

Attachment 11

Peach Bottom Atomic Power Station Units 2 and 3

NRC Docket Nos. 50-277 and 50-278

WCAP-17655, Rev 3, Peach Bottom Unit 3 Power Ascension Program
Description for Extended Power Uprate

Westinghouse Non-Proprietary Class 3

WCAP-17655-NP
Revision 3

March 2014

Peach Bottom Unit 3 Replacement Steam Dryer Power Ascension Program Description for Extended Power Uprate



WCAP-17655-NP
Revision 3

**Peach Bottom Unit 3 Replacement Steam Dryer Power
Ascension Program Description for Extended Power Uprate**

March 2014

Author: Inessa Berman*
U.S. BWR Engineering

Reviewer: AnnMarie Rowland*
U.S. BWR Engineering

Approved: David Forsyth*, Manager
BWR Plant and Stress Analysis

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

Westinghouse Electric Company LLC
1000 Westinghouse Drive
Cranberry Township, PA 16066, USA

© 2014 Westinghouse Electric Company LLC
All Rights Reserved

TABLE OF CONTENTS

1	INTRODUCTION AND PURPOSE	1
2	POWER ASCENSION PROGRAM (PAP) SCOPE.....	2
2.1	PARAMETER MONITORING	2
2.1.1	Steam Dryer Indirect Data Monitoring (Main Steam Line Strain Gauges)	2
2.2	OTHER MONITORING	3
2.3	POWER ASCENSION PROGRAM.....	3
2.3.1	RSD PAP Test Level A (Low Power (<25%) to 100% of CLTP Power Level).....	3
2.3.2	RSD PAP Test Level B (100% CLTP Power Level to 112.4% CLTP Power Level).....	4
2.4	NRC COMMUNICATION	4
2.4.1	Interface during RSD PAP	4
2.4.2	Written Reports.....	5
3	REFERENCES	6
Attachment 1	Representative Limit Curves: MSL A Upstream (US) and Downstream (DS)	7
Attachment 2	Representative Limit Curves: MSL B Upstream (US) and Downstream (DS)	8
Attachment 3	Representative Limit Curves: MSL C Upstream (US) and Downstream (DS)	9
Attachment 4	Representative Limit Curves: MSL D Upstream (US) and Downstream (DS)	10

1 INTRODUCTION AND PURPOSE

This document describes the Exelon Peach Bottom Atomic Power Station Unit 3 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 – 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 U3 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}. 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.
3. Documentation of the results from the main steam line 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

a,c

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

2.2 OTHER MONITORING

Plant data (e.g. moisture carry-over) that may be indicative of off-normal steam dryer performance will be monitored during power ascension. Plant data can provide an early indication of unacceptable steam dryer performance. The monitoring of selected plant parameters will be controlled by test procedure.

2.3 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.

2.3.1 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

a,c

2.3.2 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

	a,c
--	-----

2.4 NRC COMMUNICATION**2.4.1 Interface during RSD PAP**

	a,c
--	-----

2.4.2 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 Peach Bottom Unit 3 achieving its EPU power level. [

] ^{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).

Attachment 1
Representative Limit Curves: MSL A Upstream (US) and Downstream (DS)



b,c

Attachment 2
Representative Limit Curves: MSL B Upstream (US) and Downstream (DS)



Attachment 3
Representative Limit Curves: MSL C Upstream (US) and Downstream (DS)



Attachment 4
Representative Limit Curves: MSL D Upstream (US) and Downstream (DS)

