Exelon Generation®

RS-14-300 10 CFR 50.54(f)

December 19, 2014

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
11555 Rockville Pike,
Rockville. MD 20852

Peach Bottom Atomic Power Station, Units 2 and 3
Renewed Facility Operating License Nos. DPR-44 and DPR-56
NRC Docket Nos. 50-277 and 50-278

Subject: Exelon Generation Company, LLC Expedited Seismic Evaluation Process Report (CEUS Sites), Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding Recommendation 2.1 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident

References:

1. NRC Letter, Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3, of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident, dated March 12, 2012 (ML12053A340)
2. NEI Letter, Proposed Path Forward for NTTF Recommendation 2.1: Seismic Re-evaluations, dated April 9, 2013 (ML13101A379)
3. Seismic Evaluation Guidance: "Augmented Approach for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1 – Seismic", EPRI, Palo Alto, CA: May 2013. 3002000704 (ML13102A142)
4. NRC Letter, Electric Power Research Institute Report 3002000704, "Seismic Evaluation Guidance: Augmented Approach for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1: Seismic," as an Acceptable Alternative to the March 12, 2012, Information Request for Seismic Re-evaluations, dated May 7, 2013 (ML13106A331)
5. Exelon Generation Company, LLC, Seismic Hazard and Screening Report (Central and Eastern United States (CEUS) Sites), Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding Recommendation 2.1 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident (RS-14-071), dated March 31, 2014 (ML14090A247)
6. Exelon Generation Company, LLC Response to NRC Request for Information Pursuant to 10 CFR 50.54(f) Regarding the Seismic Aspects of Recommendation 2.1 of the Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident – 1.5 Year Response for CEUS Sites (RS-13-205), dated September 12, 2013 (ML13256A070)

On March 12, 2012, the Nuclear Regulatory Commission (NRC) issued a 50.54(f) letter to all power reactor licensees and holders of construction permits in active or deferred status. Enclosure 1 of Reference 1 requested each addressee located in the Central and Eastern United States (CEUS) to submit a Seismic Hazard Evaluation and Screening Report within 1.5 years from the date of Reference 1.

In Reference 2, the Nuclear Energy Institute (NEI) requested NRC agreement to delay submittal of the final CEUS Seismic Hazard Evaluation and Screening Reports so that an update to the Electric Power Research Institute (EPRI) ground motion attenuation model could be completed and used to develop that information. NEI proposed that descriptions of subsurface materials and properties and base case velocity profiles be submitted to the NRC by September 12, 2013, (Reference 6), with the remaining seismic hazard and screening information submitted by March 31, 2014 (Reference 5). NRC agreed with that proposed path forward in Reference 4.

Reference 1 requested that licensees provide interim evaluations and actions taken or planned to address the higher seismic hazard relative to the design basis, as appropriate, prior to completion of the risk evaluation. In accordance with the NRC endorsed guidance in Reference 3, Enclosure 1 provides the Expedited Seismic Evaluation Process (ESEP) Report for Peach Bottom Atomic Power Station, Units 2 and 3, and the information described in the "ESEP Report" Section 7, of Reference 3 in accordance with the schedule identified in Reference 2.

With the exception of the two (2) plant relays identified in Enclosure 1, all other equipment evaluated for the ESEP for Peach Bottom Atomic Power Station Units 2 and 3 was found to have adequate capacity for the required seismic demand as defined by the Augmented Approach (ESEP) guidance (Reference 3). Further evaluation, and implementation of modifications, if required, to increase seismic margin for the affected plant relays, will be completed as identified in Enclosure 2.

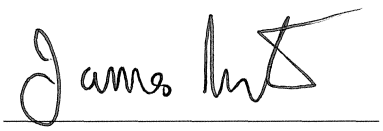
This ESEP report transmittal completes regulatory Commitment No. 3 of Reference 5.

A list of new regulatory commitments contained in this letter is provided in Enclosure 2.

If you have any questions regarding this report, please contact Ron Gaston at (630) 657-3359.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 19th day of December 2014.

Respectfully submitted,



James Barstow
Director - Licensing & Regulatory Affairs
Exelon Generation Company, LLC

Enclosures:

1. Peach Bottom Atomic Power Station, Units 2 and 3 Expedited Seismic Evaluation Process (ESEP) Report
2. Summary of Regulatory Commitments

cc: Director, Office of Nuclear Reactor Regulation
Regional Administrator - NRC Region I
NRC Senior Resident Inspector – Peach Bottom Atomic Power Station
NRC Project Manager, NRR – Peach Bottom Atomic Power Station
Mr. Nicholas J. DiFrancesco, NRR/JLD/JHMB, NRC
Director, Bureau of Radiation Protection - Pennsylvania Department of Environmental Resources
S. T. Gray, State of Maryland
R. R. Janati, Chief, Division of Nuclear Safety, Pennsylvania Department of Environmental Protection, Bureau of Radiation Protection

Enclosure 1

Peach Bottom Atomic Power Station, Units 2 and 3

Expedited Seismic Evaluation Process (ESEP) Report

(63 pages)

EXPEDITED SEISMIC EVALUATION PROCESS (ESEP) REPORT
IN RESPONSE TO THE 50.54(f) INFORMATION REQUEST REGARDING
FUKUSHIMA NEAR-TERM TASK FORCE RECOMMENDATION 2.1: SEISMIC

for the

Peach Bottom Atomic Power Station Units 2 & 3
1848 Lay Road
Delta, Pennsylvania 17314-9032
Facility Operating License No. DPR-44, DPR-56
NRC Docket No. 50-277, 50-278
Correspondence No.: RS-14-300

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Report Number: 14Q4233-RPT-004, Rev. 3

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Preparer:	Douglas Seymour		12/17/2014
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Branch Manager:	Frank Giaco		12/18/14
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Corporate Acceptance:	Jeffrey Clark		12/17/14

Document Title: **EXPEDITED SEISMIC EVALUATION PROCESS (ESEP) REPORT IN RESPONSE TO THE 50.54(f) INFORMATION REQUEST REGARDING FUKUSHIMA NEAR-TERM TASK FORCE RECOMMENDATION 2.1: SEISMIC for the Peach Bottom Atomic Power Station Units 2 and 3**

Document Type: Report Report Number: 14Q4233-RPT-004

Project Name: Exelon ESEP for Peach Bottom
Job No.: 14Q4233
Client: Exelon.

This document has been prepared in accordance with the S&A Quality Assurance Program Manual, Revision _17_ and project requirements:

Rev. 0	
Prepared by: Douglas Seymour	Date: 12/5/2014
Reviewed by: A. Karavoussianis	Date: 12/5/2014
Approved by: A. Karavoussianis	Date: 12/5/2014

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1	D. Seymour 12/10/2014	A. Karavoussianis 12/10/2014	A. Karavoussianis 12/10/2014	Incorporation of client editorial comment and update of Reference 4.
2	D. Seymour 12/15/2014	A. Karavoussianis 12/16/2014	A. Karavoussianis 12/16/2014	Incorporation of minor editorial comments.
3	D. Seymour 12/17/2014	A. Karavoussianis 12/17/2014	A. Karavoussianis 12/17/2014	Incorporation of minor editorial comments.
S&A Stevenson & Associates		DOCUMENT APPROVAL SHEET		CONTRACT NO. **14Q4233**

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1 PURPOSE AND OBJECTIVE

Following the accident at the Fukushima Dai-ichi nuclear power plant resulting from the March 11, 2011, Great Tohoku Earthquake and subsequent tsunami, the Nuclear Regulatory Commission (NRC) established a Near Term Task Force (NTTF) to conduct a systematic review of NRC processes and regulations and to determine if the agency should make additional improvements to its regulatory system. The NTTF developed a set of recommendations intended to clarify and strengthen the regulatory framework for protection against natural phenomena. Subsequently, the NRC issued a 50.54(f) letter on March 12, 2012 (Ref. 1) requesting information to assure that these recommendations are addressed by all U.S. nuclear power plants. The 50.54(f) letter requests that licensees and holders of construction permits under 10 CFR Part 50 reevaluate the seismic hazards at their sites against present-day NRC requirements and guidance. Depending on the comparison between the reevaluated seismic hazard and the current design basis, further risk assessment may be required. Assessment approaches acceptable to the staff include a seismic probabilistic risk assessment (SPRA), or a seismic margin assessment (SMA). Based upon the assessment results, the NRC staff will determine whether additional regulatory actions are necessary.

This report describes the Expedited Seismic Evaluation Process (ESEP) undertaken for Peach Bottom Atomic Power Station (PBAPS). The intent of the ESEP is to perform an interim action in response to the NRC's 50.54(f) letter (Ref. 1) to demonstrate seismic margin through a review of a subset of the plant equipment that can be relied upon to protect the reactor core following beyond design basis seismic events.

The ESEP is implemented using the methodologies in the NRC endorsed guidance in EPRI 3002000704, Seismic Evaluation Guidance: Augmented Approach for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1: Seismic (Ref. 2).

The objective of this report is to provide summary information describing the ESEP evaluations and results. The level of detail provided in the report is intended to enable NRC to understand the inputs used, the evaluations performed, and the decisions made as a result of the interim evaluations.

2 BRIEF SUMMARY OF THE FLEX SEISMIC IMPLEMENTATION STRATEGIES*

The Peach Bottom FLEX response strategies for Reactor Core Cooling and Heat Removal, Reactor Inventory Control, Core Cooling and Heat Removal (Modes 3 and 4), Containment Function and Spent Fuel Pool Control are summarized below. This summary is derived from the Overall Integrated Plan (OIP) in Response to the March 12, 2012, Commission Order EA-12-049 (Ref. 3) including the required 6-Month Updates that have been prepared since the OIP was submitted.

Flex Phase 1, strategy relies on installed plant equipment. Reactor core cooling and heat removal is achieved via steam release from the Safety Relief Valves (SRV's) to the Torus and Reactor Core Isolation Cooling (RCIC) drive steam. Coolant makeup is established and maintained from RCIC. Preferred suction for RCIC will be from the condensate storage tank (CST) if it is still viable. If not, suction will be from the Torus. The cool down rate of the reactor coolant system is controlled through manual operation of the SRV's and RCIC at a targeted 80 degrees per hour. The cool down will facilitate decay heat removal while keeping the Torus water temperature within limits and reactor pressure high enough to maintain RCIC operation. RCIC operation is DC and independent of emergency AC power. It can also be operated manually without power if necessary. SRV's operate mechanically at specific high set pressures and manually with DC power to solenoids with nitrogen accumulators to enable operation to establish a cool down below set pressures. Key reactor parameters are obtained via DC powered instrumentation. A DC load reduction strategy is employed to extend battery life. The Spent Fuel Pool makeup may be required if a full core off load was recently completed as time to boil in the pool is at its most limiting. Spent Fuel level is obtained from the new spent fuel pool wide range instrumentation installed under order EA-12-051.

Flex Phase 2, strategy relies on installed plant equipment and portable equipment. If RCIC is running without challenging limits, it will continue in operation to control reactor level and pressure. It is recognized that area temperatures will increase. Opening plant doors and fans powered by portable diesel generators will be used to address the RCIC room environmental issues. Work to line-up and start operation of phase 2 equipment will commence no later than 1 hour after the event occurs. A portable 500 KW 480VAC diesel generator is used to provide power to 480 VAC Load Centers and Motor Control Centers. This will allow energizing the Division 1 battery chargers, battery room ventilation, Control Room Emergency Ventilation (CREV), diesel fuel oil transfer pump, and valves required to inject water from external sources to the reactor via the Residual Heat Removal (RHR) system. Portable diesel driven pumps will provide injection from two suction sources, either the Emergency Cooling Tower (ECT) or the Conowingo Pond (Susquehanna River) at the screen house. The discharge will be either into the RHR system directly or into the High Pressure Service Water system (HPSW) emergency cross-tie to the RHR system. RHR will then supply water to the Reactor, Torus and the Fuel Pool Cooling system. The Refuel Floor roof hatch and the Reactor Building truck bay doors will need to be opened as a method to maintain temperature on the refuel floor.

* This section is based upon input received from Peach Bottom Atomic Power Station in (Refs. 4, 25, 26, and 27).

Flex Phase 1 and 2 strategy will provide sufficient capability such that no additional Phase 3 strategies are required. Phase 3 relies on installed plant equipment and portable equipment as described in Phase 1 and Phase 2.

Peach Bottom Phase 1 Flex Strategy

Safety Function		Primary Method	Alternate Method
Core Cooling	Reactor Core Cooling & Heat Removal	• RCIC pump with suction from Torus • RCS cool down at 80°F/hour with SRV's	• RCIC pump with suction from CST • Backup nitrogen to SRV solenoids
	RCS Inventory Control & Heat Removal,	• RCIC pump with suction from Torus • RCS cool down at 80°F/hour with SRV's	• RCIC pump with suction from CST • Backup nitrogen to SRV solenoids
	Key Reactor Parameters	• Temperature, pressure, level • Use existing battery powered indication • Extend coping with deep DC load stripping	
Containment	Containment Pressure Control & Remove Heat	• None required – pressure and temperature below limits	• Containment venting if Torus temperature reaches 230°F
	Key Containment Parameters	• Temperature and pressure indication powered via vital buses	• Temperature and pressure indication powered via vital buses
SFP Cooling	Spent Fuel Cooling	• None required – temperature below limits	• None required – temperature below limits
	SFP Parameters	• SFP Wide Range Level Indicator	• SFP Wide Range Level Indicator

Peach Bottom Phase 2 Flex Strategy

Safety Function		Primary Method	Alternate Method
Core Cooling	Reactor Core Cooling & Heat Removal (Mode 3 and 4)	• Diesel driven portable pumps • 500KW 480VAC FLEX generator to operate valves	• Diesel driven portable pumps at alternate suction and discharge locations • 500KW 480VAC FLEX generator to operate valves at alternate location
	RCS Inventory Control & Heat Removal (Mode 3 and 4)	• Diesel driven portable pumps • 500KW 480VAC FLEX generator to operate valve	• Diesel driven pump at alternate suction and discharge locations • 500KW 480VAC FLEX generator to operate valves at alternate location
	Key Reactor Parameters	• 500KW 480VAC FLEX generator repower one Vital Load center to repower battery charger	• Local indication determination at rack or penetration
Containment	Containment Pressure Control & Remove Heat	• None required – pressure and temperature below limits	• None required – pressure and temperature below limits
	Key Containment Parameters	• Temperature and pressure indication powered via vital buses	• Local indication determination at rack or penetration
SFP Cooling	Spent Fuel Cooling	• RHR to Fuel Pool cooling crosstie	• Fire hose spray on the spent fuel
	SFP Parameters	• SFP Wide Range Level Indicator	• SFP Wide Range Level Indicator

3 EQUIPMENT SELECTION PROCESS AND ESEL AND ALTERNATE PATH JUSTIFICATIONS

The selection of equipment for the ESEL followed the guidelines of EPRI 3002000704 (Ref. 2). The ESELs per Ref. 22 for Unit 2 and Unit 3 are presented in Attachments A and B, respectively.

3.1 Equipment Selection Process and ESEL

The selection of equipment to be included on the Expedited Seismic Equipment List (ESEL) was based on installed plant equipment credited in the FLEX strategies during mitigation of an Extended Loss of AC Power (ELAP), as outlined in the Peach Bottom Overall Integrated Plan (OIP) in Response to the March 12, 2012, Commission Order EA-12-049 (Ref. 3) including subsequent 6 month updates through August 2014[†]. The OIP provides the Peach Bottom FLEX strategy and serves as the basis for equipment selected for the ESEP.

The scope of "installed plant equipment" includes equipment relied upon for the FLEX strategies to sustain the critical functions of core cooling and containment integrity following a beyond design basis seismic event, consistent with the Peach Bottom OIP (Ref. 3) including subsequent 6 month updates through August 2014. FLEX recovery actions are excluded from the ESEP scope per EPRI 3002000704 (Ref. 2). The overall list of planned FLEX modifications and the scope for consideration herein is limited to those required to support core cooling, reactor coolant inventory and sub-criticality, and containment integrity functions. Portable and pre-staged FLEX equipment (not permanently installed) are excluded from the ESEL per EPRI 3002000704 (Ref. 2).

The ESEL component selection followed the EPRI guidance outlined in Section 3.2 of EPRI 3002000704 (Ref. 2).

1. The scope of components is limited to that required to accomplish the core cooling and containment safety functions identified in Table 3-1 of EPRI 3002000704. The instrumentation monitoring requirements for core cooling/containment safety functions are limited to those outlined in the EPRI 3002000704 guidance, and are a subset of those outlined in the Peach Bottom OIP (Ref.3) including subsequent 6 month updates through August 2014.
2. The scope of components is limited to installed plant equipment, and FLEX connections necessary to implement the Peach Bottom OIP (Ref. 3) including subsequent 6 month updates through August 2014 as described in Section 2.
3. The scope of components assumes the credited FLEX connection modifications are implemented, and are limited to those required to support a single FLEX success path (i.e., either "Primary" or "Back-up/Alternate").
4. The "Primary" FLEX success path is to be specified. Selection of the "Back-up/Alternate" FLEX success path must be justified.

[†] References 25 and 26 confirm that there are no changes between the February 2013 and August 2014 Flex Strategies submittals. This footnote applies to all references of the August 2014 Flex Strategies throughout this document.

5. Structures, systems, and components excluded per the EPRI 3002000704 (Ref. 2) guidance are:
   - Structures (e.g. containment, reactor building, control building, auxiliary building, etc.)
   - Piping, cabling, conduit, HVAC, and their supports.
   - Manual valves, check valves and rupture disks.
   - Power-operated valves not required to change state as part of the FLEX mitigation strategies.
   - Nuclear steam supply system components (e.g. reactor pressure vessel and internals, reactor coolant pumps and seals, etc.)
6. For cases in which neither train was specified as a primary or back-up strategy, then only one train component (generally 'A' train) is included in the ESEL.

3.1.1 ESEL Development

The ESEL was developed by reviewing the Peach Bottom OIP (Ref. 3) including subsequent 6 month updates through August 2014 to determine equipment involved in the FLEX strategies. Further reviews of plant drawings (e.g., Process and Instrumentation Diagrams (P&IDs) and Electrical One Line Diagrams) were performed to identify the boundaries of the flow paths to be used in the FLEX strategies and to identify specific components in the flow paths needed to support implementation of the FLEX strategies.

Boundaries were established at an electrical power distribution or mechanical isolation device in branch circuits / branch lines off the defined strategy electrical or fluid flow path. P&IDs were the primary reference documents used to identify mechanical components and instrumentation. The flow paths used for FLEX strategies were selected and specific components were identified using detailed equipment and instrument drawings, piping isometrics, electrical schematics and one-line drawings, system descriptions, design basis documents, etc., as necessary.

The flow paths credited for ESEP for Peach Bottom per Ref. 22 are shown in Table 3.1-1.

