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REQUEST FOR ADDITIONAL INFORMATION  
REGARDING REPLACEMENT STEAM DRYER ANALYSIS  
EXELON GENERATION COMPANY, LLC  
PEACH BOTTOM ATOMIC POWER STATION - UNIT 2  
DOCKET NO. 50-277

Proprietary information pursuant to  
Title 10 of the *Code of Federal Regulations* (10 CFR) Section 2.390  
has been redacted from this document.  
Redacted information is identified by blank space enclosed within double brackets  
as shown here [[ ]].

Enclosure 2

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On August 25, 2014, the Nuclear Regulatory Commission (NRC) issued Amendment Nos. 293 and 296 to Renewed Facility Operating License Nos. DPR-44 and DPR-56 for Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14133A046). These amendments authorized an increase in the maximum licensed thermal power level for PBAPS, Units 2 and 3, from 3514 megawatts thermal (MWt) to 3951 MWt, which is an increase of approximately 12.4%. This change in power level is considered an extended power uprate (EPU).

By letter dated February 3, 2015, as supplemented by letters dated March 24, 2015 (ADAMS Accession Nos. ML15034A573 and ML15083A559, respectively), Exelon Generation Company, LLC (Exelon, the licensee) requested NRC approval of a revision to the methodology, previously approved during the EPU review, for establishing the PBAPS Unit 2 replacement steam dryer (RSD) strain limits. Exelon's request was submitted to support the continuation of EPU power ascension above 3514 MWt.

The NRC staff has reviewed the information the licensee provided in Exelon's letters dated February 3, 2015, and March 24, 2015, and has determined that there is reasonable assurance that the PBAPS Unit 2 RSD will maintain its structural integrity for continued power ascension to the next hold point specified in license condition 2.C(15) (i.e., 104% of 3514 MWt). However, the staff has determined that additional information, as described below, needs to be provided to help inform the staff's decision on the acceptability of power ascension beyond 104% of 3514 MWt.

Request for Additional Information (RAI) questions 1 through 9, regarding the revision to the methodology, were addressed in Exelon's letter dated March 24, 2015. As such, this RAI is designated as RAI-10.

### **RAI-10**

The NRC staff has the following observations on the information submitted so far:

- Using [[ ]] to infer the alternating stress state in a steam dryer is, in principle, acceptable.
- Statistical studies of the peak measured strains on the dryer hood and skirt by the licensee appear to show that [[ ]] is consistent with guidelines in NUREG 0484. The licensee indicated that cumulative distribution function (CDF) curves were developed, [[ ]]. To further validate the licensee's findings from its analysis, the NRC staff requests that the CDF curves for SG4 and SG20 be provided for review.
- The [[ ]] does not have a sound technical basis. Therefore, this raises concerns regarding the stress analysis of the PBAPS Unit 2 steam dryer. All [[ ]] do not seem to be included in the current analysis, raising the concern that the [[ ]] may not be an appropriate upper bound. Also, the [[ ]]

]] These problems with the approach used to date lead to [[ ]] adding further uncertainty to the accuracy of the current calculations.

The general methodology as submitted by the licensee is reasonable, but the [[ ]] must be complete and representative of [[ ]] strains and stresses in all major dryer components (outer hoods, inner and middle hoods, and skirt), and the approach used to determine the [[ ]] in the analysis must be revised as follows:

- a) Due to possible inaccuracies in the [[ ]], a frequency shift of at least +/-10% must be considered to ensure that all [[ ]] are included in the analyses.
- b) [[ ]] used in the analysis should be submitted, and demonstrated to be reasonable for use on the outer hood, middle/inner hood, and skirt, regardless of whether the [[ ]]
- c) The [[ ]] should be based on attempting to match as closely as possible [[ ]]<sup>1</sup>
- d) The simulated [[ ]] should bound the measured ones.
- e) Simulated [[ ]] should be reasonably consistent with those measured.
- f) The [[ ]] must be used to estimate the top 5 maximum stresses and their locations on the upper and lower dryer.
- g) For each of the [[ ]], please provide [[ ]] at each of the strain gage locations on the hood.
- h) Please confirm whether the outer hood, middle hood and inner hood are dynamically coupled.

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<sup>1</sup> [[ ]]