

Westinghouse Non-Proprietary Class 3

WCAP-17654-NP  
Revision 2

September 2012

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

Enclosure B.4U2



**WCAP-17654-NP**  
**Revision 2**

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

**Raymond Dennis\***  
BWR Component Engineering

**September 2012**

Reviewer: Christian Acosta \*  
BWR Component Engineering

Approved: David Forsyth\*, Manager  
Acoustic and Structural Analysis

\*Electronically approved records are authenticated in the electronic document management system.

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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 that 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 ACM methodology. 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 main steam line (MSL) strain gauges. In addition, the RSD strain gauges, RSD accelerometers, and RSD pressure transducers will be monitored. These instruments are directly installed on the RSD. Monitoring of the direct dryer instrumentation will provide confirmation of predicted loads and ensure the ACM methodology used is adequate to confirm predicted loads.
3. Documentation of the results from the main steam line and direct dryer instrumentation will be submitted to the NRC in reports consistent with Regulatory Guide 1.20 Rev 3 (Reference 1).

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 Indirect Data Monitoring (Main Steam Line Strain Gauges)

[


]

a,c

This process will be repeated until the EPU power level is achieved.

### **2.1.2 Steam Dryer Direct Data Monitoring (RSD Instrumentation)**

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. The RSD PAP test levels are consistent with the overall EPU power Ascension test plan levels (Attachment 10 of the LAR submittal).

### **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. Steam dryer indirect data will be obtained for baseline data at increments consistent with the overall Power Ascension Program.

#### **Monitoring and Analysis – RSD PAP Test Level A**

Quality baseline data will be confirmed through the analysis of main steam line strain gauge data.

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

a,c

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

The RSD PAP Test Level B includes:

a,c

**Monitoring and Analysis – RSD PAP Test Level B**

a,c

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

If new limit curves are required, they will be transmitted to the NRC for information. Power ascension will continue when Operations is satisfied that all test conditions have been successfully met.

**2.3.2 Written Reports**

Exelon will provide written reports as discussed in Enclosure 15A, following completion of power ascension testing consistent with the guidance contained in RG 1.20 Rev 3. The reports will include relevant data collected at each power step, comparisons to performance criteria (design predictions), and evaluations performed in conjunction with steam dryer structural integrity monitoring.