Table 3.1-1 Flow Paths Credited for ESEP

Flow Path	P&IDs	
	Unit 2	Unit 3
Core Heat Removal using RCIC system: Coolant from the Suppression Pool to the RCS via the RCIC pump and Reactor Recirculation Pump Discharge Piping. Main Steam providing motive force to the RCIC pump turbine and exhausted to the Suppression Pool.	M-359 sh. 1 (Ref. 21.h) M-360 sh. 1 (Ref. 21.j) M-360 sh. 3 (Ref. 21.l)	M-359 sh. 1 (Ref. 21.h) M-359 sh. 2 (Ref. 21.i) M-360 sh. 1 (Ref. 21.j) M-360 sh. 2 (Ref. 21.k) M-360 sh. 4 (Ref. 21.m)
RPV Pressure Control using ADS system: Main Steam relieved through the ADS Safety/Relief Valves to the Suppression Pool.	M-351 sh. 1 (Ref. 21.d) M-351 sh. 2 (Ref. 21.e) M-372 sh. 1 (Ref. 21.t) M-333 sh. 1 (Ref. 21.b)	M-351 sh. 3 (Ref. 21.f) M-351 sh. 4 (Ref. 21.g) M-372 sh. 1 (Ref. 21.t) M-333 sh. 2 (Ref. 21.c)
RPV Make Up: Coolant from the Ultimate Heat Sink to the Suppression Pool via the FLEX pump and the RHR system.	M-361 sh. 1 (Ref. 21.n) M-361 sh. 2 (Ref. 21.o)	M-361 sh. 3 (Ref. 21.p) M-361 sh. 4 (Ref. 21.q)
Hardened Containment Vent: Torus vented to atmosphere.	M-367 sh. 1 (Ref. 21.r)	M-367 sh. 2 (Ref. 21.s)
Essential Service Water: Coolant from the Ultimate Heat Sink to the RHR system via a FLEX pump connection.	M-315 sh. 1 (Ref. 21.a)	M-315 sh. 1 (Ref. 21.a)
Main Control Room Ventilation: Outside air through the Control Room Emergency Ventilation filters to a Control Room Emergency Ventilation Fan. Fan discharge into the Control Room.	M-384 sh. 1 (Ref. 21.u) M-384 sh. 2 (Ref. 21.v) M-384 sh. 3 (Ref. 21.w)	M-384 sh. 1 (Ref. 21.u) M-384 sh. 2 (Ref. 21.v) M-384 sh. 3 (Ref. 21.w)
Battery Room Ventilation: Outside Air to the Emergency Switch Gear & Battery Room Vent. Fan supplied to both Units' Battery Rooms. Air from Battery Rooms exhausted through a Battery Room Exhaust Fan to atmosphere.	M-399 sh. 1 (Ref. 21.x) M-399 sh. 2 (Ref. 21.y) M-399 sh. 3 (Ref. 21.z) M-399 sh. 4 (Ref. 21.aa)	M-399 sh. 1 (Ref. 21.x) M-399 sh. 2 (Ref. 21.y) M-399 sh. 3 (Ref. 21.z) M-399 sh. 4 (Ref. 21.aa)

3.1.2 Power Operated Valves

Page 3-3 of EPRI 3002000704 (Ref. 2) notes that power operated valves not required to change state are excluded from the ESEL. Page 3-2 also notes that "functional failure modes of electrical and mechanical portions of the installed Phase 1 equipment should be considered (e.g. RCIC trips)." To address this concern, the following guidance is applied in the Peach Bottom ESEL for functional failure modes associated with power operated valves:

- Power operated valves that must remain energized during the Extended Loss of all AC Power (ELAP) events in order to maintain a credited FLEX flow path or pressure boundary (such as DC powered solenoid-operated valves), were included on the ESEL.
- Power operated valves not required to change state as part of the FLEX mitigation strategies were not included on the ESEL. The seismic event also causes the ELAP event; therefore, the valves are incapable of spurious operation as they would be de-energized.
- Power operated valves not required to change state as part of the FLEX mitigation strategies during Phase 1, and are re-energized and operated during subsequent Phase 2 and 3 strategies, were not evaluated for spurious valve operation as the seismic event that caused the ELAP has passed before the valves are re-powered.

3.1.3 Pull Boxes

Pull boxes were deemed unnecessary to add to the ESELs as these components provide completely passive locations for pulling or installing cables. No breaks or connections in the cabling are included in pull boxes. Pull boxes were considered part of conduit and cabling, which are excluded in accordance with EPRI 3002000704 (Ref. 2).

3.1.4 Termination Cabinets

Termination cabinets, including cabinets necessary for FLEX Phase 2 and Phase 3 connections, provide consolidated locations for permanently connecting multiple cables. The termination cabinets and the internal connections provide a completely passive function, and the connections are excluded from the ESEL.

3.1.5 Critical Instrumentation Indicators

Critical indicators and recorders are typically physically located on panels/cabinets and are included as separate components; however, seismic evaluation of the instrument indication may be included in the panel/cabinet seismic evaluation (rule-of-the-box).

3.1.6 Phase 2 and Phase 3 Piping Connections

Item 2 in Section 3.1 above notes that the scope of equipment in the ESEL includes "… FLEX connections necessary to implement the Peach Bottom OIP (Ref. 3) including subsequent 6 month updates through August 2014 as described in Section 2." Item 3 in Section 3.1 also notes that "The scope of components assumes the credited FLEX connection modifications are implemented, and are limited to those required to support a single FLEX success path (i.e., either "Primary" or "Back-up/Alternate")."

Item 5 in Section 3.1 above goes on to explain that "Piping, cabling, conduit, HVAC, and their supports" are excluded from the ESEL scope in accordance with EPRI 3002000704 (Ref. 2).

Therefore, piping and pipe supports associated with FLEX Phase 2 and Phase 3 connections are excluded from the scope of the ESEP evaluation. However, any active valves in FLEX Phase 2 and Phase 3 connection flow path are included in the ESEL.

3.2 Justification for use of Equipment that is not the Primary Means for FLEX Implementation

All equipment used for FLEX implementation on the PBAPS ESEL are the primary path.

4 GROUND MOTION RESPONSE SPECTRUM (GMRS)

4.1 Plot of GMRS Submitted by the Licensee

In accordance with Section 2.4.2 of the SPID (Ref. 14), the licensing design basis definition of the SSE control point for Peach Bottom is used for comparison to the GMRS. Ref. 6 lists the Peach Bottom SSE as being located at 136 feet MSL with a PGA of 0.12g.

The GMRS per the March 2014 submittal report (Ref. 6) is tabulated and graphed below:

Table 4.1-1 Peach Bottom GMRS (5% Damping)

Freq. (Hz)	GMRS (unscaled, g)
0.1	0.007
0.125	0.008
0.15	0.010
0.2	0.014
0.25	0.017
0.3	0.020
0.35	0.024
0.4	0.027
0.5	0.034
0.6	0.041
0.7	0.047
0.8	0.052
0.9	0.057
1	0.062
1.25	0.076
1.5	0.089
2	0.124
2.5	0.143
3	0.179
3.5	0.219

Freq. (Hz)	GMRS (unscaled, g)
4	0.256
5	0.332
6	0.387
7	0.441
8	0.490
9	0.536
10	0.581
12.5	0.659
15	0.727
20	0.844
25	0.924
30	0.967
35	0.961
40	0.914
50	0.730
60	0.549
70	0.461
80	0.426
90	0.410
100	0.402

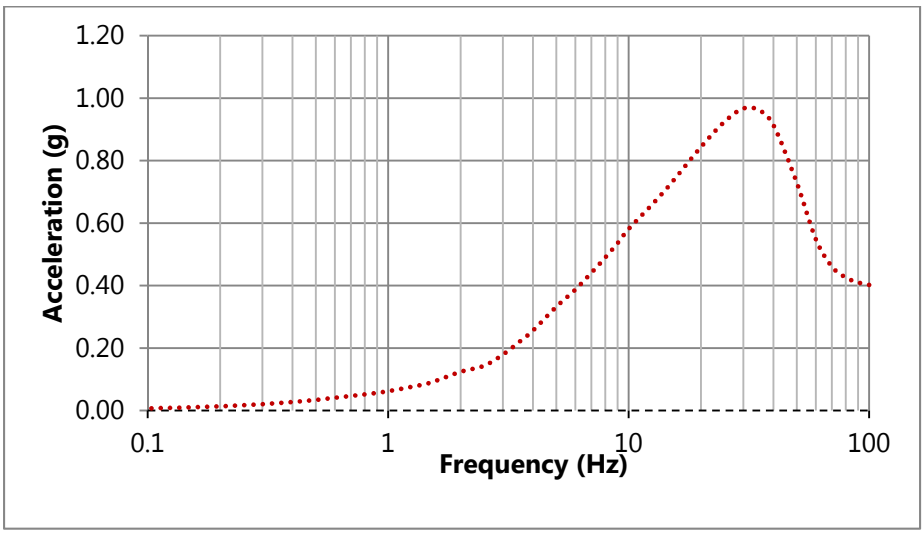

Figure 4.1-1 Peach Bottom GMRS (5% Damping)

4.2 Comparison to SSE

As identified in the March 2014 submittal report (Ref. 6), the GMRS exceeds the SSE in the 1-10 Hz range as shown in the table and graph below:

Table 4.2-1 Peach Bottom GMRS vs. SSE (5% Damping)

Freq. (Hz)	GMRS (g)	SSE (g)
1	0.062	0.11
1.25	0.076	0.13
1.5	0.089	0.16
2	0.124	0.19
2.5	0.143	0.21
3	0.179	0.22
3.5	0.219	0.22
4	0.256	0.22
5	0.332	0.21
6	0.387	0.21
7	0.441	0.20
8	0.490	0.20
9	0.536	0.19
10	0.581	0.19

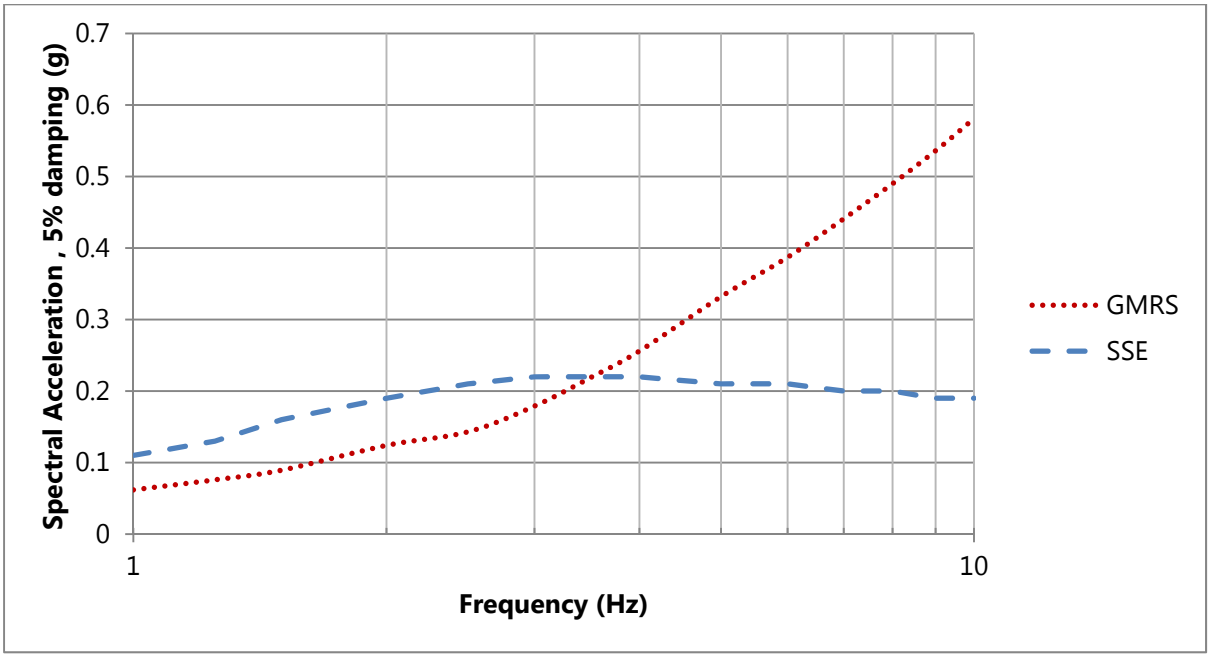

Figure 4.2-1 Peach Bottom GMRS vs. SSE (5% Damping)

5 REVIEW LEVEL GROUND MOTION (RLGM)

5.1 Description of RLGM Selected

The RLGM for Peach Bottom was determined in accordance with Section 4 of EPRI 30020000704 (Ref. 2) as being derived by linearly scaling the Peach Bottom SSE by the maximum ratio of the GMRS/SSE between the 1 and 10 Hertz range, with an upper bound of 2.0.

The ratio between the GMRS and SSE at 5% damping is tabulated below.

Table 5.1-1 Ratio between GMRS and SSE (5% Damping)

Freq. (Hz)	GMRS (g)	SSE (g)	Ratio GMRS/SSE
1	0.0619	0.11	0.56
1.25	0.0759	0.13	0.58
1.5	0.0893	0.16	0.56
2	0.124	0.19	0.65
2.5	0.143	0.21	0.68
3	0.179	0.22	0.81
3.5	0.219	0.22	1.00
4	0.256	0.22	1.16
5	0.332	0.21	1.58
6	0.387	0.21	1.84
7	0.441	0.2	2.21
8	0.49	0.2	2.45
9	0.536	0.19	2.82
10	0.581	0.19	3.06

The maximum ratio between the 5% damping GMRS and horizontal SSE occurs at 10 Hz and equals 3.06. Based on Section 4 of EPRI 30020000704 (Ref. 2), the RLGM derived by linearly scaling the SSE need not exceed 2 x SSE; therefore the upper bound ratio of 2.0 applies.

The resulting RLGM based on increasing the horizontal SSE by the maximum ratio of 2.0 is plotted below. Note that the RLGM PGA is 0.24g.

Table 5.1-2 Peach Bottom RLGM (5% Damping)

Freq. (Hz)	RLGM (g)
1	0.22
1.25	0.26
1.5	0.32
2	0.38
2.5	0.42
3	0.44
3.5	0.44
4	0.44
5	0.42
6	0.42
7	0.40
8	0.40
9	0.38
10	0.38

Freq. (Hz)	RLGM (g)
12.5	0.36
15	0.36
20	0.34
25	0.32
30	0.30
35	0.30
40	0.30
50	0.28
60	0.28
70	0.26
80	0.24
90	0.24
100	0.24

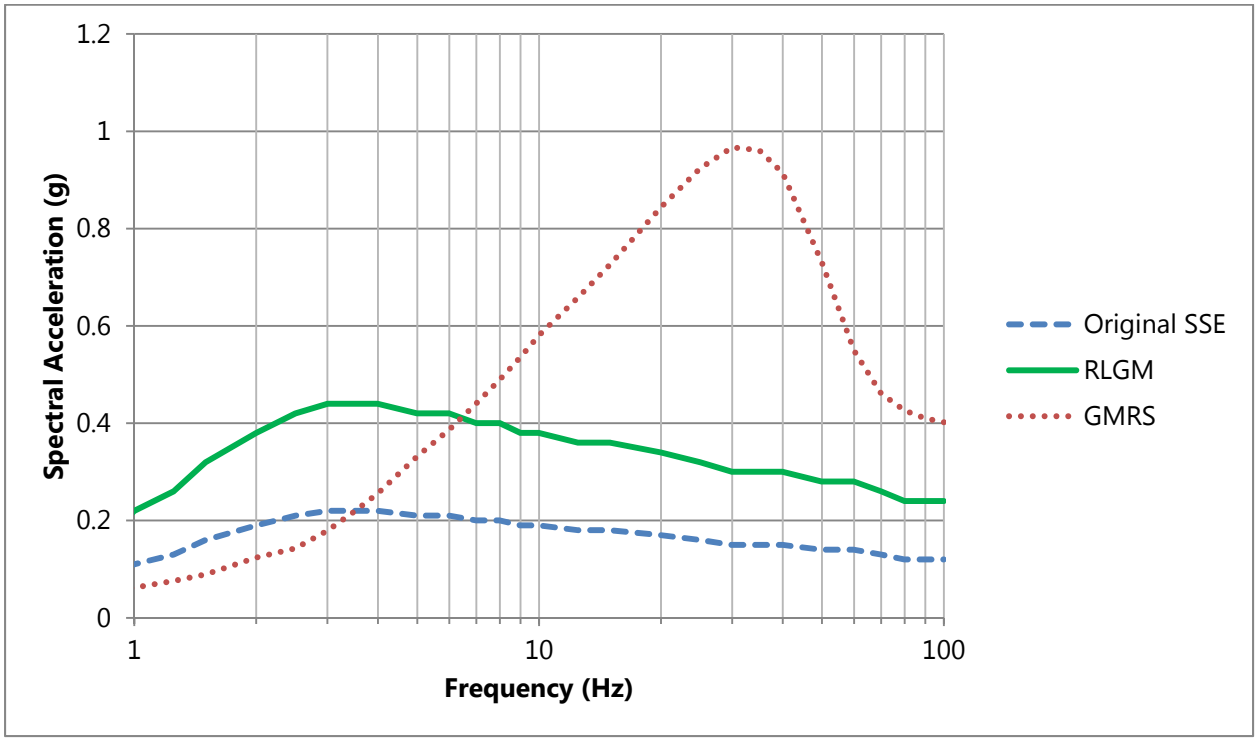

Figure 5.1-1 Peach Bottom RLGM, GMRS & SSE (5% Damping)

5.2 Method to Estimate ISRS

The method used to derive the ESEP in-structure response spectra (ISRS) was to scale the existing SSE-based ISRS obtained from Peach Bottom Specification 11187-G-14, "General Project Requirements for Seismic Design and Analysis of Equipment and Equipment Supports for the Peach Bottom Atomic Power Station Units 2 & 3" (Ref. 18) and PBAPS calculation PS-0907, "SQUG – Radwaste/Turbine Building A46 Spectra" (Ref. 19), by the maximum ratio of 2.0. The scaled ISRS was determined for all buildings and elevations where ESEL items are located at Peach Bottom.

6 SEISMIC MARGIN EVALUATION APPROACH

It is necessary to demonstrate that ESEL items have sufficient seismic capacity to meet or exceed the demand characterized by the RLGM. The seismic capacity is characterized as the peak ground acceleration (PGA) for which there is a high confidence of a low probability of failure (HCLPF). The PGA is associated with a specific spectral shape, in this case the 5%-damped RLGM spectral shape. The HCLPF capacity must be equal to or greater than the RLGM PGA. The criteria for seismic capacity determination are given in Section 5 of EPRI 3002000704 (Ref. 2).

There are two basic approaches for developing HCLPF capacities:

1. Deterministic approach using the conservative deterministic failure margin (CDFM) methodology of EPRI NP-6041, A Methodology for Assessment of Nuclear Power Plant Seismic Margin (Revision 1) (Ref. 7).

2. Probabilistic approach using the fragility analysis methodology of EPRI TR-103959, Methodology for Developing Seismic Fragilities (Ref. 8).

For Peach Bottom, the deterministic approach using the CDFM methodology of EPRI NP-6041 (Ref. 7) was used to determine HCLPF capacities.

6.1 Summary of Methodologies Used

Peach Bottom applied the Deterministic Approach (i.e. Method 1 from the previous section) to all items on the ESEL. The screening walkdowns used the screening tables from Chapter 2 of EPRI NP-6041 (Ref. 7). The walkdowns were conducted by engineers who as a minimum attended the SQUG Walkdown Screening and Seismic Evaluation Training Course. The walkdowns were documented on Screening Evaluation Work Sheets from EPRI NP-6041 (Ref. 7). Anchorage capacity calculations used the CDFM criteria from EPRI NP-6041 (Ref. 7) with Peach Bottom specific allowables and material strengths used as applicable. Seismic demand was the RLGM provided in Table 5.1-2 and Figure 5.1-1.

