



FEB 27 2006

L-2006-062
10 CFR 50.36

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

Subject: Turkey Point Unit 3
Docket No. 50-250
Response to Request for Additional Information
Regarding Steam Generator Tube Plugging
Inservice Inspection Report (TAC NO. MC8112)

By letter L-2005-137 dated June 17, 2005, Florida Power & Light Company (FPL) submitted, in accordance with the requirements of Technical Specification 6.9.2, the Steam Generator Tube Plugging Inservice Inspection 12-Month Special Report for Turkey Point Unit 3.

On December 22, 2005, the NRC Staff requested additional information needed to complete the review of the special report. The attachment to this letter provides the additional information requested.

Please contact Walter Parker at (305) 246-6632, if there are any questions.

Very truly yours,

Terry O. Jones
Vice President
Turkey Point Nuclear Plant

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Attachment

cc: Regional Administrator, Region II, USNRC
Senior Resident Inspector, USNRC, Turkey Point

A047

Response To Request For Additional Information
Regarding Turkey Point Unit 3 Steam Generator Tube Inspection Report

NRC Question:

Attachment 1 of the inservice inspection report indicated that mechanical wear damage was identified in locations other than anti vibration bars (e.g., tube supports, top of tubesheet) in steam generator (SG) A, B, and C. Please explain the cause of these indications. If the indications are attributed to possible loose parts, please discuss whether a foreign object search and retrieval was performed in each SG and whether the loose parts were removed from the SGs. If the parts were not removed or the locations were not visually inspected, please discuss the results of any evaluations performed to ensure these parts (or suspected parts) would not result in a loss of tube integrity for the period of time between inspections.

FPL Response:

During the Unit 3 October 2004 (EOC-20) steam generator (SG) eddy current (ECT) examination, seven mechanical wear indications at locations other than anti-vibration bars were reported; three in SG 3A, two in SG 3B, and two in SG 3C. Table 1 identifies the seven mechanical wear indications and their locations in each SG.

Out of these seven mechanical wear indications reported, three wear indications were detected at broached tube support (TSP) locations that were caused by tube contact with the broached land-contact area; one in SG3A (R12, C19), one in SG3B (R33, C73), and one in SG3C (R32 C19). These indications, identified in Table 1 as TSP wear type, are not related to foreign objects, and possible loose part (PLPs) were not detected during the ECT examination. Two of these TSP wear indications were newly detected at the EOC-20 inspection. The third TSP wear indication was detected in the prior inspection and allowed to remain in service. None of the tubes exhibiting wear at TSP locations required tube plugging.

Four of the seven mechanical wear indications reported were associated with wear from foreign objects, and are identified in Table 1 as possible loose part (PLP) wear. A summary of the Condition Monitoring and Operational Assessment analysis performed for tubes associated with wear from foreign objects is provided in Attachment 2. Three of the four possible PLP wear indications were detected near the top-of-tubesheet; two in SG3A and one in SG3C. These wear indications were shallow, and PLPs were not detected during the ECT examination. A Foreign Object Search and Retrieval (FOSAR) examination was performed at the three top-of-tubesheet locations, and no foreign objects were identified. Since no PLPs were detected during the ECT examination and no foreign objects were identified during the FOSAR examination, tube integrity is not affected.

There was also a wear indication reported by ECT examination in SG3B, at the 2nd broached tube support location (02C TSP) in R07 C45. This wear indication is due to a probable loose part (seen by ECT), which could not be confirmed by visual examination due to restricted access. The wear depth was shallow [13% through-wall (TW)], and the wear rate is low based on tracking data covering 14 years of past operation. Because of the shallow measured depth, long service history without significant change in voltage, as well as the lack of physical evidence of wear to adjacent tubes, the loose part is most likely small and immobile. ⁽¹⁾ Tube integrity is not affected. This tube remains in service and will be tracked during future inspections.

