

Attachment 10

Peach Bottom Atomic Power Station Units 2 and 3

NRC Docket Nos. 50-277 and 50-278

**WCAP-17654, Rev 4, Peach Bottom Unit 2 Power Ascension Program
Description for Extended Power Uprate**

Westinghouse Non-Proprietary Class 3

WCAP-17654-NP
Revision 4

April 2014

**Peach Bottom Unit 2
Replacement Steam Dryer
Power Ascension Program
Description for Extended
Power Uprate**



WCAP-17654-NP
Revision 4

Peach Bottom Unit 2 Replacement Steam Dryer Power Ascension Program Description for Extended Power Uprate

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Record of Revisions		
Rev	Revision Description	Date
0	Original	August 2012
1	MSL Limit curves updated based on ACM Rev. 4.2 analysis	August 2012
2	Minor content edits	September 2012
3	Content updated to reflect the use of [] ^{a,c} . Since the changes were extensive, revision bars were not utilized.	March 2014
4	Change made to direct dryer data monitoring actions and to the definition of Level 2 strain limit.	April 2014

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1 INTRODUCTION AND PURPOSE

This document describes the Exelon Peach Bottom Atomic Power Station Unit 2 Extended Power Uprate (EPU) Replacement Steam Dryer (RSD) Power Ascension Program (PAP). The RSD PAP includes the planned course of action for monitoring and evaluating the performance of the RSD during power ascension testing to EPU power level and operation.

The RSD PAP is divided into two test levels, A and B, to ensure sufficient monitoring of the RSD as defined in Regulatory Guide 1.20 Rev 3 (Reference 1).

- Test Level A – Performs baseline data gathering from low power (<25%) to 100% (>0 MWt to 3514 MWt) of the Current Licensed Power Level (CLTP). Current Licensed Power Level (CLTP) is 3514 MWt.
- Test Level B – Performs testing from approximately 100% to 112.4% of CLTP (3514 MWt to 3951 MWt). EPU power level is 3951 MWt.

The purpose of the PBAPS U2 RSD PAP is to provide assurance that the stresses in the individual steam dryer components will be conservative with respect to the calculated values, consistent with section 2.1 of Reference 1. This will confirm the RSD performs as predicted with the []^{a,c} methodologies. The RSD PAP is a portion of the overall EPU Power Level startup testing program, which is presented in Attachment 10 of the LAR submittal. Completion of the RSD PAP will ensure that the integrity of the steam dryer will be maintained in an acceptable state at EPU power.

The RSD PAP assesses the steam dryer performance for the EPU power level startup power ascension process. Each section establishes operating limits, data collection and analysis requirements, and any subsequent actions if necessary. There are three main elements of the RSD PAP:

1. Power ascension with defined hold points and durations, allowing time for monitoring and analysis for ascension up to EPU power.
2. A detailed power ascension monitoring and analysis program to trend steam dryer performance through the monitoring of RSD strain gauges. In addition, RSD accelerometers, and RSD pressure transducers will be monitored. These instruments are directly installed on the RSD.
3. Documentation of the results from the instrumentation will be submitted to the NRC in reports as described in Section 7 of WCAP-17635 (Reference 2)

This program includes specific hold points and durations during power ascension; activities to be accomplished during hold points; data to be collected; data evaluation methods; and acceptance criteria for monitoring and trending plant parameters. This program is consistent with the guidance contained in Regulatory Guide (RG) 1.20 Rev 3 (Reference 1). Detailed procedures will be developed to implement this program.

2 POWER ASCENSION PROGRAM (PAP) SCOPE

2.1 PARAMETER MONITORING

[

] ^{a,c}

2.1.1 Steam Dryer [

] ^{a,c}

[

] ^{a,c}

Table 2-1 Steam Dryer [] ^{a,c}

] ^{a,c}

2.1.2 Steam Dryer Indirect Data Monitoring (Main Steam Line Strain Gauges)

[

] ^{a,c}

2.2 POWER ASCENSION PROGRAM

Detailed test procedures will be developed for the implementation of the actual power ascension testing evolutions. The power ascension will occur over a period of time with gradual increases in power, hold periods, and engineering analysis of monitored data prior to subsequent power increases.

2.2.1 RSD PAP Test Level A (Low Power (<25%) to 100% of CLTP Power Level)

The RSD PAP Test Level A includes collection of data from low power (less than 25% RTP) to 3514 MWt. Instrumentation data will be obtained for baseline data at increments consistent with the overall Power Ascension Program.

Monitoring and Analysis – RSD PAP Test Level A

Power ascension between 0 MWt and 3514 MWt will be achieved via the following methodology:

1. Collection of data from low power (less than 25% RTP) to 3514 MWt.
2. At increments consistent with the overall Power Ascension Program (Attachment 10 of the LAR submittal), compare measured plant data against predicted plant data.
3. The duration of the individual power ascension steps will be determined by the time required to obtain the specified data.

EGC will perform [

] ^{a,c}

2.2.2 RSD PAP Test Level B (100% CLTP Power Level to 112.4% CLTP Power Level)

[

] ^{a,c}**Monitoring and Analysis – RSD PAP Test Level B**

The assessment of the system/component performance and integrity will be completed through the [

] ^{a,c}

As noted, dryer performance and integrity will be evaluated [^{a,c}

2.3 NRC COMMUNICATION**2.3.1 Interface during RSD PAP**

A brief stress summary report for the replacement steam dryer (RSD) based on [

] ^{a,c} A summary of the [] ^{a,c}**2.3.2 Written Reports**

The results of the power ascension testing for the RSD will be submitted to the NRC in a report within 90 days of completion of Peach Bottom Unit 2 EPU power ascension testing. [

] ^{a,c}

3 REFERENCES

1. Regulatory Guide 1.20, Revision 3, "Comprehensive Vibration Assessment Program for Reactor Internals During Preoperational And Initial Startup Testing," March 2007 (ADAMS Accession No. ML070260376).
2. WCAP-17635-P, Revision 3, "Peach Bottom Atomic Power Station Unit 2 and Unit 3 Replacement Steam Dryer Comprehensive Vibration Assessment Program (CVAP)," April 2014.