6.2 HCLPF Screening Process

The peak RLGM (amplified PGA) For Peach Bottom equals 0.44 g (Table 5.1-2). The screening tables in EPRI NP-6041 (Ref. 7) are based on ground peak spectral accelerations of 0.8g and 1.2g. All Peach Bottom ESEL components were screened against either the caveats of the <0.8g column (lane 1) or the 0.8g-1.2g column (lane 2) of Table 2-4 of NP-6041 (Ref. 7). Screening based on lane 1 with the RLGM spectral shape yields an equivalent HCLPF of 0.44g PGA (witness 0.8g/0.44g*0.24g PGA = 0.44g PGA). Screening based on lane 2 with the RLGM spectral shape yields an equivalent HCLPF of 0.65g PGA (witness 1.2g/0.44g*0.24g PGA = 0.65g PGA).

A number of components were located above 40 feet from grade. For components located 40 feet above grade, screening based on ground peak spectral acceleration is not applicable and additional consideration is required. In accordance with Appendix B of EPRI 1019200 (Ref. 20), components that are above 40 feet from grade and have corresponding ISRS at the base of component not in exceedance of 1.2g in the component frequency range of interest may be screened using the caveats of the 1st screening column, and components that are above 40 feet from grade and have corresponding ISRS at the base of component not in exceedance of 1.8g in the component frequency range of interest may be screened using the caveats of the 2nd screening column.

The screening of anchorage for non-valve components was evaluated either by SRT judgment or simple analysis. For components whose anchorage could not readily be screened by SRT judgment or simple analysis, CDFM HCLPF calculations (Ref. 9) were performed. This is documented in Attachments C and D.

Per Ref 9.a, the seismic spectra for the Reactor Building (RB) are scaled from the original design spectra, which were based on an OBE seismic input and thus were based on a structural damping which is conservative for CDFM analysis (See Ref. 17). Under scaled SSE loading, a level of critical damping of 5% is appropriate for this structure. Based on NP-6041 Appendix Q and consideration of a structural damping level of 5%, it is shown in Ref. 9.b that Reactor Building elevations 135' and 165' may be addressed for CDFM purposes with peak spectral accelerations of 1.0g and 1.4g respectively. These spectral peak values are thus used for the purposes of equipment qualification as per NP-6041 Table 2-4.

6.3 Seismic Walkdown Approach

6.3.1 Walkdown Approach

Walkdowns for Peach Bottom were performed in accordance with the criteria provided in Section 5 of EPRI 3002000704 (Ref. 2), which refers to EPRI NP-6041 (Ref. 7) for the Seismic Margin Assessment process. Pages 2-26 through 2-30 of EPRI NP-6041 (Ref. 7) describe the seismic walkdown criteria, including the following key criteria.

> *"The SRT [Seismic Review Team] should "walk by" 100% of all components which are reasonably accessible and in non-radioactive or low radioactive environments. Seismic capability assessment of components which are inaccessible, in high-radioactive environments, or possibly within contaminated containment, will have to rely more on alternate means such as photographic inspection, more reliance on seismic reanalysis, and possibly, smaller inspection teams and more hurried inspections. A 100% "walk by" does not mean complete inspection of each component, nor does it mean requiring an electrician or other technician to de-energize and open cabinets or panels for detailed inspection of all components. This walkdown is not intended to be a QA or QC review or a review of the adequacy of the component at the SSE level.*

If the SRT has a reasonable basis for assuming that the group of components are similar and are similarly anchored, then it is only necessary to inspect one component out of this group. The "similarity-basis" should be developed before the walkdown during the seismic capability preparatory work (Step 3) by reference to drawings, calculations or specifications. The one component or each type which is selected should be thoroughly inspected which probably does mean de-energizing and opening cabinets or panels for this very limited sample. Generally, a spare representative component can be found so as to enable the inspection to be performed while the plant is in operation. At least for the one component of each type which is selected, anchorage should be thoroughly inspected.

The walkdown procedure should be performed in an ad hoc manner. For each class of components the SRT should look closely at the first items and compare the field configurations with the construction drawings and/or specifications. If a one-to-one correspondence is found, then subsequent items do not have to be inspected in as great a detail. Ultimately the walkdown becomes a "walk by" of the component class as the SRT becomes confident that the construction pattern is typical. This procedure for inspection should be repeated for each component class; although, during the actual walkdown the SRT may be inspecting several classes of components in parallel. If serious exceptions to the drawings or questionable construction practices are found then the system or component class must be inspected in closer detail until the systematic deficiency is defined.

The 100% "walk by" is to look for outliers, lack of similarity, anchorage which is different from that shown on drawings or prescribed in criteria for that component, potential SI [Seismic Interaction[‡]] problems, situations that are at odds with the team members' past experience, and any other areas of serious seismic concern. If any such concerns surface, then the limited sample size of one component of each type for thorough inspection will have to be increased. The increase in sample size which should be inspected will depend upon the number of outliers and different anchorages, etc., which are observed. It is up to the SRT to ultimately select the sample size since they are the ones who are responsible for the seismic adequacy of all elements which they screen from the margin review. Appendix D gives guidance for sampling selection."

The Peach Bottom walkdowns included as a minimum a 100% walk-by of all items on the ESEL except as noted in Section 7. Any previous walkdown information that was relied upon for SRT judgment is documented in Section 6.3.2.

[‡] EPRI 3002000704 (Ref. 2) page 5-4 limits the ESEP seismic interaction reviews to "nearby block walls" and "piping attached to tanks" which are reviewed "to address the possibility of failures due to differential displacements." Other potential seismic interaction evaluations are "deferred to the full seismic risk evaluations performed in accordance with EPRI 1025287 (Ref. 14)."

6.3.2 Application of Previous Walkdown Information

The seismic walkdowns for Peach Bottom included as a minimum a walk-by of all the components on the ESEL with the exception of the items which are discussed in Section 7.

Previous seismic walkdowns were used to support the ESEP seismic evaluations. Some of the components on the ESEL were included in the NTTF Recommendation 2.3 seismic walkdowns (Ref. 16). Photos taken during the NTTF R2.3 seismic walkdowns (Ref. 16), although available to the SRT during the ESEP walkdowns, were not necessary to the SRT at Peach Bottom. A-46 and IPEEE notes were available to the SRT and were used where appropriate to reduce the number of equipment items that needed to be opened and evaluate equipment that were not completely accessible to the SRT.

Several ESEL items were previously walked down during the Peach Bottom Seismic IPEEE program. Those walkdown results were reviewed and the following steps were taken to confirm that the previous walkdown conclusions remained valid.

- A walk by was performed to confirm that the equipment material condition and configuration is consistent with the walkdown conclusions and that no new significant interactions related to block walls or piping attached to tanks exist.[‡]
- If the ESEL item was screened out based on the previous walkdown, that screening evaluation was reviewed and reconfirmed for the ESEP.

6.3.3 Significant Walkdown Observations

Consistent with that guidance from NP-6041 (Ref. 7), no significant outliers or anchorage concerns were identified during the Peach Bottom Atomic Power Station seismic walkdowns.

- Several block walls were identified in the proximity of ESEL equipment. These block walls were assessed for their structural adequacy to withstand the seismic loads resulting from the RLGM. For any cases where the block wall represented the HCLPF failure mode for an ESEL item, it is noted in the tabulated HCLPF values described in Section 6.6.

6.4 HCLPF Calculation Process

ESEL items were evaluated using the criteria in EPRI NP-6041 (Ref. 7). Those evaluations included the following steps:

[‡] EPRI 3002000704 (Ref. 2) page 5-4 limits the ESEP seismic interaction reviews to "nearby block walls" and "piping attached to tanks" which are reviewed "to address the possibility of failures due to differential displacements." Other potential seismic interaction evaluations are "deferred to the full seismic risk evaluations performed in accordance with EPRI 1025287 (Ref. 14)."

- Performing seismic capability walkdowns for equipment to evaluate the equipment installed plant conditions
- Performing screening evaluations using the screening tables in EPRI NP-6041 (Ref. 7) as described in Section 6.2 and
- Performing HCLPF calculations considering various failure modes that include both structural failure modes (e.g. anchorage, load path etc.) and functional failure modes.

All HCLPF calculations were performed using the CDFM methodology and are documented in Peach Bottom calculations (Ref. 9).

6.5 Functional Evaluation of Relays

A HCLPF evaluation is performed for all relays and switches which may negatively "seal in" or "lock out" on the PBAPS ESEL.

For relay evaluations, NP-6041 Appendix Q describes the following steps:

- Calculate in-cabinet response spectra (ICRS)
- Establish a clipping factor to be applied to the ICRS
- Determine a relay's Generic Equipment Ruggedness Spectra (GERS) Capacity
- Establish adjustment factors to convert the relay's GERS capacity to a CDFM level
- Compare clipped-peak and Zero Period Acceleration (ZPA) demands to the GERS capacity/test capacity

HCLPF capacities for the relays are calculated using the procedure described above. The switch HCLPF value was determined by using existing test data in lieu of GERS. HCLPFs are calculated in 14Q4233-CAL-004 (Ref. 9) and are presented in Attachment C and D.

Attachments C and D identify four relays for which operator action will be undertaken to reset the relay if necessary. Section 8.2 identifies two relays which are found to have a HCLPF capacity below the RLGM, and for which additional modifications, tests or analysis will be performed by the site.

6.6 Tabulated ESEL HCLPF Values (including key failure modes)

Tabulated ESEL HCLPF values including the key failure modes are included in Attachment C for Unit 2 and in Attachment D for Unit 3 items.

- For items screened out using NP-6041 (Ref. 7) screening tables, the screening level is provided as ">RLGM" and the failure mode is listed as "Screened."

- For items where anchorage controls the HCLPF value, the HCLPF value is listed in the table and the failure mode is noted as "Anchorage."
- For items where block wall interaction controls the HCLPF value, the HCLPF value is listed in the table and the failure mode is noted as "Block Wall Interaction."
- For items where a relay or switch HCLPF controls, the relay or switch HCLPF value is listed in the table and the failure mode is listed as "Functional Failure".
- For items where equipment capacity based upon the screening lane values of Table 2-4 of EPRI NP-6041 (Ref. 7) controls the HCLPF value (e.g. anchorage, block wall, or relay HCLPF capacity exceeds the equipment capacity derived from screening), the screening lane HCLPF value is listed in the table and the failure mode is noted as "equipment capacity." Based on NP-6041 Table 2-4 Lane 1, this limit is equal to 0.44g for items below 40 feet above grade.

7 INACCESSIBLE ITEMS

7.1 Identification of ESEL Items Inaccessible for Walkdowns

Thirty three ESEL items were not accessible to the SRT during the ESEP walkdowns at Peach Bottom Atomic Power Station. A description of circumstances and disposition for these items is provided below.

Table 7.1-1 Items Inaccessible for Walkdowns

ID	Description	Resolution
3AT540 3AT545 3BT540 3BT545 3CT540 3CT545 3GT540 3GT545 3KT540 3KT545	Nitrogen accumulators	These items are located in the Unit 3 Drywell and Isolation Valve Compartment. Since Unit 3 did not have a scheduled outage in 2014, these items were inaccessible. The Unit 2 Drywell and Isolation Valve Compartment were walked down during the Unit 2 scheduled outage in October 2014. Equivalent items in Unit 2 were seen to be rugged and well secured. Based on these observations, drawings and overall comparison of similar items between the two units, these items are expected to be similar to those in the Unit 2, and judged by SRT to be acceptable on that basis, including consideration of seismic interaction with block walls and piping attached to tanks.
MO-3-13-021	Motor-operated valve	
RV-3-02-071A RV-3-02-071B RV-3-02-071C RV-3-02-071G RV-3-02-071K	Relief valves	
2AT545 2CT545 2GT545	Accumulators	SRT did not see these accumulators due to physical accessibility restriction in the drywell, but did walkdown the 2BT545, 2KT545 accumulators (among others not on the ESEL) and reviewed drawings. All accumulators seen were similar, and were very ruggedly supported as shown in the SEWS photos, and are judged by SRT to be acceptable on that basis, including consideration of seismic interaction with block walls and piping attached to tanks.
00E072	Reheat coil	The reheat coil was not directly visible, but was located by drawings and the site escort to be in line with large overhead ductwork. The Reheat Coil was judged by SRT to be adequately secured to the ductwork and screen out, including consideration of seismic interaction with block walls.
2AC270(K3A) 2BC270(K3B) 2AC270(K3C) 2BC270(K3D) 3AC270(K3A) 3BC270(K3B)	Component relays	These relays are inside control room cabinets 2AC270, 2BC270, 3AC270 and 3BC270. These cabinets could not be opened during operation; therefore the relays were not walked down. However, the site provided a test report for the cabinet for the purpose of

3AC270(K3C) 3BC270(K3D)		component relay evaluation. Relays were analyzed to be adequate per 14Q4233-CAL-004. Cabinet was walked down and there are no block wall interactions in the vicinity.
PO-0-40W-00016 PO-0-40W-00019-02 PO-0-40W-00808	Damper actuators	These damper actuators were not seen by SRT. They are understood to be inside an AHU unit that is connected to OAV034. All damper actuators that were observed during the walkdowns were either model D-251 or D-9504. The SRT judged these light weight actuators to be seismically rugged and adequately supported and they were screened out, including consideration of seismic interaction with block walls.
AO-2-07B-2511 AO-2-07B-80290	Air-operated valves	These valves are located on the top of the Torus. The area in the vicinity of these valves was walked by and valves were located by site escort with SRT. However, the valves were not directly accessible to SRT due to piping interferences. Due to a review of drawings and the similarity of other valves between units, these valves screened out, including consideration of seismic interaction with block walls.

7.2 Planned Walkdown / Evaluation Schedule / Close Out

Since all items that were inaccessible during the ESEP were resolved by alternative means to the satisfaction of the SRT as discussed in Table 7.1-1 above, no additional walkdowns are required.

8 ESEP CONCLUSIONS AND RESULTS

8.1 Supporting Information

Peach Bottom Atomic Power Station has performed the ESEP as an interim action in response to the NRC's 50.54(f) letter (Ref. 1). It was performed using the methodologies in the NRC endorsed guidance in EPRI 3002000704 (Ref. 2).

The ESEP provides an important demonstration of seismic margin and expedites plant safety enhancements through evaluations and potential near-term modifications of plant equipment that can be relied upon to protect the reactor core following beyond design basis seismic events.

The ESEP is part of the overall Peach Bottom response to the NRC's 50.54(f) letter (Ref. 1). On March 12, 2014, NEI submitted to the NRC results of a study (Ref. 11) of seismic core damage risk estimates based on updated seismic hazard information as it applies to operating nuclear reactors in the Central and Eastern United States (CEUS). The study concluded that "site-specific seismic hazards show that there has not been an overall increase in seismic risk for the fleet of U.S. plants" based on the re-evaluated seismic hazards. As such, the "current seismic design of operating reactors continues to provide a safety margin to withstand potential earthquakes exceeding the seismic design basis."

The NRC's May 9, 2014 NTTF 2.1 Screening and Prioritization letter (Ref. 13) concluded that the "fleetwide seismic risk estimates are consistent with the approach and results used in the GI-199 safety/risk assessment." The letter also stated that "As a result, the staff has confirmed that the conclusions reached in GI-199 safety/risk assessment remain valid and that the plants can continue to operate while additional evaluations are conducted."

An assessment of the change in seismic risk for Peach Bottom was included in the fleet risk evaluation submitted in the March 12, 2014 NEI letter (Ref. 11) therefore, the conclusions in the NRC's May 9 letter (Ref. 13) also apply to Peach Bottom.

In addition, the March 12, 2014 NEI letter (Ref. 11) provided an attached "Perspectives on the Seismic Capacity of Operating Plants," which (1) assessed a number of qualitative reasons why the design of SSCs inherently contain margin beyond their design level, (2) discussed industrial seismic experience databases of performance of industry facility components similar to nuclear SSCs, and (3) discussed earthquake experience at operating plants.

The fleet of currently operating nuclear power plants was designed using conservative practices, such that the plants have significant margin to withstand large ground motions safely. This has been borne out for those plants that have actually experienced significant earthquakes. The seismic design process has inherent (and intentional) conservatisms which result in significant seismic margins within structures, systems and components (SSCs). These conservatisms are reflected in several key aspects of the seismic design process, including:

- Safety factors applied in design calculations
- Damping values used in dynamic analysis of SSCs
- Bounding synthetic time histories for in-structure response spectra calculations
- Broadening criteria for in-structure response spectra
- Response spectra enveloping criteria typically used in SSC analysis and testing applications
- Response spectra based frequency domain analysis rather than explicit time history based time domain analysis
- Bounding requirements in codes and standards
- Use of minimum strength requirements of structural components (concrete and steel)
- Bounding testing requirements, and
- Ductile behavior of the primary materials (that is, not crediting the additional capacity of materials such as steel and reinforced concrete beyond the essentially elastic range, etc.).

These design practices combine to result in margins such that the SSCs will continue to fulfill their functions at ground motions well above the SSE.

The intent of the ESEP is to perform an interim action in response to the NRC's 50.54(f) letter (Ref. 1) to demonstrate seismic margin through a review of a subset of the plant equipment that can be relied upon to protect the reactor core following beyond design basis seismic events. In order to complete the ESEP in an expedited amount of time, the RLGM used for the ESEP evaluation is a scaled version of the plant's SSE rather than the actual GMRS. To more fully characterize the risk impacts of the seismic ground motion represented by the GMRS on a plant specific basis, a more detailed seismic risk assessment (SPRA or risk-based SMA) is to be performed in accordance with EPRI 1025287 (Ref. 14). As identified in the Peach Bottom Seismic Hazard and GMRS submittal (Ref. 6), Peach Bottom screens in for a risk evaluation. The complete risk evaluation will more completely characterize the probabilistic seismic ground motion input into the plant, the plant response to that probabilistic seismic ground motion input, and the resulting plant risk characterization. Peach Bottom will complete that evaluation in accordance with the schedule identified in NEI's letter dated April 9, 2013 (Ref. 12) and endorsed by the NRC in their May 7, 2013 letter (Ref. 13).

8.2 Identification of Planned Modifications

The following two relays were identified with HCLPF capacities below the RLGM. These relays will be further evaluated and may require modification.

Component ID	Resolution
2-13A-K033	See below for a list of potential solutions.
3-13A-K033	See below for a list of potential solutions.

Solutions which may be considered in qualifying 2-13A-K033 and 3-13A-K033 include:

- Stiffen or replace host cabinets 20C033 and 30C033. A modification which significantly stiffens the host cabinet for each of the subject relays would lower the seismic demand.
- Relocate the subject relays to a more seismically favorable location.
- Replace the subject relays with a compatible relay model.
- Determine a higher capacity by shake table testing of this relay model.
- Reduce seismic demand through analysis or reduction of existing conservatisms
- Risk analysis

8.3 Modification Implementation Schedule

The modification implementation schedule will be included in the transmittal letter from Exelon to the NRC for this report.

8.4 Summary of Regulatory Commitments

Regulatory commitments for Peach Bottom modification implementation will be included in the transmittal letter from Exelon to the NRC for this report.