(1) Engineering Evaluation PTN-ENG-SESJ-05-006 "Condition Monitoring and Operational Assessment for the Turkey Point Unit 3 Steam Generators Based on Eddy Current Examination End of Cycle 20, October 2004, APTECH Document AES 04055412-1Q-2"

Table 1

SG / TUBE		LOCATION	WEAR TYPE	WEAR DEPTH	PLP DETECTED in 2004?	FOREIGN OBJECT PRESENT?
SG3A	R16 C04	TSH + 1.42"	PLP WEAR	11%	NO	NO ¹
SG3A	R01 C05	TSC + 3.77"	PLP WEAR	3%	NO	NO ²
SG3A	R12 C19	03H – 0.67"	TSP WEAR	12%	NO	NO ³
SG3B	R07 C45	02C + 0.61"	PLP WEAR	13%	YES ⁴	NO ⁴
SG3B	R33 C73	02H – 0.70"	TSP WEAR	6%	NO	NO ³
SG3C	R32 C19	03H – 0.60"	TSP WEAR	5%	NO	NO ³
SG3C	R42 C63	TSC + 0.73"	PLP WEAR	4%	NO	NO ¹

- 1 The wear indications above the top-of-tubesheet in SG3A R16 C04 and SG3C R42 C63 are both traceable to prior ECT examinations, and are attributed to the prior existence of a foreign object. There were no PLPs detected by ECT or foreign objects confirmed by FOSAR during the 2004 examinations. The foreign objects that caused these two wear indications were likely removed by FOSAR during a prior refueling outage. Tube integrity is not an issue for these two locations.
- 2 In 1990, a small wire was observed next to R01 C06 (tube adjacent to R01 C05) by FOSAR but was not retrievable. The wire was not observed in the two inspections prior to 2004 with FOSAR or ECT. The current location of this foreign object is unknown. Since no PLP or foreign objects are currently present, tube integrity is not an issue for this wear indication.
- 3 The three hot-leg TSP wear indications are attributed to broached tube support land-contact wear and are unrelated to foreign objects. No PLPs were detected at these locations during the ECT examination.
- 4 A PLP was detected during the ECT examination, but the location of the wear indication in R07 C45 at the 2nd tube support was inaccessible by FOSAR. Because of the shallow measured depth, long service history without significant change in signal characteristics, as well as the lack of any wear to adjacent tubes, the PLP is most likely small and immobile and tube integrity is not affected.

NOTE: For each wear indication associated with a PLP or foreign object, the tubes directly surrounding the tube with the wear indication(s) were examined. No additional PLPs, wear indications, or foreign objects were detected during these bounding examinations.

Condition Monitoring and Operational Assessment Summary

A Condition Monitoring and Operational Assessment (CMOA) was completed for this examination and documented in Engineering Evaluation PTN-ENG-SESJ-05-006 "Condition Monitoring and Operational Assessment for the Turkey Point Unit 3 Steam Generators Based on Eddy Current Examination End of Cycle 20, October 2004", with APTECH Engineering document AES 04055412-1Q-2, February 2005. The CMOA provides the following evaluation results and conclusions for foreign objects left in service.

Condition Monitoring Results

There were four indications detected associated with wear from foreign objects. A comparison of these wear indications with the CM structural limits is given in Figure 4-3. Three of these indications were detected at the top of tube sheet. The wear damage was shallow and there was no evidence that the loose part was still present. The other wear indication was detected at a TSP and is due to a probable loose part. All loose part wear met the NEI 97-06 structural limit performance criterion for burst and leak integrity. No tubes required to be plugged. These tubes remain in service and will be tracked during future inspections.

Operational Assessment Results

Wear Rate Assessment

The rates determined for wear at TSPs from the October 2001 are shown in Figure 5-5. These rates are based on two cycle calculations. Due to the limited data, the growth rates for all TSP indications (including those identified as wear from foreign object) were used to establish a wear rate by TSP contact. Lumping the apparent loose-part wear data with the other wear tube-to-TSP contact data is conservative. The average wear rate was about 2.7% TW/EFPY and a standard deviation of about 2.5% TW/EFPY. The tube exhibiting the largest wear rate was used to define the wear rate to apply in the OA. That wear rate is 8.8% TW/EFPY.

Foreign Object Assessment

The FOSAR activities identified several small objects located throughout all three-S/Gs. Bounding calculations for wear were performed by FPL and the results have been incorporated in Revision 7 of the 10CFR50.59 evaluation Report. This evaluation has determined that the identified foreign objects within the secondary side of the Unit 3 S/Gs have a minimal impact on tube integrity. The most restrictive requirement for future eddy current inspection shown in Table 1 (not included in this text) of the FPL evaluation is September 2009. Therefore, foreign objects remaining in the Unit 3 S/Gs will not challenge operation through Cycle 22.