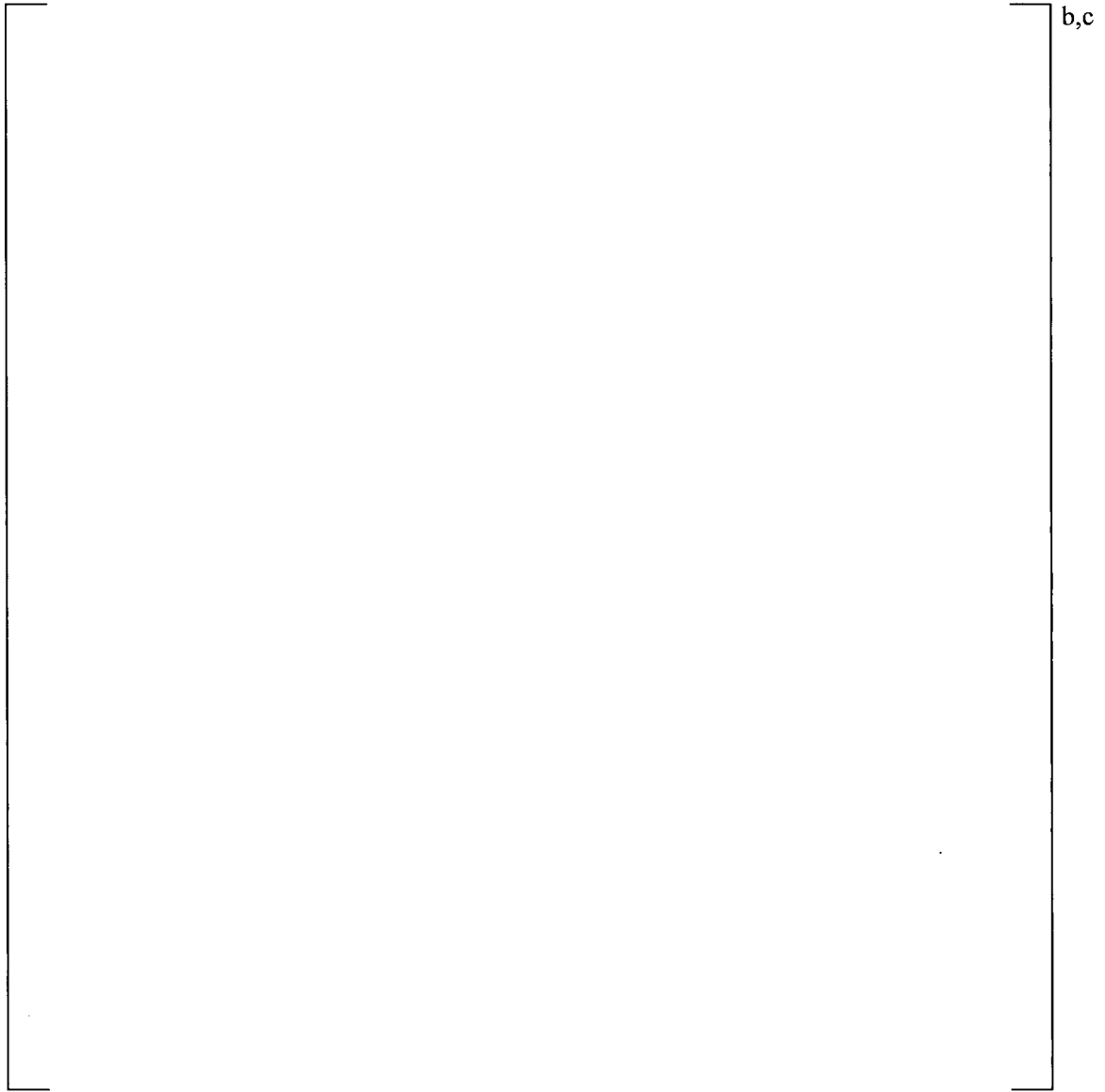
### **3 REFERENCES**

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. CN-A&SA-12-25, Revision 0, "Development of Main Steam Line Limit Curves for Peach Bottom Units 2 & 3 Power Ascension," August 2012.



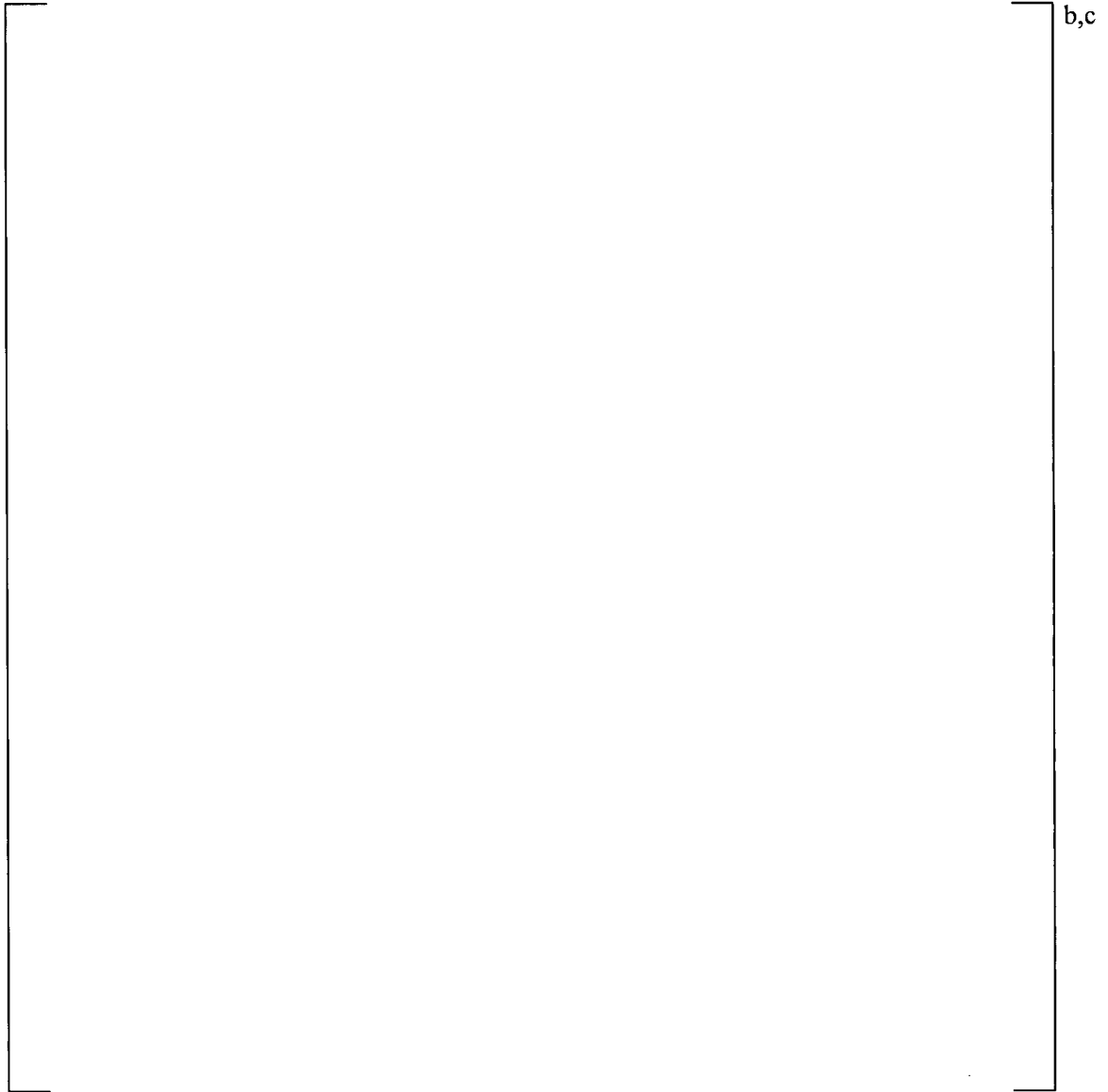
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**Attachment 1**  
**Peach Bottom Unit 2 Limit Curves: MSL A Upstream (US) and Downstream (DS)**