9 REFERENCES

1. NRC (E Leeds and M Johnson) Letter to All Power Reactor Licensees et al., "Request for Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(f) Regarding Recommendations 2.1, 2.3 and 9.3 of the Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident," March 12, 2012

2. Seismic Evaluation Guidance: Augmented Approach for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1 – Seismic. EPRI, Palo Alto, CA: May 2013. 3002000704

3. Peach Bottom Letters
    a. NRC Letter RS-13-024 from Peach Bottom (ML13059A305), "Overall Integrated Plan in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)", February 28, 2013
    b. NRC Letter RS-13-127 from Peach Bottom (ML13246A412), "First Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)", August 28, 2013
    c. NRC Letter RS-14-014 from Peach Bottom (ML14059A222), "Second Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)", February 28, 2014
    d. NRC Letter RS-14-212 from Peach Bottom (ML14241A252), "Third Six-Month Status Report in Response to March 12, 2012 Commission Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events (Order Number EA-12-049)", August 28, 2014

4. Peach Bottom Station Transmittal of Design Information to Stevenson & Associates, Tracking No: TODI AR#2397100-02, "PB Flex Strategy Rev. 1", December 9, 2014

5. Peach Bottom Station Transmittal of Design Information to Stevenson & Associates, Tracking No: PB 1570792-76, Input relating to Relays and Switches, December 4, 2014

6. Seismic Hazard and Screening Report in Response to the 50.54(f) Information Request Regarding Fukushima Near-Term Task Force Recommendation 2.1: Seismic for Peach Bottom Atomic Power Station dated 3/31/14, Correspondence No. RS-14-071 (Exelon Report EXLNPB056-PR-001, Revision 1)

7. A Methodology for Assessment of Nuclear Power Plant Seismic Margin, Rev. 1, August 1991, Electric Power Research Institute, Palo Alto, CA. EPRI NP-6041

8. Methodology for Developing Seismic Fragilities, August 1991, EPRI, Palo Alto, CA. 1994, TR-103959

9. Peach Bottom HCLPF Calculations for the ESEP project

a. 14Q4233-CAL-001, Rev. 0, Generation of In-Structure Response Spectra for use in ESEP Evaluations
b. 14Q4233-CAL-002, Rev. 0, HCLPF Analysis for ESEP Evaluations for PBAPS
c. 14Q4233-CAL-003, Rev. 0, ESEP Block Wall HCLPFs
d. 14Q4233-CAL-004, Rev. 0, ESEP HCLPFs for Relays

10. Nuclear Regulatory Commission, NUREG/CR-0098, Development of Criteria for Seismic Review of Selected Nuclear Power Plants, published May 1978

11. Nuclear Energy Institute (NEI), A. Pietrangelo, Letter to D. Skeen of the USNRC, "Seismic Core Damage Risk Estimates Using the Updated Seismic Hazards for the Operating Nuclear Plants in the Central and Eastern United States", March 12, 2014

12. Nuclear Energy Institute (NEI), A. Pietrangelo, Letter to D. Skeen of the USNRC, "Proposed Path Forward for NTTF Recommendation 2.1: Seismic Reevaluations", April 9, 2013

13. NRC (E. Leeds) Letter to All Power Reactor Licensees et al. (ML14111A147), "Screening and Prioritization Results Regarding Information Pursuant to Title 10 of the Code of Federal Regulations 50.54(F) Regarding Seismic Hazard Re-Evaluations for Recommendation 2.1 of the Near-Term Task Force Review of Insights From the Fukushima Dai-Ichi Accident," May 9, 2014

14. Seismic Evaluation Guidance: Screening, Prioritization and Implementation Details (SPID) for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1: Seismic. EPRI, Palo Alto, CA: February 2013. 1025287

15. NRC (E. Leeds) Letter to NEI (J Pollock) (ML13106A331), "Electric Power Research Institute Final Draft Report xxxxxx, "Seismic Evaluation Guidance: Augmented Approach for the Resolution of Fukushima Near-Term Task Force Recommendation 2.1: Seismic," as an Acceptable Alternative to the March 12, 2012, Information Request for Seismic Reevaluations," May 7, 2013

16. PBAPS NTTF 2.3 Seismic Walkdown Submittals for Unit 2 and Unit 3, dated 11/20/2014

17. Peach Bottom Atomic Power Station Updated Final Safety Analysis Report (UFSAR) Appendix C, Rev.24

18. Peach Bottom Specification 11187-G-14 Rev.0, General Project Requirements for Seismic Design and Analysis of Equipment and Equipment Supports for the Peach Bottom Atomic Power Station Units 2 & 3

19. Peach Bottom Calculation PS-0907 Rev.0, SQUG – Radwaste/Turbine Building A46 Spectra

20. EPRI Technical Report (TR) 1019200, "Seismic Fragility Applications Guide Update," December 2009

21. Peach Bottom Drawings
    a. M-315 Sheet 1, Rev. 65, P&I Diagram Emergency Service Water and High Pressure Service Water Systems
    b. M-333 Sheet 1, Rev. 57, P&ID Diagram Instrument Nitrogen (Unit 2)
    c. M-333 Sheet 2, Rev. 58, P&ID Diagram Instrument Nitrogen (Unit 3)
    d. M-351 Sheet 1, Rev. 78, P&ID Nuclear Boiler
    e. M-351 Sheet 2, Rev. 70, P&ID Nuclear Boiler
    f. M-351 Sheet 3, Rev. 74, P&ID Nuclear Boiler
    g. M-351 Sheet 4, Rev. 69, P&ID Nuclear Boiler
    h. M-359 Sheet 1, Rev. 50, P&ID Diagram Reactor Core Isolation Cooling
    i. M-359 Sheet 2, Rev. 48, P&ID Diagram Reactor Core Isolation Cooling
    j. M-360 Sheet 1, Rev. 56, R.C.I.C. Pump Turbine Details
    k. M-360 Sheet 2, Rev. 54, R.C.I.C. Pump Turbine Details
    l. M-360 Sheet 3, Rev. 47, R.C.I.C. Pump Turbine Details Lube Oil and Control System Unit 2
    m. M-360 Sheet 4, Rev. 39, R.C.I.C. Pump Turbine Details Lube Oil and Control System Unit 3
    n. M-361 Sheet 1, Rev. 82, P&I Diagram Residual Heat Removal Sys (Unit 2)
    o. M-361 Sheet 2, Rev. 68, P&I Diagram Residual Heat Removal Sys (Unit 2)
    p. M-361 Sheet 3, Rev. 70, P&I Diagram Residual Heat Removal Sys (Unit 3)
    q. M-361 Sheet 4, Rev. 072, Residual Heat Removal System (Unit 3)
    r. M-367 Sheet 1, Rev. 85, P&ID Diagram Containment Atmospheric Control System (Unit 2)
    s. M-367 Sheet 2, Rev. 76, P&ID Diagram Containment Atmospheric Control System (Unit 3)
    t. M-372 Sheet 1, Rev. 62, P&ID Diagram Containment Atmosphere Dilution System
    u. M-384 Sheet 1, Rev. 39, P&I Diagram Control Room HVAC
    v. M-384 Sheet 2, Rev. 6, P&I Diagram Control Room HVAC
    w. M-384 Sheet 3, Rev. 6, P&I Diagram Control Room HVAC
    x. M-399 Sheet 1, Rev. 32, P&I Diagram Emergency Switchgear, Battery Room, Laboratory Supply & Exhaust
    y. M-399 Sheet 2, Rev. 4, P&I Diagram Emergency Switchgear, Battery Room, Laboratory Supply & Exhaust
    z. M-399 Sheet 3, Rev. 2, P&I Diagram Emergency Switchgear, Battery Room, Laboratory Supply & Exhaust
    aa. M-399 Sheet 4, Rev. 5, P&I Diagram Emergency Switchgear, Battery Room, Laboratory Supply & Exhaust

22. 14Q4233-RPT-003, Rev.1, Validation of Expedited Seismic Equipment List

23. Seismic Qualification Utility Group (SQUG), Generic Implementation Procedure (GIP) for Verification of Nuclear Plant Equipment, Revision 3A

24. NRC Order Number EA-12-049 (ML12054A735), "Issuance of Order to Modify Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events," dated March 12, 2012.

25. Email to S&A from Ms. Tracey L. Gallagher (Exelon), LRC-009, Confirmation of "no changes" between February 2013 and August 2014 Flex Strategies, December 4, 2014

26. Email to S&A from Ms. Tracey L. Gallagher (Exelon), LRC-010, Confirmation from "Ops" of "no significant changes" between February 2013 and August 2014 Flex Strategies, December 4, 2014

27. Email to S&A from Ms. Tracey L. Gallagher (Exelon), LRC-025, Inputs to RPT-004 including that "Flex Phase 1 and 2 strategy will provide sufficient capability such that no additional Phase 3 strategies are required", December 17, 2014

Attachment A
PBAPS Unit 2 and Common ESEL

Equipment ID	Description	Equipment Normal State	Equipment Desired State	Notes
00C133	Panel	Energized	Energized	
00E068	CR Fresh Air Supply Preheat Coil	Standby	Standby	
00E072	CR Vent Reheat Coil	Standby	Standby	
00F039	CR Fresh Air Supply Roll Filter	Standby	Standby	
00F043	OA Damper Emergency Switchgear & Battery Room Vent Supply Roll Filter	Standby	Standby	
00T116	CAD Liquid Nitrogen Storage Tank	Standby	In Service	Passive component
0AE073	OA Damper Emergency Switchgear & Battery Room Vent Supply Heat Coil	Standby	Standby	
0AF041	A Train HEPA Filter	Standby	Standby	Passive Component
0AF042	A Train Charcoal Filter	Standby	Standby	Passive Component
0AF050	A Train HEPA Filter	Standby	Standby	Passive Component
0AV030	CR Room Emergency Vent Fan	Standby	Energized	
0AV034	Emergency Switch Gear and Battery Room Supply Fan	Standby	Operating	
0AV036	Battery Room Exhaust Fan	Standby	Operating	
20C003	Reactor and Containment Cooling and Isolation Panel	Energized	Energized	
20C004C	RCIC Control Panel	Energized	Energized	
20C005A	Reactor Manual Control Panel	Energized	Energized	
20C012	Plant Services Console	Energized	Energized	
20C018	Panel	Energized	Energized	
20C019	Panel	Energized	Energized	Contains power supply for PT-2-13-068
20C032	Panel	Energized	Energized	
20C033	Panel	Energized	Energized	
20C034	RCIC Relay Panel	Energized	Energized	
20C035	Panel	Energized	Energized	
20C041	Panel	Energized	Energized	
20C095	RCIC Instrument Rack	Energized	Energized	
20C144	Panel	Energized	Energized	
20C722A	Accident Monitoring Instrumentation Panel	Energized	Energized	
20C722B	Panel	Energized	Energized	
20C818	Reactor Water Level/Pressure Component Cabinet	Energized	Energized	
20D021 (2PPA)	125V DC Station Distribution	Energized	Energized	
20D023 (2PPC)	125V DC Station Distribution	Energized	Energized	
20D024	Distribution Panel	Energized	Energized	
20D037	Uninterruptable Power Supply Static Inverter	Energized	Energized	Powers vital instrument bus during Phase 1
20D039	RCIC Barometric CDSR Vacuum Pump Starter	Standby	Energized	
20D040	RCIC Barometric CDSR Cond Pump Starter	Standby	Energized	
20P036	RCIC Pump	Standby	Operating	
20P046	RCIC Barometric CDSR Vacuum Pump	Standby	Operating	
20P048	RCIC Barometric CDSR Condensate Pump	Standby	Operating	
20P340	RCIC Turbine Driven Lube Oil Pump	Standby	Operating	
20S038	RCIC Turbine	Standby	Operating	Controlled via Included Governor Valve and Trip & Throttle Valve
20S315	Static Inverter Man Bypass/Isolation Switch	Energized	Bypassed and Isolated	Phase 1 power is from inverter, Phase 2 is from 480/120V AC transformer
20S354	Load Center E-124/E324 Transfer Switch	Standby	Energized	
20S700	Battery Charger Panel 2AD003 Transfer Switch 20S700	Energized	Energized	
20S701	Transfer Switch	Energized	Energized	
20S703	Transfer Switch	Energized	Energized	
20X133	Transformer	Energized	Energized	
20X135	20Y035 Transformer	Energized	Energized	
20X150	Transformer	Energized	Energized	
20Y033	Distribution Panel	Energized	Energized	

Equipment ID	Description	Equipment Normal State	Equipment Desired State	Notes
20Y035	120 VAC 'Y' Power Panel	Energized	Energized	
20Y050	Uninterruptable Power Supply Distribution Panel	Energized	Energized	
2-13A-K004	RCIC Hi Temp Steam Leak Relay	Standby	Standby	
2-13A-K006	RCIC Hi Temp Steam Leak Relay	Standby	Standby	
2-13A-K007	RCIC Steam Line Hi DP Line Break Relay	Standby	Standby	
2-13A-K010	RCIC Turbine Trip Aux Relay	Standby	Standby	
2-13A-K011	RCIC Turbine Trip Aux Relay	Standby	Standby	Closes Trip & Throttle Valve when energized
2-13A-K012	RCIC Auto Isolation Signal Relay	Standby	Standby	
2-13A-K014	RCIC Pump Lo Suction Pressure Trip Relay	Standby	Standby	
2-13A-K017	RCIC Turbine Exh Hi Pressure Trip Relay	Standby	Standby	
2-13A-K-022	RCIC Auto Isolation Signal Relay	Standby	Standby	
2-13A-K030	Reactor Hi Vessel Water Level Trip Relay	Standby	Standby	
2-13A-K031	RCIC Steam Line Space Hi Temp Isolation Relay	Standby	Standby	
2-13A-K032	RCIC Steam Line Space Hi Temp Isolation Relay	Standby	Standby	
2-13A-K033	RCIC Steam Line Hi DP Line Break Relay	Standby	Standby	
2-13A-K034	RCIC Auto Isolation Signal Relay	Standby	Standby	
2-13A-K044	RCIC Reactor Hi Vessel Water Level Trip Relay	Standby	Standby	
2-13A-K049	RCIC Low Steam Pressure Auto Isolation Relay	Standby	Standby	
2-13A-K050	RCIC Low Steam Pressure Auto Isolation Relay	Standby	Standby	
2-13A-K053	RCIC Reactor Hi Vessel Water Level Trip Relay Auxiliary	Standby	Standby	
2-13A-K054	RCIC Auto Isolation Signal Relay	Standby	Standby	
2AC043	Emergency Shutdown Panel	Standby	Standby	
2AC065	Rx Vessel Lvl and Pressure Inst Rack A	Energized	Energized	
2AC091	Jet Pump Inst Rack A	Energized	Energized	
2AC270	Panel	Energized	Standby	
2AD001	2A 125V DC Battery	Energized	Energized	
2AD003	Station Battery Charger 2A	Energized	Energized	
2AD017 (2FPA)	Battery Main Fuse Box	Energized	Energized	
2AD018 (2DPA)	250V DC Distribution Panel	Energized	Energized	
2AD019 (2FA)	250 Volt Fuse Box	Energized	Energized	
2AD025	Distribution Panel	Energized	Energized	
2AE024	Residual Heat Exchangers	Standby	Standby	Passive component
2AS377	Back-Up N2 Supply to Ads RV's	Standby	Open	Passive component
2AT545	2A Srv Inst N2 Accumulator	Standby	Standby	Passive component
2BC043	Panel	Standby	Standby	Contains control switch for LT-2-02-3-085A
2BC065	Rx Vessel Lvl and Pressure Inst Rack B	Energized	Energized	
2BC172	Panel	Standby	Standby	
2BC270	Panel	Energized	Standby	
2BD001	2B 125V DC Battery	Standby	Energized	Provides power for 120V AC Vital Instrument Power
2BD017	Battery Main Fuse Box	Energized	Energized	
2BD018	250V DC Distribution Panel Div. II	Energized	Energized	
2BE024	Residual Heat Exchangers	Standby	Standby	Passive component
2BS377	Back-Up N2 Supply to Ads RV's	Standby	Open	Passive component
2BS545	Automatic Transfer Switch Panel	Energized	Energized	
2BT545	2B Srv Inst N2 Accumulator	Standby	Standby	Passive component
2CC133	Panel	Energized	Energized	
2CD001	2C 125V DC Battery	Energized	Energized	
2CD003	Station Battery Charger 2C	Energized	Energized	
2CD017 (2FPC)	Battery Main Fuse Box	Energized	Energized	

Equipment ID	Description	Equipment Normal State	Equipment Desired State	Notes
2CD019 (2FC)	250 Volt Fuse Box	Energized	Energized	
2CE024	Residual Heat Exchangers	Standby	Standby	Passive component
2CS377	Back-Up N2 Supply to Ads RV's	Standby	Open	Passive component
2CS545	Automatic Transfer Switch Panel	Energized	Energized	
2CT545	2C Srv Inst N2 Accumulator	Standby	Standby	Passive component
2DA-W-A (1201)	RCIC MO-2-13-021 Breaker	Energized	Energized	
2DA-W-A (1203)	RCIC MO-2-13-030 Breaker	Energized	Energized	
2DA-W-A (1204)	RCIC MO-2-13-027 Breaker	Energized	Energized	
2DA-W-A (1205)	RCIC MO-2-13-041 Breaker	Energized	Energized	
2DA-W-A (1206)	RCIC MO-2-13-039 Breaker	Energized	Energized	
2DA-W-A (1207)	RCIC MO-2-13-132 Breaker	Energized	Energized	
2DA-W-A (1209)	RCIC MO-2-13-131 Breaker	Energized	Energized	
2DA-W-A (1210)	RCIC MO-2-13-018 Breaker	Energized	Energized	
2DA-W-A (1214)	RCIC Cond Vac PP 20P046 Breaker	Energized	Energized	
2DA-W-A (1215)	RCIC Vac Tank Cond PP 20P048 Breaker	Energized	Energized	
2DA-W-A (20D012)	RCIC 250VDC MCC	Energized	Energized	
2DD001	2D 125V DC Battery	Standby	Energized	Provides power for 120V AC Vital Instrument Power and RCIC B Logic
2DD017	Battery Main Fuse Box	Energized	Energized	
2DD019	Fuse Box	Energized	Energized	
2DE024	Residual Heat Exchangers	Standby	Standby	Passive component
2GT545	2G Srv Inst N2 Accumulator	Standby	Standby	Passive component
2KT545	2K Srv Inst N2 Accumulator	Standby	Standby	Passive component
2OE032	RCIC Barometric Condenser (13-2)	Standby	Operating	Passive Component
2OE104	RCIC Turb. Lube Oil Cooler (13-2)	Standby	Operating	Passive Component
2AC270 (K3A)	Relay	De-Energized	De-Energized	
2BC270 (K3B)	Relay	De-Energized	De-Energized	
2AC270 (K3C)	Relay	De-Energized	De-Energized	
2BC270 (K3D)	Relay	De-Energized	De-Energized	
AO-2-07B-2511	Torus 18 Inch Vent Inboard Isol Valve to Sbgt/Atmos	Closed	Open	
AO-2-07B-80290	Ctmt Emerg Vent Outboard Isolation Vlv to Atmos	Closed	Open	
E124 (1013)	E124-R-C 20B036 Breaker	Energized	Energized	
E124 (1014)	E124-T-B 20B059 Breaker	Energized	Energized	
E124 (20B010)	E124 Load Center	Energized	Energized	
E124-R-C (20B036)	E124-R-C Motor Control Center	Energized	Energized	
E124-R-C (3606)	MO-2-10-25A Norm Breaker	Energized	Energized	
E124-R-C (3691)	Alt Feed Breaker 20D037 Y50	Energized	Energized	
E124-T-B (20B059)	E124-T-B Motor Control Center	Energized	Energized	
E124-T-B (5931)	Norm Fdr for 125 V Battery Charger 'A' 2AD03	Energized	Energized	
E324 (1213)	E324-R-B 20B038 Breaker	Energized	Energized	
E324 (1222)	E324-T-B 00B049 Breaker	Energized	Energized	
E324 (20B012)	E324 Load Center	Energized	Energized	
E324-R-B (20B038)	MCC 20B038	Energized	Energized	
E324-R-B (3821)	MO-2-10-038A Breaker	Energized	Energized	