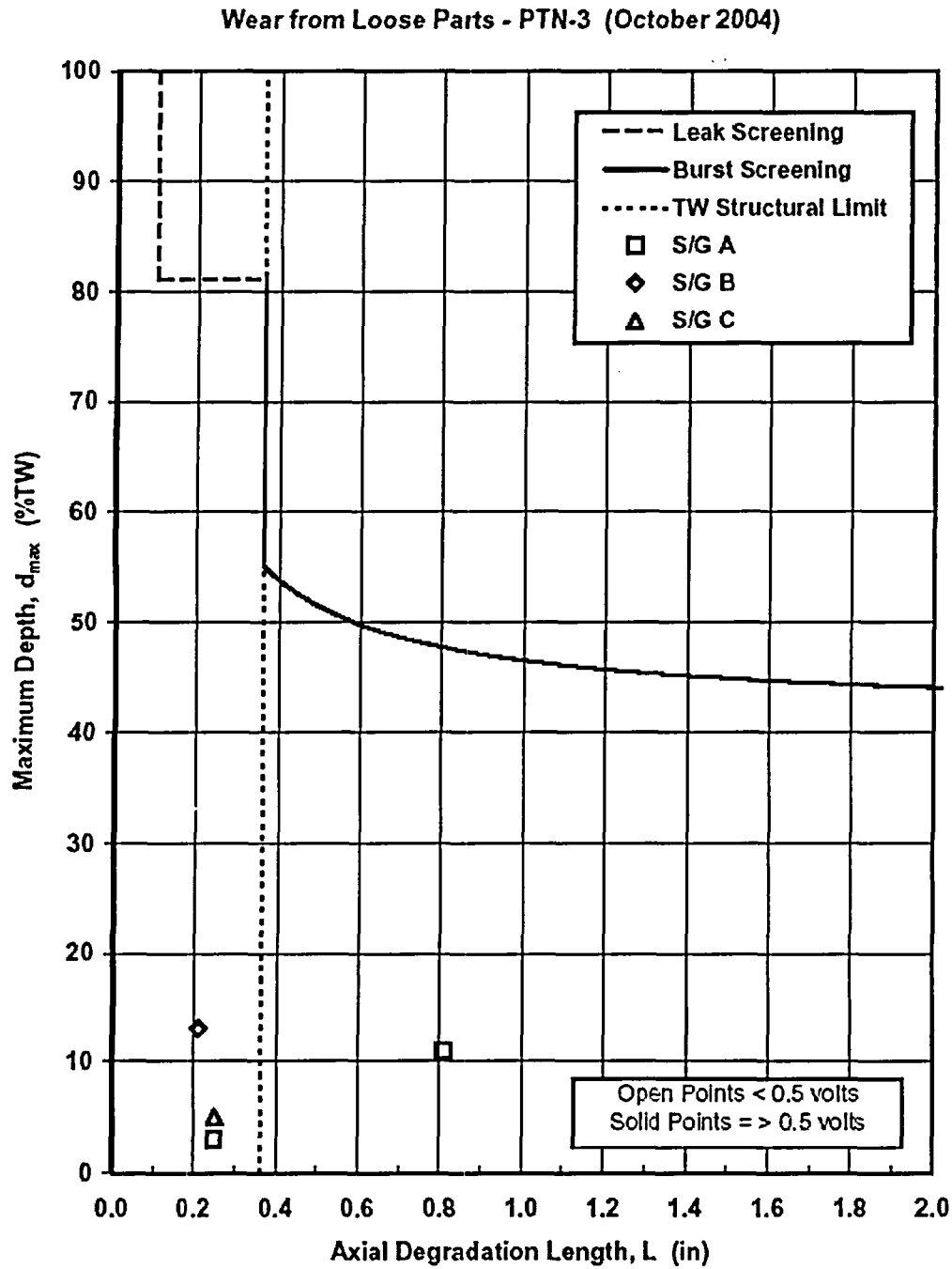


Figure 4-3 — Condition Monitoring Results for Loose Part Wear at EOC 20.