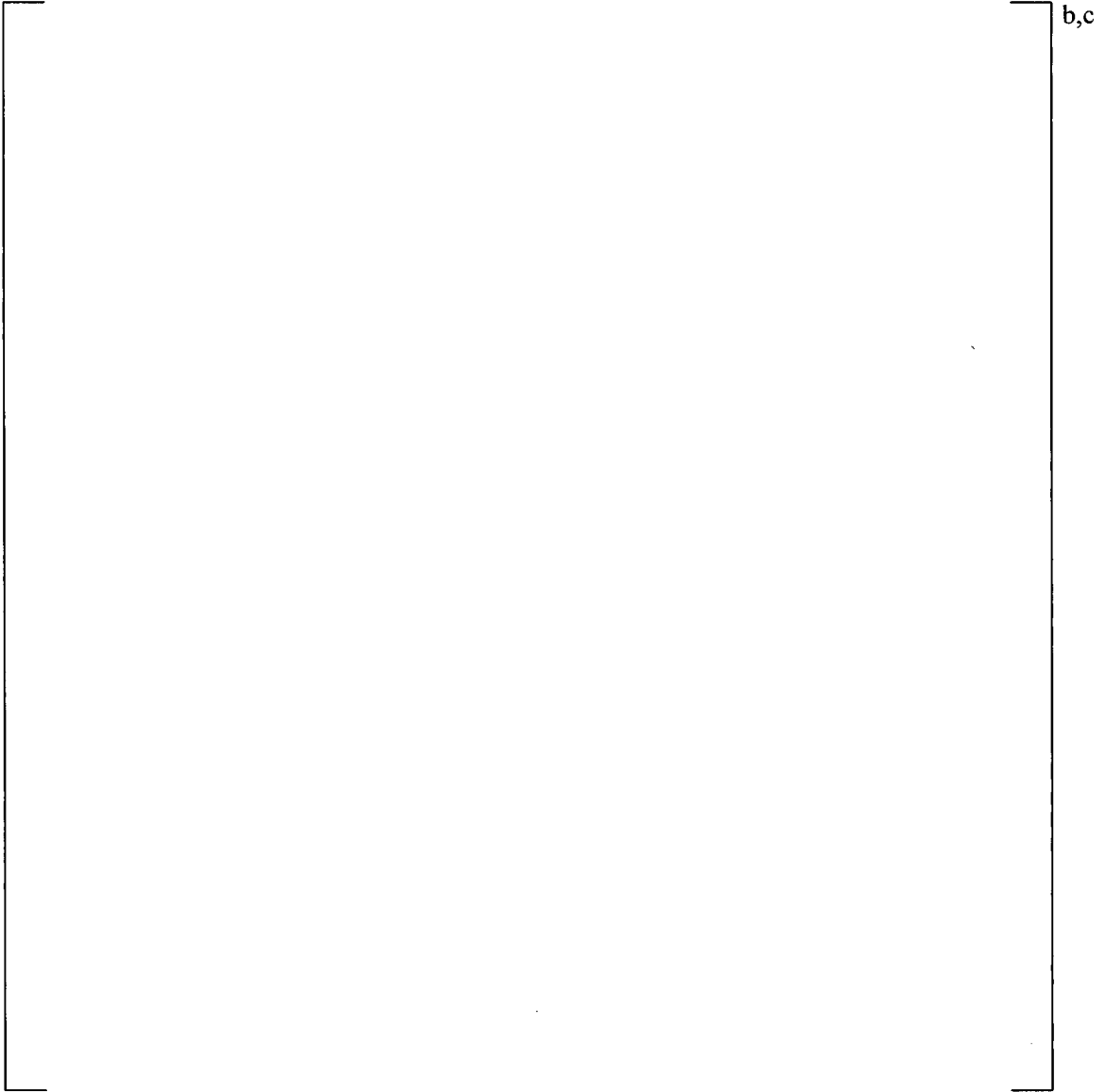
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**Attachment 2**  
**Peach Bottom Unit 2 Limit Curves: MSL B Upstream (US) and Downstream (DS)**



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**Attachment 3**  
**Peach Bottom Unit 2 Limit Curves: MSL C Upstream (US) and Downstream (DS)**



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**Attachment 4**  
**Peach Bottom Unit 2 Limit Curves: MSL D Upstream (US) and Downstream (DS)**