Equipment ID	Description	Equipment Normal State	Equipment Desired State	Notes
E324-R-B (3822)	MO-2-10-020 Breaker	Locked De-Energized	Energized	
E324-R-B (3824)	MO-2-10-026A Breaker	Energized	Energized	
E324-R-B (3831)	MO-2-10-039A Breaker	Energized	Energized	
E324-R-B (3832)	MO-2-10-034A Breaker	Energized	Energized	
E324-R-B (3844)	MO-2-10-031A Breaker	Energized	Energized	
E324-R-B (3862)	MO-2-10-174 Breaker	Energized	Energized	
E324-R-B (3863)	MO-2-10-176 Breaker	De-Energized	Energized	
E324-R-B (3882)	Norm Fdr for 120V Instr Pnl 20Y35 Trans 20X135	Energized	Energized	
E324-R-B (3893)	125 VDC Batt Charger 2CD03	Energized	Energized	
E324-T-B (00B049)	MCC 00B049 for 0AV034, 0AV036, and 0AV030	Energized	Energized	
INV-2-13-90	RCICs-125 VDC Bus 'A' Power Distribution	Energized	Energized	
J-1648	Junction Box	Standby	Standby	Contains resistor for PT-2-13-068
J2915	J-Box at E124 Load Center	Standby	Energized	
J2916	J-Box at E324 Load Center	Standby	Energized	
LI-2-02-3-085A	Reactor Vessel High Water	Energized	Energized	
LI-2-02-3-113	Reactor Water Level	Energized	Energized	
LR/TR-8123A	Torus Water Level/Temperature Recorder	Energized	Energized	
LT-2-02-3-072A	Reactor Vessel Water Level	Energized	Energized	
LT-2-02-3-113	Reactor Press Vessel Fuel Zone Wtr Level	Energized	Energized	
LT-8123A	Torus Water Level	Energized	Energized	
MO-2-10-020	RHR Loops A/B X-Tie	Closed	Open	
MO-2-10-026A	RHR Loop A D/W Spray O/B	Closed	Open/Closed	
MO-2-10-031A	RHR Loop A D/W Spray I/B	Closed	Open/Closed	
MO-2-10-034A	RHR Loop A FFT Valve	Closed	Open	
MO-2-10-038A	RHR Loop A Torus Spray	Closed	Open/Closed	
MO-2-10-039A	RHR Loop A Torus Valve	Closed	Open	
MO-2-10-174	HPSW to RHR Inner X-Tie	Closed	Open	
MO-2-10-176	HPSW to RHR Outer X-Tie	Closed	Open	
MO-2-10-25A	RHR Loop A I/B Disc Valve	Closed	Open	Valve closure via control switch requires core spray relay logic permissive
MO-2-13-018	RCIC Pump Suction from Condensate Storage Tank	Open	Open/Closed	
MO-2-13-021	RCIC Discharge to Feedwater Line B	Closed	Open	
MO-2-13-027	RCIC Minimum Flow Valve	Closed	Open/Closed	
MO-2-13-030	RCIC Full Flow Test Valve	Closed	Open/Closed	
MO-2-13-039	RCIC Pump Torus Suction Outer	Closed	Open/Closed	
MO-2-13-041	RCIC Pump Torus Suction Inner	Closed	Open/Closed	
MO-2-13-131	RCIC Turbine Steam Supply Valve	Closed	Open/Closed	
MO-2-13-132	RCIC Cooling Water Supply to Lo Clr + Barometric Cdsr	Closed	Open	
N210025A	Cabinet Provides Power to Valve MO-2-10-25A	Energized	Energized	
OAS384	N2 Tank	Standby	Standby	Passive Component
OAS385	N2 Tank	Standby	Standby	Passive Component
OBS384	N2 Tank	Standby	Standby	Passive Component
OBS385	N2 Tank	Standby	Standby	Passive Component
PCV-0-40W-70088A	N2 Regulator – OAS384	Standby	Open	

Equipment ID	Description	Equipment Normal State	Equipment Desired State	Notes
PCV-0-40W-70088B	N2 Regulator – OBS384	Standby	Open	
PCV-0-40W-70089A	N2 Regulator – OAS385	Closed	Open	
PCV-0-40W-70089B	N2 Regulator – OBS385	Closed	Open	
PI-2-06-090A	Reactor Wide Range Press Ind	Energized	Energized	
PI-2-06-090B	Reactor Wide Range Press Ind	Energized	Energized	
PI-2-06-090C	Reactor Wide Range Press Ind	Energized	Energized	
PI-2-13-094	RCIC Pump Turb Stm Press	Energized	Energized	
PO-0-40D-00153-01	CR Emergency Vent Filters Inlet Damper	Closed	Open	Fails open on loss of instrument air
PO-0-40D-00153-02	CR Emergency Vent Filters Inlet Damper	Closed	Open	Fails open on loss of instrument air
PO-0-40D-00157-01	CR Emergency Vent Supply Fan Inlet Damper	Closed	Open	Fails open on loss of instrument air
PO-0-40D-00157-02	CR Emergency Vent Supply Fan Outlet Damper	Closed	Open	Fails open on loss of instrument air
PO-0-40W-00016	OA Damper Emergency Switchgear And Battery Room Vent Supply Fans	Open	Throttled	Fails closed to minimum on loss of instrument air
PO-0-40W-00019-01	OA Damper Emergency Switchgear And Battery Room Vent Supply Damper	Standby	Open	
PO-0-40W-00019-02	OA Damper Emergency Switchgear And Battery Room Vent Outlet Damper	Standby	Open	
PO-0-40W-00021-01	OA Damper Emergency Switchgear And Battery Room Vent Supply Damper	Standby	Open	
PO-0-40W-00031-01	Battery Room Exhaust Fan Inlet Damper	Standby	Open	
PO-0-40W-00031-02	Battery Room Exhaust Fan Outlet Damper	Standby	Open	
PO-0-40W-00782-01	OA Damper Emergency Switchgear and Battery Room Vent Supply Damper	Standby	Open	
PO-0-40W-00782-02	OA Damper Emergency Switchgear and Battery Room Vent Supply Damper	Standby	Open	
PO-0-40W-00808	OA Damper Emergency Switchgear and Battery Room Vent Outlet Damper	Standby	Open	
PO-0-40W-00822-01	OA Damper Emergency Switchgear and Battery Room Vent Supply Damper	Standby	Open	
PO-0-40W-00822-02	OA Damper Emergency Switchgear and Battery Room Vent Supply Damper	Standby	Open	
PO-0-40W-00822-03	OA Damper Emergency Switchgear and Battery Room Vent Supply Damper	Standby	Open	
PR/LR-2-06-096	Reactor Level/Steam Flow Ratio	Energized	Energized	
PR/TR-4805	Containment Pressure/Temp	Energized	Energized	
PS-2-13-67-1	Pressure Switch	Open	Open	
PS-2-13-72A	Pressure Switch	Open	Open	
PS-2-13-72B	Pressure Switch	Open	Open	
PS-2-13-87A	Pressure Switch	Open	Open	
PS-2-13-87B	Pressure Switch	Open	Open	
PT-2-02-3-404A	Reactor Pressure	Energized	Energized	
PT-2-02-3-404C	Reactor Pressure Transmitter	Energized	Energized	
PT-2-06-053A	Reactor Wide Range -Pressure	Energized	Energized	
PT-2-06-053B	Reactor Wide Range -Pressure	Energized	Energized	
PT-2-06-053C	Reactor Wide Range -Pressure	Energized	Energized	
PT-2-13-068	RCIC Turbine Steam Supply Press	Energized	Energized	
PT-4805	Drywell Pressure	Energized	Energized	
RV-2-02-071A	2A Safety Relief Valve	Closed	Open/Closed	
RV-2-02-071B	2B Safety Relief Valve	Closed	Open/Closed	
RV-2-02-071C	2C Safety Relief Valve	Closed	Open/Closed	
RV-2-02-071G	2G Safety Relief Valve	Closed	Open/Closed	
RV-2-02-071K	2K Safety Relief Valve	Closed	Open/Closed	
SV-0-36B-00019	OA Damper Emergency Switchgear and Battery Room Damper IA	Standby	Energized	

Equipment ID	Description	Equipment Normal State	Equipment Desired State	Notes
SV-0-36B-00031	Air Supply Shutoff for PO-0-40W-00031-01, PO-0-40W-00031-02	Standby	Energized	
TI-2501	Ventilation Air Temperatures	Energized	Energized	
TI-80146	Drywell Bulk Average Temp Indicator	Energized	Energized	
TT-2501	Vent Air/Wtr Temp	Energized	Energized	
XAM-2-02-3-117A	Reactor Water Level Wide Range	Energized	Energized	

Attachment B
PBAPS Unit 3 ESEL

Equipment ID	Description	Equipment Normal State	Equipment Desired State	Notes
30C003	Reactor and Containment Cooling and Isolation	Energized	Energized	
30C004C	RCIC Control Panel	Energized	Energized	
30C005A	Reactor Manual Control Panel	Energized	Energized	
30C012	Plant Services Console	Energized	Energized	This panel is not credited for the Unit 3 ESEP-pertinent FLEX Response, however it remains on the list for conservatism
30C018	Panel	Energized	Energized	
30C019	Panel	Energized	Energized	
30C032	Panel	Energized	Energized	
30C033	Panel	Energized	Energized	
30C034	RCIC Relay Panel	Energized	Energized	
30C035	Panel	Energized	Energized	
30C041	Panel	Energized	Energized	
30C095	RCIC Instrument Rack	Energized	Energized	
30C144	Panel	Energized	Energized	
30C722A	Accident Monitoring Instrumentation Panel	Energized	Energized	
30C722B	Panel	Energized	Energized	
30C818	Reactor Water Level/Pressure Component Cabinet	Energized	Energized	
30D021 (3PPA)	125V DC Station Distribution	Energized	Energized	
30D023 (3PPC)	125V DC Station Distribution	Energized	Energized	
30D024	Distribution Panel	Energized	Energized	
30D037	Uninterruptable Power Supply Static Inverter	Energized	Bypassed and Isolated	Powers vital instrument bus during Phase 1
30D039	RCIC Barometric Cdsr Vacuum Pump Starter	Standby	Energized	
30D040	RCIC Barometric Cdsr Cond Pump Starter	Standby	Energized	
30P036	RCIC Pump	Standby	Operating	
30P046	RCIC Barometric Cdsr Vacuum Pump	Standby	Operating	
30P048	RCIC Barometric Cdsr Condensate Pump	Standby	Operating	
30P340	RCIC Turbine Driven Lube Oil Pump	Standby	Operating	
30S038	RCIC Turbine	Standby	Operating	
30S315	Static Inverter Man Bypass/Isolation Switch	Energized	Bypassed and Isolated	Phase 1 power is from inverter, Phase 2 is from 480/120V AC transformer
30S356	Load Center E134/E334 Transfer Switch	Standby	Energized	
30S546	Transfer Switch	Energized	Energized	
30S701	Transfer Switch	Energized	Energized	
30S703	Transfer Switch	Energized	Energized	
30S704	125V DC Battery Charger 3CD003 Transfer Sw 30S704	Energized	Energized	
30X133	Transformer	Energized	Energized	
30X135	30Y035 Transformer	Energized	Energized	
30X150	30Y050 Transformer	Energized	Energized	
30Y033	Distribution Panel	Energized	Energized	
30Y035	120 VAC 'Y' Power Panel	Energized	Energized	
30Y050	120 VAC 'Y' Power Panel	Energized	Energized	
3-13A-K004	RCIC Hi Temp Steam Leak Relay	Standby	Standby	
3-13A-K006	RCIC Hi Temp Steam Leak Relay	Standby	Standby	
3-13A-K007	RCIC Steam Line Hi DP Line Break Relay	Standby	Standby	
3-13A-K010	RCIC Turbine Trip Aux Relay	Standby	Standby	
3-13A-K011	RCIC Turbine Trip Aux Relay	Standby	Standby	Closes Trip & Throttle Valve when energized
3-13A-K012	RCIC Auto Isolation Signal Relay	Standby	Standby	
3-13A-K014	RCIC Pump Lo Suction Pressure Trip Relay	Standby	Standby	
3-13A-K017	RCIC Turbine Exh Hi Pressure Trip Relay	Standby	Standby	
3-13A-K-022	RCIC Auto Isolation Signal Relay	Standby	Standby	
3-13A-K030	Reactor Hi Vessel Water Level Trip Relay	Standby	Standby	
3-13A-K031	RCIC Steam Line Space Hi Temp Isolation Relay	Standby	Standby	
3-13A-K032	RCIC Steam Line Space Hi Temp Isolation Relay	Standby	Standby	
3-13A-K033	RCIC Steam Line Hi DP Line Break Relay	Standby	Standby	

Equipment ID	Description	Equipment Normal State	Equipment Desired State	Notes
3-13A-K034	RCIC Auto Isolation Signal Relay	Standby	Standby	
3-13A-K044	RCIC Reactor Hi Vessel Water Level Trip Relay	Standby	Standby	
3-13A-K049	RCIC Low Steam Pressure Auto Isolation Relay	Standby	Standby	
3-13A-K050	RCIC Low Steam Pressure Auto Isolation Relay	Standby	Standby	
3-13A-K053	RCIC Reactor Hi Vessel Water Level Trip Relay Auxiliary	Standby	Standby	
3-13A-K054	RCIC Auto Isolation Signal Relay	Standby	Standby	
3AC043	Emergency Shutdown Panel	Standby	Standby	
3AC065	Rx Vessel Lvl and Pressure Inst Rack A	Energized	Energized	
3AC091	Jet Pump Inst Rack A	Energized	Energized	
3AC270	Panel	Energized	Standby	
3AD001	3A 125V DC Battery	Energized	Energized	
3AD003	Station Battery Charger 3A	Energized	Energized	
3AD017 (3FBA)	Battery Main Fuse Box	Energized	Energized	
3AD018 (3DPA)	250v DC Distribution Panel	Energized	Energized	
3AD019 (3FA)	250 Volt Fuse Box	Energized	Energized	
3AD025 (3PPAD)	3ppad 125V DC Distribution Panel	Energized	Energized	
3AE024	Residual Heat Exchanger	Standby	Standby	
3AS377	Back-Up N2 Supply to Ads RV's	Standby	Open	
3AS456	Transfer Switch	Energized	Energized	
3AT540	Instrument N2 Accumulator	Standby	Standby	
3AT545	3A Srv Inst N2 Accumulator	Standby	Standby	
3BC043	Panel	Standby	Standby	Contains control switch for LT-3-02-3-085A
3BC065	Instrument Rack	Standby	Standby	
3BC091	Instrument Rack	Standby	Standby	
3BC270	Panel	Energized	Standby	
3BD001	2B 125V DC Battery	Standby	Energized	Provides power for 120V AC Vital Instrument Power
3BD017	Battery Main Fuse Box	Energized	Energized	
3BD018	250V DC Distribution Panel Div. II	Energized	Energized	
3BS377	Back-Up N2 Supply to Ads RV's	Standby	Open	
3BS545	Automatic Transfer Switch Panel	Energized	Energized	
3BT540	Instrument N2 Accumulator	Standby	Standby	
3BT545	3B Srv Inst N2 Accumulator	Standby	Standby	
3CD001	3C 125V DC Battery	Energized	Energized	
3CD003	Station Battery Charger 3C	Energized	Energized	
3CD017 (3FBC)	Battery Main Fuse Box	Energized	Energized	
3CD019 (3FC)	250 Volt Fuse Box	Energized	Energized	
3CD025 (3PPCD)	3PPCD 125V DC Distribution Panel	Energized	Energized	This panel is not credited as a power source for any item on this ESEL, it remains on the list for conservatism
3CE024	Residual Heat Exchanger	Standby	Standby	
3CS377	Back-Up N2 Supply to Ads RV's	Standby	Open	
3CS456	Control to Battery Charger 3CD003 Transfer Switch	Energized	Energized	
3CT540	Instrument N2 Accumulator	Standby	Standby	
3CT545	3C Srv Inst N2 Accumulator	Standby	Standby	
3DA-W-A (1201)	RCIC MO-3-13-021 Breaker	Energized	Energized	
3DA-W-A (1203)	RCIC MO-3-13-030 Breaker	Energized	Energized	
3DA-W-A (1204)	RCIC MO-3-13-027 Breaker	Energized	Energized	
3DA-W-A (1205)	RCIC MO-3-13-041 Breaker	Energized	Energized	
3DA-W-A (1206)	RCIC MO-3-13-039 Breaker	Energized	Energized	
3DA-W-A (1207)	RCIC MO-3-13-132 Breaker	Energized	Energized	

Equipment ID	Description	Equipment Normal State	Equipment Desired State	Notes
3DA-W-A (1209)	RCIC MO-3-13-131 Breaker	Energized	Energized	
3DA-W-A (1210)	RCIC MO-3-13-018 Breaker	Energized	Energized	
3DA-W-A (1214)	RCIC Cond Vac PP 30P046 Breaker	Energized	Energized	
3DA-W-A (1215)	RCIC Vac Tank Cond PP 30P048 Breaker	Energized	Energized	
3DA-W-A (30D012)	RCIC 250VDC MCC	Energized	Energized	
3DD001	2D 125V DC Battery	Standby	Energized	Provides power for 120V AC Vital Instrument Power and RCIC B Logic
3DD017	Battery Main Fuse Box	Energized	Energized	
3DD019	Fuse Box	Energized	Energized	
3GT540	Instrument N2 Accumulator	Standby	Standby	
3GT545	3G Srv Inst N2 Accumulator	Standby	Standby	
3KT540	Instrument N2 Accumulator	Standby	Standby	
3KT545	3K Srv Inst N2 Accumulator	Standby	Standby	
3OE032	RCIC Barometric Condenser (13-2)	Standby	Operating	
3OE104	RCIC Turb. Lube Oil Cooler (13-2)	Standby	Operating	
3AC270 (K3A)	Relay	De-Energized	De-Energized	
3BC270 (K3B)	Relay	De-Energized	De-Energized	
3AC270 (K3C)	Relay	De-Energized	De-Energized	
3BC270 (K3D)	Relay	De-Energized	De-Energized	
AO-3-07B-3511	Torus 18 Inch Vent Inboard Isol Valve to Sbgt/Atmos	Closed	Open	
AO-3-07B-90290	Ctmt Emerg Vent Outboard Isolation Vlv to Atmos	Closed	Open	
E134 (1014)	E134-T-B 30B059 Breaker	Energized	Energized	
E134 (30B010)	E134 Load Center	Energized	Energized	
E134-T-B (30B059)	E134-T-B Motor Control Center	Energized	Energized	
E134-T-B (5924)	Alt Feed For Uninterrupt AC Power Supp Inverter 30D37	Energized	Energized	
E134-T-B (5931)	125V. D.C. Battery Charger 3AD03	Energized	Energized	
E334 (1213)	E334-R-B 30B038 Breaker	Energized	Energized	
E334 (30B012)	E334 Load Center	Energized	Energized	
E334-R-B (30B038)	MCC 30B038	Energized	Energized	
E334-R-B (3821)	MO-3-10-038A Breaker	Energized	Energized	
E334-R-B (3824)	MO-3-10-026A Breaker	Energized	Energized	
E334-R-B (3831)	MO-3-10-039A Breaker	Energized	Energized	
E334-R-B (3832)	MO-3-10-034A Breaker	Energized	Energized	
E334-R-B (3844)	MO-3-10-031A Breaker	Energized	Energized	
E334-R-B (3851)	MO-3-10-25A Alt Breaker	Energized	Energized	
E334-R-B (3862)	MO-3-10-174 Breaker	Energized	Energized	
E334-R-B (3863)	MO-3-10-176 Breaker	De-Energized	Energized	
E334-R-B (3882)	Norm Fdr for 120V Instr Pnl 30Y35 Trans 30X135	Energized	Energized	
E334-R-B (3893)	125V Battery Charger C 3C Transfer Switch 30S704	Energized	Energized	
INV-3-13-90	RCICs-125 VDC Bus 'A' Power Distribution	Energized	Energized	
J2919	J-Box at E134 LC	Standby	Energized	
J2920	J-Box at E334 LC	Standby	Energized	
LI-3-02-3-085A	Reactor Vessel High Water	Energized	Energized	
LI-3-02-3-113	Reactor Water Level	Energized	Energized	

