



April 9, 2020
L-2020-064
10 CFR 50.90
10 CFR 50.91

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington D C 20555-0001

RE: Turkey Point Nuclear Plant, Unit 3
Docket No. 50-250
Renewed Facility Operating License DPR-31
Exigent License Amendment Request 272, One-Time Extension of TS 6.8.4 Steam Generator Inspection Program - Response to Request for Additional Information

References:

1. Florida Power & Light Company Letter L-2020-053, Exigent License Amendment Request 272, One-Time Extension of TS 6.8.4 Steam Generator Inspection Program," dated April 4, 2020, [ML20095J926].
2. Florida Power & Light Company Letter L-2020-064, License Amendment Request 272, One-Time Extension of TS 6.8.4 Steam Generator Inspection Program - Response to Request for Additional Information" dated April 7, 2020, [ML20098F341, ML20098F342].
3. NRC email "Turkey Point Unit 3 - Request for Additional Information Concerning Deferral of Steam Generator Inservice Inspections (EPID L-2020-LLA-0067)" dated April 9, 2020.

Per Reference 1, Florida Power & Light Company (FPL) requested an exigent amendment to Renewed Facility Operating License DPR-31 for Turkey Point Nuclear Plant Unit 3 pursuant to 10 CFR Part 50.90 and 10 CFR Part 50.91(a)(6).

On April 4, 2020, the NRC Staff requested supplemental information to facilitate review of the requested amendment. Per Reference 2, FPL provided the response to the request for additional information.

On April 8, 2020, NRC requested additional information needed to facilitate review of the requested amendment (Reference 3). The attachment to this letter provides the response to the requested information.

The information provided in this letter does not alter the no significant hazards determination previously provided by the original application per FPL letter L-2020-053.

Should you have any questions regarding this submittal, please contact Mr. Robert Hess, Turkey Point Licensing Manager, at (305) 246-4112.

I declare under penalty of perjury that the foregoing is true and correct.
Executed on April 9, 2020.

Sincerely,


Brian Stamp
Site Director
Turkey Point Nuclear Plant
Florida Power & Light Company

Attachment – Response to Request for Additional Information

cc: USNRC Regional Administrator, Region II
USNRC Project Manager, Turkey Point Nuclear Plant
USNRC Senior Resident Inspector, Turkey Point Nuclear Plant
Ms. Cindy Becker, Florida Department of Health

Attachment to L-2020-069

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
CONCERNING DEFERRAL OF STEAM GENERATOR INSERVICE INSPECTION

FLORIDA POWER & LIGHT COMPANY
TURKEY POINT NUCLEAR GENERATING UNIT NO. 3
DOCKET NO. 50-250

1. Enclosure 2 of the supplement (operational assessment or OA) dated April 7, 2020 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20098F341) describes the SG OA for the additional requested cycle before SG inspection. Page 25 of the OA outlines the probabilistic model used to evaluate potential mechanisms such as stress corrosion cracking. The OA states:

A time-to-flaw-initiation (Weibull) function is applied. The physical processes of flaw initiation, flaw growth and simulated inspections (via use of a POD [probability of detection] function) are modeled for several past and future cycles. Benchmarking of results to the observed information obtained from past inspections provides assurance of the accuracy of predictions over the operating interval to the next inspection.

and

...it is conservative ~~assumed~~[sic] to assume for the BOC [beginning of cycle] distribution of flaws following the last inspection that at least one SCC [stress corrosion cracking] indication had initiation sometime in the previous operating period and that the initiated indication(s) were not reported. As a general figure of merit, the size of the missed indications will be on the order of the no smaller than 5% POD value for the ECT [eddy current testing] technique used in the previous inspection. This assures a reasonable conservative starting population for the simulation.

