring settings are recorded during disassembly.
5. Dresser overhauls the valves, adjusts the new ring settings, and turns the valves over to WYLE for testing. Dresser also provides



- WYLE with the documentation for the final ring settings.
6. WYLE performs a leakage and setpoint test for each valve, then ships them to FPL.
  7. FPL reinstalls the valves in the system.

From the above process, a number of potential root causes can be identified. Each potential root cause is stated and individually addressed below:

**FPL readjusted the ring settings in steps 1 or 7 above.**

After Dresser sets the ring settings, a seal is placed on the ring pin which is required to be removed in order to reset the ring settings. The receipt inspections performed by WYLE indicated "all required seals and lockwires" were in place. Based on this information, if the rings were reset, the seals would have been removed. Therefore, it is unlikely that this is the root cause. (Note: Dresser and WYLE Laboratory have since added specific sections on their receipt inspection report to specifically examine the seals on the ring pins and record whose seal is on the pins.)

**WYLE readjusted the ring settings in steps 2 or 6 above.**

Both Dresser and WYLE representatives state that WYLE did not readjust the ring settings of the MSSVs during the referenced time frame. In addition, the ring setting seals were intact. Therefore, it is unlikely that this is the root cause.

**The ring settings drifted between overhauls.**

After the ring settings are adjusted, a ring pin is inserted into the valve. This ring pin acts as a set screw and seats on the notches of the ring. Dresser verifies that the rings can not be moved after installing the ring pins. Also, there are no operating conditions which could affect the ring settings. Therefore, it is unlikely that this is the root cause.

**The ring settings were not properly set by Dresser.**

To set the rings after the valve is overhauled, a tool is inserted into the opening through the valve body (with the ring pin removed) and onto the ring. During this activity, it is possible to move the ring two notches while only counting one movement. A tolerance for counting of notches (plus/minus 20 notches for the upper ring and plus/minus 2 notches for the lower ring) is given by the manufacturer to account for human error. However, Dresser did not review the "as-left" and "as-found" ring settings to ensure that they were within these tolerances. This is a potential source of error in the ring setting records.

**The ring setting values were improperly recorded during the "as-received" inspection.**

"As-found" ring setting determination upon disassembly involves several measurements. Discussions with Dresser indicate that the "as-found" position of the upper ring is measured and then several parts are removed to provide access to the upper ring. The upper ring is then set to the "0" position and the ring is moved the required number of notches to return it to its "as-found" location. However, discussions with WYLE Laboratories indicate that when the ring settings are measured upon disassembly, the number of turns to move the ring the measured distance is recorded and then multiplied by the number of notches per revolution (40 notches per



revolution for the upper ring). A turn of the ring not counted could account for the large discrepancy between the "as-left" and "as-found" settings documented in the WYLE Laboratory Test Reports. While Dresser actually performs the disassembly, it is done at WYLE Laboratories. WYLE Laboratories speculates that this is the most likely place for an error to occur. Based on the conflicting reports and the above information, this is the most likely root cause of the discrepancy.

The above analysis indicates that the most likely root cause is that the ring setting values for the MSSVs were improperly recorded during the "as-received" inspection.

The following action has been taken to reduce documentation inconsistencies:

Marker plates have been installed on each MSSV showing the final "as-left" ring settings after the completion of all required testing. This was completed in accordance with an engineering walkdown on July 27, 1989. This will alert personnel on the required settings and enable them to immediately initiate any actions to correct the deficiency.

In order to further improve the MSSV testing process and maintain consistency in future documentation, the following actions will be taken:

1. Maintenance Procedures 1507.1, "Steam Generator Safety Valve Repair and Setting," and 1507.5, "Steam Generator-Safety Valve Removal and Replacement," will be revised to require a receipt inspection. The receipt inspection will ensure the required seals and lockwires are intact and that a copy of the vendor test report is forwarded to the In-Service Test Coordinator for review. Any noted discrepancies will also be forwarded to Engineering for evaluation. The referenced procedures will be updated by November 30, 1989.
2. Engineering will review Dresser's Repair and Inspection Procedures and recommend additions or corrections as appropriate. This will be completed by November 30, 1989, in time to support the removal of the MSSVs during the next Unit 3 refueling outage.