Equipment ID	Description	Equipment Normal State	Equipment Desired State	Notes
LR/TR-9123A	Torus Water Level/Temperature Recorder	Energized	Energized	
LT-3-02-3-072A	Reactor Vessel Water Level	Energized	Energized	
LT-3-02-3-113	Level Transmitter	Energized	Energized	
LT-9123A	Torus Water Level	Energized	Energized	
MO-3-10-025A	RHR Inner Injection Valve to Recirc Loop A	Closed	Open	Valve closure via control switch requires core spray relay logic permissive
MO-3-10-026A	RHR Loop A D/W Spray O/B	Closed	Open/Closed	
MO-3-10-031A	RHR Loop A D/W Spray I/B	Closed	Open/Closed	
MO-3-10-034A	RHR Loop A FFT Valve	Closed	Open/Closed	
MO-3-10-038A	RHR Loop A Torus Spray	Closed	Open/Closed	
MO-3-10-039A	RHR Loop A Torus Valve	Closed	Open	
MO-3-10-174	HPSW to RHR Inner X-Tie	Closed	Open/Closed	
MO-3-10-176	HPSW to RHR Outer X-Tie	Closed	Open/Closed	
MO-3-13-018	RCIC Pump Suction from Condensate Storage Tank	Open	Open/Closed	
MO-3-13-021	RCIC Discharge to Feedwater Line B	Closed	Open	
MO-3-13-027	RCIC Minimum Flow Valve	Closed	Open/Closed	
MO-3-13-030	RCIC Full Flow Test Valve	Closed	Open/Closed	
MO-3-13-039	RCIC Pump Torus Suction Outer	Closed	Open/Closed	
MO-3-13-041	RCIC Pump Torus Suction Inner	Closed	Open/Closed	
MO-3-13-131	RCIC Turbine Steam Supply Valve	Closed	Open	
MO-3-13-132	RCIC Cooling Water Supply to Lo Clr + Barometric Cdsr	Closed	Open	
N310025A	Cabinet	Energized	Energized	
PI-3-06-090A	Reactor Wide Range Press Ind	Energized	Energized	
PI-3-06-090B	Reactor Wide Range Press Ind	Energized	Energized	
PI-3-06-090C	Reactor Wide Range Press Ind	Energized	Energized	
PI-3-13-094	RCIC Pump Turb Stm Press	Energized	Energized	
PR/LR-3-06-096	Reactor Level/Steam Flow Ratio	Energized	Energized	
PR/TR-5805	Containment Pressure/Temp	Energized	Energized	
PS-3-13-67-1	Pressure Switch	Open	Open	
PS-3-13-72A	Pressure Switch	Open	Open	
PS-3-13-72B	Pressure Switch	Open	Open	
PS-3-13-87A	Pressure Switch	Open	Open	
PS-3-13-87B	Pressure Switch	Open	Open	
PT-3-02-3-404A	Reactor Pressure	Energized	Energized	
PT-3-02-3-404C	Reactor Pressure Transmitter	Energized	Energized	
PT-3-06-053A	Reactor Wide Range -Pressure	Energized	Energized	
PT-3-06-053B	Reactor Wide Range -Pressure	Energized	Energized	
PT-3-06-053C	Reactor Wide Range -Pressure	Energized	Energized	
PT-3-13-068	RCIC Turbine Steam Supply Pressure	Energized	Energized	
PT-5805	Drywell Pressure	Energized	Energized	
RV-3-02-071A	3A Safety Relief Valve	Closed	Open/Closed	
RV-3-02-071B	3B Safety Relief Valve	Closed	Open/Closed	
RV-3-02-071C	3C Safety Relief Valve	Closed	Open/Closed	
RV-3-02-071G	3G Safety Relief Valve	Closed	Open/Closed	
RV-3-02-071K	3K Safety Relief Valve	Closed	Open/Closed	
XAM-3-02-3-117A	Reactor Water Level Wide Range	Energized	Energized	

Attachment C
ESEP HCLPF Values and Failure Modes Tabulation, Unit 2 and Common

Equipment ID	Description	Failure Mode	HCLPF (g)	Basis
00C133	Panel	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
00E068	CR Fresh Air Supply Preheat Coil	Equipment Capacity	>0.24	Component is Rule Of Box to 0AF041. Parent component is evaluated in 14Q4233-CAL-002.
00E072	CR Vent Reheat Coil	Screened	>RLGM	Component screened by SRT judgment.
00F039	CR Fresh Air Supply Roll Filter	Equipment Capacity	>0.24	Component is Rule Of Box to 0AF041. Parent component is evaluated in 14Q4233-CAL-002.
00F043	OA Damper Emergency Switchgear & Battery Room Vent Supply Roll Filter	Screened	>RLGM	Component screened by SRT judgment.
00T116	CAD Liquid Nitrogen Storage Tank	Anchorage	0.276	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
0AE073	OA Damper Emergency Switchgear & Battery Room Vent Supply Heat Coil	Equipment Capacity	>0.24	Component is Rule Of Box to 0AV034. Parent component is evaluated in 14Q4233-CAL-002.
0AF041	A Train HEPA Filter	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
0AF042	A Train Charcoal Filter	Equipment Capacity	>0.24	Component is Rule Of Box to 0AF041. Parent component is evaluated in 14Q4233-CAL-002.
0AF050	A Train HEPA Filter	Equipment Capacity	>0.24	Component is Rule Of Box to 0AF041. Parent component is evaluated in 14Q4233-CAL-002.
0AV030	CR Room Emergency Vent Fan	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
0AV034	Emergency Switch Gear and Battery Room Supply Fan	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
0AV036	Battery Room Exhaust Fan	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
20C003	Reactor and Containment Cooling and Isolation Panel	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
20C004C	RCIC Control Panel	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
20C005A	Reactor Manual Control Panel	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
20C012	Plant Services Console	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
20C018	Panel	Equipment Capacity	0.44	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
20C019	Panel	Equipment Capacity	0.44	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
20C032	Panel	Equipment Capacity	0.44	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
20C033	Panel	Equipment Capacity	0.44	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
20C034	RCIC Relay Panel	Equipment Capacity	0.44	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
20C035	Panel	Equipment Capacity	0.44	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
20C041	Panel	Equipment Capacity	0.44	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
20C095	RCIC Instrument Rack	Anchorage	0.41	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
20C144	Panel	Equipment Capacity	0.44	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
20C722A	Accident Monitoring Instrumentation Panel	Equipment Capacity	0.44	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
20C722B	Panel	Equipment Capacity	0.44	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
20C818	Reactor Water Level/Pressure Component Cabinet	Equipment Capacity	0.44	Component evaluated by HCLPF calculation 14Q4233-CAL-002.

Equipment ID	Description	Failure Mode	HCLPF (g)	Basis
20D021 (2PPA)	125V DC Station Distribution	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
20D023 (2PPC)	125V DC Station Distribution	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
20D024	Distribution Panel	Anchorage	0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
20D037	Uninterruptable Power Supply Static Inverter	Equipment Capacity	0.44	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
20D039	RCIC Barometric CDSR Vacuum Pump Starter	Screened	>RLGM	Component screened by SRT analysis.
20D040	RCIC Barometric CDSR Cond Pump Starter	Screened	>RLGM	Component screened by SRT analysis.
20P036	RCIC Pump	Screened	>RLGM	Component screened by SRT analysis.
20P046	RCIC Barometric CDSR Vacuum Pump	Anchorage	0.36	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
20P048	RCIC Barometric CDSR Condensate Pump	Anchorage	0.36	Component is Rule Of Box to 20P046. Parent component is evaluated in 14Q4233-CAL-002.
20P340	RCIC Turbine Driven Lube Oil Pump	Screened	>RLGM	Component is Rule Of Box to 20P036. Parent component screens.
20S038	RCIC Turbine	Screened	>RLGM	Component is Rule Of Box to 20P036. Parent component screens.
20S315	Static Inverter Man Bypass/Isolation Switch	Screened	>RLGM	Component screened by SRT analysis.
20S354	Load Center E-124/E324 Transfer Switch	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
20S700	Battery Charger Panel 2AD003 Transfer Switch 20S700	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
20S701	Transfer Switch	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
20S703	Transfer Switch	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
20X133	Transformer	Block wall interaction	0.27	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
20X135	20Y035 Transformer	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
20X150	Transformer	Block wall interaction	0.27	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
20Y033	Distribution Panel	Block wall interaction	0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
20Y035	120 VAC 'Y' Power Panel	Screened	>RLGM	Component screened by SRT analysis.
20Y050	Uninterruptable Power Supply Distribution Panel	Block wall interaction	0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2-13A-K004	RCIC Hi Temp Steam Leak Relay	Functional Failure	0.34	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
2-13A-K006	RCIC Hi Temp Steam Leak Relay	Functional Failure	0.34	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
2-13A-K007	RCIC Steam Line Hi DP Line Break Relay	Functional Failure	0.29	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
2-13A-K010	RCIC Turbine Trip Aux Relay	Functional Failure	0.14	Component evaluated by HCLPF calculation 14Q4233-CAL-004. (Resolved by Operator Action per TODI PB 1570792-76)
2-13A-K011	RCIC Turbine Trip Aux Relay	Functional Failure	0.14	Component evaluated by HCLPF calculation 14Q4233-CAL-004. (Resolved by Operator Action per TODI PB 1570792-76)
2-13A-K012	RCIC Auto Isolation Signal Relay	Functional Failure	0.36	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
2-13A-K014	RCIC Pump Lo Suction Pressure Trip Relay	Functional Failure	0.34	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
2-13A-K017	RCIC Turbine Exh Hi Pressure Trip Relay	Functional Failure	0.34	Component evaluated by HCLPF calculation 14Q4233-CAL-004.

Equipment ID	Description	Failure Mode	HCLPF (g)	Basis
2-13A-K-022	RCIC Auto Isolation Signal Relay	Functional Failure	0.36	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
2-13A-K030	Reactor Hi Vessel Water Level Trip Relay	Functional Failure	0.34	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
2-13A-K031	RCIC Steam Line Space Hi Temp Isolation Relay	Functional Failure	0.34	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
2-13A-K032	RCIC Steam Line Space Hi Temp Isolation Relay	Functional Failure	0.34	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
2-13A-K033	RCIC Steam Line Hi DP Line Break Relay	Functional Failure	0.20	Component evaluated by HCLPF calculation 14Q4233-CAL-004. (Modification/Resolution Required)
2-13A-K034	RCIC Auto Isolation Signal Relay	Functional Failure	0.36	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
2-13A-K044	RCIC Reactor Hi Vessel Water Level Trip Relay	Functional Failure	0.29	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
2-13A-K049	RCIC Low Steam Pressure Auto Isolation Relay	Functional Failure	0.36	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
2-13A-K050	RCIC Low Steam Pressure Auto Isolation Relay	Functional Failure	0.36	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
2-13A-K053	RCIC Reactor Hi Vessel Water Level Trip Relay Auxiliary	Functional Failure	0.34	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
2-13A-K054	RCIC Auto Isolation Signal Relay	Functional Failure	0.36	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
2AC043	Emergency Shutdown Panel	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2AC065	Rx Vessel Lvl and Pressure Inst Rack A	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2AC091	Jet Pump Inst Rack A	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2AC270	Panel	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2AD001	2A 125V DC Battery	Anchorage	0.26	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2AD003	Station Battery Charger 2A	Block wall interaction	0.27	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2AD017 (2FPA)	Battery Main Fuse Box	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2AD018 (2DPA)	250V DC Distribution Panel	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2AD019 (2FA)	250 Volt Fuse Box	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2AD025	Distribution Panel	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2AE024	Residual Heat Exchangers	Anchorage	0.26	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2AS377	Back-Up N2 Supply to Ads RV's	Screened	>RLGM	Component screened by SRT analysis.
2AT545	2A Srv Inst N2 Accumulator	Screened	>RLGM	Component screened by SRT judgment.
2BC043	Panel	Equipment Capacity	>0.24	Component is Rule Of Box to 2AC043. Parent component is evaluated in 14Q4233-CAL-002.
2BC065	Rx Vessel Lvl and Pressure Inst Rack B	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2BC172	Panel	Equipment Capacity	0.44	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2BC270	Panel	Equipment Capacity	>0.24	Component is Rule Of Box to 2AC270. Parent component is evaluated in 14Q4233-CAL-002.
2BD001	2B 125V DC Battery	Anchorage	0.26	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2BD017	Battery Main Fuse Box	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.

Equipment ID	Description	Failure Mode	HCLPF (g)	Basis
2BD018	250V DC Distribution Panel Div. II	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2BE024	Residual Heat Exchangers	Anchorage	0.26	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2BS377	Back-Up N2 Supply to Ads RV's	Screened	>RLGM	Component is Rule Of Box to 2AS377. Parent component screens.
2BS545	Automatic Transfer Switch Panel	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2BT545	2B Srv Inst N2 Accumulator	Screened	>RLGM	Component screened by SRT judgment.
2CC133	Panel	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2CD001	2C 125V DC Battery	Anchorage	0.26	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2CD003	Station Battery Charger 2C	Block wall interaction	0.27	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2CD017 (2FPC)	Battery Main Fuse Box	Block wall interaction	0.27	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2CD019 (2FC)	250 Volt Fuse Box	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2CE024	Residual Heat Exchangers	Anchorage	0.26	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2CS377	Back-Up N2 Supply to Ads RV's	Screened	>RLGM	Component is Rule Of Box to 2AS377. Parent component screens.
2CS545	Automatic Transfer Switch Panel	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2CT545	2C Srv Inst N2 Accumulator	Screened	>RLGM	Component screened by SRT judgment.
2DA-W-A (1201)	RCIC MO-2-13-021 Breaker	Anchorage	0.43	Component is Rule Of Box to 2DA-W-A (20D012). Parent component is evaluated in 14Q4233-CAL-002.
2DA-W-A (1203)	RCIC MO-2-13-030 Breaker	Anchorage	0.43	Component is Rule Of Box to 2DA-W-A (20D012). Parent component is evaluated in 14Q4233-CAL-002.
2DA-W-A (1204)	RCIC MO-2-13-027 Breaker	Anchorage	0.43	Component is Rule Of Box to 2DA-W-A (20D012). Parent component is evaluated in 14Q4233-CAL-002.
2DA-W-A (1205)	RCIC MO-2-13-041 Breaker	Anchorage	0.43	Component is Rule Of Box to 2DA-W-A (20D012). Parent component is evaluated in 14Q4233-CAL-002.
2DA-W-A (1206)	RCIC MO-2-13-039 Breaker	Anchorage	0.43	Component is Rule Of Box to 2DA-W-A (20D012). Parent component is evaluated in 14Q4233-CAL-002.
2DA-W-A (1207)	RCIC MO-2-13-132 Breaker	Anchorage	0.43	Component is Rule Of Box to 2DA-W-A (20D012). Parent component is evaluated in 14Q4233-CAL-002.
2DA-W-A (1209)	RCIC MO-2-13-131 Breaker	Anchorage	0.43	Component is Rule Of Box to 2DA-W-A (20D012). Parent component is evaluated in 14Q4233-CAL-002.
2DA-W-A (1210)	RCIC MO-2-13-018 Breaker	Anchorage	0.43	Component is Rule Of Box to 2DA-W-A (20D012). Parent component is evaluated in 14Q4233-CAL-002.
2DA-W-A (1214)	RCIC Cond Vac PP 20P046 Breaker	Anchorage	0.43	Component is Rule Of Box to 2DA-W-A (20D012). Parent component is evaluated in 14Q4233-CAL-002.
2DA-W-A (1215)	RCIC Vac Tank Cond PP 20P048 Breaker	Anchorage	0.43	Component is Rule Of Box to 2DA-W-A (20D012). Parent component is evaluated in 14Q4233-CAL-002.
2DA-W-A (20D012)	RCIC 250VDC MCC	Anchorage	0.43	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2DD001	2D 125V DC Battery	Anchorage	0.26	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2DD017	Battery Main Fuse Box	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2DD019	Fuse Box	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2DE024	Residual Heat Exchangers	Anchorage	0.26	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2GT545	2G Srv Inst N2 Accumulator	Screened	>RLGM	Component screened by SRT judgment.
2KT545	2K Srv Inst N2 Accumulator	Screened	>RLGM	Component screened by SRT judgment.

Equipment ID	Description	Failure Mode	HCLPF (g)	Basis
2OE032	RCIC Barometric Condenser (13-2)	Equipment Capacity	0.44	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
2OE104	RCIC Turb. Lube Oil Cooler (13-2)	Screened	>RLGM	Component is Rule Of Box to 20P036. Parent component screens.
2AC270 (K3A)	Relay	Equipment Capacity	>0.24	Component is Rule Of Box to 2AC270. Parent component is evaluated in 14Q4233-CAL-002. Component evaluated by HCLPF calculation 14Q4233-CAL-004.
2BC270 (K3B)	Relay	Equipment Capacity	>0.24	Component is Rule Of Box to 2BC270. Parent component is evaluated in 14Q4233-CAL-002. Component evaluated by HCLPF calculation 14Q4233-CAL-004.
2AC270 (K3C)	Relay	Equipment Capacity	>0.24	Component is Rule Of Box to 2AC270. Parent component is evaluated in 14Q4233-CAL-002. Component evaluated by HCLPF calculation 14Q4233-CAL-004.
2BC270 (K3D)	Relay	Equipment Capacity	>0.24	Component is Rule Of Box to 2BC270. Parent component is evaluated in 14Q4233-CAL-002. Component evaluated by HCLPF calculation 14Q4233-CAL-004.
AO-2-07B-2511	Torus 18 Inch Vent Inboard Isol Valve to Sbgt/Atmos	Screened	>RLGM	Component screened by SRT judgment.
AO-2-07B-80290	Ctmt Emerg Vent Outboard Isolation Vlv to Atmos	Screened	>RLGM	Component screened by SRT judgment.
E124 (1013)	E124-R-C 20B036 Breaker	Equipment Capacity	>0.24	Component is Rule Of Box to E124 (20B010). Parent component is evaluated in 14Q4233-CAL-002.
E124 (1014)	E124-T-B 20B059 Breaker	Equipment Capacity	>0.24	Component is Rule Of Box to E124 (20B010). Parent component is evaluated in 14Q4233-CAL-002.
E124 (20B010)	E124 Load Center	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
E124-R-C (20B036)	E124-R-C Motor Control Center	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
E124-R-C (3606)	MO-2-10-25A Norm Breaker	Equipment Capacity	>0.24	Component is Rule Of Box to E124-R-C (20B036). Parent component is evaluated in 14Q4233-CAL-002.
E124-R-C (3691)	Alt Feed Breaker 20D037 Y50	Equipment Capacity	>0.24	Component is Rule Of Box to E124-R-C (20B036). Parent component is evaluated in 14Q4233-CAL-002.
E124-T-B (20B059)	E124-T-B Motor Control Center	Block wall interaction	0.27	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
E124-T-B (5931)	Norm Fdr for 125 V Battery Charger 'A' 2AD03	Block wall interaction	0.27	Component is Rule Of Box to E124-T-B (20B059). Parent component is evaluated in 14Q4233-CAL-002.
E324 (1213)	E324-R-B 20B038 Breaker	Equipment Capacity	>0.24	Component is Rule Of Box to E324 (20B012). Parent component is evaluated in 14Q4233-CAL-002.
E324 (1222)	E324-T-B 00B049 Breaker	Equipment Capacity	>0.24	Component is Rule Of Box to E324 (20B012). Parent component is evaluated in 14Q4233-CAL-002.
E324 (20B012)	E324 Load Center	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
E324-R-B (20B038)	MCC 20B038	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
E324-R-B (3821)	MO-2-10-038A Breaker	Equipment Capacity	>0.24	Component is Rule Of Box to E324-R-B (20B038). Parent component is evaluated in 14Q4233-CAL-002.
E324-R-B (3822)	MO-2-10-020 Breaker	Equipment Capacity	>0.24	Component is Rule Of Box to E324-R-B (20B038). Parent component is evaluated in 14Q4233-CAL-002.
E324-R-B (3824)	MO-2-10-026A Breaker	Equipment Capacity	>0.24	Component is Rule Of Box to E324-R-B (20B038). Parent component is evaluated in 14Q4233-CAL-002.
E324-R-B (3831)	MO-2-10-039A Breaker	Equipment Capacity	>0.24	Component is Rule Of Box to E324-R-B (20B038). Parent component is evaluated in 14Q4233-CAL-002.
E324-R-B (3832)	MO-2-10-034A Breaker	Equipment Capacity	>0.24	Component is Rule Of Box to E324-R-B (20B038). Parent component is evaluated in 14Q4233-CAL-002.
E324-R-B (3844)	MO-2-10-031A Breaker	Equipment Capacity	>0.24	Component is Rule Of Box to E324-R-B (20B038). Parent component is evaluated in 14Q4233-CAL-002.
E324-R-B (3862)	MO-2-10-174 Breaker	Equipment Capacity	>0.24	Component is Rule Of Box to E324-R-B (20B038). Parent component is evaluated in 14Q4233-CAL-002.