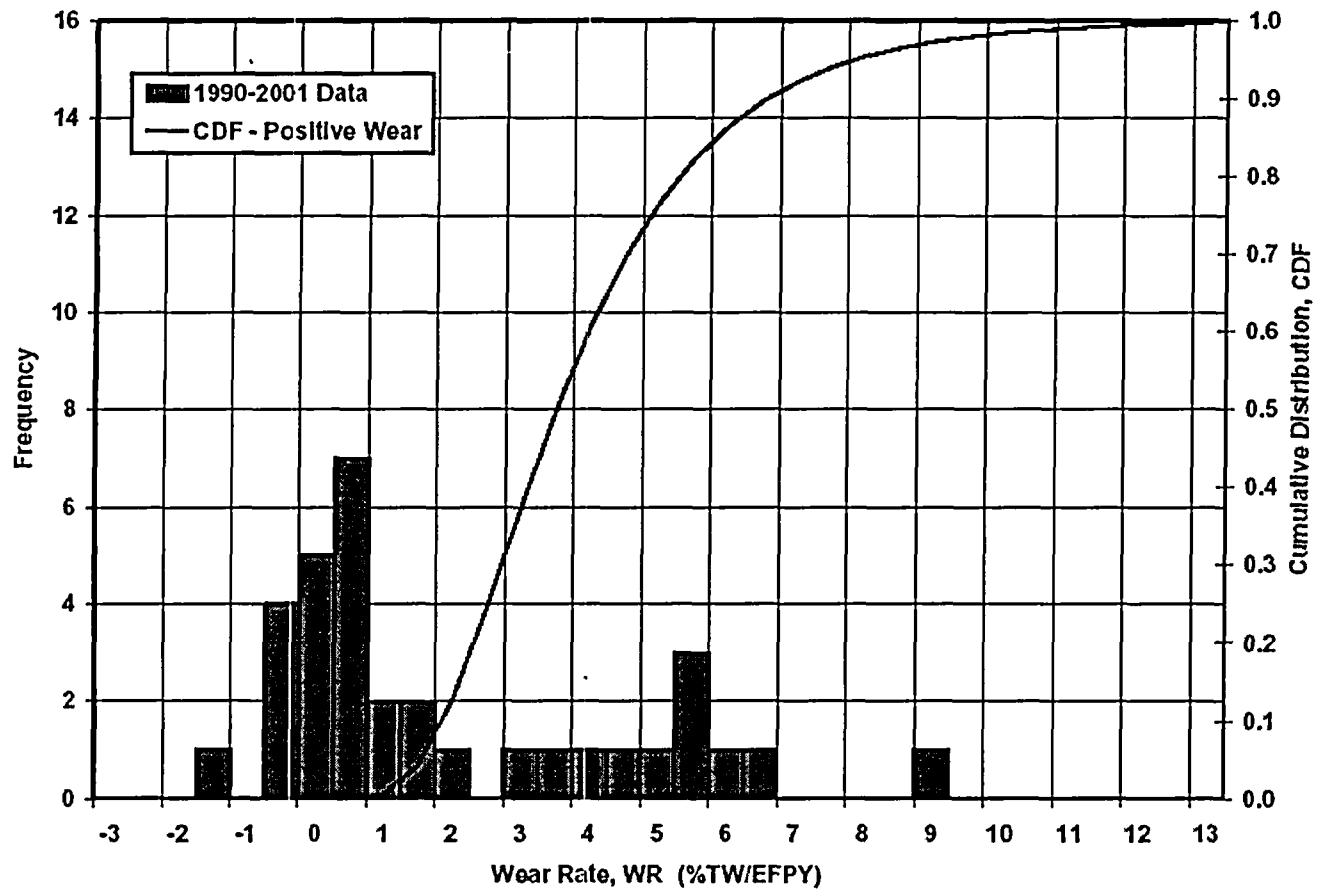


Figure 5-5 — Wear Rates at TSP Tube Intersections from PTN-3 October 2001 Examination Data.



FPL

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Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
2005 Annual Report of Reactor Coolant Specific Activity Limits

In accordance with Technical Specification 6.9.1.2 the reactor coolant specific activity limits of 100/E-bar microcuries per gram of gross radioactivity, and 1.0 microcurie per gram Dose Equivalent I-131 defined by Technical Specification 3.4.8 for Units 3 and 4, were not exceeded during 2005.

Should there be any questions regarding this information, please contact us.

Very truly yours,

Terry O. Jones
Vice President
Turkey Point Nuclear Plant

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NRC Regulatory Issue Summary 2001-05 waived the requirements that multiple copies of documents be submitted to the NRC.