For the cracking mechanisms analyzed in the OA, please clarify:

- a. the details of how the missed indication size distribution is selected from the appropriate POD curve including any limits placed on the missed indication size; and

FPL Response:

The distribution of sizes of missed indications following the most recent examination is not selected but is generated in the Monte Carlo simulation that replicates the inspection process. Figure 3-4 in the operational assessment shows the Monte Carlo simulation flowchart, where the application of the Weibull initiation, lognormal growth, and the POD models establishes the BOC indication sizes.

For the most recent inspection where no corrosion degradation was observed, it is assumed that at least one crack initiates during the operating period prior to the inspection, and at least two crack initiations are present at the time of the inspection and are not reported during the inspection. This is achieved by adjusting the Weibull model to set the time for first initiation in the prior cycle. Cracks initiated in the prior cycle are allowed to grow using the EPRI default growth rate distribution. As another conservative measure, any cracks that are detected in the simulation are not removed from service but are included in the BOC of missed indications.

The BOC size distribution of indications from the analysis is checked to confirm that median depth of the simulated sizes exceeds the lower 5% POD performance level. In addition, the 95th percentile of the BOC distribution is reviewed for reasonability against the POD curve. This assures the BOC simulated sizes will not be too small such that the analysis is not effective as a measure of performance and not overly adverse such that the analysis unduly predicts failure. This BOC distribution conservatively envelops any actual flaws that may exist under the condition that the mechanism is existing but not observed at the previous inspection.

- b. how the assumed initiated flaws were benchmarked to missed or detected cracks from plant operating experience.

FPL Response:

For the mechanisms judged most challenging to the establishment of satisfaction of the performance criteria at EOC 31, the upper 95th percentile of developed non-detected depths are consistent with observed plant performance from historical look back reviews of indications observed in the outage during which indications were detected. These depths are judged to be conservative compared to the mean probe performance. The parameters for the Weibull initiation function used in the OA were developed from past operating experience of plants that have a history of cracking and form the basis on how each mechanism will evolve over time following first initiation.

2. In Section 6.6 of the OA, which discusses axial outside diameter stress corrosion cracking at tube support plates, there is a discussion regarding how the analysis conservatively adjusted the POD curve. The discussion states:

[d]ue to the manner in which the models were constructed, the POD curve has little impact on the probability of burst, only the number of indications detected at EOC-31 [end of cycle 31].

Discuss how the POD affects the size of the assumed missed indications during the EOC-28 inspection and why the POD has little impact on probability of burst.

FPL Response:

In general, when tubes are removed from service based on plug-on detection, the number and size of missed indications will be dependent to the POD. The software algorithm has the ability to model the complete flaw initiation, flaw growth and detection process at any point in time. The manner in which the models were constructed is to force the model to ignore potential detections at the most recent inspection thus allowing all initiated and grown flaws to remain in service. Based on the manner that the models were developed (forced non-detection at most recent inspection), the statement that the POD has little effect on the probability of burst is accurate. Because the EOC 28 population which remains in service at the start of Cycle 29 is composed of both the undetected and what was detected in the model but not removed from service (i.e., repair limit = 100%TW), the POD does not affect the BOC 29 population. This model setup scheme was intentional to assure that a conservative distribution of the number and size of indications are present in the SG at the start of the 3-cycle operating period.

3. Address whether the discrepancies identified in Reference 6.3 of the submittal discussed below result in any impacts on the analysis results:
 - a. Page 53 – The third paragraph under Section 6.4 refers to four crack initiations at EOC-25 and four crack initiations at EOC-26; however, the table immediately below this paragraph shows one and two initiates for EOC-25 and EOC-26, respectively; and,

FPL Response:

The value in the table immediately below the third paragraph provides the correct result of 2 initiations. The value of four in the text is a typographical error.

- b. Page 53 – The last paragraph on the page refers to an average of two crack initiations at EOC-28; however, the table immediately below (top of page 54) shows one crack initiation for EOC-28.

FPL Response:

Being a probabilistic analysis, either result is plausible due to most inputs being statistical. After reviewing the analysis case including running the problem case again, two cumulative initiations is the proper value and the associated probability of burst is approximately 0.07% for this case.