Equipment ID	Description	Failure Mode	HCLPF (g)	Basis
E324-R-B (3863)	MO-2-10-176 Breaker	Equipment Capacity	>0.24	Component is Rule Of Box to E324-R-B (20B038). Parent component is evaluated in 14Q4233-CAL-002.
E324-R-B (3882)	Norm Fdr for 120V Instr Pnl 20Y35 Trans 20X135	Equipment Capacity	>0.24	Component is Rule Of Box to E324-R-B (20B038). Parent component is evaluated in 14Q4233-CAL-002.
E324-R-B (3893)	125 VDC Batt Charger 2CD03	Equipment Capacity	>0.24	Component is Rule Of Box to E324-R-B (20B038). Parent component is evaluated in 14Q4233-CAL-002.
E324-T-B (00B049)	MCC 00B049 for 0AV034, 0AV036, and 0AV030	Block wall interaction	0.27	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
INV-2-13-90	RCICs-125 VDC Bus 'A' Power Distribution	Equipment Capacity	0.44	Component is Rule Of Box to 20C019. Parent component is evaluated in 14Q4233-CAL-002.
J-1648	Junction Box	Screened	>RLGM	Component screened by SRT analysis.
J2915	J-Box at E124 Load Center	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
J2916	J-Box at E324 Load Center	Screened	>RLGM	Component screened by SRT analysis.
LI-2-02-3-085A	Reactor Vessel High Water	Equipment Capacity	>0.24	Component is Rule Of Box to 20C005A. Parent component is evaluated in 14Q4233-CAL-002.
LI-2-02-3-113	Reactor Water Level	Equipment Capacity	>0.24	Component is Rule Of Box to 20C003. Parent component is evaluated in 14Q4233-CAL-002.
LR/TR-8123A	Torus Water Level/Temperature Recorder	Equipment Capacity	>0.24	Component is Rule Of Box to 20C004C. Parent component is evaluated in 14Q4233-CAL-002.
LT-2-02-3-072A	Reactor Vessel Water Level	Equipment Capacity	>0.24	Component is Rule Of Box to 2AC065. Parent component is evaluated in 14Q4233-CAL-002.
LT-2-02-3-113	Reactor Press Vessel Fuel Zone Wtr Level	Equipment Capacity	>0.24	Component is Rule Of Box to 2AC091. Parent component is evaluated in 14Q4233-CAL-002.
LT-8123A	Torus Water Level	Screened	>RLGM	Component screened by SRT analysis.
MO-2-10-020	RHR Loops A/B X-Tie	Screened	>RLGM	Component screened by SRT analysis.
MO-2-10-026A	RHR Loop A D/W Spray O/B	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
MO-2-10-031A	RHR Loop A D/W Spray I/B	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
MO-2-10-034A	RHR Loop A FFT Valve	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
MO-2-10-038A	RHR Loop A Torus Spray	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
MO-2-10-039A	RHR Loop A Torus Valve	Screened	>RLGM	Component screened by SRT analysis.
MO-2-10-174	HPSW to RHR Inner X-Tie	Screened	>RLGM	Component screened by SRT analysis.
MO-2-10-176	HPSW to RHR Outer X-Tie	Screened	>RLGM	Component screened by SRT analysis.
MO-2-10-25A	RHR Loop A I/B Disc Valve	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
MO-2-13-018	RCIC Pump Suction from Condensate Storage Tank	Screened	>RLGM	Component screened by SRT analysis.
MO-2-13-021	RCIC Discharge to Feedwater Line B	Screened	>RLGM	Component screened by SRT analysis.
MO-2-13-027	RCIC Minimum Flow Valve	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
MO-2-13-030	RCIC Full Flow Test Valve	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
MO-2-13-039	RCIC Pump Torus Suction Outer	Screened	>RLGM	Component screened by SRT analysis.
MO-2-13-041	RCIC Pump Torus Suction Inner	Screened	>RLGM	Component screened by SRT analysis.
MO-2-13-131	RCIC Turbine Steam Supply Valve	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
MO-2-13-132	RCIC Cooling Water Supply to Lo Clr + Barometric Cdsr	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.

Equipment ID	Description	Failure Mode	HCLPF (g)	Basis
N210025A	Cabinet Provides Power to Valve MO-2-10-25A	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
OAS384	N2 Tank	Screened	>RLGM	Component screened by SRT analysis.
OAS385	N2 Tank	Screened	>RLGM	Component is Rule Of Box to OBS385. Parent component screens.
OBS384	N2 Tank	Screened	>RLGM	Component is Rule Of Box to OAS384. Parent component screens.
OBS385	N2 Tank	Screened	>RLGM	Component screened by SRT analysis.
PCV-0-40W-70088A	N2 Regulator – OAS384	Screened	>RLGM	Component is Rule Of Box to OAS384. Parent component screens.
PCV-0-40W-70088B	N2 Regulator – OBS384	Screened	>RLGM	Component is Rule Of Box to OBS384. Parent component screens.
PCV-0-40W-70089A	N2 Regulator – OAS385	Screened	>RLGM	Component is Rule Of Box to OAS385. Parent component screens.
PCV-0-40W-70089B	N2 Regulator – OBS385	Screened	>RLGM	Component is Rule Of Box to OBS385. Parent component screens.
PI-2-06-090A	Reactor Wide Range Press Ind	Equipment Capacity	>0.24	Component is Rule Of Box to 20C005A. Parent component is evaluated in 14Q4233-CAL-002.
PI-2-06-090B	Reactor Wide Range Press Ind	Equipment Capacity	>0.24	Component is Rule Of Box to 20C005A. Parent component is evaluated in 14Q4233-CAL-002.
PI-2-06-090C	Reactor Wide Range Press Ind	Equipment Capacity	>0.24	Component is Rule Of Box to 20C005A. Parent component is evaluated in 14Q4233-CAL-002.
PI-2-13-094	RCIC Pump Turb Stm Press	Equipment Capacity	>0.24	Component is Rule Of Box to 20C004C. Parent component is evaluated in 14Q4233-CAL-002.
PO-0-40D-00153-01	CR Emergency Vent Filters Inlet Damper	Equipment Capacity	>0.24	Component is Rule Of Box to 0AF041. Parent component is evaluated in 14Q4233-CAL-002.
PO-0-40D-00153-02	CR Emergency Vent Filters Inlet Damper	Equipment Capacity	>0.24	Component is Rule Of Box to 0AF041. Parent component is evaluated in 14Q4233-CAL-002.
PO-0-40D-00157-01	CR Emergency Vent Supply Fan Inlet Damper	Equipment Capacity	>0.24	Component is Rule Of Box to 0AF041. Parent component is evaluated in 14Q4233-CAL-002.
PO-0-40D-00157-02	CR Emergency Vent Supply Fan Outlet Damper	Screened	>RLGM	Component screened by SRT judgment.
PO-0-40W-00016	OA Damper Emergency Switchgear And Battery Room Vent Supply Fans	Screened	>RLGM	Component is Rule Of Box to 00F043. Parent component is screened.
PO-0-40W-00019-01	OA Damper Emergency Switchgear And Battery Room Vent Supply Damper	Equipment Capacity	>0.24	Component is Rule Of Box to 0AV034. Parent component is evaluated in 14Q4233-CAL-002.
PO-0-40W-00019-02	OA Damper Emergency Switchgear And Battery Room Vent Outlet Damper	Screened	>RLGM	Component is Rule Of Box to 00F043. Parent component is screened.
PO-0-40W-00021-01	OA Damper Emergency Switchgear And Battery Room Vent Supply Damper	Equipment Capacity	>0.24	Component is Rule Of Box to 0AV034. Parent component is evaluated in 14Q4233-CAL-002.
PO-0-40W-00031-01	Battery Room Exhaust Fan Inlet Damper	Screened	>RLGM	Component screened by SRT judgment.
PO-0-40W-00031-02	Battery Room Exhaust Fan Outlet Damper	Screened	>RLGM	Component screened by SRT judgment.
PO-0-40W-00782-01	OA Damper Emergency Switchgear and Battery Room Vent Supply Damper	Equipment Capacity	>0.24	Component is Rule Of Box to 0AV034. Parent component is evaluated in 14Q4233-CAL-002.
PO-0-40W-00782-02	OA Damper Emergency Switchgear and Battery Room Vent Supply Damper	Equipment Capacity	>0.24	Component is Rule Of Box to 0AV034. Parent component is evaluated in 14Q4233-CAL-002.
PO-0-40W-00808	OA Damper Emergency Switchgear and Battery Room Vent Outlet Damper	Screened	>RLGM	Component screened by SRT judgment.
PO-0-40W-00822-01	OA Damper Emergency Switchgear and Battery Room Vent Supply Damper	Equipment Capacity	>0.24	Component is Rule Of Box to 0AV034. Parent component is evaluated in 14Q4233-CAL-002.

Equipment ID	Description	Failure Mode	HCLPF (g)	Basis
PO-0-40W-00822-02	OA Damper Emergency Switchgear and Battery Room Vent Supply Damper	Equipment Capacity	>0.24	Component is Rule Of Box to 0AV034. Parent component is evaluated in 14Q4233-CAL-002.
PO-0-40W-00822-03	OA Damper Emergency Switchgear and Battery Room Vent Supply Damper	Equipment Capacity	>0.24	Component is Rule Of Box to 0AV034. Parent component is evaluated in 14Q4233-CAL-002.
PR/LR-2-06-096	Reactor Level/Steam Flow Ratio	Equipment Capacity	>0.24	Component is Rule Of Box to 20C005A. Parent component is evaluated in 14Q4233-CAL-002.
PR/TR-4805	Containment Pressure/Temp	Equipment Capacity	>0.24	Component is Rule Of Box to 20C003. Parent component is evaluated in 14Q4233-CAL-002.
PS-2-13-67-1	Pressure Switch	Anchorage	0.41	Component is Rule Of Box to 20C095. Parent component is evaluated in 14Q4233-CAL-002. Component evaluated by HCLPF calculation 14Q4233-CAL-004.
PS-2-13-72A	Pressure Switch	Functional Failure	0.27	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
PS-2-13-72B	Pressure Switch	Functional Failure	0.27	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
PS-2-13-87A	Pressure Switch	Functional Failure	0.27	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
PS-2-13-87B	Pressure Switch	Functional Failure	0.27	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
PT-2-02-3-404A	Reactor Pressure	Equipment Capacity	>0.24	Component is Rule Of Box to 2AC065. Parent component is evaluated in 14Q4233-CAL-002.
PT-2-02-3-404C	Reactor Pressure Transmitter	Equipment Capacity	>0.24	Component is Rule Of Box to 2AC091. Parent component is evaluated in 14Q4233-CAL-002.
PT-2-06-053A	Reactor Wide Range - Pressure	Equipment Capacity	>0.24	Component is Rule Of Box to 2AC065. Parent component is evaluated in 14Q4233-CAL-002.
PT-2-06-053B	Reactor Wide Range - Pressure	Equipment Capacity	>0.24	Component is Rule Of Box to 2BC065. Parent component is evaluated in 14Q4233-CAL-002.
PT-2-06-053C	Reactor Wide Range - Pressure	Equipment Capacity	>0.24	Component is Rule Of Box to 2AC065. Parent component is evaluated in 14Q4233-CAL-002.
PT-2-13-068	RCIC Turbine Steam Supply Press	Anchorage	0.41	Component is Rule Of Box to 20C095. Parent component is evaluated in 14Q4233-CAL-002.
PT-4805	Drywell Pressure	Screened	>RLGM	Component screened by SRT analysis.
RV-2-02-071A	2A Safety Relief Valve	Screened	>RLGM	Component screened by SRT judgment.
RV-2-02-071B	2B Safety Relief Valve	Screened	>RLGM	Component screened by SRT judgment.
RV-2-02-071C	2C Safety Relief Valve	Screened	>RLGM	Component screened by SRT judgment.
RV-2-02-071G	2G Safety Relief Valve	Screened	>RLGM	Component screened by SRT judgment.
RV-2-02-071K	2K Safety Relief Valve	Screened	>RLGM	Component screened by SRT judgment.
SV-0-36B-00019	OA Damper Emergency Switchgear and Battery Room Damper IA	Screened	>RLGM	Component is Rule Of Box to 00F043. Parent component is Screened.
SV-0-36B-00031	Air Supply Shutoff for PO-0-40W-00031-01, PO-0-40W-00031-02	Screened	>RLGM	Component screened by SRT analysis.
TI-2501	Ventilation Air Temperatures	Equipment Capacity	>0.24	Component is Rule Of Box to 20C012. Parent component is evaluated in 14Q4233-CAL-002.
TI-80146	Drywell Bulk Average Temp Indicator	Equipment Capacity	>0.24	Component is Rule Of Box to 20C012. Parent component is evaluated in 14Q4233-CAL-002.
TT-2501	Vent Air/Wtr Temp	Equipment Capacity	0.44	Component is Rule Of Box to 2BC172. Parent component is evaluated in 14Q4233-CAL-002.
XAM-2-02-3-117A	Reactor Water Level Wide Range	Equipment Capacity	0.44	Component is Rule Of Box to 20C818. Parent component is evaluated in 14Q4233-CAL-002.

Attachment D
ESEP HCLPF Values and Failure Modes Tabulation, Unit 3

Equipment ID	Description	Failure Mode	HCLPF (g)	Basis
30C003	Reactor and Containment Cooling and Isolation	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
30C004C	RCIC Control Panel	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
30C005A	Reactor Manual Control Panel	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
30C012	Plant Services Console	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
30C018	Panel	Equipment Capacity	0.44	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
30C019	Panel	Equipment Capacity	0.44	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
30C032	Panel	Equipment Capacity	0.44	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
30C033	Panel	Equipment Capacity	0.44	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
30C034	RCIC Relay Panel	Equipment Capacity	0.44	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
30C035	Panel	Equipment Capacity	0.44	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
30C041	Panel	Equipment Capacity	0.44	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
30C095	RCIC Instrument Rack	Anchorage	0.41	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
30C144	Panel	Equipment Capacity	0.44	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
30C722A	Accident Monitoring Instrumentation Panel	Equipment Capacity	0.44	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
30C722B	Panel	Equipment Capacity	0.44	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
30C818	Reactor Water Level/Pressure Component Cabinet	Equipment Capacity	0.44	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
30D021 (3PPA)	125V DC Station Distribution	Anchorage	0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
30D023 (3PPC)	125V DC Station Distribution	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
30D024	Distribution Panel	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
30D037	Uninterruptable Power Supply Static Inverter	Equipment Capacity	0.44	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
30D039	RCIC Barometric Cdsr Vacuum Pump Starter	Screened	>RLGM	Component screened by SRT analysis.
30D040	RCIC Barometric Cdsr Cond Pump Starter	Screened	>RLGM	Component screened by SRT analysis.
30P036	RCIC Pump	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
30P046	RCIC Barometric Cdsr Vacuum Pump	Anchorage	0.36	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
30P048	RCIC Barometric Cdsr Condensate Pump	Anchorage	0.36	Component is Rule Of Box to 30P046. Parent component is evaluated in 14Q4233-CAL-002.
30P340	RCIC Turbine Driven Lube Oil Pump	Anchorage	>0.24	Component is Rule Of Box to 30P036. Parent component is evaluated in 14Q4233-CAL-002.
30S038	RCIC Turbine	Anchorage	>0.24	Component is Rule Of Box to 30P036. Parent component is evaluated in 14Q4233-CAL-002.
30S315	Static Inverter Man Bypass/Isolation Switch	Screened	>RLGM	Component screened by SRT analysis.
30S356	Load Center E134/E334 Transfer Switch	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.

Equipment ID	Description	Failure Mode	HCLPF (g)	Basis
30S546	Transfer Switch	Block wall interaction	0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
30S701	Transfer Switch	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
30S703	Transfer Switch	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
30S704	125V DC Battery Charger 3CD003 Transfer Sw 30S704	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
30X133	Transformer	Block wall interaction	0.27	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
30X135	30Y035 Transformer	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
30X150	30Y050 Transformer	Block wall interaction	0.27	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
30Y033	Distribution Panel	Block wall interaction	0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
30Y035	120 VAC 'Y' Power Panel	Screened	>RLGM	Component screened by SRT analysis.
30Y050	120 VAC 'Y' Power Panel	Block wall interaction	0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
3-13A-K004	RCIC Hi Temp Steam Leak Relay	Functional Failure	0.34	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
3-13A-K006	RCIC Hi Temp Steam Leak Relay	Functional Failure	0.34	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
3-13A-K007	RCIC Steam Line Hi DP Line Break Relay	Functional Failure	0.29	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
3-13A-K010	RCIC Turbine Trip Aux Relay	Functional Failure	0.14	Component evaluated by HCLPF calculation 14Q4233-CAL-004. (Resolved by Operator Action per TODI PB 1570792-76)
3-13A-K011	RCIC Turbine Trip Aux Relay	Functional Failure	0.14	Component evaluated by HCLPF calculation 14Q4233-CAL-004. (Resolved by Operator Action per TODI PB 1570792-76)
3-13A-K012	RCIC Auto Isolation Signal Relay	Functional Failure	0.29	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
3-13A-K014	RCIC Pump Lo Suction Pressure Trip Relay	Functional Failure	0.34	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
3-13A-K017	RCIC Turbine Exh Hi Pressure Trip Relay	Functional Failure	0.34	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
3-13A-K-022	RCIC Auto Isolation Signal Relay	Functional Failure	0.36	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
3-13A-K030	Reactor Hi Vessel Water Level Trip Relay	Functional Failure	0.34	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
3-13A-K031	RCIC Steam Line Space Hi Temp Isolation Relay	Functional Failure	0.34	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
3-13A-K032	RCIC Steam Line Space Hi Temp Isolation Relay	Functional Failure	0.34	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
3-13A-K033	RCIC Steam Line Hi DP Line Break Relay	Functional Failure	0.20	Component evaluated by HCLPF calculation 14Q4233-CAL-004. (Modification/Resolution Required)
3-13A-K034	RCIC Auto Isolation Signal Relay	Functional Failure	0.36	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
3-13A-K044	RCIC Reactor Hi Vessel Water Level Trip Relay	Functional Failure	0.36	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
3-13A-K049	RCIC Low Steam Pressure Auto Isolation Relay	Functional Failure	0.36	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
3-13A-K050	RCIC Low Steam Pressure Auto Isolation Relay	Functional Failure	0.29	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
3-13A-K053	RCIC Reactor Hi Vessel Water Level Trip Relay Auxiliary	Functional Failure	0.34	Component evaluated by HCLPF calculation 14Q4233-CAL-004.

Equipment ID	Description	Failure Mode	HCLPF (g)	Basis
3-13A-K054	RCIC Auto Isolation Signal Relay	Functional Failure	0.29	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
3AC043	Emergency Shutdown Panel	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
3AC065	Rx Vessel Lvl and Pressure Inst Rack A	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
3AC091	Jet Pump Inst Rack A	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
3AC270	Panel	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
3AD001	3A 125V DC Battery	Anchorage	0.26	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
3AD003	Station Battery Charger 3A	Block wall interaction	0.27	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
3AD017 (3FBA)	Battery Main Fuse Box	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
3AD018 (3DPA)	250v DC Distribution Panel	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
3AD019 (3FA)	250 Volt Fuse Box	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
3AD025 (3PPAD)	3ppad 125V DC Distribution Panel	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
3AE024	Residual Heat Exchanger	Anchorage	0.26	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
3AS377	Back-Up N2 Supply to Ads RV's	Screened	>RLGM	Component screened by SRT analysis.
3AS456	Transfer Switch	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
3AT540	Instrument N2 Accumulator	Screened	>RLGM	Component screened by SRT judgment.
3AT545	3A Srv Inst N2 Accumulator	Screened	>RLGM	Component screened by SRT judgment.
3BC043	Panel	Equipment Capacity	>0.24	Component is Rule Of Box to 3AC043. Parent component is evaluated in 14Q4233-CAL-002.
3BC065	Instrument Rack	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
3BC091	Instrument Rack	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
3BC270	Panel	Equipment Capacity	>0.24	Component is Rule Of Box to 3AC270. Parent component is evaluated in 14Q4233-CAL-002.
3BD001	2B 125V DC Battery	Anchorage	0.26	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
3BD017	Battery Main Fuse Box	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
3BD018	250V DC Distribution Panel Div. II	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
3BS377	Back-Up N2 Supply to Ads RV's	Screened	>RLGM	Component is Rule Of Box to 3AS377. Parent component screens.
3BS545	Automatic Transfer Switch Panel	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
3BT540	Instrument N2 Accumulator	Screened	>RLGM	Component screened by SRT judgment.
3BT545	3B Srv Inst N2 Accumulator	Screened	>RLGM	Component screened by SRT judgment.
3CD001	3C 125V DC Battery	Anchorage	0.26	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
3CD003	Station Battery Charger 3C	Block wall interaction	0.27	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
3CD017 (3FBC)	Battery Main Fuse Box	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
3CD019 (3FC)	250 Volt Fuse Box	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.

Equipment ID	Description	Failure Mode	HCLPF (g)	Basis
3CD025 (3PPCD)	3PPCD 125V DC Distribution Panel	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
3CE024	Residual Heat Exchanger	Anchorage	0.26	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
3CS377	Back-Up N2 Supply to Ads RV's	Screened	>RLGM	Component is Rule Of Box to 3AS377. Parent component screens.
3CS456	Control to Battery Charger 3CD003 Transfer Switch	Block wall interaction	0.27	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
3CT540	Instrument N2 Accumulator	Screened	>RLGM	Component screened by SRT judgment.
3CT545	3C Srv Inst N2 Accumulator	Screened	>RLGM	Component screened by SRT judgment.
3DA-W-A (1201)	RCIC MO-3-13-021 Breaker	Anchorage	0.43	Component is Rule Of Box to 3DA-W-A (30D012). Parent component is evaluated in 14Q4233-CAL-002.
3DA-W-A (1203)	RCIC MO-3-13-030 Breaker	Anchorage	0.43	Component is Rule Of Box to 3DA-W-A (30D012). Parent component is evaluated in 14Q4233-CAL-002.
3DA-W-A (1204)	RCIC MO-3-13-027 Breaker	Anchorage	0.43	Component is Rule Of Box to 3DA-W-A (30D012). Parent component is evaluated in 14Q4233-CAL-002.
3DA-W-A (1205)	RCIC MO-3-13-041 Breaker	Anchorage	0.43	Component is Rule Of Box to 3DA-W-A (30D012). Parent component is evaluated in 14Q4233-CAL-002.
3DA-W-A (1206)	RCIC MO-3-13-039 Breaker	Anchorage	0.43	Component is Rule Of Box to 3DA-W-A (30D012). Parent component is evaluated in 14Q4233-CAL-002.
3DA-W-A (1207)	RCIC MO-3-13-132 Breaker	Anchorage	0.43	Component is Rule Of Box to 3DA-W-A (30D012). Parent component is evaluated in 14Q4233-CAL-002.
3DA-W-A (1209)	RCIC MO-3-13-131 Breaker	Anchorage	0.43	Component is Rule Of Box to 3DA-W-A (30D012). Parent component is evaluated in 14Q4233-CAL-002.
3DA-W-A (1210)	RCIC MO-3-13-018 Breaker	Anchorage	0.43	Component is Rule Of Box to 3DA-W-A (30D012). Parent component is evaluated in 14Q4233-CAL-002.
3DA-W-A (1214)	RCIC Cond Vac PP 30P046 Breaker	Anchorage	0.43	Component is Rule Of Box to 3DA-W-A (30D012). Parent component is evaluated in 14Q4233-CAL-002.
3DA-W-A (1215)	RCIC Vac Tank Cond PP 30P048 Breaker	Anchorage	0.43	Component is Rule Of Box to 3DA-W-A (30D012). Parent component is evaluated in 14Q4233-CAL-002.
3DA-W-A (30D012)	RCIC 250VDC MCC	Anchorage	0.43	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
3DD001	2D 125V DC Battery	Anchorage	0.26	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
3DD017	Battery Main Fuse Box	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
3DD019	Fuse Box	Anchorage	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
3GT540	Instrument N2 Accumulator	Screened	>RLGM	Component screened by SRT judgment.
3GT545	3G Srv Inst N2 Accumulator	Screened	>RLGM	Component screened by SRT judgment.
3KT540	Instrument N2 Accumulator	Screened	>RLGM	Component screened by SRT judgment.
3KT545	3K Srv Inst N2 Accumulator	Screened	>RLGM	Component screened by SRT judgment.
3OE032	RCIC Barometric Condenser (13-2)	Block wall interaction	0.44	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
3OE104	RCIC Turb. Lube Oil Cooler (13-2)	Anchorage	>0.24	Component is Rule Of Box to 30P036. Parent component is evaluated in 14Q4233-CAL-002.
3AC270 (K3A)	Relay	Equipment Capacity	>0.24	Component is Rule Of Box to 3AC270. Parent component is evaluated in 14Q4233-CAL-002. Component evaluated by HCLPF calculation 14Q4233-CAL-004.
3BC270 (K3B)	Relay	Equipment Capacity	>0.24	Component is Rule Of Box to 3BC270. Parent component is evaluated in 14Q4233-CAL-002. Component evaluated by HCLPF calculation 14Q4233-CAL-004.
3AC270 (K3C)	Relay	Equipment Capacity	>0.24	Component is Rule Of Box to 3AC270. Parent component is evaluated in 14Q4233-CAL-002. Component evaluated by HCLPF calculation 14Q4233-CAL-004.

Equipment ID	Description	Failure Mode	HCLPF (g)	Basis
3BC270 (K3D)	Relay	Equipment Capacity	>0.24	Component is Rule Of Box to 3BC270. Parent component is evaluated in 14Q4233-CAL-002. Component evaluated by HCLPF calculation 14Q4233-CAL-004.
AO-3-07B-3511	Torus 18 Inch Vent Inboard Isol Valve to Sbgt/Atmos	Screened	>RLGM	Component screened by SRT analysis.
AO-3-07B-90290	Ctmt Emerg Vent Outboard Isolation Vlv to Atmos	Screened	>RLGM	Component screened by SRT analysis.
E134 (1014)	E134-T-B 30B059 Breaker	Equipment Capacity	>0.24	Component is Rule Of Box to E134 (30B010). Parent component is evaluated in 14Q4233-CAL-002.
E134 (30B010)	E134 Load Center	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
E134-T-B (30B059)	E134-T-B Motor Control Center	Block wall interaction	0.27	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
E134-T-B (5924)	Alt Feed For Uninterrupt AC Power Supp Inverter 30D37	Block wall interaction	0.27	Component is Rule Of Box to E134-T-B (30B059). Parent component is evaluated in 14Q4233-CAL-002.
E134-T-B (5931)	125V. D.C. Battery Charger 3AD03	Block wall interaction	0.27	Component is Rule Of Box to E134-T-B (30B059). Parent component is evaluated in 14Q4233-CAL-002.
E334 (1213)	E334-R-B 30B038 Breaker	Equipment Capacity	>0.24	Component is Rule Of Box to E334 (30B012). Parent component is evaluated in 14Q4233-CAL-002.
E334 (30B012)	E334 Load Center	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
E334-R-B (30B038)	MCC 30B038	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
E334-R-B (3821)	MO-3-10-038A Breaker	Equipment Capacity	>0.24	Component is Rule Of Box to E334-R-B (30B038). Parent component is evaluated in 14Q4233-CAL-002.
E334-R-B (3824)	MO-3-10-026A Breaker	Equipment Capacity	>0.24	Component is Rule Of Box to E334-R-B (30B038). Parent component is evaluated in 14Q4233-CAL-002.
E334-R-B (3831)	MO-3-10-039A Breaker	Equipment Capacity	>0.24	Component is Rule Of Box to E334-R-B (30B038). Parent component is evaluated in 14Q4233-CAL-002.
E334-R-B (3832)	MO-3-10-034A Breaker	Equipment Capacity	>0.24	Component is Rule Of Box to E334-R-B (30B038). Parent component is evaluated in 14Q4233-CAL-002.
E334-R-B (3844)	MO-3-10-031A Breaker	Equipment Capacity	>0.24	Component is Rule Of Box to E334-R-B (30B038). Parent component is evaluated in 14Q4233-CAL-002.
E334-R-B (3851)	MO-3-10-25A Alt Breaker	Equipment Capacity	>0.24	Component is Rule Of Box to E334-R-B (30B038). Parent component is evaluated in 14Q4233-CAL-002.
E334-R-B (3862)	MO-3-10-174 Breaker	Equipment Capacity	>0.24	Component is Rule Of Box to E334-R-B (30B038). Parent component is evaluated in 14Q4233-CAL-002.
E334-R-B (3863)	MO-3-10-176 Breaker	Equipment Capacity	>0.24	Component is Rule Of Box to E334-R-B (30B038). Parent component is evaluated in 14Q4233-CAL-002.
E334-R-B (3882)	Norm Fdr for 120V Instr Pnl 30Y35 Trans 30X135	Equipment Capacity	>0.24	Component is Rule Of Box to E334-R-B (30B038). Parent component is evaluated in 14Q4233-CAL-002.
E334-R-B (3893)	125V Battery Charger C 3C Transfer Switch 30S704	Equipment Capacity	>0.24	Component is Rule Of Box to E334-R-B (30B038). Parent component is evaluated in 14Q4233-CAL-002.
INV-3-13-90	RCICs-125 VDC Bus 'A' Power Distribution	Equipment Capacity	0.44	Component is Rule Of Box to 30C019. Parent component is evaluated in 14Q4233-CAL-002.
J2919	J-Box at E134 LC	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
J2920	J-Box at E334 LC	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
LI-3-02-3-085A	Reactor Vessel High Water	Equipment Capacity	>0.24	Component is Rule Of Box to 30C005A. Parent component is evaluated in 14Q4233-CAL-002.
LI-3-02-3-113	Reactor Water Level	Equipment Capacity	>0.24	Component is Rule Of Box to 30C003. Parent component is evaluated in 14Q4233-CAL-002.
LR/TR-9123A	Torus Water Level/Temperature Recorder	Equipment Capacity	>0.24	Component is Rule Of Box to 30C004C. Parent component is evaluated in 14Q4233-CAL-002.
LT-3-02-3-072A	Reactor Vessel Water Level	Equipment Capacity	>0.24	Component is Rule Of Box to 3AC065. Parent component is evaluated in 14Q4233-CAL-002.
LT-3-02-3-113	Level Transmitter	Equipment Capacity	>0.24	Component is Rule Of Box to 3BC091. Parent component is evaluated in 14Q4233-CAL-002.
LT-9123A	Torus Water Level	Screened	>RLGM	Component screened by SRT analysis.

Equipment ID	Description	Failure Mode	HCLPF (g)	Basis
MO-3-10-025A	RHR Inner Injection Valve to Recirc Loop A	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
MO-3-10-026A	RHR Loop A D/W Spray O/B	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
MO-3-10-031A	RHR Loop A D/W Spray I/B	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
MO-3-10-034A	RHR Loop A FFT Valve	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
MO-3-10-038A	RHR Loop A Torus Spray	Screened	>RLGM	Component screened by SRT analysis.
MO-3-10-039A	RHR Loop A Torus Valve	Screened	>RLGM	Component screened by SRT analysis.
MO-3-10-174	HPSW to RHR Inner X-Tie	Screened	>RLGM	Component screened by SRT analysis.
MO-3-10-176	HPSW to RHR Outer X-Tie	Screened	>RLGM	Component screened by SRT analysis.
MO-3-13-018	RCIC Pump Suction from Condensate Storage Tank	Screened	>RLGM	Component screened by SRT analysis.
MO-3-13-021	RCIC Discharge to Feedwater Line B	Screened	>RLGM	Component screened by SRT judgment.
MO-3-13-027	RCIC Minimum Flow Valve	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
MO-3-13-030	RCIC Full Flow Test Valve	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
MO-3-13-039	RCIC Pump Torus Suction Outer	Screened	>RLGM	Component screened by SRT analysis.
MO-3-13-041	RCIC Pump Torus Suction Inner	Screened	>RLGM	Component screened by SRT analysis.
MO-3-13-131	RCIC Turbine Steam Supply Valve	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
MO-3-13-132	RCIC Cooling Water Supply to Lo Clr + Barometric Cdsr	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
N310025A	Cabinet	Equipment Capacity	>0.24	Component evaluated by HCLPF calculation 14Q4233-CAL-002.
PI-3-06-090A	Reactor Wide Range Press Ind	Equipment Capacity	>0.24	Component is Rule Of Box to 30C005A. Parent component is evaluated in 14Q4233-CAL-002.
PI-3-06-090B	Reactor Wide Range Press Ind	Equipment Capacity	>0.24	Component is Rule Of Box to 30C005A. Parent component is evaluated in 14Q4233-CAL-002.
PI-3-06-090C	Reactor Wide Range Press Ind	Equipment Capacity	>0.24	Component is Rule Of Box to 30C005A. Parent component is evaluated in 14Q4233-CAL-002.
PI-3-13-094	RCIC Pump Turb Stm Press	Equipment Capacity	>0.24	Component is Rule Of Box to 30C004C. Parent component is evaluated in 14Q4233-CAL-002.
PR/LR-3-06-096	Reactor Level/Steam Flow Ratio	Equipment Capacity	>0.24	Component is Rule Of Box to 30C005A. Parent component is evaluated in 14Q4233-CAL-002.
PR/TR-5805	Containment Pressure/Temp	Equipment Capacity	>0.24	Component is Rule Of Box to 30C003. Parent component is evaluated in 14Q4233-CAL-002.
PS-3-13-67-1	Pressure Switch	Anchorage	0.41	Component is Rule Of Box to 30C095. Parent component is evaluated in 14Q4233-CAL-002. Component evaluated by HCLPF calculation 14Q4233-CAL-004.
PS-3-13-72A	Pressure Switch	Functional Failure	0.27	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
PS-3-13-72B	Pressure Switch	Functional Failure	0.27	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
PS-3-13-87A	Pressure Switch	Functional Failure	0.27	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
PS-3-13-87B	Pressure Switch	Functional Failure	0.27	Component evaluated by HCLPF calculation 14Q4233-CAL-004.
PT-3-02-3-404A	Reactor Pressure	Equipment Capacity	>0.24	Component is Rule Of Box to 3AC065. Parent component is evaluated in 14Q4233-CAL-002.
PT-3-02-3-404C	Reactor Pressure Transmitter	Equipment Capacity	>0.24	Component is Rule Of Box to 3AC091. Parent component is evaluated in 14Q4233-CAL-002.

Equipment ID	Description	Failure Mode	HCLPF (g)	Basis
PT-3-06-053A	Reactor Wide Range - Pressure	Equipment Capacity	>0.24	Component is Rule Of Box to 3AC065. Parent component is evaluated in 14Q4233-CAL-002.
PT-3-06-053B	Reactor Wide Range - Pressure	Equipment Capacity	>0.24	Component is Rule Of Box to 3BC065. Parent component is evaluated in 14Q4233-CAL-002.
PT-3-06-053C	Reactor Wide Range - Pressure	Equipment Capacity	>0.24	Component is Rule Of Box to 3AC065. Parent component is evaluated in 14Q4233-CAL-002.
PT-3-13-068	RCIC Turbine Steam Supply Pressure	Anchorage	0.41	Component is Rule Of Box to 30C095. Parent component is evaluated in 14Q4233-CAL-002.
PT-5805	Drywell Pressure	Screened	>RLGM	Component screened by SRT analysis.
RV-3-02-071A	3A Safety Relief Valve	Screened	>RLGM	Component screened by SRT judgment.
RV-3-02-071B	3B Safety Relief Valve	Screened	>RLGM	Component screened by SRT judgment.
RV-3-02-071C	3C Safety Relief Valve	Screened	>RLGM	Component screened by SRT judgment.
RV-3-02-071G	3G Safety Relief Valve	Screened	>RLGM	Component screened by SRT judgment.
RV-3-02-071K	3K Safety Relief Valve	Screened	>RLGM	Component screened by SRT judgment.
XAM-3-02-3-117A	Reactor Water Level Wide Range	Equipment Capacity	0.44	Component is Rule Of Box to 30C818. Parent component is evaluated in 14Q4233-CAL-002.

Enclosure 2

Peach Bottom Atomic Power Station, Units 2 and 3

SUMMARY OF REGULATORY COMMITMENTS

The following table identifies commitments made in this document. (Any other actions discussed in the submittal represent intended or planned actions. They are described to the NRC for the NRC's information and are not regulatory commitments.)

COMMITMENT	COMMITTED DATE OR "OUTAGE"	COMMITMENT TYPE	
		ONE-TIME ACTION (Yes/No)	PROGRAMMATIC (Yes/No)
1. Complete further evaluation and implement modifications, if required, to increase seismic margin for the following plant relay: Unit 3 Relay 3-13A-K033	Unit 3 - P3R21 (Fall 2017)	Yes	No
2. Complete further evaluation and implement modifications, if required, to increase seismic margin for the following plant relay: Unit 2 Relay 2-13A-K033	Unit 2 - P2R22 (Fall 2018)	Yes	No